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By RICHARD HOLME
(Late Colonial Police Force
Fiji & Solomon Islands)

FIJI 1970

THE

*City and Countrey Purchaſer,*

AND

# Builder's Dictionary:

OR, THE

## Compleat Builder's Guide.

SHEWING

The Qualities, Quantities, Proportions, and Rates or Value of all Materials relating to Building; with the beſt Method of preparing many of them.

AND ALSO

The Cuſtoms, and Methods of Meaſuring of all Artificers Work, concern'd in Building; together with the City and Countrey Prices, not only of Workmanſhip, but of Materials alſo: The which will be extraordinary uſeful in making of Bargains, or Contracts betwixt the Workmaſter and Workman; and likewiſe in computing the Value (or Charge of Erecting) of any Fabrick, great or ſmall.

LIKEWISE

The Explanation of the Terms of Art uſed by moſt Workmen.

TOGETHER

With Aphoriſms, or neceſſary Rules in Building, as to Situation, Contrivance, Compactneſs, Uniformity, Convenience, Firmneſs, and Form, *&c.*

By *T. N.* Philomath.

*LONDON:*

Printed for *J. Sprint* at the *Bell*, *G. Conyers* at the *Ring*, and *T. Ballard* at the *Riſing-Sun* in *Little Brittain.* 1703.

TO HIS

Moſt Honoured Friends,

THE

Truly Worthy Gentlemen,

JOHN BARKER, Eſq; of *Mayfield-Place* in *Suſſex*, Mr. ROBERT KNIGHT, Treaſurer of the Honourable *Iriſh* Society in *London*, and Mr. ROBERT BARKER, of *Birchden-Place* in *Suſſex*.

Worthy Sirs,

IF *an Author in this Age appears in Publick without a Dedication, he is but very little eſteemed or regarded: And therefore, becauſe I would*

*not ſeem to run counter to the uſual Cuſtom, I preſumed to lay this Treatiſe at your Feet. Tho' perhaps it may ſeem a piece of Arrogancy, in ſo mean an Author, to dare to Dedicate a Treatiſe that is ſo far from being free from Defects, as this Tract is, to Perſons of ſuch Judgment and Experience in Matters of this nature: Yet the preceding Notions which ſeem to denounce this Dedication to be a piece of Preſumption, do juſtifie it at the ſame time, becauſe it plainly implies a Neceſſity of ſuch a Dedication. For where the Author is obſcure, and the Tract not ſo compleat as it might have been, were it to be done again, there is certainly a great occaſion to ſhelter it under the Wings of ſome worthy Patronages.*

*For how can it but be expected, but that ſuch a Treatiſe as this, (that has nothing but the Truth of its Obſervations, and its uſefulneſs, to procure it*

*Merit,*

*Merit, or Esteem;) when it is emitted to the World, should in some measure be protected against the Aspersions of the Censorious Age.*

*And I have no cause to doubt, but that Persons of such Candor and Condescension, as you are, Worthy Sirs, will allow Necessity to be a sufficient Argument, by which an Action of this nature may be justified; which otherwise might justly have passed for a Crime; and that too committed against the best of my* Friends, *from whom I have received many Signal, and never to be forgotten Favours: For I have been brought up, Educated, and have acquired that little Knowledge which I have of this and other Arts, under the Favour and Roof, (as it were) of the first of you, my Honoured Worthy* Friends. *From the second of you, I have received no small number of Favours, tho' I was wholly a Stranger to him, until these last Years.*

*And by the Kindneſs and Liberality of the third, I have been very much encouraged and aſſiſted in my Mathematical, and other Studies.*

*I could not forbear without Ingratitude (to you* Worthy Sirs,*) to tell the World of theſe your extraordinary Favours; which ſeeing I am not in a Capacity to requite them, ſeem to Poſtulate from me at leaſt a Publick Recognition, which this Dedication of the Fruits of my Labours, gives me a fair Opportunity to make. What I have here preſented you with is but a Mite; yet I have endeavoured to make it as uſeful as I poſſibly could, (conſidering it is but a Manual.) by avoiding Prolixities, and have omitted nothing that is Remarkable, or Uſeful, as near as I could; for I have comprehended as much in this Tract, as my deſigned Brevity would admit of; for I did not deſign to make*

*it*

*it a large Volume, (as I could have done) at first emitting it to the World, but a Compendium of the Art of Building rather, till I see how this will be accepted by the Publick.*

*What lay scattered up and down in diverse Volumes, I have comprised under their proper Heads, and that too, in a Method wholly new; and I do hope not an obscure one. I have intermixt a great many new things, which were Observations of my own making, and some were Communicated to me by my Friends, many of which were experienced Trades, or Handicrafts Men, whose Imployments wholly depended on Building; and some Notions I had from some observing Gentlemen, and others that were sometimes Masters of such Buildings, most of which was never (to my knowledge I am sure) made Publick before. All which I hope will make it in some measure prove useful to the Publick: And*

*I hope for the ſame Reaſon it will gain your Approbation, which I am confident will not a little contribute to the Credit of the Book.*

*But one thing I think it neceſſary, to declare to the World which is this, viz. That none but my ſelf had the Peruſal before it was Printed, (that I know of,) ſo I alone am juſtly chargable with the Errors therein; for I don't ſuppoſe it to be wholly free, after all the Diligence and Care which was taken about it.*

*But I am ſatisfied that your Candor, and Exquiſiteneſs of Judgment is ſuch, that if you find the Matter of this Treatiſe to be uſeful, and to anſwer the Teſt of Experience, you will eaſily overlook any Imperfections, that ſome rigid Criticks may cenſure in the manner of propoſing it.*

*I have nothing more to trouble you with here, but to Petition you,* (Worthy

thy Sirs) *ever to continue your Opinion of me, and to own both this and me, so far as you find truth in us both, and no further. And (tho' I have nothing in me to deserve it at your kind hands; yet,) I shall make it my Study and Care, by all due Acknowledgments to preserve it, and remain always,*

Worthy Sirs,

Your Humble,

Faithful, and most

Obliged Servant.

*T. N.*

*Exor-*

# EXORDIUM
## In Laudem ARCHITECTURÆ:
BEING
## The Prelude or Proœm
TO THIS
# TREATISE.
Shewing the Antiquity, Excellency, Emolument, and Neceſſity of
## ARCHITECTURE.

AMongſt thoſe many *Arts* which *Divine Providence* hath been pleaſed to endow Mankind with the Knowledge of, this of *Architecture* is none of the leaſt, and therefore may well challenge a place amongſt the Primary, and moſt neceſſary, if not the Preeminency of Rank.

*Firſt*, For its *Antiquity*; it being almoſt Coætaneous with the World it ſelf; for it was practis'd in the very Infancy of the World, by

by the *1st.* born of Mankind, *viz*, *Cain*, as you may find it Recorded, *Gen.* 4 17. You may further obſerve that this is the ſecond *Art* which the *Divine Penman* hath left us upon Record: For we muſt allow *Agriculture* to be the moſt Ancient, and moſt neceſſary Art of all others: It muſt certainly be the Senior *Art*; becauſe we find in *Gen.* 2. 15. That *Almighty God* did place *Adam* in the Garden of *Eden* in the time of his Innocency, and was there ordered to perform the Office of a Georgick, [or Husband-man.] *Agriculture* muſt alſo as certainly be the moſt neceſſary, becauſe Men can, and do ſubſiſt (in a great meaſure) without Clothing, Houſes, *&c.* in ſome Climates and Countries; but there is no part of the World where Men can live without Food.

But nevertheleſs, where People are ſo barbarous as to be quite ignorant of *Architecture*, or Building, they are alſo for the moſt part wholly deſtitute of the Knowledge of *Agriculture*, or Tillage of the Earth; for *Agriculture* without *Architecture*, would be but of ſmall uſe; becauſe it would be to but little purpoſe for the Husbandman to Plow and Sow, and Plant Fruit-trees, and the like, if when Harveſt comes, he hath neither *Barns*, nor *Granaries* to preſerve his Corn in; nor *Conſervatories*, or *Store-houſes* to lay up his Fruit in.

*Secondly*,

*Secondly*, As to the Nobility, or Excellency of this *Art*, it may be obſerved from the following Circumſtances, That

The *Holy Ghoſt* has been pleaſed to honour this *Art* ſo far, as to grant it the Privilege to be enroll'd (in the *Holy Scripture*) among the Actions of the firſt Monarchs of the World, *viz.* From *Adam* to *Noah*, there is no mention made of the Military Actions of the Antidiluvian Sovereigns: All that is noted concerning them, is that they lived ſo many Years, and taught their Progeny to keep Sheep, to Till the Ground, to Plant Vineyards, to dwell in Tents, to *Build Cities*, to play on Organs, and Harps, to Work in Braſs and Iron, *&c.*

The *Divine Architect* of the World hath been pleaſed to honour this Excellent *Art* ſo far, as to vouchſafe to give neceſſary Precepts and Rules concerning ſome Buildings, of which I will here give ſome Inſtances. And,

*Firſt*, Of the *Diluvian Ark*, mentioned, *Gen.* 6. 14, 15 and 16 Verſes. Where he was pleaſed firſt to give Directions for chuſing the Materials for it. *Secondly*, He gives Order for the Dimenſions. And *Thirdly*, For its Form, both External and Internal.

The Second Inſtance ſhall be of the *Sanctuary*, conſiſting of the *Ark of the Covenant*, the *Mercy Seat*, the *Tabernacle*, and the *Altar*, as you may find in the 25, 26, 27, and 30 Chapters of *Exodus*.

The

The Third *Inſtance* that I ſhall produce is concerning the Building of *Solomon's Temple* at *Jeruſalem*, as you may find it upon Record in 1 *Chron.* 28. 29.

Tho' ſome have been ſo bold as to aſſert that the Ground of all Arts are to be found in the Holy Scriptures; yet I think none of the Civil Arts can pretend to ſuch Documents from Scripture, as the *Art of Building* can: For we may obſerve from the preceeding Inſtances, and ſome other Texts of Scripture, (which I ſhall by and by refer you to,) that the *Omniſcient Architect* of the World did direct Men to Build by Deſign, *viz.* By a *Prototype*, *Model*, *Draught*, or *Pattern*: As you may find it in *Exodus* 25. 40. *Num.* 8. 4 1 *Chron.* 28. 11. 12, 18, 19. *Acts* 7. 44. *Heb* 8. 5.

It is alſo obſervable that the *Divine Architect* did not only direct to the Form by a *Pattern*, or *Draught*, but alſo by giving the *Dimenſions* of each particular as you may obſerve from *Gen* 6. 15 and 16. and *Exod* 25. 10. alſo in the 26, 27, and 30 Chapters of *Exodus*, 2 *Chron.* 3. 3, *&c.* He alſo gave Directions for chuſing Materials for each particular uſe, as you may find in the afore cited 6 Chapter of *Gen.* and *Exod.* 25. 26, 27, and 30 Chapters; not only ſo, but was pleaſed to direct to the Quantity by Weight, as you may ſee it in the but now mentioned Chapters of *Exodus*, and in the 28 of the firſt Book of *Chronicles*, &c.

And

And let me further add, tho' *Architecture* be contemned, and slighted by some, because it depends upon *Mechanicks*, or *Handicrafts-Men's* Practice; yet it is not despiseable as they would fain make the World believe it is: For I must, and will tell such Men the plain Truth, that they must certainly be Infidels, and do not deserve the Title of a *Jew*, and much less a *Christian*: For if such Persons were *Jews*, I think they must needs be very ignorant of the Pentateuch, or Writings of *Moses*, or else they would have been convinced of this their Error from the 31 of *Exodus* 3 and 6 Verses. Where the *Holy Ghost* stiles the *Mechanick* Knowledge of *Bezaleel*, and *Aholiab*, &c. the Spirit of God, Wisdom, *&c.* And if they were *Christians*, they were very mean ones to be ignorant of the Books of *Moses*; and the *Gospels* of St. *Matthew*, *Mark*, and *Luke*; for we may learn out of St. *Matthew* 13. 55. and *Mark* 6. 3. and *Luke* 2. 51. That our *Blessed Redeemer* did not think the Knowledge and Practice of *Architecture* and *Mechanicks* of *Handicrafts* so abject as some would represent it to be; for from these Texts we may learn that he was pleased to exercise this Art of *Architecture*, and to be a *Mechanick*, *viz.* A *Carpenter*, for some part of the time, that he was here Conversant with Mortals; which I must tell you, is no small Honour to the *Mechanicks* and *Architecture*.

I profeſs, I can diſcern no more Reaſon why the Sordidneſs of ſome one Workman, or *Mechanick*, ſhould be the cauſe of Reproach to *Handicraft Arts*, than *that* moſt excellent Invention of raiſing Water at *London-bridge* (for the Service of many Families in the City,) ſhould be diſeſteemed and neglected, becauſe there may ſometimes happen to be a blind, (or otherwiſe defective) Horſe imployed in the Operation.

And tho' Mechanick Imployments be by ſome reckon'd ſo very Ignoble and Scandalous, yet it is very well known that many Gentlemen of good Rank and Quality in this Nation, are often converſant in Handicraft Imployments: And other Nations exceed us in the number of ſuch Gentlemen, of which I ſhall give you an Inſtance. In *France* the making of Glaſs at the Glaſs Houſes is performed by Gentlemen of no mean Extraction, *viz.* Moſt of them of the great Glaſs Houſe deſcending from Prince *Anthony Broſſard*, Natural Son of *Charles* of *France*.

None but Gentlemen are imployed in the Art of making Glaſs in *France*, and theſe Gentlemen bear Honourable Coats of Arms, and both they, and their Servants, and Deputies are exempt from paying of Taxes, Quartering of Soldiers, *&c.*

This Noble Art makes Marble, and other Stones become the Delights of Men, of which are made our Glorious Palaces, and the Ornaments

naments of our moſt ſplendid Churches, and the moſt durable Monuments which the Ambition of Men could ever invent, whereby to render themſelves and their Grandure known to future Ages.

This Art hath always been had in great Eſteem; for it is become familiar in the Courts of Kings and Princes, &c. The preſent King of *France* has Eſtabliſhed an Academy for promoting this noble Art.

Another thing which proves the Excellency of this Art, is that it is always poſſeſſed and practiſed moſt by the moſt Civilized and Learned Nations.

Almoſt every Nation (that are Civilized, eſpecially) have ſhewed ample Teſtimonies of the Reſpect they had for this Art. For the *Jews* boaſt much of *Solomon*'s Temple, the *Aſſyrians* of great *Babylon*, the *Egyptians* of their Pyramids, &c. The *Ionians* of their *Epheſian*, or *Diana*'s Temple; and the other Greeks of the Temples of their Gods: *Rome* boaſts of its Temples, Amphitheaters, Triumphant Arches, and 1000 Stately Palaces, &c. *France* glories in its *Louvre*, *Noſtre-Dame*, *Verſailles* Palace, of St. *Germains-en-lay*, *Fountainbleau*, &c. *Spain* of its *Eſcureal*, &c. *Holland* of its Stately Churches, Stadthouſe, &c. And *England* of its *Hampton Court*, *Windſor-caſtle*, *Weſtminſter-abby*, *Royal Exchange*, St. *Paul's*, *Salisbury* Church,

&c. It would be endleſs to inſtance in things of kind. And therefore I ſhall conclude with this of the Excellency of this Art, and proceed to that

2*dly*, Of the *Emolument* and *Neceſſity* of this Art of *Building*.

As to the Profit of this *Art*, I think I need not to ſay much; for all know, (that know any thing) that Merchants and other Traders, cannot ſubſiſt without their Ware-houſes, nor Tradeſmen without their Shops, nor the Husbandman without his Barns, Granaries, &c. For without theſe *Buildings* to preſerve their Goods in, none of theſe different Ranks of Men would make much Profit of their Commodities.

Beſides there can be no pretence to any kind of Profit without *Buildings*; for there are no Nations in the World where the Air is ſo ſerence, as that there is no need of *Buildings* to protect the Manufactures of it from the Injuries of corroding Time and Air: Add to this, that it is no ſmall Profit that accrues to a State, or Nation, by thoſe many Trades that depend purely upon Building, *viz*. Carpenters, Joyners, Maſons, Bricklayers, Sawyers, Glaziers, Plumbers, Painters, Carvers, Smiths, Brick and Tile-makers, Stone-cutters, &c. For I have made it appear above, that other Trades cannot ſubſiſt without theſe, *viz*. Becauſe they cannot ſubſiſt without

out *Buildings*. Alſo where there is no *Architecture* in a Nation, there can by conſequence be no Princely Government; for where the People are ſo barbarous as to live in Caves, and in Hutts made of Boughs, *&c.* There is no Mechanicks amongſt them, and by conſequence no Improvement of Manufactures, and from thence it will follow, there will be little or no Revenues fit to maintain a Regal Power; and for the moſt part, where ſuch a Power is wanting, People are ſo ſavage and barbarous, that they live more like Brutes than Rational Men; living by Rapine, Murder, *&c.* So that no Man can properly call any thing his own, for they live (as it were) in a daily expectation of being rob'd, and deprived of that little which they have, by thoſe which are ſtronger than themſelves. Which alſo implies a *Neceſſity* of *Building*, to which may be added that Complaint which *Ariſtotle* ſaith was made by ſome, *viz.* That Man was worſe dealt with by Nature than other Creatures, whereas they have ſome of them Hair, ſome Shells, ſome Wool, ſome Feathers, and ſome Scales to defend them from the Injuries of the Weather, Man alone is born naked, and without any Covering: But to this it may be anſwered, that *Divine Providence* hath endowed every Man with 2 ſuch Superlative Inſtruments, *viz.* The *Hands*, (thoſe admirable Inſtruments of A-

ction) in Conjunction with that Faculty of the Soul, call'd Reason, it fully supplies in Man what ever may or can be supposed to be wanting in humane Creatures, as 'tis unwisely objected by some, that they are not sent into the World uncovered, and exposed to all Extreams of Weather, as Heat, Cold, Drought, and Moisture, *&c.* By this Instrument of Instruments, the Hand which is adapted (by the *Divine Architect* of the World,) to supply the most necessary and useful Services of Man's Life, *viz. Building*, *Husbandry*, *Military Actions*, *Chirurgery*, *Writing*, *Engraving*, *Playing* on *Musical Instruments*, and all the necessary, as well as the Recreative *Arts* and Employments of humane Life. For indeed, if Man had wanted this Member, (as the Learned Mr. *Ray* observeth,) then we must have lived like Brutes, without *House* or Shelter, but what the Woods and Rocks afforded, without Cloaths or Covering, without Corn, or Wine, or Oil, or any other Drink but Water; without Warmth and Comfort, or other uses of Fire, as Baked, Boiled, and Roasted Meats, but we must have scrambled with the wild Beasts for Acrons, Crabs and Nuts, and such other Fruits as the Earth produces of her own accord. We had lain open and exposed to Injuries, and had been unable to resist, or defend our selves against almost the feeb.est

feebleſt Creature. Altho' Men were endowed with this incomparable Inſtrument the Hand; yet Hiſtory informs us, that in the Infancy of the World Men lived almoſt like wild Beaſts, in Caves, and fed on Fruits and Roots of the Earth; but after they perceived the neceſſary uſe of Fire againſt the Extremity of Cold: Some began to edifie Cottages with Boughs, *&c.* and ſome digged Caves in the Mountains, and finding the Conveniency, and Neceſſity of it, at laſt by Practice they attain'd by degrees to a greater Perfection in *Building*. So that now there is but few Nations but that practice it in ſome gree, (having found the uſefulneſs, and neceſſity of it, to protect them from the Injuries of the Weather, and in ſome Countries from the Aſſaults of Rapacious Beaſts.) Tho' in ſome Countries, where the People are in Subjection to a Governour, and in a great meaſure Civilized; yet their *Buildings* for want of Art are very imperfect and defective, in compariſon of ours in the learned part of *Europe*, of which I will give an Inſtance or two. At *Puna*, an Iſland in the *Weſt-Indies*, their Houſes ſtands on Poſts, 10 or 12 Foot high, with Ladders on the out-ſide to aſcend up to them by. Alſo in the Iſle of *Mindanao*, one of the *Philippine* Iſlands in the *Eaſt Indies*, their Houſes ſtand on Poſts, 14, 16, 18, or 20 Foot high, they have but one Floor,

but many Rooms in it; under the Houſes there is a clear Paſſage like a Piazza, but a filthy one commonly, for ſome make this Place the Draught of their Houſes, but they Build by the Rivers moſtly, and the Floods cleanſe thoſe Places. At the *Nicobar* Iſlands, their Houſes are built after the manner of thoſe at *Mindanado*, only here the Roofs are Arched, but at *Mindanao* they are ridged; but in the *Nicobar* Iſles they have but one Room in a Houſe. Theſe ſort of Buildings are all the Mode amongſt the *Malayans* in the *Eaſt Indies*.

I ſhall add one Inſtance more of the neceſſity of *Building*, and that from the Obſervation of the ignorant *Indians* in *New England*, &c. Who ſee that there is a neceſſity of laying up ſome Corn for a Winter Store, and for Seed for the next Seaſon; and therefore they make them Barns for that purpoſe, tho' very poor ones; for they are only great Holes digged in the Ground, and Ceiled with the Barks of Trees.

I cannot here but commend our compleat Method of Building, now uſed in *England*, by much to be prefer'd before the ancient Practice here, or that now uſed in many Nations. The Principal Qualities of this Modern Method, are theſe, *viz.* Compactneſs, Uniformity, and Conveniency.

This

This Art, like moſt others, hath in this Age been much improved; Men being now more Mathematically inclined than formerly, having likewiſe better Opportunity to attain it, from the many Treatiſes that have been made Publick of theſe Arts from time to time, in this laſt Age. For as an ingenious Man well obſerves, there is ſcarce any part of the Mathematicks, but is ſome way ſubſervient to *Architecture*. *Geometry*, and *Arithmetick*, for the due meaſure of the ſeveral parts of a *Building*, the Plans, Models, Computation of Materials, Time and Charges; for ordering right, its Arches aud Vaults, that they may be both firm and beautiful: *Mechanicks* for its ſtrength and firmneſs, tranſpoſing and raiſing Materials: And *Opticks* for Symmetry and Beauty. He further adds, I would not have any one aſſume the Character of an *Architect*, without a competent Skill in all of theſe. *Vitruvius* requires theſe, and many more to make a compleat *Architect*.

In the inſuing Treatiſe, I have indeavour'd to aſſiſt all ſuch as have a deſire, (or have an occaſion) to underſtand the Grounds, and Rules of Architecture.

I was firſt induced to undertake this Task of Compoſing a Treatiſe of this nature, purely for my own uſe, for by daily Experience, I found that ſuch a Tract was very much

wanting, and that if I did compoſe ſuch a piece, it might prove exceeding uſeful to others, as well as to my ſelf, an Ingenious Bookſeller being informed of my deſign, was for my carrying it on.

I have been in a great meaſure excited to it of late, out of pity to ſome poor Workmen; for I have been informed of ſeveral, that for want of Skill, and Foreſight, undertaken Buildings by gueſs, by which they have been almoſt ruined, or at leaſt kept very low in the World; tho' they have been very induſtrious in their Callings,) and that purely by the means of unadviſed Contracts. And then again on the other hand, it hath been an Obſervation made by others as well as my ſelf; that ſome honeſt well-meaning Gentlemen, (and others) that have had occaſion to Build, *&c.* They have been ſtrangely over-reach'd by ſome Fraudulent Crafty Workmen. But I hope this ſmall Treatiſe may be a means to promote diſtributive Juſtice (in ſuch things as relate to Building) and like a juſt Arbitrator, whereby both Maſter and Workmen ſhall have what is Juſtice and Equity betwixt them: For

The inſuing Treatiſe contains not only the *Price* that moſt *Materials* are uſually valued at, and ſold for in different parts of the Kingdom, and alſo the uſual *Rates* of all ſorts of *Workmen's Work*, both in the City, and alſo

in

in different parts of the Countrey. But alſo

2. It contains Informations, as to the *Qualities*, *Quantities*, *Proportions*, and *Methods* of preparing and making many of the *Materials* relating to Building.

3. Alſo the *Cuſtoms*, and *Methods* of *Meaſuring* all ſorts of Artificers Works.

4. An Explanation of the *Terms* of *Art* made uſe of amongſt *Workmen*.

5. In the following Tract, is alſo comprehended, *Conſiderations* as to the Choice of a *Surveyor*, *Workmen*, *Model*, or Draught, *&c.*

6. *Aphoriſms*, or neceſſary *Rules* in *Building*, as to *Situation*, *Contrivance*, *Receipt*, *Firmneſs*, or *Strength*, and *Form*, or *Figure*, and Beauty.

7. The Method of *Surveying of Buildings*, as to entring Dimenſions in Pocket-books, and making *Bills* of Meaſurement, *&c.*

8. Of *Valuing Buildings* when they are erected.

9. A Method of *Cenſuring*, or paſſing ones Judgment on a *Building* (that is already compleated or finiſhed) as to its *Commodiouſneſs*, *Firmneſs*, and *Delightfulneſs*, which are the principal Qualities in a good *Fabrick*.

In the Compoſing of this Work, (beſides my own, and ſome Friends *Obſervations*; which

which together consisted of several Sheets of Paper, which were never yet made publick) I have made use of the best Authors extant, to the number of about 50, great and small; wherein the Task was not small; what in *Reading, Comparing, Chusing, Correcting, Revising. Disposing,* and *Transcribing* in respect of *Matter, Form,* and *Order:* By reason I was obliged not to make this first Impression too large: For to speak the Truth, I must tell you I found I had no small Difficulties to wrestle with; by reason I had design'd to Collect the Heads of all such things as were most material from so many Authors, and from my own Notes which would have Composed a small Treatise of it self; (for I must tell you they are not a few, nor they have been no small time a Collecting, nor from none but experienced Men, and my every Days Observations almost, my Business being frequently amongst Workmen of diverse Professions, and different places; so that the Reader will here have a great number of Observations which are wholly new.) So that I was oftentimes more solicitous, and concerned to consider what, than what not to Write: Yet I have diligently endeavoured to insert the most important things, that nothing material might be wanting to present you with a Satisfactory Account of the Art of *Building* in all its parts, so as to make good

good our Title. Some perhaps may think it too ſmall, and the Diſcourſe too Brief (for a Subject of this Nature) indeed I think ſo too; but then I muſt tell you that it was my deſign to be as briet as I could conveniently (in this firſt Edition, if this be kindly received in the World, I may perhaps much inlarge it hereafter; having a Store purpoſely reſerved for that uſe, if I can find Incouragement.) But, Friendly Reader, I have conſulted your Advantage, by rendring the Book both more portable, and leſs chargeable; ſo that every one that deſires to look into the Precepts, *&c.* of this Art, may here find Satisfaction without great Expence, either of Time or Money.

The Method of this Treatiſe is wholly new, but the whole Art is here ranged under certain Heads, and brought to a certain Method, and limited to practical Rules, and that ſo perſpicuous, as to be underſtood by the meaneſt Capacity.

One great Reaſon of my making choice of this Method, of Compoſing it under Alphabetical Heads was this, *viz.* In a Subject of this nature there would unavoidably have been a Neceſſity to have made uſe of abundance of Terms which are uſed by *Architects*, and *Workmen*, which would not have been underſtood by Gentlemen, and young (and ignorant) Handicrafts-men, (for whom this

this Treatiſe is chiefly deſign'd,) unleſs we had explain'd theſe *Terms* as they fell in, by Conſequence in the Diſcourſe; but if I had done ſo, I ſhould too often have been neceſſitated to make large Excurſions, or Degreſſions from the Matter in hand, which would have ſo disjointed the Diſcourſe, that it would not have been ſo eaſily underſtood by young Tyro's in this Art, eſpecially in a Compendious Diſcourſe, as this was deſign'd to be; and put the caſe any one had wanted at any time to know the meaning of ſuch Terms when they had heard them uſed, it would have been no ſmall trouble to have found them in continued Diſcourſe.

All the Treatiſes that I ever yet ſaw on this Subject, (which are not a few) were either continued Diſcourſes, or branched into Chapters, (or the like) containing the Parts, Members, and Materials relating to Building, or elſe compriſed under the Titles of Mechanick Trades, as *Carpenters* Work, *Bricklayers*, &c. or elſe in a Dialogue, which I like worſt of all; becauſe in asking of Queſtions, commonly there is a Neceſſity of uſing more words than any other way of Writing: I dare to maintain it that none of the aforeſaid Methods are ſo fit for a Subject of this Nature that relates to ſo many Orders of Men;

parts

parts of *Buildings*, Members of Parts, and vaſt variety of Materials, *&c.* As this which I have here choſen, (and I have heard ſome others wiſh for it, not only in this, but other Arts alſo.) For here either Gentleman, or Workman may immediately find (by the Letters at the top of each Page) any thing that he hath occaſion to be inform'd about, without the trouble of reading over whole Chapters, or the like.

Courteous Reader, I will aſſure you, that you have here Epitomized the Subſtance, or Marrow, of all, or moſt of the known Authors that have Treated of this Art; beſides a great many new and neceſſary Obſervations, *&c.* which I hope will prove uſeful to the Publick, tho' it be Compoſed after a new Method, *viz.* an Alphabetical Order; and upon that account it may perhaps be objected againſt as a very broken and imperfect Subject. But I muſt here inform ſuch, that many times each particular word (or Head) is a compleat Diſcourſe by it ſelf, and where it is not, you are referr'd to another place which will make it compleat, by only turning over a few Leaves.

Having thus briefly hinted at the Reaſon of Compoſing it in this Method; I will next advertiſe you a word or two for

for the better apprehenſion of the Scope, and uſe of the Book.

*Firſt*, That it is intended for beginners, and ſuch as have not had occaſion to ſtudy this Art, and not for Accompliſhed *Architects*, and therefore adapted to the meaneſt Capacities.

*Secondly*, In ſeveral places the Derivation of the Word is hinted at, (which aſſiſts the Memory, and informs the Underſtanding) as well as the Meaning and Senſe it is commonly uſed in; and ſeveral other Things or Circumſtances, according to the Nature of the Word; of which I will here give ſome Inſtances. As ſuppoſe, 1*ſt*. The Word *Arch*, there you have 1*ſt*. its Derivation, then an Explanation of 5 different Kinds, and the Method of making them, and then 5 Theorems concerning them, and the Method of Meaſuring them, and laſtly, the Price.

2. Then next Inſtance ſhall be of the Word *Bricks*, where you have an account what, and wherefore made, and then a Deſcription of 18 ſorts, with their Dimenſions, Price, Weight, and Form of them; with the Method and Price of Making, Burning, alſo Directions for Buying, Chooſing, and Laying of Bricks, *&c.*

3. Of the Material, call'd *Glaſs* after a general Definition of it, you have an account

count of 13 ſorts, and the Price of moſt of them, &c.

4. Of *Lead*, where you have 14 Particulars, too many to repeat here.

5. Of *Mortar*, you have 13 Heads.

6. Of Nails, you have 25 Particulars.

7. Of *Painting*, where are 18 diſtinct Heads: All other Trades having their proper Heads alſo.

8. Of *Stair-caſes*, there is an account of about 25 ſorts.

9. Of *Tiles*, there are more than 40 Particulars. I ſhall forbear to enumerate any more, but refer you to the Book it ſelf, where you ſhall alſo find a Deſcription of all the Members of the 5 Orders of Columns, with their Dimenſions and Proportions. If this Treatiſe find a kind Reception in the World, I ſhall be encouraged to Publiſh my *Compleat Tutor to the Practick Part of Architecture*, which will be a Treatiſe purely for Directions, and eaſe to Workmen.

Laſtly, I do declare, that if any thing which I have ſet down in the inſuing Treatiſe, be objected againſt as a Miſtake, or that it is not ſo plain and expreſs as it might have been, upon the leaſt Information thereof, I ſhall be very ready to revoke it. And therefore if in any thing I have been beſide the Matter in hand, or made a falſe Step, or Blunder: I do earneſtly intreat the courteous good natured Reader,

Reader, either to inform me of it, (and upon Eviction I ſhall freely yield,) or elſe that he would freely remit the Fault; ſince all know *Humanum eſt errare.*

THE

# THE CITY and COUNTRY *Purchaser & Builder's* DICTIONARY.

## *ABACUS.*

IT'S a ſquare Table, Liſt, or Plinth, in the upper part of the Chapters of Columns, eſpecially thoſe of the *Corinthian* Orders, which ſerves inſtead of a Drip or Corona to the Capital. It ſupports the nether Face of the Architrave, and whole Trabeation. In the Corinthian and Compound Orders, the Coronets of it are call'd the *Horns*; the intermediate Sweep and Curvature the *Arch*, which has commonly a Roſe carv'd in the middle.

The Sieur *Mauclerc*, in the Ionick Order, deſigns an O--G with a Fillet over it for an *Abacus*; and this Fillet is half the Latitude of the O--G, the which he calls the Fillet of the *Abacus*.

And in the Corinthian Order, he deſcribes the *Abacus* to be one 7*th*. part of the whole Capital, which he divides into three parts, and the uppermoſt of theſe is a Boultin, and $\frac{1}{3}$ of the next third below, is the Fillet of the *Abacus*, and the reſt below being 1 and $\frac{2}{3}$ is the Plinth of the *Abacus*.

*Andree Palladio* in the *Tuſcan* Order, calls the Plinth above the Boultin, (or *Echinus*) *Abacus*; which from its form, ſaith he, is commonly call'd Dado, or Dye, the which is $\frac{1}{3}$ of the whole heighth of the Capital.

In the Dorick Order, he alſo calls the Plinth above the Boultin of the Capital, the *Abacus*; above which he places a Cimatium, for the upmoſt Member of the Capital.

In the Ionick Order, he defines it to be the ſame with the Sieur *Mauclerc*.

In the Corinthian and Compoſite Order, he deſigned it to be the ſame almoſt with the Sieur *Mauclerc*, only his is a large Caſement, inſtead of the Plinth. But *Vincent Scamozzi* gives the Title of *Abacus* to a Caſement, or Hollow, which is the Capital of the Pedeſtal of the Tuſcan Order. V. *Capital.*

## *Abreuvoirs.*

A Term in Maſonry, by which is to be underſtood the Intervals, or Spaces between the Stones in laying them, commonly call'd the Joints wherein the Mortar is placed.

## *Acroteria.*

Are ſharp and ſpiry Battlements, or Pinacles, that ſtand in Ranges, with Rails and Balliſters upon flat Buildings. Alſo Images ſet on the tops of Houſes, are ſo call'd by ſome.

## *Acroteres.*

Are Pedeſtals upon the corners and middle of a Pediment to ſupport Statues; they may properly be called Pinacles.

## *Aditon* V. *Chauncel.*

## *Alabaſter.*

1. *What*] 'Tis a kind of ſoft, clear, white Marble; if it be ſo ſoft as to be cut, it is call'd *Gypſum.*

2. *Where found, or dig'd*] Some is brought to us out of the *Indies*, and from *Egypt*, *Syria*, &c. There is alſo ſome found in *Lincolnſhire*, and in *Staffordſhire.*

3. *It's uſe*] It's chiefly uſed for Monuments in Churches, *&c.* Where there are any Figures in Relief, or in Baſs-relief, *&c.* carved. It's alſo ſometimes uſed for a Coat of Arms, when a Gentleman will have his Coat of Arms cut in Relief, to ſet in Brick or Stone-work in the Front of his Houſe.

## *Alcove.*

By the *Spaniards* call'd *Alcobar*; 'tis a Receſs within a Chamber for the ſetting a Bed out of the way; where for State

mar-

many times the Bed is advanced upon 2 or 3 Aſcents, with a Rail at the Feet. Theſe *Alcoves* are frequent in many Noble Men's Houſes in *Spain*, and other parts beyond Sea.

## *Alder.*

1. *What*] 'Tis an Aquatick Tree, ſo very common that it needs no Deſcription.

2. *It's Uſe*] Thoſe which were large, were formerly made uſe of in building of *Boats*: So now are very large *Alders* ſought after for ſuch *Buildings* as lie continually under Water, where it will become as hard as a Stone; but being kept in an unconſtant Temper, it decays in a little time.

*Vitruvius* tells us, that the *Moraſſes* about *Ravena* in *Italy* were *pil'd* with this Timber, to Superſtruct upon, and he highly commends it. It was alſo uſed under that famous Bridge at *Venice*, the *Rialto* which paſſes over the grand Canal, bearing a vaſt weight.

3. *Poles*] Of this Wood are extraordinary uſeful for *Pumps*, *Water-pipes*, (*Troughs* and *Sluces* alſo if large.) Theſe Poles I have known uſed (in the Countrey) for *Water-pipes*, to convey Water thro' Bays, and Dams, and alſo to carry Water from any Spring, to ſupply a Houſe with this neceſſary Element; large Poles of this ſort of Wood I have known uſed for *Ground-guts*, to convey the Water out of Stews, the Poles were about 8 or 10 Inches Diameter, and the Concavity in them about 4n, or 4 ½; for in boreing, and fitting, of which ſize they have about 3 *s.* 6 *d.* *per* Rod for Workmanſhip.

4. But for *Water-pipes*] the *Poles* need not be above 4 or 5 Inches Diameter, for the Cavity is commonly about 1 ¾, or 1 ½ Inch Diameter.

5. *Of the Method of boring Alder Poles.*] The Order in which they proceed, in this Operation, is this: Being furniſh'd with Poles of a fit ſize, not too ſmall (nor too large, if for *Water-pipes*.) They procure Horſes, or Truſſels, of a fit Altitude, to lay the *Poles*, and reſt the Auger on whilſt they are boring, they alſo ſet up a Lath, to turn the leaſt ends of the Poles to adapt them to the Cavities of the greater ends of the others; their Lath being up, and your Poles cut to the lengths they will conveniently hold, *viz.* 8. 10, or 12 Foot; they proceed to turn the ſmall ends of the *Poles*, about 5 or 6 Inches in length, to the ſeize they intend to bore the greater ends, about the ſame depth, *viz.* 5 or 6 Inches; (this you muſt note is to make the Joint to ſhut each pair of Poles together, the concave part is the Female, and the other the Male part of the Joint.) In turning of the Male part, they turn a Channel in it, or ſmall Grove, at a certain diſtance from the end, and in the Female part they bore a ſmall hole to fit over this Channel; for what

purpose you shall hear when they set the Poles together: They having thus far Proceeded, they then thorough bore their Poles, and because they will prevent boring out at the sides, they stick up great Nails at each end to guide them right through; but they commonly bore it at both ends; and therefore if a Pole be crooked one way, they can bore him through, and not spoil him: The Poles being bored, they proceed to form them into Pipes in the Ground, for which purpose they have a Trench digg'd, and prepared with Clay, to ram them in the Female part, being prepared with an Iron Ring round it, to prevent its splitting; they drive in the male Part, till the Grove in it is just under the hole, which is bored in the upper side of the female Part; and then having some melted Pitch ready, they pour it into the hole in the female Part, which flows round in the Grove which was turned in the male Part; by which means it is made very stanch, and close: And thus they proceed till they have placed all their Poles in their order.

*6. Of the Charge of these Pipes.*] For Workmanship only, they usually ask about 2 *s.* 6 *d.* or 3 *s. per* Rod, *viz.* only to bore and fit them; but the Charge of all Work, and Materials, *viz.* Boring, Diging the Trench; laying and Raming in the Clay, *&c.* And the Charge of Poles, Clay, Pitch, and Iron Rings will be 4 *s.* 6 *d.* 5 *s.* 5 *s.* 6 *d.* or 6 *s. per* Rod; according as the Materials can be procur'd.

*N. B.* I could here have added the Description of an ingenious Contrivance, which these Workmen have, to make the same Auger to bore a Concavity of different sizes; but this, and some other Curiosities, I shall defer till I see how this first Essay will be accepted in the World.

## *Amphitheater*, or *Amphitheatre*.

Is an Edifice, or Building of an Oval, or Circular Form, with rows of Seats, one above another, where Spectators might sit to behold Stage-plays, and other publick Spectacles, as Sword-playing, fighting of wild Beasts, *&c.*

## *Anabathrum.*

A Place that is ascended to by Steps.

## *Anchors.*

In Architecture, is a certain sort of Carving, somewhat resembling an Anchor, or Arrow-head; 'tis commonly part of the Enrichments of the Boultins of Capitals of the Tuscan, Dorick, and Ionick Orders, and also of the Boultins of Bed Mouldings, of the Dorick, Ionick, and Corinthian Cornishes. These Anchors,

chors, and Eggs being alternately carved throughout the whole Buildings.

## *Annelet*, or *Annulet*.

From the Lat. *Annulus*, a Ring, in Architecture, 'tis used to signifie a narrow flat Moulding, (of which v. *Capital*,) which is common to divers places of the Columns, as in the Bases; and Capitals, *&c.* 'Tis the same Member as the Sieur *Mauclerc*, from *Vitruvius* calls a *Fillet*, and *Palladio*, a *Listella*, or *Ceinture*; and *Brown ex Scamozzi*, a *Supercilium*, *List*, *Tince*, *Eye-brow*, *Square*, and *Rabit*.

## *Antechamber*.

1. *What.*] From the *Lat. Ante-camera*, an outer, or Fore-Chamber, a Room in Noble Men's Houses, where Strangers stay till such time as the Party to be spoke with is at leisure.

2 *Of it's Proportion in length*, &c.] A well proportion'd *Antechamber*, ought to have in length the Diagonal Line of the Square of the Breadth, and not to excel the breadth and ½ at most.

3. *Of their height.*] They are made either arched or flat, if they are flat, ⅔ parts of the breadth shall be the height from the Floor to the Joists.

But if you would have it higher, divide the breadth into 7 parts, and take 5 for the heighth. Or divide the breadth into 4 parts, and three of those shall be the heighth.

In great Buildings, the *Ante-chamber*, *Hall*, and other Rooms of the first Story may be Arched, which will make them handsome, and less subject to Fire; and in such Buildings, the height may be ⅝ of the breadth, which will be the height it ought to be from the Floor to the bottom of the Key of the Arch.

But if this Altitude be thought too dwarfish, the height may be ⅞ of the breadth.

Or 1⅛ of the breadth, which will make it yet more stately.

4. *Of their Situation.*] *Ante-chambers*, and others also ought to be so posited, that they may be on each side of the *Entry*, and of the *Hall*: And likewise it ought to be observed, that those on the right Hand, may answer, and be equal, (or nearly so) to those on the left, to the end, that the Buildings may on all sides bear equally the Burden of the Roof.

## *Antick*, or *Antique-work*.

A Term in *Sculpture*, and *Painting*, being a confused Composure of Figures of different Natures, and Sexes, *&c.* As of Men, Beasts, Birds, Flowers, Fishes, *&c.* And such like Fancies as are not *in Rerum Natura*. Of which I will give some Instances, and

first of human Creatures, *viz.* How strangely deform'd, and confused some of the Heathens, represented their Gods, either in *Painting*, or *Sculpture*.

And 1. of *Saturn*, he is described by some with 3 Heads, *viz.* A Lions, a Dogs, and a Wolfs; others pourtrayed him with 2 Wings on a humane Head.

2. Of *Jupiter*, him the *Lacedæmonians* Pictur'd with 4 Faces. The *Argives* had his Representation in Sculpture with 3 Eyes, *viz.* One in his Forehead.

3. Of *Apollo*, him the *Lacædemonians* depicted with 4 Hands, and as many Ears.

The *Persians* described, *Phœbus*, [or *Apollo*] with the Head of a Lion.

The *Egyptians* had his Statue in the likeness of a Man, with the Head of a young Ram, with small Horns on his Shoulders.

4. Of *Mercury*, the Ancients describ'd him like a young Man, with Wings behind his Shoulders and his Ears.

The *Egyptians* fram'd his Image with the Head of a Dog on his Shoulders.

5. Of *Janus*, by some he was depicted with 2 Faces, by others with 4. *Numa* King of the *Romans*, caused his Statue to be hewed out with 365 Fingers.

The *Phœnicians* form'd his Image like a Serpent, with her Tail in her Mouth.

6. Of *Neptune*, some represent him in his upper part like a Man, and the lower like a Fish, in his right Hand he holds a Trident, or 3 pointed Spear.

7. Of *Pan*, the Ancients depicted him from the middle upwards, like a Man with a ruddy Complection, being very hairy, (his Skin and Breast covered with the Skin of a spotted Doe, or Leopard, holding in one Hand a Shepherd's Hook, in the other a Whistle,) and from the middle downwards, the perfect shape of a Goat.

8. Of *Fauns*, *Sylvans*, *Fairies*, and *Satyrs*, as to their corporal Shape, they were described like *Pan*, only they had short Horns on their Heads, with small Ears, and short Tails.

It would be a Task too tedious to enumerate all the Antick Forms, and Fancies by which the Heathens did represent their several Gods; and their Poets, and Painters, and Carvers did describe them, and the *Powers*, Passions, Vertues, Vices, Nymphs, Muses, *&c.* They not only had strange and monstrous Fictions of humane Creatures; (in *Poetry* and *Sculpture Painting* also:) but of Brutes As. 1. Of the Syrens, or Maremaids, half a Woman, and half a Fish, Griffins, half Beasts, and half Birds; *Pegasus* was also another of the same Fictitious Kind; Harpyes also which were part Women, and part Birds; Centaurs, half Men, and half Horses, Sagitaurs, half Men, and half Beasts; Dragons, also part Serpents, and part Birds. 2. They had also some Representations

of

of twiform'd Creatures, as the Amphisbœna, a Serpent with a Head at each end; the Spread Eagle with 2 Heads on the same Neck. And likewise they sometimes have the Representation of divers sorts of Fruits, and Flowers, growing on the same Plant, &c. With many such like Figments which we have good Reason to believe, there are really no such standing Species of Animals, and Vegetables in Nature, tho' the belief of such feinds hath been propagated by Orators, upon account of their fitness to be made use of in the way of Similitude.

This Work which we call *Antick*, the *Italians* call *Grotesca*, (of which *V. Pl.*) and the *French Grotesque*, which signifies Comical, Pleasant, apt to make one laugh; also ridiculous. And their word *Grotesques*, signifies foolish, idle Fancies.

## *Anticum.*

From the Lat. a *Porch* before a Door, the fore Door, a *Hatch.*

## *Antipagments.*

The Ornaments, or Garnishing in carved Work, set on the Architrave, (Jambs, Posts, or Puncheons of Doors;) whether of Wood, or Stone.

## *Apertions.*

1. *What*] From the Lat. signifying opening. But in Architecture 'tis used to signifie, *Doors*, *Windows*, *Stair-cases*, Chimnies, or other *Conducts*: In short, all *Inlets*, or *Outlets*, of *Men*, *Light*, *Smoak*, &c. To which belong 2 general Cautions, *viz.* 1. Of their Number, and 2. Their Position.

2. *Of their Number and Dimensions.*] Let them be as few in number, and as moderate in Dimension, as may Possibly consist with other due Respects; for in a word, all *Openings* are *Weakenings*.

3. *Of their Position.*] Be sure to let them not approach too near the Angles of the Walls; for it were indeed a most essential Solecism to weaken that Part which must strengthen all the rest.

## *Aqueduct.*

From the Lat. *Aqueductus*, a Conveyance made for the carrying of Water from one place to another.

## *Arches.*

1. *Whence deriv'd.*] It comes from the Latin, *Arcus*, a *Bow*.

2. *What*] In Architecture 'tis us'd to signifie an intern Support to the Superstructure; and it is either *Circular*, *Eliptical*, or Straight. Of Circular Arches, there are 3 Kinds; *Semicircular*, *Scheme*, or *Skeen*, and Arches *of the* 3d. *and* 4th. *Point* of these, and of *Elliptical*, and *straight Arches*, I shall treat in their order.

3. *Semicircular.*] These Arches are an exact Semicircle, and have their Centre in the middle of the Diameter, or right Line that may be drawn betwixt the Feet of the Arch. Of this Form the Arches of Bridges, Church-windows, and great Gates are sometimes made in our modern Buildings.

4. *Scheam, or Skeen.*] These I understand to be such, as consist of less than a Semicircle, and consequently are flatter Arches. Some of these contain an Arch of about 90 Degrees, others about 70, and others (which are yet flatter) about 60 Degrees; these last are very flat. Now, 'tis very easie to distinguish between Semicircular, and Scheme Arches, for the *Chord*, (or right Line) drawn between the Feet of a *Semicircular-arch*, is just double to its *heighth*, (measur'd from the middle of the Chord, to the Key piece, or top of the Arch;) whereas the *Chord* of a *Scheme-arch of* 90 *Degrees* will be above 4 times its height. and the *Chord* of a *Scheme-arch* of 60 Degrees, will be above 6 times its heighth.

5. *Of the* 3d. *and* 4th. *Point.*] So our *English* Authors call 'em, but the *Tuscan* Authors calls them *di tarzo, & di quarto acuto*, because they always concur in an acute Angle at the Top. They consist of 2 Arches of a Circle, (meeting in an Angle at the top) drawn from the division of the Chord, into 3, or 4, or more parts, at pleasure. The particular Method of drawing which, and all other Arches, and Mouldings, *&c.* I must at present omit; but if this find Acceptance, and I any Encouragement, the next Impression shall contain these, and many other Curiosities, not to be found in this. I have observ'd many of these Arches, in old Stone Buildings, both Houses and Churches. But I say, (says that great Architect, Sir *Henry Wotton*) that these kind of Arches, (both for the natural Imbecility of their acute Angle, as likewise for their Uncomelinesse) ought to be exil'd from all judicious Eyes, and left to their first Inventors, the *Goths* and *Lombards*, amongst other Reliques of that barbarous Age.

6. *Elliptical*] These kind of Arches consist of a Semi-Ellipsis, and were formerly much us'd instead of Mantle-trees in Chimneys. They are commonly describ'd on 3 Centres; but they may be drawn otherwise. These consist of 3 parts, *viz.* 2 Hanses, and a Scheme, now Workmen call each end of these *Arches* the Hanse, which Hanses are always the *Arches* of smaller Circles than the Scheam, which is the middle part of these Arches

ches, and consists of a part of a larger Circle; which is drawn betwixt the 2 Hanses to conjoin them all together, to make, as it were one Helical Line, and by consequence an *Elliptical Arch*. These Arches have commonly a *Key-stone*, and *Chaptrels*, (the Key-stone, is that which is the very summity, or top of the Arch, which is equally distant from both ends, and the breadth of this *Key-stone* at the top, ought to be equal to the height of the Arch, (which is commonly about 14 Inches, when made of Brick) and *Somner* (or point with its 2 edges) to the Centre of the Scheam, the *Key-stone* should break without the Arch, so much as the *Chaptrels* Project, or Sate over the Jambs. The *Chaptrels* I understand to be the same, which most Architects call Imposts; and 'tis that on which the Feet of the Arches stand, whose height, or thickness ought to be equal to the breadth of the lower part of the *Key-stone*, N. B. That each other Course in these Arches consist of 2 *Stretchers*, which are 7 Inches long apiece, (when the Arch is 14 Inches deep) and the other Courses betwixt these of 3 *Headers*, and 2 *Closers*; the length of the *Headers* must be 3 $\frac{1}{2}$ Inches, and the *Closers*, 1 $\frac{3}{4}$ Inches; thus one Course of the Arch will be divided into 2 Stretchers, and the other alternately into 3 Headers, and 2 Closers, throughout the whole Arch.

7. *Strait*] These Arches have a straight, upper, and under edge, as the former had carved ones; and those 2 edges are parallel, and the Ends, and the Joints, all point toward a certain Center: They are generally used over Windows and Doors, and 'tis a certain Rule amongst Workmen, that according to the breadth of the Peers betwixt the Windows, so ought the *Skew-back*, or *Sommering* of the Arch to be; for if the Peers be of a good breadth, as 3, or 4 Bricks in length, then the straight Arch may be described from the *Oxi*, (as 'tis vulgarly call'd) which being but part of the word *Oxigonium*, signifying an Equilateral Triangle; but if the Peers are small, as sometimes they are but the length of 2 Bricks, and sometimes but one Brick and a half, then the breadth of the Window, or more, may be the Perpendicular (to the middle of the under side of the Arch) at whose end below, shall be the Centre for the *Skew-back*, or *Sommering* to point to. These *straight Arches* are commonly about 1 $\frac{1}{2}$ Brick, which when rubb'd, makes about 12 Inches high, tho' sometimes they are but 11 Inches, or thereabouts, which answers to 4 Course of Bricks; but they may be made more or less in height, according as Occasion requires. N.B. That by the word *Skew-back*, is meant the leveling end of the Arch, and by *Sommering*, is to be understood the level Joints betwixt the Courses of Bricks in the Arch. These Arches commonly consist of a Stretcher, and a Header in height, the *Stretchers* being a whole Bricks length, and the *Headers* a Bricks breadth.

Now the whole Business of building Arches, (saith Sir *H. W.*) may be reduced into these 5 following *Theorems*.

3. *Theo-*

8. *Theorem* the 1*ſt.*] All ſolid Materials, free from Impediment, do deſcend Perpendicularly downwards, becauſe Ponderoſity is a natural Inclination to the Center of the Earth, and Nature performeth her Motions by the ſhorteſt Lines.

9. *Theorem* the 2*d.*] Bricks moulded in their ordinary Rectangular Form; if they be laid on by another in a level row, between any Supporters, ſuſtaining their 2 ends, then all the pieces between will neceſſarily ſink, even by their own natural Gravity, and much more if they ſuffer any Preſſure by a ſuperincumbent Weight; becauſe their ſides being parallel, they have room to deſcend Perpendicularly, without Impeachment; according to the former *Theorem*: Therefore to make them ſtand, either the Poſture, or their Figure, or both muſt be changed.

10. *Theorem* the 3*d.*] If *Bricks* moulded, or Stones ſquared, *Cuneatim*, (*i. e.* Wedge-wiſe, broader above, than they are below) ſhall be laid in a row level, with their ends ſupported, as in the precedent *Theorem*, pointing all to one Centre; then none of the pieces between can ſink, till the Supporters, or Butments give way; becauſe they want room in that Figuration to deſcend Perpendicularly. But this is yet a weak piece of Structure, becauſe the Supporters are ſubject to too much impulſion, eſpecially if the Line be long; for which Reaſon this Form, (*viz. ſtraight Arches*) is ſeldom uſed, but over Doors, and Windows that are narrow. Therefore to fortifie the Work, as in this third *Theorem*, we have ſuppoſed the Figure of all the Materials, different from thoſe in the 2*d.* So likewiſe we muſt now change the Poſition, as will appear in the following *Theorem*.

11. *Theorem* the 4*th.*] If the Materials be figured Wedge-wiſe, (as in the preceeding *Theorem*) ſhould be diſpoſed in the Form of ſome Circular *Arch*, (and not ſtraight or level) and pointing to ſome Centre, (or Centers.) In this caſe, neither the pieces of the ſaid *Arch*, can ſink downwards for want of room to deſcend, (as in the 1*ſt. Theorem*) Perpendicularly: Nor the *Supporters*, or *Butments* of this *Arch*, can ſuffer ſo much Violence, as in the precedent flat Poſture, for the Convexity will always make the Incumbent weight, rather to reſt upon the *Supporters*, than to ſhove them; whence may be drawn an evident Corollary, that the ſafeſt of all Arches is the Semicircular, and of all *Vaults* the Hemiſphere; tho' not abſolutely exempted from ſome Weakneſs, (which is the ſole Prerogative of Perpendicular Lines, and right Angles) as *Bernardino Baldi*, *Abbot* of *Guaſtalla* hath obſerved in his Commentary upon *Ariſtoſtle*'s *Mechanicks*, where let me note by the way, that when any thing is Mathematically demonſtrated weak, it is much more Mechanically ſo. Errors ever occurring more eaſily in the management of groſs Materials, than in Lineal Deſigns.

12. *Theorem* the 5*th.*] As Semicircular *Arches*, or Hemiſpherical *Vaults*, being raiſed upon the total Diameter, be of all other the roundeſt, and conſequently the ſecureſt by the prece-

dent

dent *Theorem*: So thoſe are the comelieſt, which keeping preciſely the ſame heighth, ſhall yet be diſtended, one *4th.* part longer than the ſaid Diameter, which Addition of Diſtent will confer much to their Beauty, and detract but little from the ſtrength.

I did not intend here to have had the different Proportions of *Arches*, &c. According to the 5 Orders of Architecture; as they have been obſerved, and ſet down for a certain Rule, by diverſe famous *Architects*: But fearing I ſhall too much exceed my limited Bounds, I ſhall defer it till another Opportunity; becauſe the Bookſeller would not have this Firſt Edition too large.

13. *Of Meaſuring Arches*] In meaſuring of them, whether they are Straight, or Circular; they muſt be meaſured in the middle, *i. e.* if a ſtraight *Arch* be 12 Inches in height, or depth, the length muſt be meaſured in the middle of the 12 Inches, which length will be no longer than if it were meaſured at the under ſide, next the head of the Window, by ſo much as one ſide of the ſpringing of the Arch is skew'd back from the upright of the Jambs, Peers, or Coins of the Windows.

Alſo in *Circular Arches*, 'tis to be obſerved, that the upper part of the *Arch* is longer, (being girt about) than the under part, becauſe it is the Segment of a greater Circle, cut off by the ſame right Line that the leſſer is, and therefore it muſt be girt in the middle,

14. *Price*] For the Workmanſhip of *ſtraight Arches*, well rub'd, and handſomely ſet; (of Brick) in *London*, about 8 *d.* or 9 *d. per* Foot; but in ſome parts of *Suſſex*, and *Kent*, they will not do it under 12 *d. per* Foot, running Meaſure. But in *London*, if the Workmen find Materials, then 'tis about 10 *d.* or 12 *d. per* Foot.

*Skeen*, or *Scheam Arches*, and *Elliptical* ones; of *rub'd Brick*, are common about the ſame price with ſtrait ones. But *Scheam Arches* of unrub'd Bricks, are commonly included with the plain Work, unleſs the plain Work be done at a reaſonable Price: But you muſt here note, that the Maſter of the Building, (or Owner) is at the charge of the Centers to turn the *Arches* on; and not the Workman, unleſs he be allow'd for it in the Price of the Work.

## *Architectonick.*

Belonging to the chief Overſeer of Buildings, alſo to an

## *Architect.*

A Maſter-workman in a Building; 'tis alſo ſometimes taken for the *Surveyor* of a Building, *viz.* He that deſigns the Model, or draws the Plot, or Draught of the whole Fabrick; whoſe buſineſs it is to conſider of the whole Manner, and Method of the Building,

Building, and also the Charge, and Expence: In the management of which, he must have respect to its due *Situation*, *Contrivance*, *Receipt*, *Strength*, *Beauty*, *Form*, and *Materials*. All which are to be duly deliberated of by the *Superintendent*, (or *Surveyor*) of a *Building*; it being wholly committed to his Circumspection, and therefore it will be his Prudence to manage the whole Affair advisedly, and with great Caution, that all may be so order'd, and disposed (in all Circumstances) that it may answer the Design, and be consentaneous to Reason. But tho' the whole Fabrick be the Care of the *Superintendent*, yet Sir *H. Wotton*, would have a second *Superintendent*, (or *Officinator*, as *Vitruvius* calls him) whose Care it should be to choose, (or examine) and sort all the *Materials* for every part of the Structure.

## *Architecture.*

A Mathematical Science, which teacheth the Art of Building, being a Skill obtain'd by the Precepts of Geometry, by which it gives the Rules for designing, and raising all sorts of Structures, according to Geometry and Proportion. Containing under it all those Arts that conduce any thing to the Framing of Houses, Temples, *&c. Vitruvius* branches it into 3 parts, *viz. Ædification*, or building Houses, *&c. Gnomonica*, or Dialling, and *Mechinatio*, the Mystery of Machines, or Engines.

## *Archives.*

A Place where ancient Records, Charters, and Evidences are kept.

## *Architrave.*

1. *Whence derived*] I suppose it to come from the *French*, for the word is purely so.

2. *What*] 'Tis used in Architecture, to signifie the Moulding, or Ornament next above the Capital of a Column: it being always the next gross Member below a Frieze. The word is also sometimes used to signifie the chief, or principal Beam in a Building; now I cannot conceive what they mean by the principal Beam in a Building, because I do not suppose it can properly be applied to all Buildings, but only to some peculiar kinds, as what we call *Porticoes*, *Piazza's*, or *Cloysters*, (by which we understand a long kind of *Galleries*, or Walking-places, whose supern part of the Structure, is born, or supported by Columns, or Pillars, at least at one side.) The which, if they consist of wooden Columns, or Pillars, have not Arches rising from them to bear the Superincumbent part of the Fabrick, but have a Beam resting, or lying on the tops of the Columns, by which the superiour part of the

the Edifice is ſupported, upon which account ſuppoſe it to be called the chief or principal Beam.

In Chimneys, the Architrave is the Mantle over the Jambs of Doors, and Lintels of Windows; 'tis call'd *Hyperthyron.*

There are alſo *Architrave Doors*, and *Windows*; thoſe are call'd *Architrave Doors*, which have an *Architrave* on the Jambs, or Puncheons, and over the Door, upon the Cap-piece, if ſtraight, or on the Arch, if the top be carved. The Form of theſe *Architraves* about Doors, are not always the ſame; for ſometimes they are according to one of the 5 Orders of Architecture. But 'tis ſometimes done according to the Workman's Fancy; for I have ſeen ſome have put for an *Architrave* round a Door, *1ſt.* next the Door a ſmall Bead, then a broad Plinth, or Fatio, above that on O--G, and Liſt. There are Stone and Brick *Architraves*, as well as Timber ones. *Architrave Windows* of Timber, are commonly an O--G, rais'd out of the ſolid Timber, and a Liſt above, but ſometimes they are ſtruck, and laid on. Brick *Architraves* are uſually cut in the length of a Brick, but ſometimes they are cut in the length of a Brick and $\frac{1}{2}$, then each other courſe alternately conſiſts of the breadth of 2 Bricks; the upper one on which the O--G. is cut, and part of the upper *Fatio*; they call Header, or *Heading Architrave*, and the breadth, or head of Bricks on which the lower *Fatio*, and part of the upper one is cut, they call a *Jak* Architrave of Stone. v. Door, N. 4.

3. *Kinds*] *Architects* diſtinguiſh them into 5 *kinds*, *viz.* Tuſcan, Dorick, Ionick, Corinthian, and Compoſite, according to the 5 Orders of Columns.

4. *Parts, or Members*] Are more numerous than the Kinds, becauſe ſome of the Orders have 2 different ſorts of *Architraves*, and what yet more increaſes the number, is, that ſome Authors differ from others in their Forms, of the ſame *Orders*. Of all which I ſhall give a particular account, in the following order.

5. *Tuſcan*] According to *Vitruvius*, ought to be $\frac{1}{2}$ a Modaie in Altitude; this general Member, he hath deſcribed in two Forms, the 1. Conſiſting of 3 parts, or Members, *viz.* 2 Fatio's and a *Cimatium*, and is thus divided, the whole height is divided into 6 parts, 30, or 50, which is ſubdivided in this manner, *viz.* the upmoſt *6th.* part is the *Cimatium*, which being ſubdivided into 3, the upper part ſhall be the *Fillet*, and the 2 lower ones the O--G. The 5 grand Diviſions which remain, muſt be divided into 9, 5 of which ſhall be for the ſuperiour *Fatio*, and the other 4 for the inferiour one. His 2 *d*: Form conſiſts of but 3 Members, or Parts, *viz.* a large *Plinth*, or *Planchier*, a *Caſement*, and a large *Fillet*, and is thus ſubdivided, the whole heighth is divided into 6, the upper part is for the Fillet, (which projects in ſquare beyond the Plinth) the *5th.* part is for the *Caſement*, (which riſes from the Plain of the *Plinth*, and terminates in a Quadrant, at the lower corner of the *Fillet.*) The

other

other 4 parts remaining, are for the *Plinth*, or *Planchier*, or *Fatio*.

*Palladio* hath alſo 2 diſtinct ſhapes for the *Tuſcan Architrave*; the 1*ſt*. which we ſhall mention, conſiſts of 2 *Faſia*'s, (or *Fatio*'s) and a *Liſt*; the lower *Fatio* is 12 ½ m. high, the upper *Fatio* is 17 ½ m. which terminates with a Quadrantal Caſement, riſing from its Plain, and terminating with the lower corner of the *Liſt*; the *Liſt* is 5 m. high; ſo the whole heighth of the *Architrave* is 35 m. His 2 *d*. *Architrave* is only a plain Fatio of 35 m. high. *Scamozzi*, according to his Delineations, makes the *Tuſcan Architrave* 31 ½ m. high. the which he divides into 4 parts, or Members, *viz*. 2 *Fatio*'s, a *Liſt*, and a *Plinth*; his 1*ſt*. *Fatio* he makes 10 m. his 2 *d*. 16 ½ m. his *Liſt* 1 ½ m. and his Plinth 3 ½ m. all which make 31 ½ m. tho' according to his Verbal account of it, he ſaith it muſt be 32 ½ m. except it ſhould be a Typographical Erratum.

*Vignola* deſcribes it with the ſame parts, heighth, and form, with *Vitruvius*'s 2 *d*.

*6. Doric*] This *Architrave*, according to *Vitruvius*'s, is half a Module in Altitude, the which he delineates in 2 Forms; the 1*ſt*. (which I ſhall mention) he divides into 7 parts, the uppermoſt of which is the *Tenia*, the other 6 remaining parts, he makes a Faſcia under the *Tenia*, he placeth *Drops*, whoſe heighth are ⅙ of the *Architrave*; ¼ of this ⅙ is the *Fillet*, to which the *Drops* hang; the Drops are 6 in number, placed under, (and of the ſame breadth with) the *Triglyphs*. His 2 *d*. Figure of his *Architrave*, conſiſts of the ſame Members with the 1*ſt*. and the whole hight is equal to the 1*ſt*. but he divides the Altitude into but 6 parts; the upper one of which is his *Tenia*, and the other 5 the *Faſcia*, the upmoſt of which is the Altitude of his *Drops*, which have a *Liſt*, which is ¼ of their heighth, as before.

*Palladio*, compoſes this *Architrave* of the ſame heighth, with *Vitruvius*, but of a different Faſhion; for he makes it to conſiſt of 3 parts, or Members, *viz*. 2 Faſcia's, and a *Tena*, or *Tenia*; he divides the whole heighth into 6 parts, one of which being 5 m. he aſſigns for the *Guttæ*, *Bells*, or *Drops*; the Liſtella of the *Drops*, is ⅓ of the whole heighth 1 ⅔ m. and the Drops 2 ⅔ m. The Tenia above the *Drops*, (or of the *Architrave* rather) he makes 4 ⅔ *m*. and the *Prima* (or upper) *Faſcia*, he makes 14 ⅓ m. and the *Secunda*, (or lower) *Faſcia*, he allows 11 m. for, in all 30 m. which is the whole heighth.

*Scamozzi*, (according to his Portraicture of this *Architrave*) makes it 35 m. in Altitude, and he makes this grand Member, to comprehend 3 petty Members, *viz*. 2 *Fatio*'s, and a *Liſt*; whoſe Dimenſions are as follows (beginning at the top, and ſo deſcending) the *Liſt* to be 5 m. the upper *Fatio*, 18 m. and the lower one 12 m. in all 35 m. The *Drops*, or *Bells*, he thus divides, the Liſt above them he deſigns to be 1 ½ m. and the Bells,

or Drops themſelves 4 ½ m. ſo that your whole heighth is 6 m.

*Vignola*, delineates this *Architrave*, 30 m. in heighth, the ſame with *Vitruvius*, and *Palladio*; both which he alſo imitates in the leſſer Member, for he hath 2 diſtinct Forms, one like *Vitruvius*, containing 2 Members, or Parts, one a *Liſt*, the other a *Fatia*; his other Form is like *Palladio's*, comprehending 3 petty Members, *viz.* a *Tenia*, and 2 *Fatia's*.

7. *Ionick*] According to *Vitruvius*'s Order, this grand Member ought to be ½ a Module high; he hath deſcribed 2 Forms of *Architraves*, in the *Ionick* Order, *viz.* one for the Ionick Column, without a Pedeſtal, and the other with a Pedeſtal, and 1*ſt.* I will deſcribe that without a Pedeſtal; the which he compoſes of 4 minuter Parts, *viz.* 3 *Faſcia's*, and a *Cimatium*; which is thus divided, the whole Altitude is divided into 7 parts, the uppermoſt of which is alloted to the Cimatium, which is ſubdivided into 3 parts, the uppermoſt of which is for the *Liſt*, and the 2 remaining, for the O--G. The other 6 remaining parts, they divide into 12, 5 of which he makes the upper *Faſcia*, 4 the middle one, and 3 the lower. The other for the *Ionick* Column, with a Pedeſtal, he thus proportions, *viz.* He reckons the whole heighth of the *Architrave*, *Frieſe*, and *Corniſh*, to be 2 Modules, the which he divides into 10 parts, 3 of which are for the *Architrave*, (which is 36 m.) the which he diſtinguiſhes into 6 Minuter Parts, or Members; the which he thus names, (beginning at the top, and ſo deſcending) *viz.* A *Fillet*, a *Cima*, a *Thorus*, and 3 *Faſcia's*; all which ſmaller Members he thus finds, *viz.* He 1*ſt.* divides the whole heighth into 6 equal parts, the upmoſt of which parts, he ſubdivides into 4 parts, the higheſt of theſe 4 is for the *Fillet*, the 2 next of the 4 are alloted to the *Cima*, and the 4*th.* remaining, is for the *Thorus*. The 5 grand Diviſions remaining, he ſubdivides into 12, which are thus diſtributed, *viz.* 5 for the upper, 4 for the middle, and 3 for the lower *Faſcia*. *Palladio*, aſſigneth 34 m. for the Altitude of this *Architrave*, according to his Scheme of this Member, it is compoſed of 7 parts, *viz.* A *Liſt*, a *Cima*, 3 *Faſcia's*, and 2 *Aſtragals*; the which he thus proportions, *viz.* To the *Liſt*, (which is above the *Cime*, for I will deſcend with the Deſcription) he allots 2 $\frac{3}{10}$ m. the *Cima*, 4 $\frac{3}{5}$ m. To the upper *Faſcia*, he allows 10 $\frac{1}{5}$ m. to the *Aſtragal* at his Foot $\frac{1}{5}$ m. the middle *Faſcia*, is to contain 7 $\frac{5}{10}$ m. and the *Aſtragal* at his foot 1 $\frac{1}{5}$ m. to the lower *Fatia*, he aſſigns 6 $\frac{9}{10}$ m. all which being added into one Sum, amounts to 34 $\frac{1}{5}$ m. *Scamozzi* makes the *Ionick Archi- trave*, 35 m. high, and of the ſame ſhape with *Vitruvius*'s ſecond, *viz.* To conſiſt of 6 parts, *viz.* A *Liſt*, *Cima*, *Aſtragal* (or *Thorus*) and 3 *Faſcia's*, which he thus proportions, he allots to the *Liſt*, 2 ½ m. to the *Cima*, 4 m. to the *Thorus*, 2 m. to the upper *Faſcia*, 11 ½ m. to the middle one 8 $\frac{1}{2}$ m. and to the lower one 6 $\frac{1}{2}$ m.

*Vignola*, allows 37 $\frac{1}{2}$ m. to the *Ionick Architrave*, in heighth, and

as to the Form, his is much the ſame with *Vitruvius*'s *1ſt.* of this Order.

8. *Corinthian*] According to *Veſuvius*, ought to be $\frac{1}{2}$ a Module high; but you muſt note this is for the *Corinthian* Column, without a *Pedeſtal*; this Member he divides into 7 parts, the uppermoſt of theſe is the *Cimatium*, the *6* remaining parts he divides into 12, 5 of which he allots to the upper *Faſcia*, $\frac{1}{5}$ part of this *Faſcia* is to be allow'd for a *Bead* at his Foot, 4 of the 12 parts he allows to the middle *Faſcia*, and $\frac{1}{3}$ of this *Faſcia*, he makes the Bead of at the Foot, and the 3 parts remaining, he makes the lower *Faſcia*. The Architrave for the *Corinthian* Order with a Pedeſtal, *Vitruvius* alloweth a larger Altitude, than that without; it conſiſts of the ſame Members, both for Number and Form, with the former *Architrave*, but they differ in Dimenſions. The Diviſion, and Subdiviſion of which take as followeth: The whole heighth of the *Architrave*, ought to be $\frac{1}{4}$ of the heighth of the Column, (nearly to $\frac{3}{4}$ of the Body of the Column below) which is——to 40 $\frac{1}{2}$ m. This Altitude he divides into 7 equal parts, and at the uppermoſt of theſe 7, he maketh a *Cimatium*, and the *6* renewing, he divides into 12 equal Diviſions, 5 of which are alloted to the upper *Faſcia*, 4 to the middle one, and 3 to the lower one: The upper, and middle *Faſcia*, he ſubdivides into 8 parts each, one of theſe 8ths he allows for a Bead at the Foot of each of theſe *Faſcia's*.

*Palladio* makes this *Arehitrave* to contain 8 parts, *viz.* 1 *Liſt*, 1 *Cime*, 3 *Beads*, and 3 *Faſcia's*, the heighth of all which, he orders to be 36 m. high, which he thus ſubdivides, *viz.* To the (upper Members, or) *Liſt*, he allows 2 $\frac{1}{4}$ m. the next in order, is a *Cima*, and the next in order is of 2 m. high, at the foot of the which is a Bead, then follows the upper *Faſcia* with his Bead, at his Foot, both which contains about 13 $\frac{1}{2}$ m. then comes the middle *Faſcia*, and his Bead, which contain 8 $\frac{1}{4}$ m. and laſt of all the lower Faſcia, of 6 $\frac{1}{4}$ m. high.

*Scamozzi*, reckons the whole heighth of this *Architrave* to be 40 m. the which he ſubdivides into 9 ſmall Members, *viz.* (beginning at the top deſcending) a *Liſt* of 2 m. a *Caſement*, 3 $\frac{1}{4}$ m. and O--G· of 2 $\frac{3}{4}$ m. a Bead of 1 $\frac{1}{2}$ m. a *Faſcia* of 12 m. and his *Bead* of 2 m. the middle *Faſcia* 8 $\frac{1}{4}$ m. and his *Bead* 1 $\frac{1}{2}$ m. and *lower* Faſcia of 6 $\frac{1}{2}$ m. in all 40. m. as before ſaid.

*Vignola*, makes the *Corinthian Architrave* to be 45 m. high, the which he ſubdivides into 8 ſmaller Members, *viz.* as *Palladio* doth, *viz.* a *Liſt*, a *Cima*, 3 *Beads*, and 3 *Faſcia's*.

9. *Compoſite*, *Compound*, *or Roman*] *Vitruvius* makes the *Architrave* in this *Column*, and the *Frieſe*, and *Corniſh*, all of an equal heighth, *viz.* Each of which is equal in heighth to the Diameter of the *Column*, above, juſt under the *Capital*; which is $\frac{1}{12}$ of a Module,——50 m. This *Architrave Vitruvius* divides into 6 parts, one of which is for the *Cimatium*, and its *Boultin* under

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it; this upper *6th.* part he divides into 4, and one of these 4, he allows for the *Fillet* above the *Cima*, the 2 next for the *Cima* it self, and the *4th.* remaining he allots for the small *Boultin* under the *Cima*; the other 5 grand Divisions, he subdivides into 12 Minuter Parts, 5 of which parts he assigns for the upper *Fascia*, 4 for the middle one, and 3 for the lower; the upper and middle *Fascia's*, he subdivides into 8 parts each, and one of these 8ths he allows for a *Bead*, at the foot of each of these *Fascia's*.

*Palladio* makes this *Architrave* 45 m. high, the which he distributes amongst 7 particular Minuter Members, which I will thus reckon up in order, (beginning at the top, and so descending) And *1st.* to the *List*, he allows 2 $\frac{1}{8}$ m. to the *Casement*. 4 $\frac{1}{8}$ m. to the O. G. 9 $\frac{1}{4}$, to the *Bead* 1 $\frac{1}{4}$ to the upper *Fascia*, 15 m. to an O. G. at his Foot 2 $\frac{1}{4}$, and to the lower *Fascia* 11 m.

*Scamozzi* makes this 40 m. high, the which he divides amongst these 8 following Members, or Parts, *viz.* (descending) *1st.* a *List* of 3 m. *2dly.* an O--G of 4 $\frac{1}{2}$ m. *3dly.* an *Astragal* of 2 m. *4thly.* the upper *Fascia* of 11 $\frac{3}{4}$ m. *5thly.* a *Bead* at his foot of 2 $\frac{1}{4}$ m. *6thly.* the middle *Fascia* of 8 $\frac{1}{2}$ m. *7thly.* his at his foot 1 $\frac{1}{2}$ m. *8thly.* and lastly, the lower *Fascia* of 6 $\frac{1}{2}$ m.

*Vignola* makes this *Architrave*, 45 m. in Altitude; the which he divides into 7 Members, a *List*, a *Casement*, a *Boultin*, a *Fillet*, a *Fascia*, a *Bead*, and a *Fascia*.

10. *Measuring.*] As to measuring of *Architraves*, in Buildings, (whether of *Brick*, or Stone) they are commonly done by the foot Lineal, and therefore the length being taken in Feet, the Content is also had at the same time.

11. *Price.*] As to their value; they are different according to their breadth, or wideness; *Architraves* of Stone, about Doors and Windows, Mr. *Wing* saith, they are commonly reckon'd *1 d. per* Inch broad, at 1 Foot: E. G. if it be 9 n. broad, it's worth 9 *d. per* Foot, 10 n. 10 *d.* &c.

## *Ash*

*Of Sawing.* In some places they have 3 *s. per* hundred, in others 3 *s.* 6 *d.* and other some 4 *s.* The Price varies in this, as it doth in other Business, *viz.* According to the Custom of the Place; but it is certainly worth *6 d. per* hundred (at least) more than it is to saw Oak.

## *Ashlar.*

1. *What.*] I understand by Workmen, that by this word, they mean common, or free Stones, as they come out of the Quarry, of different lengths, and thicknesses. Mr. *Leybourn* saith, that 9 n. is the common thickness.

2. *Price.*] Mr. *Wing* ſaith, in *Rutland*, they commonly value them at 3 *d.* or 4 *d. per* Foot at the Quarry.

About us (in *Suſſex* and *Kent* they toll them, being a common ordinary ſort of Stone) by the Load, about 18 or 20 Foot makes a Load, which coſts, if they come rough from the Quarry, about 3 *d. per* Foot; being laid down at the place, where they are to be uſed; but if they are ready ſcapted, then they are valued at about 4 *d. per* Foot. But if they are bought rough at the Quarry, then they are valued at about 2 *d. per* Foot; but if ſcapted, then about 3 *d. per* Foot. But in ſome other Places in *Kent*, and *Suſſex*, I have known them ſold rough at the Quarry for about 1 ½ *d. per* Foot, and for 2 ½ *d. per* Foot ſcapted; but if they were laid down at the Place for uſe rough, then they were uſually valued at about 2 ½ *d. per* Foot, and if ready ſcapted, at about 3 ½ *per* Foot.

But as to the real value of *Stones*, or *Aſhlar*, in all Places, it's impoſſible to give a certain Rule to know it: Becauſe the Price differs, 1*ſt.* According to the different Cuſtoms of the Places. And 2*dly.* The Circumſtances of the Quarry. And 3*dly.* Goodneſs of the *Aſhlar*. To all which 3 Heads I ſhall briefly ſay ſomething. 1*ſt.* Of the Cuſtoms of Places, by which I mean as to Carriage; I have known *Stones* carried above a Mile for 1 *s.* 8 *d. per* Load, at one Place, and again at another Place the uſual Price to carry a Load but about ½ a Mile was 2 *s.* which is 4 *d. per* Load more than at the 1*ſt.* Place, tho' they were carried but ½ ſo far.

2*dly.* As to the Circumſtances of the Quarry, which I ſhall conſider under 2 Heads. And 1*ſt.* Whether the Stones are drawn in incloſed Land, or on the Lord's Waſte, (*viz.* In the High-ways, or on Commons, *&c.*) For if they are drawn within Land (as they commonly call it) he that is the Proprietor of the Land, will be paid well for damaging his Ground, both by drawing, and carrying the Stones out of his Land. Whereas, if they are drawn on the Lord's Waſte, the Lord hath only (commonly) a ſmall Acknowledgment (by the Load, or ſo forth) for Treſpaſſing upon his Waſte.

3*dly.* As to the Goodneſs of Stones, that may be conſider'd of under 2 Heads, *viz.* Durability, and Magnitude. And 1*ſt.* Of Durability; this wholly depends on Experience, for none can certainly tell whena new Quarry is 1*ſt.* opened, how the *Stones* may prove; for ſome Stones, when they are taken out of the Quarry, are very ſoft and friable, and being but a few Years expoſed to the Weather, moulder into Sand; tho' ſome of theſe ſoft *Stones* are indurated by being expoſed to the open Air; but as for hard Stones, they are generally durable, being of a more ſolid and firm Conſiſtence. 2*dly.* As to their Magnitude, I need not ſay much, for all know that large *Stones* muſt needs be better, and make firmer Work than ſmall, which are only fit

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for filling Work in thick Walls, or to use in such Places where the Country affords no better. But 'tis too often through the Stone Drawers Carelesness, or Ignorance, that *Stones* are broken up so small in the Quarry; and therefore to promote (in some measure) so useful an Art; I shall, when I come to speak of Stones, lay down some Precepts to be observ'd in drawing of *Stones*, as I received it from an ancient experienced *Stone drawer*, who always drew the best *Stones* on our side the Countrey.

I might have added a 3*d.* Head to the Circumstances of the Quarry; which because I did not think of then, I shall here annex it; tho' it be out of its proper place, but in another Edition it may be Corrected: Which 3*d.* Head is this, *viz.* There is a great difference as to Quarries, in respect of the Position of the *Stones* in the Ground, which may be again considered under 2 Heads, *viz.* As to their depth in the Ground, and their manner of lying there. And 1*st.* As to their depth: When they lie a considerable depth, it requires a great deal of Labour to remove the Earth over the *Stones*, or uncope it, as Workmen call it: 2*dly.* If they lie almost even with the Surface of the Ground, then it will require but little work to uncover them. And 2*dly.* As to their manner of lying in the Ground, that is also different, and that in 2 Respects; for if the Quarry consist of a Rock, it will require more Labour to raise the *Stones*, and break them fit for use, than if the Stones lie separate, and disunited. All which forecited Circumstances, being duly consider'd, will make the Price of *Stones* very uncertain; for I have known *Stones* drawn for 9*d. per* Load, and I have known 3 *s. per* Load given.

Before I conclude this of *Ashlar*, I shall add something to the 3*d.* General Head, of the goodness of Stones, and that shall be the 3*d.* Division of that Head, *viz.* The Form of *Stones* ought to be consider'd, as to their being raised square, and not with obtuse, and Acute Angles, which requires more work in Scapting, and wasts more of the *Stones*, V. P. Stones of drawing.

## *Ashlering.*

Quartering (to tack to) in Garrets about 2 ½, or 3 Foot high, Perpendicular to the Floor, up to the under side of the Rafters, 'tis from 4 to 6 *s. per* Square Workmanship.

## *Astragal.*

V. Capital. N. 2. 45.

## *Attick.*

In Building a little Order, placed upon another much greater; for in inſtead of Pillars, this Order has nothing but Pilaſters.

## *Attick*, or *Athenian Baſe.*

The ſame as Palladio's Ionick Baſe, which ſee.

## *Back,*

Or *Hip-molding*, is a Term in Carpentry, by which they ſignifie the outward Angle of Hips, or Corners of a Roof; which in ſquare Frames, where the Roof is $\frac{1}{4}$ Pitch, contains an Angle of 116 Degrees, 12 m.

It's alſo a Term uſed by Iron-mongers, to ſignifie a certain ſort of Nails, V. Nails. N. 2.

## *Bake-houſe.*

1. *What*]. It's a Room of Office, in all noble Buildings, where the Oven is placed, *&c.*

2. *Its Poſition.*] According to the Rules of Sir *Henry Wotton*, it ought to be placed on the South-ſide of any Building.

## *Balcony.*

1. *What,*] Is a kind of open Gallery, (without the Walls of a Houſe, or Building) for People to ſtand in, and behold any Action, as Pageants, and the like, in Cities, or to take the Air, *&c.* This Jutty, or projective Building commonly is in the midſt of the Front of a Houſe, if there be but one Balcony to it; and for the moſt part level with the 1*ſt.* Floor above Stairs. And they are ſometimes of Wood, and ſometimes of Iron; the wooden conſiſt of Rails and Ballifters, and ſo do the Iron ones ſometimes, but not always, for they are ſometimes made of caſt Iron of various Figures in ſemi Relief, and others of wrought Iron, in crail'd Work, or flouriſhes, of different ſhapes, according to the Fancy of the Maſter, or Workman.

2. *Price.*] Wooden *Balconies* are commonly done by the Yard, *viz.* From 3 to 5 *s. per* Yard, Workmanſhip, according as what Work the Carpenter beſtows on it.

Iron Balconies are commonly done by the lb. (*viz.* wrought ones) from 4 *d.* to 8 *d. per* lb. according to the Curioſity of the Work.

## *Baldachin.*

It's a perfect *French* word, and they pronounce it *Baldaquin*, which properly ſignifies a Canopy; 'tis uſed by Architects, to ſignifie a piece of Architecture, built in faſhion of a Canopy, or Crown, ſupported by ſeveral Pillars to ſerve for a covering to an Altar; ſome alſo uſe it to ſignifie a Shell over the front Door of a Houſe.

## *Balkes.*

Great pieces of Timber coming from beyond the Seas by Floats.

## *Ballon.*

*French*, a Term in Architecture, ſignifying the round Globe of the top of a Peer, or Pillar.

## *Balluſter.*

A Term in Architecture, uſed to ſignifie the lower part of the Ionick Capital. Alſo an Incloſure of Pillars ſet about the Beds of Princes, or to rail in the Communion Table.

## *Balluſtrade.*

A Term in Architecture, uſed to ſignifie a row of little turn'd Pillars, ſo high as for a Man to reſt his Elbows, fixed upon a *Terraſs*, or upon the top of Building, or to make any ſeparation.

## *Balliſter*, or *Banniſter.*

1. *What.*] It's a ſmall Column, or Pillar of different Sizes, *viz.* from 1 ¾ Inches, to 4 n. Square, or Diameter: their Dimenſions, and Forms are various, according to the Fancy of the Workmen; the *French* give them various Names, *viz. Balauſtrade, Balauſter.*

2. *Their Uſe.*] They with Rails are placed on Stairs, in the Fronts of Galleries in Churches, *&c.* Round Altar-pieces in Churches, on Terraſs Walks, and in Balconies, and Platforms, *&c.*

3. *Their Price.*] With Rails, *&c.* of Wood on Balconies, Platforms, Stairs, *&c.* according to the Work, *viz.* About 4 *s. per* Yard, running Meaſure.

4. Of *Turning them* only] 1 *d. per* Inch Workmanſhip, is the uſual Allowance.

5. *Of Painting them.*] They with what belongs to them, are uſually painted by the Yard; the Cuſtom of Meaſuring which is this, *viz.* Both ſides of the Balliſters are meaſured as if it were flat Meaſure, including the Vacuity betwixt the Balliſters; which being caſt up in Feet and Parts, it's reduced into Yards, as other Plain Painting is. Mr. *Leybourn* ſaith, that he hath ſeen the Experiment tryed, by girting the Balliſters, to find the difference betwixt that way, and meaſuring them, and the Vacuity on both ſides, as if it were flat, and he found that the difference would not counter-value the trouble of Girting. But this ſtands to Reaſon it ſhould be nearly the ſame, becauſe it's the Cuſtom to ſet them but their Square or Diameter aſunder, and then the Flanks make good the Vacuities.

## *Bandelets.*

'Tis derived from the *French*, *Bandelette*, a little *Fillet*, or Band; 'tis uſed by *Architects*, to ſignifie the 3 Parts that compoſe an *Architrave*.

## *Banniſter.*

V. *Balliſter.*

## *Barbican.*

A Term in *Architecture*, derived from the *French*, and made uſe of to ſignifie an Outwork in a Building.

## *Bargecourſe*

Is a Term uſed by Workmen, by which they ſignifie a part of the *Tyling*, which projects over without the Principal Rafters, in all Buildings, where there is either a Gable or a *Kilkin-Head*.

## *Barn*

Is a Word that needs no Explanation, becauſe 'tis a Building that every one knows; they being ſo common: But I ſhall add 2 things concerning them, and the

1. Shall be what Mr. *Worlidge* adviſes, concerning placing them, which is this, That it is very inconvenient to build *Barns*, or *Stables*, or ſuch like Places, too near to a Houſe, becauſe Cattle, Poultry, *&c.* require to be kept near to Barns, *&c* which would

would then annoy a Houſe: I had ſome Thoughts to have added here *Pliny*'s Obſervations, concerning the manner of Building *Barns*; but for the Reaſon already mentioned, I ſhall omit it in this 1ſt. Edition, and proceed to my 2 *d.* Head, concern the Price of Framing, *&c.* the Carcaſs, *&c.* of a Timber Barn.

2. *Of the Price of Framing*, &c.] I have known the Carcaſs of a *Barn* Framed for 3 *s.* 6 *d. per* Square, Carpenters work only, and I have known 8 *s. per* Square given for Carpenters Work, he Felling, Hewing, and Sawing his Timber and Boards, and finding Nails.

I have been inform'd by ſome Workmen, that the Charge of a Square of *Building* of the Timber Work of a Timber *Barn*, may be thus computed, *viz.* 4 *s. per* Square for Sawing the Boards, (conſidering their laping one over another, and the Staving the Logs) 2 *s. per* Square for Sawing the Timber Members, 3 *s.* 6 *d. per* Square for *Framing* the Carcaſs, and from 4 *s.* to 7 *s. per* Square for the value of the Timber, reckoning the Price of the Timber from 12 *s.* to 21 *s. per* Tun; and one Tun to make 3 *s.* Square of Frame in *Barn-work*. He reckon'd rough Timber, *viz.* Unhew'd, or Squar'd, and that a Tun of rough Timber (which is equal to a Load of hew'd: From theſe Computations, we may reckon the whole value of a Square of ſuch Timber-work to be worth from 3 *s.* 6 *d.* to 16 *s.* 6 *d. per* Square.

## *Bars*

Of Iron for upright ones for Windows, their uſual Price is 3 *d.* ½, or 4 *d. per* lb. in *London*.

## *Bar poſts*

Are a neceſſary ſort of *Poſts*, much uſed in the Countrey, 2 of which, and 5 Rails or Bars, ſerve inſtead of a Gate, for an Inlet to Fields, and other Incloſures; each of theſe Poſts conſiſt of 5 Mortices, and thoſe *Poſts* are commonly about 6 Foot, or 6 ½ Foot long, 4 f. of which ſtands above Ground. Theſe *Poſts* are in ſome Places made by the Piece, *viz.* 1 *d.* or 1 *d.* ½ *per* Poſt Hewing, and ½ *d. per* Hole for Morticing them.

## *Baſe.*

1. *Whence derived.*] I have good Reaſon to think 'tis derived from the Latin Word *Baſis*.

2. *What.*] 'Tis uſed in Architecture, to ſignifie the Molding, next above the *Pedeſtal* of a Column, it being always the grand Member (or Ornament) at the Foot of the Body of a Column: 'Tis alſo uſed to ſignifie the Ground-work, or Foundation of a

Building, alſo the Pedeſtal, on which a Statue ſtands, is call'd the Baſe.

3. *Kinds.*] They are diſtinguiſhed by *Architects* into 5 Kinds, *viz. Tuſcan, Dorick, Ionick, Corinthian,* and *Compoſite*, according to the 5 Orders of Columns.

4. *Parts*, or *Members*] Exceed the number of the Kinds, becauſe that ſome Authors differ from others in their Form; of each of which I ſhall give you the following Account.

5. The *Tuſcan*] According to *Vitruvius*, muſt be ½ a Module high; this croſs Member conſiſts of 3 Minuter Members, or Parts, *viz.* a *Plinth*, a *Thorus*, and a *Fillet*, and is thus divided, and ſubdivided; the whole Altitude being——30, is divided into 2 equal parts, the lower one of theſe is for the *Plinth*, and the upper part of the 2 is to be ſubdivided into 3 equal parts, the lower of theſe are for the *Thorus*, and the upper one for the *Fillet*.

*Palladio* alloweth this Baſe to be 30 Min. high alſo; the which he diſtributed amongſt 3 ſmaller Members, *viz.* a *Plinth*, or *Orlo*, a *Totus*, and a *Liſtella*, or *Ceincture*. The *Plinth* is 15 m. the *Totus* 12 ½ m. and the *Liſtella* 2 ½ min. high.

*Scamozzi* alſo alloweth this Baſe 30 m. in heighth, but then he reckons but 2 Members, or Parts to it, and they are a *Plinth* of 18 m. and a *Thorus* of 12 m. altho' at the ſame time he places above the *Thorus* a *Liſt* of 3 m. which in all (I think) makes more than ½ a Module by 3 m.

*Vignola* alſo makes the *Baſe* of 3 Parts, *viz.* a *Plinth*, *Thorus*, and *Fillet*; all which he reckons 30 m. —— ½ a Module.

6. *Dorick.*] This *Baſe Vitruvius* reckons to conſiſt of 6 Parts, *viz.* a *Plinth*, 2 *Thoruſes*, 1 *Scotia*, and 2 *Liſts*; the whole heighth of all theſe, he allows to be 30 m. which he thus divides, *viz. 1ſt.* into 3 Parts, the lower one of theſe is for the *Plinth*, the 2 Parts remaining, he ſubdivides into 4, the upper one of which 4, he allots to the upper *Thorus*, the 3 lower parts of theſe 4, he divides into 2, the lower of which 2 is for the lower *Thorus*, then he ſubdivides the upper part of theſe 2 into 7 equal parts, the upper and lower of theſe 7, are for the 2 *Liſts*, and the 5 betwixt them is for the *Scotia*. But amongſt all theſe 6 Members, or Parts of the Baſe, there is one large *Fillet*, which is $\frac{1}{7}$ part of the Module, but this *Fillet* he reckons to be no part of the *Baſe*, but a part of the Body of the *Column*.

*Palladio*, aſſigneth 30 m. for the Altitude of this *Baſe*: According to his Scheme of this Member, it is compoſed of 7 Parts, *viz.* a *Plinth*, 2 *Thoruſes*, 3 *Annulets*, and a *Scotia*, or *Cavetto*; the which he thus proportions, *viz.* To the *Plinth*, (the which I think he may more properly call a *Scotia*, or *Caſement*) which is wrought hollow, he allots 10 m, to the lower *Thorus* 7 ½ m, to the lower *Annulet* 1 ¼ m, to the *Cavetto* 4 ½ m, to the middle *Annulet* 1 ¼ m. to the upper *Thorus*, 4 ½, and to the upper *Annulet* 1 ¼.

*Scamozzi* makes the *Dorick-baſe* 30 m. high, the which he

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ſubdivides amongſt 6 ſmall Members, *viz.* (beginning below, and ſo aſcending) 1*ſt.* A *Plinth*, to which he allows 10 ½ m. 2. A *Thorus* of 8 m. 3. A *Liſt* of 1 m. 4. A *Scotia* of 4 m. 5. A *Liſt* of 1 m. And 6. A *Thorus* of 5 ½ m. Above all theſe he places a *Liſt* of 2 m. which he doth not reckon into the *Baſe*, but to be part of the Body of the *Column*.

*Vignola* alſo reckons the heighth of the *Baſe* ½ the Diameter of the *Column* below, but he makes it to conſiſt of but 4 parts, *viz.* A *Plinth*, a large and ſmall *Thorus*, and a *Liſt*.

7. *Ionick*,] According to *Vitruvius*'s Order, is ½ a Module high; he deſcribes 2 ſorts of Baſes in this Order, one for the *Ionick* Column without a Pedeſtal, the other with; each of which *Baſes* conſiſt of ſmaller Members; but the *Baſes* differ in the Dimenſions of their Parts. The Members whereof they conſiſt, are theſe following, *viz.* A *Plinth*, 4 *Fillets*, 2 *Scotia*'s, 2 *Aſtragals*, and a *Thorus*. I ſhall 1*ſt.* deſcribe the Dimenſions of the Parts of the *Ionick Baſe*, without a Pedeſtal. This Baſe he thus divideth and ſubdivideth, *viz.* He divideth the whole heighth of the Baſe into 3 equal Parts; the lower one of which is the heigth of the *Plinth*, the 2 upper, and remaining Parts, he ſubdivideth into 7 equal Parts, the upper 3 of which make the *Thorus*, the 4 7*th.* remaining, he ſubdivideth into 8 equal parts, ½ of the lower 8*th.* makes the lower *Fillet*, the other ½, and the 2 *d.* 8*th.* and ½ the 3 *d.* 8*th.* makes the 1*ſt. Scotia*, and the upper ½ of the 3 *d.* 8*th.* makes the 2*d. Fillet*, the 4*th.* and 5*th.* makes the 2 *Aſtragals*, ½ the 6*th.* 8*th.* makes the 3 *d. Fillet*, the upper ½ of the 6*th.* 8*th.* and all the 7*th.* and ⅓ of the laſt, or upmoſt 8*th.* makes the ſecond *Scotia*, the ⅔ of the laſt 8*th.* remaining, makes the upper *Fillet*, which ſubjoyns to the *Thorus*: Above the *Thorus* he places another *Fillet*, which he doth not reckon any part of the *Baſe*, but part of the Body of the *Column*, which Fillet is $\frac{1}{12}$ of the Body of the *Column*, —— 5 m.

The *Ionick Baſe* with a Pedeſtal, he thus divides into parts, *viz.* 1*ſt.* Into 3 equal parts, the lower one of theſe is the heighth of the *Plinth*, the ⅔ remaining, he divides into 3 equal parts, the upmoſt of which he aſſigns for the *Thorus*, the ⅔ remaining, he ſubdivides into 12 equal parts, ½ the lower $\frac{1}{12}$ he aſſigns for the *Fillet*, above the *Plinth*, the remaining ½ of $\frac{1}{12}$, and the 3 next 12*ths.* make the firſt *Scotia*, the 5*th.* 12*th.* makes the 2 *d. Fillet*, the 6 and 7*th.* makes the 2 *Aſtragals*, and ½ the 8*th.* makes the next *Fillet*, the other ½ of the 8*th.* and the 9*th.* 10*th.* and 11*th.* make the 2*d. Scotia*, and the 12*th.* and laſt part makes the upper *Fillet*, which is under the *Thorus*.

There is alſo a *Fillet* above the *Thorus*, which is of the ſame heighth with that without a *Pedeſtal*.

*Palladio* aſſigneth 30 m. for the Altitude of this *Baſe*, and according to his Scheme of this Member into 6 ſmaller Members

1*ſt.*

1*ſt.* A *Plinth*, (or rather as he delineates it a *Caſement*) of 10 m. 2. A *Thorus* of 7 ½ m. 3. A *Liſt* of 1 ¼ m. 4. A *Scotia* of 4 ¼ m. 5. Another *Liſt*, or *Ceinture* of 1 ¼ m. 6. A *Thorus* of 5 ¼ m. all which makes 30 m. which compleats his *Baſe*. Above which on the Foot of the Body of the *Column*, he places an *Aſtragal* of 2 ¼ m. and above that a *Ceinture* of 1 ¼ m. all which makes 33 ½ m. *Scamozzi* makes the *Ionick Baſe* 30 m. high alſo, and of the ſame number of parts and form with *Palladio*, *viz.* 1*ſt.* A *Plinth*, (which is concave) of 10 ½ m. 2. A *Thorus* of 8 m. 3. A *Liſt* of 1 Min. 4. A *Scotia* of 4 ½ m. 5. A *Liſt* of 1 m. 6. Another *Thorus* of 5 m. all which makes the *Baſe* of 30 m. above which on the *Column*, are 2 ſmall Members more, *viz.* An *Aſtragal* of 2 ½ m. and a *Liſt* of 1 ½ m. all which added together make 34 m. in heighth.

*Vignola* Compoſes his *Ionick Baſe*, of the ſame number of ſmall Members, and of the ſame form with *Vitruvius*.

8. The *Corinthian*,] According to *Vitruvius*, is ½ a Module high, both in the *Corinthian Column*, with *Pedeſtal*, and without a *Pedeſtal*; that without a *Pedeſtal*, he makes to conſiſt of 11 ſmaller Members, *viz.* A *Plinth*, 2 *Thoruſes*, 4 *Fillets*, 2 *Scotia's*, and 2 *Aſtragals*: This *Baſe*, *viz.* 1*ſt.* He divides the whole heighth into 4 equal parts, the lower one of theſe Diviſions he aſſigns for the *Plinth*, the 3 parts remaining, he again divides into 5 equal parts, the upper one of theſe 5 he allots for the upper *Thorus*, (which is the higheſt Member in the *Baſe*) the lower *Thorus*, he maketh to contain 5 quarters of one of theſe 5*th.* parts, *viz.* All the 1*ſt.* or lower 5*th* part, and ¼ of the 2*d.* ſo that ¼ be taken for the upper *Thorus*, and one 5*th.* and a quarter of ¼ below for the lower *Thorus*, there remains but 2 of theſe 5*ths*, 3 of one 5*th.* the which he ſubdivides into 12 equal parts, of ½ of the lower 12*th.* he makes the 1*ſt.* or (loweſt *Fillet*,) then of the other ½, and all the 2*d.* 3*d.* 4*th.* and ½ the 5*th.* he makes the lower *Scotia*, of the remaining ½ of the 5*th.* 12*th.* part he makes the 2*d. Fillet*, of the 6 and ½*th.* parts he makes the 2 *Aſtragals*, of ½ the 8*th.* part he makes the 3 *d. Fillet*, of the other ½ of the 8, and all the 9, 10, and 11 and ½ the 12*th.* he makes the 2*d. Scotia*, and of the laſt ½ of the 12*th.* part, he makes the 4*th.* or laſt *Fillet*, which ſubjoyns the under ſide of the upper *Thorus*. Above the *Baſe* he adds a *Fillet*, which is $\frac{1}{24}$ of the Diameter of the *Column*, in heighth, which is —— 2 ½ m.

The *Baſe* for the *Corinthian Column*, with its *Pedeſtal*, is of the ſame heighth, and number of parts, and each part hath the ſame Dimenſions, with that which hath no *Pedeſtal*.

*Palladio*, makes this Baſe to contain 8 ſmaller Members, *viz.* 1 *Orlo*, 2 *Thoruſes*, 2 *Aſtragals*, 2 *Ceinctures*, and 1 *Scotia*. 'Tis my Thoughts, that either the Author, or the Ingraver, have made a great blunder in the Diviſion, and Subdiviſion of this *Baſe*, which I ſhall exhibit to you as I found it, tho' I do do not ſuppoſe

poſe it to be falſe: The *Orlo* he makes 9 $\frac{3}{4}$ m. the lower *Thorus* 7 m. the lower *Aſtragal* $\frac{1}{4}$ m. (the which I am confident is too little,) the lower *Ceinčture* $\frac{1}{4}$ m. the *Scotia* 3 $\frac{3}{4}$ m. the next *Ceinčture* has nothing ſet to him, but he appears about the ſame ſize with the other *Ceinčture*; then comes the next *Aſtragal* of $\frac{1}{4}$ m. and then the upper *Thorus* of 5 m. above all theſe 8 Members of the *Baſe*, he places another *Aſtragal* of 2 $\frac{1}{2}$ m. and above that a *Ceinčture*: Thus I have given you a very lame account of this Member, but I may thank the Author, or Graver of both for it, that it is no better.

*Scamozzi*, according to his Portraičture of this *Baſe*, makes it 30 m. high, and he divides this grand Member into 8 petty Members of the ſame Form with *Palladio*, *viz.* 1. Orlo of 9 $\frac{1}{2}$ m. then a *Thorus* of 7 m. next an *Aſtragal* of 2 m. next a *Liſt* of 1 m. then a *Scotia* of 3 $\frac{1}{2}$ m. next another *Liſt* of 1 m. and then another *Aſtragal* of 1 $\frac{1}{2}$ m. and laſt of all another *Thorus* of 4 $\frac{1}{2}$ m. all which makes 30 m. Above the Baſe he places 2 other Members on the Foot of the *Column*, *viz.* An *Aſtragal* of 2 $\frac{1}{2}$ m. and a *Liſt* of 1 m. *Vignola* allows this Baſe to be 30 m. alſo; and as to the Form, he makes it much the ſame with *Vitruvius*.

9. *Compoſite*, *Compound*, or *Roman.*] *Vitruvius* makes this *Baſe* to contain 30 m. in Altitude. This grand Member he divides into 10 ſmaller, *viz.* A *Plinth*, 3 *Thoruſes*, (one of which is in the middle where the 2 *Aſtragals* are in the Corinthian Order) 4 *Fillets*, and 2 *Scotia's*. This Member he *1ſt.* divides into 4 parts, the lower one of which is for the heighth of the *Plinth*, the other 3 parts he ſubdivides into 5, of the upper one of the 5 he makes the upper *Thorus*, the lower *Thorus* he makes of the lower *5th.* and $\frac{1}{5}$ of the *2d. 5th.* (ſo that the lower *Thorus* is $\frac{1}{5}$ high;) the *2d. 5th.* parts, and $\frac{4}{5}$ remaining, he ſubdivides into 12 equal parts, of $\frac{1}{2}$ the lower *12th.* he makes the *1ſt. Fillet*, of the other $\frac{1}{2}$, and all the *2d. 3d. 4th.* and $\frac{1}{2}$ the *5th.* he makes the *1ſt. Scotia*, of the remaining $\frac{1}{2}$ of the *5th.* he makes the *2d. Fillet*, of the *6th.* and *7th.* he makes the middle *Thorus*, then of $\frac{1}{2}$ the *8th.* he makes the *3d. Fillet*, of the remaining $\frac{1}{2}$ of the *8th.* and all the *9th. 10th.* and *11th.* and $\frac{1}{2}$ the *12th.* he makes the *2d. Scotia*, of the remaining $\frac{1}{2}$ of the *12th.* he makes the laſt *Fillet*, which is juſt under the upper *Thorus*. Above the *Baſe*, on the foot of the *Column*, he makes a *Fillet*, which is $\frac{1}{24}$ of the Diameter of the *Column* below.

*Palladio* makes this Baſe 30 m. high, which he divides into into 11 ſmaller Members, *viz.* An *Orlo*, 2 *Thoruſes*, 4 *Liſts*, 2 *Scotia's*, and 2 *Aſtragals*, to the *1ſt.* Member, being an *Orlo*, (which is Concave) he allows 9 m. then follows 2 *Thoruſes* of 7 m. then a *Liſt* of $\frac{1}{2}$ m. next a Scotia of 3 m. then another *Liſt* of $\frac{1}{2}$ m. then the 2 *Aſtragals*, each of 1 m. apiece, then a *Fillet*, or *Liſt* of $\frac{1}{2}$ m. then a *Scotia* of 3 m. and then another *Liſt* of $\frac{1}{2}$ m. and then the upper *Thorus* of 4 m. above which on the Foot of the *Column*, he places another *Aſtragal* of 3 m. and above that a *Liſt* of 1 m.

*Scamozzi* makes the *Roman Base* 30 m. high, the which he divides amongſt 7 ſmaller Members, *viz.* 10 m to a Concave Plinth, 7 m. to the 1*ſt. Thorus*, 2 m. to an *Aſtragal*, 1 m. to the 1*ſt. Liſt*, 4 m. to the *Scotia*, 1 m. to the 2*d. Liſt*, and 5 m. to the upper *Thorus*, which is the higheſt Member in the *Base*; but above the *Base*, he places 2 Members, *viz.* An Aſtragal of 2 , m. and a *Liſt* of 1 ¼ m.

*Vignola* makes his *Roman Base* very much like *Vitruvius*'s, only he places 2 *Aſtragals* in the middle betwixt the 2 *Scotia*'s where *Vitruvius* has a *Thorus*.

## *Batement.*

A Term uſed by ſome *Carpenters*, ſignifying thereby to abate, or waſte a piece of Stuff, by forming it to a deſign'd Purpoſe. Thus inſtead of asking how much was cut off from ſuch a piece of Stuff, ſome *Carpenters* will ask what *Batement* that piece of Stuff had.

## *Batten*

Say ſome is a Scantling of Stuff, of 2, 3, or 4 Inches broad, and but ſeldom above 1 Inch thick, and the length unlimited. But I muſt tell you what Senſe I have obſerved Workmen to uſe it in, (by Workmen, I mean *Carpenters* and *Joyners*) which is this, *viz.* In Doors, and Windows of Shops, *&c.* which are not framed of whole Deal, or 1 ¼ Inch Oak, with *Stiles*, *Rails*, and *Pannels* (as Wainſcot is framed) and yet they are made to appear as if they were, by means of pieces which are bradded on (upon the plain Boards, which are joyned together for) the Door, or Window, all round the edges, and ſometimes croſs them, and up, and down, *&c.* According as how many *Pannels* the Workman deſigns the Door, or Window ſhall appear to have. Theſe pieces which are thus bradded on to repreſent *Stiles*, *Rails*, and *Montans* are of different breadths, according to the Deſign of the Artificer, as from 2, to 6 or 7 Inches, and commonly on one edge of thoſe which repreſent the *Stiles*, and the upper and lower *Rails*, and on both edges of thoſe which are to appear like *Montans*, and middle *Rails*, there is commonly ſome Moulding ſtruck, as a *Bead*, an O. G. or the like.

## *Batten Doors.*

1. *What.*] *Batten Doors* are (as I ſaid before) ſuch as ſeem to be Wainſcot ones, tho' they are not ſo; for Wainſcot ones the *Pannels* are groved into the Framing, but here they firſt Joint, and Glue the Boards, which are cut to the full length, and breadth

breadth of the Door-case, which Gluing being dry, they traverse them over, both in length, and breadth with a long Plane, and then smooth them, and then fit on the *Battens* on the Front-side. And this is what they call single *Batten-doors*: for you must note, there are double *Batten-doors*, viz. Such as are Batten'd on both sides, tho' that is but seldom used.

But there are commonly used Batten'd Doors, which are call'd double Doors, *viz.* Such as are front, or outer Doors; they are commonly made of whole Deal, and then Batten'd on the out-side, and pieces of 4 or 5 Inches broad, miter'd round on the Edges, on the inside of the Door, and then cross the Door betwixt these pieces, it is lined with slit Deal, which makes it level with the miter'd pieces. I have seen some *Doors* that have been lined with pieces put Bereling, and not at right Angles, but near Miter to the sides of the Door, and when all is plained off level, it hath been divided out in Rhombuses, and struck with a Pencil, and at the Angles of the Rhombuses, were round headed Nails driven, which added something of Beauty to the Work: This way of Lining upon the Doors, *viz.* Pointing from the lower corner behind, toward the upper corner before, I believe may be a good way to prevent a Door from sagging, or sinking at the fore corner, when ever the Joints shall happen to unglue.

2. *Price.*] As to the Price of such *Doors*, vid. *Doors* N. 4. where you will find Price of Materials, and Workmanship; but I shall here add, that for Workmanship of making *Batten'd-doors* of slit Deal, about an Inch thick, (or of thin whole Deals) Glued, and Batten'd on one side, 4 *s. per* Door, is a good moderate Price: But such as are mentioned above, (which are for Front, and other outer Doors) *viz.* both Batten'd, and Lined, are worth 7 *s. per* Door Workmanship.

## *Batter.*

A Term used by Workmen, to signifie that a Wall, a piece of Timber, or the like, doth not stand up right, but leans from-you-ward, when you stand before it; but when it leans towards you, they say it *over-hangs*, or *hangs over.*

## *Bay.*

This word is used, to signifie (as it were) the Magnitude of a *Barn*; for if a Barn consist of a Floor, and 2 Heads, where they lay Corn, they say a Barn of 2 *Bays*; these *Bays* are from 14, to 20 Foot long, and Floors from 10 (which is the smallest size) to 12 broad, and usually 20 long, which is the breadth of the Barn: If a *Bay* be 20 Foot long, then there is commonly a pair of *Prick-posts* in the middle, and a *Beam* to hold in the Rod from bending the Raisons; but if the *Bays* are not above 16 Foot,

and the Timber ſtout, then there is no *Poſts*, but at the end of each Bay, where there is always hanging *Braces*, Framed into the *Beam*, and *Poſts*, and alſo a croſs *Cell* to hold in the ſide *Cells* from flying out when the *Barn* is fill'd, and 'tis common for large Barns to conſiſt of divers ſuch *Bays*.

## *Bay-window*,

I underſtand to be ſuch a one, which is compoſed of an Arch of a Circle, and ſo by conſequence ſuch a one will ſtand without the ſtreſs of the Building. By which means Spectators may the better ſee what is acted in the Street.

## *Bead.*

A Moulding, ſo call'd, which is commonly made upon the edge of a piece of Stuff; as for Example, 'tis common to ſee Joyners make a Moulding, which is about a quarter of a Circle, on the upper edge of a *Skirting-board*, alſo on the Lining-board of a *Door-caſe*, or the like, alſo on the inner, or lower edge of an *Architrave*. A *Bead*, and a *Boultin*, differ very little, only in Magnitude; for when they are large, Workmen commonly call them *Boultins*. Sometimes a *Bead-plain* is ſet on, upon the edge of each *Faſcia* of an *Architrave*, and ſometimes alſo this Moulding (eſpecially in the *Corinthian*, and *Roman* Order) is cut, or carved, in ſhort Emboſſments, which reſembles Women's Beads in Semi-relief; and ſometimes likewiſe an Aſtragal is thus Carved; in both which, theſe Carvings are call'd *Beads*.

## *Beam*,

1. *What.*] In Building, is a piece of Timber, which always lies croſs the Building, into which the Feet of the principal Rafters are Framed; no Building hath leſs than 2 of theſe *Beams*, *viz.* one at each Head; into theſe *Beams* the *Girders* of the Garret-floor are Framed; and if it be a Timber Building, the *Teazle Tennons* of the Poſts are Framed. The *Teazle Tennons* are made at right Angles to thoſe which are made on the Poſts to go into the *Raiſons*, and the *Reliſh*, or Cheats of theſe *Teazle Tennons* ſtand up within an Inch and a ½ of the top of the *Raiſon*, and the Beam is *cauked* down [which is the ſame as Dove-tailing a Croſs] till the Cheeks of the Mortices in the Beam conjoyn with thoſe of the *Teazle Tennon* on the *Poſts*.

2. *The Size.*] The *Beams*, according to an Act of Parliament, for the Re-building of the City of *London*, after the dreadful Fire, were appointed to be of the following Scantlings, *viz.*

Foot

| | Foot | | Inch | | Inches. |
|---|---|---|---|---|---|
| In length | 15<br>16<br>17 | must be in that Square. | 7<br>8<br>10 | and | 5<br>6<br>6 |

And ſo proportionably to their lengths. But in the Countrey, where Timber is more plentiful; they generally make their *Beams* Stouter.

Sir *Henry Wotton* adviſes, that all *Beams*, *Girders*, and *Summers*, ought to be of the ſtrongeſt, and moſt durable Timber.

## *Bear.*

Timber is ſaid to *bear* at its whole length, when neither a *Brick-wall*, or *Poſts*, &c. ſtand between the ends of it. But if either a *Brick-wall*, or Poſts be Trim'd up to the Timber, then it is ſaid to *bear* only at the diſtance between the *Brick-wall*, or *Poſt*, and either end of the Timber. Thus Carpenters uſually ask what

## *Bearing?*

The Anſwer to ſuch a Demand, or Queſtion, ſuch a piece of Timber has, is 10, 12, 15, *&c.* Foot, according to the length of the whole Timber, or elſe according to the diſtance between either end of the Timber; and a

## *Bearer.*

*Viz.* A Poſt, or Brick-wall, that is Trimed up between the ends of a piece of Timber to ſhorten its *bearing*.

## *Beam filling*

1. *What.*] Is Plaſterers Work, 'tis only filling up the vacant ſpace betwixt the *Raiſon* and the Roof, whether Tiling, Thatching, or any other Roof; 'tis a ſort of Work that is very cuſtomary in the Countrey, where they do not Parge, or (which is all one) Plaſter their Garrets, they thus perform this ſort of Work, *viz.* They take ſome pieces of Stones, or elſe Bricks, and lay them betwixt the Rafters upon the *Raiſon*, and then Plaſter upon it with *Loam*, or elſe they ſet ſome *Tiles*, with one edge upon the *Raiſon*, and the other leans againſt the Roof, and then upon theſe *Tiles* they Plaſter with *Loam*.

2. *Price.*]

2. *Price.*] The uſual Price for Workmanſhip only, in the Countrey, is $\frac{1}{2}d.$ *per* Foot, or $1\frac{1}{2}d.$ *per* Yard, Lineal Meaſure.

## *Bed.*

Of a *Stone*, What. V. Stone, N. 4.

## *Bed-moulding,*

Or as ſome will have it,

## *Bedding-moulding,*

Is a Term uſed commonly amongſt Workmen (but I did never mind it in any one of the Treatiſes of the *Greek*, or *Italian Architects*. But however our Modern *Artificers*, make uſe of this Compound Word, to ſignifie, thoſe Members in a *Cornice*, which are below the *Coronet*, or Crown, E. G. 'Tis now common for *Joyners* to have their *Bed moulding* to conſiſt of theſe 4 Members, *viz.* 1. (below) an O. G. 2. A *Liſt*. 3. A large *Boultin*. And 4. and Laſtly, under the *Coronet*, another Liſt. This is what they frequently call a *Bed-moulding*.

## *Bevil.*

Any Angle that is not ſquare, is call'd a Bevel Angle; whether it be more obtuſe, or more acute than a Right Angle; but if it be $\frac{1}{2}$ as much as the Right Angle, *viz.* 45 Degrees, then Workmen call it *Miter*, they have alſo a Term, *half Miter*; which is an Angle that is a $\frac{1}{4}$ of a Quadrant, or Square, *viz.* An Angle of $22\frac{1}{2}$ Degrees, this they call $\frac{1}{2}$ *Miter*.

## *Bill.*

All know a Bill to be an Account of Work done, Materials uſed, *&c.* As for the Method of drawing up Trades-men's *Bills*, we ſhall give ſome Examples, under the following Heads, *viz.* *Bricklayers Bill*, *Carpenters Bill*, *Glaziers Bill*, and *Smiths Bill*, all which V. in their proper places.

## *Binding Joyſts.*

1. *What.*] *Binding Joyſts*, are thoſe *Joyſts* in any Floor, into which the *Trimmers* of Stair-caſe (or Well-hole for the Stairs) and Chimney-ways are Framed; theſe *Joyſts* ought to be ſtouter than common *Joyſts*.

2. *Scantlin,*

2. *Scantlin*, or *Size*.] The Size of theſe, as well as all other Timber Members was ſettled by an Act of Parliament, before the Re-building of *London*. According to which Act, *Binding-Joyſts*,

| | Foot | | Inches | Inches. |
|---|---|---|---|---|
| Which contain in length | 7 | must be in their Squares | 6 | and 5 |
| | 9 | | 7 | |
| | 11 or 12 | | 8 | |

So large they were order'd to be, and no leſs. They might (I ſuppoſe) be as much bigger as they pleaſed.

## *Boarding of Walls.*

V. *Weather-boarding.*

## *Boat.*

A Term uſed among Iron-mongers, to ſignifie a certain ſort of *Nails*; for which V. *Nails*.

## *Bolts*

Of Iron, are of various ſorts. In Navigation they have 6 Kinds, for which they have diſtinct Names, which we ſhall not here ſtay to deſcribe. Some Iron-mongers diſtinguiſh thoſe for Houſe-building, into but 3 ſorts, *viz.* Plate, Round, and Spring *Bolts*. Plate, and Spring-bolts are made uſe of, to faſten Doors and Windows, and theſe are of different Sizes, and Prizes. I have known ſmall *Spring-bolts* ſold at 3 ½ *d. per* piece, others at 9*d.* others at 14*d.* and ſo likewiſe *Plate-bolts*, ſome are 9*d.* 10*d.* *&c. per* piece. There are alſo *Braſs-knob'd-bolts*, *ſhort*, are about 10 *d. per* piece *long* for *Folding-doors*, about 18 *d. per* Piece. *Iron Balcony-bolts*, about 1 *s.* There are alſo *Braſs-plate-bolts*, at about 10*d. per* piece. There are alſo *Round-bolts* (or long Iron-pins) with a Head at one end, and a Key-hole at the other, theſe are commonly ſold by the lb. *viz.* 3 ½ *d.* or 4 *d. per* lb.

## *Bond.*

A Term uſed amongſt Workmen; for when they ſay make good *Bond*, they mean faſten the two, or more pieces of Timber well together, either with Tenanting, and Morticing, or Dove-tailing, *&c.*

## *Botham*,

Is an Iron-mongers Term, which they uſe to ſignifie a certain ſort of *Nails*; for which V. *Nails*, N. 2.

## *Boulder-walls.*

1. *What.*] That is Walls made of round Flints, or Pebbles, which are found where the Sea hath a Beach caſt up, and alſo at ſome other places where there were plenty of Flints.

2. *The Method of building them,*] As I am inform'd by a Bricklayer that hath been uſed to ſuch Work, 'tis their uſual way (if they can ſo fit it) for two to work upon it at a time, one at one ſide of the Wall, the other at the other ſide, and one to be right-handed, the other left; for two ſuch fit beſt to work together in this ſort of Work: They have a Hodd of Mortar pour'd down on their Work, and ſo they part it betwixt them, ſpreading it each toward himſelf, and then they lay in their *Boulders*, or *Flints*. But he ſaith, they always work with a very ſtiff Mortar, and had need to have a good length of Work before them; for they work but one courſe in heighth at a time; for ſaith he, if we ſhould do more, it would be apt to ſwell out at the ſides, and run down; and therefore we are forced to work continually in length: He ſaith likewiſe, that if it chance to be miſty Weather, 'tis very difficult to make the work ſtand.

3. *Price.*] He tells me, that their Cuſtom is to work by the Square, or 100 Foot; for which their uſual Price is 12 *s.* for Workmanſhip only.

## *Boults.*

V. *Bolts.*

## *Boultin*,

In an Architecture, is a Convex-moulding, that conſiſts of an exact ¼ of a Circle; being the Member next below the Plinth in *Tuſcan* and *Doric Capital.*

## *Brace*,

In a Building, is a piece of Timber, which is framed in with Bevel Joints. Its uſe is to keep the Building from ſwerving, either this, or that way; they are ſometimes call'd *Strutts*, *viz.* When they are Fram'd in the *King-piece*, and principal Rafters.

*Brads*

## *Brads*

1. *What.*] Are a ſort of Nails without Heads, ſome Iron-mongers diſtinguiſh them into ſix Species, as followeth, *viz.*

2. *Joyners,*] Plain for hard Wood-wainſcot, from 1 Inch to 2 ¼ in length.

3. *Batten*] For ſoft Wood-wainſcot, the ſorts are, 1 *d.* 2 *d.* 3 *d.* *Ditto,* large 4 *d.* *Ditto* large, 5 *d.* 6 *d.*

4. *Flooring,*] Plain for ſoft Wood, Joyſts, the ſorts are 14. 15, 18, 19, 20, 21, 22, 23, 28, 32, and 36 lb. *per* M.

5. *Ditto ſtrong,*] Fit for hard Joyſts, the ſorts are 15. 18, 19, 24, and 32 lb. *per* M.

6. *Quarter-heads,*] For ſoft Wood the ſorts are 10. 13, 15, 18, 19, 20, 22, 23, 28, and 32 lb *per* M.

7. *Ditto ſtrong,*] For hard wood Joyſts, the ſorts are 14. 20, 34, 44, and 54 lb *per* M.

*N. B.* All *Bill-brads*, alias *Quarter-heads*, are very fit for ſhallow Joyſts that are ſubject to warp, or for Floors laid in haſt, or by unskilful Perſons, becauſe the Bill to the Head will hinder the Boards from ſtarting from the Joyſts, but doth not make ſo ſmooth Work as the plain Brads

Laſtly, As to the *Prices* of *Brads*, I ſhall ſet down but a few at preſent, which ſhall be theſe following, *viz.*

1. Of *Batten-brads*, in the Country they vulgarly call 'em *Joyners Brads*, the uſual Price

of a M. of $\left\{\begin{matrix}2\\1\frac{1}{2}\\1\end{matrix}\right\}$ Inch is $\left\{\begin{matrix}20\,d.\\15\\11\end{matrix}\right.$

2. Of *Quarter-heads*, or *Bill-brads* for ſoft Wood-floors, the uſual Price

of a M. of $\left\{\begin{matrix}15\\18\end{matrix}\right\}$ lb is $\left\{\begin{matrix}4\,s.\ 9\,d.\\5\,s.\ 6\,d.\end{matrix}\right.$

## *Break in,*

Is a Term uſed by Carpenters, when they cut, (or rather break) a hole in Brick-walls with their Ripping-chiſſel.

## *Breſt,*

A Term in Architecture, made uſe of by ſome to ſignifie the ſame Member in a Column, that others call a *Thorus*.

## *A Brewhouſe.*

None need be told what it is; but what I here mention it for, is becauſe it is a neceſſary part in all Dwelling-houſes, eſpecially in the Country: Now Sir *H. Wotton* in his *Elem. Arch.* ſaith, That all Offices that require Heat, as, *Brew-houſes, Bake-houſes, Waſh-houſes, Kitchins*, and the like, ought to be placed in the Meridional part of the Building, if the Poſition of the Houſe, in reſpect of the High-ſtreet, or the like will admit of it; for it would be but an odd Contrivance, if a Houſe ſtood on the *North* ſide of a High-ſtreet, to place all the Offices in the Front of it; and it would be very ridiculous to paſs thro' a Bake-houſe, Brew-houſe, or Waſh-houſe, into Rooms of Entertainment, in a Noble Man's, or Gentleman's Houſe: And therefore we may ſee the old Proverb holds good ſtill, *viz.* That there is no general Rule, without ſome Exception.

## *Breſt-ſummers,*

In a Timber Building, are pieces into which the Girders are Framed, in all the Floors, but the Ground-floor (then they call it a Cell) and Garret-floor, (then it's call'd a Beam.) As to their Size, or Square, 'tis the ſame by the Act of Parliament with *Girders*, which ſee. You muſt note by the way, that I do not mean all the pieces which have *Girders* Framed into them, (and are not in the Garret, or Ground-floor.) But I mean all ſuch pieces which are in the Exterior part of the Building, whether in the Front, Flanks, or Rear of the Building; for you muſt note the pieces in the internal part of the Building, into which the Girders are Framed, are call'd *Summers*. The *Breſt-ſummers* in *London*, Mr. *Leybourn* ſaith, are uſed to be meaſured by the Foot, running Meaſure; but whether he means only for the Work, or Timber, or both, I do not know: Now *Com. Comer* ſaith, That *Breſt-ſummers*, in *London* are valued by the ſolid Foot, if of Oak 3 *s. per* Foot, if Fir, 2 *s.*

## *Bricks.*

1. *What.*] All know them to be a Factitious, or Artificial kind of Stone, of a reddiſh colour, and as to their Form and Magnitude

tude 'tis various, as alſo their Uſes, of both which, and likewiſe their Conſiſtence, we ſhall ſpeak in their due places.

II. *Whereof made.*] I will 1*ſt*, tell you what *Pliny* ſaith of this Matter: he ſaith, That if you would have good *Bricks*, they muſt not be made of any Earth that is full of Sand or Gravel, nor of ſuch as is gritty and ſtony, but of a grayiſh Marl, or whitiſh Chalky Clay; or at leaſt a reddiſh Earth. But in caſe you are forced to uſe that which is Sandy, be ſure to make choice of that kind of Sand which is tough and ſtrong. The beſt Seaſon (ſaith *Pliny*) is in the Spring, to make Bricks, for in the middle of the Summer, they are ſubject to crack and be full of chinks. He further addeth, that the Lome of which *Bricks* are made, ought to be well ſteeped, or ſoaked, and wrought with Water.

Mr. *Inco. in Mec. Ex.* ſaith, that *Bricks* are made of Earth, of which the whitiſh Chalky ſort of Earth and the reddiſh are beſt.

At *Lunenburgh* in *Saxony*, they make them of a fat Earth full of Allom.

Alſo there are good *Bricks* made at *Patane* in *Aſia*, of a Pumice ſort of Earth, which being dried, will ſwim in Water, and not ſink.

The Ancients likewiſe made them of Earth which was Sandy.

But here in *England*, they are made for the moſt part of a yellowiſh colour'd fat Earth, ſomewhat reddiſh, [vulgarly call'd Lome.] Mr. *Leyburn* ſaith, Bricks are made of a reddiſh Earth, which ought to be digged before Winter, but not made into Bricks till the Spring Seaſon.

III. *Of their Kinds, and Appellations.*] The Sorts or Kinds of *Bricks* are as various as their Appellations, and their Appellations are attributed to them, for diſtinction ſake (as the names of all other things are) thereby to be known. And theſe different *Names* were at 1*ſt*. impoſed upon them, according as the 1*ſt*. Donors of theſe Names, thought they did ſee a Reaſon to beſtow ſuch Names on them, either from ſome Accident in their making, or from their Dimenſions, or from their form or Figure, or from Cuſtom, or from Method in making, or From the Place where, or by whom made, or from their Uſe, *&c.* Now theſe which derive their Names from Accident are *Clinkers*, *Samel*, or *Sandal*: Thoſe from their Dimenſions, are the *great* and *ſmall* (or Statute) and *Didoron*, *Tetradoron*, and *Pentadoron*: Thoſe from their Form and Figure, are *Compaſs*, *Concave*, *Feather edgy*, and *Triangular*; thoſe from Cuſtom, *Statute*, and *Cogging*. Thoſe from the Method of making are *Place*, and *Stock-bricks*. Thoſe from the Place where, or by whom, are *Dutch*, or *Flemiſh*; and thoſe from their uſe are *Buttreſs*, or *Pilaſter*, *Coping*, and *Paving*. Of all which we ſhall treat in their order. And,

1. *Compaſs-bricks.*] Theſe are of a Circular Form, their uſe is for Steening of Walls, the which I was told by an ancient experienced Workman, he uſed to perform thus, *viz.* He having *1ſt.* laid a good Bed of Clay, for the bottom, they Paved it with *common, or Statute-bricks*, only laid down on it, and well ſetled thereon, and then they began their Compaſs-work with the *Compaſs bricks*, and as they carried up their Courſes, they rammed Clay in behind them (for they had room left behind for the purpoſe) which made all the Joynts of the *Bricks* pen cloſe and tight together. He ſaith, he hath done ſuch Work, where the Walls have been but a little depth in the Ground, and in a looſe open Mold (where the Water hath been brought in by Concave-bricks) and hath known ſome which he did betwixt 20 and 30 Years ago to do very well.

As to the Price of theſe Bricks he could not certainly tell me; but he thought not much dearer than *common or Statute-bricks*; but then he ſaith, he that hath them made for his uſe, is commonly at the Charge of a Mold made according to the Circumference of his Wall.

2. *Concave, or hollow Bricks.*] Theſe are like a *Statue, or common Brick* on one ſide, but on the other ſide they have a Concavity, which is Semicylindrical. This Cavity is about $\frac{3}{4}$ n. deep, and $1\frac{1}{2}$ n. broad; ſo that when 2 of theſe *Bricks* are placed with their hollows together, they are like a Pipe of $1\frac{1}{2}$ Bore; they are uſually about $12$ n. long, $4\frac{1}{2}$ broad, and $2\frac{3}{4}$ n. thick.

As to their laying them in the Ground, they generally do it in Clay; but an ancient Workman did inform me that there muſt be care taken, that there do not grow any Trees, Buſhes or Brambles over theſe Bricks where they are laid to convey Water, nor yet very near them; for if there do, their Roots are apt to get in betwixt the Joynts of the Bricks, and there dilate themſelves with Fibrous Roots, which meet together like a Ball of Hair, in the Concavity, which will endanger the ſtoping of it, and hinder the Current of Water. Now if this Annoyance could be infallibly prevented, it would be the cheapeſt way I know of to convey Water to a Houſe; for 6 or 8 *s.* worth of *Bricks* would do about 6 Rods, and then ſuppoſe that the Ditch digging, and laying the *Bricks*, the Charge of Clay, and raming up again, ſhould be as much more, *viz.* 6 or 8 *s.* for 6 Rods; according to this Propoſal, 1 Rod would coſt but 2 *s.* or 2 *s.* 8 *d.* and if the fore-cited Objection, could be removed, this Work would laſt (I had almoſt ſaid) for ever; it would not be the 6*th.* part of the Price of Lead-pipes, and every whit as ſerviceable, if not to be preferr'd before them; becauſe I do not ſuppoſe the Froſts would hurt this (tho' it often burſts Leaden-pipes;) for put the caſe the Water ſhould be frozen up in them, the Ice would then, I do believe, by it's Expanſion open the Joynts of the *Bricks*; but we may well ſuppoſe from the Nature

ture of the thing, that they will come together in their due Places when the Froſt is gone, by the natural Gravity of the Earth; for then there will be no ſolid Body betwixt the Joynts, to hinder the cloſing again of the Bricks.

Altho' *Alder-pipes* be much cheaper than *Lead*, theſe *Bricks*, will not be much above (if they are at all) half the Price of *Alder-pipes*.

As to the Price of theſe *Bricks*, I have known them ſold in *Kent* for 4 *s. per* hundred, and in *Suſſex* for 3 *s.* 200 of theſe Bricks at a Foot long will lay 6 Rods.

3. *Cogging-bricks*,] Are a kind of Bricks which are in uſe in ſome Parts of *Suſſex* to make their *Toothing*, or Indented Work under the Copeing of Walls, built of *great Bricks*.

They are about 10 n. long, 4 n. broad, and 2 ¼ n. thick; they are commonly ſold at the Price of common Bricks.

In uſing them, they lay them on the top of the Wall, juſt under the *Coping-bricks*, in an Oblique Poſition, ſo that one Corner, or Angle projects over about 2 ½ n. on one ſide, and the Oppoſite Diagonal Angle at the other, and projects as much over the other ſide.

4. *Copeing-bricks*,] Are neceſſary Concomitants to *great Bricks* for Building Fence-walls, and are much uſed in ſome Parts of *Suſſex*.

The Size and Form of theſe *Copeing-bricks*, is as followeth, *viz.* They are about 12 n. ſquare, and 4 ½ n. thick, having one flat or plain ſide, and 2 flat ends, the 2 edges and upper ſide, are all comprehended under one Curvelinear Surface, the 2 edges conſiſting of 2 *Boultins*, join'd by 2 *Caſements*, or Hollows, to an *Aſtragal*, which is the top of the Brick, after this Form. ⌒

Their uſual Price is from 12 to 16 *s. per* hundred.

5. *Dutch, or Flemiſh Bricks*.] I am informed by one, that they are 6 ¼ n. long, 2 ½ broad, and 1 ¼ n. thick; another tells me that they are 6 n. long, 3 n. broad, and 1 n. thick, as for my own part, I never meaſured any of them.

They are of a yellowiſh Colour.

The Paving with theſe Bricks, is neater and ſtronger than common. They muſt be layed in Sand.

They are commonly uſed here in *England*, to Pave Yards and Stables withal, and they make a good Pavement, and are very durable, and being laid edge-ways, look handſomely, eſpecially if laid Herring-bone faſhion.

They are alſo uſed in Soap-boilers Fats, and in making of Ciſterns.

If we allow ¼ n. for the Joint, then 72 of thoſe which are 6 ¼ n. long, and 2 ½ n. broad, will Pave a Yard Square, but if they are ſet on edge, it will require 113 to Pave a ſquare Yard.

But of the other Size 6 n. long, 3 n. broad, and 1 n. thick, being laid the flat way, 63 will Pave a ſquare Yard, but being ſet edge-ways, it will require 165 to Pave a Superficial Yard.

Theſe *Bricks* are uſually ſold for 2 *s. per* Hundred at *London*.

6. *Clinkers*,] Are such *Bricks* as have much Nitre, or Salt-peter in them, which with the violence of the Fire runs and Glazes them.

7. *Didoron*] Were a sort of *Bricks* used by the Ancients, which were 1 ½ Foot long, or 2 Spans, [the word *Doron* being Greek for a Span, or the space betwixt the top of the Thumb, and little Finger extended] and 1 Foot broad: These were the smallest sort of Bricks used by the *Greeks* about their private Buildings; they having 2 larger Sizes for their publick Buildings, as you will find by the Sequel of the Discourse.

8. *Feather-edge*,] Are a sort of *Bricks* formerly used in some parts of *Kent* and *Sussex*, they being of the same Size with *Statute-bricks*, but made thinner at one edge, than they are at the other, on purpose to pen up their *Brick-pannels* (as they call'd them) in Timber Buildings, and they were usually sold amongst the *Statute-bricks* for that Purpose.

9. *Great Bricks*.] They are a sort of *Bricks* that are 12 n long, 6 n. broad, and 3 n. thick. The weight of one of these *Bricks* being examined, it was found to be about 15 lb. so that 100 will weigh about 1500 lb, and a Thousand 15000 lb. which is 6 Tun 13 c. 3 q. 20 lb. So that about 150 will be a Tun weight.

The use of these *Bricks*, is to build Fence-walls, together with *Pilaster*, or *Buttress-bricks*, and *Copeing* Bricks: I know one Place in *Sussex*, where they are much in use for that Purpose. These Walls are but 6 n. thick, only at the *Pilasters* they are 12 n. thick, and they usually set a *Pilaster* at every 10 Foot. I know a Wall of about 9 Foot high, of these sort of Bricks that stands very well, which hath been built near 30 Years: I am informed they are much cheaper than Brick, and ½ Walls, or 14 n. Walls of Statute-bricks; of which V. Walls N. IV.

These Bricks are usually sold at 2 *l. per* Thousand, which is 4 *s. per* Hundred.

10. *Paving-bricks*.] They are by some call'd *Paving-Tiles*. Of these sort of *Bricks*, there are various Sizes, according to the Fancy of Workmen, and the Custom of Places. These, saith Mr. *Leylourn* are of several Sizes, *viz.* 6. 8, 10. and 12 n. square, in value from 6 to 20 *s. per* Hundred, and if you would know how many of either sort will Pave a Room, or the like,

Note that { 35 / 21 / 13 / 9 } Bricks of { 6 / 8 / 10 / 12 } Inches Square will Pave a Square Yard.

In *Surrey*, and several Counties of *England*, are made *Paving-Bricks* of 3 several Magnitudes, *viz.* 12 n. square, and 1 ½ n. thick, 10 n. square, and 1 ¼ n. thick) and 8 n. square, and 1 n. thick, either of these sorts being Polished, or rubbed with sharp Sand on the Surface, and well joyned, and the sides made equal by hewing them with a Brick-ax, and rubbing them on a rubbing Stone with sharp Sand, makes

an excellent Pavement, and very pleasing to the Eye, especially when laid Arras-ways.

I have seen Experiments made on some *Sussex Paving-bricks*, which were 6 $\frac{1}{2}$ n. square, 1 $\frac{7}{8}$ n. thick, 2 of them weighed 11 lb. Tere, so that 100 of them would weigh 550 lb. and 2 1000 5500 lb. and by consequence about 407 of them would weigh a Tun.

I have known some made of 9 n. square in *Sussex*, which use to be sold for about 8 *s. per* Hundred.

An experienced old Workman told me he had made *Paving-Bricks* of Clay that were 15 n. square, which he was very much troubled to prevent their warping. These Bricks, when burnt, were of a pale red Colour, as were also some which he made 6 n. square of another sort of Clay, some Miles distant from the former.

He saith, that *Paving bricks*, made of *Lome*, have the reddest Colour, when burnt: But they ought to be made of better Earth than *common Bricks*, tho' they seldom are, by those that make them for Sale.

He saith also, that beside the goodness of the Earth in *Paving-Bricks*, there ought to be a great deal of care taken in the drying of them, to prevent their warping, and also when they are dry, to take them and dress them smooth and strait, on that which is to be the upper Surface, and also to pare the edges straight, and a little under, making an acute Angle with the upper side, and to see that they be exactly square, and then put them in the Kiln, and burn them.

The usual *Price* of 9, or 10 n. *Paving-bricks* is from 8 to 12 *s. per* C. in the Country. I have known 10 n. ones from *Surrey* brought by Water to Sea-port-towns in *Kent* and *Sussex*, and sold for 10 *s. per* C.

11. *Pentadoron*,] Are a sort of *Bricks in use* formerly among the *Greeks*, being 3 f. 9 n. long, and 1 f. broad, with these they did build their publick Edifices. V. *Didoron*.

12. *Place-bricks*.] This is a general name for all sorts of *Bricks* that are made after the insuing Method, from whence they derive their Name. Now Workmen tell me they are forced to have above one Method in making of *Bricks*, not for Fancy sake, but out of pure Necessity; the Reason of which proceeds from certain different Qualities, inherent in different Earths. But to proceed, *Place-bricks*, *and Stock-bricks* are the 2 Kinds that receive their Names from the Method of their making.

*Place-bricks* are generally made in the *Eastern* part of *Sussex*; so call'd, because there is a *Place* just by where they Strike (or Mold) their *Bricks*, which is a level smooth piece of Ground, prepared for the *Bearer-off* (who carries the Bricks from the *Striker*) to lay them singly down in Rows (which they call *Ricks*) as soon as they are Molded, and there they are left till they are a little

little dried, *viz.* Till they are ſtiff enough to be turned on their Edges, and *Dreſſ* (that is, cut off their Inequalities, and Rugoſities) and when they are dry, they carry them to the *Hacks* (or Places where they Row them up, like a Wall of 2 Bricks thick, with ſome ſmall Intervals betwixt them, to admit the Wind and Air to dry them.) When the *Hack* is fill'd they are covered with Straw on the top, till they are dry enough to be carried to the Kiln to be burnt.

13. *Pilaſter, or Buttreſs-bricks.*] Theſe Bricks are of the ſame length, breadth, and thickneſs with the *great Bricks*, §. 9. they differ from them only in this, they have a notch at one end, which is half the breadth of the *Brick*, in breadth, and alſo in the length; they are made in the ſame Mold with the *great Bricks*, only when they make *Pilaſter-bricks*, they put into one corner of the Mold, a Cube of Wood of 3 n. ſquare; which piece cauſes the notch in the *Bricks* when they are Molded.

The uſe of theſe *Bricks* is to Bond the Work at the *Pilaſters* of *Fence-walls*, built of *great Bricks*. Theſe Pilaſters are made a Foot ſquare, *viz.* A Brick in length, or 2 Bricks a breadth, alternately throughout the whole heighth of the *Pilaſter*. So that the Pilaſter ſtands out 3 n. beyond the Surface of the Wall on each ſide.

14. *Samel, or Sandal-bricks,*] Are thoſe which lie out moſt in a Kiln, or Clamp, where the Salt-peter is not digeſted for want of Heat, and theſe are very ſoft, and will ſoon moulder to dirt.

15. *Stock-bricks,*] Theſe differ not from *Place-bricks* in Form; their difference lying conceal'd in the Quality of the Earth; they are made upon a Stock, *viz.* The Mold is put on a Stock, after the manner of Molding, or Striking of Tiles, and when one Brick is Molded, they lay him on a little piece of Board, a little longer than the Brick, and on that Brick they lay another piece of Board, like the 1*ſt.* and on that another Brick, after this manner, they lay 3 Bricks on one another, and ſo they continue to ſtrike and place them on the Stage, as they do Tiles, till the Stage is full, and then they take each 3 ſucceſſively, and carry them to the *Hacks*, and turn them down on their edges; ſo that there will be the thickneſs of a thin piece of Board betwixt each Brick. When the *Hack* is fill'd with 1 heighth of Bricks, from one end to the other, then they begin to ſet them up upon thoſe which were 1*ſt.* laid on the Hack, by that time they will be a little dried, and will bear the others; for they are Molded of very ſtiff Earth; when they ſet a ſecond or third, *&c.* Heighth, or Courſe, they cater them a little, as they call it, to prevent their reeling: When the Hack is as high as they think fit, they cover them with Straw, as they do *Place-Bricks*, till they are dry enough to burn. This way Workmen tell

tell me, is more trouble than the other way, *viz.* Of making Place-bricks, and for making and burning (beſides the digging of the Earth) they have *6 s. per* 1000, which is *1 s. per* 1000 more than they uſually have for making of *Place-bricks*. But they are forced to make them ſo, becauſe if they lay them abroad in a Place to dry, as they do *Place-bricks*, the Nature of the Earth is ſuch, that they will burſt to pieces.

I very well remember an Inſtance of this kind, that was told me by an ancient experienced maker of Bricks and Tiles; one that uſed to make Bricks about the Country (in *Kent* and *Suſſex*) for Gentlemen: This Man was ſent for to *Rumford* in *Eſſex* to make 100000 of Bricks there for a Gentleman; he having procur'd his Materials and Utenſils, went to Work (unadviſedly, not knowing the Quality of the Earth) and having ſtruck about a 1000, when they had layen in the Place to dry, (according to the way of making *Place-bricks*) till about 10 a Clock, when the Sun began to ſhine very hot, his whole 1000 of Bricks burſt to pieces, ſo that he was forced to throw them all away, and then went to work again, and ſtruck more, and then before the Sun ſhone too hot, he *Thackt* them, (*i.e.* cover'd them) over with Straw till the next Morning, and then he raked off the Straw with a Rake, and they did very well when they came to be ſet on the *Hack*, and when they were burnt, they were curious red Brick, that would ring, when they were hit with any hard thing. They did always uſe to make *Stock-bricks* at this Place, before he found the way of making *Place-bricks* of this ſort of Earth.

16. *Statute, ſmall, or common Bricks.*] Their Dimenſions, *viz.* Of the Mold by the Statute, ought to be, as follows, *viz.* In length within 9 n. in breadth 4 $\frac{1}{2}$ n, and in thickneſs 2 $\frac{1}{4}$ n. Bricks made in ſuch a Mold (the Earth being *well* well tempered) dried, and burnt, they will be leſs and lighter, yet they ſhrink in thickneſs, but little in breadth leſs, and in their length not diſcernable: The weight of Bricks is uncertain, the Gravity of Earths being very different alſo; yet commonly one Brick will weigh about 5 lb. ſaith Mr. *Leybourn*, and will contain 90 Cubick Inches, and from ſome Molds 100. I once made an Obſervation on the weight of *Statute-bricks*, I took 4, and meaſured them, and weighed them, I found each Brick to be 9 n. long, 4 $\frac{1}{4}$ n. broad, and 2 $\frac{1}{2}$ n. thick, and I found that the 4 weighed 22 lb. ſo that one did weigh 5 $\frac{1}{2}$ lb. and 100 of theſe would weigh 550 lb. and a 1000 5500 lb. and about 407 will be a Tun weight. Theſe were *Suſſex* Bricks, of which they commonly reckon 500 to the Load, which number of Bricks, according to this Proportion, will weigh about 24 hundred and a half.

Theſe Bricks are frequently uſed in *Paving* of Cellars, Waſh-houſes, Sinks, and Fire-hearths, and the like, 30 of theſe made, according to the Statute, will Pave a Yard ſquare, and 330 of them

them will Pave a Square, or 100 f. But you muſt note, 'tis here meant, when the Bricks are laid the flat way, and not ſet on their Edges; for then it will take up near as many more.

But I have it from Obſervation, that there muſt be 32 Bricks laid flat to Pave a Yard, and 64 Bricks ſet an edge to Pave a Yard Square.

I find alſo by Computation, from an Obſervation, that there muſt be 4600 Statute-bricks to make a Superficial Statute-rod of Brick-work, at a Brick and ½ thick, and by conſequence 1700 to the Square, and 155 to the Superficial Yard; on a Wall of a 1 ½ Brick thick, V. P. Num. VIII.

*Mortar, the quantity to a Rod of Brick-work.*] Some allow more than others do, and the truth is, they may well enough do ſo, for ſome Workmen have got a habit of making larger Joints than others. Some uſually allow about a Load of Lime, and 2 Load and ½ of Sand (at 36 Buſhels to the Load of Sand) to a Rod of Brick-work, or 4600 of *Statute-bricks*. And ſome others allow a Load and half a quarter of Lime, and 2 Load of Sand, *i. e.* 2 Buſhels of Sand, to one of Lime; and others will allow but 1 ½ Load of Sand, to a Load and ½ of Lime.

*Price of theſe Statute, or common Bricks.*] This is various, for in different Parts of the Kingdom, they commonly have a different Price, which is not all neither, for Bricks in the ſame Kiln, ſhall have a different Price ſometimes, if the maker of them be to lay them in at a greater diſtance than uſual, and as Mr. *Leybourn* ſaith, ſomething ought to be conſidered, in reſpect to Workmen's Wages, and the Price of Fuel to burn them with. But, ſaith he, I never knew them cheaper than 9 *s.* nor dearer than 18 *s. per* 1000, deliver'd in any part of *London*.

In ſome parts of *Suſſex* and *Kent*, I have known *Statute, or common Bricks*, ſold for 16 *s. per* 1000, laid in a Mile or 2 diſtant from the Kiln, and at others for 20 *s.* at another place in *Suſſex* they ſell them at 25 *s. per* 1000, if they lay them in about 2 or 3 Miles diſtant, that within this 10 or 12 Years, they did ſell them there for 20 *s. per* 1000, but ſince the late War began, the Iron-works in that part of the Country, has devour'd a great quantity of their Wood, ſo that Fuel of late Years is got to be a fourth or more dearer than it did uſe to be; upon this account they have now raiſed their *Bricks* to 25 *s. per* 1000.

Mr. *Wing* tells us, that in *Rutland* Bricks are but 12 *s. per* 1000 at the Kiln.

*The Price of making Statute bricks.*] In the Country their uſual Price is 6 *d. per* 1000 one Molder hath, the Bearer off hath 4 *d.* and he that 'Tempers the Earth ready for uſe hath 4 *d. per* 1000, and he that diggs it hath 6 *d. per* 1000; for making the Earth ready (after it is digged, the digging being not reckon'd into the making) Molding, Bearing off, *&c.* and Burning, their uſual Price is 5 *s. per* 1000.

Mr.

Mr. *Leybourn* tells us, that about *London*, they allow the Molder 4 *d.* 5 *d.* or 6 *d. per* 1000, and that Bricks made at home will ſtand the maker of them in (beſides the value of the Earth) betwixt 5 and 6 *s. per* 1000. But I am ſenſible it will be more in *Kent* and *Suſſex*, at leaſt ſome parts of thoſe Countries.

17. *Tetradoron*] An ancient ſort of Greekiſh Bricks, which were 3 f. or 4 Spans long; and 1 f. broad, being one of their larger Size, with which they built their publick Buildings, V. Didoron.

18. *Triangular Bricks.*] This Form of Bricks is deſcribed by *Daniel Barbaro*, Patriarch of *Aquileia*, in his largeſt Edition of his Comment upon *Vitruvius*. He would have theſe Triangular Bricks conſiſt of an equilateral Triangle, each ſide to be a Foot, and the thickneſs but an Inch and $\frac{1}{2}$. This ſort of Bricks he highly commends to us for many good Properties, as *1ſt.* That they are Commodious in the Management. *2dly.* Of leſs Expence. *3dly.* Of fairer ſhew, adding much Beauty and Strength to the mural Angles, where they fall gracefully into an indented Work: So that Sir *Henry Wotton* wonders that we (in *England*) have not taken them into uſe, being propounded by a Man of ſo good Authority in this kind of Knowledge; but the truth is, that all Nations are apt to ſtart at Novelties, and are very apt to be wedded to their own Ways and Methods.

IIII. *Of the Method of making.*] Of this V. *Stock*, and *Place-bricks*. Mr. *Worlidge* in his *Syſt. Agricul.* is for exciting Brick-makers to try their Skill, in making a Compoſition of Clay and Sand, of which they may form in Molds, *Window-frames* for Houſes, of different Forms and Magnitudes, and alſo *Chimney-pieces*, and *Frames for Doors*, &c. in ſeveral pieces made in Molds, that when they are burnt, they may be ſet together with a fine red Cement, and ſeem to be as one intire piece; whereby may be imitated all manner of Stone-work now uſed in Building, and it will very well ſupply its Defect where Stones are wanting, or ſcarce and dear, and alſo ſave very much Timber, which is now uſed in Brick Buildings, and appear much more Compleat and Beautiful, and be of greater ſtrength, and more durable for laſting, than Timber, or ordinary Brick; and one would think it ſhould be very feaſible, as we may perceive by the *Earthen-pipes*, made fine, thin, and durable, to carry Water under Ground at *Portſmouth* in *Hampſhire*, and by the *Earthen-backs*, and *Grates* for Chimneys, made by Sir *John Winter*, formerly at *Charing-croſs*, of a great bigneſs and thickneſs, which are evident, and ſufficient Demonſtrations of the Poſſibility of making Work fine, thin, and light, for *Tiles*, either plain or curved, and for making of greater Work in Molds, and through burning of them, for *Doors*, *Windows*, and *Chimney-frames*, &c.

This ſaith he, is one of the moſt feaſible, and beneficial Operations that I know in *England* to be neglected.

It is really my Thoughts, much might be done concerning making of *Chimney-pieces*, *Stone-moldings*, and *Architraves* for Doors, and Windows, and *Architraves*, or *Fascia's* for Fronts of Buildings, *&c.* if that Men of this Profession would but set their Minds to work, to contrive some good Composition of Earth, and a way to manage it well in Molding, Burning, *&c.* But (the more is the pity) Men of this Profession are like the Materials they work upon, *viz.* heavy and lumpish.

It might be made a Query, whether a Composition of Earth, something like to common Crockers Earth, would not in some measure answer the Design, since it is apparent, that whatever Form the Crockers are pleased to put their Earth into, it retains it after drying and burning, altho' Crocks, and such like things are formed very thin: Now, suppose that *Chimney-pieces*, or the like, were made in Molds, and dried and burnt, when they came to be set up, if they were not thought smooth enough, they might be Polished with sharp Sand and Water, or a piece of sharp Sand, Stone, and Water. Or were there but Care taken of such things as these (which are for Ornament, as well as Use) when they were half dry, or more in the Air, then to let them be Polished over with an Instrument for the Purpose, either of Copper, or Iron, or some hard Body, and then leave them till they were dry enough to burn; 'tis my Thoughts such would not want much Polishing afterwards.

And let me further add, I am very apt to think, that Ingenious Men of this Profession, might make very handsome and beautiful *Chimney pieces*, Stone *Moldings for Doors*, &c. fit for Noble-men's Houses, and all others that would be at the Charge.

What I would here propose, is by way of Glazing, as Potters do their fine Earthen Ware, either white, or any other colour, or it might be Vein'd in imitation of Marble, or be Painted and Anneal'd with Figures of various Colours, or some History, Perspective, or the like, which would be much cheaper, if not also as durable, and every whit as beautiful as Marble it self. And had I time, and room in this small Treatise, I could here have added the Methods of Glazing, and Painting of various Colours, to have encouraged the lovers of such Arts, to set their Heads to work at it. So that I am inclined to think, we rather want Art, or Ingenuity, and Industry, than Materials to satisfie our greatest Curiosity in Building. 'Tis not the Baseness of our *English* Materials, but want of Skill, and Diligence in managing them, that makes our *English* Buildings in the least measure inferiour to any Foreign ones: I well remember an Instance of this nature, which was an Observation of an *English* Embassadour, which was this, *viz.* That we ought not to be discouraged with our ignoble Materials for Building, which we use in *England*, in comparison of the Marbles of *Asia*, and *Numidia*: For saith he, I have often at *Venice* viewed with much pleasure, an Anti-

porch,

porch, after the *Greek* manner, erected by *Andreas Palladio* upon 8 Columns of the Roman Order, the Backs of Stone without Pedeſtals, the Shafts or Bodies of mere Brick, 3½ Foot in Diameter below, and conſequently 35 Foot high, as himſelf hath deſcribed them in his ſecond Book. Than which ſaith the Ambaſſadour, mine Eyes never yet beheld any Columns more ſtately of Stone, or Marble, for the Bricks were *1ſt.* formed in a Circular Mold, and were cut before they were burnt, into 4 Quarters, or Quadrants, or more than 4 Parts, for he could not certainly tell how many the ſides were afterwards in laying, jointed ſo cloſe and nicely, and the Points concenter'd ſo exactly, that the Pillars appear one intire piece.

And therefore I would not have *Engliſh* Men be diſheartned, that we do here want thoſe firm and ſolid Stones, which Nature hath furniſhed other Nations with; but rather to exerciſe their Ingenuity, to ſupply our ſelves by Art, with thoſe things which Providence hath thought fit we ſhould want, unleſs we would do ſo. And if we can but bring ſuch things to perfection which have been here hinted at, it may hereafter redound to the Honour of the *Engliſh* Nation. I mention theſe things here purely to ſtir up inquiſitive Perſons, to endeavour after an Improvement of ſuch Arts, and that they might not be ſo ſtupid, as to ſuppoſe that either they, or their Fore-fathers, were arrived at the *ne plus ultra* of this, or any other Art; and to perſwade them, (if poſſible) to throw off that ſlothful and dangerous Principle, of reſting contented with being poſſeſſed with the ſame degree of Knowledge, which our Predeceſſors had before us; and of thinking that they have skill enough, becauſe the barbarous part of the World, doth not practice ſo much as they: But I would very fain, (if it lay in my Power) prevail upon Mechanicks, to ſee what Improvements in their Profeſſions they can bring forth.

V. *Of the Method of Burning Bricks*, &c.] All Bricks that are burnt, are burnt either in Kilns or Clamps.

An experienc'd old Brick-burner, or maker, tells me, that his (and ſome other experienced Brick-burners) Method in burning of *Bricks* and *Tiles*, was thus, *viz.* The Kiln being ſet, and cover'd with pieces of Bricks, they *1ſt.* put in ſome Cord, (or great) Wood to dry the Ware, with a gentle, even Heat or Fire; which Fire they continue till the Ware is pretty dry; which they know by obſerving the Reek which aſcends out on the top of the Kiln, for when it is changed from a thick Vapour, betwixt a whitiſh and darkiſh colour, to a kind of a black Smoke, which is more tranſparent than the Vapour which *1ſt.* aroſe from the Kiln; after this blackiſh Smoke hath aſcended for ſome time, they put in no more great Wood, but proceed to make ready for burning; which is performed, either with Spray, Buſh, Furz, Heath, Brake, or Fern Faggots; but before they

put

put in any Faggots, they damm up the *Mouth* of the Kiln (or *Mouths*; for ſome Kilns have more than one Mouth) with their *Shinlog*, as they call it (which is pieces of Bricks piled upon each other, with wet Brick Earth, inſtead of Mortar.) This *Shinlog* they make ſo high, that there is but juſt room above it to thruſt in a Faggot, *viz.* Betwixt a 1 ½ f. and 2 Foot, for the whole heighth of the Mouth is about 3 f. the Mouth being thus Shinlog'd, they proceed to put in Faggots, till they make the Kiln and its Arches look white with Heat, and the Fire begins to appear at the top of the Kiln, and the Kiln and Arches below begin to change from white to a greyiſh Colour; then he ſaith they ſlacken the Fire for ſome time, *viz.* for about ½ an Hour, or an Hour, as they think fit; that the Fire, or Heat may aſcend to the top of the Kiln, by the Motion of the Air in at the Mouth, and alſo that the lower Ware may ſettle and cool, and not be burnt more than that above it. Thus they continue to do, heating and ſlacking alternately, till the Ware be through burnt, which it will be (he ſaith) in about 48 Hours: According to this Method, he ſaith he hath burnt many Kilns of Ware ſo equally, that thoſe on the top were almoſt as hard as thoſe below (if not altogether.) He told me he had burnt ſeveral Kilns of *Tiles* and *Bricks* together, *viz.* About 3000 Bricks, and 10 or 11000 of Tiles, and hath not had above 50 waſte, broken, and *Sandal* Tiles in all (which I will aſſure you is very rare;) whereas, ſaith he, ſuch Brick-burners as continue their Fire without any intermiſſion, make their lower Ware extream hard; and that on the top of Samel-bricks, or Tiles, nay, and which is worſe, they make the lower ones run ſo with the exceſſive heat, that they are almoſt united into one intire Body, ſo that they are forced to get them out with Wringers (or Iron-bars) and each *Bolt* of *Tiles*, ſhall be one intire Maſs (which I have obſerved my ſelf.)

And then as to cooling of Kilns of Ware, ſome unwiſe Burners, as ſoon as the Ware is burnt, they immediately ſtop up the reſt of the Mouth of the Kiln, which was left open above the *Shinlog*, by which means it is long in cooling, ſo that they (*viz.* Such Indiſcreet Burners) are commonly a Fortnight, or almoſt 3 Weeks, in Setting, Burning, and Cooling, and drawing of a Kiln of Ware. Whereas, ſaith he, I have Set, Burnt, Cool'd, and Drawn a Kiln a Week for ſeveral Weeks together. But then I never ſtopped up the reſt of the Kilns Mouths above the *Shinlog*, but left it open for the Air to paſs in and cool the Ware.

He alſo told me, that 600 of Faggots would burn a Kiln of 10 or 11000 of *Statute-bricks*. Mr. *Wing* informs us, that a Chaldron of Coals will burn about 4200 of Bricks.

I have been informed that their Method of burning *Bricks* in *Clamps*, is ſomething after this manner, *viz.* They build their *Clamps* of the *Bricks* that are to be burnt ſomething like the Method

Method of Building the Arches in Kilns, *viz.* With a vacancy betwixt each Bricks breadth, *&c.* for the Fire to aſcend by; but with this difference, that inſtead of Arching, they truſs, or ſpan it over, by making the Bricks Project over, one beyond the other, on both ſides the place for the Wood and Coal to lie in, till they meet, and are bonded by the Bricks at the top, which cloſes up the Arch; this place for the Fuel, they carry up ſtrait at both ſides, or which is the ſame thing, upright at both ſides, till 'tis about 3 f. high, and then they begin to lay the *Bricks*, projecting over inwards till they meet in the middle, which they will do in about 3 or 4 Courſe of Bricks in heighth, the width of the Mouth being but about 2 ½ f. Above this Arch they lay the *Bricks* in the order they do in a Kiln, to 8 or 10 f. in heighth, according as the *Clamp* is to be in bigneſs; for they uſually burn a great many Thouſands in a *Clamp* at a time, ſo that they build them 8 or 10 f. above the Arching.

But you muſt further note, that after they have begun to make the Place (or Places) to receive the Fuel, before it is cloſed up at the top, it is almoſt filled with Wood, and on that they lay a thickneſs of Sea-coal, and then they over-ſpan the Arch; but they ſtrew Sea coal, all over the *Clamp* from bottom to top, *viz.* Betwixt all the Rows of *Bricks*; for they are not laid Contingent in their Vertical Rows, and one Courſe of Brick is laid one way, and the other another, ſo that there is ſmall Interſtices betwixt all the Bricks, for the Coal to be ſtrewed into, from the bottom to the top: This being done, they fire the Wood, and that fires the Coal; the which, when 'tis all burnt out, they conclude the Clamp of Bricks to be burnt.

VI. *Of the quantity of Earth to make a Thouſand of Bricks*, &c.] I am inform'd that 1 Load of Lome (a Load being 12 Buſhels) will make about 200 of *Statute-bricks*, and then by conſequence, 5 Load will make a 1000. Alſo that 19 Load of Lome will make 1600 of great Bricks, and 12 will be ſufficient for a 1000 of the ſame.

VII. *Of the Choice of Bricks*, &c.] *Pliny* adviſes in making choice of Bricks for Building, to be ſure (if poſſible) to procure ſuch as are Years old at leaſt. There are commonly, and generally in all Kilns and Clamps, 3 Degrees of Bricks, in goodneſs, *viz.* The 1*ſt.* and beſt ſort are thoſe which lie next the Fire, (*viz.* Thoſe are beſt for laſting) and have, as it were, a Gloſs on them, which proceeds from the Salt-peter, which is inherent in them, and which by the Violence of the Fire, runs and glazes them; theſe are call'd *Clinkers*.

The ſecond and moſt general ſort for Building, are thoſe which lie next in the Kiln, or Clamp, to thoſe before mentioned.

The 3*d.* and worſt ſort, are thoſe which lie on the out-ſides of the Kilns and Clamps, where the Salt-peter is not digeſted for want of a due Heat, and theſe when they come to be expo-

fed to the Weather for some time, will moulder away like Dirt; and these Workmen call Samel, or Sandal-bricks. 'Tis an Observation, That whilst Bricks are Burning, those on the Windy side of a Clamp, are the worst of all.

VIII. *Of Observables in Buying and Laying Bricks*, &c.] And *1st.* Of Buying, the last Number will direct any Master or Workman (that doth not understand it) how to choose good Bricks; and in the 16 §. of Bricks, *viz.* Under the Head Statute-bricks, you have some Directions, as to the Number of Bricks; but you must note, 'tis impossible to be certain (to know) how many will be wanting exactly; because in such Cases there can be no infallible way discovered; and that for several Reasons, *viz.* (altho' the Bricks were all made in the same Mold, and Burnt in the same Clamp, or Kiln) the Bricklayers Hand may vary in laying his Mortar. *2dly.* Many Bricks warp in Burning (and the Seller will bring you some such, in spight of all your Care in chusing.) *3dly.* Some miscarry, and are spoiled in every Carriage. *4thly.* The Tally, or Tale is for the most part too little, if not well looked to. And besides all these Uncertainties, when Bricks are dear, and Lime cheap; (which sometimes happens so) if you put your Work out by the Great, or by Measure, and he is to find Materials that doth the Work, the Workman without good looking after, will certainly use the more Mortar, and make very great Joints; which is a defect in any Building.

*Secondly*, Of laying Bricks, which is a thing of no small Consequence in a Building; for the well Working, and Bonding of Brick-work (or as some Workmen call it, breaking of Joint,) conduces very much to its Fortitude; I think therefore it may not be amiss to add some particular Notes about it, which experienced Workmen have thought convenient to commend to the Publick, as well worth their Observation.

*First*. Let me commend to your Care, to be sure to procure good strong Mortar; of which V. Mortar.

*Secondly*. If your *Bricks* are laid in Winter, let them be kept and laid as dry as possible; if they are laid in Summer-time, it will quit cost to imploy Boys to wet them; for they will unite with the Mortar much better, than if they were laid dry, and will make the Work much stronger. But perhaps it may be well objected, that it will be too much trouble to wet all the *Bricks* (by dipping them in Water) if the Building be large; and besides, it makes the Workmen's fingers sore. To prevent these Inconveniencies, there may be Water throw'd on each Course of *Bricks* after they are laid, as I am inform'd was done at the Building of *Physicians College* in *Warwick-lane*, by order of the Surveyor, the Ingenious Mr. *Robert Hooke*.

*Thirdly*. If your *Bricks* are laid in the Summer-time, be sure to cover them, to prevent their drying too fast; for if the Mortar dry too hastily, it doth not cement so firmly to the *Bricks*, as when it dries gradually. *Fourthly*,

*Fourthly.* If *Bricks* are laid in Winter, be sure to cove them very well, to protect them from Rain, Snow, and Frost, which last is a mortal Enemy to all Mortar, especially to all such as have taken Wet but just before the Frost assaults it.

*Fifthly.* Let Care be taken that *Bricks* be not laid Joynt on Joynt, in the middle of Walls, as seldom as may be; but let there be good Bond made there, as well as on the out-sides; for some Workmen in working Brick and ½ *Wall*, lay the Header on one side of the *Wall*, Perpendicular on the Header on the other side of the *Wall*, and so all along thro' the whole Course, which indeed necessarily follows, from the unadvised setting up of the Quoin at a Toothing; for 'tis common to Tooth in the stretching Course 2 Inches with the Stretcher only, and the Header on the other side to be Perpendicular over the Header on this side, which causes the Headers to lie Joynt in Joynt in the middle of the Work.

Whereas, if the Header on one side of the *Wall*, were toothed as much as the Stretcher on the other side, it would be a stronger Toothing, and the Joynts of the Headers of one side, would be in the middle of the Headers of the Course they lie upon on the other side.

All that can be pretended to excuse this ill Custom of Working thus, is this; That the Header will not hang 2 n. over the Bricks underneath it. This indeed I do grant to be an Objection, but not so great, but that it may be removed, and that without much difficulty, *viz.* Thus, By having a piece of Wood of the thickness of a Course of *Bricks*, and 2 n. broad, and lay it on the last Toothing Course to bear it, or a Brick-bat put upon the last Toothing, will bear it till the next Quoin is set upon it, and then the Bat may be taken away.

*Sixthly.* The same Inconveniency happens at an upright Quoin in a Brick and ½ *Wall*, where 'tis usual to lay a Closer next the Header on both sides of the *Wall*, and in so doing, 'tis Joynt in Joynt all the length of the *Wall*, except by chance a ¾ quarters Bat happen to be laid.

To prevent which Inconveniency, and thereby make the *Wall* much firmer, lay a Closer on one side, and none on the other side; but lay a ¾ quarter Bat on the Quoin in the Stretching-course, and in the Heading-course, adjoyn an Header next to the Header at the Quoin.

Also in 2 *Brick-walls*, it is the best way in Stretching-courses, wherein they lay stretching on both sides the *Walls*, next the Line, so also to lay stretching in the middle of the *Wall*, and Closers next to each Stretching-course that lies next the Line.

A Bricklayer and his Labourer (having all his Materials ready) will lay in a Day about 1000 *Bricks*, in whole Work on a solid Plain, and some very expeditious Fellows will lay 12 or 1500.

IX. *Of Facing Timber-buildings with Bricks.*] In ſome Places this Method of facing Timber-building is in uſe, but I think it ſhould be call'd Caſeing; for 'tis covered all over on the outſide with Brick, ſo that no Timber is to be ſeen. The which is performed after this manner, *viz.* All betwixt the Timber the Wall is a *Brick* a length thick (or 9 *in.* Wall of *Brick*, but againſt the Timber, the Wall of *Bricks* is, but 4 $\frac{1}{2}$ *in.* or half a Brick, or the breadth of a *Brick* thick (beſide the Timber.)

But this Method is not approved of by able Workmen, becauſe the Mortar doth ſo extreamly corrode and decay the Timber.

For I remember an experienced Bricklayer told me, that he did pull down ſuch Work at *Eridge-place* (which is one of my Lord of *Abergaveny*'s Country-ſeats) and the Timber was extreamly corroded, and eaten with the Mortar.

## *Bricklayer's.*

1. Work.] The *Bricklayer's Work* in the City is of various Kinds, *viz. Tyling*, *Walling*, *Chimney-work*, and *Paving* with *Bricks* and *Tiles*. But in the Country 'tis common for the *Bricklayer's* Trade, to comprehend the *Maiſons* and *Plaiſterers* alſo. All which Particulars will render it too large to be comprehended under the general Head of *Bricklayer's-work*; I therefore think it will be more convenient to rank it under its particular Branches, or Parts, *viz. Walling*, *Tyling*, *Chimney-work*, *Paving*, &c.

*Bill of making.*] A Bricklayer's Bill may be Compoſed after this Method.

*Mr.* Robert Rich *of* Rocheſter *his Bill of Materials, had of, and Work done by* Benjamin Bennet, *Bricklayer*, October 5, 1702.

| | *l.* | *s.* | *d.* |
|---|---|---|---|
| For 12 Thouſand of Bricks at 15 *s. per* M. | 09 | 00 | 00 |
| For 8 Thouſand of Tiles at 20 *s. per* M. | 08 | 00 | 00 |
| For 17 Hundred of Lime at 14 *s. per* C. | 11 | 18 | 00 |
| For 15 Load of Sand at 2 *s.* 6 *d. per* L. | 02 | 05 | 00 |
| For 10 Hundred of 9 n. Paving-tiles at 10 *s.* 6 *d.* *per* Hundred. | 05 | 05 | 00 |
| For 40 Ridge-tiles at 1 ¼ *d. per* piece. | 00 | 05 | 10 |
| For 3 Weeks and 3 Days Work for my ſelf, at 3 *s.* *per diem.* | 03 | 03 | 00 |
| For 27 ½ Days for my Man at 2 *s.* 6 *d. per* Day. | 03 | 08 | 09 |
| For a Labourer 27 ½ Days at 1 *s.* 8 *d. per* Day. | 02 | 05 | 10 |
| Sum Total is | 45 | 11 | 05 |

But note, if Bricklayers do not work by the Day, then they uſe a different Method in Writing their *Bills*; for then they either take their Work by the Great, *viz.* to do all, and find all belonging to Bricklayers Work, or elſe he is to do it by Meaſure, and to find all Materials and Work, at ſuch a Price by the Rod for *Walling*, by the Square for *Tiling*, and by the Yard for *Paving*, *&c.* But if he find no Materials, he may alſo work by Meaſure, and then the Bill muſt be made after this manner, *viz.* For ſo many Rods of *Walling*, at ſo much (according to their Agreement) *per* Rod, &c.

Note alſo that in ſome Buildings *Chimneys* are put out to the Bricklayer by the Hearth, either only to build, or to find Materials alſo, and then the Bill is made according to the Agreement,

There are ſome other things which come into a *Bricklayer's Bill*, viz. All kind of ornamental Work in *Brick*, which is commonly ſet down, or rated at ſo much *per* Foot, or ſo much *per* Piece, except a good Rate be allowed by the Rod, *&c.* Or there be a Sum of Money over and above the Price, or value of the Rod-work allowed, and ſo the Ornamental Work be included in it. By ornamental Work, is to be underſtood, ſtreight, or circular *Arches*, over Windows, or Doors; *Faſcias*, with, or without Moldings, *Architraves*, round Windows, or rubbed *Returns*, *Friezes*, *Cornices* of all ſorts, *Water-tables* wrought, and *Water-courſes*: All which are valued by the Foot running Meaſure; to which I muſt add *Baſe-mouldings*, and *Plinths*, and the

the *Splaying* of the *Jambs* of Windows and Doors on the inside of Buildings. Also *Pilasters*, *Peers*, *Pediments*, *Grotto's*, and *Rustick Quoins*. These 5 last mentioned, are valued at so much *per* piece, according to the largeness, and goodness of the Work and Materials; and thus all *Ornamental work*, ought to be valued. By the word *Ornamental work*, is to be understood in *Bricklayers Work*; all kind of *Brick-work*, that is hewed with an Ax, or rubbed on a Rubbing-stone, or of Stone wrought with *Chissels*, or rubbed with Stones, or Cards, all such is *ornamental Work*, and ought to be paid for, besides the Rod-work, &c. I shall now proceed to speak of that part of Bricklayer's work, which is called

## *Brick-work.*

1. *Some Notes about Measuring*, &c.] Sometimes *Brick-walls* are wrought 2 n. thicker than the rest of the Work, part of the way, which 2 n. serveth for a *Water-table* to the Wall, which is usually set off about 2 Foot above the Ground; and therefore the Brick work may be measured at the same thickness that is above the *Water-table*, and then the 2 n. Work may be thus added to it.

Suppose a Wall 20 f. in length, and 2 Bricks thick above the *Water-table*.

After the Dimensions of the Wall is taken (from the bottom, to the heighth it is to be taken at 2 Bricks thick) then add 20 f. in length by the heighth of the 2 n. Work, *viz.* From the bottom to the setting off, or *Water-table*, which being halfed, is so much 4 n. Work, and then reduce it to a Brick and ½ Work.

As for *ornamental Work*, we need not to mention that here, it being mentioned above.

2. The Measuring of *Gable-ends* in *Brick-work*, is done after the same Method that Carpenters measure Gables, (only this is reduced into Rod-work) V. *Gable-end*, N. 2.

3. Be sure to observe, in taking Dimensions of Walls that joyn to an Angle, that the length of one Wall be taken at the out-side of the Angle, and the others length to the in-side of the Angle.

4. If there be a *Gable end* to measure, and the width of the House be given (or known) which is the Base of the *Gable end*, and the length of the Perpendicular is required, there is a brief way used amongst Measurers to find it. To make it the plainer, I will propose an Example, *viz.* Suppose the Base of the Gable be 24 f. and the length of the Perpendicular is required; take the length of the Rafter (which will be) 18 f. to which add ½ it self, *viz.* 9 Foot, it makes 27, the ⅕ of it is 13 f. 6 n the length of the Perpendicular. But tho' this way be commonly practised, it is not exact, for it makes the Perpendicular a little too much: This you must note is practised for

Roofs,

Roofs that are $\frac{3}{4}$ pitch; and therefore I would not advise any to make use of this Method in any other Pitch. Now I am upon Discoursing of *Gable-ends*, I will here add 2 exact ways of finding the Perpendicular; the 1st. shall be by Proportion, thus, *viz.* As 30 to 22, 35, so is the length of the Rafter to the Perpendicular required; or Subtract the Square of $\frac{1}{2}$ the Base, or $\frac{1}{2}$ width of the House, from the Square of the Rafters length, there will remain a Number, whose square Root is the length of the Perpendicular.

5. In taking out the Deductions for the Doors, and Windows, *&c.* if any happen in Brick-work, of 2 $\frac{1}{2}$ Bricks thick, or in 2 Bricks thick, then add $\frac{1}{2}$ to the length, for those in the 2 $\frac{1}{2}$ Brick-work, and $\frac{1}{2}$ to the lengths of Doors, or Windows, in 2 Br. (or it may be $\frac{1}{2}$, or $\frac{1}{2}$ to the breadth, and not the length, according as which will be soonest divided) and then the lengths and breadths being multiplied one into the other, the Product is the proper Deductions in Brick $\frac{1}{2}$ work, without any further trouble; and it will neither wrong Master nor Workman.

6. Our 6*th.* Note should have been on *Chimneys*, but of that V. *Chimneys*.

I did also intend (when I began this Head of *Brick-work*) to have inserted here several other things appertaining to *Brick-work*,) *viz.* The Method of Measuring, Reducing to Standard-thickness, finding the value of any odd Foot, Price of this Work, in diverse Parts of the Kingdom, of laying Foundations of Walls, *&c.* But finding B. will be a very copious Letter, I shall refer it to Walls of Brick, which V. N. IV.

## *Brick-walls.*

V. *Walls*, N. IV.

## *Bridge*

Of Timber to Build over any Brook, Gill, or small River, if it do not exceed 40 or 50 Foot in length, and that without setting any of the Timber down in the Water, it being a cheap and safe way of building a *Bridge* of that length.

To perform this piece of Art, the Timber must be so joynted, as to resemble (in some measure) an Arch of Stone, or Brick, the Joynts ought to be well made, and shut together strongly with Cramps and Dogs of Iron. This Bridge must be made to rest upon 2 strong firm Pillars of Wood, at either end of the Bridge, both being well proped with Spurs or Braces; there must be 2 good Buttresses of Brick for these wooden Pillars, and Spurs to stand in, that they may not give way, or slip; this being done, the Bridge may be Planked over, and

Graveled, and it will last a long time. This hath been already practised, saith Sir *Hugh Plat*.

## *Bring up.*

'Tis a Term used among Workmen, especially *Carpenters*, when they discourse with *Bricklayers*, and then they say *Bring up* the Foundation so high, *bring up* such a Wall, *bring up* the Chimneys, *&c.* Which is as much as to say, build the Foundation so high, build the Wall, build the Chimneys, *&c.*

## *Broad-stone.*

1. *What.*] 'Tis the same with Free-stone, only this is so called, because they are raised broad and thin out of the Quarries, *viz.* not above 2 or 3 Inches in thickness.

2. *Use.*] The use of these sort of *Free-stones*, which are call'd *Broad-stones*, is for Paving of Yards, and Passages, and before Shop-doors and Stalls, *&c.*

3. *Price.*] If they are of promiscuous *breadths* and lengths, then the usual Price for the Stone fitting, and laying in Mortar, from 6 to 8 *d. per* Foot square, or from 4 *s.* to 6 *s. per* Superficial Yard.

But some of these Stones are cut into perfect Squares, as Paving-tiles are, but much larger, as 18, 20, and 24 Inches square, or more, but those, as they are neater, so they are dearer; some Paving with these, being worth 1 *s. per* Foot, but 'tis worth 15 or 16 *d. per* Foot, if the Stones are good and well polished, as they ought to be, for Kitchins, Dray-houses, and neat private Places.

## *Building.*

1. *Considerations about it.*] Every Man that is disposed to *Build*, either out of Choice, or thro' Necessity, should 1*st.* sit down, and seriously consider of the whole Design, *viz.* Both of the Manner and Method, as well as the Charge and Expence. And I am satisfied, that Premeditation is a very necessary Maxim, or Preliminary to Building, because we have it from no less Person than our blessed SAVIOUR himself, who saith in *Luke* 14. 28. *Which of you intending to build a Tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it?* The Reason and Necessity of it follows, *v.* 29, and 30. *Lest haply after he hath laid the foundation, and is not able to finish it, all that behold it begin to mock him, Saying, This man began to build, and was not able to finish.*

And

And let me perſwade all *Builders*, to make choice of ſuch *Surveyors*, and Workmen, as underſtand what they are going about, before they begin the Work, *viz.* Such as be Maſters of what they pretend to, as a *Surveyor* that underſtands how to give the Draught, or Model of a Deſign; ſo as that when it is erected, it may anſwer to the end, which is to Build well; and a Building is ſaid to be well done, when it is ſo contrived, and perfected, that it is poſſeſt of the following Qualifications, *viz.* Accommodation, or Uſefulneſs, Proportion, (Beauty, or Handſomeneſs) and Uniformity in its Parts; Firmneſs with Duration. For that Fabrick cannot be accounted perfect, which is uſeful only for but a ſhort ſpace of Time, or not convenient for a longer: and hath not alſo Decency and Beauty, which is derived from Proportion and Uniformity: I would therefore (if it lay in my Power) endeavour to perſwade all Builders to procure ſuch Surveyors, and Workmen (if poſſible to be procured in the Country, where the Builder lives) as underſtood the Theory, and Practice of Architecture, and alſo of Arithmetick (which is the Ground of all Arts) without the knowledge of theſe 2, the beſt Mechanick, or Handicraft Man will be but an imperfect Builder, and ſubject to fall into many Errors, and be guilty of committing many Faults, and making many Miſtakes. For Gentlemen, and others that are Builders, are too often prevailled upon, and perſwaded by ſuch Workmen, as are wedded to their own Wits (tho' they were never verſt in the Grounds of Architecture, and were wholly ignorant of the meaning of Proportion, Uniformity, and Accommodation in Building) and tied to their own odd ſort of irregular old way; which is no better than a deformed Cuſtom, and ſuch Men will not (for the moſt part) be prevailed on, or perſwaded to a more compleat way, tho' it be much more beautiful, and regular, and alſo with leſs Materials, and cheaper, and more convenient than the other; and all the Reaſon they will, or can render for it, is, becauſe it is a Novel to them; and they were never accuſtomed to ſuch a way of working; neither do they underſtand it: For ſay they, our Fore-fathers did it not before us, which is a very prevailing Argument with ſome that know no better; yet perhaps the Maſter Builder is willing to beſtow Expences enough on his Houſe, *&c.* to Enrich, and Adorn it; but his Workmen, thro ignorance perform it with very little Skill or Art. But I do think none are ſo Senſeleſs and Stupid, as to deny, that it is better to erect ſuch a Fabrick, that ſhall be more uſeful and neceſſary, and alſo more pleaſing, both to wiſe Men, and Fools, than that (tho' done by the ſame Coſt and Expences) which will only pleaſe an ignorant Workman or 2, (who are poſſeſt with an over-weening Affectation of their own Skill, which at beſt is but conceited Blundring, or Unskilfulneſs) and perhaps it may alſo ſatisfie ſome few others, that do not underſtand the

Methods,

Methods, and Maxims of Architecture, and ſo were eaſily prevailed upon by theſe abſurd workmen, and Proſelyted to be of their Opinion, be it right or wrong. Having thus laid down ſome Conſiderations about *Building*, I ſhall next proceed to ſpeak of certain

II. *Aphoriſms neceſſary to be known, and obſerved in Building.*] Dr. *Fuller*, *Prebend* of *Sarum*, ſaith, He that altars an old *Houſe*, is tyed as a Tranſlator to the Original, and is confined to the Fancy of the *1ſt. Builder*. Such a Man were unwiſe to pull down a good old Building, to erect (perchance) a worſe new one. But thoſe that raiſe a new *Houſe* from the Ground, are Blame-worthy, if they make it not handſome and uſeful, ſeeing to them Method and Confuſion are both of a Price. In Building, ſaith he, we muſt reſpect *Situation*, *Contrivance*, *Receipt*, *Strength*, and *Beauty*, to which I will add *Form*, or *Figure*.

1. Of *Situation*.] The Precepts belonging to *Situation*, ſaith Sir *H. W.* do either concern the *total Poſture*, or Poſition (as I may term it) or *placing* of the *Parts*: The *1ſt.* of theſe is uſually reckon'd by *Architects*, as part of their Profeſſion, but the Truth is, it is borrowed from other Parts of *Learning*, there being betwixt *Arts* and Sciences (as well as betwixt Men) a kind of Society, and Communication of *Principles*.

For ſome of them are purely *Phyſical*, touching the Quality and Temper of the *Air*, *viz.* That it is a good Healthy Air, not ſubject to Foggy Noiſomeneſs, from Fens, or Marſhes, that are adjacent; that it be alſo free from Noxious, Mineral Exhalations. And let not the Place want the ſweet Influence of the Sun-beams, nor to be wholly deſtitute of the Breezes of Wind, which will Fan, and Purge the Air; the want of which would make it like a ſtagnated Pool, or ſtanding Lake of Air (which is very unhealthy,) As ſaith *Alberti*, the Florentine Architect. He alſo warneth us to avoid ſuch Places, as are ſubject to *Earthquakes*, *Contagions*, *Prodigious Births*, and the like.

Dr. *F.*'s Phyſical Advice is, *viz. chiefly to chuſe a wholſome Air*; For Air, ſaith he, is a Diſh one feeds on every Minute, and therefore it had need to be Salubrious. Wherefore great Men (who may Build where they pleaſe, and poor Men where they can,) if herein they prefer their Profit above their Health, I refer them to their Phyſicians to make them pay for it accordingly. *Cato* ſaith, Let your Country-houſe have a good Air, and not open to Tempeſts, ſeated in a good Soil; let it therein exceed, if you can, and let it ſtand under a Hill, and behold the *South*, in a healthy Place.

*Pliny* adviſeth not to ſet a Country-houſe too near a Fen, or ſtanding Water, nor yet over-againſt the Stream, and Courſe of a River; for ſaith he, (as *Homer* ſaith to this Purpoſe) The Fogs, and Miſts that ariſe from a great River, betimes in the Morning before

before Day-light, cannot chuſe but be very cold and unwholſome.

*Oeconomical*,] Saith Sir *H. W.* let the Houſe, or Seat be well Watered, and well Fuelled, let not the way to it be too ſteep, and of an incommodious Acceſs, which will be a Trouble to both Friends, and the Family. And ſee that it be not Seated too far from ſome Navigable River, or Arm of the Sea, which will conduce to the Eaſe of the Family, in procuring Proviſions, and other Domeſtick Neceſſaries.

Dr. *F.* ſaith, *That Wood and Water are 2 ſtaple Commodities*, where they may be had. The former I confeſs hath made ſo much Iron, that it muſt be bought with the more Silver, and grows daily dearer. But it is as well Pleaſant as Profitable, to ſee a Houſe Caſed with Trees, like that of *Anchiſes* in *Troy*.

The worſt is, where a Place is bald of Wood, no Art can make it a Perriwig in haſt.

And as for Water, the want of it is a great Inconveniency, the Miſchief of many Houſes, where Servants muſt bring the Well on their Shoulders.

*Optical Precepts, or Maxims*,] Such I mean, (ſaith Sir *H. W.*) as concern the Properties of a well choſen *Proſpect*, which may be ſtiled the Royalty of Sight: For as there is a Lordſhip (as it were) of the Feet, wherein a Man walketh with much Pleaſure about the Limits of his own Poſſeſſions; ſo there is a Lordſhip likewiſe of the Eye, which being a Ranging, and Imperious (I had almoſt ſaid) Uſurping Senſe, cannot indure to be Circumſcribed within a ſmall Space, but muſt be ſatisfied both with Extent, and variety; yet on the other ſide, I find vaſt and indefinite Proſpects, which drown all Apprehenſions of very remote Objects condemned by good Authors, as if thereby ſome Part of the Pleaſure (whereof we were ſpeaking) did periſh.

*A Pleaſant Proſpect is to be reſpected*,] Saith Dr. *F.* A medly View (ſuch as of Water, and Land at *Greenwich*) beſt entertains the Eyes, refreſhing the weary Beholder with exchange of Objects. Yet ſaith he, I know a more profitable Proſpect, where the Owner can only ſee his own Land round about him. To this Head of *Situation* he adds what follows, *viz.*

*A fair Entrance, with an eaſie Aſcent, gives a great Grace to a Building*,] where the Hall is a Preferment out of the Court, Parlour out of the Hall, (not as in ſome old *Buildings*) where the *Doors* are ſo low, Pigmies muſt ſtoop, and the Rooms ſo high, that Giants may ſtand a tip-toe.

A *Political Precept*.] I remember (ſaith that great Architect, Sir. *H. W.*) One private Caution, which I know not well how to Rank amongſt the reſt of the Precepts, unleſs I call it *Political*, which is this, *viz.* By no means to *Build* too near a great Neighbour, which were to be as unfortunately Seated on the Earth,

Earth, as *Mercury* is in the Heavens, for the moſt part ever in Combuſtion, or Obſcurity, under brighter Beams than his own. We are next to come to

2. *Contrivance.*] When the Situation is reſolved upon, the next in order is *Contrivance.* The which being a thing of great Moment in this Affair of Building, I cannot enter upon it, before I have given ſome few general Precautions.

And Firſt, I would by no means have any one that intends to *Build* a Structure (that ſhall be either uſeful, or ornamental) without the Advice, or Aſſiſtance of a *Surveyor*, or a Maſter-workman, that underſtands the Theory of Architecture, and is capable of Deſigning a *Draught*, or *Model*, according to the Rules of Art. If a Draught be reſolved upon (which may ſerve indifferent well for ſmall ordinary Buildings) there ought to be the *Ichnography* of each Floor, and alſo the *Orthography* of each Face of the *Building*, *viz.* The Front, the Flanks, and the Rear. But if the Workman be skill'd in Perſpective, then more than one Face may be repreſented in one Diagram *Scenographically.*

In the Contrivance of theſe Deſigns, whether for *Draught*, or *Model*, the Quality of the Perſons, for whom the Building is erected, muſt be conſidered, in reſpect of the Ichnographical Plots eſpecially. For Noble-men have occaſion for more Rooms of Office, than others of a meaner Degree; all which muſt be deſign'd according to their moſt convenient Occaſions, with the lengths and breadths according to Proportion; alſo the *Ichnography* of all Chimneys, both in length and breadth of the Hearths, and Jambs, Bed-places, Stairs, and the Latitude of all Doors and Windows, in each Contignation, or Floor. And if it were required in Timber Buildings, the Longitude, Latitude, and Craſſitude of Ground-plates, or Sells, Breſt-ſummers, and in all (whether Timber, Brick, or Stone) Buildings, the Dimenſions of Summers, Girders, Trimmers, and Joyſts. Alſo in the upper Floor, the Scantling of the Draggon-beams, Raiſons, or Raiſing-pieces, or Wall-plates, *&c.* And alſo the Craſſitude of Partitions, Walls, *&c.* in Brick, or Stone-fabricks.

All which, and all other Parts (whether in the *Ichnography*, or *Orthography*) of Buildings, ought to be repreſented (as alſo *Ovens*, *Stoves*, *Broilers*, *Furnaces*, *Coolers*, Fats for Brewing, *&c.*) with their juſt Meaſures, for the beſt Advantage, as to Commodiouſneſs, Health, Strength, and Ornament. All which Dimenſions I would adviſe to be ſet in the proper Places to which they belong in the Diagrams, in Characters; becauſe unleſs the Schemes be very large, it will be very difficult to take the Dimenſions nicely, of the ſmaller parts, if not of the great ones likewiſe; it will ſcarce be practicable to take either of them to an Inch, nor perhaps, to 2, 3, nor 4, according as the Diagram may be in Amplitude.

In the Orthographical Schemes, there muſt be the true Delinea-

neations, and Dimenſions of each Face, and all its Concomitants, as *Doors*, *Windows*, *Balconies*, *Turrets*, or *Cupuloes*, *Chimney-ſhafts*, *Faſcia's*, *Ruſtick Quoins*, *Architraves*, *Friezes*, *Coniſhes*, *Pediments*, *Pilaſters*, *Columns*, *Shells* over *Doors*, *Lantherns*, and all other *Ornaments*. And if it be a Timber-building, then all the Members in that Face ought to have their ſeveral Sizes, in Characters, and true Poſitions by the Scale. As for Example, the Ground-plates, or Cells, Interduces, Breſt-ſummers, Beams, Principal Poſts, Braces, Quarters, Prick-poſts, or Window-poſts; Jambs, or Door-poſts, or Puncheons, King-pieces, or Joggle-pieces, Struts, Collar-beams, Door-heads, Principal-ratters, Shireedings, *&c.* The Ichnography, Orthography, and Scenography of the Stair-caſe, may be alſo delineated, and all its Parts, as Hand Rail, Riſers, Noſeing of the cover, or top, String Board, and Mouldings on it, or Cartouſes, Balliſters, Pendents, *&c.* with their true Poſitions, Forms, and Dimenſions, all which being carefully done by an ingenious Surveyor, I think 'tis almoſt impoſſible for a Workman to miſtake, or to commit any Blunders; tho' to my knowledge they are too ſubject to do it. More of this V. *Draughts*. You ſhall next hear what Sir *H. W.* ſaith of this Matter; his Precautions are as follow, *viz.*

*Firſt*, (ſaith he) Let no Man that intends to Build, ſettle his Fancy on a *Draught* in Paper (or Vellum) of the Work or Deſign, how exactly ſoever Delineated, or ſet off in Perſpective, without a *Model*, or Type of the whole Structure, and of every Parcel, and Partition, either in Paſt-board, or Wainſcot.

*Secondly*, Let the *Model* be as plain as may be, without Colours, or other Beautifying, leſt the Pleaſure of the Eye, preoccupate the Judgment.

*Laſtly*, The bigger this Type is, it is ſo much the better; not that I would perſwade any Man to ſuch an Enormity, as that *Model* made by *Antonio Labaco*, of St. *Peter*'s Church in *Rome*, containing 22 Foot in length, 16 in breadth, and 13 in heighth, which coſt 4184 Crowns, the Price of a reaſonable Chappel, yet in a Fabrick of 40 or 50000 Pounds, there may be very well expended 30 *l.* at leaſt to procure an exact *Model*, for a little Penury in the Premiſes, may eaſily create ſome Abſurdity, or Error, of a far greater Charge in the Concluſion.

What Sir *H. Wotton* doth here caution, is very proper and requiſite, in large and ſumptuous *Buildings*, whether publick, or private; as for Noble-men's Manſion-houſes, and the like, but it is not worth the while, to be at the Trouble, and Coſt to procure a Model for every little Dwelling-houſe that Men Build for their own Conveniency.

Having thus given ſufficient Caveats, I will next proceed to diſcourſe of the Compartition, or *Contrivance*, whereby to diſtribute the whole Ground-plot, *&c.* into Rooms of Office, or Entertainment, as far as the Capacity of the Building, and the Nature

Nature of the Climate will correſpond, yea, ſo far as it may be both decent and uſeful. But in the mean while we are to conſider, whether the Building be to be erected in a City, or great Town of Trade, and whether for a Gentleman, or a Shop-keeper, which is the chief thing to be conſidered of by the *Surveyor*, or Maſter-workman, before he makes his Draught. For a Gentle-man's Houſe muſt not be contrived like a Shop-keepers, neither muſt all Shop-keepers Houſes be a like; for ſome Trades require a deeper, others may diſpenſe with a ſhallower Shop, and ſo an Inconveniency may ariſe in both; for if the Shop be hollow, the Front Rooms upward ought to be ſhallow alſo; becauſe by the ſtrict Rules of Architecture, all Partitions of Rooms ought to ſtand directly one over the other: For if the Shop ſtands in an eminent Street, the front Rooms are commonly more Airy than the Back-rooms, and always more commodious for obſerving publick Paſſages in the Street; and in that reſpect it will be inconvenient to make the Front-rooms ſhallow; but if there be a fair Proſpect backwards of Gardens, and Fields, *&c.* (which ſeldom happens in Cities) then it may be convenient to make the Back-rooms the larger for Entertainment, *&c.*

'Tis obſerved by ſome, that in Building of Houſes long, the uſe of ſome Rooms will be loſt, and it takes up more for Entries and Paſſages, and requires more Doors: And if a Building conſiſt of a Geometrical Square, if the Houſe be any thing large, there will be want of Light to the middle Rooms, more than if it be Built like an H, or ſome other ſuch like Figure (unleſs it have a Court in the middle of it, which was the Method of Building great Houſes formerly.) This way, like a Roman Capital H, is much applauded by ſome; for ſay they, this Form maketh it ſtand better, and firmer againſt the Winds, and Light, and Air come every way to it, and every Room is near the one to the other. Some affect this Figure very much, becauſe the Offices may be remote from the Parlour, and Rooms of Entertainment; and yet in the ſame Houſe, which may ſerve very well for a Countrey Gentleman's Houſe: Now the Method which ſome propoſe for ſuch Buildings, is thus, In the Front of one of the long parts of the H is the *Kitchin*, and the *Bakehouſe*, *Brew-houſe*, and *Dary-houſe*, in the ſame part behind it; the Hall in the middle of the H, which ſeparates the Parlours (which are in the other long part) and Rooms of Entertainment from the Offices.

I ſhall here add a cheap Contrivance in *Building*, approved of by ſome, and then proceed to Sir *H. W.* Method of contriving Noble Buildings.

Now this cheap way is thus, *viz.* Where Bricks may be had, the *Walls* of a Building may be beſt, and moſt ſecurely raiſed with them, and with little coſt, if there be firm and ſtrong Quoins,

Quoins, or Columns raised at the corners of the House, of sufficient strength to support the Floors and Roof, or the main Beams of it; they may be built Square, and between them the Walls may be raised of the same Materials, and they may be worked up together with the Quoins, leaving the one half of the extraordinary breadth of the Quoins without, and the other within the Wall, whereby there will be much Charge saved, both in Materials, and Workmanship; and yet the *Building* be firm and strong.

According to Sir *H. Wottons* Definition of *Contrivance*, it consists of these 2 Heads, or Principles, Gracefulness, or Decency, and Usefulness.

*Decency*, or *Gracefulness*, he also saith, consists in a double Analogy, or Correspondency. 1*st*. Between the parts, and the whole, whereby a great Fabrick should have great *Apartments*, great *Lights*, or Windows, great *Entrances*, or *Doors*, great *Stair-cases*, great *Pillars*, or *Pilasters*; in fine, all the Members, and Parts great, proportionable to the Building.

The second Analogy, is between the Parts themselves, not only considering their breadths, and lengths, as where we speak of Doors and Windows, which V. But here saith Sir *H.* enters a third respect of *Heighth*, a Point (saith he, I must confess) hardly reduceable to any general Precept. The Truth is, the Ancients did determine the *Longitude* of all Rooms which were longer than broad, by the double of their *Latitude*, *Vitruvius*, Lib. 6. Cap. 5. And the heighth by $\frac{1}{2}$ the breadth and length added together, but when the Room was a Geometrical Square, they made the heighth $\frac{1}{2}$ as much more as the Latitude, which Dimensions the modern Architects have taken leave to vary upon Discretion: Sometimes squaring the Latitude, and doubling that Square Number, the Square Root of that Number is the heighth, and sometimes more, but seldom lower than the breadth.

But what is here mentioned, I think is not now practised neither, unless it be in some Noble-man's House, who will have a Hall, or the like, higher pitch'd than the rest of the Rooms in the Building, and sometimes a Dining-room; or else for the most part, all the Rooms of a Floor are of an equal heighth; and in my Judgment, 'tis by far the most commodious Method, because then there is no Room lost, (as there must be where one Room is open almost to the top of the House, as I have observed it in some old Buildings.) And then the Floor of the second Story will lie level and even, and not in the odd old Method of Steps, out of one Room into the other.

As to the heighth of *Rooms*, they are various amongst us, according as what Persons they are Built for, and Custom of the Place in the Country; ordinary Timber-buildings, are about 7 $\frac{1}{2}$, or 8 Foot at most, betwixt Floors: The second sort of Hou-

ses

ſes in the Country, is about 9 Foot betwixt the Floors, which for the moſt part is the Pitch of their Rooms at *Tunbridge-wells*.

The third ſort in the Country, (*viz.* in *Kent* and *Suſſex*) are Gentlemen's Seats, which for the moſt part are 10 or 12 Foot high, ſuch as are new Buildings: But 'tis common in old Stone-buildings to be much higher, *viz.* 14 or 16 Foot.

*By Act of Parliament for the Building of* London, *there was reckoned* 4 *Rates of Houſes*, viz.

The 1, 2, 3, 4 Rate 2, 3, 4, 5 Stories, Cellars and Garrets.

The 1 Rate, Cellars in heighth betwixt Floor and Ceiling, 6 ½ Foot.
The 2 Rate, Cellars in heighth betwixt Floor and Ceiling, 6 ½ Foot.
The 3 Rate, Cellars in heighth betwixt Floor and Ceiling, 6 ½ Foot.
The 4 Rate, Cellars in heighth betwixt Floor and Ceiling, at the Diſcretion of the Builder.

The 1, 2, 3, 4 Rate 1 Story. 9 Foot. 10 10 at Diſcretion, *&c.*

The 1, 2, 3, 4 Rate 2 Story. 9 Foot. 10 10 ½ at Diſcretion, *&c.*

The 1, 2, 3, 4 Rate 3 Story. 9 Foot. 9 9 ½ at Diſcretion, *&c.*

The 3, 4 Rate 4 Story. 8 ½ Foot high. at Diſcretion, *&c.*

As to Sir *Hen.* 2 *d.* Point of *Contrivance*, viz. *Uſefulneſs*, which will conſiſt in a ſufficient number of Rooms, of all ſorts, and in their due and apt Coherence without Diſtraction, or Confuſion; ſo as the Spectator may not only call it *una Fabrica ben racolta*, (as the *Italians* uſed to ſay of well united pieces of Work) but likewiſe that it may appear Airy and Spirituous, and fit to welcome chearful Gueſts; about which the principal Difficulty will be in Contri-

Contriving of the *Lights*, and *Stair-cases*, whereof I will give you a Note or two: For the *1st.* I observe that the Ancient Architects were at much ease; for both *Greeks* and *Romans*, (of whose private Dwellings *Vitruvius* hath left us some Description) had commonly 2 *Cloyster'd* open *Courts*, one for the Womens side, and the other for the Men; who perhaps would now take such a Separation unkindly. However by this means they had a good conveniency, to admit Light into the Body of the Building, both from without, and from within, which we must now supply by some open Form of the Fabrick, or (among graceful Refuges) by Terrasing any Story, which is in danger of being too dark; or lastly, by Perpendicular Lights from the Roof, which are the most natural of all others. As to the second Difficulty, *viz.* Contriving of the *Stair-cases*, which is no hard Point in it self, the only thing in contriving them, is to make them handsome, convenient, and in as little room as may be, that they be no hindrance to any other Room, or Rooms. I have, (saith Sir *H. W.*) observed that the *Italian* Architects, are inclined to place the *Kitchin*, *Bake-house*, *Pantery*, *Washing-rooms*, and the Buttery likewise under Ground, level with the Cellar-floor, raising the *1st.* Ascent 15 Foot, or more up into the House; by which Method, besides removing Annoyances out of sight, and having thereby much more room above. It doth also by the Elevation of the Front, add Majesty to the whole Aspect, and with such a Disposition of the Principal *Stair-case*, which commonly doth deliver us into the Plain of the *2 d.* Story, where Wonders may be done with a little Room: (I have observed, that they commonly place all their Rooms for Office, about 5 Foot under Ground at *Tunbridge-wells*, the *1st.* Stories being about 8 Foot, and then the Lights or Windows to them, be just above the Ground without; but then you must note that these Houses always stand upon an Ascent, that they may have good Sewers to keep these lower Rooms drein'd dry from Water.) But the petty Offices (saith Sir *H.*) may be well enough so remote in *Italy*, yet by the natural Hospitality of *England*, the *Buttery* must be more visible, and we have occasion for larger Ranges, or Chimneys, and more ample *Kitchins* than the *Italians*, or than perhaps the aforesaid Compartition will bear; and likewise not so remote from the Dining-room, or else (saith he) besides other Inconveniencies, perhaps some of the Dishes may straggle by the way.

Here (saith Sir *H.*) let me note a common Defect that we have in our *English Buildings*, *viz.* The want, or neglect of a very useful Room, call'd by the *Italians Il Tinello*, 'tis very frequent, nay, almost essential in all their great Families.

'Tis a place properly appointed for a Conservatory of the Meat that is taken from the Table, till the Waiters are ready to eat, which with us is (according to an old fashion) more unseemly set by, in the mean time.

Now touching the diſtribution of *Lodging-chambers*, I muſt here preſume to reprove an odd Cuſtom they have in *Italy*, without any ancient Precedent, as far as I can learn by *Vitruvius*.

Namely, That they ſo contrive their Partitions, as when all the Doors are open on a Floor, one may ſee through the whole Houſe, which doth neceſſarily put an intolerable Servitude upon all the Chambers, except the inmoſt, where none can arrive but through the reſt; or elſe the Walls muſt be extream thick for ſecret Paſſages, and yet this will not ſerve the turn without 3 Doors to every Room; a thing not to be born with in cold and windy Regions, and every way no ſmall weakning to the Work: This Cuſtom I ſuppoſe to be grounded upon a fond Ambition of diſplaying to Strangers all their Furniture at one view.

There is likewiſe another Defect, (for Abſurdities are ſeldom ſolitary) which will follow by conſequence, upon ſuch a ſervile diſpoſing of the *Inner-chambers*. That they muſt be forced to make as many common great Rooms, as there ſhall be ſeveral Stories, which (beſides that they are uſually dark, a thing hardly to be avoided, running as they do quite through the Houſe) do likewiſe devour ſo much Place, that thereby they want other Galleries and Rooms of Recreation, which I have often conſider'd amongſt them.

Having thus given ſome general Hints and Directions, and detected ſome Faults, the reſt muſt be committed to the Sagacity of the Architect, who will be often put to diverſe ingenious Shifts, when he is to wreſtle with ſcarcity of Ground.

As ſometimes to dam one Room (the *Italians* call it *Una Stanza dannata*, as when a *Buttery* is caſt under a Stair-caſe, or the like) altho' of great uſe for the Beauty and Benefit of all the reſt; at another time to make thoſe faireſt which are moſt in ſight, and to leave the other (like a cunning Painter) ſhadowed. I will cloſe this part (ſaith Sir *H.*) of Compartition, with a ſhort Deſcription of a *Feaſting, or Entertaining-room after the Egyptian manner*, who ſeem (at leaſt till the time of *Vitruvius*) from the ancient *Hebrews*, and *Phœnicians* (whence all Knowledge did flow) to have retain'd with other Sciences in a high degree, alſo the Principles and Practices of this magnificent Art. For as far as I can learn, and conjecture by *Vitruvius*, *lib. 6. cap.* 5. there being no Form for ſuch a Royal Uſe, comparably imagined like that of the aforeſaid Nation; which I ſhall now proceed to explain.

Let us conceive a Floor, or Area of a good length (e. g. at leaſt 120 Foot) with the Latitude ſomewhat more than $\frac{1}{2}$ the Longitude (the Reaſon whereof ſhall be in its due place given) along the 2 ſides and head of the ſaid Room ſhall run an order of Columns, or Pillars, which *Palladio* doth ſuppoſe Corinthi-

an.

an ones, supplying that Point out of *Greece*, because we know no Order proper to *Egypt*.

The other Head, or 4*th*. Side, I will leave free for Entrance: on the aforesaid Pillars, was laid an Architrave, which is only mentioned by *Vitruvius*; *Palladio* adds thereto (and not without Reason) both Frieſe, and Cornice, over which went up a continued Wall, and therein ½ or ¾ Pillars, answering directly to the Order below, but ¼ part less, between these 4 Columns above, the whole Room was Windowed round about.

Now, from the lowest Pillars, there was laid over a Contignation, or Floor, born upon the outward Wall, and the Head of the Columns with Terrace and Pavement, *sub dio*, saith *Vitruvius*, and so indeed he might safely determine the Matter in *Egypt*, where they fear no Clouds; therefore *Palladio* (who leaveth this Terrace uncovered in the middle, and Ballister'd about) did perhaps construe him rightly, tho' therein differing from others. We must understand a sufficient breadth of Pavement, left between the open part and the Windows, for the Pleasure of the Spectators that look down into the Room. The Latitude I have supposed a little more than ½ the length, because the Pillars standing at a competent distance from the outer-wall, will by Interception of the Sight, somewhat diminish the breadth in appearance; in which Case Discretion may be more Licentious than Art. This is the Description of an *Egyptian* Room for Feasts, and other Jolities. About the Walls whereof, we must imagine entire Statues placed below, and illuminated by the descending Light from the Terrace, and likewise from the Windows between the half Pillars above; so that this Room had abundance of Light, and besides other Garnishings, it must needs seem very stately to the heighth of the Roof that lay over 2 Orders of Columns.

Having thus far consider'd of the Lower parts of the Building, the House may now have his Hat put on; which point, tho' it be the last in this Art in Execution, (of any part of the bare Shell of the House) yet it is always the 1*st*. in Intention; for none would build but for Shelter: I shall now only deliver a few of the propereſt, and naturaleſt Considerations belonging to the *Roof*.

There are 2 Extreams to be avoided in the *Cover*, or *Roof* of a House, *viz*. That it be not too heavy, nor too light, the 1*st*. will be objected againſt the pressing too much the under Work; the other contains a more secret Inconveniency; for the Cover, or *Roof*, is not only a bare Defence, but likewise a kind of Band, or Ligature to the whole Fabrick, and therefore will require some reasonable weight; but of the two a House top heavy is the worſt: Next, there must be Care taken to contrive an Equality of the Preſſure of the *Roof* upon all the parts of the Edifice, *viz*. As much on one side, as it doth on the other. And here *Palladio*'s Advice is very good, which is

this, *viz.* That the inward Walls may take their ſhare of the Burden, and the outer ones be the leſs charged with it. *Thirdly*, The *Italians* are very careful in giving the *Roof* a graceful Pendency, or Slopeneſs, dividing the whole breadth of the Building into 9 parts, 2 of theſe Diviſions ſhall be the Perpendicular to the Roof.

But in this Point the Quality of the Region is to be the Rule to walk by, as *Vitruvius* obſerveth; that thoſe Climates that are ſubject to great Snows, ought to have ſharper *Roofs* than other places, where they are not ſubject to the like Accidents; and in all places, Comelineſs muſt yield to Neceſſity.

I will now add Dr. *T. F.*'s general Maxims, for Contrivance in *Building*, which are as followeth, *viz.*

*Let not the common Rooms be ſeveral, nor the ſeveral Rooms be common.*] (by which, I ſuppoſe he means (by what follows) that the common Rooms ſhould not be private, or retired, nor the private Rooms common.) The *Hall* (which is a Pandochæum) ought to lie open, and ſo ought Galleries and Stairs (provided the whole Houſe be not ſpent in *Paths*, *Chambers*, *and Cloſets*) ought to be private and retired.

*Light (God's eldeſt Daughter) is a principal Beauty in a Building,*] Yet it ſhines not alike from all parts of the Heavens. An *Eaſt window* gives the infant Beams of the Sun, before they are of ſtrength to do any harm, and is offenſive to none but a Sluggard. A *South-wind*, in Summer is a Chimney with a Fire in it, and needs to be skreen'd by a Curtain. In a *Weſt-window*, in Summer-time, towards Night, the Sun grows low, and over familiar, with more Light than Delight. A *North window*, is beſt for Butteries, and Cellars, where the Beer will be ſowre, becauſe the Sun ſmiles on it. *Thorow Lights* are beſt for *Rooms of Entertainment*, and Windows on one ſide for Dormitories.

3. *Receit.*] As for *Receit*, *a Houſe had better be too little for a Day, than too great for a Year.* And 'tis eaſier borrowing of thy Neighbour a brace of Chambers for a Night, than a Bag of Money for a 12 Month. It is Vanity therefore to proportion the *Receit* to an extraordinary Occaſion; as thoſe, who by over-building their Houſes, have diſapidated their Lands, and their Eſtates have been preſſed to Death under the weight of their Houſe.

4. *Strength.*] As for Strength, *Country-houſes muſt be Subſtantives, able to ſtand of themſelves,*] Not like City-buildings, ſupported by their Neighbours, on each ſide. By *Strength*, I mean ſuch as may reſiſt Weather and Time, and not Invaſion, Caſtles being out of date in *England*, only on the Sea-coſt. As to making of Motes round about a Houſe, 'tis a queſtion whether the Fogs that ariſe from the Water, be not more unhealthful than the Fiſh brings Profit, or the Water Defence.

In working up the Walls of a *Building*, do not let any Wall be worked up above 3 f. high, before the next adjoyning Wall be brought up to it, that ſo they may be joyn'd together, and make good Bond in the Work. For there is an ill Cuſtom uſed among ſome Bricklayers, to carry, or work up a whole Story of the Party-wall (meaning in *London*) before they work up the Fronts, or other Work adjoyning, that ſhould be bonded, or worked up together with them, which occaſions Cracks, and Setlings in the Walls of the *Building*, which weakens it very much.

Sometimes the Strength of a Building is much impair'd, in the erecting of it, by reaſon the Maſter did not procure ſufficient Stuff, or Materials, and Money before he began to Build; for when Buildings are erected by Fits and Pauſes, now a piece, and then another, the Work dries, and ſinks unequally, whereby the *Walls* grow full of Chinks and Crevices; this pauſing Humour is condemned by all Authors.

5. *Beauty.*] *Let not the Front look a ſquint on a ſtranger, but accoſt him right at his entrance.*] Uniformity and Proportion, much pleaſeth the Eye, and 'tis obſerved that Free-ſtone, like a fair Complexion, ſooneſt waxeth old, whilſt Bricks keep their Beauty longeſt.

*Let the Offices* (ſaith Dr. *T. F.*) *keep their due diſtance from the Manſion-houſe.*] Thoſe are too familiar which preſume to be of the ſame Pile with it. The ſame may be ſaid of *Stables* and *Barns*, without which a Houſe is like a City without Works, it can never hold out long.

'Tis very inconvenient (and rather a Blemiſh, than a Beauty to a *Building*) to ſee the Barns and Stables too near a Houſe, becauſe Cattle, Poultry, and ſuch like muſt be kept near them, which are an Annoyance to a Houſe.

*Gardens alſo are to attend in their place.* When God (*Geneſis* 2. 9.) planted a Garden *Eaſtward*, he made to grow out of the Ground every Tree, pleaſant to the ſight, and good for Food. Sure (ſaith the Dr.) He knew better what was proper to a Garden than thoſe, who now a days therein only feed the Eyes, and ſtarve both Taſt and Smell. Let the Garden (ſaith Mr. *Worlidge*) joyn to one, if not more ſides of the Houſe, for what can be more pleaſant and Beautiful for the moſt part of the Year, than to look out of the Parlour, and Chamber-windows into Gardens? For Beauty alſo let there be Courts or Yards kept from Cattle and Poultrey, *&c.* and planted with Trees, to ſhade, defend, and refreſh your Houſe, and the Walls alſo planted with Vines, and other Wall-fruit, all which will add Pleaſure and Beauty to your Habitation.

6. *Form or Figure.*] *Figures* are either ſimple or mixt; ſimple *Figures* are either Circular or Angular, and of Circular, either Compleat or Deficient, as Oval: The Circle is an unprofitable

Figure in private Buildings, being the moſt chargable, and much room is loſt in the bending of the Walls, beſides an ill Diſtribution of the Light, except from the Center of the Roof, ſo as it is not uſed, only in Temples and Amphitheatres. The Oval, and other imperfect Circular *Forms* are ſubject to the ſame Exceptions, and are leſs Capacious.

Touching the Angular *Forms* or *Figures*, it is a true Obſervation, that this Art doth not love neither many Angles, nor few; *1ſt.* the Triangle which hath of all the others, the feweſt ſides and corners, is of all others the moſt condemned, being indeed both incapable and infirm, and not eaſily reduced into any other Form, but that of it ſelf in the inward Partitions: As for *Figures* of 5, 6, 7, or more Sides and Angles, they are fitter for Military than Civil Architecture; tho' there is a famous piece at *Caprarola*, belonging to the Houſe of *Farneſe*, contrived by *Baraccio*, in the Form of a Pentagon, with a Circle inſcribed, where the Architect did ingeniouſly wreſtle with diverſe Inconveniencies in diſpoſing of the Lights, and in ſaving the Vacuities: But ſuch Deſigns as theſe aim more at Rarity than Commodity, and are rather to be admired than commended. And therefore by the Precepts and practice of the beſt Builders, we reſolve upon Rectangular Squares, as a mean betwixt too few, and too many Angles, and thro' the equal Inclination of the Sides (which make the Right Angle) ſtronger than the Rhomb, or any other Quadrilateral Figure; but whether the Quadrat, or Rectangle Parallellogram, be the better, is not yet well determined, tho' I prefer the latter, provided the length do not exceed the Latitude above $\frac{1}{3}$, which would much diminiſh the Aſpect.

Of mixt Figures, partly Circular, and partly Angular; there is a proper Objection againſt them, *viz.* That they offend *Uniformity*. Of which (having here mentioned it) I will add ſomething concerning *Uniformity*.

In *Architecture*, there ſeems to be 2 oppoſite Affectations, *Uniformity* and *Variety*; yet theſe ſeeming Oppoſites may be very well reconcil'd; as we may obſerve in our own Bodies, the great Pattern of Nature; which is very Uniform in the whole Figuration, each ſide agreeing with the other, both in Number, Quality, and Meaſure of the Parts: And yet ſome are round as the Arms, others flat, as the Hands, ſome prominent, and others indented or retir'd; ſo the Limbs of a noble Fabrick may be Correſpondent enough, tho' they be various, provided we do not run out into extravagant Fancies, when we are contriving how to part and caſt the whole work. We ought likewiſe to avoid enormous heights of 6 or 7 Stories, as well as irregular *Forms*; and the contrary of low diſtended Fronts is as unſeemly: Or again, when the Face of a Building is narrow, and the Flanks deep.

III. *Of the Modern way of Building in* England, *compared with the Ancient.*] When I compare the Modern *Engliſh* way of Building with the old way, I cannot but wonder at the Genius of old Times. Nothing is, or can be more delightful, and convenient than height, and nothing more agreeable to Health than free Air. And yet of old, they uſed to dwell in Houſes, moſt of them with a blind *Stair-caſe*, low Ceilings, and dark Windows; the Rooms built at random, (without any thing of Contrivance) and often with Steps from one to another. So that one would think the People of former Ages, were afraid of Light, and good Air; or loved to play at hide and ſeek. Whereas the Genius of our Times is altogether for light *Stair-caſes*, fine *Saſh-windows*, and lofty *Ceilings*. And ſuch has been of late our Builders Induſtry, in point of *Compaſtneſs* and *Uniformity*, That a Houſe after the new way will afford upon the ſame quantity of Ground as much more Conveniencies.

The Contrivance of *Cloſets*, in moſt Rooms, and *painted Wainſcot*, now ſo much uſed, are alſo 2 great Improvements, the one for Conveniency, the other for Cleanlineſs and Health: And indeed for ſo damp a Country as *England* is, nothing could be better contrived, than *Wainſcot* to keep off the ill Impreſſion of damp Walls. In ſhort, for handſome Accommodations, and neatneſs of Lodgings, *London* undoubtedly has got the Preheminence.

The greateſt Objection againſt *London-houſes* (being for the moſt part Brick) is their ſlightneſs, occaſioned by the Fines exacted by the Landlords. So that few Houſes at the common rate of Building, laſt longer than the Ground-leaſe, and that is about 50 or 60 Years. In the mean time, if there happens to be a long fit of exceſſive *Heat in Summer*, or *Cold* in *Winter*, the Walls being but thin, become at laſt ſo penetrated with the Air, that the Tenant muſt needs be uneaſie with it; but thoſe Extreams happen but ſeldom. And this way of Building is wonderful beneficial to Trades relating to it, for they never want Work in ſo great a City, where Houſes here and there are always Repairing, or *Building* up again.

The *Plaiſtered Ceilings* ſo much uſed in *England*, beyond all other Countries, make by their whiteneſs the Rooms ſo much Lightſomer, and are excellent againſt raging Fires. They ſtop the Paſſage of the Duſt, and leſſen the noiſe over head; and in Summer-time the Air of a Room is ſomething the cooler for them, and in the Winter ſomething the warmer, becauſe it keeps out cold Air then better than the Board-floors alone can do.

IV. *Some general Rules, to be obſerved in Building.*] Theſe following *Rules* were Eſtabliſhed by *Act of Parliament*, before the Re-building of *London*.

*First*, In every *Foundation* within the Ground, add one *Brick* in thickneſs to the thickneſs of the Wall, next above the Foundation, to be ſet off in 3 Courſes, equally on both ſides.

*Secondly*, That no *Timber* be laid within 12 Inches of the fore-ſide of the *Chimney-jambs*.

*Thirdly*, That all *Joyſts* on the back of any *Chimney*, be laid with a *Trimmer*, at 6 Inches diſtance from the back.

*Fourthly*, That no *Timber* be laid within the *Funnel* of any *Chimney*, upon Penalty to the Workman for every Default 10*s*. and 10*s*. every Week it continues unreformed.

*Fifthly*, That no *Joyſts*, or *Rafters* be laid at greater diſtances from one to the other; than 12 Inches; and no *Quarters* at greater diſtance than 14 Inches.

*Sixthly*, That no *Joyſts* bear at longer length than 10 Foot; and no ſingle *Rafters* at more in length than 9 Foot.

*Seventhly*, That all *Roofs*, *Window-frames*, and Cellar-floors be made of Oak.

*Eighthly*, That *Tile-pins* be of Oak.

*Ninthly*, That no *Summers* or *Girders* in Brick Buildings, do lie over the Heads of *Doors* or *Windows*.

*Tenthly*, That no *Summers* or *Girders* do lie leſs than 10 Inches into the Brick-work; nor no *Joyſts* leſs than 8 Inches, and that they be laid in Lome.

Some alſo adviſe that all *Tarſels* for Mantle-trees to lie on, or *Lintels* over Windows, or *Templers* under Girders, or any other Timber that muſt lie in the Wall to lay them in Lome, which is a great preſerver of Timber; but *Mortar* eats and corrodes it. Some Workmen pitch the ends of Timber that lie in the Walls to preſerve them from the Mortar.

V. *Of Surveying of a Building.*] I will here briefly touch upon the Method of *Surveying* of *Buildings*; by which the Manner and Form of taking Dimenſions may be ſeen, which take as follows.

*A* Survey *of a* Building *Erected by* R. M. *for* R. S. *the thickneſs of the Walls (as by Agreement) Brick and* ½, *at* 3 *l.* per Rod, *for Mortar and Workmanſhip, the Dimenſions were taken as followeth.*

| | Foot. Parts. |
|---|---|
| 1. The length of one ſide. 40—50<br>From the Foundation to the Raiſing. 16— 0 | 648—0 |
| 2. The breadth at one end. 17—16<br>The heighth to the Croſs-beam. 16—50 | 283—14 |
| 3. A Partition-wall within. 17—16<br>Height to the 1*ſt.* Story. 10—50 | 180—18 |
| 4. The length of the other ſide. 39—33<br>From an old Wall to the Raiſing. 7—00 | 275—31 |
| 5. The breadth at the other end. 17—00<br>From the Floor to the Croſs-beam. 4—83 | 82—11 |
| 6. A Water Table 30 Foot reduced to 7—50<br>From the Foundation to the Table. 3—16 | 23—70 |
| 7. A Setting off on the other ſide of the Houſe. 16—83 | 16—83 |
| 8. A Gable-end. < 66—00 > | 66—00 |
| The Total Area, or Content of theſe Dimenſions. | 1575—27 |

Par-

*Particulars to be deducted.*

| | | F. | P. | |
|---|---|---|---|---|
| 1. One Door-case, | Broad—8—66<br>High —9—42 | 81 | —58 | |
| 2. Another Door-case, | Broad—4—33<br>High —7—42 | 32 | —13 | |
| 3. A Third Door-case, | Broad—4—33<br>High —5—16 | 22 | —34 | |
| 4. A Window-case, | Broad—4—50<br>Deep —4—50 | 20 | —25 | |
| 5. Another Window-case. | Broad—4—5<br>Deep —4—5 | 20 | —25 | |
| The total of these Deductions. | | 176 | —55 | |
| Taken from the whole Content. | | 1575 | —27 | |
| There rests due to the Bricklayer. | | 1398 | —72 | |

Which reduced into square Rods, is 5 Rods 38 Foot.

And then according to the Contract, there will be due to the Bricklayer 15 *l.*—8 *s.*—3 *d.*

Thus far Mr. *Leybourn*: We will now see Mr. *Ven. Maudey*'s Method of Surveying Buildings, and taking *Dimensions*; and setting them down in a Pocket-book.

2. Note, Before you begin to set down your *Dimensions*, it is convenient to divide the breadth of the Page or Feet, into so many several Columns as you think you shall have occasion for; either with Lines drawn with Ink, or a Pencil; your Pocket-book being about 4 *n.* broad, (which is one of the broader sized Pocket-books) you may then divide a Leaf into 4 Columns.

3. Before any *Dimensions* are set down, the Work-master's and Work-men's Names ought to be expressed; also the place where, the Day of the Month, and Date when you measure. I will suppose, for Example, That you were to measure Glazing; then observe if it were Glazed with Square-glass, you must write Squares above the *Dimensions*, and over those *Dimensions* which are appertaining to Quarry-glass (if there be any) you must write Quarries, that when you come to make the *Bill of Measure*-

*surement*, you may expreſs them ſeverally, becauſe they are of ſeveral Prices.

4. The better to explain the Method, I will here inſert a *Bill of Meaſurement* of *Glazing*.

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Glazing *done for* C. D. *in* Long-acre, *by* T. G. *of St.* Martin's *in the Fields*; *Meaſured* October 17. 1702.

| Quarries. F. I. P. | | Products. F. I. P. | Squares F. I. P. | | Products. F. I. P. |
|---|---|---|---|---|---|
| 5—8—6 | | 31—11—30 | 04—03—00 | | 04—11—06 |
| 5—7—3 | | | 01—02—00 | | |
| 5—3—6 | | 12—06—09 | 02—00—00 | | 03—00—00 |
| 2—4—6 | | | 01—06—00 | | |
| 2—6—0 | (3) | 08—09—00 | 06—00—09 | | 30—05—03 |
| 1—2—0 | | | 05—00—03 | | |
| 2—1—0 | (2) | 07—02—04 | 01—02—00 | (2) | 07—00—00 |
| 1—8—6 | | | 03—00—00 | | |
| | | 60— 5—11 | | | 45—04—09 |

## *An Explanation of the Columns.*

In the 1*ſt*. Column towards the left Hand, are the *Dimenſions* of Glazings done with Squares; which you are taught to caſt up in *Croſs Multiplication*, which V. N. 2.

In the 2 *d*. Column you have the Product of each *Dimenſion* juſt againſt it.

In the 3 *d*. Column you have 4 *Dimenſions* of Glazing done with Squares.

In the laſt you have the Product of each *Dimenſion* juſt againſt it alſo.

At the bottom of the 2 *d.* Column, you have the Sum Total of the Products of the Dimenſions done with Quarries, which is 60 Feet, 5 Inches, and 11 Parts.

Alſo at the bottom of the laſt Column, there is the Total Sum of the Products of thoſe *Dimenſions* of the Glazing that was done with Squares, being 45 f. 4 n. 9 p. As for the odd parts it ſignifies but little if they are left out in the Sum Totals of a *Bill of Meaſurement*, for it will amount to but very little in value.

5. N. B. When you are a taking of *Dimenſions*, and ſetting them down in your Pocket-book, whether it be Glazing, or any other Tradeſman's Work; you muſt obſerve to leave every other Column vacant, that ſo having ſet down all your *Dimenſions* in your Book (which muſt be generally done, before any is caſt up) when you come to caſt them up (which muſt be in another Book, or a Sheet of Paper) you may enter the Product of each pair of *Dimenſions*, juſt againſt them, as you ſee before.

6. If there be another to meaſure againſt you, and there ſhould be a miſtake in either of your caſtings up of the *Dimenſions* (as it often happens thro' Security or Negligence) then one by reading over the *Dimenſions* in his Book with the Product to each Dimenſion as he goes on, and the other looking in his own Book, the miſtake will be ſoon diſcovered, which muſt be rectified between you.

Therefore to be certain in caſting up your *Dimenſions*, you ought to caſt them up twice, if not 3 times, *viz.* After you have caſt them all over once, begin and caſt them over again, and ſee whether it agrees with your 1*ſt.* caſting up, if not, then caſt them up again. When you make your Bill of Meaſurement, you muſt ſet your Name to it at the lower end of the Bill.

7. An Example of a *Bill of Meaſurement.*

*Glaziers Work done for* G. D. *in* Long-acre, *by* T. G. *of St.* Martin's *in the Fields, measured* October 17. 1702.

| | *l.* | *s.* | *d.* |
|---|---|---|---|
| For 60 Foot 5 Inches of Glazing done with Quarries, at 5 *d. per* Foot. | 01 | 05 | 1 ¼ |
| For 45 Foot and 4 Inches of Glazing done with Squares, at 7 *d. per* Foot. | 01 | 06 | 2 ¼ |
| Sum Total | 2 | 11 | 3 ½ |

*Measured the Day and Year above Written, by* T. S.

For the Satisfaction of the Curious, I will shew the Method of taking the *Dimensions* of *Bricklayers-work*, which is the most troublesome of any Mechanicks work (relating to Building) to measure.

8. Altho' I said before, that you might divide a Page or Leaf of your Measuring Book into 4 Parts, or Columns; yet in measuring of *Bricklayers-work*, it will be necessary to divide a Page into but 3 Columns, one large one for the Appellations, 2 smaller, one for the Dimensions, the other for the Products.

*As in this Example.*

| *Appellations.* | *Dimenſions.* | *Products.* |
|---|---|---|
| | 3 B. f. n. | 3 B. f. n. |
| Baſis of the Front and Rear. | 25—00 (2) | 25—00 |
| | 00—06 | |
| Front and Rear. | 2 ½ B. 25—00 (2) | 2 ½ B. 550—00 |
| | 11—00 | |
| Baſis of both the Flank-walls. | 2 ½ B. 36—02 (2) | 2 ½ B. 36—02 |
| | 00—06 | |
| Both the Flanks. | 2 B. 36—02 (2) | 2 B. 795—08 |
| | 11—00 | |
| The Wall between the Chimney | 1 ½ B. 11—06 | 1 ½ B. 113—01 |
| | 09—10 | |
| The falling back of both Chim. | 1 B. 05—00 (2) | 1 B. 40—00 |
| | 04—00 | |
| The 4 Jambs. | 2 B. 14—00 | 2 B. 161—00 |
| | 11—05 | |
| The fore part, or Breſts of both Chimneys. | 2 B. 11—06 (2) | 2 B. 115—00 |
| | 5—00 | |

9. The

9. The *Dimenſions* with their *Products*, being ſet down, in the next place the *Deductions* of the Windows and Doors muſt be put down, and their Products. V. P. of Dimenſions in *Brick-work*.

## *Deductions.*

| | Deduct. 2 ½ B. f. n. | Prod. 2 ½ B. f. n. |
|---|---|---|
| The 4 Windows. | {06—06 / 04—00} (4) | 104—00 |
| The 2 Doors. | 2 ½ B. {09—00 / 04—00} (2) | 72—00 |

10. The next thing in order to be done is, to add the *Products* of each ſeveral thickneſs into one Sum.

## *The Products of the ſeveral thickneſſes.*

| 3 B. | 2 ½ B. | 2 B. | 1 ½ B. | 1 B. |
|---|---|---|---|---|
| 25—00 | 550—00 | 795—08 | 113—01 | 40—00 |
| | 36—02 | 161—00 | | |
| | | 115—00 | | |
| | 586—02 | 1071—08 | | |

The ſeveral Products of each thickneſs being added.

In the *1ſt.* Column on the left Hand there is 25 Feet of 3 B.

In the ſecond 586, 2. of 2 ½ B. *&c.*

How to find theſe Products V. croſs Multiplication. N. 2.

Having found the Total Sum of the Products of the Deductions; each Total Sum muſt be ſubſtracted from the Total Sum of the *Products* of the *Dimenſions*, that are of the ſame Craſſitude.

*E. G.*

*E. G.* the *Products* of the *Deductions* in

| 2 ½ B. |
|---|
| 104—00 |
| 72—00 |

The Total Product of Ded. in 2 ½ B is 176—00

Which 176 Feet of 2 ½ B. Work, being contain'd in the Windows and Doors; muſt be Subtracted from the 586 Feet, and 2 Inches, being the Total Product of all the *Dimenſions* of that Craſſitude, *viz.* 2 ½ B. Work.

This is manifeſt to Reaſon.

Becauſe when the *Dimenſions* of the Front and Rear were taken; the whole length and breadth was taken over the *Doors*, and *Windows*, allowing nothing of abatement for them.

12. N. B. That whatſoever *Doors*, or *Windows*, or any other Vacancies, are meaſured over when the *Dimenſions* are taken; you muſt remember to make Deduction for them out of the Total Product of the *Dimenſions* of the ſame Craſſitude wherein they were Situated.

To make it the plainer, take the following

## *Example.*

The *Doors* and *Windows*, being in 2 ½ B. work, I ſet down the Total Product of all the *Dimenſions* of that Craſſitude whic

586—02

The Total Product of all the *Deductions* of that thickneſs, which are to be Subtracted is, } 176—00

The Remainder is 410—02

The like Method muſt have been practiſed, if there had been any other *Deductions* in any other Craſſitude; Subſtraction muſt have been made of all ſuch *Deductions*, out of the *Products* of the *Dimenſions*, before you went to reduce your ſeveral Craſſitudes to the Standard thickneſs of 1 ½ B.

But ſeeing we have no other *Deductions* in our preſent Example of a Survey; the next thing to be put in practice, will be to reduce the ſeveral Craſſitudes to the cuſtomary thickneſs of 1 ½ B. But I think it neceſſary to refer it to Walls, under the Head of Meaſuring them.

More of this Nature, *viz.* Of Surveying *Buildings*, or taking *Dimenſions*, &c. may be ſeen under the different Heads of *Carpenters* work, *Joiners*, *Bricklayers*, *Plaiſterers*, *Maſons*, *Painters*, *Thatchers*, &c.

VI. *Of meaſuring Buildings*] Having briefly treated of taking *Dimenſions*, &c. I ſhall here add but little under this Head of *Meaſuring*: only mention the Artificers relating to *Building* that uſually work by Meaſure, which are 1 *Bricklayers*, 2 *Carpenters*, 3 *Plaiſterers*, 4 *Painters*, 5 *Glaziers*, 6 *Joiners*, and 7 *Maſons*. Some of theſe work by the Superficial Yard, ſome by the Rod, ſome by the Square, and ſome by the Foot: Of all which Works the *Dimenſions* are taken either with a 10 Foot Rod, or a 5 Foot one, or with a 2 Foot Rule, and ſometimes with a Line. But let the Dimenſions be taken how they will, they are uſually ſet down in Feet, Inches and parts of Inches; or elſe in Feet and Centeſimal Parts of Feet, which laſt way is eaſieſt caſt up; the following Table will ſhew the Centeſimals.

*A Table of Centeſimal Numbers, for every Inch, and quarter of an Inch in a Foot.*

| | | 1 quarter of an Inch. | 2 quarters of an Inch. | 3 quarters of an Inch. |
|---|---|---|---|---|
| Inches. | 100 P. Foot. | 100 P. Foot. | 100 P. Foot. | 100 P. Foot. |
| 0 | . 00 | . 02 | . 04 | . 06 |
| 1 | . 08 | . 10 | . 12 | . 14 |
| 2 | . 16 | . 18 | . 2 | . 22 |
| 3 | . 25 | . 27 | . 29 | . 31 |
| 4 | . 33 | . 35 | . 37 | . 39 |
| 5 | . 42 | . 44 | . 45 | . 47 |
| 6 | . 50 | . 52 | . 53 | . 55 |
| 7 | . 56 | . 60 | . 62 | . 64 |
| 8 | . 66 | . 68 | . 7 | . 72 |
| 9 | . 75 | . 77 | . 79 | . 81 |
| 10 | . 83 | . 85 | . 87 | . 9 |
| 11 | 92 | . 94 | . 96 | . 98 |
| 1 Foot. | 100 | | | |

To ſet any number of Feet, Inches, and Parts, as ſuppoſe 30 Feet, 8 Inches and 2 quarters, you muſt 1*ſt.* ſet down 30 Feet with a Period, or Comma after it, thus, 30, and then look in the 1*ſt.* Column of the Table for 8 Inches, and at the Head of the Table for 2 quarters, and then againſt 8 Inches, and under 2 quarters you will find 7; which ſet down beyond the 30 to the right Hand, and it will ſtand thus, 30. 7.

I ſhall not here ſtay to treat of the Method of Meaſuring all theſe Artificers Works, becauſe they will be all treated of under their proper Heads. But ſhall now proceed to ſpeak ſomething.

VII. Of *Valuing Buildings*] To eſtimate the Charge of Erecting any Houſe near the Truth, or to value one that is already built, ſo that you come ſomething near the Matter, (provided it be built of Brick and Timber, as they uſually build in *London*, and Gentlemen in the Countrey) there muſt be given.

(1.) The *Dimenſions* thereof, not only in length and breadth, but alſo in heighth, in reſpect of the number of *Stories*: For,

(2.) By the length and breadth, the quantity of Squares upon each Floor may be found, and alſo the Squares of Roofing in the Carpenters Work, and alſo Tyling in the *Healers*, or Bricklayer's Work. And,

(3.) by the heighth, one may give a near Eſtimate of the Rows of *Brick-work*, contain'd in the Walls round about, and in the *Partition-walls*, if there be any; and alſo in the *Chimneys*: Then,

(4.) Conſider how many pairs of *Stairs*, and of what ſort.

(5.) What Partitions of Timber with Doors.

(6.) What *Timber Front*.

(7.) What number of *Window-frames*, and Lights.

(8.) What Iron-work; and

(9.) What Lead, *&c.*

Of all which V. the particular Heads.

Now ſaith Mr. *Leybourn*, what will be the Charge of Erecting a Fabrick of Brick-walls and Timber, which ſhall be 20 Foot in Front, and 44 Foot deep (which is the Method in *London* (and I believe in moſt Cities, *&c.*) for the Front to be ſhorter than the Flanks) and to conſiſt of Cellars, 3 Stories, and Garrets which is one of the 2 *d.* Rate Houſes. We will ſuppoſe the Price of Materials to be as followeth, (in *London*,) viz.

| | | *l.* | *s.* | *d.* |
|---|---|---|---|---|
| For | Bricks *per* Thouſand. | 00 | 16 | 00 |
| | Tiles *per* Thouſand. | 01 | 05 | 00 |
| | Lime *per* Hundred. | 00 | 10 | 00 |
| | Sand *per* Load. | 00 | 03 | 00 |
| | Oak, or Fir Timber *per* Load. | 02 | 15 | 00 |
| | Deal-boards *per* Hundred. | 07 | 10 | 00 |
| | Laths *per* Bundle. | 00 | 01 | 08 |

As

## *As for the Plaisterers Work.*

| | | |
|---|---|---|
| For | Lathing, Plaistering, Rendring and and Washing with White and Size, *per* Yard. | 00—01—02 |
| | Lathing and Plaistring *per* Yard. | 00—00—10 |
| | Plaistring and Sizing, *per* Yard. | 00—00—06 |

## *Smiths Work.*

| | | |
|---|---|---|
| For | Iron Balconies, *per* lb. | 00—00—05 |
| | Folding Casements, *per* Pair. | 00—16—00 |
| | Ordinary Casements, *per* Piece. | 00—04—06 |

## *For Painting.*

| | |
|---|---|
| Window Lights | 00—00—06 |
| Shop Windows, Doors, Pales, *per* Yard. | 00—01—00 |

Now, saith he, from these Rates of Materials for Building, and for Workmanship: such a House as is here proposed, will amount to about 360 Pounds, which is near 41 *l. per* Square.

Now Mr. *H. Phillips*, proposes the following Method to find the value of a *Building*: viz. Suppose, saith he, a House, which is 1 Rod or 16 ½ f. *in* Front, and 2 Rods deep back in the Flanks; the Compass of this House will be 6 Rods, and if this House stands in a high Street, having a Cellar, 4 Stories, and a Garret, (which is one of the 3 *d.* Rate Houses) the heighth thereof will be 50 Foot, or 3 Rods; so that there will be 18 Rod of *Brick-work* in the Walls; which may be all reduced to a Brick and ½ thick, and suppose each Rod of *Brick-work* to contain 4500 of Bricks, and will cost about 7 *l.* the Building, *viz.* Bricks, Mortar, and Workmanship; then the whole 18 Rods of Brick-work will cost about 126 *l.* The Timber-work for Floors, Windows, Roofs, *&c.* about as much more; the Tiling, Plaistering, Lead, Glazing, and Painting, will be about as much more so that the whole will amount to 378 *l.* the allowance for the *Party-walls* will very well pay for the Chimneys. So that this House cannot amount to above 400 *l.* the Building, which is not full 7 3 *l. per* Square; but this is a very great Price, in comparison of Mr. *Leybourns*, but he saith that it will be worth more or less, according to the Market-price of the Materials.

The *Friendly Society* of *London*, for Insuring of Houses, have 2 Rules by which they value *Houses*, *viz.* either by the Rent, or the number of Squares contain'd on the Ground-plot. This

laſt is the general Rule by which they value all *Buildings*, which is grounded on an Act of Parliament for the Re-building the City of *London*, made about *Anno* 18. *Car.* 2.

The *Buildings* of the City of *London* are valued according to their *Rates*, of which Rates there are 4, *viz.*

1*ſt.* Rate 2
2 —— 3
3 —— 4
4 —— 5
} Stories, Cellars, and Garrets.

And the naked *Building*, or Shell of a Brick-houſe (the Floors being finiſhed) is thus valued by the Square or 100 Foot, if in high Streets. *viz.*

1*ſt.* Rate at 25 *l.*
2 —— 35 *l.*
3 —— 45 *l.*
4 —— 50 *l.*
} *Per* Square.

But theſe Rates may be augmented at the Diſcretion of the Surveyor, or according to the finiſhing of the *Houſe*. I ſhall not now inſiſt any longer on this Head, but defer it till a better Opportunity: V. ſomething more of this nature: *Houſe*.

VIII. *Of Cenſuring Buildings*] I ſhall here draw towards a Concluſion of this Head, with Sir *H. W.* Methodical Directions, how to *Cenſure*, or paſs ones Judgment on Fabricks already erected; for without ſome way to contract ones Judgment, it will be confounded amongſt ſo many Particulars as a *Building* conſiſts of. I ſhould therefore think it to be (almoſt) a harder Task, to be a good *Cenſurer*, than a good Architect: becauſe the *working* part may be helped by deliberation, but the *Cenſuring* part muſt flow from an Extemporal Habit. Therefore (not to leave this laſt Part, or Head without ſome Light) I could wiſh him that comes to examine any noble (or great) Work. 1*ſt.* of all to examine himſelf, whether the ſight of many fine Objects, which he hath ſeen before, (which remain like impreſſed Ideas on the Brain) have not made him apt to think that nothing is good, but that which is the beſt, to be thus affected, would reliſh too much of a Cynical Humour.

Next before he comes to give his Opinion concerning the *Edifice*, let him endeavour to inform himſelf preciſely of the Age of the *Fabrick*, upon which he is to give his Sentiments or Opinion. And if he ſhall find the viſible Decays to exceed the Proportion of time it hath been built, he may then ſafely conclude, without making farther inquiry, that the *Materials* were bad, and too ſlight, or the Seat is nought, *viz.* Poſited on a bad

Soil

Soil for Foundation, or expoſed too much to a Tempeſtuous, Corroſive Air, *&c.*

Now after theſe Premiſes, if the Houſe be found to bear his Years well, (which is always a ſign of a good Conſtitution.) Then let him ſuddenly run backwards (for the Method of *Cenſuring* is contrary to the Method of *Compoſing*) from the *Ornaments* (which *1ſt.* allure the Eye) to the more Eſſential *Members*, till at laſt he be able to form this Concluſion, that the Work is *Commodious*, *Firm* and *delightful*: which are the 3 capital Qualities requiſite in good *Buildings*. And this (as I may term it) is the moſt Scientifical way of *Cenſuring*.

But there are two other things which I muſt not forget. The *1ſt*, (out of *Georgio Vaſſari*'s Preface before his Labourious Work of the Lives of *Architects*) is to paſs a running Examination over the whole Edifice, according to the Properties of a well ſhapen Man; as whether the *Walls* ſtand upright, upon a good Foundation; whether the Fabrick be of a comely *Stature*; whether for the *breadth* it appear well *burniſhed*; whether the principal *Entrance* be in the middle of the *Front*, like our Mouths; whether the *Windows*, as our Eyes, be ſet in equal number, and diſtance on both ſides the *Entrance*, &c. Whether the *Offices*, like the Veins in our Bodies be conveniently diſtributed, *&c.* For this Allegorical Review, may be driven as far as any wit will, that is at leiſure.

The ſecond way, is in *Vitruvius*, *Lib.* 1. *Cap.* 2. Where he briefly determines ſix *Conſiderations*, which accompliſh this whole Art, *viz.* 1. *Ordinatio.* 2. *Diſpoſitio.* 3. *Eurythmia.* 4. *Symmetria.* 5. *Decor.* And 6. *Diſtributio.*

The 2 firſt of theſe may be very well ſpared or omitted: for as far as I can perceive, either by his Interpreters, or by his own Text, (which in that very place, where perhaps he ought to have been cleareſt, he is moſt obſcure) he meaneth by *Ordination*, nothing but a well ſetling of the *Model* or *Scheme* of the whole Work. Nor by *Diſpoſition*, he meaneth no more than a neat and full Expreſſion of the *1ſt.* Idea or Deſignment thereof, which perhaps does more immediately belong to the Artificer, rather than to the Cenſurer. The other 4 are ſufficient to condemn or approve (or abſolve) any Fabrick whatever. Wherefore

*Eurythmia*, is that agreable Harmony between the breadth, length, and heighth of all the Rooms of the *Fabrick*, which is very pleaſing to all Beholders; which is always ſo to all by a ſecret Power which is in proportion: Where, let me note this, that tho' the leaſt Error or Offence that can be committed againſt the ſight, is exceſs of heighth, yet that Fault is no where of ſmall Importance, becauſe it is the greateſt Offence againſt the Purſe.

*Symmetria*, is a due proportion of each part in respect of the whole; whereby a great *Fabrick* should have great *Apartments* or *Rooms*, great *Lights*, or *Windows*, great *Entrances* or *Doors*, great *Stair-cases*, great *Pillars* and *Pilasters*, &c. In fine, all the Members and Parts large, proportionable to the *Building*. For as it would be but an odd sight to see a great Man with little Legs, Feet, Arms Hands, *&c.* So also it would be undecent to see a great *Fabrick* consist of little *Apartments*, *Lights*, *Stair-cases*, *Entrances*, &c. So on the other hand, as it is strange to see a little Man possest of great Members, and Limbs, it is also every whit as unseemly to see a *Fabrick* that is but small, to be contrived into great *Rooms*, to have great *Stair-cases*, large *Entrances*, *Lights*, &c. But again, as it is an unbeseeming sight, to see either a great or little Man to have some of his Members proportionable to his Body, and other some so large as if they did belong to a Monster or Giant, and not to him to whom they are affixt: So it is equally as ugly to see a little *House or Edifice*, to have some of its parts monstrous also, *viz.* great in some parts of the *Apartments*, and by consequence others must be as little, or some must be annihilated; and so by consequence, will be wanting; or great *Stair-cases*, great *Windows*, great *Doors*, or any other Members larger than they ought to be, in respect of the *Symmetry* of the Parts with the whole. It's likewise unseemly to see some of the Parts too little, (that they are not proportionable to the whole Structure) as to see a Man have one very small Leg, and the other proportionable to his Body, or to have one little Eye like a Bird's, and the other like (what it should be) a Man's, *&c.* Thus we see there are many Errors which may be committed, (for want of a due Consideration, and Premeditation) in the proportion of the Parts, *&c.* of a *Building*, and this is too often too well known to some Gentlemen that are Builders, when they light on Workmen that are unskilful in the Rules of *Proportion*, and the Theory of Architecture, and such Men very often run themselves into a grand Error; so that they are almost confounded in their Business, and know not well which way to winde themselves out of it again; and being thus wandered from the right Road, (for want of this necessary Knowledge,) they still blunder on in the dark, not knowing a better way than their old in-artificial one; till they have finished their Course: *viz.* Compleated, or rather (which is more proper) concluded, their *Building*; according to their way of Working by Guess: and these Guessing Workmen too often guess wrong, and commit many Faults, which are easily detected, by any one, that has but a little skill in judging of a *Buildings Symmetry*, *&c.* Besides their conceal'd Crimes, which such Men are very subject to commit, *viz.* (I mean) their cutting, mangling, and spoiling their Master's Materials, when they work upon his

Stuff

Stuff, as they generally do in the Countrey: Sometimes you may obſerve in your Courſe of *Cenſuring*, a Door, or Chimney ſo miſplaced, either to the right or left, ſo as to ſpoil the intended uſe of a Room, and tho' it be not totally ſpoiled, yet it ſeems as if the Artificers, (or Surveyor) wanted Inſtinct as well as Reaſon, that they could not contrive ſo well as *Beavers*, and other Brutes which build their own Houſes, convenient for their Occaſions. Perhaps ſometimes you may obſerve a Chimney ſo ſituated in the Angle of a Room, (tho' deſign'd for Conveniency, becauſe it could not well be carried up otherwiſe from the Chimney below it) yet this Chimney ſhall ſpoil the intended uſe (in ſome meaſure) of 2 Rooms, (*viz.* that in which the Chimney is, and the next adjoining to the Chimney-jamb) thus I knew one that did obſerve 2 Chambers in a great meaſure thus ſpoiled; the Chimney was ſet in the Angle of the inner one, and the Door came into it from the Chamber without, juſt by one Jamb, the which Jamb (and by conſequence, that whole Chimney was carried a Foot too far out in the Room, (which they might as well have carried farther the other way) and by this means the Door was placed too far toward other the Wall of the Rooms, ſo that the Partition-wall by this means was made ſo ſhort betwixt the other Wall and the Door (at the Chimney-jamb) that it was thereby rendred unfit to place any Beds againſt it; altho' it was the moſt becoming Place for Beds in the Rooms: Sometimes little ſneaking ill-contrived *Stair-caſes* are built in a good comely large *Structure*, and then again on the contrary, ſome ſmall (or at moſt but midling) Houſes, ſhall have a *Stair-caſe* ſo large in 'em that if you were 1*ſt.* to have ſeen the *Stair-caſe*, before you had ſeen any of the other Apartments, you might well conjecture, that the Rooms of that Fabrick (to be in proportion with the *Stair-caſe*) to be twice, or 3 times as large again as they are. Nay, perhaps, this is not all the Error neither; for theſe random Workmen, do ſo manage the matter, that they ſpoil the Conveniencies of Cloſets under them, (or any other Conveniency) tho' it be now Alamode to make ſome little Conveniencies under a *Stair-caſe*; for *Cloſets* are accounted an Improvement in our modern Way of *Building*: Sometimes you may obſerve, an ill Poſition of *Lights* (or Windows) to a *Stair-caſe*, not out of neceſſity, but thro' want of Skill and Precaution. Again, as to Lights (*or Windows*) you may ſometimes in your Viewings obſerve an ill Poſition (as well as an irregular Diſpoſition in them) *viz.* either in reſpect of Uniformity, or to ſecure them from the Weather (I mean by this laſt, when they are placed too near the Surface of the Building, that the Walls do not project beyond them, the better to carry the wet from them which run down by the Walls in ſtormy Weather. And then, as to Uniformity in *placing* them, it

ſometimes ſo happens, that they cannot place the Windows on the Garrets exactly over thoſe in the Stories below; and therefore when they will not be brought into Uniformity with thoſe below them, they ought to be placed as Uniform as may be within themſelves. What I am now ſpeaking of, hath been obſerved in a *Fabrick*, which ſtood in the Form of a Roman Capital L, having 2 Fronts on the out-ſide of the L, confronting 2 Streets which croſs'd one another at Right Angles; the Foot, or ſhort part of the L in the *Fabrick*, was not ſo wide but it might be ſpann'd with one Roof, but the long part was too wide to be ſpann'd with one Roof (unleſs it had been carried up a vaſt deal higher than the other part, which would have then rendered it very unſeemly) and therefore 3 Roofs were ſet on the long part of the L, parallel with that on the ſhort part, ſo that there was 3 Gutters, and 4 Gable Heads on that Front which was the long part of the L, and in each of theſe Gable heads there was a Window; now according to the Diviſions of the Apartments in the Stories below, the Windows in them would not fit to be placed (none of them) perpendicular under the middle of theſe Gables, the Artificer thinking to make it ſomething nearer to Uniformity, places ¾ of theſe Windows all towards (nay, very near) one ſide of the Gables, pretending they were nearer directly over the others, no doubt; and therefore in his judgment it's nearer to Uniformity; whereas in truth it's farther from it, for by this means they are not in a Uniform Poſition, neither in reſpect of thoſe in the Stories below them, nor yet within themſelves, which laſt they would have been, had they been placed in the middle of each Gable, and would have been more decent and comely, in reſpect of the Front without, and the Rooms within: For Lights being thus diſorderly poſited, makes it look all a ſquint, and as deformed (almoſt) as to ſee a Man have an Eye in his Temples. Nay, I could inſtance in other things, concerning placing of Lights, or Windows, *viz.* of miſplacing them, in reſpect of Altitude, like the Eyes of ſome Monſters (mentioned by *Peter Lampagneus*) which were ſeated in the Shoulders, and Breaſts, nay, I think almoſt in the Knees, or Feet, as it hath been obſerved by ſome in ſome parts of ſome *Fabricks*. But theſe are the Effects and Blunders of working without the Aſſiſtance of Forecaſting, and Contriving according to Art. And laſtly, (for I will not trouble you any longer at preſent, concerning *Symmetry*) you ought to obſerve whether Doors have their due *Symmetry*, as to their Dimenſions, as well as Poſitions, *viz.* that they be not too high, as if they were for a Barn, nor too low, as if they were made for Houſes in *Sophia* in *Bulgaria*, where both *Jews* and Chriſtians have their Doors of their Houſes but a little above 3 Foot high, which is ſo contrived, becauſe the *Turks* ſhould not bring in their Horſes, which they would do, and make uſe of them for Stables; in their Tra-

vels

vels, if it was not for this Contrivance. In fine, my Meaning is, that these, as well as all other Parts of a *Building*, ought to be Analogous to the rest of the *Fabrick*. I shall now proceed to speak of

*Decor.* It is the keeping of a due Respect between the *Inhabitant*, and *Habitation*. Whence *Palladio* did conclude that the principal *Entrance* was not to be regulated by any certain Dimensions, but by the Dignity of the Master; yet to exceed rather in the more, than in the less, is a Mark of Generosity, and may always be excused with some noble Emblem, or Inscription, as that of the *Conte di Bevilacqua* over his Gate at *Verona*, where 'tis likely there had been committed a little Disproportion.

*Patet Janua: Cor magis.*

*Distributio*, is that useful Casting (or Contriving) of all Rooms for *Office*, *Entertainment*, or Pleasure, of which I have sufficiently treated before under this Head of Building, Num. II. §. 2.

These are the 4 General *Heads* which every Man ought to run over before he pretends to pass his Judgment upon the *Building*, or undertake to *Censure* the Work that he shall view.

I shall conclude this last Head, touching *Ornaments*; against which (me thinks) I hear an Objection, even from some well meaning Man; that these delightful *Crafts*, or *Arts*, may be various ways ill applied in a Nation. I must confess indeed, that there may be a Lascivious, and likewise a Superstitious Use, both of *Pictures*, and *Sculpture*: To which Possibility of Misapplication, not only these *Semi-liberal Arts* are subject, but even the highest Perfections and Endowments of Nature. As *Beauty* in a light Woman, *Eloquence* in a mutinous Man, *Resolution* in a Ruffian, prudent *Observation of Hours*, and *Humours*, in a corrupt Courtier, *Sharpness of Wit*, and *Argument* in a seducing Scholar, and the like. Nay, finally, let me but ask, what Art can be more pernicious, than even *Religion* it self, if it be converted into an Instrument of Art. Therefore, *Ab abuti ad non uti, negatur consequentia.*

IX. I shall finish this Head of *Building* with that Conclusion of Dr. *T. F.* In *Building* (saith he) rather believe any Man, than an Artificer in his own Art for Matter of *Charges*, especially if either he, or any particular Friend of his, be like to be concerned about that *Fabrick* which you design to erect; not but that they can tell nearly the Charge, when they know the *Design*, *viz.* Some ingenious Workmen, but there is but few of them in the Countrey, that truly understand the Method of valuing a *Building*, and those that do, if they are like to have any hand in it, it is very rare if they will give a just Estimate of it according to their Judgment; because they think if they should ac-

acquaint the *Builder* with the full coſt at *1ſt.* it would blaſt a young Builder in the Bud, and therefore they ſooth him up till it hath coſt him ſomething to confute them.

The *Spirit* of *Building 1ſt.* poſſeſſed People after the Flood, which then cauſed the Confuſion of Languages, and ſince of the Eſtate of many a Man. I have known ſome Perſons that would curſe thoſe with whom they were angry (if they were Men capable of it) by wiſhing that the *Spirit of Building* might poſſeſs them.

## *Butment.*

Is a Term uſed by Maſons, and Bricklayers, by which they mean the Supporters, or Props, on, or againſt which the Feet of Arches reſt.

## *Buttery.*

1. *What.*] In Noble-men's, and Gentle-men's Houſes, 'tis the Room belonging to the Butler, in which he diſpoſes all his Utenſils, belonging to his Office, as his Napkin-preſs, Table cloth, and Napkins, Pots, Glaſſes, Tankards, Monteth, Ciſtern, Cruets, Salvers, Pepper-boxes, Sugar-box, Muſtard-pot, Spoons, Knives, Forks, Voider, or Basket, and all other Neceſſaries appertaining to his Office.

2. *Of its Poſition.*] According to Sir *Henry Wotton's* Rule, it ought to be placed on the *North* ſide of the Building, that is deſign'd for the Offices. It is generally with us in *England* placed near the Cellar, *viz.* the Room commonly juſt on the top of the Cellar-ſtairs.

## *Bullen nails.*

1. *What.*] Are a ſort of Nails with round Heads, and but ſhort Shanks, Tin'd, and Lacker'd; I think there is about 3 Sizes of 'em.

2. *Their Uſe.*] They are uſed in hanging of Rooms, and fitting up of Beds, covering of ordinary Stools, Chairs, Couches, Deſks, Coffins, *&c.*

## *Buttreſs.*

1. *What.*] A Term in *Architecture* uſed to ſignifie a Prop, or Support, either of Brick, or Stone, ſet to keep the Work the firmer in its Poſition, as againſt Brick, or Stone-walls that are high, or have any conſiderable weight againſt them on the other

ther ſide, as a Bank of Earth, or the like; they are alſo uſed againſt the Angles of Steeples, Churches, and other Buildings of Stone, *&c.* On their out-ſide, and along the Walls of ſuch Buildings, as have great and heavy Roofs, which would be ſubject to thruſt the Walls out, if they were not thick, if there be no *Buttreſſes* placed againſt them; *Buttreſſes* are alſo commonly placed for a Support, and *Butment* againſt the Feet of Arches, that are turned croſs ſome great Halls, in old Palaces, Abbeys, *&c.* And generally at the Head of Stone-buildings where there are great Crocket-windows, there are for the moſt part, *Buttreſſes*, placed for *Butments* to the Arches of theſe Windows. As to the Theory of *Buttreſſes*, or *Butments*, I never yet could ſee any thing of it. 'Tis my Thoughts, an Ingenious, Sagacious, and prying Architect, that is well grounded in the Mathematicks (and would but take the trouble upon him, throughly to examine this Matter) he might bring it within the Bounds of Reaſon, and Rules; whereby to know nearly of what Size, and (by conſequence) what weight a *Buttreſs*, or *Butment* ought to be (which you muſt note muſt be various) according to the Dimenſions, and Form of the Arch, and the weight which is ſuper-incumbent on it. As to the weight of the Materials, both on the Arch, and in the *Buttreſs*, or *Butment*, 'tis no difficulty to calculate: But perhaps it may be here objected, there is a ſenſible difference as to the ſtrength, and goodneſs of the Mortar, which may in a great meaſure compenſate for the weight of the *Buttreſs*, or *Butment*; for where there is a ſtrong firm Mortar made uſe of, leſs Weight (or Magnitude) of Brick, or Stone, ſhall be capable to reſiſt the Preſſure of an Arch, with its Super-incumbent Materials; than where the Mortar is bad and feeble. To which I anſwer, I could very well experiment the ſtrength of Mortar, both as to a direct, or oblique Force, *viz.* Either moving it out of its Poſition, or pulling it the ſhorteſt way from its Adherents, by which I mean lifting directly up. I think it may alſo be feaſible (and I am ſure it would be uſeful) to make Experiments, to try what *Butment* would be requiſite for Arches of any Dimenſion, or Form, whether Straight, Semicircular, Skeen, or Scheam, or of the *3d.* or *4th.* Point, or Eliptical, *&c.*

The Ingenious Dr. *Hook*, Reader of Geometry in *Greſham-colledge*; hath promiſed in his Treatiſe of Helioſcopes, to Publiſh ſomething of this Nature; but if ever he did do it, I have not been ſo fortunate, as ever to ſee it, or hear of it, but only in that Treatiſe; what he there promiſed, was as follows, *viz.* A true Mathematical, and Mechanical Form of all manner of Arches, with the true *Butment* neceſſary to each of them. A Problem (ſaith he) which no Architectonick Writer hath ever yet attempted, much leſs performed.

A Treatiſe of this nature, would be extream uſeful to the Publick: For the want of a certain Rule in Arching, with its neceſ-

neceſſary *Butment*, hath too often proved the ruin of ſome *Structures*, which have been no ſmall Charge; of which I could give an Inſtance from my own Obſervation but very lately, which is of a large Stone-bridge, which was no ſmall Charge, to 2 Countries to erect, not above 10 or a dozen Years ago, which is already ſo intolerably gone to decay, that it is almoſt ready to fall, and muſt be Re-built again in a little time; for ſome of the Arches are forced to be proped with many pieces of Timber; the chiefeſt Fault that I could ever yet obſerve (but I did never make any ſtrict ſearch into it, but only as I rode over it) ſeems to me, to be want of a good and firm *Butment*, for the Materials did not ſeem to me to be the Cauſe of the Defect in the Work. I have only one thing more to add concerning *Buttreſſes*, and that is ſomething of the value of ſuch Work.

2. *Of the Price of Building Buttreſſes.*] As to the Method of putting out ſuch Work, if it be not done by the Day, it is commonly done by the Cubick Foot. A Gentleman that had an occaſion for 2 Buttreſſes to be built againſt an old Stone-building, deſired me to diſcourſe with his Workman about it, and to put it out by Meaſure to him; when he and I came to treat of the Matter, I found he knew not well what to ſay about it, at laſt he told me he would do it for 5 *d. per* Foot Cubick, *viz.* For Workmanſhip only, it being a ſort of Work, that neither he nor I ever knew put out by the Foot; and therefore after a little conſidering the Work, I told him I did think leſs than 2 ½ the Price would be ſufficient, and therefore we came to no Concluſion at that time; and before I ſhould ſee him again, I knew how to inform my ſelf from a new *Buttreſs* which was built by the Day (by 2 good Workmen) of 5 f. ſquare, and 12 high: When I had found the Solidity of this *Buttreſs*, I found that according to their Days Works, it came to about 2 ½ *d. per* f. and this I reckon to be a top Price; becauſe the Workmen are taken to be torpid Operators, and the work was alſo very well done; upon which Account for 1 ½, or 2 *d. per* f. as I find by Obſervation (from the Quarry-ſtones at 5 *s. per* Load, Lime 25 *s.* for 32 Buſhels, Sand at 1 *s.* 6 *d.* for 12 Buſhels to a Load) that ſuch Work, Materials, and Workmanſhip may be done for 6 *d.* or 7 *d. per* f. Cubick.

## *Cabinet*,

STrictly taken, is the moſt retir'd Place in a Houſe. But a Cabinet in Palaces, and great Houſes, conſiſts of an Outer-chamber, an Anti-chamber, and a Cabinet with a Gallery on the ſide.

## *Caliducts,*

*I. e.* Conveyers of Heat. The Ancients uſed to warm their Rooms with certain (ſecret) Pipes (call'd *Caliducts*) that were convey'd in the Walls, tranſporting Heat to ſundry Parts of the Houſe, from one common Furnace.

## *Camber-beam.*

A Piece of Timber cut Arching (or with an obtuſe Angle) in the middle. Camber-beams are commonly us'd in Platforms, as Church-leads, &c. And in other Caſes where there is occaſion for long Beams, a Camber-beam being much ſtronger, than another of the ſame ſize; for he being lay'd (as they generally are) with the hollow ſide downwards, and having good Eutments at the ends, is a kind of an Arch.

## *Cames.*

The ſmall ſlender Rods of Caſt-lead, of which the Glaziers make their turn'd Lead. For their Lead being caſt into ſlender Rods of ſome 12 or 14 Inches long each, is call'd the *Came* (and ſometimes they call each of thoſe Rods a *Came*) which being afterwards drawn through their Vice, makes their turn'd Lead. V. Lead. N. 10.

## *Camerated.*

Vaulted or Arched.

## *Cant.*

A Term us'd by ſome Carpenters, when a piece of Timber comes the wrong way in their Work, they ſay *cant* it, *i. e.* turn it about.

## *Cantalivers.*

1. *What.*] Several Ancient and Experienced Work-men tell me, That they are the ſame as *Modilions*, only thoſe are plain, but theſe are carv'd. They are both a kind of Cartouzes, ſet (at equal diſtances) under the *Corona* of the *Corniſh* of a Building.

2. *Price*

2. *Price of making*] Mr. *Leybourn* says, They are commonly made by the Piece, at different Rates, according to the Curiosity of the Work. And experienced Workmen tell me, They have commonly 2 *s.* 6 *d.* for making and carving of each. But in *London* they will carve them for 1 *s.* 8 *d.* each.

3. *Price of Painting.*] Mr. *Leybourn* says, They are commonly Painted by Tale, or so much *per* Piece, according to the Colour they are laid in.

## *Cantaliver-cornish.*

1. *What.*] Is such a Cornish as has Cantalivers under it.

2. *Price.*] Mr. *Leybourn* says, They are commonly made by the Foot, running Measure [*i. e.* by the number of Feet, in length only] at different Rates, according to the Curiosity of the Work. And experienced Workmen tell me, That they commonly have 1 *s. per* Foot for the Cornish, it being plain without any Carving in it, and with the Cantalivers, about 3 *s.* 6 *d. per* Foot.

## *Canting Stairs.*

V. Stairs.

## *Capital.*

1. *What.*] The Ornament that is made on the top of a Column.

2. *Tuscan.*] According to *Vitruvius*, the height of the Tuscan Capital (by the Astragal at the bottom) must be half the Diameter of the Body of the Column below. And this height being divided into 3 Parts, the first, and uppermost part goes to the *Abacus* [which is a Square, or flat Moulding] the 2 *d.* Part goes to the *Boultin*, and *Fillet* under it, [the Boultin is a quarter of a Circle, the Fillet a narrow flat Moulding] and this part is subdivided into 4 Parts, of which 3 go to the Boultin, and 1 to the Fillet, and the 3 *d.* and last Part goes to the Neck, which is flat and straight. Again, the Neck is divided into 2 parts, one of which is the breadth of the *Astragal* under it [which consists of a Semicircle, and a Fillet under it] The Astragal is again divided into 3 parts, of which 2 go to the Semicircle, and 1 to the Fillet. The Projecture of the Capital shall be $\frac{1}{2}$ part of the Diameter of the Body of the Column below. The Astragal projecteth in a Square.

According to *Scammozzi*, the heighth of the Capital (by the Astragal at the bottom) must (also) be $\frac{1}{2}$ the Diameter of the Co-

Column below. And this heighth being divided into 60 parts, 20 of them ſhall go to the *Abacus* (or *Plinth*, as he calls it) 15 to the *Echinus* or half-round (which *Vitruvius* calls the *Boultin*) 5 to the Rondel, or *Bead-moulding* [which is a Semicircle] 3 to the *Liſt* (which *Vitruvius* calls a *Fillet*) and 17 to the *Neck*, or *Frieſe*, (as he calls it.) Again, 7 ſuch Parts muſt go to the *Rondel* of the Aſtragal, and 3 to its *Liſt*.

According to *Palladio*, the heighth of the Capital is (alſo) half the Diameter of the Body of the Column below (*viz.* by the Aſtragal, which none of them reckon a part of the Capital, tho' in propriety of Speech, it ought to be ſo eſteem'd.) And this height is divided into 3 equal Parts, the uppermoſt of which goes to the *Abacus* (which he alſo calls the *Dado*, or *Dye*) the next part goes to the *Ovolo*, or *Echinus* (*Vitruvius* calls it the *Boultin*) the other part is divided into 7, of one of which is made the *Liſtella* (*Vitruvius* calls it the *Fillet*) under the *Ovolo*, and the other 6 Parts go to the *Collorino*, or Neck (he alſo calls it the *Hypotrachelium*, or *Frieze* of the Capital.

3. *Dorick.*] According to *Vitruvius*, the heighth of the Dorick Capital (by the Aſtragal at the bottom) is equal to $\frac{1}{12}$ the Diameter of the Body of the Column below. And this heighth being divided into 3 Parts, the firſt and lowermoſt goes to the Neck, the next Part goes to the *Boultin* [by which Term he here comprehends ſeveral Members and deſcribes this Part in 2 Forms. 1. Of which is a *Boultin* (as 'tis deſcrib'd N. 2.) and 3 *Fillets* under it, and the other is a *Boultin*, and an *Aſtragal* under it] and this part is divided into 3 parts, 2 of which go to the *Boultin*, properly ſo call'd, and the other to the 3 *Fillets*, or to the *Aſtragal*; the Fillets are all of an equal ſize, in the Aſtragal, the Fillet is $\frac{1}{3}$ of the whole, the 3 *d.* and uppermoſt part of the Capital is again divided into 3, the 2 lowermoſt of which go to the Square, and the other to the *Cimatum* [which is an *O--G.* (with the hollow downwards) and a *Fillet* over it. An O--G. is a Moulding, ſomewhat reſembling an S, which *Vitruvius* makes of 2 quarter Circles join'd together; and this *Cimatum* being alſo divided into 3 parts, 2 of 'em go to the *O--G*, and 1 to the *Fillet*. The Aſtragal under the Capital is equal to $\frac{1}{2}$ the Neck, and made as in N. 2.

*Scammozzi* makes the Capital of the ſame heighth, which he divides into 60 parts, of which 3 go to the Fillet of the Cimatum, 5 to the O--G of the Cimatum, 12 to the Square, 14 to the Boultin, 5 to the Rondel, and 2 to the Fillet of the Aſtragal under the Boultin, and 19 to the Neck. The Aſtragal under the Neck contains 10 ſuch parts, of which 6 $\frac{1}{2}$ goes to the Rondel, and 3 $\frac{1}{2}$ to the Fillet. I have deſcrib'd it by *Vitruvius*'s Terms, for *Scammozzi* mentions none of them.

*Pal-*

*Palladio* (alſo) makes the Capital of the ſame heighth with *Vitruvius*, which he divides into 3 parts, the uppermoſt of which he ſubdivides into 5 parts, 2 of which go to the *Cimatium* [which *Vitruvius* calls the *Cimatum*] and is again ſubdivided into 3 parts, one of which goes to the *Liſtella*, or *Annulet* [which *Vitruvius* calls a *Fillet*] and the other 2 to the *Scima-recta*, [which is an O--G, as 'tis deſcrib'd in this Number] and the other 3 of the firſt Sub-diviſions of this part goes to the *Abacus* [which *Vitruvius* in this Number calls the Square] The 2 *d.* of the 3 grand Diviſions of the Capital, is ſubdivided into 3 parts, 2 of which go to the *Ovolo*, or *Echinus* [which *Vitruvius* (N. 2.) calls a *Boultin*] and the other to the *Annulets* under it, which are 3, and are equal. The 3 *d.* principal part goes to the *Hypotrachelium*, or *Frize* [which *Vitruvius* calls the Neck] The *Aſtragal* under the Neck, is as high as all the 3 *Annulets*.

4. *Ionick.*] According to *Vitruvius* is made thus, divide the Semidiameter of the Body of the Column below into 18 parts, take 19 ſuch parts, of which 3 of 'em muſt go to the *Cimatum*, 1 to the *Fillet*, and 2 to the *Cima* [or O--G] under it. Then take 4 parts for the *Trochilus* of the *Volute*, or *Scroll* [the *Trochilus* is that Member from whence the Scroll begins] then take 4 parts from the *Boultin* [which is $\frac{1}{4}$ of a Circle] which muſt be Carv'd with *Eggs*, and *Anchors*. Then take 2 parts for the *Aſtragal* under the *Boultin*, the *Aſtragal* is Carv'd with *Beads*, and has a *Fillet* on each ſide of it, each $\frac{1}{4}$ of the whole. Then the 6 remaining parts muſt go to the half of the Volute below. Then take 8 more ſuch parts, which muſt go to make the remainder of the *Frieze*, or Neck of the Capital, and 3 more ſuch parts for the *Aſtragal* under the Neck, of which one part goes to the *Fillet*.

*Scammozzi's* Deſcription of the Ionick Capital is ſo blind, that I think none is ever the wiſer for it. And *Palladio's* Deſcription agrees with *Vitruvius's*.

5. *Corinthian.*] According to *Vitruvius*, the heighth of this Capital (by the Aſtragal at the bottom) is equal to the Diameter of the Body of the Column below, $\frac{1}{7}$ part of which goes to the *Abacus* (which conſiſts of a *Boultin*, a *Fillet*, and *Plinth*, [which is but a larger Fillet] the *Abacus* being ſub-divided into 3 parts, 1 of 'em goes to the *Boultin*, and a third part of the next goes to the *Fillet*, and the reſt to the *Plinth*. The heighth of the *Aſtragal* below the Capital, is $\frac{1}{13\frac{1}{2}}$ part of the Diameter of the Body of the Column below, and is divided into 3 parts whereof the *Fillet* contains 1 part, and the *Boultin* 2.

*Scammozzi* makes this Capital 1 $\frac{1}{8}$ Diameter of the Column high, which divided into 75 parts, 4 of 'em go the *Boultin*, 1 to the *Fillet*, and 9 to the *Plinth*, and the reſt to the *Neck*.

*Palladio* alſo makes the heighth of this Capital equal to the whole Diameter of the Body of the Column below and $\frac{1}{8}$ part more,

more, which is allowed to the *Abacus*; by which I underſtand he means all the Mouldings above the Acanthus Leaves.

6. *Roman, or Compoſite.*] *Vitruvius* makes, and divides this Capital like the Corinthian; and ſo does *Scammozzi*, and *Palladio*; only the Carving of this is ſomewhat different from that.

## *Carcaſs.*

1. *What.*] The Timber-work (as it were the Skeleton) of a Houſe, before it is Lathed, and Plaiſter'd.

2. *Price of Framing.*] The Price of Framing the Carcaſs of a Houſe (in the Countrey) as Workmen inform me, is about 8 *s.* *per* Square, if the Workman pay for the Sawing; if not but about 4 *s.* 6 *d.* *per* Square.

## *Cariatides,*

In Architecture are Statues of Women, which ſerve inſtead of Pillars.

## *Carpenter's.*

1. *Work.*] The ſeveral kinds of Work done by Carpenters, (in relation to Building) with their Prizes, and Methods of Meaſuring them, *&c.* are too many to be comprehended under this ſo general word of *Carpenter's-work*; and therefore I ſhall refer them to their *Particulars*, (as Framing, Flooring, Roofing, *&c.*) where they will much more readily be found.

2. *Bill to make.*] A Carpenter's Bill ſhould be made after this manner.

*Mr.* William Liberal *of* London, *his Bill of Materials had of, and Work done by* Tho. Trueman, June 24. 1702.

| | *l.* | *s.* | *d.* |
|---|---|---|---|
| For 17 Load of Oaken-timber, at 22 *s.* the Load. | 18 | 14 | 00 |
| For 28 Load of Fir-timber, at 35 *s.* the Load. | 49 | 00 | 00 |
| For 180 Feet of Oaken-plank, 2 Inches thick, at 3 *d.* the Foot. | 02 | 05 | 00 |
| For 17 M. of 10 *d.* Nails, at 6 *s.* the M. | 05 | 02 | 00 |
| For 7 ½ C. of Deals, at 6 *l.* 5 *s.* the C. | 46 | 17 | 06 |
| For 28 lb. of large Spikes, at 4 *d.* the lb. | 00 | 09 | 04 |
| For 8 Weeks Work for my self, at 3 *s.* the Day. | 7 | 04 | 00 |
| For 8 Weeks 2 Days Work for my Man, at 2 *s.* 6 *d.* the Day. | 06 | 05 | 00 |
| Sum is | 135 | 16 | 10 |

But, Note, If the Carpenter do not Work by the Day, then he Writes, For so many Square of Roofing (at what Price they agree upon *per* Square) so much Money. Likewise for so many Square of Flooring, at so much *per* Square, so much Money. Also for so many Square of Partitioning, at so much *per* Square, so much Money. And for so many Square of Ceiling-joysts, *&c.* The Windows they set down either at so much *per* Light, or so much *per* Window. The Door-cases at so much a piece, either with, or without Doors. The Mantle-trees, Tassels, *&c.* at so much a piece. The Lintelling, Guttering, Cornish, Window-boards, *&c.* at so much *per* Foot. Stairs, at so much *per* Step, or so much a Pair, *&c.*

## *Car-tooses, -touzes, -touches.*

In Architecture are much the same as Modilions; only these are set under the Cornish in Wainscoting, and those under the Cornish at the Eves of a House. Some Workmen call them *Dentils*, or *Teeth.*

*Car-*

## *Cartridges,*

In Architecture are the ſame as Cartoozes.

## *Cart-nails.*

V. Nails.

## *Caſeing of Timber-work.*

1. *What.*] Is a Plaiſtering of a Houſe all over on the out-ſide with Mortar; and then ſtriking it (by a Ruler) with the corner of a Trowel, or the like, to make it reſemble the Joynts of Stone; that ſo the whole Houſe may ſeem to be Built of Stone.

2. *Of the beſt way of doing it.*] Experienced Workmen tell me, That it ought to be done upon Heart-laths, becauſe the Mortar will decay the ſape ones in a little time: And tho' it be more work to Lath it with Heart, than with Sap-laths; yet 'tis better for the Mortar to hang to, becauſe Heart-laths are narroweſt, and they ought to be cloſer together for Mortar than for Lome. They alſo tell me, that they commonly uſe to lay it on in 2 Thickneſſes, *viz.* the laſt before the firſt is dry.

3. *Of its Price.*] I have put out this kind of Work to Plaiſterers for 3 *d.* or 4 *d.* the Yard, including Doors and Windows [*i. e.* meaſuring it as if there were none] and for 6 *d. per* Yard, excluding Doors and Windows [*i. e.* deducting them from the whole.]

## *Caſe of Glaſs.*

1. *Crown.*] A Caſe of Crown-glaſs (as a Glazier in *London* informs me) contains 24 Tables, each Table being Circular, or nearly ſo, and (as I obſerv'd) about 3 Foot 6 Inches, or 3 Foot 8 Inches Diameter. V. P. Glaſs, N. 3.

2. *New-caſtle.*] The ſame Gentleman tells me, that they have 35 Tables of *New-caſtle-glaſs* to the Caſe; and that there ſhould be 6 Foot of Glaſs in a Table: I am ſure there is as much (and more) in one of them I ſaw in his Ware-houſe; for I obſerved them to be much of the Form of a Corner-tile ſuppos'd to be preſt out flat; and by meaſuring one of them, I found him to be about 3 ½ Foot on the upper or Circular End, and about 18 or 20 Inches on the lower and oppoſite end, and the Perpendicular heighth about 3 Foot. Mr. *Leybourn* (and Mr. *Wing*

from him) says That a Table of *New-caſtle glaſs* contains about 5 Foot, and that 45 of theſe Tables go to a Caſe.

3. *Normandy.*] Mr. *Wing* says, That 25 Tables make a Caſe of *Normandy* Glaſs.

## *Caſement*,

In Architecture is a hollow Moulding. Some Architects make it ⅛ of a Circle, others ¼.

## *Caſements*,

1. *What.*] In Architecture are Windows to open.

2. *Price.*] Mr. *Leybourn* says they are valu'd (according to their largeneſs, and the goodneſs of their Workmanſhip in their Locks and Hinges,) from 3 *s.* to 20 *s.* a Caſement. As Caſements are about 2 ½ Foot long, about 4 *s.* or 4 *s.* 6 *d.* a piece. Folding-caſements of the like ſize, with Bolts, Hinges, *&c.* about 12, or 13 *s.* the pair; and large Folding-caſements, 16, 18, or 20 *s.* the pair. Mr. *Wing* says, they are worth 7 *d.* or 8 *d.* the Pound, ſome 9 *d. viz.* Folding-caſements. Some Smiths in *London* ask'd me 6 *d. per* Pound for Caſements, others ſaid they were worth more, if they had Locks to them; but 6 *d.* was their Price, if they made them with Turn boots (or Turn-buckles, as ſome call'd 'em) or Cock-ſpurs, and Pull-backs at the Hind-ſide to pull them to with. One Smith told me, he would make them for 5 *d. per* Pound. I know ſome Smiths in the Countrey, make 'em by the Foot (meaſuring the whole Circumference round by the outer edge of the Caſement; thus, if a Caſement be 2 Foot long, and 1 ½ Foot broad, they reckon him 7 Foot.) A Smith at *Rye* ask'd me 9 *d. per* Foot for ordinary Caſements, which I think is dear; for in other Parts of *Suſſex*, they proffer'd me to make 'em for 6 *d. per* Foot, if ordinary; but if ſomething extraordinary (as Folding-caſements, *&c.*) then 8 *d. per* Foot.

3. *Of Painting.*] Caſements are commonly Painted by the Piece, at three half-pence, 2 *d.* or 3 *d.* a piece, according as they are of bigneſs.

4. *Of Hanging.*] Glaziers in the Countrey tell me. That 'tis the Smith's Work to hang up the Caſements; and if they don't do it themſelves, they pay the Glaziers for doing it; who have 2 *d.* a piece for hanging of ſmall Caſements, and 3 *d.* a piece for large ones.

5. *Of Tining.*] V. Glazing. N. IV. §. 1.

## *Caſt,*

In Architecture a piece of *Timber*, or a *Board*, or *the like*, is ſaid *to Caſt*, or *to be Caſt*, when (by its own Drought, or Moiſture, or by the Drought, or Moiſture of the Air, or other Accident) it alters its flatneſs, and ſtraightneſs, and becomes crooked.

## *Catadrome.*

A kind of Engine like a Crane, which Builders uſe in lifting up, and letting down any great Weights.

## *Catheta.*

A Perpendicular, or Plumb-line, falling from the Extremity of the under ſide of the Cimatium (of the Ioniçk Capital) through the Centre of the Volute.

## *Cavetto.*

The ſame as Caſement.

## *Cavazion.*

A Term of Architecture, ſignifying the Under-digging, or Hollowing of the Earth, for the Foundation of a Building. *Palladio* ſays, it ought to be the ſixth part of the heighth of the whole Building.

## *Caulicoli.*

The Carved Scrolls (under the Abacus) in the Corinthian Capital.

## *Ceiling.*

1. *What.*] In Architecture is the Lathing, and Plaiſtering at the top of a Room, upon the under-ſide of the Joyſts of the next Room, or upon Joyſts put up for that purpoſe, (and call'd Ceiling-joyſts) if it be in a Garret. Theſe Plaiſter'd Ceilings are much uſed in *England*, beyond all other Countreys; and they have theſe Conveniencies with 'em. They make the Rooms much more lightſome; are excellent againſt raging Fire; they

ſtop the Paſſage of the Duſt, and leſſen the Noiſe over-head, and in Summer-time the Air of the Room is ſomewhat the cooler for it.

2. *Of Meaſuring.*] This Work is commonly done by the Yard, (containing 9 Superficial Feet:) And in taking their Dimenſions, if the Room be Wainſcoted, they conſider how far the Corniſh bears into the Room, by putting a Stick Perpendicular to the Ceiling, cloſe to the edge of the uppermoſt part of the Corniſh, and meaſuring the Diſtance from the Perpendicular Stock to the Wainſcot; twice which diſtance they always deduct from the length, and breadth of the Room taken upon the Floor, and the Remainder gives them the true length and breadth of the Ceiling; which if it be taken in Feet (as moſt commonly 'tis) they Multiply one into the other, and divide the Product by 9, and the Quotient gives them the Content in Yards.

3. *Price.*] In *London* the Workmanſhip (*viz.* Lathing, Plaiſtering and Finiſhing) is commonly reckon'd about two Pence three Farthings *per* Yard. In *Rutland*, and ſome Parts of *Kent*, (as about *Tunbridge-wells*, &c.) I know they have 3 *d. per* Yard. And in ſome parts of *Suſſex*, the Workmen tell me they have 4 *d. per* Yard. But if the Workmen find all Materials, and Lath it with Heart-oak-laths, then they commonly reckon about 1 *s. per* Yard, and with Fir-laths, about 8 *d. per* Yard.

## *Ceiling-joyſts, or Beams.*

1. *What.*] See Ceiling. N. 1.

2. Of *Meaſuring.*] The Work of putting up Ceiling-joyſts is meaſur'd by the Square; and therefore the length in Feet being Multiply'd by the breadth in Feet, and 2 places of Figures being cut off on the Right-hand, what remains to the Left-hand is Squares, and what is cut off is odd Feet, of which 25, make a quarter, 50, half, and 75 three quarters of a Square.

3. *Price.*] Putting up of Ceiling-joyſts is worth 4 or 5 *s.* (ſome Workmen tell me, they have 6 *s.*) *per* Square.

## *Cellars.*

1. *What.*] They are the loweſt Rooms in a Houſe, the Ceilings of which lie level with the Surface of the Ground, on which the Houſe ſtands, or at leaſt but very little higher.

2. *Situation.*] Sir *Henry Wotton* ſays, They ought (unleſs the whole Houſe be Cellar'd) to be Situated on the *North* ſide of the Houſe, as needing a cool and freſh Air.

3. *Of Digging.*] They are commonly digged by the ſolid Yard, containing 27 ſolid Feet; and therefore the length, breadth, and depth in Feet, being all Multiply'd together, and the Pro-

duct

duſt divided by 27, the Quotient will give the Content in ſolid Yards.

## *Cement.*

1. *What.*] In Architecture is a ſtrong, ſticking, cleaving, or binding Mortar.

2. *To make.*] There are 2 ſorts of Cement, which ſome Bricklayers uſe in Cementing of Bricks for ſome kind of Mouldings, or in Cementing a Block of Bricks (as they call it) for the Carving of Scrolls, or Capitals, or ſuch like, *&c.* One is call'd *cold Cement*, the other *hot Cement*; becauſe the former is made, and uſed without Fire, but the latter is both made and uſed with Fire. The *cold Cement* being accounted a Secret, is known but to few Bricklayers; but the *hot Cement* is common. I ſhall here ſhew how to make them both.

### *To make the Cold Cement.*

Take half a Pound of old Cheſhire-cheeſe, pair off the Rind, and throw it away; cut or grate the Cheeſe very ſmall, and put it into a Pot, put to it about a Pint of Cows-milk, let it ſtand all Night, the next Morning get the Whites of 12 or 14 Eggs, then take half a Pound of the beſt unſlack'd or Quick-lime that you can get, and beat it to Powder in a Mortar, then ſift it through a fine Hair-ſive into a Tray or Bowl of Wood, or into an Earthen-diſh, to which put the Cheeſe and Milk, and ſtir them well together with a Trowel, or ſuch like thing, breaking the Knots of Cheeſe, if there be any, then add the Whites of the Eggs, and temper all well together, and ſo uſe it. This Cement will be of a white colour; but if you would have it of the colour of the Brick, put into it either ſome very fine Brick-duſt, or Almegram, not too much, but only juſt to colour it.

### *To make the Hot Cement.*

Take one Pound of Rozin, a quarter of a Pound of Bees-wax, half an Ounce of fine Brick-duſt, half an Ounce of Chalk-duſt, or Powder of Chalk; ſift both the Brick-duſt, and Chalk-duſt through a fine Hair-ſive, (you may beat the Brick, and the Chalk in a Mortar, before you ſift it) boil all together in a Pipkin, or other Veſſel, about a quarter of an Hour, ſtirring it all the while with an Iron, or a piece of Lath, or ſuch like; then take it off, and let it ſtand 4 or 5 Minutes, and it's fit for uſe.

Note, That the Bricks that are to be Cemented with this kind of Cement, muſt be made hot by the Fire before you ſpread the Cement on them, and then rub them too and fro,

one upon another, as Joyners do, when they glew 2 Boards together.

## *Chambers.*

1. *What.* In a Building all thoſe Rooms are call'd *Chambers*, that are ſituated between the lowermoſt (excepting Cellars) and the uppermoſt Rooms. So that in ſome Houſes there are 2, in others 3, or more Stories of Chambers.

2. *Situation.*] Sir *Henry Wotton* tells us, That the principal Chambers of Delight (in a Houſe) ought to be ſituated towards the Eaſt.

3. *Proportions.*] The length of a Well proportionate Lodging-chamber, ought to be the breadth, and half the breadth of the ſame, or ſomewhat leſs; but ought never to exceed that length; for the height three quarters of the breadth will be a convenient heighth.

## *Channel.*

In the *Ionick Capital*, is that part which is under the *Abacus*, and lies open upon the *Echinus*, or *Eggs*, which has its Centers, or turnings on every ſide, to make the *Volutes*.

## *Chapter,*

In Architecture ſignifies the Top, or Head of a Pillar.

## *Chauncel,*

Vulgarly *Chancel*, the moſt ſacred part of a Temple, or Church, ſo called from the *Cancelli*, or Lattices, which anciently us'd to ſeparate that part from the reſt of the Church. The Greeks call it *Adyton*.

## *Chimneys.*

1. *What.*] A Chimney is a particular part of a Houſe, deſign'd for the Conveniency of Fireing, with a Tube, or Tunnel to convey away the Smoak.

2. *Of Meaſuring.*] Tho' Brick-layers, in making of Chimneys, do commonly agree by the Hearth; yet they ſometimes alſo work by the Rod, as in other Brick-work; and then their Method of taking their Dimenſions, is thus:

If the Chimney ſtand ſingly, and alone, not leaning againſt, or being in a Wall, and it be wrought upright over the Mantle-tree to the next Floor; they gird it about the Breſt for the length, and take the heighth of the Story for the breadth, and the thickneſs of the Jambs for the thickneſs. But if the Chimney ſtand againſt (or in) a Wall, which is before meaſur'd with the reſt of the Building; then the breadth of the Breſt, or Front, together with the depth of the 2 Jambs, is the length, the heighth of the Story, the breadth, and the thickneſs of the Jambs, the thickneſs. But if the Chimney ſtand in an Angle of a Room, and have no Jambs; then the breadth of the Breſt is the breadth, the height of the Story, the length, and the thickneſs, the thickneſs. Then for the Shaft, [which is that part which appears above the Tyling,] they commonly girt it about in the ſmalleſt part, for the breadth, and take the length of the Shaft for the length; and they commonly reckon the thickneſs of both ſides for the thickneſs, in conſideration of the Widths, Pargeting, and Scaffolding.

Note. Here is nothing to be deducted for the Vacancy betwixt the Hearth, and the Mantle-tree, becauſe of the widths and the thickning for the next Hearth above.

The Dimenſions being thus taken in Feet, the Work is thus meaſur'd: Multiply each Particular length by his breadth, and that Product by its thickneſs in half-Bricks, [*i. e.* by 2, for 1 Brick thick, by 3, for 1 ½ Brick thick, and by 4, for 2 Bricks thick, *&c.*] Add theſe Products into one Sum, which divide by 3. and the Quotient will give the Content of the whole Chimney in Feet, at the Standard-thickneſs of a Brick and half. Then divide this Content in Feet, by 272 ¼, and the Quotient will be the Content in Rods. But, becauſe 'tis difficult to divide by 272 ¼, you may do thus.—Add 2 Cyphers to the Right-hand of the Content in Feet, and then divide it by 27225, and the Quotient will be the Content in Rods, as before. And, every 100, of the Remainder is one Foot of Work. Or 6807, of the Remainder, is ¼ of a Rod, 13613, is ½ a Rod, and 20419 is ¾ of a Rod.

3. *Price.*] Mr. *Leybourn* ſays, That Chimneys are ſometimes meaſur'd, and paid for by the Rod, like other Brick-work: And ſometimes, ſays he, they are paid for by the Fire-hearth, at ſo much the Fire-hearth; which ſays he) is various, from 20, to 50 *s.* the Hearth. And Mr. *Wing* ſays, That Building of Chimneys for ordinary Buildings, with Architrave, Frieze, and Corniſh, is worth, from 15 *s.* to 20 *s. per* Hearth, according to their heighth, and ſubſtance; and without Architrave, and Frieze, from 10 *s.* to 20 *s.* But in great Buildings, ſays he, (I ſuppoſe he means in his Countrey of *Rutland,*) they are uſually done by the Foot, *viz.* at about 6 *d. per* Foot. I know they are commonly built in *London*, and about *Tunbridge-wells*, for a-

bout

bout 15 *s. per* Hearth: But ſome Workmen in *Suſſex* tell me, they have 20 *s.* and ſometimes 25 *s. per* Hearth for building of 'em.

4. *Rules about Timbers near 'em,*] 1. Let no Timber be laid within 12 Inches of the fore-ſide of the Chimney-jambs. 2. Let all Joyſts on the back of any Chimney be laid with a Trimmer, at 6 Inches diſtance from the Back. 3. Let no Timber be laid within the Tunnel of any Chimney.

5. *Proportions.*] *Palladio* lays down the following Proportions, for the breadths, and depths of Chimneys, (on the in-ſide) and for their heighth to the Mantle-tree.

| Chimneys in | Breadth. | Heighth. | Depth. |
|---|---|---|---|
| Halls, | 6, 7, or 8 Foot. | 4 ½, or 5 Foot. | 2 ½, or 3 Foot. |
| Chambers, | 5 ½ 6, or 7 Foot. | 4, or 4 ½ Foot. | 2, or 2 ½ Foot. |
| Studies, and Wardrobes. | 4, 4 ½, or 5 Foot. | 4, or 4 ½ Foot. | 2, or 2 ½ Foot |

Nevertheleſs, in theſe Points, the Workman ought rather to be guided by the Modern Faſhions, than by the words of this ancient Architect.

6. *To prevent Smoaking.*] Mr. *Lucar (in his Solace,)* adviſeth to leave 2 holes (one over another) on each ſide of the Chimney, one ſlopeing upwards, and the other downwards, or elſe to place 2 Pipes (in the ſame Poſition) on each ſide of the Chimney. Through theſe holes, or Pipes, ſays he, the Smoak will eaſily paſs out of any Tunnel, which way ſoever the Wind blow. I cannot tell how this may take effect; but to me it ſeems but a Fancy. I think *Philippe de l'Orme*'s Advice is better, who propoſes to provide a hollow Braſs-ball of a reaſonable Capacity, with a little hole on one ſide for the Reception of Water. (I think it were better made with a ſhort Noſe to skrew off, when 'tis fill'd with Water; and then the hole at the end of this Noſe needs not to be bigger than that at the ſmall end of a Tobacco-pipe.) This Ball being fill'd with Water, is to be placed (with the hole upwards) upon an Iron-wire, that ſhall traverſe the Chimney (a little above the Mantle-tree, at the ordinary heighth of the greateſt Heat, or Flames; and when the Water is hot, it will be rarify'd, and break out of the hole in a windy Vapour; which will force up the Smoak, that otherwiſe might linger in the Tunnel by the way, and oftentimes revert. It were good to have 2 of theſe Balls, one of them may

ſupply

ſupply the place of the other, when 'tis exhauſted; or for a need, blow the Fire in the mean time.

I have ſeen on the top of ſome Chimneys, a ſort of Fane, or Weather-cock, (ſome call it a beggar-man) whoſe back-ſide is cover'd with Plates of Tin; ſo that which way ſoever the Wind be, it can never keep down the Smoak in the Chimney; but it always comes out free, and undiſturb'd. I have known this laſt Contrivance help Chimneys, that before Smoak'd very much. But I believe the ingenious Carpenter, and Bricklayer might prevent the Smoaking of any Chimney, by a due *Situation* of the Doors of the Room, and an apt *falling-back* of the Back, and convenient gathering of the Wings, and Breſt of the Chimney. But how, and in what manner this is to be done, I muſt refer to the next Opportunity.

## *Chimney-hooks.*

1. *What.*] Theſe are Hooks of Steel, or Braſs, put into the Jambs of the Chimney, in each Jamb one, for the handle of the Fire-pan, and Tongs to reſt in.

2. *Price.*] The Steel-hooks are commonly about 1 *s.* the pair, and the Braſs ones, about 2 *s.* the pair in *London*; for ſo I have there bought 'em.

## *Chimney-jambs.*

The ſides of a Chimney, commonly coming out Perpendicularly (tho' ſometimes Circularly) from the Back; on the Extremities of which the Mantle-tree reſteth. Alſo, ſee Corner-ſtone.

## *Chimney-pieces.*

1. *What.*] Certain Mouldings of Wood, or Stone, ſtanding on the fore-ſide of the Jambs, and coming over the Mantle-tree.

2. *Price.*] *Chimney-pieces of Free-ſtone*, wrought plain, are worth 10 *s.* but there may be ſuch Mouldings wrought in 'em, as with their Coves, and other Members, may be worth 20, 30, or 40 *s.* a piece. *Chimney-pieces of Egyptian, or black Fleak'd-marble*, or *of Rance*, or *Liver-colour'd-marble*, are worth (of an ordinary ſize) 12, or 14 *l.* a-piece. *Chimney-pieces of Wood*, are alſo of different Prices, as 10, 12, or 14 *s.* to 20 *s.* a piece, more or leſs, according to their largeneſs, goodneſs of the Stuff, and Curioſity in the Workmanſhip.

3. *Paint-*

3. *Painting.*] They are commonly Painted by the Piece, at about 2 *s.* a piece, more or leſs, according to the goodneſs of the Work, and largeneſs of the Chimney-pieces.

## *Chaptrels.*

V. Arches. N. 6.

## *Cima.*

V. Capital. N. 4.

## *Cima tum-tium.*

V. Capital. N. 3.

## *Cima recta.*

As *Scima-recta.*

## *Cimbia.*

V. Pedeſtal. N.

## *Cincture.*

V. Pedeſtal. N.

## *Cilery.*

A Term in Architecture, ſignifying the Drapery or Levage that is wrought upon the Heads of Pillars.

## *Cimeliark,*

In Architecture is a Veſtry, or Room where the Plate, Veſtments, and other rich things belonging to the Church are kept.

## *Ciſterns.*

1. *What.*] They are Veſſels, made to ſerve as Receptacles of Rain, or other Water, for the neceſſary uſes of a Family.

2. *To make.*] If you deſign to make your Ciſterns under your Houſe as a Cellar, which is the beſt way to preſerve your Water for culinary Uſes; then may you lay your Brick or Stone with Terrace, and it will keep Water very well. Or you may make a *Cement*, to join your Brick or Stone withal, with a Compoſition made of ſlacked ſifted Lime, and Lin-ſeed Oyl, tempered together with Tow or Cotton-wool.

Or you may lay a Bed of good Clay, and on that lay your Bricks for the Floor; then raiſe the Wall round about, leaving a convenient ſpace behind the Wall to ram in Clay, which may be done as faſt as you raiſe the Wall: So that when 'tis finiſh'd, 'twill be a Ciſtern of Clay, walled within with Brick, and being in a Cellar, the Brick will keep the Clay moiſt; (altho' empty of Water) that will never crack. This (ſays Mr. *Worlidge*) I have known to hold Water perfectly well, in a ſhady place, tho' not in a Cellar. Thus in a Garden, or other place, may ſuch a Ciſtern be made in the Earth, and cover'd over; the Rain-water being convey'd thereto, by declining Channels running to it. Alſo, in, or near Houſes, may the Water that falls from them be conducted thereto.

## *Clamp.*

1. *What.*] A Clamp is a kind of Kiln built above Ground (of Bricks unburnt) for the burning of Bricks.

2. *How made, and how Bricks are burnt in it.*] An ancient and experienced Workman, that has made and burnt many Thouſands of Bricks, tells me, That they build their Clamps much after the Method that the Arches are built in Kilns, *viz.* With a Vacuity betwixt each Bricks breadth, for the Fire to aſcend by; but with this difference, that inſtead of Arching, they *truſs-over*, or *over-ſpan*, as they phraſe it, *i. e.* they lay the end of one Brick about half way over the end of another, and ſo, till both ſides meet within half a Bricks length, and then a bonding Brick at the top finiſhes the Arch. They make the Mouth, (where the Fire is to be put in) about 2½ Foot wide, and about 3 Foot high, and then they begin to truſs over, which they do for 3 Bricks in heighth; which with a bonding Brick on the top, will cloſe up the Arch. But after they have begun, make the Place to receive the Fuel (before it is cloſed at the top) they fill it almoſt full with Wood, and upon that lay Sea-coal; then being over-ſpan'd like an Arch, on all the Surface they ſtrew

Sea-

Sea-coal, and then they lay another Courſe of Bricks the other way, laying them at a little diſtance from one another, and ſtrewing Sea-coal upon them: And thus they continue, laying one Courſe one way, and the other another (and ſtrewing Sea-coal betwixt each Courſe) till they come to 8 or 10 Foot high, according as the Clamp is to be of bigneſs. This being done, they fire the Wood, and that fires the Coal; which being all burnt out, the whole Clamp of Bricks is burnt.

## *Clamp-nails.*

V. Nails. N. 3.

## *Claſp-nails.*

V. Nails. N. 4.

## *Cleaving*

Of Laths, Pales, Shingle, and Timber. V. *Laths, Pales, &c.*

## *Cleer-ſtory-window.*

V. Window. N.

## *Clench-nails.*

V. Nails. N. 5.

## *Clinkers.*

Thoſe Bricks are ſo call'd by ſome (which having naturally much Nitre, or Salt-peter in them, and lying next the Fire in the Clamp, or Kiln,) by the violence of the Fire they are run, and are glazed over.

## *Cloiſter.*

A cloſe and ſeparate Habitation, where Friars, Monks, and Nuns live retir'd from the World. Alſo a long Place cover'd with a Floor, or Flat-ſond, ſupported by Pillars. V. P. Architrave. N. 2.

*Cloſet.*

## *Closet.*

A general Name for any very small Room. The Contrivance of Closets in most Rooms, now so much used (and so useful) is one great Improvement of Modern Architecture.

## *Clout-nails.*

V. Nails. N. 6.

## *Clout-brads.*

V. Brads. N.

## *Cockle-stairs.*

As Winding-stairs. V. Stair-case. N. III.

## *Coins.*

As Quoins.

## *Collorino.*

V. Capital. N. 2.

## *Colledge.*

A Place set apart for the Society, and Cohabitation of Students.

## *Collar-beam.*

A Beam fram'd cross betwixt 2 Principal Rafters.

## *Column.*

1. *What.*] A Column, in Architecture is a round Pillar for Support and Ornament.

2. *Parts.*] Every Column (in the largeſt Senſe) conſiſts of 7 principal Parts, *viz.* Pedeſtal, Baſe, Body, Capital, Architrave, Frieze, and Corniſh; each of which ſhall be handled in their proper places of the Alphaber.

3. *Kinds.*] Architects reckon 5 Orders or Kinds of Columns *viz.* Tuſcan, Dorick, Ionick, Corinthian, and Roman, Compoſita, or Compound Order. I ſhall (here) ſay ſomething to each of theſe, in their Order.

4. *Tuſcan.*] The whole heighth of this Column, and the heighth of each principal Part thereof, according to ſeveral Authors, is, as in the following Table.

*Authors*

| Authors | Whole heighth | | Pedestal. | | Base | | Body | | Capital. | | Architrave. | | Frieze | | Cornish | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Names | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. |
| Vitruvius | 11 | 5 | 2 | 20 | 0 | 30 | 6 | 0 | 0 | 30 | 0 | 30 | 0 | 30 | 0 | 30 |
| Vignola | 11 | 5 | 2 | 20 | 0 | 30 | 6 | 0 | 0 | 30 | 0 | 30 | 0 | 35 | 0 | 4 |
| Palladio | 10 | 15 | 1 | 0 | 0 | 30 | 6 | 30 | 0 | 30 | 0 | 35 | 0 | 26 | 0 | 4 |
| Scammozzi | 11 | 15 | 1 | 52 ½ | 0 | 30 | 6 | 30 | 0 | 30 | 0 | 31 ½ | 0 | 41 | 0 | 41 |

Note (1.) That in this, and the 4 following Tables of the heighths of Columns, and their Parts; I have taken pains to reduce all my Author's Dimensions to *Modules* and *Minutes*; reckoning a Module the Diameter of the Body of the Column, just above the Base; and a Minute the *60th.* part of a Module. (2.) That the heighth of the Body of a Column, is reckon'd from the top of the Base, to the top of the Astragal under the Capital.

5. *Dorick.*] The whole heighth of this Column, and the heighth of each principal part thereof, according to several Authors, is as in this Table.

| Authors | Whole heighth | | Pedestal | | Base | | Body | | Capital. | | Architrave. | | Frieze. | | Cornish. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Names | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. | Mo. | Mi. |
| Vitruvius | 12 | 40 | 2 | 40 | 0 | 30 | 7 | 0 | 0 | 30 | 0 | 30 | 0 | 45 | 0 | 40 |
| Vignola | 12 | 40 | 2 | 40 | 0 | 30 | 7 | 0 | 0 | 30 | 0 | 30 | 0 | 45 | 0 | 45 |
| Palladio | 13 | 0 | 2 | 20 | 0 | 30 | 7 | 45 | 0 | 30 | 0 | 30 | 0 | 45 | 0 | 30 |
| Scammozzi | 12 | 58 | 2 | 26 | 0 | 30 | 7 | 30 | 0 | 30 | 0 | 35 | 0 | 45 | 0 | 42 |

6. *Ionick.*] The whole heighth of this Column, and the heighth of each principal part thereof, according to several Authors, is as in this Table.

| Authors Names | Whole heighth Mo. Mi. | Pedestal Mo. Mi. | Base Mo. Mi. | Body Mo. Mi. | Capital Mo. Mi. | Architrave. Mo. Mi. | Frieze Mo. Mi. | Cornish Mo. Mi. |
|---|---|---|---|---|---|---|---|---|
| Vitruvius | 14 15 | 3 0 | 0 30 | 8 10 | 0 20 | 0 37 1/2 | 0 30 | 0 52 1/2 |
| Vignola | 14 15 | 3 0 | 0 30 | 8 10 | 0 20 | 0 37 1/2 | 0 45 | 0 52 1/2 |
| Palladio | 13 28 | 2 40 | 0 52 1/2 | 7 40 | 0 27 1/2 | 0 34 1/2 | 0 27 | 0 46 1/2 |
| Scamozzi | 12 33 3/4 | 2 30 | 0 30 | 7 30 | 0 18 3/4 | 0 35 | 0 28 | 0 42 |

7. *Corinthian.*] The whole heighth of this Column, and the heighth of each principal Part thereof, according to several Authors, is as in this Table.

| Authors Names | Whole heighth Mo. Mi | Pedestal Mo. Mi | Base Mo. Mi | Body Mo. Mi | Capital Mo. Mi | Architrave Mo. Mi | Frieze Mo. Mi | Cornish Mo. Mi |
|---|---|---|---|---|---|---|---|---|
| Vitruvius | 16 0 | 3 30 | 0 30 | 8 20 | 1 10 | 0 30 | 0 37 1/2 | 1 0 |
| Vignola | 16 0 | 3 3 | 0 30 | 8 20 | 1 10 | 0 45 | 0 45 | 1 0 |
| Palladio | 13 54 | 2 3 | 0 30 | 7 55 | 1 5 | 0 36 | 0 28 | 0 50 |
| Scamozzi | 14 42 1/2 | 3 0 | 0 30 | 8 5 | 1 10 | 0 39 | 0 3 1/4 | 0 46 3/4 |

8. *Roman Compositа, or Compound.*] The whole heighth of this Column, and the heighth of each principal part thereof, according to several Authors, is as in this Table.

| Authors Names | whole heighth Mo. | Mi. | Pedestal Mo. | Mi. | Base Mo. | Mi. | Body Mo. | Mi. | Capital. Mo. | Mi. | Architrave Mo. | Mi. | Frieze Mo. | Mi. | Cornish Mo. | Mi. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vitruvius | 16 | 6½ | 3 | 30 | 0 | 30 | 8 | 20 | 1 | 10 | 0 | 52½ | 0 | 52½ | 0 | 52½ |
| Vignola | 16 | 0 | 3 | 30 | 0 | 30 | 8 | 20 | 1 | 10 | 0 | 45 | 0 | 45 | 1 | 0 |
| Palladio | 15 | 20 | 3 | 20 | 0 | 30 | 8 | 25 | 1 | 5 | 0 | 45 | 0 | 30 | 0 | 45 |
| Scamozzi | 15 | 20 | 3 | 20 | 0 | 30 | | 25 | 1 | 5 | 0 | 40 | 0 | 32 | 0 | 48 |

9. *Of Diminishing.*] Columns of every Order must be so formed, that the *upper* part of the Body be less than the *lower*; which diminishing must be more or less, according to the proportion of their heighths; and is to begin from one third part of the whole Shaft upwards, [*i. e.* the lower third part is to be of an equal bigness;] which *Philander* prescribes (by his own precise measuring of ancient Columns) as the most graceful Diminution. And for the quantity to be diminished, Architects lay down this Rule.——

That the { Tuscan / Dorick / Ionick / Corinthian / Compound } Column, be { ¼ / ⅕ / ⅙ / ⅐ / ⅛ } part

smaller at the top, just under the Capital, than below, just above the Base, *i. e.* the Diameter of

the top, of the { Tuscan / Dorick / Ionick / Corinthian / Compound } Column, is { ¾ / ⅘ / ⅚ / ⅙ / ⅞ } of

the Diameter of the Column below.

## *Colours.*

The Principal Colours us'd in Painting of Houses, *&c.* shall be treated of in their proper places.

## *Compoſite Order.*

V. Column. N. 3.

## *Compartition.*

By this Term, Architects underſtand a *graceful*, and *uſeful Diſtribution* of the whole Ground-plot of an Edifice, into Rooms of Office, and of Reception, or Entertainment.

## *Compartment,*

In Architecture, is a particular Square (for an Inſcription, or ſome other Device) marked out in ſome Ornamental Part of a Building.

## *Concamerate.*

To make an Arched Roof, as in Vaults, *&c.* to Arch over.

## *Conclave,*

In Architecture, is a Cloſet, or Inner-chamber.

## *Conducts.*

Sewers, or Gutters to convey away the Suillage of a Houſe. In theſe (ſays Sir *Henry Wotton*) Art ſhould imitate Nature, in ſeparating thoſe ignoble Conveyances from the Sight; and (where there wants a running Water,) ſhould place them in the moſt remote, and loweſt part of the Foundation, with ſecret vents paſſing up through the Walls, (like a Tunnel) to the wide Air; which all *Italian* Artiſts commend for the diſcharge of noiſome Vapours; tho' elſewhere to my knowledge little practiſed.

*Conges,*

## *Conges,*

In Architecture, are the Rings, or Ferrils, heretofore us'd in the Extremities of Wooden-pillars, to keep 'em from ſplitting, afterwards imitated in Stone-work.

## *Contramure,*

In Architecture, is an Out-wall, built about the Wall of a City.

## *Copeing of Walls.*

1. *What.*] The Copeing of a Wall is the Top, or Cover of it, made ſloping to carry off the Wet.

2. *Price.*] I have known Brick-walls (of 1 ½ Brick thick) coped with Stone, for 4 *d. per* Foot, lineal, (or running) Meaſure; the Workman drawing the Stones into this Price.

3. *Drawing of Stones, for-*] I have known 1 *d. per* Foot given for drawing the Stones for Copeing of Walls.

## *Corbel,*

A ſhort piece of Timber laid into a Wall, with its end ſticking out ſome 6, or 8 Inches, more or leſs, according as the Occaſion requires: The under-ſide of the end ſo ſticking out, is ſometimes cut into the Form of a Boultin; ſometimes of an *O-G*, ſometimes of a Face, and ſometimes of other Forms, according to the Fancy of the Workman; the upper-ſide is flat and plain. Corbels are commonly placed (for Strength-ſake) immediately under the middle of the Semi-girders of a Platform, and ſometimes under the ends of the Camber-beams; but then they are commonly placed a Foot or 2 below the Beam, and a piece of Timber ſtands upright (cloſe by the Wall) from the Corbel to the Beam.

## *Corbets,*

Holes left in the Walls of ancient Churches, *&c.* for Images to ſtand in.

## *Corinthian Order.*

V. Column. N. III.

## *Corner-tiles.*

V. Tiles. N. V.

## *Corner-ſtones.*

1. *What.*] Are 2 Stones, (commonly of Rigate, or Fire-ſtone) of which there ſtands one in each Jamb of a Chimney. Their Faces are hollow in the breadth, being a certain Sweep of a Circle. The breadth of each Stone is equal to the breadth of the Jamb; and their heighth reaches from the Hearth to the Mantle-tree.

2. *Price.*] I have bought of theſe Stones in *London* for 20 *s. per* pair.

## *Cor-nice-niſh.*

1. *What*] A Corniſh in Architecture, is the uppermoſt of the 7 principal parts of a Column. V. Column, N. 2. Corniſhes are alſo placed on the top of Wainſcot, and under the Eves of Houſes, *&c.*

2. *Kinds.*] There are as many kinds of Corniſhes, as there are Orders of Columns, *viz.* Tuſcan, Dorick, Ionick, Corinthian, and Compoſite; to which may be added, Plain, Cantaliver, Modilion, and Coveing Corniſhes: Of all which I ſhall treat in their Order.

3. *Tuſcan.*] According to *Vitruvius*, the whole heighth of the Tuſcan-corniſh is ½ a Module; which height being divided into 4 grand Diviſions, the uppermoſt of 'em goes to the *Boultin*, and *Fillet* under it; and this Diviſion being ſub-divided into 4 parts, 3 of 'em go to the *Boultin*, and 1 to the Fillet. The 2 next grand Diviſions go to the *Corona*, or *Crown*, [which is flat and plain,] And the lowermoſt grand Diviſion goes to the *Cimatium*; which being again divided into 3 parts, the uppermoſt of 'em goes to the *Fillet*, and the other 2 to the *Cima*, or *O-G.* The Projecture of the whole Corniſh, (as alſo of each Member thereof,) he makes to be equal to its heighth; and the under ſide of the Corona he divides into 11 parts, whereof he gives 2 to the *Fillet*, and 1 to the Denticle, and ſo Alternately; for 'tis fitting (ſays he) to have 3 as deep as they are large.

According to *Scammozzi*, the whole heighth of this Corniſh is 39 Minutes, and the heighth of each Particular Member thereof (beginning at the top, and deſcending orderly)

orderly,) is as follows; The upper *Liſt*, or Plint of the Corniſh, 3 m. the *Supercilium*, *Liſt*, *Tinea*, or Eyebrow 1 ½ m. the upper *Scima*, or *O-G.* 8 m. the *Liſt* under it 1 ½ m. the *Corona*, or *Crown* 9 ¾ m. the Liſt, 1 ½ m. the *Scima*, or greater *O-G* 6 m. (here's 1 ½ m. left betwixt, for the depth of the Dentils) the *Supercilium*, or *Liſt*, 1 ¾ m. the *Scimatium*, or little *O G* 5 m. the *Liſt* 2 m.

*Palladio* makes the whole heighth of this Corniſh 44 m. whereof the *Liſt* at the top is 3 ½ m. the *Scima Recta* 10 m. the *Liſt* under him 2 ½ m. the Corona 10 m. the *Boultin* 9 m. the *Liſt* 1 ½ m. and the *Cavetto*, or *Hollow* 7 ½ m.

4. *Dorick.*] *Vitruvius* makes 2 different Faſhions of Dorick Corniſhes; the whole heighth of one of 'em is ½ a Module, which divided into 2 grand Diviſions, one of 'em, (*viz.* the upper one) is again divided into 8 parts, of which 1 part goes to the *Liſt* at the top, and the other 7 to the *O G.* The other grand Diviſion is ſubdivided into 4 parts, of which the uppermoſt, and lowermoſt parts go to the 2 *Cimatums*, and the 2 middle parts go to the *Corona*, the *Liſt* of each of thoſe *Cimatum*'s is ⅓ of the whole *Cimatum.* The whole heighth of the other faſhion'd Corniſh is 40 m. which divided into 9 parts, 2 ſhall go to the 2 *Facia*'s, 1 to the *Thorus*, or *Boultin* above 'em, 2 to the *Modilions* above that, 2 to the *Crown*, and 2 to the *Cima*, or *O-G* at the top. The *Modilions*, as alſo the *Crown* being divided, each into 3 parts, one of 'em ſhall go to their reſpective *Cimatum's*, of which their *Liſts* are each ⅓ of the whole.

According to *Scammozzi*, the whole heighth of this Corniſh is 42 m. whereof the *Liſt* at the top is 2 m. the great *O-G* 7 m. the *Liſt* 1 m. the little *O-G* 3 m. the *Corona* 8 m. the *Liſt* 1 m. the *Caſement* 2 m. the *Boultin* 5 m. the *Liſt* 1 m. the *Square* 7 m. the *Liſt* 1 m. and the *Boultin* 4 m.

*Palladio*, in his Verbal Deſcription of this Corniſh, makes the whole heighth of him to be 35 m. but in his Figure 'tis but 33½ m. Of which the *Liſt* at the top is 2 ¼ m. the *Scima Recta*, or *O-G* 6 ¾ m. the *Liſt* 1 m. the *Scima Reverſa* 3 ¼ m. the *Corona* 8 m. the *Ovolo*, or *Boultin* 6 m. the *Liſt* 1 m. and the *Caſement* at the bottom 5 m.

5. *Ionick.*] The whole heighth of this Corniſh, according to *Vitruvius*, is about 52 ½ m. He deſcribes 2 faſhion'd Corniſhes in this Order; in one of them he divides the whole heighth into 11 parts, the 2 uppermoſt of which goes to the *Cimatum*, and the *Boultin* under it; and this ſpace being ſub divided into 6 parts, 2 of 'em goes to the *Fillet* of the *Cimatum*, 3 to the *O-G*, and 1 to the *Boultin.* The next 2 grand Diviſions go to the *Corona.* The next 3 grand Diviſions go to the *Cartouſes*, and the *Cimatum* over 'em; and this ſpace being divided into 5 parts, 1 of 'em makes the *Cimatum*, of which the *Fillet* is ⅓ of the whole. Then 1 ½ of the next grand Diviſion goes to the

*Boultin*, and *Fillet* over it, of which the *Fillet* is $\frac{1}{7}$ part of the whole. Again, 1 $\frac{1}{4}$ of the next grand Diviſions goes to the *Caſement*, and *Fillet* over it, of which the *Fillet* is $\frac{1}{4}$ of the whole. And the laſt grand Diviſion goes to the *Cimatum*, of which the *Fillet* is $\frac{1}{5}$ part of the whole. In the other faſhion'd Corniſh, he divides the whole heighth into 6 parts, the uppermoſt of which goes to the *O-G*, whereof its *Fillet* is $\frac{1}{6}$ part, the next grand Diviſion being ſub-divided into 3 parts, the uppermoſt of 'em goes to the *Cimatum*, (of which its *Fillet* is $\frac{1}{3}$ part,) and the other 2 to the *Corona*. The next 2 grand Diviſions are ſub divided into 5 parts, the uppermoſt of which goes to the *Cimatum*, (of which its *Fillet* is $\frac{1}{5}$ part) and the other 4 to the Cartouſes. The next grand Diviſion being ſub-divided into 4 parts, 3 of 'em go the *Boultin*, and 1 to the *Fillet* under it. And the laſt grand Diviſion being ſub-divided into 4 parts, 3 of 'em go to the *Caſement*, and 1 to the *Cimatum*, of which its *Fillet* is $\frac{1}{4}$ part.

*Scammozzi* makes the whole heighth of this Corniſh 42 m. whereof the *Liſt* at the top is 2 m. the *Scima Recta* 5 $\frac{1}{2}$ m. the *Liſt* 1 m. the *Scima Reverſa* 2 $\frac{1}{2}$ m. the *Corona* 6 $\frac{1}{2}$ m. the *Scima Reverſa* 2 $\frac{1}{2}$ m. the *Cartouſes* 7 m. the *Boultin* 4 m. the *Liſt* 1 m. the Square 5 m. the *Liſt* 1 m. and the *Boultin* 4 m.

*Palladio* makes the whole heighth of this Corniſh 46 $\frac{1}{2}$ m. whereof the *Liſt* at the top is 2 $\frac{1}{2}$ m. the *Scima Recta* 7 m. the *Liſt* 1 $\frac{1}{4}$ m. the *Scima Reverſa* 3 $\frac{1}{2}$ m. the *Corona* 8 m. the *Scima Recta* over the Modilions 3 $\frac{1}{4}$ m. the *Modilions* 7 $\frac{1}{2}$ m. the *Liſt* 1 m. the *Ovolo*, or *Boultin* 6 m. the *Liſt* 1 $\frac{1}{2}$ m. and the *Cavetto*, or *Hollow* 5 m.

6. *Corinthian.*] The whole heighth of this Corniſh according to *Vitruvius* is about 1 Module. He deſcribes 2 different faſhion'd Corniſhes in this order; in one of which he divides the whole heighth into 8 parts, the uppermoſt of which goes to the *O-G*, of which its *Fillet* is $\frac{1}{6}$ part. Then 1 $\frac{1}{4}$ of the next grand Diviſions goes to the *Corona* and *Cimatum* over it, of which ſpace the *Cimatum* is $\frac{1}{3}$ part, and its *Fillet* $\frac{1}{5}$ of that. Then 1 $\frac{1}{2}$ of the next grand Diviſions goes to the *Modilions*, and *Cimatum* over 'em, of which ſpace the *Cimatum* is $\frac{1}{7}$ part. And the laſt grand Diviſion goes to the *Boultin*, and *Fillets* over and under it; and this being divided into 3 parts, the lowermoſt goes to the Fillet, and the other 2 being again divided into 6 parts, 5 of 'em go to the *Boultin*, and the other to the *Fillet* over him. In the other faſhion'd Corniſh, he divides the whole heighth into 9 parts, of which the two uppermoſt being divided into 4 parts, 3 of 'em go to the *O-G*, (whoſe Fillet is $\frac{1}{6}$ of the whole) and the other to the *Cimatum* over the Corona, (whoſe *Fillet* is $\frac{1}{3}$ of the whole.) The next 2 grand Diviſions go to the *Corona*. The next 2 grand Diviſions go to the *Modilions*, and the *Cimatum* over 'em, $\frac{1}{4}$ of this ſpace goes to the *Cimatum*, (whoſe *Fillet* is $\frac{1}{5}$ of the whole Cimatum) and the reſt to the *Modilions*.

The

The next 2 grand Divisions go to the *Boultin*, and *Fillet* over and under it, which Fillets are each $\frac{1}{7}$ of the whole. And the last grand Division goes to the *Cima* at the foot of the Cornish.

According to *Scammozzi*, the whole heighth of this Cornish is 46 $\frac{1}{4}$ m. whereof the *List* of the *Scima Recta* is 2 m. the *Scima Recta* 6 $\frac{1}{2}$ m. the *List* of the *Scima Reversa* 1 m. the *Scima Reversa* 3 $\frac{1}{4}$ m. the *Half-round* 1 $\frac{1}{2}$ m. the *Corona* 7 $\frac{1}{2}$ m. the *Cimatum* 3 $\frac{1}{2}$ m. the Modilions 8 $\frac{1}{2}$ m. the *List* 1 m. the Boultin 5 m. the *List* 1 m. and the *Scima* 5 m.

The whole heighth of this Cornish, according to *Palladio*, is 50 m. whereof 2 $\frac{1}{3}$ m. goes to the *List* of the *Scima Recta*; the *Scima Recta* is 8 $\frac{1}{3}$ m. the *List* $\frac{2}{3}$ m. the *Scima Reversa* 3 m. the *Corona* 7 $\frac{1}{3}$ m. the List of the *O-G* over the Modilions $\frac{2}{3}$ m. the *O-G* 2 $\frac{2}{3}$ m. the *Modilions* 8 $\frac{1}{2}$ m. the Boultin 4 $\frac{1}{2}$ m. the *List* 1 m. the *Boultin* 5 $\frac{1}{2}$ m. the *List* 1 m. and the *O G.* 4 $\frac{1}{2}$ m.

7. *Roman Composita, or Compound.*] The whole heighth of this Cornish, according to *Vitruvius* is equal to the Diameter of the Column above, which is about 52 $\frac{1}{2}$ m. He describes 2 different fashion'd Cornishes in this order; one of which he divides into 2 parts, the uppermost of which goes to the *O-G*, (whose *Fillet* is $\frac{1}{7}$ of the whole,) and the undermost to the *Corona* and *Cimatum* over it; and this Space being divided into 4 parts, 3 of 'em go to the *Corona*, and one to the *Cimatum*, whose *Fillet* is $\frac{1}{3}$ of the whole *Cimatum*.

*Scammozzi* makes the whole heighth of this Cornish 48 m. and *Palladio* 45 m. but for the heighth of each particular Member, they leave us very much in the dark; for according to neither of them the Sum of the Particulars will never make the whole heighth; and besides *Palladio* sets down no Dimensions to several of the Members of this Cornish. So that I think, a Man is but little the wiser for what any of these Authors say of this Cornish.

8. *Cantaliver.*] Workmen tell me, that those are call'd Cantaliver-Cornishes, that have Cantalivers under 'em. V. *Cantalivers.* N. 1.

9. *Modilion.*] Workmen tell me, That Modilion-cornishes are such as have *Modilions* under 'em. V. Modilions.

10. *Coving.*] Workmen tell me, That they call that a Coving-cornish, which has a great *Casement*, or *Hollow* in it, which is commonly Lathed and Plaister'd upon Compass, Sprockets, or Brackets.

11. *Price.*] Some Cornishes (says Mr. *Leybourn*) are valued by the piece, dearer, or cheaper, according to their largeness, goodness of the Stuff, and curiosity of Workmanship: Others are measur'd, and rated by the Foot *Running-measure*, i. e. by the number of Feet in length only. Experienced Carpenters tell me, That for making of plain Cornishes (without any Carving) under the Eves of a House, they commonly have 1 *s. per* Foot

Foot, running-measure. Mr. *Wing* tells us, That Cornishes are valu'd according to their Nature, and Bigness; a Modilion-cornish (of Free-stone) of 18, or 20 Inches thick, is worth, (says he,) 5 or 6 *s. per* Foot, running-measure. He also tells us, (in Joyners Work,) That a Modilion-cornish, with its carved Work, is worth 7 *s. per* Foot. And a plain Modilion-cornish of 12, or 14 Inches, (says he) will be worth 3 *s.* 6 *d.* or 4 *s. per* Yard, running-measure. A Brick-cornish, (as some Workmen tell me,) 2 *s.* 6 *d. per* Foot.

## *Corona.*

V. Cornish.

## *Coving.*

1. *What.* V. Cornish. N. 10. Also, Workmen tell me, That Coving is also used in this Sense; *viz.* When Houses are built projecting forth over the Ground-plot, and that is (as commonly 'tis) turn'd with a Quadrant of a Circle, (or Semi-arch) of Timber, which is Lathed and Plaister'd; (under which People may walk dry; as 'tis much us'd at *Tunbridge-wells*, on the upper Walks;) I say, such Work is commonly call'd *Coveing.*

2. *Price.*] Mr. *Wing* (in his *Geodetes Practicus Rederius*) says That the Carpenter's Work of Coveing, is worth 4 *s. per* Square

## *Crown,*

As Corona.

## *Crown-post,*

Is that Post, which (in some Buildings) stands upright in the middle, between 2 principal Rafters, from which there goes Struts, or Braces to the middle of each Rafter. It is also call'd a King-piece, or Joggle-piece.

## *Cross garnets.*

V. Hinges. N. 2.

## *Cross-grain'd.*

Timber is said to be cross-grain'd, where a Bough, or some Branch shoots out on that part of the Trunk of the Tree; for the Bough, or Branch shooting forwards, the Grain of that Branch shoots forward also, and so runs a-cross the Grain of the

the Trunk; and if it be well grown together, it will ſcarce be perceiv'd in ſome Stuff, but only in Working.

## *Croſs-Multiplication.*

1. *What.*] Croſs-Multiplication is the Multiplying of Feet and Inches by Feet and Inches; or Feet, Inches, and 12*th.* parts of Inches, by Feet, Inches, and (12*th.*) parts of Inches. 'Tis ſo call'd, becauſe they Multiply a-croſs, as I ſhall ſhew how in the following Number. This way of Multiplication is much us'd by Workmen, in meaſuring their Work: but, I think, none of 'em are ſo nice, as to take their Dimenſions to parts of Inches, except Glaziers.

2. *How perform'd.*] Set the Multiplicand over the Multiplier, as is done in the following Examples, and then Multiply as the Lines Direct; obſerving to ſet down the particular Products under Feet, inches, or Parts reſpectively, according to theſe Rules.

1. Feet Multiply'd by Feet, produce Feet.
2. Feet by Inches, produce Inches.
3. Feet by (12*th.*) parts, produce parts.
4. Inches by Feet, produce Inches.
5. Inches by Inches, produce Primes, (or 12*th.*) Parts (of an Inch.)
6. Inches by (12*th.*) parts, produce ſeconds, or 12*th.* parts of the 12*th.* part of an Inch.
7. Parts by Feet, produce (12*th.*) parts.
8. Parts by Inches, produce Seconds.
9. Parts by Parts, produce Thirds, (or 12*th.* Parts of a Second.)

But Note, That in ſetting down the Products of each Denomination, (except the Feet) you muſt ſet down only the odd ones above 12, or 12's, carrying all the 12's as ſo many Unites to the next greater Denomination.

*Exam-*

## *Example* 1.

Let it be required to Multiply 5—3 by 2 F. 4 In. fet down the Numbers thus—

| | F. | In. | Pa. |
|---|---|---|---|
| | 5 | 3 | 00 |
| | 2 | 4 | 0 |

Say 2 times 5 is 10 Feet. — 10—0—0
Then 2 times 3 is 6 Inches — 6—0
Then 4 times 5 is 20 Inches, or 1 F. 8 In. — 1—8—0
And laſtly, 4 times 3 is 12 parts, or 1 Inch. — 0 1—0

The whole Sum is — 12—3—0

or 12 Feet and a quarter.

## *Example* 2d.

Let it be requir'd to Multiply 5 Foot 3 Inches, and 6 Parts, (or a half) by 2 Foot, 4 Inches, and 6 Parts.

Set down the Numbers thus.
Then I ſay,

| | F. | In. | P. | S. | T. |
|---|---|---|---|---|---|
| | 5 | 3 | 6 | | |
| | 1 | 1 | 1 | | |
| | 2 | 4 | 6 | | |

| | | | | | |
|---|---|---|---|---|---|
| 2 times 5 Feet is | 10 | 0 | 0 | 0 | 0 |
| 2 times 3 Inches is | | 6 | 0 | 0 | 0 |
| 2 times 6 Parts is | | 1 | 0 | 0 | 0 |
| 4 times 5 Feet is | 1 | 8 | 0 | 0 | 0 |
| 4 times 3 Inches is | | 1 | 0 | 0 | 0 |
| 4 times 6 Parts is | | | 2 | 0 | 0 |
| 6 times 5 Feet is | | 2 | 6 | 0 | 0 |
| 6 times 3 Inches is | | | 1 | 6 | 0 |
| 6 times 6 Parts is | | | | 3 | 0 |
| The whole Sum is | 12 | 6 | 9 | 6 | 0 |

that is 12 Feet 6 Inches and $\frac{3}{4}$ of an Inch, and $\frac{3}{4}$ of a Twelfth part of an Inch.

## *Cubicle*,

A Bed-chamber.

*Culinary*,

## *Culinary*,

Of, or belonging to the Kitchin.

## *Culvertail*,

As Dovetail.

## *Cupulo*,

In Architecture, is a ſmall Room (either Circular, or Polygonal) ſtanding on the very top of a Building; ſome call it a Lanthorn.

## *Cy-mace-macium*,

As Cimatum.

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## *Dado.*

V. Capital. N. 2.

## *Deals.*

*Of Dreſſing.*] Dreſſing of Deals, [*i. e.* rough-plaining them over with a Fore-plain, that they may dry,] is worth (ſays Mr. *Wing*,) 1 *s. per* ſcore: and ſo I know ſome Workmen have; tho' others tell me, they have known them done for 9 *d. per* ſcore.

## *Deal-floors.*

*Of Laying.*] The *laying* of ordinary Deal-floors, [*i. e.* plaining, and joyning 'em, *&c.*] is worth 5 *s. per* Square. But if they are laid with Dovetail, or Key-joynts, without Pins or Nails, ſome Workmen tell me, they have 10 *s. per* Square. And if the Workman find Deals, and lay them the ordinary way, 'tis worth from 24 to 30 *s. per* Square, according to the goodneſs of the Deals. But if the Deals are very good, and laid either with

with Dovetail, or Key-joynts, (without Nails, or Pins) 'tis worth 35 *s*, or 40 *s*. the Square. V. Pl. Floors.

## *Deck-nails.*

V. Nails. N. 6.

## *Decor.*

This Word is perfect Latin, and signifies (properly) a *good Mein*, *Gracefulness*, or *Beauty*. *Vitruvius*, (*Lib.* 1. *Cap.* 2.) reckons it one of the 6 Considerations that accomplishes the whole Art of Architecture: And by this word he designs the keeping of a due Respect between the *Inhabitant* and the *Habitation*. Whence *Palladio* concludes, That the *Principal Entrance* must never be regulated by any certain Dimensions; but by the Dignity of the Person that is to live in it; yet to exceed, rather in the more, than in the less, is a Mark of Generosity, and may be excus'd with some noble Emblem, or Inscription, as that of the *Conte di Bevilacqua*, over his large Gate at *Verona*, (where had been committed a little Disproportion:) *Patet Janua, Cor magis.*

## *Den-tills-tellis-ticuli,*

A Member of the Cornish, in some of the Orders of Architecture. In the *Tuscan Order*, they are the *Spaces* left betwixt the Niches, cut out at certain Distances, on the under-side of the *Corona*, which makes it resemble a set of *Teeth*, from whence they have their Name. In the *Dorick*, *Ionick*, and *Corinthian Orders*, (without the Pedestal,) they stand under the *Corona*.

## *Diastyle,*

A sort of Edifice, where the Pillars are placed at the distance of 3 of their Diameters from one another.

## *Diamond-glass.*

V. Glass-quirry.

*Dia-*

## *Diamond-pavement.*

V. Paving. N. 10.

## *Digging.*

*Of Meaſuring.*] The digging of the Ground for Cellars, and for the Foundations of Buildings, is commonly done by the Yard ſolid, containing 27 ſolid Feet; and that is uſually counted a Load. Therefore the Dimenſions being given in Feet, Multiply the length by the breadth, and the Product by the depth, dividing this laſt Product by 27, and the Quotient will give the Content in ſolid Yards.

## *Diminiſhing.*

*Of Columns.*] V. Columns. N. 9.

## *Dogg-nails.*

V. Nails. N. 7.

## *Dome,*

An *Italian*, and *French* Word, ſignifying a Town-houſe, or chief Meeting-place of a City. Alſo a Cupulo, a round piece of Architecture, (reſembling the Bell of a great Watch,) ſet upon the top of a Building, particularly upon Cathedral Churches, where it ſerves for the Bell-tower.

## *Dorick-order.*

V. Column. N. 3.

## *Doors.*

1. *What.*] Doors are thoſe parts of a Building, that are ſerviceable for the Paſſage *in* and *out* of Perſons.

2. *Situation of.*] Firſt, See that the Doors of a Houſe be as few in number, and as moderate in Dimenſions, as may poſſibly conſiſt with other due Reſpects: for in a word, *all openings are weakenings.* Secondly, That they do not approach too near the Angles of the Walls; for 'twere a moſt eſſential Soleciſm to weaken

weaken that part, which must strengthen all the rest: A Precept well recorded, but ill practised by the *Italians* themselves, particularly at *Venice*. Thirdly, Let the Doors, if possible, be right over one another, that the void may be upon the void, and the full upon the full; which will be a great strengthning to the whole Fabrick. Fourthly, Let them (if possible) be placed opposite to one another, in such manner, that one may see from one end of the House to the other; which will not only be very graceful, but also most convenient, in respect 'twill cool the House in Summer, by letting the Air through the House, and in Winter to keep out the Wind, which way soever it sit. Fifthly, 'Tis not only Ornamental, but very secure to turn Arches over the Doors, which will discharge them in a great measure, from the Super-incumbent weight, which might otherwise press upon them too much.

3. *Dimensions of*] Inner-doors in large Buildings ought to be 3 Foot broad and upwards, and their heighth twice their breadth. And Inner-doors in lesser Buildings, ought never to be less than 2 ½ Foot broad, and 5 ½ Foot high.

4. *Price of*-] *Doors made of plain whole Deal, and Rabited*, are for Stuff, Nails, and Workmanship, valu'd at 3 *d.* or 4 *d.* the Superficial Foot; the Workmanship only, about 2 *s.* or 2 *s.* 6 *d. per* piece; as some Workmen tell me. But *double-doors*, Batton'd, and made Wainscot Fashion, may be worth (for Workmanship and Materials) 7 *d.* the Foot, and for the Workmanship alone, about 4 *s.* or 5 *s. per* piece. *Folding-doors* and Cases, (as some Workmen tell me) are worth about 20 or 30 *s. per* pair; and *Balcony-doors and Cases*, the same. *Ordinary Doors* without Plaining, are worth making and hanging up, about 1 *s. per* piece. In Stone and Brick-buildings, *Architrave-doors* Cases are worth, according to the breadth of the Mouldings, 1 *d.* an Inch, *i. e.* if the breadth of the Moulding, (from the out-side to the inside of the Frame) be 9 Inches, 'tis worth 9 *d. per* Foot running-measure; if 10 Inches, 10 *d. per* Foot; and so proportionable, more or less. And *Frontish-doors* in great Buildings, with their Ornaments, as Pilasters, *&c.* are worth, (according to their Magnitude, and variety of Workmanship included,) some 3 *l.* some 5 *l.* some more, to 10 or 20 *l. per* piece; and perhaps more. V. *Batten-doors*. N. 2.

## *Dormant tree.*

In Architecture is a great Beam lying cross a House, otherwise call'd a Summer. V. Summer.

## *Dor-man-mer,*

In Architecture is a Window made in the Roof of a Houſe, it ſtanding upon the Rafters. Dormers are commonly rated at ſo much *per* piece, according to their bigneſs, *&c.*

## *Dorman tiles.*

V. Tiles. N. VIII.

## *Dor-tor mitory.*

A Sleeping-place.

## *Dovetails.*

A ſort of Joynts, or Hinges, ſo call'd, becauſe they reſemble the Tail of a Dove or Pigeon.

## *Dovetailing.*

In Architecture, is a manner of faſtning Boards, (or any Timber) together, by letting one piece into another, in the Form of a Dove's Tail.

## *Drag,*

In Architecture, a Door is ſaid to drag, when in opening and ſhutting it hangs upon the Floor.

## *Dragon beam.*

Dragon-beams are 2 ſtrong Braces, or Struts, that ſtand under a Breſſummer, meeting in an Angle upon the Shoulder of the King-piece.

## *Drapery.*

A Term in Architecture, and Painting, it being a Work wherein Cloaths are repreſented. Alſo as Cilery.

## *Drought, or Draft.*

1. *What.*] A Draught, or Draft, is the Picture of an intended Building deſcribed on Paper; whereon is laid down (by Scale, and Compaſs) the deviſed Diviſions, and Partitions of every Room, in its due proportion to the whole Building.

2. *Its Uſefulneſs.*] As 'tis uſual, ſo 'tis (alſo) very convenient for any perſon before he begins to erect a Building, to have Deſigns, or Draughts drawn upon Paper, or Veilum; in which Draughts the Ground-plot, or Ichnography of each Floor, or Story, is delineated, and repreſented: As alſo the Form and Faſhion of each Front, together with the Windows, Doors, and Ornaments, (if they deſign any) are to be ſhewn in the Orthographies, or Draughts of the Uprights.

Sometimes more Fronts than one are ſhewn perſpectively in a Draught, and then 'tis call'd Scenography; but this is not eaſily underſtood, except by thoſe that underſtand the Rules of Perſpective. And therefore 'twill be more intelligible to the ſeveral Workmen, to have a Draught of each Front, in a particular Paper by it ſelf; and alſo to have a Draught of the Ground-plot, or Ichnography of every Floor, or Story, in a Paper by it ſelf; becauſe many times the Conveniencies, or Contrivances in one Story, differs from thoſe in another, either in the bigneſs of the Chimneys, or Diviſions of the Rooms, ſome being larger in one Story than in another, and ſometimes having more Chimneys in one Story than in another, *&c.*

All which things being well conſider'd, and drawn on Papers, before the Building is begun; theſe Draughts will be a great Guide to the Workmen, and ſave them a great deal of time in contriving their Work; and beſides there will be no need of Alterations, or tearing, and pulling the Building to pieces after 'tis begun; which, beſides the hindrance of the Procedure, makes the Building lame and deficient; nothing being ſo well done, when 'tis put up, and pull'd down, and ſet up again, as if it were well done at firſt. Beſides, it makes the Workmen uneaſie to ſee their Work, (in which they have taken a great deal of Pains, and us'd a great deal of Art) to be pull'd down again. V. Building, N. II. 2.

The drawing of Draughts is moſt commonly the Work of a Surveyor, tho' there be many Maſter-workmen that will contrive a Building, and draw a Draught, or Deſign thereof, as well as moſt (and better than ſome) Surveyors. But whoever makes a Draught of a Building, ought to be very well skill'd in the Theorical Part of Architecture. I muſt at preſent omit the particular Directions for making a Draught, (the Bookſeller requiring haſt; and fearing leaſt this firſt Edition ſhould be too large;) but *this*, and ſeveral other Curioſities, not yet made publick, may find a place in a ſecond Edition.

## *Drips*,

In Architecture, are certain kind of Steps (made on a flat Roof) to walk upon, a way of Building much us'd in *Italy*. The Roof is not quite flat, but a little rais'd in the middle; and thoſe Steps, or Drips, lie each a little inclining to the Horizon.

## *Drops*,

In Architecture are an ornament in the Pillars of the Dorick Order, underneath the Trigliphs, repreſenting Drops, or little Bells.

## *Dutch Bricks*.

V. Bricks. N. 5.

*Eaves*

## *Eaves,*

IN Architecture, is the Margin of the Roof of a Houſe; that part of the Roof that hangs over without the Walls.

## *Eaves-lath.*

That thick feather-edg'd-board, generally nail'd round the Eaves of a Houſe, for the lowermoſt Tiles, Slate, or Shingles to reſt upon. Eaves-laths are commonly ſold for 1 *d.* ½ or 2 *d.* a Foot, (running-meaſure) according as they are of goodneſs.

## *Echinus.*

V. Capital. N. 2.

## *Eggs.*

V. Anchors.

## *Elaboratory.*

A Place to Work in; properly a Chymiſt's Work-houſe, or Shop.

## *Emboſſing,*

In Architecture, is a kind of Sculpture, or Engraving, wherein the Figure ſticks out from the Plain whereon it is Engraven, and according as it is more or leſs protuberant, is call'd by the *Italians Baſſo Mezzo*, or *Alto-relievo*, and by the *Engliſh*, Baſ-relief, Mean-relief, or High-relief.

## *Embraſure,*

In Architecture, is the Enlargement that is made in a Wall, on the in-ſide of a Window, or Gate, to give the more Light, or for the more Convenience of the Gate, or Window.

## *Entallature,*

In Architecture, ſignifies the Architrave, Frieze, and Cornish. V. the Words Architrave, *&c.*

## *Entry,*

In Architecture, is a Room deſign'd only (or chiefly) for *Paſſage* to and fro betwixt other Rooms, or from the outer Door into the Houſe.

### *Epiſtyle tylium.*

As Frieze.

### *Eurithmia.*

A Term of Architecture, us'd by *Vitruvius*, by which he intends only, That agreeable Harmony, that ought to be between the length, breadth, and heighth of each Room in a Fabrick.

### *Eye-brow.*

As Liſt, or Fillet. V. Capital.

### *Eye,*

In Architecture, is the middle of an Ionick Volute, or Scrol, cut in the Form of a Roſe.

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## *Fabrick.*

1. *What.*] A Church, a Houſe, or any other Building.

2. *Of Cenſuring.*] I am deſirous, (ſays Sir *Henry Wotton*) to ſhut up theſe Elements of Architecture with ſome Methodical Directions for Cenſuring of Fabricks already rais'd; for indeed, without ſome way to contract our Judgment, which among ſo many Particulars, would be loſt by Diffuſion; I ſhould think it harder to be a good Cenſurer, than a good Architect; becauſe the *working part* may be helped by *Deliberation*, but the *Judging* muſt flow from an *Extempory Habit*. Therefore, (not to leave this laſt piece of Architecture without ſome Light.) I could wiſh him that comes to examine any noble *Work*, firſt of all to examine himſelf, whether the ſight of many brave things before, (which remain like impreſſed Forms in his Mind,) have not made him think nothing *good*, but that which is the beſt; for this Humour were too ſowre. Next, before he ſettle any Opinion upon the Work, let him by all means ſeek to inform himſelf of the Age thereof. And if he find the apparent Decays to exceed the Proportion of Time; then let him conclude, That either the Materials were too ſlight, or that the Seat is nought.

Now, after theſe Premiſſes, if the Building be found to bear his Years well, then let him ſuddenly run backwards, (for the Method of *Cenſuring* is contrary to the Method of *Compoſing*) from the *Ornaments*, (which firſt allure the Eye) to the more *Eſſential Members*, till at laſt he be able to form this Concluſion; That the Work is Commodious, Firm, and Delightful; which are the 3 Capital Conditions requir'd in good Building, by

all

all Authors, both Ancient and Modern. And this is, (as I may term it,) the moſt ſcientifical way of Cenſuring. There are 2 other ways which I muſt not forget. The firſt, which you may find in *Georgio Vaſſari*, before his laborious Work of the Lives of Architects,) is to paſs a running Examination over the whole Edifice, according to the properties of a well ſhapen Man. As whether the *Walls* ſtand upright upon a clean Footing and *Foundation*; whether the *Fabrick* be of a beautiful Stature; whether for the *breadth* it appear well burniſhed; whether the *principal Entrance* be in the middle of the Front, or Face; whether the *Windows*, (as our Eyes) be ſet in equal number and diſtance on both ſides; and whether the Offices (like the Veins in our Bodies) be uſefully diſtributed, *&c.* The ſecond way you may find in *Vitruvius* himſelf, *Lib.* 1. *Cap.* 2. Where he ſummarily determineth 6 Conſiderations, that accompliſh this whole Art, *viz. Ordinatio, Diſpoſitio, Eurythmia, Symmetria, Decor, & Diſtributio*, each of which ſee in their proper places.

## *Face,*

In Architecture, is any Member that has a great breadth, and but ſmall Projecture, as the Architrave in the Front of a Building.

## *Face of a Stone.*

By the *Face of a Stone*, Workmen mean that Superfice or Plain of the Stone that is to lie in the Front of the Work; which is very eaſily known when the Stones are ſcapt'd; for the *Face* is always oppoſite to the *Back*, and the *Back* goes rough as it comes from the Quarry. But in rough Stones, Workmen generally chooſe to make one of thoſe ſides the *Face*, which in the Quarry lay Perpendicular to the Horizon, and conſequently the breaking (and not the cleaving) way of the Stone. For a Clearer underſtanding of this V. *Stone*, N. 4.

## *Facing*

*Of Timber Buildings with Brick.*] Some Workmen tell me, That they have ſometimes faced Timber-buildings with Brick; which, ſay they, is thus done,—All betwixt the Timber, the Wall is a Brick's length thick; (or a 9 Inch Wall,) and againſt the Timber but ½ a Brick, or 4½ Inch Wall. But Workmen do not approve of this way of Facing of Timber-buildings, by reaſon the Mortar doth ſo extreamly burn the Timber.

## *Fa,-cia,-cio,-ſha,*

In Architecture, is no more but a broad Liſt, or Fillet, (V. Fillet.) They are commonly made in Architraves, (V. Architrave,) and in the Corniſh of Pedeſtals, V. Pedeſtal. In Brick-buildings, *Facia's* are certain Juttings out of the Bricks, over

the Windows of each Story, except the upper one. And these are sometimes plain, like those of Columns; but sometimes they are Moulded; which shews very handsome: And this Moulding is commonly a *Scima-reversa* at the bottom, above which are 2 plain Courses of Bricks, then an Astragal, and lastly a Boultin, or as Workmen (by Corruption) call it a Boultrel, or Boltel. In Stone-buildings 'tis the same as in Brick, and they are also sometimes Plain, and sometimes Moulded with a *Scima-reversa*, or O-G. The *Price* of *Facia's*, if the Workmen find Materials, is commonly about 10 *d. per* Foot running-measure, and the Workmanship only about 6 *d.* or 8 *d. per* Foot.

## *Feather-edg'd.*

Boards, or Planks, that are thicker on one edge, than on the other, are call'd Feather-edg'd-boards, *&c.*

## *Felling of Timber.*

V. Timber.

## *Fencing.*

1. *With Pale.*] Some Workmen tell me, That for Paleing with 3 Rails, Cleft-pails, Rails, and Posts, cleaving and setting up; they have 3 *s.* 6 *d. per* Rod, felling the Timber and all. But then their Materials are laid down to their hand.

2. *With single Rail and Posts.*] Some Workmen tell me, That Fencing with single Rail and Posts, Felling, Cleaving, and setting up, is commonly done for 8 *d.* or 10 *d. per* Rod; but then their Materials must be laid down to their hand, that they may have no carrying. Others tell me, That they have known it done for 4 *d.* 5 *d.* or 6 *d. per* Rod, Felling, Cleaving, and setting up; but then the Fence must be cross a Field, or the like, where it is easie digging the Post-holes, (and where there is a pretty many Rods together,) and the Materials must also be laid down to their hand, ) and not in Gaps, in Hedges, and the like, where 'tis difficult digging, and but a little at a place; for there 'tis worth 8 *d.* 10 *d.* or 1 *s. per Rod.*

## *Fence-walls.*

Walls of Brick, or Stone, made round Gardens, *&c.* V. Walls, N. V.

## *Fillet.*

V. Capital, Numb. 2.

## *Fire-stone.*

1. *What.*] *Rigate*-stone, commonly call'd Fire-stone, is a sort of Stone very good, (and much us'd) for Chimney-fire-hearths, Ovens, Stoves, *&c.*

2. *Price.*]

2. *Price.*] Mr. *Miller*, Stone-cutter in *Cold-harbour*, *London*, tells me, That they uſually ſell Fire-ſtone-hearths, at 1 *s.* *per* Foot. And Chimney-corner-ſtones of Fire-ſtones at 20 *s.* *per* pair. And Blocks to ſet up Coppers, each being about 3 f. long, 1½ f. broad, and 8 or 9 Inches thick, at 6 *s.* 8 *d.* *per* piece.

## *Flat-head-nails.*

V. Nails. N.

## *Flat-point-nails.*

V. Nails. N. 9.

## *Flemiſh-bricks.*

1. *What.*] They are a ſort of Bricks brought out of *Flanders*, and uſed for Paving; being much nearer and ſtronger than common, or Clay-bricks. They are of a yellowiſh Colour, and each Brick is 6¼ Inches long, 2½ Inches broad, and 1 ¼ Inch thick. Now allowing ¼ of an Inch for the Joynt, 72 of 'em will Pave a Yard Square; but if they be ſet edge-ways, then to Pave a Yard Square will require 100 Bricks.

2. *Price.*] They are commonly ſold for 2 *s.* the Hundred.

## *Flint-walls.*

V. Walls. N. VII.

## *Floors.*

1. *What.*] A Floor in Architecture is the under-ſide of a Room on which we walk. Floors are of ſeveral ſorts; ſome are of Earth, ſome of Brick, ſome of Stone, and ſome of Wood. Carpenters, by the word *Floor*, underſtand as well the fram'd Work of Timber, as the Boarding over it.

2. *Earthen.*] Earthen-floors are commonly made of Lome, and ſometimes (for Floors to make Malt on) of Lime, and Brook-ſand, and Gunduſt, or Anvil-duſt from the Forge; the particular Method of both which I muſt at preſent omit; but I cannot paſs by that Receit (given us by the Ingenious Sir *Hugh Plat*,) *To make an Artificial Compoſition, wherewith to make ſmooth, gliſtering and hard Floors, and which may alſo ſerve to Plaiſter Walls with.* Take, (ſays he) Ox-blood, and fine Clay, and tempering them well together, lay the ſame in any Floor, (or Wall,) and it will become a very ſtrong and binding Subſtance; as I have been told by a Gentleman and Stranger, who affirm'd to me, that the ſame is of great uſe in *Italy*.

In the next Edition, I may give you particular Directions for making of ſeveral kinds of Earthen Floors.

3. *Brick and Stone.*] Theſe I ſhall prefer to *Paving*. V. Paving. N. 1. to 9.

4. *Boarded.*] Concerning Boarded-floors, 'tis to be obſerv'd, that tho' Carpenters never Floor their Rooms with Boards till the Carcaſs is ſet up, and alſo enclos'd with Walls, leaſt

the Weather ſhould wrong the Flooring; yet they generally rough-plane their Boards for Flooring, before they begin any thing elſe about the Building, that they may ſet them by to *ſeaſon*; which they do thus. They lean them one by one on end a ſlant with the edge of the Board againſt a *Balk*, (or as 'tis call'd in ſome parts of *Suſſex* a *Perch*;) ſomewhat above the heighth of half the length of the Board, and ſet another Board in the ſame poſture on the other ſide of the *Balk*, ſo that above the *Balk* they croſs one another; then on the firſt ſide they ſet another Board in that poſture, and on the ſecond ſide another, and ſo alternately, till the whole number of Boards are ſet on end: Being ſet in this poſture, there is left the thickneſs of a Board between every Board all the length, but juſt where they croſs one another, for the Air to paſs through to dry and ſhrink 'em, againſt they have occaſion to uſe 'em: But they ſet them under ſome cover'd Shed, that the Rain or Sun comes not at them: For if the Rain wet 'em, inſtead of ſhrinking 'em, it will ſwell 'em; or if the Sun ſhine fiercely upon 'em, it will dry 'em ſo faſt, that they will *tear* or *ſhake* 'em, as they Phraſe it, that is, in plain *Engliſh*, ſplit or crack. They have another way to dry and ſeaſon their Boards for Floors, *viz.* By laying them flat upon 3 or 4 Balks, each Board about the breadth of a Board aſunder, the whole length of the *Balks*. Then they lay another Lay of Boards athwart upon them, each Board alſo the breadth of a Board aſunder; then another Lay athwart the laſt, and ſo till all are thus laid. So that in this Poſition alſo they lie hollow for the Air to play between them.

5. *Of Meaſuring.*] Floors Boarded are commonly meaſur'd by the Square (of 100 Superficial Feet, by Multiplying the length of the Room in Feet, by the breadth in Feet, and the Product is the Content in Feet; then meaſure the Chimney-ways, and Well-holes for Stairs by themſelves, and deduct their Content in Feet from the whole Content in Feet, and from the Remainder cut off 2 Figures on the Right-hand, and what remains on the Left-hand is Squares, and what is cut off is odd Feet of the Content of Flooring in that Room.

6. *Price.*] The *Framing of Floors* in ordinary Buildings, (ſays Mr. *Wing*) is worth 7 or 8 *s. per* Square, in great Buildings, 10 or 11 *s.* But ſeveral Workmen in *Suſſex* tell me, That they commonly have but 4 *s. per* Square, for Framing of Floors in ordinary Buildings. And ſome Workmen (in *Suſſex*) tell me, That if they Frame the Joyſts the whole depth of the Girder, and pay for ſawing the Timber, they have 9 or 10 *s. per* Square.

The Price of *Laying*, [*i. e.* Boarding] of *Floors* (ſays Mr. *Leybourn*,) is various, according to the goodneſs of the Stuff, from 12 *s.* to 20 *s.* the Square; but if the Boards be found by the Builder, then they commonly allow for Plaining, Joynting, and

and laying of Boards, 4 or 5 *s. per* Square, beſides Nails, of which 200 is a competent Allowance for one Square of Flooring. But ſome Workmen in *Suſſex* tell me they will lay Deal-Floors Braded, and plain Joynts broken at every 4 or 5 Boards, for 3 *s. per* Square; and if they break Joynt at every Board, then 6 *s.* others ſay 6 *s.* 8 *d.* or 7 *s. per* Square.

Plaiſter-floors running, the Workman finding all, is worth, (ſays Mr. *Wing*,) 1 *s.* 4 *d. per* Yard, but the working part only is worth 4 *d.* 5 *d.* or 6 *d. per* Yard. V. Pl. Deal-floors.

## *Flooring-brads.*

V. Brads. N. 4.

## *Fluted,*

Made with——

## *Flutes,*

In Architecture, are the Hollows made in the Body of a Column. The Dorick, Ionick, Corinthian, and Compoſite Columns are commonly Fluted, or made with Flutes or Hollows, running along the Body of the Column, from the Baſe to the Capital. Each Column has 24 Flutes, and each Flute is hollow'd in, exactly a quarter of a Circle. The exact Method of drawing the Flutes ſhall be ſhewn (*Deo volente*) in the next Edition: In the mean time you are to know, That in the Dorick Column, the Flutes join together, without any Inter-ſpace; but in the Ionick, Corinthian, and Compoſite Columns, there runs a Liſt betwixt every 2 Flutes.

## *Flyers,*

Are Stairs made of an Oblong-ſquare Figure, whoſe fore and back ſides ſtand parallel to each other; and ſo are their Ends; the ſecond of theſe Flyers ſtands parallel behind the firſt, the third behind the ſecond, and ſo of the reſt. If one Flight carry them not to the intended heighth, then there is a broad half-pace, from whence they begin to fly again, as at the firſt.

## *Foliage,*

In Architecture and Sculpture, is Work wrought in Branches and Leaves.

## *Foot-pace,*

Or as ſome call it, *Half-pace*, is a part of a pair of Stairs, whereon, after 4, or 6 Steps, you arrive to a broad Place, where you may take 2 or 3 paces before you aſcend another ſtep, thereby to eaſe the Legs in aſcending the reſt of the ſteps.

## *Fornication,*

In Architecture, is an Arching, or Vaulting.

## *Foundation.*

1. *What.*] The lowest part of a Building, (generally laid under Ground) upon which the Walls of the Superstructure are rais'd. This word is also sometimes taken for a publick Building, erected for pious uses.

2. *Digging for, and laying of.*] Concerning Diging for, and laying of the Foundation of a Building, there are several things to be well consider'd and taken notice of; the most material of which I shall extract from the best Architects, Ancient and Modern.

(1.) *This,* (says that great Architect, Sir *Henry Wotton,*) requires the exactest Care; for if the Foundation happen to dance, 'twill marr all the Mirth in the House: Therefore, that we may Found our Habitation firmly, we must first examine the *Bed of Earth,* as I may call it,) upon which we Build; and then the *Substruction,* as the Ancients call'd it. For the former we have a general Precept in *Vitruvius,* twice repeated by him, as a Point indeed of main Consequence. First, *Lib.* 1. *Cap.* 5. And again, *Lib.* 3. *Cap.* 3. in these words, (as *Philander* does well correct the vulgar Copies,) *Substructiones, Fundatio fodiantur,* (says he) *si queant invenire ad solidum, & in solido.* By which words I understand him to commend to us, not only a diligent, but even a jealous Examination of the Soil, and to see that it be fit for our Purpose; in order to which, Architects ought to use their utmost Diligence; for of all Errors that may happen in Building, those are the most pernicious which are committed in the Foundation; because they bring with 'em the Ruin of the whole Fabrick; nor can they without great difficulty be amended.

(2.) If the *Foundation* happen to be on a Rock, or hard Gravel; these (without digging, or other artificial Helps,) are of themselves excellent Foundations, and most fit to uphold the greatest Buildings.

(3.) If the Place where you Build, be firm solid Earth, you may dig for the Foundation, so far as a discreet Architect shall think requisite for the Quality of the Building, and soundness of the Earth; but how deep we should dig, *Vitruvius* has no where to my Remembrance determin'd, as perhaps depending more upon *Discretion* than *Regularity,* according to the weight of the Building; yet *Palladio* has fairly ventur'd to reduce it to Rule, allowing for the *Cavazione,* (as he calls it, *i.e.* the hollowing of the Earth for the Foundation) a sixth part of the heighth of the Fabrick; and if the Building be Cellar'd, he would have us, (as it should seem) to dig somewhat lower.

*Palla-*

*Pallad io* lays down several Rules, to know if the Earth be firm enough for the Foundation (without Artificial Helps,) by Observations from the digging of Wells, Cisterns, and such like, (which he would have to be done in the first place,) and from Herbs growing there, if there be such as usually spring up only in firm Ground; also, if a great weight be thrown on the Ground, it neither sounds nor shakes, or if a Drum being set on the Ground, and lightly touched, it does not resound again, nor shake the Water in a Vessel set near it; these, (says he) are signs of firm Ground. But the best way to discover the Nature of the Soil, is to try it with an Iron Croe, or else with a Borer, such as Well-diggers use,

(4.) If you Build upon Mossie, and loose Earth, then you must dig till you find sound Ground. This sound Ground (fit to uphold a Building) is of divers kinds; for (as *Alberti* well observes) in some places 'tis so hard, as hardly to be cut with Iron, in other places very stiff, in others blackish, in others whitish, (which is accounted the weakest,) in others like Chalk, and in others Sandy; but of all these that is the best which is cut with most Labour, and when wet does not dissolve into Dirt.

(5.) If the Earth you build on be very soft, as in moorish Grounds; then you must get good pieces of Oak, whose length must be the breadth of the Trench, or about 2 Foot longer than the breadth of the Wall; these must be laid cross the Foundation about 2 Foot asunder; and being well ram'd down, lay long Planks upon them; which Planks need not lie so broad as the pieces are long, but only about 4 Inches of a side wider than the Basis or Foot of the Wall is to be, and pinn'd or spiked down to the pieces of Oak, on which they lie. But if the Ground be so very bad, that this will not doe, then you must provide good Piles of Oak, of such a length as will reach the good Ground, and whose Diameter must be about $\frac{1}{12}$ part of their length; these Piles must be drove or forced down with a Commander, or an Engine for that purpose, and must be placed as close as one can stand by another; then lay long Planks upon them, and Spike, or Pin them down fast.

(6.) If the Earth be faulty but in here and there a place, and the rest be good Ground, you may turn Arches over those loose Places, which will discharge them of the Weight. You must observe to place your Piles, not only under the outer Walls, but also under the inner Walls that divide the Building; for if these should sink, 'twould be a means to make the outer Walls crack, and so ruine the whole Fabrick.

(7.) Thus much for the *Bed of Earth* on which we Build. We are next to consider the *Substruction*, as the Ancients call'd it; but modern Artists generally call it the *Foundation*. This is the Ground-work of the whole Edifice, which must sustain the Walls, and is a kind of *Artificial Foundation*, as the other

was

was *Natural:* About which theſe are the chief things to be remember'd. Firſt, That the bottom be preciſely level, where the Ancients us'd to lay a Platform of good Planks. Secondly, That the loweſt Courſe or Row be meerly of Stone, (the broader the better) cloſely laid *without Mortar*; which is a general Caution for all parts of a Building that are contiguous to *Board* or Timber; becauſe *Lime* and *Wood* are utter Enemies; and if any where unfit Confiners, then moſt eſpecially in the Foundation. Thirdly, That the breadth of the *Subſtruction*, be at leaſt double to the breadth of the Wall to be raiſed thereon. Yet here *Diſcretion* is freer than *Art*, and you may make it broader or narrower, according as the goodneſs of the Ground, and the weight of the Fabrick ſhall require. Fourthly, That the Foundation be made to diminiſh as it riſes; yet ſo, as that there may be as much left on one ſide, as on the other; ſo as the middle of that above may be Perpendicularly over the middle of that below: Which ought to be alſo obſerv'd in diminiſhing the Walls above Ground; for ſo the Building becomes much ſtronger than it would be, by making the Diminution any other way. Fifthly, That you never build upon the Ruins of an old Foundation; unleſs you are very well aſſur'd of its depth, and that its ſtrength is ſufficient to bear the Building. Laſtly, I find (in ſome ancient Architects) a curious Precept, *That the Stones in the Foundation ſhould be laid as they lay naturally in the Quarry:* They ſuppoſing them to have moſt Strength in their natural Poſture. But this Precept is generally obſerv'd by all good modern Artiſts, not only in the Foundation, but alſo in all parts of the Superſtructure; and that for a better Reaſon than bare Conjecture, *viz.* Becauſe they find the Stones to have a cleaving Grain, (or be ſubject to cleave) that way of the Stone that lay Horizontal in the Quarry: And therefore, if the Horizontal Poſition of the Stone in the Quarry ſhould be placed Vertical in the Building, the Superincumbent weight ſhould be apt to cleave them, and ſo render the Fabrick Ruinous. V. Stone, and Bed, and Face of a Stone.

3. *How to value.*] There are ſeveral ways, (ſays Mr. *Phillips*,) by which Men value the Foundations (or Ground-plots) of Houſes. (1. Suppoſe he means, in Cities and great Towns.) As——

Firſt, Some value them by their length or breadth toward the Street, reckoning every Foot in front to be worth 4, 5, 6, 8, or 10*s.* Yearly, according to the Street, or Place they ſtand in; and this Yearly Value they reckon at 20 Years Purchaſe, and ſo every Foot in front is worth 4, 5, 6, 8, or 10 Pounds. But this is a very uncertain way, by reaſon of the great difference in the depth of Houſes, *&c.*

Second-

Secondly, Others value Foundations by their length and breadth, measur'd by the Foot; reckoning every Foot to be worth 3, or 4 *s.* But this way will deceive you as much, or more than the other, if you don't set a good Rate upon each Foot of Ground. For Ground being scant in a City, each Foot of it *there* may be worth 8 or 10 *s.* which in the Countrey is not worth ½ a Farthing; tho' you reckon Land at 20 *s.* an Acre, and 20 Years Purchase; for so 'tis worth but one Penny a Yard, and every Yard has 9 Feet.

Thirdly, But the way that I shall prescribe, (says my Author,) as more general and certain, to value these Foundations, is to get a true and indifferent Estimate of the Yearly Rent these Houses formerly went at, at a moderate rack Rent, without any Abatement or Diminution thereof by Fines, or any other Considerations: Which being known, you may reckon the true value of these Foundations to be 4, 5, or 6 Years Purchase, according to the said Yearly Rent, that is about the third part of the full worth or purchase of the Fee simple of the House. But if you will more exactly judge of, and determine the true worth of these Foundations; it will be best to range them into 3 sorts, reckoning the first and lowest sort of Houses which yield least Rent, at 4 Years Purchase; the 2 *d.* sort which yield a moderate Rent, at 5 Years Purchase, and the 3 *d.* sort which yield the biggest Rent, at 6 Years Purchase. My Author, (the afore-mentioned Mr. *Wing*,) demonstrates the *Meliority* of this way of Valuing Foundations, above any other; but I have been already too long upon this Theam, and therefore I shall defer the rest of his Ingenious Discourse on this Subject to another Opportunity.

## *Fountain.*

An artificial Spring of, (or Well to contain) Water in a Garden; whither the Water is brought in Pipes of Lead, *&c.* and commonly made to spout out of the Mouths, or other parts of Images.

## *Framing.*

1. *Of Houses.*] I know some Workmen in *Sussex* that do all the Framing in a House, *viz.* The Carcase, Flooring, Partitioning, Roofing, Ceiling-beams, Ashlaring, *&c.* all together, and make the Windows, and Lantherns, and hew and saw the Timber for 12 *s. per* Square.

2. *Carcase of a House.*] Mr. *Leybourn* says, That Carpenters commonly work by the Square of 10 Foot, in erecting the Carcase, that is, (says he,) Framing and setting up with the Partitions, Floors, Rafters, and such like; for which (says he,) they have (in running Buildings) from 15 to 20 *s.* the Square, and some may deserve 30 *s.* or more, (and to a Square of good Carcase, (says he,) 20 Foot of Ground rough Timber may be allow'd.) But I know not whether he means that the Car-

Carpenter Fells, and hews and ſaws the Timber in to that Price; for ſome Workmen in *Suſſex* tell me, That for Framing the Carcaſe of a Houſe, and ſawing the Timber, they have but 8 *s. per* Square, and without ſawing the Timber, but 4 *s. 6 d.* others ſay but 4 *s. per* Square.

3. *Carcaſe of a Barn.*] Some Workmen tell me, That they have for Framing of Barns 3 *s. 6 d. per* Square. They alſo tell me, That the Charge of the Carcaſe of a Barn may be thus computed, *viz.* 4 *s. per* Square for ſawing the Boards, conſidering the Slabbing, and the Boards lying one over another, 2 *s. per* Square for ſawing the Timber, 3 *s. 6 d. per* Square for Framing, and 4 *s. per* Square for the Timber, reckoning at 12 *s. per* Tun, and 1 Tun to make 3 Square of Framing. So that the whole Charge of the Carcaſe will be at leaſt 13 *s. 6 d. per* Square; for if the Timber be more than 12 *s. per* Tun, then will the whole Charge be more than we have computed.

4. *Partitions.*] Tho' ſome Workmen reckon Partitions into the Carcaſe, as was ſaid, Num. 2. yet others reckon them by themſelves, for which, and ſawing the Timber, they tell me, they have 6 *s.* or 7 *s. per* Square; and for the Workmanſhip only, 2 *s. 6 d. per* Square.

5. *Roofs.*] Mr. *Leybourn* ſays, That Carpenters commonly reckon 4 or 5 *s.* in the Square more for Framing of Roofs, than for the reſt of the Building. I know not how he means; for I am ſure ſome ingenious Workmen in *Suſſex* tell me, That for Framing of Roofs, and Sawing the Timber, they have but 8 or 9 *s.* the Square, and for the Workmanſhip only but 4 *s. 6 d. per* Square.

6. *Floors.*] V. Floors. N. 6.

7. *Through.*] Some Workmen tell me, That for Thorough-framing, (as they call it, that is Framing all, and making Doors and Windows,) they have 5 *s. per* Square, for the Workmanſhip only.

8. *By the great Square.*] Some Carpenters tell me, That in Brick Buildings they ſometimes work by the *great Square*; and then beſides framing the Floors, Partitions, Roof, *&c.* they alſo make Doors, Windows, Corniſhes, Stair-caſes, and (in general) all that is Carpenters Work, and ſawing of Timber. Yet I think they told me, they were particularly paid for making the Modilions, or Cantalivers. And for this Work they have 6 Pound *per* Square. But 'tis to be noted, That in this way of working, they meaſure only the Ichnography, or Ground-plot, only to the Dimenſions they add one of the Projectures in Front, and one in Flank, and ſo caſt it up.

9. *Of Meaſuring.*] This kind of Work is meaſur'd by the Square, as Floors. V. Floors. N. 5.

*Fret-*

## *Fret-work.*

V. Plaſtick-Art.

## *Free-Maſons Work.*

V. The Particulars in their proper places of the Alphabet.

## *Freeze*, or *Frieſe.*

1. *What.*] A Freeze in Architecture is the uppermoſt but one of the 7 principal parts of a Column. V. Column. N. 2.

2. *Kinds.*] There are as many kinds of Freezes, as there are Orders of Columns, *viz.* Tuſcan, Dorick, Ionick, Corinthian, and Compoſite; of all which in their order.

3. *Tuſcan.*] *Vitruvius* makes this Freeze flat and plain, and in heighth 30 Minutes. *Vignola* alſo makes it flat and plain, but in heighth 35 Minutes. *Palladio* makes it convex or ſwelling, and in heighth but 26 Minutes. *Scammozzi* makes it plain, and in heighth 42 Minutes.

4. *Dorick.*] *Vitruvius*, (and ſo alſo *Vignola*) makes this Freeze flat, only Carv'd with Trigliphs and Metops, and its heighth 30, or 45 Minutes. *Palladio* and *Scammozzi* alſo make it like *Vitruvius*, and in heighth 45 Minutes.

5. *Ionick.*] *Vitruvius* makes this Freeze flat, but commonly Carv'd with Acanthus Leaves, Lions, and Men, *&c.* And in heighth 30 Minutes. *Vignola* makes him flat alſo, and in heighth 45 Minutes. *Palladio* makes him Convex or Swelling, and in heighth but 27 Minutes. *Scammozzi* makes him flat, and in heighth 28 Minutes.

6. *Corinthian.*] *Vitruvius* makes this Freeze flat, but Carv'd with Acanthus Leaves, and Men, *&c.* and in heighth 37 ½ Minutes. *Vignola* makes it like *Vitruvius*, but in heighth 45 Minutes. *Palladio*, and *Scammozzi* alſo make it like *Vitruvius*, but *Palladio* makes it in heighth 28 Minutes, and *Scammozzi*, 31 ¾ Minutes.

7. *Compoſite.*] *Vitruvius* makes this Freeze flat, but beſet with Cartouſes, and Carv'd betwixt each Cartouſe, and in heighth 52 ½ Minutes. *Vignola* makes it like *Vitruvius*, but in heighth but 45 Minutes. *Palladio* makes it convex, or Swelling, and in heighth but 30 Minutes. *Scammozzi* makes it like *Vitruvius*, and in heighth but 32 Minutes.

## *Freſco.*

1. *What.*] A way of Painting or Plaiſtering, (or rather both) upon Walls, to endure the Weather, and repreſenting Birds, Beaſts, Herbs, Fruits, *&c.* in relief.

2. *Of Painting in*--] Painting in *Freſco* is thus perform'd. Grind your Colours with Lime-water, or Milk, or Whey, and ſo temper and mix them together in Pots, as in Size-colouring.

Alſo,

Alſo, take the Powder of old rubbiſh Stones, mix it with well burnt Flints, (or Lime) and Water; but waſh out the ſaltneſs of the Lime, by often pouring out the Water, and putting in freſh, the oftner the better; and this makes the Plaiſter or Compoſt. Avoid moiſt Weather, for that has great influence on the Walls: And to make the Work the more durable, ſtrike into the Joints of the Brick or Stone Wall, ſtumps of Horſe-nails, about 6 Inches aſunder; for this will keep the Plaiſter from pealing off.

Then, with this Compoſt Plaiſter the Wall a good thickneſs, letting it dry; then (your Colours being ready prepar'd and mingl'd,) Plaiſter again over the former, the thickneſs of a Half-crown, ſo much as you intend preſently to work upon; and whilſt it is wet, work your Colours therein, which will mix and incorporate with the Plaiſter, ſo as never to waſh out.

Work your Painting quick with a free Hand; for there can be no alteration after the firſt Painting; and therefore make your Colour high enough at the firſt; you may deepen, but not eaſily heighten.

Avoid Mineral Colours, Earthy Colours are the beſt, as all *Okers*, *Spaniſh-brown*, *Terra-vert*, *Spaniſh-white*, &c.

Your Bruſhes and Pencils muſt be long and ſoft; otherwiſe they will rake and raſe the Painting; your Colours muſt be full, and flowing from the Bruſh; your Deſign perfect in the Image, or Paper Copy; for in this Work you cannot alter or add upon any Colour.

3. *Hiſtory.*] This kind of Painting was the ancient Grecian way of Painting, and ſince much us'd by the Romans. *Plutarch* tells us, That *Aratus* the great Commander under *Ptolemy* King of *Egypt*, (in a Complement to the Emperours Affections that way,) ſpared the ſacking of a wealthy City, meerly for the Excellency of the *Freſco Painting* upon the Walls of the Houſes.

There have been ſeveral whole Towns of this Work in *Germany*, rarely done, but now ruin'd by War.

At *Rome* there are 2 Chambers (in the Pope's Pallace) of *Freſco*, done by *Raphael Urbin*, and *Julio Romano* (his Diſciple) who finiſhed his Maſter's Work, which is yet call'd *Raphael's* Deſigns. Other Places there are done by *Andrea del Sexto*, and *Michael Angelo*, and ſome other Artiſts.

At *Fountain-bleau* in *France* is moſt excellent *Freſco-work*. It is the continu'd Travels of *Ulyſſes* in 60 pieces, done by *Bollames*, *Martin Rouſe* a Florentine, and others.

## *French-glaſs.*

V. Glaſs. N. III.

*Frieſe*

## *Frieſe.*

As Freeze.

## *Frigeratory.*

A Place to make or keep things cool in.

## *Free-ſtone.*

V. Stone. N. 1.

## *Front*, or *Frontiſpiece.*

1. *What.*] The Face, or Foreſide of a Houſe.

2. *Of Setting.*] The *Setting*, [that is making] of the Fronts of great Buildings, *viz.* Aſhlar, [or Stones,] Architrave, Windows and Doors, with the Ground-table, Faſhia's, and other Members, is worth from 3 *l.* 10 *s.* to 5 *l. per* Rod, (ſays Mr. *Wing*,) according to the goodneſs of the Work.

## *Frontiſh-doors.*

V. Doors. N. 4.

## *Frowy.*

Timber is by ſome Workmen ſaid to be *frowy*, when it is evenly temper'd all the way, and works freely without tearing.

## *Funnels of Chimneys.*

1. *What.*] The Funnel of a Chimney is the Shaft, or ſmalleſt part of it, from the waſt (where 'tis gather'd into its leaſt Dimenſions) upwards.

2. *Of making.*] *Palladio* tells us, That the Funnels of Chimnies muſt be carri'd through the Roof, 3, 4, or 5 Foot at leaſt, that they may carry the Smoke into the Air. And here you muſt take care, (ſays he,) That they be made neither too wide, nor too narrow; for if they be too wide, the Wind will drive back the Smoke into the Room; and if they be too narrow, the Smoke (not having free paſſage) returns back alſo. Therefore 'tis that Chamber-chimneys are not made narrower than 10 or 11 Inches, nor broader than 15, which is the ordinary depth of the Funnels of great Kitchin-chimneys, whoſe breadth is 4 or 5 Foot within the Work, from the place where the Breſt ends to the top of the Funnel. Now the ſaid Breſt reaches from the Mantle-tree, to the Ceiling, or pitch of the Arch, always diminiſhing within the Work, till you come to the Meaſures of Depth and Breadth, before mentioned; and from thence to the end of the Funnel, it muſt be carri'd up as even as you can poſſibly; for failing in this, it often happens the Smoke is offenſive.

## *Furrs.*

## *Furrings.*

In Architecture, Furrings is the making good of the Rafters Feet in the Cornish. That is, when Rafters are cut with a Knee, these Furrings are pieces that go straight along with the Rafter from the top of the Knee to the Cornish. Also when Rafters are rotten, or sunk hollow in the middle, and pieces (cut thickest in the middle, and to a point at each end) are nail'd upon them to make them straight again; the putting on of those pieces is call'd *Furring the Rafters*; and those pieces so put on are call'd *Furrs*.

## *Gable-end.*

1. *What.*] In Architecture the Gable-end of a House is the upright Triangular end of the Roof.

2. *To Measure.*] To measure a Gable-end, Multiply the breadth at the bottom, by half the Perpendicular, or Line from the Angle at the top to the middle of the bottom; or Multiply half the former by the whole of the latter, and the Product will give the Content in such Measures as the Dimensions were taken in.

## *Gain.*

The bevelling Shoulder of the Joyst, or other Stuff. 'Tis also us'd for the lapping of the end of the Joyst, *&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 Joyst and Trimmer lie even and level upon their Superficies. This way of working is us'd in a Floor or Hearth.

## *Galleries,*

Are long narrow Rooms made on the Sides or Fronts of Houses; they serve for Walking, Eating, and other Divertisements. Their length (says *Palladio*) ought to be at least 5 times their breadth; they may be 6, 7, or 8 times their breadth, but must not exceed.

## *Gardmanger.*

A Store-house, or Room to set Meat in.

*Gates.*

## *Gates.*

1. *What.*] 'Tis a thing ſo well known, that it needs no Deſcription, for all know it to be a Place for Paſſage of Perſons, or Horſes, Coaches or Wagons, *&c.*

2. *Of their Proportion.*] The principal Gates for Entrance, through which Coaches and Waggons are to paſs, ought never to be leſs than 7 Foot in breadth, nor more than 12 Foot, which laſt Dimenſion is fit for large Buildings.

As to the heighth of Gates, it ought to be 1½ the breadth or ſomething more.

But for common Gates in Inns, where Wagons loaded with Hay and Straw go under, their heighth may be twice the breadth.

3. *Of the Price of ſome ſorts.*] As to the Price of *Gates*, it is various according to the ſorts of *Gates*, which again will differ according to the Dimenſions and Workmanſhip. Thoſe which we ſhall mention at preſent will be only *Palliſado*, and *Pold Gates*.

And firſt of *Palliſado Gates*, Mr. *Wing* ſaith, in *Rutland*, that if the *Gates* be 6 or 7 Foot high, and the Workman find Timber and Workmanſhip, they are worth about 9 or 10 *s. per* lineal Yard; but if he find only Workmanſhip, then 'tis worth 6 or 7 *s. per* Yard.

I have obſerved, that if they are *Semi-palliſado*, with Kneeling-rails at the top, handſomely Moulded on both ſides, and ſquare *Palliſades*, Raiſed Pannels, and Biſection Mouldings on both ſides, the Gates about 8 Foot high, and the Poſts a Foot Square, open'd in the Front, or revailed with a Moulding ſtruck in it on both ſides the Revail, a Baſe and Capital laid on the Poſts, and the Heads cut into one of the Platonick Bodies; as ſuppoſe an Icoſaedron, and the Poſts were about 10 or 11 Foot above Ground, the Workmanſhip is worth 12 or 13 *s. per* Yard lineal; but if the Workmen find Timber, it will be worth more than 20 *s. per* lineal Yard, in ſuch Gates, to find all Iron-work, Painting, *&c.* it would be worth above 30 *s. per* lineal Yard.

Secondly, Of *Pold Gates*, (which are ſuch as are ſet in Fences for to ſhut up the Paſſages into Fields, and other Incloſures.) Theſe are of 2 ſorts, either of ſawed, or cleft Timber; for to make a ſawed one, and ſet him up, and his Poſts, the Price in different Places is from 3 *s.* 6 *d.* to 5 *s.* but if the Carpenter pay for the ſawing, then the Price is from 5 *s.* to 6 *s.* 6 *d.* Such a *Gate*, Timber and Work is worth from 7 to 10 *s.* according to their goodneſs; but with Poſts from 12 to 15 *s.* But *Gate* and Iron-work from 10 to 13 *s.* But Gate, Iron-work, and Poſts, from 15 *s.* to 18 *s.* but Cleft Pold *Gates*, cleaving, and making, and hanging from 4 to 5 *s.* and ſo proportionably for

all Timber, Iron, and Posts, *&c.* The Reason why the Prices are thus different, is, because 'tis according to the Customs of different Places where I had my Information. Perhaps the Reader may here expect that I should here say something concerning Gates, and their Imposts, and other Ornaments according to the 5 Orders of Architecture; but I finding that I shall make this *1st.* Impression too large, I must therefore defer it till another Opportunity.

## *Gavel,*

A word used by some, by which they mean the same as *Gable*, which V.

## *German glass.*

V. Glass. Num. V.

## *Girding-beams.*

'Tis used by some Architects, to signifie the same as

## *Girders.*

1. *What.*] Are some of the largest pieces of Timber in a Floor, the ends of them are for the most part Framed into the *Summers* or *Brest-summers*, and the *Joysts* are framed in at one end to the *Girders*.

2. *Of their Size or Proportion.*] The *Scantlings*, or Size of *Girders* and *Summers*, upon the Re-building of *London*, after a Consultation of experienced Workmen, were reduced to an Act by the Parliament, and are thus set down, as fit for all Fabricks, great and small, *viz.*

| Girders and Summers, in length | From | to | must be in | | | |
|---|---|---|---|---|---|---|
| | F. In. | F. In. | Breadth | Inches | Depth, | Inches. |
| | 10. 0 | 15. 0 | 11 | | 8 | |
| | 15. 0 | 18. 0 | 13 | | 9 | |
| | 18. 0 | 21. 0 | 14 | | 10 | |
| | 21. 0 | 24. 0 | 16 | | 12 | |
| | 24. 0 | 26. 0 | 17 | | 14 | |

3. *How to be laid in the Brick-work.*] No *Girder*, or *Summer* ought to lie less than 10 Inches into the Wall, and their ends must be laid in Lome.

4. That *Girders* and *Summers* be of good hearty Oak, as free from knots as may be; because that will be least subject to break, and may with more safety be relied on in this cross and tranverse Work.

*Girt.*

## *Girt.*

V. *Fillet.*

## *Glaſs.*

1. *What.*] All know it to be a diaphanous, or tranſparent Body made by Art, of Sand and Nitre, ſaith *Pliny*: 'Tis alſo made of white gliſtring Flints, mixt with Sal-Alkali, or the Salt of the Herb *Glaſs-work*, or Salt of Fern-aſhes for common *Glaſs*, ſome ſay. *Monſieur Blancourt* ſaith, that the *Venetians* alſo uſe white Flints, and alſo a rich Sand, and likewiſe a ſort of white Marble; he alſo ſaith, that all white tranſparent Stones that will not burn to Lime, are fit to make *Glaſs*; and that all Stones that are fit to ſtrike fire, are capable to be made into Glaſs.

I could here give you an account of the manner and method of making of divers ſorts of *Glaſs*, and likewiſe the Hiſtorical Account of its Invention, *&c.* and many other Curioſities relating to *Glaſs*; which perhaps might be Satisfactory to the Reader; but I wanting both time, and room in this ſmall Volumn, I muſt defer it till I have a better Opportunity.

II. *The ſorts of Glaſs.* There are various ſorts of Glaſs which are made uſe of in the World, but at preſent I ſhall confine my ſelf to ſpeak only of thoſe ſorts which *Glaziers* commonly work upon here in *England*, which are theſe following, *viz. Crown Glaſs*, which is of 2 ſorts, *Lambeth* and *Ratcliff*. 2. *French* or *Normandy Glaſs*. 3. *German Glaſs* of 2 ſorts, White and Green. 4. *Dutch Glaſs*. 5. *Newcaſtle Glaſs*. 6. *Staffordſhire Glaſs*. 7. *Briſtol Glaſs*. 8. *Looking-glaſs*. 9. *Jealous Glaſs*; of which ſorts I ſhall ſuccinctly treat in their order.

III. *Of Crown-glaſs.*] Is of 2 ſorts, *Ratcliff* and *Lambeth Crown-glaſs*, of both which ſorts I will briefly treat. And

1. Of *Ratcliff Crown-glaſs.*] That ſort of Glaſs which goes by this Name, is the beſt and cleareſt ſort of *Crown-glaſs*, which ſort was at firſt made at the *Bear-garden* on the Bankſide. In the Year 1691, I had it Publiſhed in the *Gazette* for *June* 15, *&c.* where it is commended in this manner, and called *Crown-window-glaſs*, much exceeding *French Glaſs*, in all its Qualifications. But now at the *Bear-garden Looking-glaſs-plates* are made; the maker of this beſt ſort of *Crown-glaſs*, being now removed to *Ratcliffe*, and upon that account it now bears the Name of *Ratcliff Crown-glaſs*, as it did at firſt of *Bear-garden Crown-glaſs*.

This ſort of *Crown-glaſs* is of a light Sky-blew-colour, which may be very diſtinctly ſeen, if it be laid on a piece of white Paper.

I have been informed that an *Engliſh* Glaſs-maker went over into *France*, on purpoſe to learn the *French* way of making

*Glaſs*, which when he had attained to, he came over again into *England*, and ſet up making of *Crown-glaſs*, and therein much out-doing the *French* his Teachers, as *Engliſhmen* uſually do. I have been told by ſome *London Glaziers*, that there is 24 Tables of this *Crown-glaſs* to the *Caſe*, the *Tables* being of a Circular Form, of about 3 Foot, 6 or 8 Inches Diameter, and by conſequence, each *Table* will be in Area about 9 or 10 Foot, and the *Caſe* betwixt 220, and 240 Foot. This *Glaſs* is brought from *Ratcliff* in ſuch kind of Frames as *Newcaſtle-glaſs* is brought up into the Town, only the *Newcaſtle-glaſs* is brought on Shipboard, and this *Ratcliff-glaſs* upon a Staff betwixt 2 Men, according as they carry a ſmall Veſſel of Beer, or the like.

I have known this *Ratcliff-crown-glaſs* ſold about 9 *d. per* Foot in *London*, ready cut into Squares. And when wrought in Lead, and ſet up, for about 18 *d. per* Foot.

2. *Of Lambeth-crown-glaſs.*] This ſecond ſort of *Crown-glaſs* takes its Name alſo from the Place where 'tis made; 'tis of a darker colour than *Ratcliff-crown-glaſs*, inclining ſomething to a Green.

This ſort is ſold in *London* for about 8 *d. per* Foot cut into Squares, and being wrought and ſet up in Windows with Lead, its Price is about 16 *d. per* Foot.

IV. *Of French-glaſs,*] By ſome call'd *Normandy-glaſs*, becauſe it was formerly made at *Cherbourg* in *Normandy*. But I am informed that the Work-houſes have within theſe few Years been removed, for certain Reaſons of State to *Auxerre* in *Burgundy*. They alſo make *Glaſs* at *Nevers* in *Orleans*, and likewiſe at St. *Gobin* near *La Fere* in *Picardy*; but from which of theſe places our *French-glaſs* comes which we uſe in *England*, I cannot certainly tell. But 'tis a thinner and more tranſparent ſort of Glaſs, than our *Newcaſtle glaſs*, and when 'tis laid on a piece of white Paper, it appears of a dirtyiſh Green Colour. It uſed to be of a middle Price betwixt *Crown* and *Newcaſtle-glaſs*, and I have known it ſold for 12 *d. per* Foot, wrought in Lead, and ſet up; but ſome ſay 'tis now (we have War with *France*,) near as dear as *Crown-glaſs*.

Of this Glaſs there is but 25 Tables to the Caſe.

V. Of *German-glaſs.*] Of this ſort of *Glaſs* there are 2 kinds, *viz. White* and *Green*.

1. *White German glaſs.*] This Glaſs is of a whitiſh colour, and free from thoſe ſpots and blemiſhes which our *Newcaſtle-glaſs* is ſubject to, but it hath commonly ſome fine or ſmall curved Streaks, or Lines, as the *Newcaſtle-glaſs* hath.

2. *Green German-glaſs.*] This you may well ſuppoſe to be of greeniſh Colour by its Name; it is ſubject to have thoſe fine Lines, or Streaks as the white is; but both this and the white *German* is ſtraighter, and not ſo crooked and warped as *Newcaſtle-glaſs* is: Both theſe ſorts of *Glaſs* are brought over from

from *Germany*, and yet it is generally as cheap as *Newcaſtle-glaſs*.

VI. *Dutch-glaſs.*] It differs not much from *Newcaſtle-glaſs* in its Colour, and I have obſerved ſome of it that hath been very crooked; I am informed that the Tables of this ſort of *Glaſs* are but ſmall, 'tis not much uſed now in *England*. This Glaſs hath its Name alſo from thoſe that make it, *viz.* The *Dutch*, for I am told 'tis brought out of *Holland*; 'tis alſo about the ſame Price with *Newcaſtle-glaſs*.

VII. *Newcaſtle-glaſs.*] This ſort of *Glaſs* is of a kind of an Aſh-colour, 'tis the Glaſs that is moſt in uſe here in *England*, but 'tis ſubject to have Specks, and Blemiſhes, and Streaks in it, and 'tis very often warped crooked. Of this *Glaſs*, Mr. *Leybourn* ſays there is 45 Tables to the Caſe; but if I did not miſtake, a *London* Glazier told me they had but 35 Tables to the Caſe, and Mr. *Leybourn* alſo ſaith, that each Table contain'd 5 Superficial Feet, and by Conſequence a Caſe of 45 Tables to the Caſe will contain 225 Foot, the Glazier before-mention'd ſaid there was 6 Foot in a Table, and if but 35 Tables to the *Caſe*, that would amount to but 210 Foot. But I was informed by one that told me he had taken the Dimenſions of ſome Tables of *Newcaſtle-glaſs*, and he found them to contain 7 Foot at leaſt; for ſaith he, they are of this form; the upper edge as they ſtand in the Caſes or Frames is Circular, about the 4*th.* or 5*th.* part of a Circle, the Cord of which ſaith he was about 3 ½ Foot, the lower ſide was ſtrait, about 18 or 19 Inches, the Perpendicular from the bottom to the top about 3 Foot: From this Obſervation, a Caſe of 35 Tables would amount to 245 Foot. Theſe Tables of Glaſs are brought in Caſes, or ſlight Frames of Sticks fixed at ſome diſtance one from another, into 4 corner pieces which are ſtouter. The ends of theſe Frames are made tapering nearer one another at the bottom than they are at the top, according to the Form of the Glaſs; but the ſides are parallel, the Glaſs is ſet in on ſome Straw, which is laid on the bottom of the Frame, and there is ſome Straw alſo put on the ſides, and top of each Caſe, but none betwixt the Tables. Theſe Caſes are brought to *London* in the Coal-ſhips, they being ſet on end in the Coles more than half its depth, by which means they are kept ſteady from falling and being broke by the motion, and rowling of the Ship.

Mr. *Leybourn* ſaith, that a *Caſe* of 45 Tables, 5 Foot to a Table equal to 225 Foot, doth weigh about 200 lb. and by conſequence 9 Foot will weigh about 8 lb.

He alſo ſaith, the Price of *Newcaſtle-glaſs* is uncertain, for when Coals are Plenty, then Glaſs is cheap, and when the Coals are dear at *London*, then *Newcaſtle-glaſs* is ſo likewiſe, not that they want Coals at *Newcaſtle*; but becauſe they have

no other Conveyance for it to *London*. So that sometimes it is at 30 *s. per* Case, and other times 40 *s.*

But I was informed by a *London* Glazier, that the most constant Price was 34 *s. per* Case.

To cut a Case of this Glass into *Quarries* Diamond fashion (with halfs, and quarters, and 3 quarters of *Quarries*, as the Glass falls out) some say it is worth 6 or 7 *s.* but I did hear a Glass-cutter say he would do it for 3 *s.* or 3 *s.* 6 *d.*

*Newcastle-glass* cut into *large Squares* are sold for 22 to 25 *s. per* 100 Foot, according to their Size.

And *small Squares*, from 19 to 22 *s. per* 100 Foot.

And *Quarries* of *Newcastle-glass* for about 16 *s. per* 100 Foot.

*Glazing* done with this *Newcastle-glass* with *Quarries*, banding, Soddering, pinning the Casements being included, the usual Price is 5 *d.* or 6 *d. per* Foot in *London*, and there abouts, but in several parts of the Countrey they have 6 *d. per* Foot, and will be paid for pinning of the Casements besides.

VII. Glazing in some Places of *England*, as in *Rutland*, and other *Northern* Parts they Glaze with Quarries of *Newcastle-glass* for 4 ½ *d.* or 5 *d. per* Foot. And Squares wrought into Lead, and set up for 6 *d. per* Foot.

But then again in *Sussex* and *Kent*, the *South* Parts of it they will not work so cheap, because their Glass is something dearer to them; in these *Southern* Parts; there they commonly reckon 7 *d. per* Foot for Glazing with Squares of *Newcastle-glass*, besides they will be paid for Pinning of the Casements.

VIII. *Staffordshire glass.*] This sort of Glass which is made in *Staffordshire*, I could never yet learn any certain Account of it; for 'tis a sort of Glass but seldom used in these parts of the Kingdom

IX. *Bristol glass.*] This is made at the City of *Bristol*; but by reason they have not the Conveniency to send it by Sea, (as they have from *Newcastle* by Coal-Ships,) 'tis very rare to have any of it in *London*, tho' it be as cheap, and better than *Newcastle glass.*

X. *Looking-glass.*] As to *Looking-glass-plates*, they are made at the *Bear-garden* on the *Bank-side*, *London*, (where Crown-glass was 1 *s.* made.) I do not certainly know whether this sort of Glass be not made with the sort of Sand, mentioned by Dr. *Grew* in his *Musæum Regalis Societatis*, 346 P. Fine Sand, saith he, from a Sand-pit near *Bromley* in *Kent*, of this is made the clearest and best *English-glass*; it consisteth of some Grains as clear as Crystal; with which others obscure being mixed, give a whitish Ash-colour to the whole Mass.

These *Looking-glass-plates* are ground smooth and flat, and Polished, they are sometimes used in *Sashes* or *Sash-windows*; but 'tis a dear sort of Glass; for they ask 4 *s. per* Foot for such Squares, and if they are large 'tis much more.

There is (a way) which some use to try, which is the whitest and clearest Glass, which is thus, *viz.* they take it up close by

by one edge, betwixt the edges of the middle and Fore-finger, and then looking againſt the cut, or broken edge, the Eyes being thus skreen'd by the edges of the 2 Fingers, they ſay 'tis eaſie by this Method to diſcern which is the whiteſt and cleareſt Glaſs.

Looking-glaſſes foil'd being in vogue for Ornaments over Chimneys in Parlours, &c. I ſhall briefly ſay ſomething concerning them. Sir *William Petty* ſaith that the value of *Looking-glaſs-plates* conſiſts in a duplicate proportion of their ſides to their Squares. Becauſe you ſhall not be left quite in the dark as to this matter, I will exhibit the Price which I have known ſet upon 2 Sizes of *Looking glaſſes*, *viz.* One of 5 Inches long, and 12 broad in a Frame to place over a Chimney 40 *s.* ſome of 10 and 8 Inches, in Walnut-tree-frames for about 4 *s. per* piece, if they have Diamond-cut; but if not, this ſize is about 6 *d. per* piece cheaper. I could here have ſhew'd the Method of Grinding, Poliſhing, and Foiling of theſe *Glaſſes*: But I fear I ſhall offended the Stationer in making this firſt Impreſſion too large, and therefore I muſt at preſent paſs this, and ſeveral other Curioſities; which I had thought to have inſerted here, for the Satisfaction of the Ingenious and Inquiſitive Reader.

XI. *Jealous Glaſs.*] This is a ſort of wrinkled Glaſs of ſuch a Quality, that one cannot diſtinctly ſee what is done on the other ſide of it; but yet it admits the Light to paſs through it. 'tis made of the ſame ſort of Materials, as *Looking-glaſs-plates* are. This *Jealous-glaſs* is caſt on a Mold, and is compoſed all over its Surface with a multitude of Oblong Circular Figures, (which are Concave,) ſomewhat reſembling Weavers Shuttles, this is on one ſide of it, but the other ſide conſiſts of ſuch Figure which are a little Convex, and this laſt ſide is the ſide they cut it on, when the Squares are too big for the preſent uſe, it being found to be very difficult to cut it on the Concave ſide. Some ſorts of this *Jealous-glaſs*, hath a Convexity riſing in the middle of the Concavity; ſo that one ſide, or Surface of it doth much reſemble the Boats which Boys uſed to make by folding of Paper; only in this Glaſs the Concavities, and convexities are both more obtuſe and blunt. But there are various ſorts of this Glaſs, in reſpect either of the Form or Size of the Figures, of which this *Glaſs* is compoſed; for I have ſeen ſome of this *Glaſs* have the Shuttle-like Figures, much larger than other ſome, and ſome of it which the Points (as it were) of the Shuttles are very curved, and ſometimes theſe Figures are in a Poſition Perpendicular to one edge of the Square, and other ſome are oblique to it.

I am informed that this Glaſs is about 18 *d. per* Square, each Square being about 12 or 14 Inches broad, and 15 or 16 Inches long. The reaſon why they are ſo dear, is, (as I am informed,) becauſe the *Looking-glaſs-plate-makers*, do not care to make theſe

ſort

ſort of Squares, but only when their Pots of Metal are almoſt out, and they are a little at leiſure; for they ſay it waſtes Glaſs too much for their Profit. I heard a *London* Glazier ſay, that he hath ſometimes ſtayed a Month for ſome of it, before he could have it to uſe. This ſort of Glaſs is commonly uſed, in and about *London*, to put into the lower Lights of Saſh-windows, *&c.* Where the Windows are low againſt the Street, to prevent People's ſeeing what is done in the Room as they paſs by: It is ſometimes ſet in Lead in ſuch Places, where they would not have their Actions ſeen by the Paſſers by.

Now it is very plain (to any reaſonable Man, that knows any thing of Refractions,) that this ſort of Glaſs muſt needs prevent People's ſeeing through it, into a Room, as they paſs by; becauſe the Rays, or Species of a viſible Object, are by reaſon of ſuch a variety of Refractions, (cauſed by the inequality of the Glaſſes Surface,) broken and confuſed when they arrive at the Retina, or Fund of the Eye.

XII *Woolwich*, or *Woolledge*.] This alſo was one kind of our *Engliſh* Glaſs, which did receive its Name from the Place of its make; but by reaſon they met with ſome diſcouragement in their Proceedings there, they have laid it down there for ſome time, and do not now make there.

## *Glazier's-work*, or *Glazing*.

1. *What*.] *Glazier's-work*, or *Glazing*, all know to be a manual Art, whereby pieces of Glaſs (by the aſſiſtance of Lead,) are ſo fitted and compacted together by *ſtraight* or *curved* Lines, that it ſerves as well for the intended uſe, (almoſt) as if it were one intire piece, nay in ſome reſpects far better and cheaper, *viz.* in caſe of breaking, *&c.*

Theſe 2 Heads of *Straight* or *Curved*, will admit of ſeveral Sub-diviſions, and firſt of *Straight*, which contains 1 ſquare Work whoſe Angles are right, as almoſt all *Window-lights* are in Timber Window-frames, and ſo likewiſe are the Squares, (if it is Glazed with ſuch) of which the Lights are compoſed.

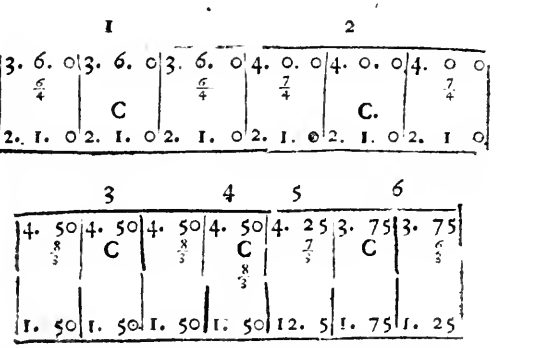
2. *Miter*, or making an Angle of 45 Deg. this but ſeldom happens in this Profeſſion, unleſs it be in ſome places of *Fret-work*.

3. *Bevel*, this is the moſt common, eſpecially in the Countrey, and ordinary Houſes, (which all know to be moſt numerous,) for moſt ſuch are Glazed with *Quarries*, which is Bevel Work, ſo likewiſe is a great deal of *Fret*, and all *Snip-work*.

*Curved* Work, conſiſts either of *Circles*, *Ovals*, or ſome diſtorted Arches; *Circles* and Ovals are commonly uſed for Lights at ſome particular place in a Building, as in a *Pediment*, or

or over a Door, or the like, in the middle of a Front, *&c.* I have also observed a Light over a Door in the Front of a Building that did consist of 2 Arches of a pretty large Circle like a Weavers Shuttle, lying along, and the whole Light was Glazed with one piece of Glass. Both Parts, Circles, and Ovals, and sometimes some distorted Arches are made use of in crocket Windows, *&c.* And also both whole and parts of Circles, and Ovals in their Fret, or Ornamental Works.

II. *Of Glazier's Draughts,*] the most ingenious sort of *Glaziers*, both in City and Countrey work by Design, (and not by Guess, like the common Blunderers in most Professions relating to Building;) for they make a *Draught* of all their Windows on Paper, in which they set down the Dimensions of each Light, both of heighth and breadth, and the number of Squares, both in breadth and heighth, in each Light; and also the number of Lights in each Window, after the following manner, *viz.*




N. B. Note, that here are 6 distinct Windows, *viz.* the 2 upper ones are 3 light Windows, and of the four lower ones there is 1, 3 Lights, 2 single Lights, and 1 double one.

N. B. That the number standing at the top (of the Oblong Figure in the Scheme above,) is the heighth of the Light; that at the bottom the breadth, and that number in the middle, the upper one for the number of Squares in heighth, and the lower one for the number in breadth.

N B. Also that the 1 and 2 Windows, (which are 3 light Windows,) have their Dimensions set down in Feet, and Duodecimal Parts of Feet, E. G. in the 1*st.* Window you have this number, 3. 6. 0 at the top, which signifies the heighth of the Light to be 3 Foot, and 6 Duodecimal Parts of a Foot, in the middle there is $\frac{6}{4}$, which signifies 6 Squares in heighth, and 4 in breadth, (equal to 24 in the whole Light,) and below their stands 2. 1. 0 which signifies 1 Foot, and 1 Duodecimal

decimal Part of a Foot: In the ſecond, or middle Light there is a C ſet to ſhew that there muſt be a *Caſement* in that Light, and by conſequence the upper Squares, and lower ones muſt be cut ſomething ſhorter, becauſe of the Frame of the Caſement,) and the ſide Squares muſt be cut ſomething narrower, and the 4 corner ones both ſhorter and narrower.

Now by ſuch a Draught, the *London Glazier* when his Countrey Cuſtomer ſends to him for ſuch a certain parcel of *Glaſs*, he knows immediately how to cut it to fit his Work, and the Countrey *Glazier* knows how to work up his Glaſs by it, ſo that it ſhall fit each *Window*, tho' he be 40 Miles remote from it, as well as if he were by it.

The *London Glaſs cutters* commonly mark (with a Letter, or Figure over them,) all the *Windows* that are of one Size, and Write the ſame Mark on a piece of Paper, the which is put in among that parcel of Squares which belong to thoſe Lights which are all of one Size, this piece of Paper is ſo put in, that the Character is viſible above the edges of the Squares: By which diſtinguiſhing Character the Countrey *Glazier* readily knows which Squares to take for any Window.

I ſhall only add one thing more to this of *Draughts*, and ſo conclude with this Head: And that is, that ſuch *Glaziers* as underſtand it, ſet down their Dimenſions in Decimals; which fits as well or better for the *London Glaſs-cutters*, becauſe they have their Rules Centeſimally divided for the Purpoſe. I have here therefore, (for ſatisfaction to the curious,) ſet down the Dimenſions of the 4 lower Windows, in Feet and Centeſimal Parts. As for Example, in the *3d. Window* at the top you have theſe numbers 4. 50, which ſignifies the height of the Light is 4 Foot and 50 Centeſimal Parts, and at the bottom there is this Number, 1. 50, which is 1 Foot 50 Centeſimal Parts, and ſo of the reſt.

III. *Of Meaſuring Glaziers Work.*] In diſcourſing of this, I ſhall do theſe 2 things; *1ſt.* Conſider the *Cuſtoms* uſed amongſt them, (for Cuſtom is to be the greateſt Guide in all manner of Meaſures.) And *2dly.* of taking the *Dimenſions*, and computing the Quantity.

1. Before we proceed to taking of *Dimenſions*, which one would think ſhould be the *1ſt.* thing, in order to meaſure any Superficies or Solid. Yet before we can pretend to take theſe *Dimenſions*, we muſt be inform'd of all Cuſtoms that are claimed, and have been tolerated by long ſtanding, *&c.* in any Profeſſion. And therefore,

Note, 1. That in Glazing when *Windows* have a *Semicircular* top, (or any other *Curved* Form) the Cuſtom is to take the full height as if it were ſquare.

2. That all *Windows* conſiſting of intire *Circles*, *Ovals*, or any other *Curved* Form, the Dimenſions are taken the 2 longeſt ways,

ways at Right Angles one to another, (which we may call the Diameters, and from these Dimensions the Areas are found the same as if they were Square.

3. That all *Crocket-windows* in Stone-work are all measured by their full Dimensions in heighth and breadth, as if they were Square and not Curved.

4. That there is very good Reason for all these Customs, if we consider the trouble in taking Dimensions to make them by 2 the waste of Glass in working it to these Forms, and 3 the extraordinary time expended in setting it up, more than in square Lights. I say if these things be duly weigh'd and considered, they will be found of more value than the *Glass* which would cover a Square Superficies of that Dimension. Having thus dispatched the *1st.* thing, *viz.* Of *Customs*, I shall now proceed to the

2. Of taking *Dimensions*, &c. In doing of which, in this Profession of *Glazing*, it is generally taken to parts of Inches, and so computed to the Nicety of a Fraction of an Inch, which may be done several ways, 4 of which being practised by some *Surveyors* and *Workmen*, I shall just mention here, *viz.* 1. By vulgar *Fractions*, 2. By *Cross-Multiplication* of Feet, Inches, and Parts, 3 By *Duodecimals*, and 4. By Decimals. There is another way by Logarithms, which is more expeditious than either of the former; but I cannot here stay to treat of these, which will require too much time and room for this present Undertaking, or Design.

But because in *Glaziers* Work, they usually take the *Dimensions* to the Parts of an Inch, the best and readiest way to compute the Area's, is to take the *Dimensions* with a Sliding-rule, such as the *Glaziers* generally use; which Rule is divided Centesimally, the *Dimensions* being thus taken, and set down, are Multiplied one into the other, as easily as Vulgar Arithmetick in whole Numbers is.

As to the Method of taking *Dimensions*, and setting them down in a Pocket-book, or the like, Vid. *Building*, Num. V. §. 2, 3, 4, 5. where also you will find a *Bill* of Measurement of Glazier's Work.

And for the manner of Computing the Quantity, *vide* Cross *Multiplication*.

IV. *Of the Price of divers sorts of Glazier's-work.*] The different sorts of *Glazier's* Work which we shall here mention, are these following, *viz.* *Glazing* with Squares, and with *Quarries*.

And 1. Of *Glazing* with Squares for the Price of *Crown*, *French*, *German*, *Dutch*, and *English* Glass wrought in Lead, and set up. V. Num. III. *&c.* of *Glass*.

As to the Price of Square-work, the Master finding *Glass*, and the Glazier, Lead, Sodder, and Workmanship, 'tis worth about 2 ½ *d. per* Foot, But they will be (in the Countrey) paid

paid 3 *d. per Caſement* for pinning of them, (which is putting of Lead-pins thro' the Iron-frame, and Soddering them, thereby to fix the Glaſs to the Frame,) *viz. Caſements* of 4 ½ Foot long, and ſo proportionably, if they find Lead or Sodder for it.

But to work up Squares and ſet it up, finding nothing but Workmanſhip, it's worth about 1 *d.* or 1 ½ *d. per* Foot.

2. Of *Glazing* with *Quarries*, which is for the moſt part done with *Newcaſtle glaſs*, which ſee for the Price of new Work and *Materials*. Num. VII.

But if the *Glazier* find only Lead, *Sodder*, and *Work*, 'tis worth about 3 *d. per* Foot. But if they find nothing but Work, then 1 ½ *d.* or 2 *d.* is a ſufficient Price.

For taking down *Quarry-glaſs*, Scouring it, and Soddering it anew, and Banding, and ſetting up again, the uſual Price is 1 ½ *d. per* Foot.

But if it be in Churches where they ſay they have uſually more Banding, *&c.* their Price is 2 *d. per* Foot. They have alſo 2 *d. per* Foot for taking down, Scouring, Soddering, Banding, and ſetting up again of the old faſhion'd Work, which is compoſed of pieces of Glaſs of different Sizes and Figures.

As to the quantity of Lead uſed in any number of Feet of *Glaſs*. vid. Lead, Num. 10.

I find by Mr. *Leybourn*, that in *London* they generally uſe that Size of *Quarries*, call'd 12 *s.* the which he thus deſcribes. *Quarries*, (ſaith he,) for the moſt part are 6 Inches in length from one Acute Angle to the other, and in breadth from Obtuſe Angle to Obtuſe Angle 4 Inches; ſo that each *Quarry*, ſaith he, contains 12 Superficial Inches; which ſort is that which they call long *Quarries*. V. P. *Quarries*.

N. B. That there are ſeveral Appellations given to the various *Dimenſions*, &c. of *Quarries*, viz. 1. The *Range*, which is a Perpendicular let fall from one of the Obtuſe Angles to the oppoſite ſide. 2. And the *Length* is the longeſt Diagonal from one acute Angle to the other. 3. The *Breadth* is the ſhorteſt Diagonal, which is drawn between the 2 Obtuſe Angles, as for the Sides and Area of a Quarry, I think all know that.

You will find in the word *Quarries*, that there have been, or ſtill are 12 ſorts of *Quarries*; from whence there ariſes divers Propoſitions, of great uſe to *Glazier's*. As 1. To find any of the 5 fore-cited Dimenſions, as Range, Side, Length, Breadth, and Area, of any of the ſorts of Quarries. 2. To find the Area of any ſort of *Quarries*. 3. Having any of theſe Dimenſions given, *viz.* Range, Side, Breadth, or Length, to find the Name, or Denomination of the Size, *viz.* Whether 8 *s.* 10 *s.* 12 *s. &c.* 4. Having the Area of a *Quarry* given, to find of what ſort or ſize he is. 5. To find whether a *Window*

be

be Glazed with thoſe they call ſquare Quarries or long ones; for you muſt note there is 6 ſorts of ſizes or ſquare *Quarries*, and 6 ſizes of long *Quarries*, which makes 12 ſorts in all, as I told you before. Altho' I am ſenſible that theſe 5 Propoſitions (but juſt now mentioned,) would be acceptable to *Glazier's*, and ſome other ingenious Perſons, yet I muſt here evade them till a better opportunity, for Reaſons oft mentioned in this Book. *Glazier's* Bill. V. *Building*. V. 7.

## *Gradatory.*

'Tis derived from the Latin, and is uſed to ſignifie a Place to which we go up by Steps, particularly an Aſcent from the Cloiſter to the Quire in ſome Churches.

## *Granary.*

A Place to lay up Corn in. Sir *H.W.* adviſes to make it toward the *North*, as much as may be; becauſe that Quarter is moſt Cool and Temperate.

Mr. *Worlidge* ſaith, that the beſt *Granaries* are built of Brick with Quarters of Timber wrought in the in-ſide, whereto to nail the Boards, with which the in-ſide of the *Granary* muſt be lined ſo cloſe to the Bricks, that there be no room for Vermine to ſhelter themſelves. There may be many Stories one above another, and let them be near the one to the other, for the ſhallower the Corn lieth the better, and it is the eaſier turned, which it muſt be ſometimes.

Some have had 2 *Granaries*, one above the other, and filled the upper with Wheat, or other Corn; this upper one had a ſmall hole in the Floor, by which the Corn deſcended into the lower one like the Sand in an Hour-glaſs, and when it was all come down into the lower *Granary*, it was then carried up again into the upper one; and ſo it was kept continually in motion, which is a great Preſervation to the Corn.

A large Granary full of ſquare Wooden-pipes may keep Corn long from heating.

## *Grange,*

From the Latin word *Grana*, a *Building* which hath Barns, Stables, Stalls, and other neceſſary Places for Husbandry.

## *Grates.*

V. Iron. Num. 4.

## *Great Bricks.*

V. Bricks. Num. IV. §. 9.

*Groteſ-*

## *Groteſque*, or *Groteſca.*

V. Antick.

## *Ground*

To *Build* on.] V. Foundation. Num. 2. §. 1. 2. 3. 4. 5. and 6.

## *Ground guts.*

V. Alder. Num. 3.

## *Ground-plat*, or *Plot.*

1. *What.*] A piece of Ground a Building is to be erected upon.

2. *Of Valuing* ] V. Foundations. Num. 3.

## *Ground-plate.*

V. Sell.

## *Grove*,

A Term uſed by *Joiners*, to ſignifie the Channel that is made by their Plow in the edge of Molding, or Stile, or Rails *&c.* to put their Pannels in in Wainſcotting.

## *Guttæ.*

V. *Architrave.* Numb. 6.

## *Gutters.*

1. *What.*] Thoſe which we ſhall here treat of, are *Vallies* in the Roofs of *Buildings*, and theſe are of 2 kinds in reſpect of their Poſition; for they are either ſomething near a Parallelism with the Horizon, or inclining towards a Vertical Poſition to the Horizon.

Of the firſt kind of *Gutters*, which for diſtinction ſake I will call Parallel,) there are 3 ſorts which are cover'd with Lead; for 1 *ſt.* either it is a *Gutter* betwixt 2 Roofs which ſtand Parallel to each other, being made upon the Feet of the Rafters of 2 Roofs which meet together. Or, Secondly, A *Gutter* where a *Building* hath a Cantaliver, or Modilion Corniſh, which projects 1 ½ Foot, or 2 Foot, (according to the Deſign of the *Building*) beyond the Walls, then the Roof is ſet with the Feet of the Rafters, no farther out than the Walls, but rather within it; ſo that the Joiſts of the upper Floor lie out beyond the Walls, and alſo beyond the Feet of the Rafters which is yet cover'd with Lead. The 3 *d.* ſort of theſe Parallel *Gutters*, are in theſe Roofs that are flat, commonly called *Platforms*, where are alſo *Gutters* for the Water that runs from the Platform to deſcend to, which is from thence conveyed off from the *Building*, either by Spouts or Pipes.

Having

Having described the *Parallel Gutters*, we are next to treat of the *Vertical Gutters*. By *Vertical Gutter*, I mean such a one as is made by two Roofs meeting at Right Angles, one to the other, or which is the same thing (but in other words) it is made by the end of one Roof joyning to the side of another: As for Example, if a Building be erected in the Form of a Roman L, 'tis then common to have 1 *Gutter* on the inside of the L. But if it resemble a T, it hath 2 *Gutters*, but if like an H, then 4. These *Gutters* also are of 2 sorts, *viz.* Either *Lead* or *Tile*. Of all which we shall speak in their Orders. Having given the definition of *Gutters*, I shall now proceed to treat

2. *Of laying Parallel Lead Gutters.*] In speaking to this Head, before I proceed to treat of laying the *Lead*, I must here give a necessary Caution, which is this, *viz.* To take care that the *Gutter* Boards, *&c.* lie not too near a Parallelism with the Horizon, but in such a Position that it may have a good *Current*, (as Workmen phrase it;) for if it be laid too near a Level, the Water is very subject to stand in splashes, if the Gutter chance to sink a little in the middle, which some *Gutters* are most apt to do; but this is something according as they are posited on the Building.

I have observed some *Gutters* to have a Lair of Sand for the *Lead* to lie upon, but this way I do not approve of for 2 Reasons, which are these, *viz.* 1. Because some sorts of Sand I have observed does corrode and decay the Timber that lies near it) very much. 2. When 'tis laid on Sand, a very little Squating, *viz.* by jumping upon it with the Heals of ones Shooes will dent it, and there the Water immediately stands, which is a means to decay the Lead the sooner.

In laying of Lead for *Gutters* upon *Boards*, if they are so long that one Sheet of Lead will not reach them, then 'tis common (for some Plumbers) to sodder them; for which purpose they cut a Channel cross the *Gutter-boards* at the end of the Sheet where the Soddering must be; and into this Channel they beat down the ends of both the Sheets (that are to meet there) into the Channel; which when they have done, there will remain a little Cavity, which the Sodder fills up level with the rest, when it is soddered.

The Lead which they commonly lay in *Gutters*, is that which weighs about 8 or 9 lb. to the Foot. Of these *Gutters*. V. P. *Lead*. Num. 6.

III. *Of Vertical Gutters.*] These *Gutters*, as I told you before, are of 2 sorts, *viz.* *Lead*, and *Tile*: As to the *Lead* ones I shall say nothing here, being almost the same in effect as the Parallel ones. Only unless the Builder will be at the charge, the Lead need not be altogether so thick for these *Vertical* ones; for if they are laid with Lead of but 6 or 7 lb.

to the Foot, these *Vertical Gutters* will last as long as the Parallel ones with Lead of 8, 9, or 10 lb. to the Foot.

*Gutters* laid with *Tiles*, are also made of 2 kinds of *Tiles*, viz. *Concave*, (or *Gutter*,) and plain *Tiles*; I shall here say little of the Concave, or *Gutters*, but refer you to the Description of *Gutter-tiles*.

*Plain Tile Gutters*, are also distinguished into 2 sorts, *viz.* 1. *Plain-tile-gutters*, (properly so call'd,) and 2*dly*, 3 Point *Gutters*, of both which I will treat in their order. And,

1. *Of Plain-tiles-gutters*, (*properly so call'd*) in these *Plain-tile-gutters*, there is a Gutter-board laid which raises them from Pointing to an Angle: And in laying on the Tiles, the Workman begins at one side of the *Gutter*, and so works cross it as if it were plain Work, and then brings the next row of Tiles back again; so that he works forth and back, or to and fro from right to left. So that *Gutters* laid after this Method are not Angular, but of a kind of distorted *Curvelineal* Form; by which means they are not so subject to be furred up with the Mortar which washes out of the adjacent Tiles.

2. *Of* 3 *Point-gutters*.] This is the second sort of *Gutters* which are laid with plain Tiles: In laying of which, they begin and lay one Tile on one part of the Roof, (it matters not which part 1*st*.) and lay one corner of the Tile just in the middle of the *Gutter*, and then they lay another on the other part of the Roof, with his corner just in the middle of the *Gutter* also; so that the corner of the second Tile is contingent with the 1*st*. And then lay another Tile in the Gutter, with his corner, (as it were) betwixt the other 2, and to them: Having so done, they persist in their Work, and lay a Tile on each part of the Roof, as before, and another betwixt them in the Gutter: After this manner they go on with their Work, till they have finished the *Gutter*: And this is what they call a 3 *Point Gutter*; for there always come 3 Points, (or Angles) of Tiles together, (*viz.* 1 Angle of 3 distinct Rules,) which makes it very uniform and handsome. You are here to note, that only 3 Inches square of the middle Tile is visible, (if the Gage be 7 Inches,) the rest of that *Tile* being cover'd with the next row of Tiles above it.

Tho' these *Gutters* are very handsome, and if well done very secure also; yet if they let the Water into the House, (by reason of some Stoppage, or broken Tile in the Gutter,) they are very troublesome to mend.

IV. *Of Measuring Gutters*,] or *Vallies*. In different parts of the Kingdom there are commonly diverse Customs, as to this matter of measuring *Vallies*, or *Gutters* in *Tiling*: For, 1*st*. At some Places they but seldom, or never allow any thing for the *Gutters*, but include it with the rest of the *Roof*, at Bit and half: I am informed, that at *London* they but seldom measure the *Gutters*; but only as they are part of the Roof, so

so they are included in the Flat and ½ Measure. And I know some Workmen at *Tunbridge-wells* never demand any other, but only as it is included in the Plain Measure; which is an Area found by Multiplication of twice the length of the Rafters by the length of the Building. Or which is the same thing (when it is ½ Pitch,) the Flat and ½ Flat.

2. In laying of *Gutters* with Concave-tiles, the Workmen in some parts of *Sussex* and *Kent*, have gotten a Custom to be allowed so many Foot more than the plain Measure, as there *Gutter-tiles*, (and also including *Corner-tiles*, *Ridge-tiles*, *Dorman-tiles*) in the whole Roof.

2. At some other Places, I know they claim so many Feet more to be added to the Plain-measure, as the *Gutters*, (and also corners) are in length, including *Gutters* at the sides of *Dormans* and *Lutherns*, if there be any *Dorman-tiles* used.

4. In some Places the Workmen claim a custom of having double Measure for *Plain-tile*, (especially 3 *Point*) *Gutters*, e. g. If there were but 1 *Gutter* in a Roof, and this *Gutter* 15 Foot long, then their Custom is to have 30 Foot more than the Area of the Roof amounts to; and this Method some Workmen claim as a Custom in both sorts of *Gutters* with *Plain-tiles*. Either of these *Plain-tile-gutters* are cheaper to the Master Builder, than *Concave* ones; because Plain-tiles are cheaper than *Gutter-tiles*, being not above ¼ part of the Price in many Places. And then again, in case the Workmen be allow'd so many Foot more (than the Area of the Roof,) as there are *Gutter-tiles*, that will be ½ as much more as the double Measure; for if it be gaged so slight as 8 Inches, than in a *Gutter* of 15 Foot long, there would be 45 Tiles, which will be reckon'd 45 Foot; whereas at double Measure it did amount to but 30 Foot.

5. I find there is yet another way of computing double Measure; for the account of which I will refer you to *Slating*, Num. 5.

I am informed, that at *London* Plain-tiles are used much for *Gutters*.

## *Guttering*,

In Carpentry, is commonly done by the Lineal Foot, which some *Londoners* value at 1 *s. viz.* Materials and Workmanship.

## *Gutter-tiles.*

1. *What.*] Are whilst they are flat and plain, (before they are bent fit for the Work for which they are design'd,) seemingly at a distance a kind of a Triangle with one Convex side. But tho' they seem so at a distance, they are not really so; for they are Quadrangular Figures, consisting of 2 straight sides of about 10 or 10 ¼ Inches long (they ought to be) and of 2

Circular ſides, one Convex, the other Concave, the Convex ſide is about 14 Inches, and the Concave one about 2 Inches, this is their Form as to their edges or ſides, and I will next deſcribe the form of them in reſpect of the Plain; at the little end they are bent Circular, and ſo likewiſe at the Convex great end, at firſt like a *Corner-tile*, but then they bend the corners of the broad end back again; ſo that if one look againſt the broad ends edge, it conſiſts of a Circular Line betwixt 2 ſtraight ones, like the upper part of the Character for the Sign of Libra, thus ♎, this you muſt note is when you hold the Concave ſide of the Tile downwards. Theſe Tiles are laid with their broad ends, and hollow ſides upwards.

2. *Of their Weight.*] An Experiment was made to find the Gravity of ſome of theſe Tiles, and I found by Computation that 100 of theſe *Tiles*, whoſe Dimenſions were as followeth, *viz.* 10 Inches on the ſtraight edges, 14 Inches on the greater Convex edge, when preſſed down flat, as when they were in the Mold, and 2 Inches at the Concave edge, and about $\frac{5}{8}$ Inches thick: I ſay 100 of theſe weigh'd about 321, or 322 lb. and by conſequence 1000 will weigh about 3210, or 3220 lb. which is near 29 C weight. So by conſequence about 682 would be a Tun weight.

3. *Of their Price.*] Mr. *Leybourn* ſaith that at *London* they are ſold at 1 $\frac{1}{2}$ *d.* or 2 *d. per Tile*, or between 10 and 15 *s. per* 100. in ſome Places their conſtant Price is 1 $\frac{1}{2}$ *d. per* piece, or 12 *s. per* Hundred.

## *Hack.*

WHat. V. *Brieks.* Num. 12.

## *Hair.*

1. *What.*] The Hair here mentioned is Bullocks, *&c.* for to put in *white Mortar* of the quantity to a certain quantity of Lime, *vide Mortar.* Num. 4.

2. *The Price.*] As to the Price, 'tis various, according to the Plenty or Scarcity of it. At ſome Places in *Kent* I have known it ſold for 7 *d. per* Buſhel, and at other Places, *viz.* in *Suſſex*, I have known it ſold for 10 *d.* and 12 *d. per* Buſhel; ſo that its Price by the Load (for a Horſe,) which is 60 Buſhels, is from 30 to 60 *s.*

## *Half-round.*

*What.*] V. Capital. Num. 2.

*Halls,*

## *Halls.*

*Of their Dimenſions.*] According to a noted *French* Architect, ought to be in length twice and ½ its breadth, at leaſt, and in great Buildings, he ſaith you may well allow the length to be 3 times the breadth: He further adds, that this laſt length will be the moſt beautiful and convenient.

As to the heighth of *Halls*, it may be ⅔ of the breadth, or about 16 or 18 Foot in noble *Buildings*.

In great *Buildings*, the *Hall*, and other Rooms of the 1*ſt*. Story may be Arched, by which means they will become much handſomer, and leſs ſubject to Fire: The heighth is found by dividing the breadth of the *Hall* into 6 parts, and 5 of thoſe ſhall limit the height of the Room from the Floor to the under ſide of the Key of the Arch.

## *Hangs over.*

*What.*] V. *Batter.*

## *Hanſe.*

*What.*] V. *Arches.* Num. 6.

## *Heads.*

*What.*] A Term uſed by Bricklayers, by which they mean ½ a *Tile* in length, but to the full breadth of a *Tile*; theſe they uſe to lay at the Eaves of a Roof.

## *Heading Architrave.*

V. *Architrave.* Num. 2.

## *Healing.*

*What.*] By this word is underſtood the covering of the Roof of any Building, which is of various kinds, *viz.* 1. *Lead*, 2. *Tiles.* 3. *Slate.* 4. *Horſham Stone.* 5. *Shingles.* 6. *Reed.* 7. *Straw.* An account of all theſe ſorts of *Healing*, you may find under theſe Heads, *viz. Lead*, under that Head. *Tiles*, under *Tiling*, *Slate*, under *Slating*, *Horſham-ſtone*, V. the ſame word; *Shingles*, and *Shinglings*, *Reed*, and *Straw*, V. *Thatching.*

## *Hearth ſtones.*

V. *Fire-ſtones.*

## *Hewing of Timber.*

V. *Timber.* N. VII.

## *Hinges.*

1. *What.*] Are thoſe neceſſary Irons, by means of which, all Doors, whether of Houſes, (or other Buildings,) or of Pews, Cupboards, *&c.* All Lids of Boxes, Cheſts, Trunks, *&c.* Folds of *Tables*, Beds, Buro's, Scrutores, *&c.* Make their Motion, whether of opening or ſhutting, or of Folding, *&c.*

2. *The ſorts or kinds.*] The Species of Hinges are many, *viz. Bed*, *Box*, *Butts*, *Caſement*, *Lancaſhire*, and ſmooth filed; *Caſting*, *Cheſt* black, *Lancaſhire*, ſmooth filed, *Coach*, *Desk*, *Dovetails*, *Eſſes*, *Folding*, *Garnets*, *Dozen-ware-long*, *Dozen-ware-ſhort*, *Weighty-long*, *Weighty-long*, *Weighty-ſhort*, *Lamb-heads*, *Port*, *Side-Lancaſhire*, *Side-ſmooth-filed*, *Side* with riſing joints, *Lancaſhire* and Smooth filed, *Side* with Squares, *Screw*, *Scuttle*, *Shutter*, *Lancaſhire*, and Smooth-filed, *Stall*, *Trunk* of ſundry ſorts. *Joints*, *Lancaſhire*, Dozen-ware, with *Hooks*, Dozen-ware long, Dozen-ware ſhort, weighty long, weighty long, weighty ſhort.

3. *The Price of ſome ſorts of Hinges.*] As to the value of *Hinges*, I ſhall not now ſtay to inſiſt upon the uſual Price of all ſorts, but ſhall give the Reader a brief account of ſome ſorts that are pretty commonly uſed: And *1ſt.* Of *Butts*, of which there are different ſizes, and by conſequence of various Prizes, *viz.* from 2 *s.* or 2 *s.* 6 *d.* to 5 *s. per* Doz.

2. *Bed-hinges*, from 5 to 7 *s. per* Doz.

3. Box-hinges, from 12 *d.* to 4 *s. per* Doz.

4. ——Small Braſs ones, from 2 *s.* to 2 *s.* 6 *d. per* Doz.

5. Dovetails, from 12 *d.* to 4 *s. per* Doz.

6. Hooks and Hinges, *&c. per* ℔. from 3 ¼ *d.* to 4 *d.*

7. Side-hinges, from 3 *s.* to 16 *s. per* Doz.

8. ——With a Square, from 20 *s.* to 36 *s. per* Doz.

9. Screw-hinges, from 30 *s.* to 48 *s. per* Doz.

V. Iron. N. 4.

## *Hip.*

1. *What.*] Are thoſe pieces of Timber which are at the corners of a Roof, they are a great deal longer than the Rafters, by reaſon of their Oblique Poſition, and they are placed not with a Right or Square Angle, but a very Oblique one; and by conſequence they are not, (or at leaſt ought not to be) ſquare at any Angle, (as Rafters are not at all,) but bevel at every one of them; and which is yet more, as Rafters have but 4 Plains, theſe commonly have 5. They are commonly by Countrey-workmen call'd *Corners*, and ſome call them *Principal Rafters*, and others *Sleepers*. The truth is *Hips* and *Sleepers*, are almoſt the ſame; only the *Sleepers* lie in the *Vallies*, (and join at the top with the *Hips*:) But thoſe Surfaces, or Plains which make the back of the *Hip* are the under-ſides of the Sleeper.

2. *Back or Back of a Hip, what.*] By the *Back* of a *Hip*; you are to underſtand, is meant theſe 2 Superficies, or Plains on the out-ſide of the *Hip*, which lie Parallel, (both in reſpect

of

of their length and breadth,) with the Superficies of the adjoining side and end of the *Roof*.

3. *Mould what.*] By the word *Hip-mould*, some mean the same as *the back of the Hip*. But some others understand it to mean, the Prototype, or Pattern, (which is commonly made of a piece of thin Wainscot,) by which the back and sides of the *Hip* are set out.

4. *Of finding the Lengths and Backs of Hips*, &c *in square Frames.*] I shall here, not only give you the Method of finding the length of *Hips*, or *Sleepers*; but also of the *Rafters*, *Diagonals*, $\frac{1}{2}$ *Diagonal* and *Perpendicular*. And that in a brief Analogical Table. say,

| | Foot | | |
|---|---|---|---|
| As 20 | 15, 00 | :: Breadth of the House: | ten. of the Rafter. |
| | 18, 00 | | ten. of the Hip. |
| | 11, 18 | | Perpendicular. |
| | 28, 28 | | Diagonal. |
| | 16, 63 | | Neareſt diſt. |

| | Deg. | | |
|---|---|---|---|
| *Hip* Angles | at foot—38—22 | Rafter Angles at | top 41--50 |
| | at top —51—28 | | foot 48-10 |
| | at back—116--12 | | |

The Angles are always the same in all square Frames that are true Pitch.

The Reader may perhaps expect the Method of finding these things in Bevel Frames also, but I shall defer that till another Opportunity, and also to another Treatise which I design to Publish, (if it please God to lend me Life, and this present Treatise prove acceptable to the World :) Wherein I design to shew how to find the Lengths, and Angles of *Rafters*, *Hips*, *Collars*, Purlains, *&c.* In Square and Bevil Frames, 3 several ways. *viz.* Arithmetically, Geometrically, and Instrumentally: Which Treatise shall also contain 4 several Methods of drawing all the Members of the 5 Orders of Columns.

5. *Roof what.*] By a *Hip Roof*, you are to understand such a *Roof*, as hath neither Gable-heads, nor *Shread-head*, or *Jirkin-head*, (by which we mean such Heads as are both *Gable* and *Hip* at the same end; for 'tis a Gable, or upright as high as the *Collar-beam*, and then there is two short Hips which shuts up with their tops to the tops of a pair of Rafters, which Countrey Carpenters call *Singlars*.) For a *Hip Roof* hath Rafters as long, and with the Angles at the Foot, *&c.* at the ends of Building, as it hath at the sides, and the Feet of the Rafters on the ends of such Buildings as have *Hip-roofs*, stand on the same Plain, (*viz.* Parallel with the Horizon,) and at

the same heighth from the Foundation with the Rafters on the sides of the Roof. These *Hip-roofs*, some call *Italian Roofs*.

6. *Of Measuring Hip-roofs.*] As to measuring of *Hip roofs*, if they are $\frac{1}{4}$, or true pitch as it is commonly call'd; then 'tis only to multiply the length of the Building by the breadth, and to the Area thus found, add half as much more, or else multiply the length by the breadth and $\frac{1}{2}$; or the breadth by the length and $\frac{1}{2}$, either of these 3 ways will produce the flat and $\frac{1}{4}$, which is equal to the Content of the Roof in plain Measure, if there be nothing allowed for *Hips* and *Vallies*. But if the *Roof* have no Cornish, but the Rafters have Feet, then they must be added, and also the *Eaves Board* in a *Bill of Measurement*.

Or to measure such a Roof, you may Multiply the length of it by the length of the Rafter, and it shall give you half its Content; or else Multiply the length of the Building by twice the length of the Rafter; and then you will have the whole Content.

## *Hip-tiles.*

V. *Corner-tiles*, or *Tiles*. N. V.

## *Hollow.*

A Term in Architecture, by which is meant a Concave Molding, being about a Quadrant of a Circle; by some it is call'd a *Casement*, by others an *Abacus*.

## *Hooks*

Are a necessary Ingredient which are made use of for several Purposes in Buildings, *&c.* They are of various sorts; some of Iron, and others of Brass, I shall here mention the Names of some, which take as followeth, *viz.* 1. *Armour-hooks*, (these are generally of Brass, and are to lay up Arms upon; as Guns, Muskets, Halberts, Half-pikes, Pikes, Javelins, *&c.*) 2. *Casement-hooks*. 3. *Chimney-hooks*, which are made both of Brass and Iron, and of different Fashions: Brass ones I have known sold from 2 *s.* to 2 *s.* 6 *d.* *per* pair, the Iron ones from 12 *d.* to 1 *s.* 6 *d.* *per* pair, their use is to set the Tongs and Fire-shovel against. 4. *Curtain-hooks*. 5. *Hooks* for Doors, Gates, *&c.* These are from 3 *d.* $\frac{1}{2}$ to 4 *d.* *per* lb. 6. *Double-line-hooks*, large and small. 7. *Single-line-hooks*, large and small. 8. *Tenter-hooks*, of various sorts, *viz.* 2 *d.* 2 *d.* 4 *d.* 6 *d.* 10 *d.* 20 *d.* and 40 *d.*

## *Horsham stone.*

1. *What.*] Is a kind of thin broad Slate of a greyish Colour, much used in some parts of *Sussex* formerly, not only to heal, [illegible]

or

or cover Churches and Chancels, but ſome great Houſes alſo; it is call'd *Horſham-ſtone*, in that County, becauſe it is for the moſt part brought from a Town there called *Horſham*; this ſort of Stone, or Slate rather, is laid of different Sizes, *viz.* From 8 or 9 Inches, to 24 Inches, or more in length, or breadth, *&c.* It is commonly from $\frac{1}{2}$ Inch, to 1 Inch thick.

2. *Of the Price of Horſham-ſtone.*] The value of them is according to the diſtance from the Quarry, *viz.* From 10 to 20 *s. per* Load, I have known a Load of them laid in for 17 or 18 *s.* at 18 or 20 Miles diſtance from the Quarry. A Load of theſe, (as I have been inform'd from thoſe that have made ſome Obſervations on this Matter,) will cover about $\frac{1}{4}$ of a Square.

3. *Of Laying.*] The Price of laying a Square and Pointing, (which is ſtriking Mortar under the lower ends) in new Work, 5 or 6 *s.* But to rip it from old, and new lay and point it, not leſs than 6 or 7 *s. per* Square, which is the loweſt I ever knew it done for.

4. *Of the weight of this ſort of Healing.*] I have been informed by an obſerving Mechanick, that a Square of this kind of covering will weigh about 33 or 34 C weight. Whereas, ſaith he, a Square of *Tiling* doth not weigh above 16 or 17 C weight. Nay, he is confident not above 18 C weight, if it be gaged at 6 Inches, and the Tiles not exceeding 10 Inches long. (Nay, I know that in many Places they fall ſhort of that.)

5. *Of the Properties of this ſort of Covering.*] From what hath been ſaid before, you may eaſily gather that this ſort of Healing is dearer than Tiles; for the Charge of a Square of *Tyling*, is from about 23 *s.* to 30 *s.* or as ſome will have it from 24 to 28 *s. per* Square; whereas I find by Calculations from ſome Obſervations, a Square of Healing with *Horſham-ſtone*, will be worth from 32 *s.* to 38 *s.* And beſides for this ſort of Covering, the Timber for the Roof, ought to be conſiderably ſtouter and ſtronger, becauſe a Square of this ſort of Stone is almoſt as heavy again as a Square of Tyling. Now that which I ſuppoſe to be the cauſe why theſe Stones have been ſo much in uſe for Churches, *&c.* muſt be, becauſe they are far more durable than Tiles; which makes ſome Recompence for the Charge; for ſome ſay theſe Stones are very durable, being for the moſt part very hard, ſo that no Weather will do them any hurt, as it will Tiles.

## *Houſe.*

1. *What.*] 'Tis a thing ſo well known, that every one that knows any thing, is ſenſible of the Contrivance whereby Men preſerve themſelves and their Goods from the Injuries of the Weather, and other Inconveniencies.

In

In treating of this word, *Houſe*, I ſhall here do theſe 4 things. *1ſt.* Diſcourſe concerning the Situation of a Countrey-houſe. *2dly*, Of the Ground-work of Houſes. *3dly*, Concerning Building in *London*. *4thly*, and laſtly, Diſcourſe of Party-walls.

The Reaſon why I ſhall add no more under this Title Houſe, is this; becauſe I ſufficiently treat of theſe 6 things, *viz. Situation, Contrivance, Receipt, Strength, Beauty*, and *Form*, or *Figure*, in the word *Building*.

2. *Of the Site of a Countrey-houſe.*] To what I have ſaid, concerning the Situation of a Countrey-houſe, in the word *Building*, I ſhall here add, that Woods, as well as Water, ought to be near your Countrey Habitation; they being the principal things that adorn a Rural Seat: But if you cannot conveniently Seat your *Houſe* among the Trees, yet there are but few places, but you may ſpeedily raiſe Trees about your Houſe; according to Mr. *Evelyn*'s, or Mr. *Worlige*'s Directions.

It is far better to a have *Houſe*, defended by Trees than Hills, for Trees yield a Cooling, Refreſhing, Sweet, and Healthy Air, and Shade, during the Heat of the Summer, and very much break the cold Winds and Tempeſts from every Coaſt in the Winter. The Hills, according as they are Situated, defend only from ſome certain Winds; and if they are on the *North* ſide of your *Houſe*, as they defend you from the cold Air in the Winter, ſo they alſo deprive you of the cool refreſhing Breezes which are commonly blown from thence in the Summer. And if Hills are Situated on the *South* ſide, it then proves alſo very inconvenient. Beſides, they yield not the Pleaſures and Contentments, nor the Varieties of Oblectations to the ingenious Ruſtick, as the tall Plumps of Trees, and pleaſant Groves do, Yet Hills which are cloathed with Coppices, or otherwiſe improved are pleaſant Objects, if they ſtand not too near a Houſe.

Let not your Houſe be too low ſeated, leaſt you loſe the Conveniency of Cellars; but if you cannot avoid Building on low Grounds, ſet the *1ſt.* Floor above the Ground, in your Houſe the higher, to ſupply what you want to ſink in your Cellar in the Ground; for in ſuch low and moiſt Grounds, it conduceth much to the dryneſs, and healthineſs of the Air to have Cellars under the Houſe, ſo that the Floors be good and cieled underneath.

Not to ſpeak of the Building of Places, or Seats for the Nobility, or Gentry, but only of plain and ordinary *Farm-houſes*. I have thus much obſerved, (ſaith Mr. *Worlige*,) that Houſes built too high in places obvious to the Winds, and not well defended by Hills, or Trees, require more Materials to build them, and more alſo of Reparations to maintain them, and are not ſo commodious to the Inhabitants as the lower built

*Houſes*

*Houſes*, which may be made at a much eaſier rate, and alſo as compleat and beautiful as the other.

3. *Of the Ground-work of Houſes.*] Buildings, or Houſes, that are not above 2 Stories with the Ground-room, and not exceeding 20 Foot to the Raiſon-place, and upon a good Foundation, the length of 2 Bricks, or 18 Inches for the Heading courſe, will be ſufficient for the *Ground-work* of any common Structure, and 6 or 7 Courſes above the Earth to a *Water-table*, where the thickneſs of the Walls are abated; (or taken in) on either ſide the thickneſs of a Brick, namely, 2 $\frac{1}{4}$ Inches.

But for large and high *Houſes*, or *Buildings*, of 3, 4 or 5 Stories with the Garrets: The *Walls* of ſuch Edifices ought to be from the Foundation to the *1ſt. Water-table*. 3. Heading courſe of Brick, or 28 Inches at the leaſt, and at every Story a *Water-table*, or taken in on the inſide for the Summers, Girders, and Joyſts to reſt upon, laid into the middle, or $\frac{1}{4}$ of the Wall, at leaſt for the better Bond. But as for the innermoſt, or *Partition-wall*, one $\frac{1}{2}$ Brick will be of a ſufficient thickneſs: And for the upper Stories a 9 Inch (or Brick a length) Wall will very well ſuffice.

4. *An Act concerning Building of Houſes in London.*] What here follows is ſo much of the Act only as relates to the *Bricklayer's-work*, *viz.* The heighths and number of Stories, and thickneſs of Walls of the 4 ſeveral Rates of *Houſes*, which is as follows.

And be it further Enacted, That the *Houſes* of the *1ſt.* and leaſt ſort of Building, fronting by Streets or Lanes, as aforeſaid, ſhall be of 2 Stories high, beſides Cellars and Garrets, that the Cellars thereof be 6 $\frac{1}{2}$ Foot high, if the Springs of Water hinder not; and the *1ſt.* Story be 9 Foot high from the Floor to the Ceiling, and the ſecond Story be 9 Foot high from the Floor to the Ceiling; that all the *Walls* in Front and Rear, as high as the *1ſt.* Story, be of the full thickneſs of the length of 2 Bricks, and thence upwards to the Garrets of the thickneſs of one brick and half; and that the thickneſs of the Garret *Walls* on the back part be left to the Diſcretion of the Builder, ſo that the ſame be not leſs than one Brick a length; and alſo that the thickneſs of the *Party-walls* between theſe *Houſes* of the *1ſt.* and leſſer ſort of Buildings be 1 Brick and $\frac{1}{2}$ as high as the ſaid Garrets, and that the thickneſs of the Party-wall in the Garret be of the thickneſs of the length of 1 Brick, at leaſt.

And be it further Enacted, that the *Houſes* of the ſecond ſort of Building fronting Streets, and Lanes of Note, and the River of *Thames* ſhall conſiſt of 3 Stories high, beſides Cellars and Garrets, as aforeſaid; that the Cellars thereof be 6 Foot and $\frac{1}{2}$ high, (if the Springs hinder not) that the *1ſt.* Story contain

tain full 10 Foot in heighth from the Floor to the Ceiling: The second full 10 Foot: The third 9 Foot: That all the said *Walls* in Front and Rear, as high as the 1*ſt.* Story, be 2 Bricks and $\frac{1}{2}$ thick. and from thence upward to the Garret-floor, of 1 Brick and $\frac{1}{2}$ thick; and the thickneſs of the Garret *Walls* on the back part be left to the Diſcretion of the Builder; ſo that the ſame be not leſs than 1 Brick thick: And alſo that the thickneſs of the *Party-walls* between every *Houſe* of this ſecond, and larger ſort of Building be 2 Bricks thick as high as the 1*ſt.* Story, and thence upwards to the Garrets, of the thickneſs of 1 Brick and a $\frac{1}{2}$.

Alſo, that the *Houſes* of the 3*d.* ſort of *Buildings*, fronting the high and principal Streets, ſhall conſiſt of 4 Stories high, beſides Cellars and Garrets, as aforeſaid: That the 1*ſt.* Story contain full 10 Foot in heighth from the Floor to the Ceiling, the ſecond 10 Foot and $\frac{1}{2}$, and the third 9 Foot, the fourth 8 Foot and $\frac{1}{2}$: That all the ſaid *Walls* in Front and Rear, as high as the 1*ſt.* Story be 2 Bricks and $\frac{1}{2}$ in thickneſs, and from thence upwards to the Garret-floor, of the thickneſs of 1 Brick and $\frac{1}{2}$: That the thickneſs of the Garret-walls on the back part be left to the Diſcretion of the Builder, ſo as the ſame be not leſs than 1 Brick: And alſo that the *Party-walls* between every *Houſe* of this 3*d.* and larger ſort of Building be 2 Bricks thick as high as the 1*ſt.* Floor, and thence upwards to the Garret-floor, the thickneſs of 1 Brick and $\frac{1}{2}$.

And, be it further Enacted, that all *Houſes* of the 4*th.* ſort of *Building*, being *Manſion houſes*, and of the greateſt bigneſs, not fronting upon any of the Streets, or Lanes, as aforeſaid, the number of Stories, and the heighth thereof, ſhall be left to the Diſcretion of the Builder, ſo as he exceeds not 5 Stories.

Alſo, the ſame Act enjoyns, that no *Timber* be laid within 12 Inches of the fore-ſide of the *Chimney-jambs*, and that all *Joyſts* on the back of any *Chimney* be laid with a *Trimmer*, at 6 Inches diſtance from the Back: Alſo that no *Timber* be laid within the Tunnel of any *Chimney*, upon Penalty to the Workman, for every Default 10 *s.* and 10 Shillings every Week it continues unreformed.

Thus far the Act.

Note further, when you lay any *Timber* on *Brick-work*, as Taſſels, (or Torſels) for Mantle-trees to lie on, or *Lintels* over Windows, or *Templets* under *Girders*, or any other Timbers; lay them in *Loam*, which is a great preſerver of *Timber*; for Mortar eats and corrodes the *Timber*: Likewiſe the *Joyſt* ends, and *Girders* which lie in the Walls, muſt be loamed all over to preſerve them from the Corroding of the Mortar. Some Workmen pitch the ends of the *Timber* that lie in the Walls to preſerve them from the Mortar.

5. *Con-*

5. *Concerning Party-walls.*] In discourſing of this Matter, I will preſent the Reader with two different Methods of valuing ſuch *Walls* according to 2 different Surveyers, *viz.* Mr. *Leybourn*, and Mr. *Phillips*.

And 1*ſt.* according to Mr. *Leybourn*.

Now, (ſaith he,) foraſmuch as the *Buildings* in *London* joyn one upon another, and almoſt every ſeveral Houſe hath a diſtinct Proprietor, the Parliament hath decreed, that the *Wall* dividing Proprietors Ground, ſhall be built at the equal charge of both the Owners; it will not therefore be impertinent to ſhow how theſe *Party-walls* are to be valued.

All Brick-work, whether it be 1, 2 3, 4, or any other number of Bricks lengths in thickneſs, they are all to be reduced to the thickneſs of 1 Brick and ½.

It hath been obſerved, (ſaith he,) that about 4500 of Bricks, 100 and a quarter of *Lime*, 2 ½ Loads of *Sand* will compleatly raiſe one Rod of *Brick-work*, of a Brick and ½ thickneſs.

| | *l.* | *s.* | *d.* |
|---|---|---|---|
| Now 4500 of Bricks at 16 *s. per* 1000, is —— | 3 | 12 | 0 |
| A Hundred and quarter of Lime at 10 *s. per* C. —— | 0 | 12 | 6 |
| Two Load and ½ of Sand at 3 *s. per* Load. —— | 0 | 7 | 6 |
| In all —— | 4 | 12 | 0 |

And thus much will a Rod of *Party-wall*, (the Materials only) reduced to Brick and ½ thick, amount unto at the former ſuppoſed Rates, to which may be added for Workmanſhip.

| | | | |
|---|---|---|---|
| | 1 | 8 | 0 |
| The whole Sum is | 6 | 0 | 0 |

So that for every Rod that is in a *Party-wall*, between Proprietor and Proprietor, they are to allow 3 *l.* a piece for every Rod of Party-wall. So that if a *Party-wall* meaſured, and the meaſure reduced to a Brick and ½, ſhould be found to contain 16 Rods, that 16 being multiplied by 3 *l.* giveth 48 *l.* and ſo much is the one Proprietor to allow the other.

But note by the way, that altho' this Rule here deliver'd be general, yet the Price of the *Party-wall* ſhall be more or leſs, according as Materials riſe or fall. For ſometimes a Rod of Wall of Brick and ½ thick, will coſt but 5 *l.* 10 *s.* and then each Proprietor muſt pay but 55 *s. per* Rod. Thus far Mr. *Leybourn*. I will now add Mr. *Phillip*'s way.

Now, (ſaith he,) having the Dimenſions, both in length and heighth of the Cellar, and all other Stories in the *Houſe*, then the following Tables will ſhew (according to the thickneſs

neſs of the Wall,) how many Bricks your Neighbour is to pay for towards his *Party-wall*.

For which purpoſe the inſuing Tables will ſerve very well; for theſe *Walls*, according to the Act of Parliament, for this purpoſe are to be made part of them of 2 Bricks thick, part of them of 1 Brick and half thick, and part of them of 1 Brick thick.

Now knowing the number of Bricks which go to the making of the *Wall*, you may eaſily compute the Charge of the Mortar and Workmanſhip thereof, and from thence find the whole Charge, which you will find, (ſaith he) to be about 30 *s.* for every 1000 of Bricks, (I think Mr. *Phillip*'s his Price is too great; for I think 25 or 26 *s. per* 1000 is very well, but he acknowledges that Bricks then were ſomething dear, *viz.* about 18 or 20 *s. per* 1000.)

He then proceeds to an Example; ſuppoſe a *Houſe* of the third Rate, the *Party-wall* thereof being 30 Foot long, and you would know how many Bricks are to be paid for towards this *Party-wall*.

Firſt, Meaſure the Cellar where the *Party-wall* is to be 2 Bricks thick, the length whereof is 30 Foot, and the depth 7 Foot, find this length in the tide, and the depth in the top of the Table, and in the Square of meeting in the Table for one Brick thick, you will find 2314 Bricks are to be paid for.

Then proceed to the 1*ſt.* Story, which will be likewiſe 30 Foot long, and 10 Foot high, and alſo 2 Bricks thick, the ſame Table ſhews the allowance for this. 3306

The ſecond Story alſo is 30 Foot long, and 10 $\frac{1}{2}$ high, but the *Party-wall* is to be but a Brick and $\frac{1}{2}$ thick, the $\frac{1}{2}$ whereof is $\frac{1}{4}$ of a Brick, and this in the Table of $\frac{1}{4}$ of a Brick, yields for 30 Foot long, and 10 Foot high. 2479

And for the $\frac{1}{2}$ Foot more in heighth. 124

The 3*d.* Story is 9 Foot high, and 30 Foot long, being likewiſe a Brick and $\frac{1}{2}$ thick; and for this the Table ſhews the $\frac{1}{2}$ to pay for is 2231

The 4*th.* Story is 8 Foot and $\frac{1}{2}$ high, and 30 Foot in length, for the 8 Foot the Table ſhews. 1983

and for the $\frac{1}{2}$ Foot 124

All which added together, make 12559

which are to be paid for the half of the *Party-wall*, which at 26 *s. per* thouſand, comes to 86 *l.*—6 *s.*—6 *d.*

Thus you may ſee what any Party-wall comes to, tho' your Neighbour's Houſe joyns never ſo little, or much to yours, as readily as you can by meaſuring by the Rod.

And whereas the Floors of the ſeveral Stories add ſomewhat

what to the heighth, you may add ſomewhat for them according as you find them in thickneſs.

Laſtly, for the Garrets, the *Walls* thereof being but 1 Brick thick, you may take ½ the number in the Table of 1 Brick's thickneſs, and add to the reſt of the Account.

All the difference that can be between Neighbours herein, will be about the Price of Bricks, and the Lime, and Workmanſhip; but if Neighbours Build together, they will eaſily determine it; but if they do not, yet the 1*ſt*. Builder is ſufficiently provided by his Workmen to rectifie his Charge, and by Act of Parliament is allowed full Satisfaction, with Intereſt from the time of his Building.

In the inſuing Pages are thoſe Tables which we have been treating of.

*A Table for* 1 *Brick in thickneſs, or the half of* 2 *Bricks.*

*The Walls heighth in Feet.*

| Foot long. | ½ Bricks | I. Bricks | II. Bricks | IIÞ. Bricks | IV. Bricks | V. Bricks |
|---|---|---|---|---|---|---|
| 1 | 5 | 11 | 22 | 33 | 44 | 55 |
| 2 | 11 | 22 | 44 | 66 | 88 | 110 |
| 3 | 16 | 33 | 66 | 99 | 132 | 165 |
| 4 | 22 | 44 | 88 | 132 | 176 | 220 |
| 5 | 27 | 55 | 110 | 165 | 220 | 275 |
| 6 | 33 | 66 | 132 | 199 | 264 | 331 |
| 7 | 39 | 77 | 154 | 231 | 309 | 386 |
| 8 | 44 | 88 | 176 | 264 | 353 | 441 |
| 9 | 50 | 99 | 198 | 298 | 397 | 496 |
| 10 | 55 | 110 | 220 | 331 | 441 | 551 |
| 11 | 61 | 121 | 244 | 364 | 485 | 606 |
| 12 | 66 | 132 | 264 | 397 | 529 | 661 |
| 13 | 72 | 143 | 286 | 431 | 573 | 716 |
| 14 | 77 | 154 | 309 | 462 | 617 | 771 |
| 15 | 83 | 165 | 331 | 496 | 661 | 826 |
| 16 | 88 | 176 | 355 | 529 | 705 | 882 |
| 17 | 94 | 187 | 375 | 562 | 749 | 937 |
| 18 | 99 | 198 | 397 | 595 | 793 | 992 |
| 19 | 105 | 209 | 419 | 628 | 837 | 1047 |
| 20 | 110 | 220 | 441 | 661 | 882 | 1102 |
| 21 | 116 | 231 | 463 | 694 | 926 | 1157 |
| 22 | 121 | 242 | 485 | 726 | 970 | 1212 |
| 23 | 127 | 253 | 507 | 760 | 1014 | 1267 |
| 24 | 132 | 264 | 529 | 793 | 1058 | 1322 |
| 25 | 138 | 275 | 551 | 826 | 1102 | 1377 |
| 26 | 143 | 286 | 573 | 860 | 1146 | 1432 |
| 28 | 154 | 309 | 617 | 926 | 1234 | 1543 |
| 30 | 165 | 331 | 661 | 992 | 1322 | 1653 |
| 40 | 220 | 441 | 881 | 1322 | 1763 | 2204 |
| 50 | 275 | 551 | 1102 | 1652 | 2204 | 2755 |

*A Table for* 1 *Brick in thickneſs, or the half of* 2 *Bricks.*

*The Walls heighth in Feet.*

| Foot long. | VI. Bricks | VII. Bricks | VIII. Bricks | IX. Bricks | X. Bricks |
|---|---|---|---|---|---|
| 1 | 60 | 77 | 85 | 99 | 110 |
| 2 | 132 | 154 | 176 | 198 | 220 |
| 3 | 198 | 231 | 264 | 298 | 331 |
| 4 | 264 | 309 | 353 | 397 | 441 |
| 5 | 331 | 386 | 441 | 496 | 551 |
| 6 | 397 | 463 | 529 | 595 | 661 |
| 7 | 463 | 540 | 617 | 694 | 771 |
| 8 | 529 | 617 | 705 | 793 | 882 |
| 9 | 595 | 694 | 793 | 893 | 992 |
| 10 | 661 | 771 | 882 | 992 | 1102 |
| 11 | 727 | 848 | 970 | 1091 | 1212 |
| 12 | 793 | 926 | 1058 | 1190 | 1322 |
| 13 | 859 | 1003 | 1146 | 1289 | 1433 |
| 14 | 926 | 1080 | 1234 | 1388 | 1543 |
| 15 | 992 | 1157 | 1322 | 1488 | 1653 |
| 16 | 1058 | 1234 | 1410 | 1587 | 1763 |
| 17 | 1124 | 1311 | 1499 | 1686 | 1873 |
| 18 | 1190 | 1388 | 1587 | 1787 | 1983 |
| 19 | 1256 | 1466 | 1675 | 1884 | 2094 |
| 20 | 1322 | 1543 | 1763 | 1983 | 2204 |
| 21 | 1388 | 1620 | 1851 | 2083 | 2314 |
| 22 | 1455 | 1697 | 1939 | 2182 | 2424 |
| 23 | 1520 | 1774 | 2028 | 2281 | 2534 |
| 24 | 1587 | 1851 | 2116 | 2380 | 2645 |
| 25 | 1653 | 1928 | 2204 | 2479 | 2755 |
| 26 | 1719 | 2006 | 2292 | 2578 | 2865 |
| 28 | 1857 | 2160 | 2468 | 2777 | 3085 |
| 30 | 1983 | 2314 | 2645 | 2975 | 3306 |
| 40 | 2645 | 3085 | 3526 | 3967 | 4408 |
| 50 | 3306 | 3857 | 4408 | 4959 | 5510 |

*A Table for 3 quarters of a Brick thick, being the half of a Brick and half.*

*The Walls heighth in Feet.*

| Foot long. | I. Brick | I. Brick | II. Bricks | III. Bricks | IV. Bricks | V. Bricks |
|---|---|---|---|---|---|---|
| 1 | 4 | 8 | 17 | 25 | 33 | 41 |
| 2 | 8 | 17 | 33 | 50 | 66 | 83 |
| 3 | 12 | 25 | 50 | 74 | 99 | 124 |
| 4 | 17 | 33 | 66 | 99 | 132 | 165 |
| 5 | 21 | 41 | 83 | 124 | 165 | 207 |
| 6 | 25 | 50 | 99 | 149 | 198 | 248 |
| 7 | 29 | 58 | 116 | 174 | 231 | 289 |
| 8 | 33 | 66 | 132 | 198 | 264 | 331 |
| 9 | 37 | 74 | 149 | 223 | 298 | 372 |
| 10 | 41 | 83 | 165 | 248 | 331 | 413 |
| 11 | 45 | 91 | 182 | 273 | 364 | 455 |
| 12 | 50 | 99 | 198 | 298 | 397 | 496 |
| 13 | 54 | 107 | 215 | 322 | 430 | 537 |
| 14 | 58 | 116 | 231 | 347 | 463 | 578 |
| 15 | 62 | 124 | 248 | 372 | 496 | 620 |
| 16 | 66 | 132 | 264 | 397 | 529 | 661 |
| 17 | 70 | 140 | 281 | 421 | 562 | 702 |
| 18 | 74 | 149 | 298 | 446 | 595 | 744 |
| 19 | 79 | 157 | 314 | 471 | 628 | 785 |
| 20 | 83 | 165 | 331 | 496 | 661 | 826 |
| 21 | 87 | 174 | 347 | 521 | 694 | 868 |
| 22 | 91 | 182 | 369 | 545 | 727 | 909 |
| 23 | 95 | 190 | 380 | 570 | 760 | 950 |
| 24 | 99 | 198 | 397 | 595 | 793 | 992 |
| 25 | 103 | 206 | 413 | 620 | 826 | 1033 |
| 26 | 107 | 215 | 430 | 645 | 860 | 1074 |
| 28 | 116 | 231 | 463 | 694 | 926 | 1157 |
| 30 | 124 | 248 | 496 | 744 | 992 | 1240 |
| 40 | 165 | 331 | 661 | 992 | 1322 | 1653 |
| 50 | 207 | 413 | 826 | 1240 | 1653 | 2066 |

*A Table for 3 quarters of a Brick thick, being the half of a Brick and half.*

*The heighth of the Walls in Feet.*

| Foot long. | VI. Bricks | VII. Bricks | VIII. Bricks | IX. Bricks | X. Bricks |
|---|---|---|---|---|---|
| 1 | 50 | 58 | 66 | 74 | 83 |
| 2 | 99 | 116 | 132 | 149 | 165 |
| 3 | 149 | 174 | 198 | 223 | 248 |
| 4 | 198 | 231 | 264 | 298 | 331 |
| 5 | 248 | 289 | 331 | 372 | 413 |
| 6 | 298 | 347 | 397 | 446 | 496 |
| 7 | 347 | 405 | 463 | 521 | 579 |
| 8 | 394 | 463 | 529 | 595 | 661 |
| 9 | 446 | 521 | 595 | 660 | 744 |
| 10 | 496 | 579 | 661 | 744 | 826 |
| 11 | 545 | 636 | 727 | 818 | 900 |
| 12 | 595 | 691 | 793 | 893 | 992 |
| 13 | 645 | 752 | 860 | 976 | 1074 |
| 14 | 694 | 810 | 926 | 1041 | 1157 |
| 15 | 743 | 868 | 992 | 1117 | 1240 |
| 16 | 793 | 926 | 1058 | 1189 | 1322 |
| 17 | 843 | 983 | 1124 | 1264 | 1405 |
| 18 | 893 | 1041 | 1190 | 1339 | 1488 |
| 19 | 942 | 1099 | 1256 | 1413 | 1570 |
| 20 | 992 | 1157 | 1322 | 1488 | 1653 |
| 21 | 1041 | 1215 | 1388 | 1562 | 1736 |
| 22 | 1091 | 1273 | 1455 | 1636 | 1818 |
| 23 | 1140 | 1331 | 1521 | 1711 | 1901 |
| 24 | 1190 | 1388 | 1587 | 1785 | 1983 |
| 25 | 1240 | 1446 | | 1860 | 2066 |
| 26 | 1290 | 1504 | 1709 | 1934 | 2149 |
| 28 | 1338 | 1620 | 1851 | 2083 | 2314 |
| 30 | 1488 | 1736 | 1983 | 2231 | 2479 |
| 40 | 1983 | 2324 | 2625 | 2975 | 3306 |
| 50 | 2479 | 2893 | 3306 | 3719 | 4132 |

*6. I ſhall here add an Abſtract of the Act.*] Being a Table of Proportions for Brick-walls, number and heighth of Stories, *&c.* In the Building of 3 ſorts of *Houſes*, (*viz.* The 3 *1ſt.* Rates) in the City of *London*, according to the Act of Parliament.

| The Rates, or ſorts of Houſes. | Several Stories. | Feet in heighth. The depth of the Cellars, and heighth of the ſeveral Stories. | Brick length in thickneſs. The thickneſs of the Walls of each Houſe in Front and Rear. | Brick length in thickneſs. The thickneſs of the Party-walls between Houſe and Houſe. |
|---|---|---|---|---|
| The *1ſt.* or leaſt ſort of Houſes, fronting by Streets and Lanes, are to have | Cellars,<br>1 Story,<br>2 Stories,<br>Garrets. | 6½<br>9<br>9 | 2<br>2<br>1½<br>1 | 1½<br>1½<br>1½<br>1 |
| The *2d.* ſort of Houſes fronting leſſer Streets, and Lanes of note, and the *Thames* ſide are to have | Cellars,<br>1 Story,<br>2 Stories,<br>3 Stories,<br>Garrets. | 6½<br>10<br>10<br>9 | 2½<br>2½<br>2<br>1½<br>1 | 2<br>2<br>1½<br>1½<br>1 |
| The *3d.* ſort of Houſes fronting high Streets are to have | Cellars,<br>1 Story,<br>2 Stories,<br>3 Stories,<br>4 Stories,<br>Garrets. | 6½<br>10½<br>10<br>9<br>8½ | 2½<br>2½<br>2<br>1½<br>1½<br>1 | 2<br>2<br>1½<br>1½<br>1½<br>1 |

More concerning Building of *Houſes* you may find under the Head *Architect*; alſo a very ample account under the Head *Building*, where are theſe following Paragraphs and Sections, *viz.* 1. Conſiderations about *Buildings*; 2. *Aphoriſms*, which is ſub divided into the following 7 Sections.

1. *Situation*, in reſpect of the whole.
2. *Contrivance*, with ſome Precautions.
3. Receipt.
4. *Strength*, with Directions about it.
5. *Beauty*, in the whole and parts.
6. *Form*, *Figure*, or *Faſhion*, and what Figure is ſtrongeſt and moſt convenient.

III. The third Paragraph, contains a Compariſon betwixt the Modern, and ancient way of Building in *England*,

IV. Contains ſome general Rules which ought to be obſerved in Building all *Houſes*, both in the City, and the Countrey.

V. Contains a Method of Surveying of *Buildings*, or *Houſes*, and alſo the Method of taking of Dimenſions, and ſetting them down in a Pocket book, or the like; and alſo the Form of a *Bill of Meaſurement*.

VI. This *6th*. Paragraph is of the Method of Meaſuring all Artificer's Works, relating to Building of *Houſes*, &c.

VII. In the ſeventh Paragraph, there is ſhewed a Method how you may nearly value all ſorts (almoſt) of Buildings, whether they are great or ſmall.

VIII. You have in the eighth Paragraph a Method of *Cenſuring* Buildings, or *Houſes*, *viz.* Directions how to paſs ones Judgment on a Fabrick (that is already Built,) whether it be well and firmly compacted, and whether well contrived, as to the whole, and all its parts ſeparately, for Uſe, or Conveniency; and as to its Beauty, whether its Parts be placed in an uniform Order and whether the Deſigner, or Maſter Builder obſerved a due Symmetry, or Proportion of the Parts, in reſpect of one another, *&c.*

IX. And laſtly, under the Head *Building*, you have ſome Directions concerning adviſing with Workmen about the Charge of Building any Houſe: And how much a Builder, (or Gentleman that is going to Build) is the wiſer for ſuch Men's Advice commonly, I mean if he adviſe with ſuch as are to do the Work: Tho' otherwiſe perhaps he may be well inform'd by ſome ingenious Workmen that underſtand the Speculative Part of Architecture, or Building: But of theſe knowing ſort of Artificers there are but few, becauſe but few Workmen look any further than the Mechanical, Practick, or Working Part of *Architecture*; not regarding the Mathematical, or Speculative Part of Building, thinking it to be of little or no uſe; this I know to be true, becauſe I have heard ſome Workmen, (who thought themſelves none of the Ignoro's, tho' at the ſame time I had the liberty to think as I pleas'd, which was in truth almoſt quite contrary; for as they thought themſelves Men of Science [or Skill,] I thought ſo too almoſt, only I thought that the Particle *Ne* was wanting before the word Science; for if that had been prefix'd, then it might have been very well applied to have ſignified the acquired Intellectual Habits of ſuch Men as affirm that the Theory, or Speculative part of Architecture was of no uſe, becauſe, ſay they it is falſe: But 'tis the humour of ſome Men to ſlight and contemn ſuch things as they are not Maſters of, and do not know which way to attain them, as being beyond their reach. Like

the Fox in the Fable, who deſpiſed Grapes, becauſe they grew too high for him to come at.

Thus I have ſhewed you, that what is wanting under this Head, you may find ſupplied in the word *Building*.

## *Houſing*,

A Term uſed by ſome Bricklayers, for when a *Tile*, or *Brick* is warped, or caſt crooked or hollow in burning, they then ſay ſuch a *Brick*, or *Tile* is *Houſing*; they are apt to be *Houſing*, or hollow on the ſtruck ſide, (or that which was upmoſt in the Mold,) and *Bricks* on the contrary ſide.

Alſo ſome obſerve that *Tiles* are always ſmootheſt, when burnt an the ſtruck-ſide, by reaſon the Sand ſticks to the under-ſide, which they ſtrew on the Stock of the Mold, to prevent the Earth's adhering to it.

## *Hyperthyron*,

The Lintel, or Cap-piece of a Door-caſe, according to *Vitruvius*. 'Tis alſo uſed to ſignifie a large Table in manner of a Frieze above Dorick Gates.

## *Hypotrachelium*, or, *Hypotrachelion*.

*What.*] V. Capital, N. 2. and 3.

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## *Jack*.

V. Architrave, N. 2.

## *Jambs*, or, *Jaums*,

Door-poſts, alſo the upright Poſts at the ends of Window-frames, are ſo call'd. Alſo, Bricklayers call the upright ſides of Chimneys, (from the Hearth to the Mantle-tree,) by this Name.

## *Ichnography*,

A Deſcription, or Draught of the Plat-form, or Ground-work of a Houſe, or other Building.

## *Impoſt*,

Is a Term in Architecture, which the Writers of this Science leave very much in the dark; eſpecially as to any account of its uſe: But by what I can learn at preſent, I underſtand *Impoſts* to be the Capitals of Pilaſters that ſupport Arches. There are as many kinds of *Impoſts*, as there are Orders of Columns; the

the particular *Forms* and *Dimenſions*, of each of which I ſhall defer till another Impreſſion: For tho' I could at the preſent have done this; yet I thought it better to defer it till ſuch time as I ſhall be *capable* to give a better account of their Situation and Uſe; which I hope ſhall be when the Bookſeller has furniſhed me with thoſe other pieces of Architecture which he has promis'd me, but has not yet procur'd for me.

## *Intercolumniation,*

In Architecture, ſignifies the ſpace or diſtance betwixt the Columns, or Plaiſters.

In the { Tuſcan, Dorick, Ionick, Corinthian, Compoſite } Order.

The Intercoluminaton muſt be { 4, 3, 2, 2 1/4, 1 1/2 } Diameters of the Body of the Column below.

## *Inter-ties, -duces,*

In Architecture, are thoſe ſmaller pieces of Timber that lie Horizontally betwixt the Summers, or betwixt them and the Sell, or Reſon.

## *Jobents.*

V. Nails. N. 10.

## *Joggle-piece.*

As Crown-poſt.

## *Joyners* { *Brads*, *Rivets.*

V. { Brads. N. Rivets. N.

## *Joyners-work.*

V. The Particulars in their proper place of the Alphabet.

## *Joyſts.*

1. *What.*] Joyſts, in Architecture, are thoſe pieces of Timber (fram'd into the Girders and Summers,) on which the Boards of the Floors are laid.

2. *Scantlings.*] Joyſts at full length (to bear in the Wall,) I ſay, their full length

being { 12 Foot, / 11 Foot, 6 Inches, / 10 Foot, 6 Inches, } they ought to be in their

Squares { 8 Inches and 3 Inches. / 7 Inches and 3 Inches. / 6 Inches and 3 Inches. }

And Binding, or Trimming-joysts being

in length { 7 Foot, / 9 Foot, / 11, or 12 Foot, } ought to be in their

Squares { 6 Inches, and 5 Inches. / 7 Inches, and 5 Inches. / 8 Inches, and 5 Inches. }

3. *Distance and Position.*] (1.) No Joysts ought to lie at a greater distance from each other than 10, (or at most than 12) Inches. (2.) All Joysts on the back of a Chimney ought to be laid with a Trimmer, at 6 Inches distance from the back. (3.) No Joysts ought to bear at a longer length than 10 Foot. (4.) No Joysts ought to lie less than 8 Inches into the Brick-wall. (5.) Some Carpenters Furr the Joysts, (as they call it,) that is, they lay 2 rows of Joysts one over another; the undermost of which are fram'd level with the under-side of the Girder, and the uppermost (which lie cross the lower ones,) lie level with the upper side of the Girder.

## *Ionick Order.*

V. Column. N. 3.

## *Iron.*

1. *What.*] Iron is a Metal so universally known, that I neither need to, nor shall spend time it its Description.

2. *Kinds.*] There are several kinds of Iron, as (1.) *English*, which is a course sort of Iron, hard and brittle, fit for Fire-bars, and other such course uses. (2.) *Swedish*, which is of all sorts the best we use in *England*. It is a fine tough sort of Iron, will best endure the Hammer, and is softest to file, and therefore most coveted by Workmen to work upon. (3.) *Spanish*, This would be as good as *Swedish* Iron, were it not subject to *Red fear*, (as Workmen phrase it,) that is to crack betwixt hot and cold. Therefore when it falls under your Hands, you must tend it more carefully at the Forge. But tho' it be a good, tough, soft Iron, yet, for many uses Workmen refuse it, because 'tis so ill and unevenly wrought in the Bars, that it costs them a great deal of labour to smooth it; but it is good for all great Works that require Welding; as the Bodies of Anvils, Sledges, large Bell-clappers, large Pestles for Mortars,

Mortars, and all thick ſtrong Bars, *&c.* But 'tis particularly choſen by Anchor-ſmiths, becauſe it abides the Heat better than other Iron, and when 'tis well wrought, is toughest. (4.) There is ſome Iron that comes from *Holland*, (tho' in no great quantity,) but is made in *Germany*. This ſort of Iron is call'd *Dort-ſquares*, (only becauſe it comes to us from thence, and is wrought into Bars of $\frac{3}{4}$ of an Inch ſquare. 'Tis a bad courſe Iron, and only fit for courſe uſes, as Window-bars, Brewers-bars, Fire-bars, *&c.* (5.) There is another ſort of Iron us'd for making of Wire, which of all ſorts is the ſofteſt and toughest: But this ſort is not peculiar to any Countrey, but is indifferently made where any Iron is made, tho' of the worſt ſort; for 'tis the firſt Iron that runs from the Mine-ſtone when 'tis melting, and is only preſerv'd for the making of Wire.

3. *To know good.*] Generally the ſofteſt, and toughest Iron is the beſt. Therefore when you chuſe Iron, chuſe ſuch as bows oftneſt before it breaks, which is an argument of toughneſs, and ſee it breaks ſound within, be of a grey colour, like broken Lead, and free from ſuch glittering ſpecks as you ſeen in broken Antimony, and no Flaws or Diviſions in it; for theſe are Arguments that 'tis ſound, and was well wrought at the Mill.

4. *Price when wrought.*] Iron being wrought (by the Smith) into Dogs, Iron-bars, Staples, large Hooks, Thimbles, and Hinges or Hides, Grates, *&c.* The uſual Price is three Pence Half-penny, or 4 *d. per* Pound. But for ſmall and neat Hooks, Hinges, Bolts, Staples, *&c.* various, as from 4 *d.* to 8 *d. per* Pound.

5. *To make Blew.*] To beautifie Iron with a blew Colour, take a piece of a Grind-ſtone, or Whet-ſtone, and rub hard upon your Work to take off the black Scurff from it; then heat it in the Fire, and as it grows hot, you will ſee the colour change by degrees, coming firſt to a light Gold-colour, then to a darker Gold-colour; and laſtly, to a Blew-colour. But Workmen ſometimes grind Indico and Salad-oyl together, and rub that mixture upon it with a Woolen-rag, while it is heating, and let it cool of it ſelf.

6. *Of twiſting.*] Square and flat Bars of Iron are ſometimes (by Smiths) twiſted for Ornament; which is very eaſily done; for after the Bar is ſquare or flat Forged, (and if the Curioſity of the Work require it truly Fil'd,) you muſt take a *Flame-heat*, or if your Work be ſmall, but a *Blood-red-heat*, and then you may twiſt it about, as much, or as little as you pleaſe, either with the Tongs, Vice, or Hand-vice, *&c.*

## *Juſſers,*

A Term us'd by ſome Carpenters, for Stuff about 4 or 5 Inches ſquare, and of ſeveral Lengths.

*Kerf,*

## *Kerf*,

THE Sawn-away Slit in a piece of Timber, or Board, the way made by the Saw, is call'd a Kerf.

## *Key-ſtone.*

V. Arch. N. 6.

## *King-piece*,

As Crown-poſt.

## *Knee*,

A piece of Timber cut crooked with an Angle, is call'd a *Knee-piece*, or *Knee-rafter*.

## *Keys*

For Doors are of various Prizes, according to their Size and Workmanſhip, Maſter-keys, *per* Price 2 or 3 *s.*

## *Latches*

FOR Doors are of various Kinds and Prizes. Common Iron-latches, *per* piece, 6 *d.* if large, 8 *d.* or 10 *d.* long Varniſh'd-Latches, about 10 *d. per* piece. Rim'd-Latches with a ſliding Bolt, 2 *s. per* piece, Spring-Latches, *per* piece, 1 *s.* or 1 *s.* 6 *d.*

## *Laths.*

1. *What.*] Laths are long, narrow, thin ſlips of Wood us'd in Tyling and Walling; every one knows what they are, without any further Deſcription.

2. *Kinds of.*] There are 3 kinds of Laths, *viz.* Heart of Oak, Sap laths, and Deal laths; the 2 laſt ſorts are us'd for Ceiling and Partitioning, and the firſt for Tyling only. Again, as to their length, they are each of them diſtinguiſh'd into 3 ſorts, *viz.* 5 Foot, 4 Foot, and 3 Foot-laths. All theſe ſorts of Laths are neceſſary, (eſpecially in repairing of old Buildings,) becauſe all Rafters are not ſpaced alike, nor yet the Proportion ſtrictly obſerv'd in every one and the ſame Roof. V. P. Tyling. N 8.

3 *Bundle of.*] A bundle of Laths is ſo many as are bound up together, and is generally call'd a Hundred of Laths; tho' of the 3 Foot-laths there goes 7 Score, (or 140 to the Hundred, or Bundle, and of the 4 Foot-laths, 6 Score, but of of 5 Foot Laths,) there goes but juſt 5 Score to the Hundred, or Bundle.

4. *Size*

4. *Size of.*] The Statute allows of but 2 ſorts of Laths, 1 of 5, the other of 4 Foot in length; of either ſort, each Lath ought to be in breadth an Inch and half, and in thickneſs half an Inch; but they are commonly leſs, and are ſeldom exact, either in their Tale or Meaſures.

5. *Of Cleaving.*] (1.) Lath-cleavers, having cut their Timber into lengths, they cleave each piece (with Wedges) into 8, 12, or 16 pieces, (according to the bigneſs of their Timber,) which they call *Bolts*; then they cleave theſe Bolts (with their Dowl-Ax) by the *Felt-grain*, [which is that Grain which is ſeen to run round in Rings at the end of a Tree,] into Sizes for the breadth of their Laths, and this Work they call *Felting*. Then, laſtly, (with their Chit) they cleave their Laths, into their thickneſſes, by the *Quarter-grain*, which is that Grain which is ſeen to run in ſtraight Lines towards the Pitch. (2.) Some Men affirm, that a Foot of Timber will make a bundle, or Hundred of Laths; but this I know to be a Miſtake, (unleſs the Laths are made very ſlight;) for by ſeveral Experiments, which I have caus'd to be made, I find that a Tun, or 40 Foot of Round-oaken-Timber, will not make above 30 Hundred, or Bundles of Laths. Of which number about one third part, (*viz.* 10 Hundred) will be Sap laths.

6. *Price of.*] (1.) The common Price for cleaving of Laths, is 5 *d.* or 6 *d.* the Bundle. But I know a Carpenter (in *Suſſex*) that buys a great deal of Timber, and has it cleft into Laths, and he tells me, that he uſes to give but 11 *s per* Load for the Cleaving of 'em, (reckoning a Load to be 30 Bundles, (which is not full 4 ½ *d. per* Bundle.

(2.) The Price of Laths muſt needs be various, there being ſo great Diſparity in the the Commodity, as to its Goodneſs, Plenty, or Scarcity, *&c.* But the Prizes are generally between a Shilling and half a Crown the Bundle: And the common rate for Heart-laths is about 20 *d. per* Bundle, and Sap-laths are commonly about ⅔ of the Price of Heart-laths. The Carpenter mention'd above, (in this number,) tells me, that he uſes to ſell his Laths for 4 *l.* 10 *s.* the Carriage: He reckons a Carriage 60 Bundles, whereof 40 are Heart, and 20 Sap-laths; at which rate, (reckoning Sap-laths to be ⅔ of the Price of Heart, (he ſold his Heart-laths at 20 ½ *d. per* Bundle, and his Sap-laths at 13 ½ *d. per* Bundle.

7. *Nails allow'd to a Bundle of.*] The common allowance is 5 Hundred, (at 6 Score to the Hundred, that is 600) Nails to a Bundle of Laths.

8. *How many to a Square.*] Workmen commonly allow a Bundle of Laths to a Square of Tyling, which (if the Diſtances of the Rafters fit the lengths of the Laths, without any waſt,) is a ſufficient allowance; for (then) about 90 *five Foot*, and 112 *four Foot-Laths*, will compleat a Square of Tyling, (Coun-

ter

ter-laths and all,) at 7 Inches Gage, and at 8 Inches Gage, a Square will require fewer.

## *Lathing.*

The Price of Lathing, Plaiſtering, Rendring, and Waſhing with Size, is about 10 *d.* 12 *d.* or 14 *d. per* Yard, Materials and Work.

## *Lead.*

1. *What. And its Uſe.*] Lead is a Material (us'd in Buildings, and) well known, and needs no Deſcription. Its chief Uſes are for Covering for Gutters, for Pipes, and for Glaſs. Covering with Lead is the moſt magnificent, and is generally moſt us'd for the covering of Churches, Princes Palaces, Caſtles, and great Men's Houſes. It is generally laid almoſt flat to walk upon, allowing the Water a little fall to the Battlements, thence privately to deſcend in Pipes. But in ordinary Tyled Buildings 'tis chiefly us'd for Gutters to convey the Water from the Houſe into ſome convenient Place.

2. *Sorts of.*] There are 3 ſorts of Lead, White, Black, and Aſh-colour; the White is more perfect and precious than the Black, and the Aſh-colour between both.

3. *Of Caſting Sheet.*] I ſhall here exhibit ſome of my Obſervations on the Method of Caſting Lead into Sheets; as I have often ſeen it done, and have (for Curioſity) caſt ſome Sheets my ſelf. For this Purpoſe there is a Mold provided, which is made ſomething longer than the intended length of the Sheets, that the end where the Metal runs off from the Mold may be cut off; becauſe 'tis commonly thin, and uneven, or ragged at the end.

This Mold, (which is juſt as broad as the Sheet is to be,) muſt ſtand very even, or level in breadth, and ſomething falling from the end where the Metal is pour'd in, *viz.* About an Inch, or an Inch and half in 16 or 17 Foot.

This Mold (commonly) conſiſts of ſeveral Treſſels, upon which Boards are laid, and nail'd down faſt, and upon theſe, at a due diſtance, (according to the intended breadth of the Sheets,) the Sharps are fixed. Theſe are 2 pieces of well ſeaſon'd Timber, of about 4 Inches Square, and 16, 17, or 18 Foot long, according to the Size of the Sheets. But this Method of fixing down the Sharps, Workmen have found to be inconvenient; and therefore ſome do only fix one of the Sharps firmly, nailing the other but ſlightly, and then they fix ſeveral pieces firmly to the Boards, without the ſlightly fixed Sharps betwixt which and the Sharp, they drive Wedges, to make the Sharps come nearer together, as they ſee occaſion: For they find by Experience, that the moiſtn'd Sand, (when it has lain a while on the Boards,) makes the Boards ſwell ſo much

much, that in ſpight of the Nails the Sharps will be too far a ſunder.

At the upper end of the Mold ſtands the *Pan*, which is a Concave Triangular Priſm, compos'd of 2 Planks nail'd together at Right Angles to each other, and 2 Triangular Pieces fitted in betwixt them at the ends. The length of this Pan is the whole breadth of the Mold wherein they caſt their Sheets, and the breadth of the Planks whereof 'tis compos'd, may be 12 or 14 Inches, or more, according to the quantity of Lead they have occaſion to put into it, to make a Sheet of, and the thickneſs of the Planks an Inch and a half. This Pan ſtands with its bottom, (which is a ſharp edge) on a Form at the end of the Mould, leaning with one ſide againſt it, and on the oppoſite ſide is a handle to lift it up by, to pour out the melted Lead; and on that ſide of the Pan next the Mold are 2 Hooks of Iron to take hold of the end of the Mould, and prevent the pan's ſlipping, when they pour the melted Lead out of it into the Mold.

This Pan is lined on the inſide with moiſtn'd Sand, to prevent his being fired with the hot Metal. The Mold is alſo fill'd up (from the upper end towards the lower end, about $\frac{2}{3}$ parts of the way) with Sand ſifted and moiſtn'd, and then a Man gets upon it, and treads it all over with his Shooes on, to make it ſettle cloſe to the Mould. This being done, they begin to ſtrike it level with the *Strike*, which is a piece of Board about 5 Inches broad, in the middle of which, and towards the upper edge is a wooden Pin (about 5 or 6 Inches long, and 1, or 1 $\frac{1}{4}$ Inch Diameter,) to hold it by when they uſe it. The length of this Strike is ſomething more than the breadth of the Mold on the in-ſide, and at each end is cut a notch (on the under-edge,) about 2 Inches deep; ſo that when the Strike is us'd, he rides upon the Sharps with thoſe Notches, and the lower edge of the Strike rides about 2 Inches below the upper ſide of the Sharps.

Then, in leveling the Sand with this Strike, they begin towards the lower end of that part of the Mold that was Fill'd, and taking the handle of the Strike in their Right hand, and laying their Left-hand upon one end of it, they draw the Sand back into that part of the Mold that was empty. Then they begin again a little nearer to the upper end, and draw the Sand back, (as before.) but not ſo far as the empty part of the Mold; for it is thus level'd at 5 or 6 places in the length of the Mold; (if he be 18 Foot long, as that was I made my Obſervations from, ſo that when it is thus level'd the whole length of the Mold, there are as many places that ſeem to be unlevel'd, as there are level'd, by reaſon of the Sand which is a little drawn back. Then the next Operation is to draw all the looſe and hover Sand, (rais'd in the laſt Operation of leveling it) into the empty part of the Mold; which is done by beginning

ginning at the upper end of the Mold, and ſtill as the Sand is drawn back, the level'd part muſt be examin'd, to ſee if there be no Cavities in it; for if there be, a little Sand muſt be put into 'em, and that muſt be ſettl'd cloſe and faſt in the Cavities, by lifting up one end of the Strike, (letting the other reſt upon the other Sharp,) and rapping upon the looſe Sand, which was put in thoſe Cavities, and ſo it will be ſettl'd cloſe and faſt.

This being perform'd all over the upper $\frac{2}{3}$ parts of the Mold, and all the looſe Sand drawn back into the lower $\frac{1}{3}$ part of the Mold, *that* is alſo trod on, and ſettl'd all over, and level'd in all reſpects as the other $\frac{2}{3}$ were; and its looſe Sand is drawn off the Mold, down into a place 2 or 3 Inches below the lower end of the Mold, where the Sand is made into 2 Concavities to receive the overplus of the Lead.

The Sand being thus level'd, it is next to be ſmoothed all over with the *Smoothing-plane*, (as they call it,) which is a thick Plate of Poliſh'd-braſs, about 9 Inches ſquare, a little turn'd up, on all the 4 edges; ſo that the under-ſide looks ſomething like the Diamond-cut-looking-glaſſes, on the upper ſide, (which is a little Concave like a Latten-pan,) is a Braſs Handle ſolder'd on, upon which is a wooden one alſo, like a Caſe-ſmoothing-iron. With this Inſtrument the Sand is ſmoothed all over; and where there are any ſmall Cavities, there muſt be a little Sand put in 'em, (with the 2 Fore-fingers and Thumb,) and then ſmoothed down.

The Sand being thus ſmoothed, the Strike muſt be made ready, by tacking (that is ſlightly nailing) on the Notches, 2 pieces of an old Felt-hat, (or elſe by ſliping a Caſe of Leather on each end,) thereby to raiſe the under ſide of the Strike about $\frac{1}{8}$ of an Inch above the Sand, or ſomething more, (according as the Sheets are to be in thickneſs, (which will make a middle ſiz'd Sheet of about 9 or 10 Pound *per* Foot; as I have obſerv'd in the Caſting of Lead for a Plat-form. (But for Hips, and Window-ſoils, and ſuch Places where it does not lie flat, the Lead need not be above $\frac{1}{10}$ of an Inch thick; but ſometimes Plat-form-lead is near $\frac{1}{4}$ of an Inch thick.)

Then they Tallow the under-edge of the Strike, and lay him croſs the Mold cloſe by the Pan, to prevent drops of Lead from ſpattering into the Mold, before it be ready to pour. Then the Lead being melted, (and the Pan made ready by being lined with moiſtn'd Sand, as was ſaid above,) it is laved into the Pan, and when he is full, (or a ſufficient quantity for the preſent Purpoſe, then with the end of a piece of Board (2 or 3 Inches broad,) draw off the floating part, or Scum of the Metal round about to the edge of the Pan, and there let it ſettle upon the Sand, which will thereby prevent the Sand from falling out of the Pan into the Mold, when the Metal is pour'd out.

The

The Metal being thus prepar'd, and cool enough, (which it will be when it begins to ſtand with a Shell, or Wall round about on the Sand,) then 2 Men muſt take the Pan by the Handle, and pour it into the Mold, and a third Man ſtands ready with the Strike, (facing of them, and his Right-ſide to the Mold,) and as ſoon as they have done pouring in the Metal, he immediately puts the Strike on the Mold, and runs back the whole length of the Mold, and ſo draws off the over-plus of the Lead, into the Cavities made to receive it; and then immediately, (with a Knife) the ragged end is cut off before it is cold.

When the Sheet is a little cool'd, 'tis begun to be rowl'd up, from the upper end downwards, ('tis handl'd with pieces of old Felt-hats,) and as they rowl it up, they rub off the Sand from it.

When the Sheet is taken off from the Mold, the Sand is immediately rak'd over with the Rake to let it cool, and then if it be too dry, 'tis ſprinkl'd with a little Water; but care muſt be taken that none of the Mold be too wet; for if it be, the melted Lead will fly like Shot when it comes upon it. After the Sand is raked, 'tis all turn'd up-ſide-down with a Spade, and when it has lain a while, 'tis again thrown into $\frac{2}{3}$ parts of the Mold, and ſettl'd down by treading, as at firſt, *&c.* To make it ready for the next Caſting, which is commonly in an Hour and a half, or 2 Hours, if the Furnace heat well.

Thus much I have obſerv'd of the Method of Caſting Lead into Sheets. I have inſiſted the longer upon it, becauſe I know of none that has Written of this ſo uſeful a Subject.

4. *Weight of a Foot of Sheet.*] Every Square Foot of Sheet-lead, (if it be deſign'd for Gutter, which is commonly run thinner than for Plat-forms,) is reckon'd to weigh 6 or 7 Pound, if old, 8 or 9 Pound, if new. And every ſquare Foot of Sheet-lead for Plat-forms, is reckon'd to weigh 8, 9, or 10 Pound, if old, and 11 or 12 Pound, if new, and very good.

5. *How much one C. weight will cover.*] One hundred weight of Sheet-lead (at 12 lb. *per* Foot,) will cover a Square-yard, or 9 Square-foot. And is a lighter covering than Tiles, tho' dearer.

6. *Sheet for Gutters.*] Sheet-lead deſign'd for Gutters, is commonly run thinner than for Plat-forms. And Some Plumbers in *London* tell me, That 'tis the beſt way in laying long Gutters, to make a Drip, (Fall, or Step) about the middle, (of 1, 2, or 3 Inches deep;) for by this Means, ſay they, the Lead (being cut into 2 pieces which are ſhorter,) is not ſo ſubject to crack, (by being dilated and contracted with Heat and Cold,) as otherwiſe it is.

7. *Sheet, of laying on in Plat-forms.*] I have obſerv'd the Method of Plumbers in laying down the Lead in Plat-forms,

to

to be this: Having roll'd open 2 Sheets, they beat them flat with their *Dreſſer*, [which is an Inſtrument of Wood, of 16, 18, or 20 Inches long, (according as they are of Stoutneſs,) and about 3 or 4 Inches broad at the bottom, and in heighth ſomething more, in the Form (almoſt, of a Parallelopipedon, only the upper-ſide is rounded off, and at one end the under-ſide is cut away, ſo as to leave a handle running out ſtraight with the top.] Then (with a Line and Chalk, or with a ſtraight Ruler, and a pair of Compaſſes,) they ſtrike a Line about 2 $\frac{1}{2}$ Inches diſtant from one edge of one of the Sheets, this is for the *Stander*. In the ſame manner they ſtrike a Line about 3 $\frac{1}{2}$ Inches diſtant from the edge next to it of the other Sheet; this is for the *Orlop*. [The *Stander* is about 2 $\frac{1}{2}$ Inches of a Sheet of Lead, which is ſet up at Right Angles to the Sheet, all along one edge of it. The *Orlop* is about 3 $\frac{1}{2}$ Inches of the edge, (next to the Stander) of the other Sheet, rais'd up in the ſame manner as the Stander.] Then with their *Pincers*, (which are ſomething different from common Pincers; for theſe have a ſmall Cylinder of Iron, (of about $\frac{1}{2}$ an Inch Diameter, and 3 or 4 Inches long) fixed to one of the Chaps in ſuch a Poſition, that when the Pincers are ſhut, they ſeem to hold it betwixt their Chaps;) they raiſe up the Stander, and Orlop, by putting the ſharp Chap under the Sheet, and the Cylindrical one on the top, near the Line, and ſo they bend up the edge of the Sheet, both for the *Stander* and *Orlop*. Then they proceed to ſet it in better order with the *Dreſſer*, with which they make the *Stander* and *Orlop*, as upright and ſtraight as they can, by placing one edge of the *Dreſſer* upon the Line which they ſtruck, and ſtriking hard blows on the top of him with a Smith's Hand-hammer.

Having thus made the *Stander* and *Orlop* as ſtraight as they can, and ſet them up at Right Angles to the Sheet; they bring them together, and proceed to make a Seam of them, by firſt turning the *Orlop*, (which is an Inch broader than the Stander) over the *Stander*, by the help of the *Dreſſer*, and *Seaming-mallet*, [which is an Inſtrument of Holly, or ſome other hard Wood: It is made of a piece firſt tri'd, to about --Inches ſquare, and about--Inches long, and then wrought away from the middle to one end, almoſt to a ſharp edge, and ſo it is likewiſe at the other end, only thoſe edges ſtand at Right Angles to each other, like a Croſs-mattock. And into the middle of it is put a Handle like a Mallet.] And then they continue to beat the *Orlop*, and conſtantly work upon him with the Dreſſer, till they have reduced him and the *Stander* into as little room as they can, by wraping them one in another, till at laſt it ſeems to be a kind of Semicircle, and this is what they call a Seam.

Some Plumbers tell me, That they ſometimes lay Plat-forms of Lead, without Seams; but then the Joyſts are wrought in

hollow, about 3 Inches broad, and near as deep, in the Form of a Semi-concave-cylinder, and when they lay the Sheets down, the edge of the first Sheet lies so far on the Joyst, that it comes over beyond the Concavity, and so much of the Sheet as lies over the Cavity is set down into it with the Seaming-mallet, and the next Sheet is laid over that, and set down into the Chanal also; and so the Water that comes into those Chanals, runs down into the Gutter.

8. *Mill'd.*] One Mr. *Roberts*, (then Master of the Company of Plumbers in *London*,) tells me, That *Mill'd-lead* is of but little use; not only because 'tis so very thin; but also because by the way of Milling it, 'tis stretched to that degree, that when it comes to lie in the hot Sun it shrinks, and cracks, and (consequently) will not keep out the Water. For 'tis, (says he,) like Cloath stretched on the Clothiers Tenters, which when taken off, naturally inclines to return to its former State. He further added, That there was sufficient Proof for what he said; and if any one desir'd to be satisfi'd about it, he might repair to *Greenwich hospital*, which is cover'd with Mill'd-lead, and has not been done above 4 or 5 Years, and yet it rains in, almost all over the Hospital; upon which account the Master and Wardens of the Company of Plumbers were sent for to the Parliament, who order'd them to go and view this Mill'd-lead-work at *Greenwich-hospital*, which they did; and when they returned to the Parliament, they all unanimously declar'd, That Mill'd-lead was not fit to be us'd: Whereupon the Parliament had thoughts of putting down the Milling of Lead: But whether they have actually done it, I have not yet heard.

9. *Pipes of.*] I understand by discoursing with some Plumbers in *London*, that they give distinct Names to their Leaden pipes, according to their weight at a Yard long, e. g. they have 6 lb. 8 lb. 10 lb. 12 lb. 14 lb. 20 lb. and 28 lb. Pipes and if I miss remember not, one size larger; so that a Pipe of 6 lb. to the Yard, they call a 6 lb. Pipe, and so of the rest. I cannot at present tell the particular sizes of all these sorts of Pipes; but if I miss remember not, the 10 lb. Pipe was about 1 $\frac{1}{4}$ Inch Diameter, from out-side to out-side.

10. *For Glass.*] Some Glaziers tell me, that they usually allow 50 lb. of Turn'd-lead to 100 Foot of Quarry-glass. They call it *Turn'd-lead*, when the *Came* has pass'd through the Vice, and is thereby made with a Groove on each side to go on upon the Glass. See *Came*. Their Turn'd-lead for Quarries is commonly about $\frac{3}{16}$, (which is almost $\frac{5}{16}$) of an Inch broad; and for large Square-glass, their Turn'd-lead is $\frac{8}{16}$, or $\frac{1}{2}$ an Inch broad. So that I find (by Discourse with Glaziers,) they have it of different sizes, as $\frac{4}{16}$, $\frac{5}{16}$, $\frac{6}{16}$, $\frac{7}{16}$, and $\frac{8}{16}$ of an Inch broad.

I have also observed, that some Glaziers in *London* have 3

sizes of Turn'd-lead for Glass-windows, *viz.* Of $\frac{7}{16}$, $\frac{5}{16}$, and $\frac{4}{16}$ of an Inch broad: The largest size, (they tell me) is for large Squares, that of $\frac{5}{16}$ for Quarries, and the $\frac{4}{16}$ for Crocket-work, (or Fret-work, as some Glaziers call it,) it being more pliable for that use than broader Lead.

Some Glaziers tell me, they can turn Lead of different sizes in the same Vice, by changing their Cheeks for each size, and with another pair of Spindles, whose Nuts almost meet or touch, they turn Lead for Tyers, which when it comes out of the Vice, is almost cut asunder in 2 thicknesses, which they can easily rend asunder. These Tyers are very tough, but they are commonly made too slight, and therefore some use to cast Tyers, which are stouter, but not so tough, being more apt to break in winding.

11. *Nails for.*] V. Nails. N. 11.

12. *Of Soddering.*] An ingenious Plumber, (who esteem'd me as his peculiar Friend,) told me the Method of *Paleing*, (as they call it,) or Soddering on of Imboss Figures on Leaden Work; as, suppose a Face, or Head in Bass-relief, were to be Pal'd on a Pump cistern for an Ornament to it. To do which, (said he,) the Plate where it is to be pal'd on must be scrap'd very clean, and so must also the back-side of the Figure, that it may sit close with a good Joynt. Then, (said he,) place that part of the Cistern (where the Figure is to be fix'd) Horizontal, and strew some pulveriz'd Rozin on the place where you made your Joynt. Then into the Cistern, (just under the place where your Figure is to stand,) set a Chaffing-dish of Coals, (till you see the Rozin is changed Redish, and begins to rise in Pimples, or Bladders) then take a piece of soft Sodder, (made of a longish Figure,) and rubbing the end of it round about your Figure, (and at the same time keeping your Figure steady in its place,) so that it may work into the Joynt. And when this is done, your Figure will be well pal'd on, and will be as firm, as if it had been cast on there.

But if your Cistern, (or the like) be so thin, as that you have reason to fear that it will be too hot, and be apt to run, or bend, and yield before your Figure (which is on the outside of it) will be hot enough; you may then lay your Figure on the hot Coals, till it and the place to receive it are both in a good temper for paleing, and then set the Figure on its place, and proceed with your Sodder, as before.

By this Method I saw *him* Sodder on bottoms to Leaden-stands, or Ink-holders.

I also saw and observ'd *him*, in Soddering the Leads of a Church, thus to manage it, *viz.* When he Sodder'd the Sheets of Lead that are fix'd into the Wall on one edge, and with the other edge lap over the ends of those which are fasten'd in the Platform, at every other Sheet, in the middle be-

twixt

twixt the ſeams, he Soddereth the Lapping-ſheet down to the other, thus——with one corner of the Scraper, [which is an Inſtrument made of a Plate of Steel, in the form of an Equilateral Triangle, in the middle of which is fixed an Iron Strig, on the end of which is fixed a Wooden-knob, or Handle. The Plate is flat on the ſide next the Handle, but on the other ſide the edges are ground off with a Bezel like a Chizzel, only very obtuſe.] He firſt marked out, (partly on the edge of the Lapping-ſheet, and partly on the other) an Oblong Rectangular Figure, of about 5 or 6 Inches long, and 3 or 4 broad. Then he ſcraped the Metal bright, having firſt, (becauſe it was new Lead,) green'd it, (as they phraſe it,) all round about, to prevent the Sodder's taking any where but where they ſcrape it. (This *Greening* is only rubbing it with ſome green Vegetable, it matters not what, he did it with Poor-man's-pepper, that being at hand: He told me, that in the Winter they us'd Cabbage-leaves, or any green thing they could get. It being thus ſcrap'd, he rub'd it with Tallow; then having an Iron ready hot, (which are much like the Irons us'd by Glaziers,) he took him with a piece of Felt in his Right-hand, and a piece of Sodder in his left, and holding it againſt the Iron, till it drop'd on the cleanſed place, and when there was enough of it melted, he took a Linnen-clout in his Left-hand, and therewith kept the Sodder continually ſhov'd up on the cleanſed place, and at the ſame time work'd it about with the Iron in his Right hand, thus he did, till he thought it was pretty well Incorporated with the Lead, and then he made it up into a kind of ſwelling form in breadth, and then croſs the breadth of it, he made it into a kind of Seams with the point of his Iron. This being done, he took their Knife and a Dreſſer to knock him with, and ſo cut it ſtraight on the ſides and ends, and what he thus cut off, by reaſon of the Greening eaſily peel'd off.

After the ſame manner he ſodder'd Holes, or Leaks in old Lead, only then he made the Sodder flat, and not ſwelling, (but he made it alſo in little Seams,) neither did he green it before he ſcrap'd it.

13. *Price.*] (1.) *The Price of Lead in Pigs*, (ſays Mr. *Leyburn*) is uncertain, as from 10 to 20 *s.* the hundred weight. I know a Plumber (at *Lewis* in *Suſſex*,) who tells me he gives 12 *s.* 6 *d. per* hundred for Lead in Pigs at *London*: Some Glaziers tell me they give but 12 *s. per* Hundred, if they buy but ½ a Hundred. Mr. *Wing* tells us, that a Fodder of Lead is 22 ½ Hundred Weight, (I know not how he reckons; for I am ſure, moſt Authors reckon a Fodder of Lead but 19 ½ Hundred.) and is worth from 9 *l.* to 12 *l.* which will caſt 315 Foot of Sheet, at 8 Pound *per* Foot.

(2.) *The Price of Sheet-lead,*] Mr. *Leybourn* says, That in exchange of old Lead for Sheets new run, there is commonly allow'd 3 *s.* in every hundred weight, for Waste and Workmanship. I saw Sheet-lead (in 1701.) sold at *Lewis* for 16 *s. per* hundred weight, (they sometimes sell it for 17 *s.*) The Tinker who bought it to skirt a Furnace with, said it was good thick Lead. I computed it to weigh about 11 ¼ lb. *per* Foot; for there was 4 pieces of it, each about 3 Foot long, and 15 ½ Inches broad, all which weigh'd 174 lb.

(3.) *The Price of Casting Sheet-lead.*] The Tinker above mention'd tells me, that Plumbers commonly reckon 4 *s. per* hundred, for casting old Lead into Sheets; but I apprehend that the Plumber (for this price) makes good so many hundred weight of Sheet-lead, as he receiv'd of old Lead. For Mr. *Leybourn* tells us, That Sheet-lead is cast out of old Lead, for 3 *s. per* hundred, allowing for Wast and Workmanship: And Mr. *Wing* says, that there is about 2 *s.* 6 *d.* (in every hundred) loss, in casting old Lead into Sheets: He also says, that Casting old Lead into Sheets, is worth 1 *s.* 6 *d. per* hundred. Yet I know a Plumber that had 3 *s. per* hundred for Casting of Sheet-lead; but then it was weigh'd after it was Cast, and he made very great Wages.

(4.) *The Price of laying on of Sheet-lead in Roofing,*]&c. This, (says Mr. *Wing*) is worth 15 or 16 *s. per* hundred weight, Lead and Workmanship. And Mr. *Leybourn* tells us, that covering with Lead is usually valu'd at 13, 14, or 15 *s. per* Yard Square, (according to the goodness of the Lead,) or between 7 and 8 Pound the Square of 10 Foot, besides Sodder.

(5.) *The Price of Sodder,* (says Mr. *Leybourn*) is 9 *d.* or 10 *d. per* Pound, as it is allay'd with Lead, and Scal'd: For Tin is 10, 11, or 12 *d. per* Pound neat.

(6.) *The Price of Leaden pipes* is various, according to their different bigness. An ingenious Countrey-plumber of my Acquaintance, tells me, that for Pipes of ½ Inch Diameter in the Bore, they have 1 *s.* 4 *d. per* Yard, for ¾ Inch Pipe, 1 *s.* 10 *d.* for Inch Pipe, and 1 ¼ Inch Pipe, 2 *s.* or 2 *s.* 6 *d.* (for, says he, they are cast both in a Mould, only the Inch Pipe has a less Bore; and I think he said they were both of a Price; tho' I think, for this Reason the Inch Pipe ought to be the dearest, since it contains most Lead, and the Work is the same in each.) For Pipes of 1 ½ Inch Bore they have 3 *s.* 6 *d. per* Yard, and for 3 Inch Pipe, 5 *s.* or 5 *s.* 6 *d.* The *London* Plumbers, (I find) rate their Pipes according to the weight of a Yard in length. Their 10 lb. Pipes are 2 *s.* 2 *d. per* Yard.

(7.) *The Price of Turn'd-lead for Glass-windows,* is various according to its breadth. I know some Glaziers in *London* sell Turn'd lead of $\frac{7}{16}$ Inch broad, for 18 *s. per* hundred, that of $\frac{5}{16}$ Inch broad for 17 *s. per* hundred.

14. *White-- for Painting.*] White-lead is a Colour (well known,) much us'd in Painting of Gates, *&c.* In *London*, 'tis commonly sold for 2 ½ *d.* or 3 *d. per* Pound un-ground. I have also known it bought (in *London*) for 5 *d. per* Pound ready ground with Oyl.

## *Ledgers.*

V. Putlogs.

## *Lime.*

1. *What.*] A Material us'd in Building, (and well known,) made of burnt Stones, commonly of Chalk.

2. *Whereof, and how made.*] Mr. *Leybourn* tells us, out of *Palladio*, that Stones whereof Lime is made, are either digged out of Hills, or taken out of Rivers: *That* Lime is the best which is made of the hardest, sound, and white Stones, and being burnt, remains a third part lighter than the Stones whereof it is made. All digged Stones are better to make Lime of than gather'd Stones, and from a shady and moist Pit, than from a dry. All Stones are sooner or latter burnt, according to the Fire which is given them; but ordinarily they are burnt in 60 Hours.

The ingenious Sir *Henry Wotton*, tells us, That to make Lime (without any Choice) of refuse Stuff, as we commonly do, is an *English* Error, of no small Moment in our Buildings. Whereas the *Italians* at this day, and much more the *Ancients* did burn their *firmest Stone*, and even Fragments of *Marble* where it was plenty, which in time became almost *Marble* again for its hardness, as appears in their standing Theaters.

There are 2 kinds of Lime commonly made in *England*, one made of Stone, which is the strongest, and the other of Chalk, both being burnt in a Kiln.

The Lime that is made of soft Stone, or Chalk, is useful for Plaistering of Ceilings and Walls within Doors, or on the insides of Houses and that made of hard Stone is fit for Structures, or Buildings, and Plaistering without Doors, or on the out-side of Buildings that lie in the Weather: And that which is made of greasie clammy Stone, is stronger than that made of poor lean Stone, and that which is made of spongy Stone, is lighter than that made of firm and close Stone; *that* is again more commodious for Plaistering, *this* for Building.

Also very good Lime may be made of Mill-stone, not course and sandy, but fine and greasie. Likewise of all kind of Flints, (but they are hard to burn, except in a Reverberatory Kiln,) except those that are rolled in Water, because a great part of its Increase goes away by a kind of Glass. Also the Shells of

Fish, as of Cockles, Oysters, &c. are good to burn for Lime.

About us in *Sussex*, Lime is made of hard Chalk, dig'd out of the Hills, and is burnt in Kilns like Brick-kilns; but with this difference, that they have no Arches in them, but only a kind of Bench, or Bank on each side, upon which they lay the largest Stones, and so truss them over, and make an Arch, after the manner of Clamps for Bricks. (V. *Clamp.*) And when they have thus made an Arch with the largest Stones, they fill up the Kiln with the smaller ones.

A Mason of my Acquaintance tells me, That the *Kentish* Lime is far better than that commonly made in *Sussex*: For, (says he,) a Gallon of Water will make as much more *Kentish* Lime run, as it will of *Sussex* Lime: So that it should seem (by the Consequence of his Discourse,) that *that* is the best Lime which will run with the least Moisture.

The ingenious Gentleman, Mr. *Walter Burrel*, Esq; of *Cuckfield* in *Sussex*, was the first that introduced the use of Fern for burning of Lime, which serves that purpose as well as Wood, (the Flame thereof being very vehement,) and is far cheaper.

3. *Hundred of-- how much?*] In (and about) *London*, Lime is commonly sold by the hundred, which is 25 Bushels, or 100 Pecks, whence it had its Name.

4. *Load of-- how much.*] In the Countrey, Lime is commonly sold by the Load, which is 32 Bushels. A Load of Lime, (say some) will make Mortar enough for 250 solid Foot of Stone-work. And 8 Bushels of Lime, (heaped measure) is the common allowance to every thousand of Bricks.

5. *Price of-*] The Price of Lime is various in different Places, as from 8 to 12 *s.* the hundred, says Mr. *Leybourn*. I know that before these late Wars, (which have made Fuel dear and scarce,) Lime (in some parts of *Sussex*) was sold for 20, or 21 *s. per* Load, 32 Bushels to the Load; but now in some parts of *Sussex* 'tis sold for 24, or 25 *s. per* Load, in others for 32 *s.* Yet in some parts of *Sussex*, 'tis still (to my knowledge) sold for 12 *s. per* Load at the Kiln, and for about 15 *s.* 0 *d.* laid in 3 or 4 Miles.

## *Lintels.*

1. *What?*] Lintels (in Stone and Brick Buildings,) are the pieces of Timber that lie Horizontally over the tops of Doors and Windows.

2. *Price.*] The Carpenter commonly puts in these by the Foot running measure, at 6 *d. per* Foot, if Oak; 4 *d.* if Fir, Timber, and Workmanship. Some Carpenters in the Countrey, (that do not find Timber,) tell me, they have 1 *s. per* piece for sawing the Timber, and putting them in.

*Lift*,

## *Liſt*, and *Liſtella.*

V. Capital. N. 2. 3.

## *Lobby,*

As Anti-chamber.

## *Locks*

For Doors are of various kinds; as for outer-doors, call'd Stock-locks; for Chamber-doors, call'd Spring-locks, *&c.* Alſo the ſeveral Inventions in Locks, (I mean in the making and contriving their Wards and Guards,) are almoſt innumerable. And as their kinds are various, ſo are their Prizes; I ſhall at preſent mention only ſome of the chief. As Stock-locks plain, from 10 *d.* to 14 *d. per* piece, or more, S-bitted Stock-locks with a long Pipe, 1 *s.* 6 *d.* S-bitted and warded Stock-locks very ſtrong, 7 *s.* Braſs-locks from 5 *s.* 6 *d.* to 9 *s.* Braſs-knobed-locks in Iron caſes, 3 *s.* double Spring'd-locks 1 *s.* Cloſſet-door locks 1 *s.* 4 *d.* Pad, (or ſecret) Locks with Slits inſtead of Pipes, 1 *s.* Plate-ſtock-locks, 3 *s.* 8 *d.* ſome ditto for half that Price. Plate-ſtock-locks in Shute, 4 *s.* 6 *d.* Braſs-knob'd-locks in Shute, 6 *s.* 6 *d.* Iron-rim'd-locks very large, 10 *s.* 6 *d.* The Prizes of Locks are ſo various, according to their different kinds, ſizes, and variety of Workmanſhip, that 'twere endleſs to mention them all; therefore I ſhall ſay no more of 'em at preſent, only, that there are ſome Locks made of Iron and Braſs of 50, nay 100 *l. per* Lock, as Mr. *Chamberlain* tells us in his *Preſent State of* England.

## *Lome,*

A ſort of rediſh Earth, (well known) us'd in Buildings, (when temper'd with Mud, Gelly, Straw and Water,) for Plaiſtering of Walls in ordinary Houſes.

I know one Place in *Suſſex*, (where being well temper'd with new Horſe-dung,) it is us'd inſtead of Mortar to lay Tiles with, and they tell me it does very well.

Lome, (as 'tis dig'd out of the Earth,) is commonly ſold (in ſome parts of *Suſſex*) for 1 *s. per* Court-load, containing about 12 Buſhels.

## *Lutherns*

As Dormers. Alſo, ſee Window. N. —Their Price of making and ſetting up, (and ſawing the Timber) is various, (according to their bigneſs,) from 9 to 20 *s. per* Window.

## *Marble.*

1. *What.*] A hard Stone, beautiful when poliſh'd, but hard to cut; much us'd in adorning of Palaces, and great Men's Houſes, *&c.*

2. *Kinds of.*] The kinds of Marble are (almoſt) innumerable, ſome *white*, ſome *black*, ſome *grey*, ſome *green*, ſome variegated with Veins, and Spots, *&c.* It were endleſs to give the particular Names and Deſcriptions of all the kinds of Marble; however, I may hereafter give you a much larger account of 'em, but at preſent I muſt pretermit it.

3. *Uſe of.*] The principal uſe of Marble in Architecture, is for Chimney-pieces, Chimney-foot-paces, Window-ſtools, Pavements, *&c.*

The Ancients, (as *Pliny* and other Authors tell us,) us'd to face their Houſes all over with thin Plates of Marble.

4. *Of Poliſhing.*] An old experienced Maſon tells me, that he has obſerv'd Stone-cutters poliſh Marbles for Hearths in this manner, *viz.* By laying 3 or 4 of 'em in a row, as even as they could, and then with another of theſe Stones fix'd to a broad Beetle, with a handle put in at Oblique Angles, (and with Sand and Water,) by moving this upper Stone too and fro on the lower ones, they wrought off the Strokes of the Ax, and afterwards with *Emmery* and *Putty* they poliſh 'em.

I have (alſo) my ſelf, (at *Lewis* in *Suſſex*) ſeen and obſerv'd them poliſhing of Marble for tops of Tomb-ſtones, which (as I find in my *Adverſaria*,) they did in this manner. They block'd up their Stones to be poliſhed, ſo as they lay Horizontal about 2 ½ Foot high above the Ground; (I ſay they obſerv'd to lay them very level,) and then they wrought the upper Surface ſmooth and even, with a Tool for that purpoſe: This Tool was a piece of whole Deal about 18 or 20 Inches long, and 12 Inches broad, and croſs the Grain of the Wood, on the upper ſide were nail'd 2 Ledges, one at each end, and on theſe Ledges was nail'd a Staff or Handle about 8 or 9 Foot long, (*viz.* Long enough to reach the length of the Tomb-ſtone,) alſo at each end on the under-ſide was nail'd a Ledge, and between theſe Ledges there was wedged in (with Wooden-wedges) a Hearth-ſtone of Marble that was alſo rough and unpoliſh'd. Then flinging Water and Sand upon the Tomb-ſtone, they wrought upon it, (by drawing the Hearth-ſtone too and fro,) till the Hearth-ſtone became pretty ſmooth, and then they put in another rough Hearth-ſtone, and ſo they continue to do, til' they have wrought the Tomb-ſtone pretty even and ſmooth. But you are to note, That while the Tomb-ſtone and Hearth-ſtones are rough, they lay a conſide-

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rable weight, (as a Stone, or the like,) upon the upper side of the Tool, to keep it down hard on the Tomb-stone, but when the Tomb-stone is pretty smooth, they make him yet smoother, by putting into the Tool (one after another,) several of those Hearth-stones already begun polish'd, and this they continue to do, till they have brought both them and the Tomb-stone to a more polite Surface; upon these they use no weight on the back of the Tool, but they use Water and Sand, as before. And if they have no Marble-hearth-stone to polish, then the Workman tells me, they put a Purbeck-stone into the Tool.

5. *Price of--*] *Chimney-pieces* of *Egyptian*, or black fleak'd Marble, or of Rance, or Liver-colour'd marble is worth (of an ordinary size) 12 or 14 Pound a piece.

*Window-stools*, of white or black Fleak'd-marble, are worth 2 *s.* 6 *d. per* Foot.

*Pavement* of black, or white Marble, is worth about 2 *s. per* Foot. Thus Mr. *Wing*.

A Stone-cutter in *London* tells me, he sells *English* white Marble vein'd with red, *&c.* for 2 *s.* 6 *d. per* Foot in Squares for *Pavements*, and Slabs of the same sort of Marble, (long enough for a Chimney-foot-pace) for 5 *s. per* Foot.

*Egyptian* Marble, vein'd with variety of Greens, in Slabs, he sels for 8 *s. per* Foot.

*Italian* white Marble vein'd for Chimney-foot-paces, he sells in {Squares / Slabs} for about {2 *s.* 6 *d.* / 5 *s.*} *per* Foot.

Black-marble he sells somewhat cheaper.

## *Marble-colour.*

The Price of Painting ordinary Marble-colour, on new Stuff, is about 1 *s. per* Yard. And an old Colour, about 9 *d. per* Yard, Colour and Work.

## *Masons.*

1. *Work.*] The several kinds of Work done by Masons, (in relation to Building,) with their Prizes, and Methods of Measuring them, *&c.* are too many to be comprehended under this so general word of *Mason's-work*, (especially as the word *Mason* is accepted in the Countrey,) and therefore I shall refer them to their Particulars, (as *Walling*, *setting of Fronts*, *Healing*, *Paving*, &c.) where they will much more readily be found.

2. *Bill to make.*] V. Bricklayer's Bill.

*Measu-*

## *Measuring*

*Of Artificers Work.*] See the particular kinds of Work, in their proper places of the Alphabet; where they will much more readily be found, than under this general word *Measuring.*

## *Membretto,*

A Pilaster that bears up an Arch.

## *Metops,*

In Architecture, are the square Spaces left betwixt the Triglyphs in the Frieze of the Dorick Order. These Metops are sometimes plain, and sometimes Carved with the Heads of Beasts, and Plates, or Dishes, *viz.* In one a Bull's-head, in another a Plate, or Dish, and so alternately.

## *Mitchels,*

Purbeck-stones for Paving, pick'd all of a Size, from 15 Inches square to 2 Foot. Being squar'd, and hew'd ready for Paving, a Stone-cutter in *London* tells me, they commonly sell them at about 2 *s.* 10 *d. per* Foot.

*Minutes.* vid. *Module.*

## *Model,*

An Original Pattern which any Man proposes to imitate, properly (in Architecture) a small Pattern of a House, or the like, (made of Wood, or any other Materials) made by a small Scale, wherein an Inch, or half an Inch represents a Foot, for the more exactly carrying on a great Design. Sometimes the word is us'd, (tho' improperly) in the same Sense with——

## *Module,*

A Measure made use of to regulate the Proportions of the several Members of a Column. In the Dorick Order, a Module is half the Diameter of the Body of the Column below: In other Orders 'tis the whole Diameter. A Module is commonly suppos'd to be divided into 60 equal Parts, call'd *Minutes.*

## *Modilions.*

V. Cantalivers. N. 1.

## *Modilion-cornish.*

V. Cornish. N. 9.

*Mould-*

## *Mouldings.*

The ſeveral Wrought-works made with Planes, *&c.* upon Wood, *&c.* are call'd Mouldings. The particular Rules for drawing all kinds of Mouldings, I muſt, (for Reaſons already often mention'd,) at preſent omit. But God continuing my Life and Health, and this Book finding Acceptance in the World, and I any Encouragement, the next Edition ſhall contain this, and many other Curioſities, not commonly known.

## *Moresk-work,*

A kind of Antick-work in Painting and Carving, after the manner of the Moors, (whence it has its Name,) conſiſting of ſeveral Groteſco's, wherein there is no perfect Figure, either of Men, or other Animals, and wherein there is a wild reſemblance of Birds, Beaſts, Trees, *&c.* intermingl'd.

## *Mortiſe,*

From the *French Mortaiſe*, the hole made in one piece of Wood, to receive the Tenon of another piece. V. Tenon.

## *Mortar.*

1. *What.*] From the *French Mortier*, a ſort of Plaſter, commonly made of Lime, and Sand, and Water, uſed by Maſons and Bricklayers, in Building of Walls of Stone and Brick. For Plaſtering of Walls, they make their Mortar of Lime, and Ox, or Cow-hair, tempered well together with Water, and this is commonly call'd *white Mortar.*

2. *Of making common.*—]As for making of common Mortar, and for the Proportions of Lime and Sand to be us'd about it, many Men are of many Minds, I ſhall give you their ſeveral Sentiments about this Matter.

*Vitruvius* ſays, you may put 3 parts of digged, (or Pit-) Sand to one part of Lime, to make Mortar, but (ſays he) if the Sand be taken out of a River, or out of the Sea, then 2 parts thereof, and 1 of Lime. (He alſo ſays, That if to River, or Sea-ſand, you put a third part of Powder of Tiles, or Bricks, it works the better.) But *Vitruvius*'s Proportion of Sand ſeems too much, tho' he ſhould mean of Lime before 'tis ſlack'd; for one Buſhel of Lime before 'tis ſlack'd will be 5 Pecks after 'tis ſlack'd.

About *London*, (where for the moſt part Lime is made of Chalk,) they put about 36 Buſhels of Pit-ſand to 25 Buſhels of Quick-lime, that is about a Buſhel and a half of Sand, to a Buſhel of Lime.

Some Workmen in *Suſſex* tell me, that they commonly put 2 of their Court-loads (that is about 24 Buſhels) of Sand to 1 Load,

Load, (that is 32 Buſhels) of Lime, which is but 3 Pecks of Sand to 1 Buſhel of Lime.

Other Workmen in *Suſſex* tell me, that their uſual Proportion of Lime and Sand, in making of Mortar, is 4 Court-load, (that is about 48 Buſhels of Sand to 1 Load, (or 32 Buſhels) of Lime, which is exactly a Buſhel and half of Sand to one Buſhel of Lime, near the *London* Proportion. But they tell me, 'tis of Stone-lime; for they allow but 3 Load, (or 36 Buſhels) of Sand to one Load, (or 32 Buſhels) of run Lime; (for ſay, they, a Load of run Lime is nothing near ſo much as a Load of Stone, [or quick-] Lime,) which is but 9 Gallons of Sand to a Buſhel of Lime.

Other Workmen in other parts of *Suſſex*, tell me, that they allow 4 Load (at 18 Buſhels to the Load) of Sand, to one Load (or 32 Buſhels) of Lime, which is 2 ½ Buſhels of Sand to one of Lime.

Another Workman (in *Suſſex*) tells me, that (to his knowledge) ſome *London* Bricklayers put as much Lime as Sand in their Mortar; eſpecially for Front-work.

A Gentleman in *Suſſex*, tells me, that the *London* Brick layers make their Mortar much more durable than our Countrey ones; for he told me that at his Brother's Houſe, and at another Gentleman's Houſe (which he nam'd to me,) the Mortar was not ſcal'd at all; but at his own Houſe (which was done by Countrey-workmen,) it ſcal'd very much, and fell out of the joynts. But (ſaid he,) the *Londoners* make their *Mortar* by proportioning their Lime and Sand, *viz.* By meaſuring it all; but the Countrey-workmen, (for the moſt part) make it by gueſs. Now (ſaid he), our Countrey-workmen do not make their *Mortar* fat enough; for they put in too little Lime to their Sand. Nevertheleſs, his Workman told me, that he did put in, as near as he could gueſs (by the Shovels full,) at leaſt twice as much Lime as Sand in his *Mortar*, and took care to ſift all his Lime and Sand; and yet, (to my knowledge) ſome of his Walls ſcal'd pretty much, eſpecially thoſe that were done towards the latter end of the Year; tho' (ſaid he) I never made *Mortar* ſo fat in my life before. But indeed, none of his Walls were coped, they were only cover'd with Straw on the top, and Boards or Slabs laid on it to keep it on, which ſometimes were blown off in the Winter, and ſo let in the wet; which, (ſaid he,) was the cauſe of the Scaling of the Mortar; but his Maſter deny'd this, and ſaid, it did ſo where it was never uncover'd all the Winter.

From all theſe various Proportions (of Lime and Sand) above mentioned, all aſſerted by able Workmen, I think it reaſonable to inter, that the *Proportion* of *Lime* to *Sand* in making of *Mortar*, ought to be various, according to the goodneſs or badneſs of theſe Materials; and therefore is rather to

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be regulated by the Judgment of experienced and skilful Workmen in each particular Countrey, than by any ſtated Proportions. So let this ſuffice (at the preſent) for the Proportions of the Materials I ſhall next ſay ſomething of——

*The Method of making of Mortar.*] Some Work men tell me, that 'tis the beſt way not to uſe *Mortar* as ſoon as 'tis made; nor (in making it) to make the Lime run before it is mixt with the Sand, (as ſome will do,) but rather to take the Sand and throw it on the Lime whilſt it is in Stones, before it is run, and ſo to mix it together, and then wet it; by which means, (ſay they) it will be the ſtronger, and when it has lain a while made before it is us'd, will not be ſo ſubject to blow and bliſter.

Others adviſe to let *Mortar*, (when made) lie in a heap 2 or 3 Years before 'tis us'd; for ſo (ſay they) 'twill be the ſtronger and better; for the Reaſon of ſo many inſufficient Buildings, (ſay they,) is the uſing of the *Mortar* as ſoon as 'tis made.

Others tell us, (1.) That when you ſlack the Lime, you muſt take care to wet it every where a little, (but not over-wet it,) and cover with Sand every Laying, or Bed of Lime (being about a Buſhel) as you ſlack it; that ſo the Steam, or Spirit of the Lime may be kept in, and not fly away, but mix it ſelf with the Sand, which will make the Mortar much ſtronger, than if you ſlack all your Lime at firſt, and throw on your Sand altogether at laſt, as ſome uſe to do. (2.) That you ought to beat all your Mortar with a Beater, 3 or 4 times over before you uſe it; for thereby you break all the Knots of Lime that go through the Sieve, and incorporate the Sand and Lime well together, and the Air which the Beater forces into the Mortar at every ſtroak, conduces very much to the ſtrength thereof. (3.) That when you deſign to Build well, or uſe ſtrong Mortar for Repairs, you ſhould beat the Mortar well, and let it lie 2 or 3 Days, and then beat it well again when 'tis to be us'd. (4.) That in *Summer-time* you ſhould uſe your Mortar as ſoft as you can, but in *Winter* pretty ſtiff, or hard.

Mr. *Worlige* ſays, that if you intend your *Mortar* to be ſtrong, where you cannot have your choice of Lime, you may chuſe your Sand and Water; for all Sand that is duſty makes the *Mortar* the weaker, and the rounder the Sand, the ſtronger the *Mortar*, as is uſually obſerv'd in Water-drift-ſand, that makes better Mortar than Sand out of the Pit.

Therefore, (ſays he,) if you have occaſion for extraordinary *Mortar*, waſh your Sand in a Tub, till the Water, after much ſtirring, come off clear, and mix that with new Lime, and your *Mortar* will be very ſtrong and durable. And if your Water be foul, dirty, or muddy, your *Mortar* will be the weaker.

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He alſo tells us, that 'tis a great Error in Maſons, Bricklayers, *&c.* to let the Lime ſlacken and cool before they make up their *Mortar*, and alſo to let their *Mortar* cool and die before they uſe it: Therefore, (ſays he,) if you expect your Work to be well done, and long to continue, work up your Lime quick, and but a little at a time, that the *Mortar* may not lie long before it be uſed. So that you ſee, that in this Point alſo, Men differ in their Sentiments; ſome affirming it beſt to uſe their *Mortar* new, others, after it has lain made ſome time.

An old experienced Maſon of my Acquaintance, tells me, that being at work at *Eridge-place*, (at my Lord *Abergaveny*'s) at *Fant* in *Suſſex*, they would have him make uſe of ſome *Mortar* that had been made 4 Years. But he, (when he came to try it,) told them it was good for nothing, by reaſon it was ſo very hard that there was no tempering of it. Whereupon a Jeſuite (reſiding in the Houſe, and that had been a great Traveller,) told him, that to his knowledge, at ſeveral Places beyond Sea, they always kept their *Mortar* 20 Years before they uſe it; but then (he ſaith) they keep it in Ciſterns for the purpoſe, and always keep it moiſt. Now the old Maſon, (above-mention'd,) tells me, he believes this Method may make the *Mortar* good and tough.

As for the Scaling, (or Crimbling) of Mortar out of the Joynts of Stone and Brick-walls, ſome Maſons tells me, it proceeds from the badneſs of the Sand, or Lime, or both, as well as from the Seaſon of the Year when the Work is done.

3. *Of making other kinds of*-] Beſides the *common Mortar*, (us'd in laying of Stones, Bricks, and Tiles) above-mention'd, there are ſeveral other kinds, as———

4. *White Mortar.*] This is uſed in Plaiſtering of Walls and Ceilings, that are firſt Plaiſter'd with Lome, and is made of Ox, or Cow-hair well mixed and temper'd with Lime and Water, (without any Sand:) The common Allowance in making this kind of Mortar,) is one Buſhel of Hair to 6 Buſhels of Lime. The Hair ſerves to keep the Mortar from cracking, binding it, and holding it faſt together.

5. *Mortar us'd in making of Water-courſes, Ciſterns,* &c.] This kind of Mortar is very hard and durable, as may be ſeen at *Rome* at this day. It is uſed, not only in Building of Walls, but alſo in making of Ciſterns to hold Water, and all manner of Water-works, and alſo in finiſhing, or Plaiſtering of Fronts to repreſent Stone-work.

And I find 2 kinds of this Mortar us'd by the Ancients; both of which are compounded of Lime and Hog's-greaſe; but to one is added the Juice of Figs, and to the other Liquid Pitch, and is firſt wet, or ſlack'd with Wine, then pounded, or beat with Hog's-greaſe, and Juice of Figs, or with

with the ſame and Pitch; that which has Pitch in it is blacker and eaſily diſtinguiſh'd from the other by its Colour, and that which is Plaiſter'd with this kind of Mortar is done over with Linſeed-oyl.

6. *For Furnaces*, &c.] Some Chymiſts in Building their Furnaces, make uſe of a kind of *Mortar* made with red Clay, not too fat, leaſt it be ſubject to Chinks; nor too lean, or Sandy, leaſt it bind not enough. This Clay is wrought in Water, wherein ſtore of Horſe-dung and Chimney-ſoot has been ſteep'd and well mingl'd, by which a Salt is communicated to the Water, binding the Clay, and making it fit to abide the Fire.

Some Metaliſts uſe a kind of *Mortar* to Plaſter over the in-ſides of their Veſſels, (for refining of Metals) to keep the Metal from running out: And this kind of *Mortar* is compounded, and made of Quick-lime, and Ox-blood, the Lime being beat to Powder and ſifted, and then mix'd with the Blood, and beat with a Beater.

The Glaſs-makers in *France* uſe a ſort of Mortar (for Plaiſtering over the in-ſides of their Furnaces,) made of a ſort of Fuller's-earth, which is gotten from *Beliere* near *Forges*, which is the only Earth in *France* that has the property of not melting in this exceſſive Heat. And 'tis of this ſame Earth that the Pots are alſo made which will hold the melted Metal for a long time.

7. *For Sun-dials.*] An exceeding ſtrong and laſting Mortar to make a Dial-plain on a Wall, may be thus made: Take Lime and Sand, which temper with a ſufficient quantity of Linſeed-oyl: this ſpread upon the Wall, will harden to the hardneſs of a Stone, and not decay in many Years. Note, If you cannot get Oyl, you may temper your Lime and Sand with ſeum'd Milk, (but Oyl is better,) and this will laſt 6 times as long as the ordinary Plaiſter made of Lime and Hair with Water.

I have known a very ſtrong and tough Mortar (for a Sun-dial plain,) made in this manner. To about 5 or 6 Gallons of Brook-ſand, (which was dry'd on an Oaſt, and ſifted through a fine Splinted-ſieve,) there was put as much, or rather more Sifted-lime, and a Gallon of Boreing (or Gun) Duſt ſifted alſo; all which was wet and temper'd well with 6 or 7 Gallons of Scum'd-milk, and about a Pottle of Linſeed-oyl. This was laid on the Wall firſt, well wet with Milk; but the Workman found much trouble to ſet it ſmooth, by reaſon it dry'd ſo very faſt; but by keeping it often ſprinkl'd with Milk, and ſmoothing it with the Trowel, it at laſt ſet with a very ſmooth and ſhining Surface. But notwithſtanding all his Care, it (as it dry'd) crack'd pretty much; which I fanſie might proceed from the want of Hair in it: It did alſo blow in Blaſters, tho' the Lime were ſifted; and therefore I fanſie, that

that if the Lime had been prepar'd as it is in *Fresco Painting*, it might have been prevented.

8. *Extraordinary good for Floors, Walls, and Ceilings.*] If you temper Ox-blood, and fine Clay together, and lay the same in any Floor, or Plaister any Wall, or Ceiling with it, it will become a very strong and binding Substance, as I have been told, (says my Author) by a Gentleman Stranger, who affirm'd to me, that the same is of great use in *Italy*.

9. *A profitable and cheap kind of*-] A Wise, Wealthy, and ancient Soap-boyler, dwelling without *Aldgate*, has (for the better Encouragement of others,) long since erected a fair and stately Edifice of Brick for his own Habitation; upon the good success whereof he has since built another House of some Charge and good Receipt; the *Mortar* whereof did consist of 2 Load of wast Soap-ashes, one Load of Lime, one Load of Lome, and one Load of *Woolwich* Sand.

So likewise, another Gentleman of the same Faculty, (being likewise of good Credit, and great Experience,) has us'd only Lome and Soap-ashes temper'd and wrought together for *Mortar*; whereby he has laid both the Foundations, Chimneys, and their Tunnels in his Dwelling-house in *Southwark*, and they have endur'd those Storms already past, which have overturn'd many other Tunnels, both new and old that were built with the ordinary *Mortar*.

It may be, that many Lime-men, (and some of those Bricklayers that are in Fee with 'em,) may speak against this Practice, and labour (by all possible means) to discredit it; but there is no *Reason* can hold against *Experience*, nor no *Malice* so great, but *Truth* in her Time will be able to vanquish. And if these 3 *Tryals* be not thought a competent number to give Credit to a new Invention; I can, (says my Author,) back and confirm them with 3 score more at the least, which have been already made within the City of *London*, and Suburbs thereof.

True, indeed, this kind of *Mortar* is somewhat rough in the laying, and more sharp and fretting to the Fingers than ordinary *Mortar*, which makes it so much neglected and decry'd by some Workmen: But (says my Author,) I could soon remedy these 2 slender Faults; the first whereof is rather an excellent Quality in Mortar, than a Fault. Yet for the Good-will I bear to all the excellent uniform Buildings of our time, I will set down the best Advice that I can in this Case, and such as I dare warrant upon my Credit. And first, concerning the Roughness of this kind of Mortar, who is so blind, as not to see how to remedy it? (For 'tis rather a Work of Labour than of Skill;) for the Soap-ashes (which are in hard Cakes,) being either ground, or stamped into a fine Powder, before they be mixt with the Sand, will soon be brought to a smooth

ſmooth Temper. And here we have no need to fear the Charge that will ariſe thereby; for I dare undertake, that the Profit of one Days Labour will anſwer the Charge of three Men's Wages, in the difference of Price that will be found betwixt one Load of theſe Aſhes, and one hundred of Lime.

Then, 2*dly*, The *Sharpneſs* wherewith they offend the Bricklayer's Fingers, may in ſome ſort be avoided by wearing of Gloves, (without which they ſeldom lay any Brick at all) to avoid the like Effects, which they find in Lime.

But for an aſſured help in this caſe, (if the ſharpneſs be ſuch as cannot be endur'd of Workmen,) let theſe Aſhes be re-imbibed in Water for ſome reaſonable time, till more of their Salt be extracted from them, and then, (without queſtion) they will find them gentle enough, and much of their fretting Nature taken away from them.

10. *For laying of Tiles.*] I know ſeveral Places in *Suſſex*, where for laying of Tiles upon Houſes, *&c.* They make a kind of *Mortar* of Lome, and new Horſe-dung, well temper'd and mixt together. This ſome Workmen commend for a good, ſtrong, and cheap *Mortar*; and others tell me, that 'tis more agreeable to the Tiles, than the common Mortar made of Lime and Sand; which, ſay they, corrodes and frets the Tiles, cauſing them to ſcale and fly to pieces, which this does not.

I have taken particular notice of one Houſe, where the *Tiles* were laid in this kind of *Mortar*, and had been laid about 4 or 5 Years, and yet the *Mortar* did ſtick very well under the Corner-tiles, where it generally lies thickeſt.

11. *For Plaſtering of Fronts of Houſes in imitation of Brick-work.*] Some Workmen tell me, that they make *Mortar*, (for this kind of Work) of Powder of Bricks, ſharp Sand, and Lime, and ſome Red-oker. I know a Houſe that is Plaſter'd with this kind of *Mortar*; it has been done above 20 Years, and yet looks very well, and paſſes (with common Paſſengers) for a Brick Houſe; tho' it be only Timber Plaſter'd over. They have commonly 1 *s. per* Yard for doing ſuch Work, only Workmanſhip.

12. *How much allow'd to a Rod of Brick-work, or a Square of Tiling.*] Workmen commonly allow a hundred and half, (or 37 ½ Buſhels) of Lime, and 2 Load, (or 72 Buſhels) of Sand to make Mortar enough for a Rod of Brick-work.

And for Tiling, 4 Buſhels of Lime, and 6 or 8 Buſhels of Sand will make Mortar ſufficient to lay 1000 of Tiles, which is about a Square and half. So that a Square of Tiling will take up (for Mortar) about 2 ½ Buſhels of Lime, and about 5 Buſhels of Sand.

13. *A Caution about.*] 'Tis a general Caution in all parts of a Building that where Stones, or Bricks are contiguous

to Timber, they ought to be laid dry, or without *Mortar*; becauſe Lime and Wood are inſociable, the former very much corrodeing and decaying the latter.

14. *Rough Mortar*, which ſee in R.

## *Moſa-ick, ique-ical Work.*

A curious kind of Work in Architecture, conſiſting of ſmall inlaid pieces of Stone, Glaſs, Shells, or other Materials, of various Colours, Figur'd at Pleaſure. 'Tis an Ornament of much Beauty, and long Life, but of moſt uſe in Pavements and Floorings.

## *Moſs,*

*Us'd in Tiling.*] In ſome parts of *Suſſex* they lay Tiles in Moſs inſtead of *Mortar*; and when the Workmen get the Moſs themſelves, they are allow'd 2 *d.* in a Square the more for their Work. But ſome Workmen contemn this way of Tiling with Moſs; becauſe, (ſay they) in Windy wet Weather, when the Wet, Rain, Snow, or Sleet is driven under the Tiles in the Moſs; if there follow a Froſt whilſt the Tiles are wet, it then Freezes the Moſs, and ſo raiſes the Tiles out of their Place.

## *Multiplication*

*Of Feet and Inches, by Feet and Inches.*] V. Croſs-multiplication.

## *Munions,*

In Architecture, are the ſhort upright Poſts that divide the ſeveral Lights in a Window-frame.

## *Muring,*

And old Term in Architecture, ſignifying the Raiſing of Walls.

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## *Nails.*

1. *What.*] Theſe are a Material ſo well known, that (in the general) they need no Deſcription. But the particular Kinds of 'em (which are very numerous,) ſhall be deſcribed in the following Numbers.

2. *Back— and Bottom.—*] Theſe kinds of Nails are made with flat Shanks, and ſo as to hold faſt, and not open the Grain of the Wood; being proper for Nailing of Boards together

gether for Coolers, for Guts to ſave Water under the Eves of a Houſe, or for any Liquid Veſſels made of Planks, or Boards.

3. *Clamp.*] Theſe are proper to faſten Clamps in Building, and repairing of Ships.

4. *Claſp.*] Theſe are of 2 ſorts, *viz.* (1.) *Long*, proper for any fine Building with Firr, or other ſoft Wood: the claſping of the Head brings them into little compaſs, and admits of their ſinking into the Wood, makes the Work ſmooth, and will admit a Smoothing-plane to go over them when drove. The ſizes are 7, 7½, 8, 10, 13, 14, 15, 18, 21, 22, 23, 28, 32, 36, and 40 lb. *per* Thouſand.

(2.) *Strong*, theſe are fit for Oak, and other hard Woods. The ſizes are 15, 18, 28, 32, and 40 lb. *per* Thouſand.

5. *Clench.*] Theſe are commonly us'd by Boat, Barge, and Lighter Builders, with Roves, and oft without: They are proper Nails for any Building with Boards, that muſt be taken down again, becauſe they will drive without ſplitting the Wood, and draw, (or admit of punching) out, (if right made) without breaking. The ſorts are too many to be here enumerated, for fine Work they are made with Claſp-heads.

6. *Clout.*] Theſe are commonly us'd for nailing on of Clouts to Axle-trees, but are proper to faſten any Iron to Wood; and (if right made,) the Heads will hold driving home without flying. The ſizes are 4½, 7, 8, 9, 12, and 15 lb. *per* Thouſand.

7. *Deck.*] Theſe are proper for faſtning of Decks in Ships, doubling of Shipping, and Floors laid with Planks. They are of 2 ſorts, Dye-headed, and Claſp-headed. The Sizes are 4, 4½, 5, 5½, 6, 6½, 7, 8, and 9 Inches long.

8. *Dog.*] Theſe are proper for faſtning of Hinges to Doors, for (if made right) they will hold the Hinge cloſe without the Heads flying off, or without the help of botching, by putting Leather between the Head and the Hinge. The ſizes are 9, 12, 20, 25, 30, 40, 60, 80, and 120 lb. *per* Thouſand.

9. *Flat Point.*] Theſe are of 2 ſorts, *viz.* (1.) *Long*, which are much us'd in Shipping, and are very proper where there is occaſion to draw and hold faſt where there is no Conveniency to Clench. The Sizes are 7½, 8, 9, 10, 11, 12, 13, 14, 16, 18, 21, 22, 23, 26, 40, 55, 75, and 110 lb. *per* Thouſand. (2.) *Short*, theſe are fortifi'd with Points to drive into Oak, or other hard Wood, and are often us'd to draw the Sheathing boards to, very proper where Oak or other hard Wood is us'd. The Sizes are 5, 9, 18, 26, 32, 40, 55, 75, and 110 lb. *per* Thouſand.

10. *Jobent.*] Theſe are commonly us'd to nail thin Plates of Iron to Wood, and to nail on ſmall Hinges for Cub-board-doors, *&c.* The ſizes are 2 and 3 lb. a Thouſand.

11. *Lead.*] Theſe are commonly us'd to Nail Lead,

Leather, and Canvas to hard Wood. The ſizes are 4 ½, 7, and 8 lb. *per* Thouſand.

12. *Port.*] Theſe are commonly us'd to nail Hinges to the Ports of Ships. They muſt be made ſtrong, becauſe they will not admit of being clench'd, without being prejudicial to the Lining; and therefore care muſt be taken that they be demanded of ſuch a length, as that they may come near through, (ſo as to take ſufficient hold,) and yet not ſo long as to come quite through. The ſizes are 2 ½, 3, 4, and 5 Inches long.

13. *Pound.*] Theſe are four ſquare in the Shank, and are much us'd in *Eſſex*, *Suffolk*, and *Norfolk*; but in few other Countreys, except for Paleing. The ſizes are 6 *d.* 8 *d.* 10 *d.* 20 *d.* and 40 *d.*

14. *Ribbing.*] Theſe are commonly us'd to faſten the Ribbing, to keep the Ribs of Ships in their place in Building; if theſe Nails are made right, they will hold faſt, and draw eaſie, without injuring the Ribbing, or Timbers. They are alſo very uſeful to faſten Timber's to be uſed for a while, and taken down again for further Service. The ſizes are 5, 5 ½, 6, 6 ½, 7. 7 ½, 8, 8 ½, and 9 Inches long.

15. *Roſe.*] Theſe Nails are drawn four ſquare in the Shank, and commonly in a round Tool, as all common 2 *d.* Nails are, and moſt commonly 3 *d.* and 4*th.* In ſome Countreys they make all their larger ſort of Nails in this ſhape, but their being ſquare drowneth the Iron, and the Nails do not ſhew ſo fair to the Eye, as thoſe laid upon the flat; but if made of tough Iron, they are very ſerviceable. The Sizes are 1 ¾, 2, 2 ½, 2 ¾, 3, 3 ½, 3 ¾, 4, 4 ¼, 4 ¾, 5, 9, 10, 13, 14, 16, 17, 18, 24, 26, 28, 30, 32, 36, and 40 lb. *per* Thouſand.

16. *Rother.*] Theſe are principally to faſten Rother Irons to Ships, and require a full Head, and to be made ſo as to hold faſt in the Wood to the greateſt degree, without Clenching.

17. *Round-head.*] Theſe are very proper to faſten on Hinges, or for any other uſe where a neat Head is requir'd; and if made of the beſt tough Iron, as they ought to be, are very uſeful. The ſorts are Tacks, 2 *d.* 4 *d.* 5 *d.* 6 *d.* and 8 *d.* The ſame Tinn'd for Coffin-handles, and fine Hinges.

18. *Scupper.*] Theſe are principally to faſten Leather, and Canvas to Wood, and therefore require a broad Head, that neither may work looſe. The ſizes are 4 ½, 7, and 8 lb. a Thouſand.

19. *Sharp.*] Theſe are much us'd in all Countreys, eſpecially in the *Weſt-indies*, being made with ſharp Points, the Shank flat, and is a very proper Nail for ordinary Uſes, where ſoft Wood is us'd. The ſizes are 2 ½, 2 ¾, 3, 3 ½, 4, 4 ½, 5, 5 ½, 6, 6 ½, 7 ½, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 28, 32, 36, 40, 55, and 75 lb. *per* Thouſand.

20. *Sheathing.*] Theſe are commonly us'd to faſten Sheathing-

thing-boards to Ships. The Rule for using them, is to have the Nail full 3 times as long as the Sheathing-board is thick, provided the Plank be of a sufficient thickness, which ought to be enquir'd into; for the Sheathing-nail ought not to go through the Plank by half an Inch, least it should make the Ship leaky. The Shank must not be so strong as to cleave the Board, and the Head must be well clasped, or died, so as it may sink into the Wood, and the Ships side left smooth. They are also a useful Nail in doubling of small Ships. The sizes are 1 ¼, 1 ½, 1 ¾, 2, 2 ¼, 2 ½, 2 ¾, 3, 3 ¼, and 3 ½ Inches long.

21. *Square.*] These are of the same shape as sharp Nails, and is a most useful Nail for Oak, and other hard Wood, as also for nailing up Wall-fruit, the Points being made something stronger than the Points of sharp Nails, which fortifies them to go forward, and not turn back upon a small Opposition, as Weaker-points will do. The sizes are 2 ½, 2 ¾, 3, 4, 4 ½, 5, 5 ½, 6, 6 ½, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 18, 19, 20, 22, 23, 24, 28, 30, 32, 36, 40, 55, and 75 lb. *per* Thousand.

22. *Tacks.*] The smallest of these are to fasten Paper to Wood, midling for Wool-cards, and Oars, and the larger for Upholsterers, and Pumps. The sizes are 2 ¼, 5, 6, 8, 9, 14, and 15 Ounces a Thousand.

There are many more sorts of Nails, which for brevity, (and because they are not so proper for our present Business,) I shall omit.

23. *Allowance of in Lathing.*] In Lathing, the common Allowance of Nails is 500 to a Bundle of 5 Foot-laths, and 600 to a Bundle of 4 Foot-laths, at 6 Score Nails to the Hundred.

24. *Allowance of in Flooring.*] In laying of Floors 200, (that is 240) Nails is a compleat Allowance for a Square of Flooring.

25. *To Toughen.*] A Neighbour of mine, a Mason, tells me, that ——— the Ironmonger at *Rotherbridge* taught a Kinsman of his, (who is also a Mason) to toughen his Nails that were brittle, by heating them hot in the Fire, (in a Fire-shovel, or the like,) and putting some Tallow, or Grease to 'em, the first he says is best. This Ironmonger keeps a Nailer at Work.

26. *Of driving.*] There is requir'd a pretty Skill in driving a Nail; for if, (when you set the point of a Nail,) you be not curious in observing to strike the flat Face of the Hammer Perpendicularly down upon the Perpendicular of the Shank, the Nail, (unless it have good entrance) will start aside, or bow, or break, and then you will be forced to draw it out again with the Claw of the Hammer. Therefore you may see a Reason when you buy a Hammer, to chuse one with a true flat Face.

Perhaps it may not be unacceptable to some Readers, if I here mention a little *Trick* that is sometimes used among some (that would be thought cunning Carpenters,) privately to touch the Head of the Nail with a little Ear-wax, and then lay a Wager with a Stranger to the Trick, that he shall not drive that Nail up to the head with so many blows. The Stranger thinks he shall assuredly win, but does assuredly lose; for the Hammer no sooner touches the Head of the Nail, but instead of entring the Wood it flies away, or starts aside, notwithstanding his utmost care in striking it down-right.

## *Nave*,

In Architecture is commonly us'd to signifie the main part, or Body of a Church; which by the nearness of the word may seem to be deriv'd from the Latin, *Navis* a Ship; but it may more significantly be deriv'd from the Greek ναὸς, (that is *Naos*) a Temple.

## *Newel*,

The upright Post that a pair of Winding-stairs are turn'd about.

## *Niches*, or *Nices*,

The hollow places in a Wall, wherein Statues or Images, are set. If these Images be of white Stone, or Marble let not the Niches be colour'd too black; for tho' *contraria juxta se posita magis illucescunt*, be an old Rule, yet 'tis observ'd, that our sight is not well pleas'd with suddain changes, from one Extream to another; therefore let them have rather a duskish Tincture, than an absolute black.

## *Oak*.

1. *What.*] This is a sort of Timber well known, and needs no Description. 'Tis one of the principal Materials in Building, being strong in all Positions, and may well be trusted in cross and tranverse Work; as for Summers, and Girding, or Binding-beams, *&c.*

2. *Of Sawing.*] Oak is worth sawing 2 *s.* 8 *d. per* hundred, some 3 *s.* and upwards to 3 *s.* 6 *d. per* hundred. That is the hundred Superficial Feet.

## *O G. Ogee*, or *Ogive*,

A sort of Moulding in Architecture, consisting of a round and a hollow; *Vitruvius* makes it 2 Quarter-circles, *Scammozzi*, and some other Authors make the Arch's flatter, by striking them from 2 Equilateral Triangles. V. Capital. N. 3.

## *Orders*,

In Architecture are the different Forms and Proportions of Columns, *&c.* There are 5 Orders (commonly reckon'd) in Architecture, *viz.* The Tuscan, Dorick, Ionick, Corinthian, and Composite.

*Orlo*,

## *Orlo.*

The Plinth or Square under the Base of a Column, or under the Base of its Pedestal.

## *Orthography,*

Is a Word deriv'd from the *Greek*, *Orthos*, *true* or *right*, and *grapho*, to *write* or *describe*. In Architecture, it signifies the Front or (any other) upright Side of a House; or the Draught on Paper of those Parts of a House.

## *Ovolo,*

As *Echinus*.

## *Over-span.*

V. Clamp. N. 2.

## *Painting.*

1. *Of Out-door-work in general.*] Doors, Shop-windows, Window-frames, Pediments, Architraves, Friezes, and Cornishes, and all other Timber-works that are expos'd to the Weather, ought at first setting up to be Prim'd with *Spanish*-brown, *Spanish*-white, and Red-lead, (about a fifth part) to make the other 2 Colours dry; these well ground with Linseed-oyl, will make excellent Primer; then afterwards with the same Colour, (but much whiter) for a second Primer, and lastly, with fair White, made of White-lead, and about a fifth part in quantity, (not in weight) of *Spanish*-white.

Out-door-work thus colour'd, may be afforded for 3 *d.* or 3 *d.* half-penny, or 4 *d.* the Yard Square, for each time laid over.

2. *Of Measuring.*] Painters measure their Work by the Yard Superficial, and in taking the Dimensions of their Work, they run a String all over where the Brush goes; for they say, (and 'tis but Reason) we ought to be paid for all where the Brush goes. But sometimes in Rails, and Banisters, they will measure it as if it were flat Measure. I have seen the Experiment tri'd, and the difference would not countervail the trouble of girting. So that Painters-work is measur'd the same as Joyners, only Painters never reckon Work and half, but work once, twice, or three times, *&c.* done over; or at so much *per* Yard, according to the Work. They always reckon double Work for Painting of Window-shutters, if both sides are Painted alike; otherwise, according to the value of the Painting. But they reckon Sash-frames by themselves, (at so much *per* piece, and likewise Mantle-pieces) when there is no Painting about them; but if they stand in the Wainscot, they measure them as plain Work, deducting nothing for the Vacancy.

3. *Of Wainscot-colour.*] If on new Stuff, is worth about 8 *d. per* Yard, on old Colour about 7 *d.*

4. *Of Walnut-tree-colour.*] It is worth 10 *d.* say some, others say 16 or 18 *d. per* Yard.

5. *Of ordinary branch'd Painting.*] Is worth 12, 14, or 16 *d. per* Yard.

6. *Of ordinary Marble-colour.*] If on new Stuff, is worth 1 *s.* *per* Yard, on old Colour, 9 *d*

7. *Of white Colour.* Is worth 10 *d.* or 1 *s. per* Yard.

8. *Of plain Japan, either black or white,*] Is worth 3 *s.* 6 *d.* or 4 *s. per* Yard.

9. *Of Gates, and Outward-doors,*] Is worth 3 *d.* or 3 *d.* half-penny, or 4 *d. per* Yard.

10. *Of Shop-windows.*] The same as Gates, and Outward-doors.

11. *Of Window-frames.*] Is worth from 3 *d.* or 4 *d.* to 6 *d.* or 8 *d.* each Light, according to their Size.

12. *Of Sash-lights.*] Is worth about 1 *d. per* Light.

13. *Of Sash-frames,*] Is worth about 1 *s. per* Frame.

14. *Of Iron-casements.*] Is worth three half-pence, 2 *d.* or 3 *d. per* Casement, according as they are of bigness.

15. *Of Iron-bars of Windows.*] Is worth 1 *d. per* Bar, or more, if very large.

16. *Of Chimney-pieces.*] Is worth about 2 *s. per* Chimney-piece.

17. *Of Pales.*] Is worth about 10 *d.* or 12 *d. per* Yard.

18. *Colours.*] The Colours us'd in Painting, are of several kinds; as White, and Red-lead, *Spanish*-white, and brown, Verdigrease, Smalt, *&c.* Of which see in their proper places of the Alphabet.

## *Paleing.*

1. *With Cleft-pales, Rails, and Posts.*] Some Workmen tell me, that for Paleing with 3 Rails, Cleft-pales, Rails, and Posts, cleaving, making, and setting up, they have 3 *s.* 6 *d.* or 4 *s. per* Rod, Felling the Timber and all. But then their Materials are all laid down to their Hand, so that they have no carrying.

Others tell me they have 2 *s.* 6 *d. per* Rod, for (only) making and setting up of Cleft-posts, Rails, and Pales.

2. *With Saw'd Pales, Rails, and Posts.*] Some Workmen tell me they have 1 *s* 6 *d. per* Rod for making and setting up of Saw'd-posts, Rails, and Pales.

## *Pales.*

1. *Price of Cleaving.*] Some Workmen tell me that they have 2 *s. per* Hundred for Cleaving of Pales; but others that Cleave in Brocks, say they have but 1 *s.* 8 *d. per* Hundred. Note, A Hundred of Pales is various, according to their length; for of 5 Foot Pales, 5 Score Pales is a Hundred, but of 4 Foot there goes 6 Score, and of 3 Foot, 7 Score to the Hundred.

2. *Of the Number a Tun will make.*] This is very uncertain, by reaſon of the difference in Timber's Cleaving, ſome Cleaving much better, (and leſs to waſt) than other ſome; yet by comparing ſeveral Obſervations, which I receiv'd from an ingenious Workman, I gather, that a Tun of good Cleaving Timber may make 3 Hundred, (or perhaps ſomething more) of 4 Foot Pales, and a Tun of the like Timber may make 4 Hundred of 3 Foot Pales; the Reaſon of which is, becauſe Timber generally cleaves better, (and leſs to waſt,) in ſhort lengths than in longer.

But the Number of *Sawn-pales* (that may be made of a Tun of Timber,) is more certain, than of *Cleft-pales*; for I have found (by the Draught of a Tree, and Calculations,) that a Tun of Timber will make about 400 Foot of Inch-boards; which (if the Timber fit for length,) being cut out

into { 5—Foot / 4—Foot / 3—Foot } Pales, will make

{ 80 / 100 / 133 } Pales, each a Foot broad; which in Paleing will reach about 3 times as far as the like number of Cleft Pales will do.

## *Paliſade*, or *Paliſado.*

1. *What.*] A ſort of ſlight open Pale, or Fence, ſet to Beautifie a Place, or Walk.

2. *Pales.*] Some Workmen tell me, that making and ſetting up of Paliſado-pales, (if the Heads are handſomely cut, the Paliſades Mortis'd through, the Poſts at the corners higher than the reſt, and the Rails, Kneeling-rails,) is worth 14 *s. per* Rod, Carpenter's Work, and Sawing.

An ancient and experienced Carpenter informs me, that the Carpenter had 25 *s. per* Rod, (for Timber and Workmanſhip) for the Paliſado-pales at the Bowling-green at *Mount-Ephraim* at *Tunbridge-wells*; and likewiſe for the Paliſades at the High-houſe behind the Bowling-green. This old Carpenter told me, he gueſs'd the Carpenter's Work of theſe Paliſades to be worth about 10 *s. per* Rod.

I am alſo inform'd, that the Carpenter had 30 *s. per* Rod for the Paliſades at the Walks at *Tunbridge-wells*. I mention theſe about the Wells, becauſe I ſuppoſe them to be well known to moſt Gentlemen. For there is ſuch variety in the Workmanſhip of Paliſado-pales, that there can be no certain Price for it by the Rod.

3. *Gates.*] Theſe are as various in the Forms and Faſhions as Paliſado-pales, and conſequently their Prizes are alſo as various, *viz.*

*viz.* From 6, or 7, to 10, or 12 *s. per* Yard running Measure, at about 6 or 7 Foot high.

4. *Of Iron.*] Palisado-work of Iron in Gates, or otherways, is from 4 *d. per* Pound, to 8 *d.* according to the Work.

## *Pallification,*

A Term in Architecture, signifying the Pileing of the Ground-work, or strengthning of the Ground-work with Piles of Timber driven into the Ground, when they Build upon a Moist and Marshy Soil.

## *Pantry,*

A Room to set Victuals in, a Store-room.

## *Pan-tiles.*

V. Tiles, N. 7.

## *Pargeting.*

1. *What.*] In Architecture, signifies the Plastering of Walls; sometimes 'tis us'd to signifie the Plaster it self.

2. *Price* ] Pargeting, or Plastering is of divers kinds. As (1.) White Lime, and Hair-mortar laid upon bare Walls, at 3 *d.* or 4 *d.* the Yard. (2.) Upon bare Laths, as in Partitioning, and plain Ceilings, from 8 *d.* to 14 *d. per* Yard. (3.) Rendring the insides of Walls, or doubling Partition-walls, at 2 *d.* or 3 *d.* the Yard. (4.) Rough-cast upon Heart-laths, from 1 *s.* to 3 *s.* the Yard Square, Workmanship and all Materials. (5.) Plastering upon Brick-work with finishing Mortar, in imitation of Stone-work, from 1 *s.* to 18 *d.* or 2 *s.* the Yard Square. (6.) And the like upon Heart-laths, from 18 *d.* to 2 or 3 *s.* the Yard, V. more in *Plastering.*

## *Parlour,*

A fair lower Room, design'd principally for the Reception, and Entertainment of Company.

## *Partitions.*

1. *Of Framing.*] V. Framing, N. 4.

2. *Of Measuring.*] Partitions are commonly measur'd by the Square; but they commonly make deduction for Doors and other Vacancies.

## *Passage,*

An Entry, or narrow Room, serving only for a Thorough-fair, or Entrance into other Rooms.

*Paving.*

## *Paving.*

1. *What.*] Is the laying a Floor with Bricks, Tiles, or Stones.

2. *With Statute-bricks.*] Paving with Statute-bricks, is done at *London* for about 4 *d. per* Yard. But I know ſome Workmen in *Suſſex* that have 5 *d.* or 6 *d. per* Yard, into which Price they make ready the Floor for the Work, by clearing out the Earth, and levelling the Floor with a convenient quantity of Sand, (if they lay the Bricks dry, as ſometimes they do,) which they ſpread evenly with the Rake; then laying the Bricks level by a Line, they (with a Trowel) put a ſufficient quantity of Sand under each Brick, to raiſe him full as high as (or a little higher than) the Line, and ſo knock him down (level with the Line) with the Handle of their Hammer; which being done, they ram in the Sand (on the ſide of, and) againſt the bottom of the Brick with the handle of their Hammer, to make him lie faſt. Having thus laid the whole Floor, they ſtrew Sand all over the Bricks, to the thickneſs of an Inch, more, or leſs, with a Command to the People of the Houſe, that they let it lie for the ſpace of 5 or 6 Weeks; now and then ſweeping, it too and fro, that thereby, and by their treading on it, it may fill up all the Joynts betwixt the Bricks.

If they lay the Bricks in Mortar, the Price (they ſay) is the ſame as if they were laid dry.

There are ſome Maſons, that having laid the Floor dry, will make a very thin Mortar, which they ſpread all over the Floor, ſweeping it too and fro with a Broom, to fill up the Joynts of the Bricks.

This kind of Paving (with common or Statute-bricks) is uſual for Cellars, Waſh-houſes, Sinks, Fire-hearths, and for Halls and Kitchins in common Houſes.

Of theſe kind of Bricks, 32 will Pave a Yard Square, if laid flat-ways, and 64, if edge-ways.

3. *With ſquare Tiles, or (as ſome call them) Paving-bricks.*] The Paving with Square-tiles is commonly valu'd by the Square, and the dearer the ſmaller the Tiles are; for theſe kind of Tiles are of ſeveral ſizes. *viz.* 6, 8, 10, and 12 Inches Square, their Price from 6 to 20 *s.* the hundred. In *Suſſex* theſe kind of Tiles, (or as they call them) Paving-bricks, are 9 Inches Square, and commonly ſold at 1 *d. per* piece, or 8 *s. per* hundred.

If you would know how many of either of theſe ſort of Tiles will Pave any Floor, then

Note, that { 36, 21, 16, 13, 9 } Tiles of { 6, 8, 9, 10, 12 } Inches Square will Pave a Square Yard.

4. *With*

4. *With Flemiſh-bricks.*] The Paving with theſe Bricks is far neater and ſtronger than common Bricks: They are of a yelloviſh Colour, and muſt be laid in Sand. Earth-brick is 6 Inches and a quarter long, 2 Inches and a half broad, and 1 Inch and a quarter thick.

Now, allowing a quarter of an Inch for the Joynt, then 72 of 'em will Pave a Yard ſquare, but if they be ſet edge-ways, then to Pave a Yard ſquare will require 100 Bricks. Theſe Bricks are uſually ſold at 2 *s.* the Hundred, and the Price of laying them is 4 *d.* 5 *d.* or 6 *d.* the ſquare Yard.

5. *With Rough, or Rag-ſtone.*] This is the cheapeſt of all Pavements, and is valu'd from 12 *d.* to 15 *d.* the Yard.

6. *With Free-ſtone.*] Paving with broad Stone taken out of the Quarries, (commonly call'd Free-ſtone,) and cut into Lengths and Breadths promiſcuouſly, (as they will hold) and in thickneſs about 2 or 3 Inches, is uſually rated at 6 *d.* 7 *d.* or 8 *d.* the Foot Square, or 4 *s.* 6 *d.* 5 *s.* 3 *d.* or 6 *s.* the Yard Square for Stone and Workmanſhip. This kind of Paving is laid in common Yards, and Paſſages before Shop-doors, and Stalls, *&c.*

But if the Stones be ſquared all to a ſize, (as ſometimes theſe Stones are cut perfectly ſquare, as Paving-tiles are, but much bigger, as 18, 20, and 24 Inches ſquare, and upwards;) then, as they are neater, ſo they are dearer, as 12 *d.* or 14 *d. per* Foot, or 9 *s.* or 10 *s.* 6 *d. per* Yard. But if the Stones, thus ſquared and ſized,) be good and well Poliſhed, (as they ought to be for Kitchins, Daries, and neat private Places) then they may be worth 15 or 16 *d. per* Foot, or 11 *s.* 3 *d.* or 12 *s. per* Yard ſquare.

7. *With* Ri-gate, *or Fire-ſtone.*] This kind of Pavement is good for Chimney-fire-hearths, Ovens, Stoves, *&c.* and is ſomewhat dearer than common Purbeck pavement. For the Price of theſe Stones, V. Fire-ſtone, N. 2.

8. *With Pebble-ſtones, or Bolders.*] Paving with Pebble-ſtones laid in Gravel, for Materials and Workmanſhip, may be worth 15, or 18 *d.* the Yard ſquare.

9. *With Marble.*] Paving with Marble is of all other the moſt beautiful, of which there are ſeveral ſorts; as White, Black, and Gray: Some Pavements; (as in Foot-paces before Chimneys) are laid all of one ſort, or Colour, and in one intire Stone; others of 2 Colours laid Square, or Chequer-ways, the ſide of one by the ſide of the other; others are laid Arrace-wiſe, of 2 Colours, laid Angle to Angle, and this laſt is the neareſt way; but there may be divers Forms contriv'd to lay them in; as you may ſee in ſeveral Chancels, in the Quire of St. *Paul's*, and in the *Royal Exchange* in *London*, and divers other Places. This kind of Pavement is valu'd from 2 to 3 *s.* the Foot Square, and upwards, according as 'tis well laid and poliſh'd. For the Price of Marble, V. Marble, N. 5.

10. *Dia-*

10. *Diamond.*] Diamond-pavement, (says Mr. *Wing*,) is worth 3 *d.* or 4 *d. per* Foot.

11. *Random.*] Random-pavement, (says Mr. *Wing*) at the Quarry, is worth 2 *d.* half-penny, or 3 *d. per* Foot.

12. *Of Measuring.*] Paving is commonly measur'd by the Yard Square. And therefore the length of any Pavement in Feet and Inches, being Multiplied by the Breadth in Feet and Inches, (which how it is done, V. Cross-multiplication, N. 2.) will produce the Content in Feet; which being divided by 9, (because 9 Square Feet make a Square Yard,) will give the Content in Yards requir'd.

## *Pavement.*

V. Paving.

## *Pediments,*

Pediments over Doors are commonly valu'd at so much *per* piece, dearer, or cheaper, according to their largeness, goodness of the Materials, and Curiosity in Workmanship.

## *Pedestal.*

1. *What.*] In Architecture is the Basis, or Foot of a Pillar; that part which supports the Pillar.

2. *Kinds.*] There are as many kinds of Pedestals, as there are Orders of Columns, *viz.* 5. The Tuscan, Dorick, Ionick, Corinthian, and Composite. The heighth of the Pedestal in each Order ought to be a third part of the whole Column, (comprehending the Base and Capital, and their upper Adjuncts, as Architrave, Frieze, and Cornish.) This Rule of singular Use and Facility, I find setled by *Jacobo Baroccio*, and I hold him a more credible Author, (as a Man that most intended this piece of Architecture,) than any that vary from him in those Dimensions, says our famous *English* Architect, Sir *Henry Wotton*.

Nevertheless other Architects differ from him in the Right of the Pedestal. I shall at present (for brevity sake) only give the Description of the several Orders of Pedestals from *Vitruvius*.

3. *Tuscan.*] According to *Vitruvius*, the whole heighth of the Tuscan Column, comprehending the Architrave, Frieze, and Cornish, is divided into 9 parts, whereof 2 goes to the heighth of the Pedestal.

This Pedestal he describes in 2 different Forms, one of which is plain, having only a Plinth for the Base, and another for the Capital; the heighth of each of those Plinths is $\frac{1}{4}$ of the whole heighth of the Pedestal; and the Projecture of each of these Plinths is $\frac{1}{8}$ of their heighth.

In the other fashion'd Pedestal which he describes, he also divides

divides the whole heighth of the Pedeſtal into 6 parts, one of which goes to the Baſe, and one to the Capital.

Again, he divides the Baſe into 2 parts, one of which goes to the Plinth below, and the other to the reſt of the Baſe; and this being ſub-divided into 4 parts, 3 of 'em goes to the Scima-reverſa, and the Liſt below it, which is $\frac{1}{4}$ a part, and the other to the Liſt above it.

4. *Dorick.*] The whole of this Column, (comprehending the Architrave, Frieſe, and Corniſh,) is by *Vitruvius* divided into 8 parts, whereof 2 goes to the heighth of the Pedeſtal, which agrees with *Jacobo Barocci*'s Rule mention'd above, N. 2.

This Pedeſtal is (by *Vitruvius*) alſo deſcribed in 2 different Forms; in both of which the Baſe and Capital are each $\frac{1}{7}$ of the whole heighth of the Pedeſtal.

In one of the faſhion'd Pedeſtals, the Baſe is divided into 2 parts, whereof one goes to the Plinth below, and the other to the reſt of the Baſe; and this part being ſub-divided into 2 parts, one of 'em makes the lower *Thorus*; and the other being again ſub-divided into 3 parts, 2 of 'em go to the upper Thorus, and the other to the Liſt above it.

The Capital of this faſhion'd Pedeſtal is divided into 4 parts, whereof the lowermoſt makes the Aſtragal, (whoſe Liſt is $\frac{1}{7}$ of the whole Aſtragal,) and the other 3 parts go to the Cimatium, whereof the Liſt at the top is one of thoſe parts.

In the other faſhion'd Pedeſtal, the heighth of the Baſe is alſo divided into 2 parts, whereof the lowermoſt goes to the Plinth, and the other part being ſub-divided into 3 parts, 2 of 'em make the Thorus, and the other part the Liſt above it.

The whole heighth of the Capital of this faſhion'd Pedeſtal is divided into 5 parts, whereof the lowermoſt goes to the Aſtragal, (whoſe Liſt is $\frac{1}{5}$ of the whole,) the next 2 parts go to the O-G; the 2 parts remaining, being ſub-divided into 3 parts, the 2 lowermoſt of 'em go to the Square, and the other to the *Cimatium*, whoſe Liſt is $\frac{1}{3}$ of the whole.

5. *Ionick.*] The whole heighth of this Column being divided into 14 parts, the height of its Pediſtal, (according to *Vitruvius*) is 3 of thoſe parts.

This Pedeſtal he alſo deſcribes of 2 different Forms, in each of which, the Baſe and the Capital are each $\frac{1}{7}$ of the whole heighth of the Pedeſtal.

In one of theſe faſhion'd Pedeſtals, he divides the heighth of the Baſe into 3 parts, whereof the lowermoſt goes to the *Plinth*, the next part goes to the *Scima-reverſa*, with its Liſt at top and bottom, which are each $\frac{1}{4}$ of the whole; the uppermoſt grand Diviſion being ſub divided into 2, the lowermoſt of 'em goes to the *Caſement*, or *Hollow*, with its Liſt at the top, which is one $\frac{1}{7}$ of the whole; the other part goes to

the

the Thorus, and its Liſt above it, which Liſt is $\frac{1}{3}$ of the whole.

The Capital of this faſhion'd Pedeſtal, is divided into 2 parts, the lowermoſt of which goes to the Scima-reverſa with its Liſt above and below it; whereof the lower Liſt is $\frac{1}{4}$ of the whole, and the upper Liſt $\frac{1}{6}$ of the remainder. The other grand Diviſion being ſub-divided into 3 parts, the 2 lowermoſt of 'em go to the Square, and the other to the Cimatum, whereof its Liſt is $\frac{1}{3}$ part of the whole Cimatum.

In the other faſhion'd Pedeſtal, the Baſe is alſo divided into 3 parts, whereof the lowermoſt goes to the Plinth, the other 2 grand Diviſions being ſub-divided into 5, the 3 lowermoſt of 'em go to the Scima-reverſa, and the Liſt under it, which Liſt is $\frac{1}{8}$ of the whole; the other 2 Diviſions being again ſub-divided into 3 parts, the 2 lowermoſt of 'em goes to the Thorus, and the remaining part to the Liſt above it.

The Capital of this faſhion'd Pedeſtal is divided into 2 parts, the lowermoſt of which being ſub-divided into 4 parts, the the lowermoſt of 'em goes to the Aſtragal; (whereof its Liſt is $\frac{1}{3}$ part,) the other 3 of thoſe ſub-diviſions go to the Scima-reverſa, and its Liſt above it, which Liſt is $\frac{1}{8}$ of the whole; the other grand Diviſion being ſub-divided into 3 parts, the 2 lowermoſt of 'em go to the Square, and the other part to the Aſtragal, whoſe Liſt is $\frac{1}{3}$ of the whole.

6. *Corinthian.*] The whole heighth of this Column being divided into 9 parts, the height of its Pedeſtal, (according to *Vitruvius*) is 2 of thoſe parts.

The whole heighth of this Pedeſtal being divided into 9 parts, the Baſe and Capital are (each of 'em) in heighth 1 of thoſe parts.

The whole heighth of the Baſe being divided into 5 parts, the 2 lowermoſt of 'em goes to the Plinth; the remainder being ſub-divided into 4 parts, the lowermoſt of 'em goes to the Thorus; the 2 next parts make the Scima-reverſa, and the Liſt below it, which Liſt is $\frac{1}{5}$ of the whole; the remaining part goes to the Aſtragal, whereof its Liſt is $\frac{1}{3}$ part.

The heighth of the Capital is divided into 2 parts, the lowermoſt of which being ſub-divided into 4 parts, the lowermoſt of thoſe go to the O-G, the other 3 ſub-diviſions being again ſub-divided into 2 parts, the lowermoſt of thoſe goes to to the Scotia, or Hollow, and the Liſt above it, (which Liſt is $\frac{1}{3}$ part of the whole;) the remaining part goes to the Boultin. The other grand Diviſion being ſub divided into 3 parts, the 2 lowermoſt of 'em go to the Corona, and the remaining part to the Cimatum, whoſe Liſt is , of the whole.

7. *Compoſite.*] The whole height of this Column being divided into 13 parts, the height of its Pedeſtal, (according to *Vitruvius*) is 3 of thoſe parts.

The

The Base being divided into 7 parts, 2 of 'em go to the Plinth, 1 to the Thorus, 2 to the Scima-reversa, one to the Scotia, and one to the Astragal; ; of the Astragal makes the Fillet above the Scotia.

The Capital being divided into 7 parts, one of 'em goes to the Astragal, 2 to the Frieze, one to the Boultin and List under it, 2 to the Corona, and one to the Cimatum.

## *Peers.*

1. *What.*] In Architecture a kind of Pilasters, or Buttresses for Support and Ornament.

2. *Scantlings, or Size.*] I find the Scantlings of *Stone-peers*, set down in an Act of Parliament for the Re-building of the City of *London*, after the late dreadful Fire, (which Scantlings were well consider'd by able Workmen before they were reduced into an Act,) to be as follows, *viz.* In the first sort of Houses, *Corner-peers*, 18 Inches square; *middle*, or *single Peers*, 14 and 12 Inches, *double-peers* between House and House, 14 and 18 Inches. In the 2 *d.* and 3 *d.* sort of Houses, *Corner-peers* 2 Foot 6 Inches square, *middle*, or *single Peers* 18 Inches square, *double Peers* between House and House, 14 and 18 Inches.

3. *Price.*] Peers are sometimes measur'd and rated by the Foot running Measure; but they are more commonly rated at so much *per* piece, dearer or cheaper, according to their size, goodness of the Stuff, and Curiosity in Workmanship.

A pair of Stone-peers with Seat-arches, 4 or 5 Foot wide, and 14 or 16 Foot high, may be worth 40 or 50 Pounds.

A pair of Rustick-peers of Stone, may be worth 10, 12, or 14 Pounds, according to their heighth and substance; Plain-peers, 8 or 10 Pounds; Revailed and Pilaster-peers, from 10 to 14 Pounds a pair.

## *Pentadoron,*

A kind of Bricks so call'd, V. Bricks, N. 111. §. 11.

## *Piazza's.*

V. Architrave, N. 2.

## *Piedroit.*

In Architecture is a square Pillar that is partly within the Wall.

## *Pillars,*

What they are every one knows; they are also call'd *Columns*; (for the word amongst Artificers is almost naturaliz'd,) I could distinguish them into Simple and Compound; But

to

(to tread in the beaten Path,) there are commonly reckon'd 5 Orders of Pillars, or Columns, according to their Dignity and Perfection, thus marshall'd, *viz.* The Tuscan, Dorick, Ionick, Corinthian, and Compound Order, V. Column.

## *Pilasters.*

1. *What.*] In Architecture are a kind of half Pillars (standing against a Wall) with Base and Capital, as Pillars have; but differing from Pillars in this, that those are square, but those are (commonly) round.

2. *Of their size, and Situation.*] Pilasters must not, (says Sir *Henry Wotton*) be too tall and slender, least they resemble Pillars; nor too dwarfish and gross, least they imitate Piles, or Peers of Bridges: Smoothness does not so naturally become them as a Rustick Superficies; for they aim more at State and Strength, than Elegancy.

In private Buildings they ought not to be narrower than one third, nor broader than two thirds of the Vacuity, or Inter-space between Pilaster and Pilaster: But to those that stand at the Corners, may be allow'd a little more Latitude by Discretion for strength of the Angles.

In Theatres, and Amphi-theatres, and such weighty Works, *Palladio* observes them to have been as broad as the half, and now and then as the whole Vacuity, or Inter-space. He noteth likewise, (and others consent with him.) That their true Proportion should be an exact Square; but (for lessening of Expence, and enlarging of Room,) they are commonly made narrower in Flank than in Front.

Their principal Grace consists in half, or whole Pillars apply'd to 'em; in which Case it is well noted by Authors, that the Columns may be allow'd somewhat above their ordinary length, because they lean to so good Supporters. And thus much shall suffice at the present, touching (the size and Situation of) Pilasters, which is a cheap, a strong, and a noble kind of Structure.

3. *Price.*] These are sometimes measur'd and rated by the Foot running Measure; but they are more commonly valu'd at so much *per* piece, according to their size, goodness of the Materials, and Curiosity in Workmanship.

## *Pitch.*

By this Term Architects understand the Angle a Gable-end (and consequently the whole Roof of a Building) is set to. If the length of each Rafter be $\frac{3}{4}$ of the breadth of the Building, then that Roof is said to be *true Pitch*; if the Rafters are longer, 'tis said to be a *high*, or *sharp pitch'd* Roof; if shorter,

(which it seldom is,) then 'tis said to be a *low*, or *flat pitch'd* Roof.

## *Pitching*,

The same as *Paving*, V. *Paving*.

## *Pins for Tiles*,

What they are every one knows; they ought to be made of Heart-oak, and to every 1000 of Tiles is usually allow'd 2 Gallons of Tile-pins, from 3 *d.* to 6 *d.* the Gallon, says Mr. *Leybourn*. I know not how he reckons, but I am sure 1000 of Tiles requires but 1000 of Pins, which some Workmen in *Sussex* tell me they reckon but 2 *d.* or 3 *d.* for they tell me they sell their Pins for 6 *d. per* Gallon; and that they use about a Gallon of Pins to a Square and a half of Healing.

## *Pinning*

*Of Tiles.*] Some Workmen in *Sussex* tell me, that they commonly reckon 8 *d. per* Thousand, for pinning of Tiles, and finding Pins. But for the Workmanship only 6 *d. per* Thousand.

## *Pilaster-bricks.*

V. Bricks, N. III. §. 13.

## *Pipes of Lead.*

V. Lead, N. 9.

## *Place-bricks.*

V. Bricks, N. III. §. 12.

## *Plain cornish.*

V. Cornish.

## *Plain-tiles.*

V. Tiles, N. III.

## *Planchier.*

The Ornament to which the Cornish is fasten'd.

## *Plastering.*

1. *Of Walls.*] Some Masons in *Sussex* tell me, that for Lathing and Plastering of Walls with Lome on both sides, they have 3 *d. per* Yard; but if it be done with white Lime, and Hair-mortar on both sides, then they have 4 *d. per* Yard.

I am inform'd, that at *Tunbridge-wells* the Masons will do Plastering of Walls (where they Plaster over all the Timber) and Ceilings for 2 *s.* 10 *d. per* Square. I know a Gentleman

man that told me, he had such Work done for 2 *s.* 6 *d. per* Square.

2. *Of Ceilings.*] For Ceilings, our Masons in *Sussex*, have (for Lathing, Plastering, and finishing) 4 *d. per* Yard. In some Countreys they make their Ceilings with Reed, Lime, and Hair; for which the Workmanship is worth 3 *d. per* Yard: But if the Workman find all Materials, 'tis worth 5 *d.* or 6 *d. per* Yard.

3. *With rough Mortar, or Rough-cast.*] In some parts of *Kent* they commonly *Rough-cast*, (as they call it) upon old Lome-walls, that is, they give them one Coat (upon the Lome) of *Rough-mortar*, or *Rough-cast*, as they call it, tho' it be commonly struck smooth like Lime and Hair. For this Work they have three half-pence *per* Yard, only Workmanship: But if the Wall be new, and Lathed, and Plaster'd with Lome on both sides, and a Coat of Rough-mortar on the outside, then they have 4 *d. per* Yard, only Workmanship: But if the Rough-casting be wrought in Flourishes, then they have 8 *d. per* Yard, only Workmanship. But if the Workman find all Materials, 'tis worth from 1 *s.* to 3 *s. per* Yard, according to the variety and goodness of the Work.

4. *On Laths in imitation of Brick.*] I know a House that is Plaster'd in imitation of Brick-work, the Mortar was made of Powder of Bricks, sharp Sand, Lime, and some Red-oker: This House has been done this 20 Years, and yet looks very well, and passes for a Brick-house with common Passengers, tho' it be only Timber Plaster'd over.

Some Workmen tell me, that they have 1 *s. per* Yard for such Work, only Workmanship.

5. *Of Floors.*] Plaster-Floors running, (says Mr. *Wing,*) the Workman finding all, is worth 1 *s.* 4 *d. per* Yard, but the Working part only is worth 4 *d.* 5 *d.* or 6 *d. per* Yard. Plaster at the Pits may be had for 4 *s.* or 4 *s.* 6 *d. per* Load, *viz.* 40 C. weight, which will do about 40 Yards of Flooring.

6. *Of White-washing.*] White-washing with Size upon Plaster'd Walls, is commonly reckon'd at 2 *d. per* Yard.

7. *Of Measuring.*] This kind of Work is commonly done by the Yard Square, as *Paving*, which see, N. 12. But Note, that in Measuring of Partitions, if the Workman find Materials, the Doors and Windows are measur'd by themselves, and deducted from the whole; as is also $\frac{1}{6}$ part (of the rest) for the Quarters in rendring Work: But if the Workman do not find Materials, there is commonly no Allowance made for them, the trouble in cutting and fitting the Laths, being equivalent to the void space left for the Doors and Windows. Neither (in case of Workmanship only) is there to be any allowance made (in rendring) for the Quarters, Braces, or Inter-ties, the Work being as much as (if not more than)

than) if it were all plain. V. more of Plaſtering, in the word *Pargetting*.

## *Platebands*,

The Liſts, or Fillets between the Fluteings of the Ionick, Corinthian, and Compoſite Columns. They are (each) in breadth a quarter of the Flute.

## *Platform*.

1. *What*.] This word in Architecture is ſometimes us'd, to ſignifie the Ichnography, or Draught of the Ground-plot of a Houſe; but more commonly for a broad, ſmooth, and open Walk upon the top of any Building.

2. *Of Covering with Lead*.] V. Lead, N. 7.

## *Plaſtique-art, or Plaſtick art*.

The Plaſtique art, is a Branch of Architecture that is not only comprehended under Sculpture, but is indeed very Sculpture it ſelf; but with this difference; that the *Plaſterer* (by his Plaſtique-art,) makes his Figures by *Addition*, but the *Carver* by *Subſtraction*; whereupon *Michael Angelo* was wont to ſay, (ſomewhat pleaſantly,) that *Sculpture* was nothing but a Purgation of Superfluities: For take away from a piece of Wood, or Stone all that is ſuperfluous, and the remainder is the intended Figure.

Of this *Plaſtique-art*, the chief uſe with us is in the graceful *fretting* of Roofs, (commonly known amongſt us by the Name of Fret-work;) but the *Italians* apply it to the Mantling of Chimneys with great Figures. A cheap piece of Magnificence, and as durable almoſt within Doors, as harder Forms in the Weather.

## *Plint*, or *Plinth*,

The lower part of the Foot of a Column, being in the form of a Square Brick, or Tile.

## *Plumbery*,

An Art belonging to Architecture, it being the Art of Working in Lead.

## *Porphyry*,

A fine reddiſh Marble, ſtreaked with divers Colours. *Pliny*, (*in Hiſt. Nat. Lib.* 36. *Cap.* 7.) ſays, this kind of Marble comes out of *Egypt*, where there are large Quarries of it.

*Portico*.

## *Portico.*

V. Architrave, N. 2.

## *Portland-ſtone.*

A Stone-cutter in *London* tells me, that they uſually ſell Slabs of *Portland* Stone, (ready Poliſhed for Chimney-foot-paces,) for 1 *s.* 8 *d. per* Foot Superficial. 'Tis a Stone much us'd in Building, and much ſofter and whiter than *Purbeck*.

## *Port-nails.*

V. Nails, N. 12.

## *Portal,*

An ancient Term in Architecture, I ſay an ancient Term, for the thing ſignifi'd by it is grown out of faſhion; it was us'd to ſignifie a little ſquare corner of a Room, ſhifted off from the reſt of the Room by the Wainſcot. The word ſeems to come from the *French*, *Portail*, a *Gate*, or *Entrance*; becauſe through it they enter into the Room.

## *Poſts.*

1. *What.*] Pretty big pieces of Timber, ſtanding upright in a Houſe, *&c.*

2. *Principal.*] In Architecture, are the Corner-poſts of a Houſe, *&c.*

3. *Prick.*] The Poſts that are Fram'd into Breſſummers, between principal Poſts, for the ſtrengthning the Carcaſs of the Houſe.

4. *Of Preſerving.*] An ingenious Gentleman, one Mr. *Walter Burrel*, Eſq; of *Cuckfield* in *Suſſex*, deceaſed, uſed to burn (to a Coal on the out-ſide) the ends of all the Poſts which he ſet in the Ground; whereby they will continue a long time without rotting, which otherwiſe would ſuddenly decay.

## *Poſt and Rail.*

V. Fencing, N. 2. and Paleing, N. 1, 2.

## *Pound-nails.*

V. Nails, N. 13.

## *Prick-poſts.*

V. Poſts, N. 3.

## *Priming.*

V. Painting, N. 1.

## *Principal.*

1. Posts.] V. Posts, N. 2.
2. Rafters,] V. Rafters.

## *Prizes*

Of Work and Materials, V. the Particulars, that you would know the Price of, in their proper places of the Alphabet.

## *Profile,*

A Term in Architecture, deriv'd from the *Italian*, and signifies the same as *Ichnography* from the Greek, *viz.* The Flat, or Horizon Figure of any Building. 'Tis sometimes us'd for the Figure of any part of a Building, shew'd in any other Position; wherein are set down the Breadths, Lengths, and Heighths of the whole.

## *Projecture,*

In Architecture, is the jutting out of any part of a Building, (or of a Column) beyond the rest. Thus Balconies Project into the Street, and thus the Base and Capital of a Column project forth beyond the Body of the Column.

## *Pudlays,*

Pieces of Stuff to do the Office of Leavers, or Hand-spikes.

## *Pulvinata,*

A Frieze swelling like a Pillow.

## *Punchins.*

1. *What.*] Short pieces of Timber placed under some considerable weight to support it. They commonly stand (upright) between the Posts; they are shorter (and slighter) than either Principal-posts, or Prick-posts. Those that stand on each side of a Door, are call'd *Door-punchins.*

2. *Price.*] Carpenters commonly reckon 1 *d.* or three half-pence *per* Foot for putting in of new Punchins.

## *Purlins.*

1. *What.*] Those pieces of Timber that lie a-cross the Rafters, on the in-side, to keep them from sinking in in the middle of their length.

2. *Size.*] By the Act for Re-building the City of *London* all Purlins in length from 15 Foot 6 Inches, to 18 Foot 6 Inches, ought to be in their Square 9 Inches, and 8 Inches. And all

all in length from 18 Foot 6 Inches, to 21 Foot 6 Inches, ought to be in their Square 12 Inches, and 9 Inches.

## *Purbeck-ſtone.*

1. *What.*] 'Tis a hard greyiſh Stone, almoſt like *Suſſex Petties*. They are much us'd for Pavements.

2. *Price.*] A Stone-cutter in *London* tells me, that they commonly ſell *Purbeck-ſlabs*, (ready Poliſhed for Chimney-foot-paces,) for 2 *s. per* Foot. And *Purbeck-paving* of Promiſcuous Sizes, only Hew'd and Squar'd, they ſell for 7 *d. per* Foot. Alſo *Mitchels* they value at about 1 *s.* 10 *d. per* Foot, V. Mitchels.

## *Putlogs,*

Pieces of Timber, or ſhort Poles, (about 7 Foot long,) us'd by Maſons in Building of Scaffolds to work on. The Putlogs are thoſe pieces which lie Perpendicular to the Building, one end lying into it, and the other end reſting on the *Ledgers*; which are thoſe pieces that lie Parallel to the ſide of the Building.

## *Pyling.*

The Ground for Foundations, V. Foundations, N. 2. §. 5.

## *Quarry.*

1. *Of Stone.*] A Place whence Stones are digged out.

2. *Of Glaſs.*] A piece of Glaſs cut in a Diamond-form. Quarries of Glaſs are of 2 kinds, *viz.* Square, and long; and theſe again are of different ſizes, as 8's, 10's, 12's, 15's, 18's, and 20's, [that is, 8 Quarries of 8's make a Foot of Glaſs, and ſo does 10 Quarries of 10's, 12 of 12's, *&c.*] But all Quarries, (of what ſize ſoever) are cut to one ſort of Angle for the Square Quarries, and another for the long Quarries: The Acute Angle of the Square Quarries being 77 Degrees, and 19 Minutes; and the Acute Angle of the long Quarries 67 Degrees, and 22 Minutes. See more, Glazing, N.

## *Quarters,*

In Architecture, all thoſe ſlight upright pieces between the Punchins and Poſts, (which ſerve to Lath upon,) are call'd *Quarters*. They are of 2 kinds, *ſingle* and *double*: Single Quarters are ſawn Stuff, 2 Inches thick, and 4 Inches broad. The double Quarters are ſawn to 4 Inches ſquare.

'Tis a Rule in Architecture, that no Quarters be placed at greater distance than 14 Inches.

## *Quartering*,

In Architecture, signifies the putting in of Quarters. Sometimes 'tis us'd to signifie the Quarters themselves.

## *Quarter-head.*

V. Brads, N. 6. 7.

## *Quirk*,

In Architecture, signifies a piece taken out of any regular Ground-plot, or Floor. As if the Ground-plot were a Square, or an Oblong, and a piece be taken out of one corner of it, for a Court, or Yard, that piece so taken out is call'd a *Quirk*.

## *Quins*, or *Quoins*,

The corners of Brick, or Stone-walls. Also the Stones in the corners of Brick Buildings. If these Stones stick without the Brick-work, (their edges being cypher'd off,) they are call'd Rustick-quoins. The Rustick-quoins, at 2 Foot, one Face, and one Foot the other, are valu'd from 1 *s.* to 1 *s.* 4 *d. per* Quoin, Stone and Workmanship.

## *Quadrels*,

A sort of artificial Stones, (so call'd from their Form, they being square,) made of a chalky, whitish and pliable Earth, and dry'd in the Shade. They were 2 Years in drying, and were much us'd by ancient *Italian* Architects.

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## *Rafters.*

1. *What.*] Rafters are those pieces of Timber, which (standing by pairs on the Reason,) meet in an Angle at the top, and compose the Roof of a Building.

2. *Scantlings, or Size.*] In an Act of Parliament for Rebuilding the City of *London*, the following *Scantlings*, (which were well consulted by able Workmen, before they were reduced to an Act,) are set down, as fitted for all Edifices, great or small, *viz.*

Prin-

| Principal Rafters, in length | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| from | | to | | must be broad at the | | and thick. |
| | | | | Foot. | Top. | |
| F. | In. | F. | In. | Inches. | Inches. | Inches. |
| 12. | 6 | 14. | 6 | 8 | 5 | 6 |
| 14. | 6 | 18. | 6 | 9 | 7 | 7 |
| 18. | 6 | 21. | 6 | 10 | 8 | 8 |
| 21. | 6 | 24. | 6 | 12 | 9 | 8½ |
| 24. | 6 | 26. | 6 | 13 | 9 | 9 |

Single Rafters in length { 6 Foot 6 Inches, / 8 Foot, / 9 Foot 6 Inches, } muſt have in their Square { 4, and 3 / 4 ½, and 3 ¾, / 5, and 4 } Inches.

3. *Diſtance.*] 'Tis a Rule in Architecture, that no Rafters be laid at greater diſtance from each other than 12 Inches.

## *Rag-ſtone.*

V. Paving, N. 5.

## *Rails,*

In Architecture, are us'd in various Senſes; as for thoſe pieces that lie Horizontally *between* the *Pannels* of Wainſcot, and *over*, and *under* them. Alſo for thoſe pieces that lie over, and under Balliſters, in Balconies, Stair-caſes, *&c.* Alſo for thoſe pieces of Timber that lie Horizontally from Poſt to Poſt, in Fencing with Pales, or without.

## *Rails and Balliſters.*

1. *Price of making.*] Mr. *Wing* tells us, That Rails and Balliſters on Balconies, or about the Platform of great Houſes, are worth (only Workmanſhip) 4 *s. per* Yard, running Meaſure.

2. *Painted, of Meaſuring.*] V. Painting, N. 2.

*Raiſer,*

*Raiſer,*

A Board ſet on edge under the fore-ſide of a Step.

*Raiſing-pieces,*

Are pieces that lie under the Beams, upon Brick or Timber by the ſide of the Houſe.

*Random-pavement.*

V. Paving, N. 11.

*Range,*

The ſide of any Work that runs ſtraight, without breaking into Angles, is ſaid to *Range*, or *Run-range*: Thus the Rails and Pannels of one ſtraight ſide of Wainſcoting, is ſaid to *Run-range*. See more in the Note in Glazing, N. 3. §. 2.

*Redſear.*

V. Iron, N. 2.

*Regula,*

As Orlo.

*Rendering.*

V. Pargeting, N. 2.

*Repoſitory,*

A Store-houſe, or Place to keep things in; more peculiarly by Architects 'tis us'd to ſignifie ſuch Places as are built for the laying up of Rarities, either in Painting, or other Arts.

*Return,*

The *Side* that falls away from the fore-ſide of any ſtraight Work, is call'd the *Return.*

*Ribbing-nails.*

V. Nails, N. 14.

*Rides,*

Or Hinges for Doors, *&c.* are commonly ſold for 4 *d. per* Pound, V. Iron. N. 4.

*Ridge,*

The meeting of the Rafters on the top of the Houſe, is call'd the Ridge.

*Ridge tiles.*

V. Tiles, N 4.

*Rigate-*

## *Rigate-ſtones.*

V. Fire-ſtone.

## *Rondel.*

V. Capital, N. 2.

## *Roofing.*

1. *Price.*] Roofing in ordinary Buildings is worth 7 or 8 *s.* *per* Square, but in great Buildings, 10 or 11 *s.* *per* Square. V. Pl. Framing, N. 5.

2. *Of Meaſuring.*] Roofing is commonly meaſur'd by the Square, as Flooring, V. Flooring, N. 5.

## *Roof,*

The Covering of a Houſe; but the word is us'd in Carpentry, for the Timber-work of the Covering.

## *Roſe-nails.*

V. Nails, N. 15.

## *Rother-nails.*

V. Nails, N. 16.

## *Rough Stone.*

As Rag-ſtone.

## *Rough-caſting.*

V. Plaiſtering, N. 3.

## *Rough mortar.*

In many places of *Kent*, where they Rough-caſt their Houſes, they make their Mortar, (which they call *Rough-mortar*) of a ſort of *Sand*, when when 'tis mixt with the *Lime*, makes it look as red as Blood; but to theſe they put Powder of *Cinders* which changes it to a kind of blewiſh Colour, V. Pl. *Mortar*, N. 11.

## *Round-heads.*

V. Nails, N. 17.

## *Ruſtick-peers.*

V. Peers. N. 3.

## *Ruſtick-quoins.*

V. Quoins.

*Samel,*

## *Samel*, or *Sandel-bricks*.

V. Bricks, N. 111. §. 14.

## *Sand*.

1, *Kinds*.] What it is every one knows. Its uſe (in Architecture) is in making of Mortar. There are 3 ſorts of Sand, *viz*. Pit-ſand, River-ſand, and Sea-ſand: Pit-ſand is of all the beſt, and of all Pit-ſand, that which is whiteſt, is (by long Experience found to be) the worſt. Of all River-ſand, that which is found in the falls of Water is the beſt, becauſe it is moſt purged. The Sea-ſand is the worſt of all.

The Pit-ſand, becauſe it is fat and tough, is therefore us'd in Walls and Vaults. The River-ſand is very good for Rough-caſting of Walls.

All Sand is good in its kind, if being ſqueez'd and handl'd it crackles; and if being put upon a white Cloath, it neither ſtains nor makes it foul.

That Sand is bad, which mingl'd with Water, makes it dirty and muddy, and which has been a long time in the Air; becauſe it will retain much Earth and rotten Humour: And therefore ſome Maſons will waſh their Sand before they uſe it.

2. *Price*.] Sand, at *London* is commonly ſold for 3 *s. per* Load. 36 Buſhels to the Load. In ſome parts of *Suſſex* 'tis ſold for 1 *s.* 6 *d. per* Load, at 12 Buſhels to the Load. In other parts of *Suſſex* 'tis ſold at 2 *s.* 6 *d. per* Load, at 18 Buſhels to the Load.

## *Sapheta's*,

The Boards over the tops of Windows, oppoſite to the Window-boards at the bottom.

## *Saſh lights*.

V. Painting, N. 12.

## *Saſh frames*.

V. Painting, N. 13.

## *Sawyers-work*,

V.———

## *Sawing*.

1. *By the Hundred*.] Sawyers do moſt commonly work by the Hundred, that is by the Hundred Superficial Feet, (how meaſur'd, V. N. 12.) For which they have various Prizes, not

not only in different Places, but alſo for different kinds of Timber; as may be ſeen in the following Numbers.

2. *Of Oak.*] The Sawing of Oak, is in ſome Places 2 *s.* 8 *d.* in others 3 *s.* in others 3 *s.* 6 *d.* the Hundred.

3. *Of Elm.*] The Sawing of Elm, is in ſome Places 3 *s.* the Hundred, commonly about the Price of Oak.

4. *Of Aſh, and Beech.*] The Sawing of Aſh, and Beech, is generally worth 6 *d.* in the Hundred more than Oak, or Elm. In ſome Places 'tis 3 *s.* in others 3 *s.* 6 *d.* in others 4 *s. per* Hundred.

5. *By the Load.*] Sawyers do ſometimes work by the Load, *viz.* So much for cutting out a Load, (or 50 Foot) of Timber; the Price various, according as what the Timber is cut to. But the common Price is for Ship-planks of 2 Inches thick, 10 *s.* the Load. And for Building

Timber { large ſize, 6 *s.* or 6 *s.* 6 *d.* / middle ſize 7 *s.* / ſmall ſize, 7 *s.* 6 *d.* or 8 *s.* } the Load.

An old experienced Sawyer tells me, that *Sawing by the Load* is commonly thus agreed for, *viz.* They have all their ſizes ſet down which they are to cut; and they will cut none ſmaller, neither will they Slab any, unleſs they are paid for it by Meaſure, over and above what they are to have by the Load. They never cut any thing leſs than Rafters, which are about 4 and 5 Inches, and which is generally the ſmaleſt Timber in a Frame, except Quarters, and Window ſtuff, which they generally cut by the hundred. If the Carpenter will have any pieces clear'd by Slabbing, after they have cut them off to their ſize, they will (alſo) be paid by Meaſure for it.

They generally prick off their ſizes from the outer edges, and what is left in the middle they lay by till they can fit it to ſome other ſize, when it is wanted.

This Sawyer tells me, that the Carpenter has a great deal of hewing of out-ſide pieces, when 'tis ſaw'd by the Load: He alſo ſays, that hewing by the Load is commonly good Work for the Sawyer. The truth is, (as he confeſſes) it waſteth a great deal of Timber, it being hew'd away to Chucks.

The loweſt rate that any (about us in *Suſſex*) is cut for by the Load is 6 *s.* and then it muſt be very large Scantlings, or elſe they will have 7 *s.* which indeed is the common price for ſawing a good large ſiz'd Timber-frame. But if the Timber-frame be ſmall and ſlight, as they commonly build at *Tunbridge-wells*,) they will have 7 *s.* 6 *d.* or 8 *s. per* Load.

6. *Of Ship planks.*] An old experienced Sawyer tells me, that they ſometimes cut Ship-planks by the Load for 10 *s. per* Load:

Load: But then the size of their Planks are (if I much miss remember not) 2 Inches in thickness.

Sometimes (he says) they saw them by the hundred, and then they have 3 *s. per* hundred, and 2 *d.* for petting of every Log. But if there be nothing allow'd for petting the Logs, then they reckon so many Carves as there are Pieces, which is one Carf more than there really is.

He also says, that they commonly cut Planks from 1 ½ Inch, to 3 Inches thick; but they are never paid for breaking Work, till it comes to a 2 Foot Carf.

7. *Of Compass-work.*] For sawing of Compass-work, (as Mill-wheels, Furnace-wheels, Forge-wheels, Rafters for Compass-roofs, *&c.*) Some Sawyers tell me they have 2 *d. per* Foot.

8. *Of Bevil-work.*] Some Sawyers tell me, that in sawing of Bevil-work, (as Hips, and Sleepers, *&c.* Posts, *&c.* in Bevil-frames; as also Posts or Punchins in Polygonial Turrets, *&c.* Also Cant-rails, *&c.*) they work by the hundred, but they always reckon a Carf and half; that is, they reckon ½ as many more Feet of Sawing as there is.

9. *Of Furnace-bellows.*] These they cut by the Foot, Lineal Measure, at 1 *s. per* Foot.

10. *Forge-bellows.*] These they also cut by the Foot, Lineal Measure, at 4 *d.* or 6 *d. per* Foot.

11. *Of Ground-guts.*] These they also cut by the Foot, Lineal Measure; if small, for 1 *d. per* Foot, but if 15 Inches deep, then 1 ½ *d.* if 18 Inches, 2 *d. per* Foot.

12. *Of Measuring.*] Sawyers, (when they work by Measure,) generally Measure their Work by the Foot Superficial. There is no difficulty in taking the Dimensions; for they reckon the depth of the Carf for the breadth; and the length for the length. The breadth, (or depth,) and length of a Carf being taken, and Multiply'd together, (as is taught in *Cross-Multiplication*, N. 2.) gives the Area, or Superficial Content of that Carf.

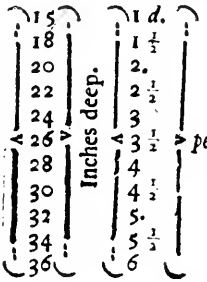
Having thus found the number of Feet in one Carf; Multiply it by the Number of Carves of the same depth and length; and so you have the Area of them all.

Note. (1.) That having thus cast up their whole Work in Feet; they are paid for it by the *hundred*, [that is 100 Feet] at various Rates, of which see above, N. 1. 2. 3. and 4.

(2.) That if the Carf be but 6 Inches, (or be less than 6 Inches) in depth, they have a Custom to be paid for Carf and half; as they phrase it,) that is for half so much more as it comes to by Measure. The reason they urge for this Custom is, their Trouble in often linding, and removing their Timbers.

3. That

3. That for *Breaking-work*, [that is cutting a Log through the middle,] and *Slabbing*, [that is cutting off the out-side pieces,] if the Carf be more than 12, or 13 Inches deep, they are paid by the Foot, Lineal Meaſure, at various Prizes, according to the different depth of the Carf, *viz.* at




(4.) That in ſome places 'tis the Cuſtom to allow the Sawyer but one *Breaking-carf* in a Log, tho' there be never ſo many deep Carves in the Log: But ſome Sawyers claim it as a Cuſtom, to have half *Breaking-work*, and the other half *Hundred-work*; as if they have 4 deep Carves, then they will have 2 Breaking-works, and the other 2 Hundred-work.

## *Scantling*,

The ſize that any Timber is deſign'd to be cut to.

## *Scenography*,

(From the Greek *Skenè*, a Tent, or Tabernacle, and *Grapho*, to write or deſcribe,) is a Model, or Deſcription of the Front and Sides of a Houſe; or the Art of rightly contriving Draughts in Architecture.

## *Scheam.*

V. Arches, N. 6.

## *Scima*,

As Cima.

## *Scima-tum, -tium*,

As Cimatum.

## *Scima recta.*

V. Capital, N. 3.

## *Scima reverſa*,

An *O-G.* with the hollow downwards, V. *O G.*

*Scotia*,

## *Scotia,*

A Member of Architecture. 'Tis a hollow like a Semicircle. It is particularly plac'd in the Baſes of Columns between the Thorus and the Aſtragal, and ſometimes 'tis put under the Drip, in the Cornice of the Dorick Order.

## *Scribe,*

A Term us'd by Joyners, when they are to fit one ſide of a piece of Stuff againſt the ſide of ſome other piece of Stuff, and the ſide of the piece they are to fit it to is not regular: To make theſe 2 pieces of Stuff joyn cloſe together all the way, they *Scribe* it, (as they phraſe it) thus; they lay the piece of Stuff (they intend to ſcribe) cloſe againſt the other piece of Stuff they intend to ſcribe to, and open their Compaſſes to the wideſt diſtance, theſe 2 pieces of Stuff bear off each other: Then (the Compaſſes moving ſtiff in their Joynt,) they bear the Point of one of their Shanks againſt the ſide they intend to ſcribe to, and with the Point of the other Shank they draw a Line upon the Stuff to be ſcribed: thus the Points of the Compaſſes remaining unmoved, and your Hand carried evenly along by the ſide of the piece to be ſcribed to, that Line ſcribed upon the piece intended to be ſcribed, ſhall be parallel to the irregular ſide intended to be ſcribed to: And if you Work away your Stuff exactly to that Line, when thoſe pieces are put together, they ſhall ſeem a Joynt.

## *Sculpture,*

The Art of Carving in Wood, or Stone: V. Plaſtick-art.

## *Scupper-nails.*

V. Nails, N. 18.

## *Seaſoning of Timber.*

V. Timber, N. IV.

## *Sewers,*

In Architecture, are Conduits or Conveyances for the Suillage and Filth of a Houſe; which how baſe ſoever they are in uſe, yet for the Health of the Inhabitants, they are as neceſſary and conſiderable, as (perhaps) any thing about a Houſe.

Concerning theſe, I find in our Authors, this Counſel, That Art ſhould imitate Nature in thoſe ignoble Conveyances, and ſeparate them from ſight, (where there wants a running Water) into the moſt remote, and loweſt, and thickeſt part

of

of the Foundation, with secret Vents passing up through the Walls (like a Tunnel) to the wide Air; which all *Italian* Artizans commend for the discharge of noisome Vapours, tho' elsewhere, (to my knowledge) little practis'd.

## *Sells.*

1. *What.*] Sells in Architecture are of 2 kinds, *viz. Ground-sells*, [which are the lowest pieces of Timber in a Timber-building, on which the whole Superstructure is erected;] and *Window-sells*, (sometimes call'd Window soils,) which are the bottom pieces in a Window-frame.

2. *Price of putting in.*] The putting in of Ground-sells in a House, is commonly rated at 3 *d.* or 4 *d. per* Foot, only Workmanship.

## *Setting.*

V. Pitching.

## *Setting of Fronts.*

V. Fronts, N. 2.

## *Shaky, or Shaken,*

Such Stuff as is crack'd, either with the Heat of the Sun, or the Drought of the Wind, is call'd shaky, or shaken Stuff.

## *Sharp nails.*

V. Nails, N. 19.

## *Sheathing-nails.*

V. Nails, N. 20.

## *Sheet-lead.*

V. Lead, N. 3. 4. 5. 6. 7.

## *Shides.*

The same as———

## *Shingles.*

1. *What.*] These are small pieces of Wood, or quarter'd Oaken-boards, *saw'd* to a certain Scantling; but they are more usually *cleft* to about an Inch thick at one end, and made like Wedges about 4 or 5 Inches broad, and 8 or 9, (and in some places 12) Inches long. They are us'd to cover Houses with, (but more commonly Churches and Steeples,) instead of Tiles, or Slates.

This kind of Covering is very chargable, and seldom us'd, but in covering the Roofs of Churches, and Pyramidal Steeples. Nevertheless, where Tiles are scarce, and you would have your House but lightly cover'd; Shingles are to be prefer'd before Thatch; and if they are made of good Oak and cleft out, (not saw'd,) and then well season'd in the Water

and Sun, they become a ſure light, and durable Covering.

2. *Price of.*] Some Workmen tell me, that Shingles are ſometimes ſold for 20 *s. per* Thouſand but then they are very bad Ware; for if they are good they are worth 30 *s. per* Thouſand; nay, they tell me, they have known 40 *s per* Thouſand given for Shingles to lay upon Steeples; for thoſe that lie ſo high, and hang ſo perpendicular, ought to be of the beſt ſort.

3. *Price of Cleaving and Making.*] Several Workmen tell me, that the common price of cleaving and making of Shingles, is 10 *s. per* Thouſand.

4. *How many made of a Tun of Timber.*] Some Workmen tell me, that a Tun of Timber will make 3000 of Shingles.

5. *Of laying on.*] For covering with theſe, the Building muſt be firſt well cover'd all over with Boards; which being done, the Shingles are faſten'd to thoſe Boards with 4 *d.* 5 *d.* or 6 *d.* Nails, in every Courſe, at a certain Gage, *viz.* At 3 $\frac{1}{2}$ Inches, or 4 Inches, from under one another; for they commonly make 3 *Waters*, (as they phraſe it,) that is, they commonly hang 3 Shingles in heighth, in the length of one; ſo that if the Shingles are 12 Inches long, they are laid at 4 Inches Gage.

In breaking of Joynt, they do not obſerve to make one Joynt over the middle of the Shingle below; but they ſometimes break Joynt an Inch, an Inch and a half, or 2 Inches, according to the breadth of the Shingles; for they, (eſpecially if they are cleft) are not all exactly of a ſize.

6. *Price of laying on.*] For laying them on upon Spire-ſteeples, where the Work is high and troubleſome, they have (commonly) 20 *s. per* Thouſand; but on low Work, (as upon Houſes and the like,) they will cleave, and make, and lay them on for that Money: Or if they only lay them on upon Houſes, they will do it for 10 *s. per* Thouſand. Some Workmen tell me, that for dreſſing and laying on of Shingles upon Churches and Steeples, they have (commonly) 18 *s. per* Thouſand.

7. *Price of dreſſing old ones.*] For *dreſſing* of old Shingles, [that is new hewing them, and cutting of the ragged lower ends,] Workmen tell me they have, (I think) 6 *s. per* Thouſand.

8. *How many will cover a Square.*] If the Shingles are 4 Inches broad, and laid at 4 Inches Gage, 81 Shingles will cover a Square Yard; and conſequently 900 will cover a Square, (or 100 Superficial Feet) of Healing: But, becauſe Shingles ſeldom hold to be all 4 Inches broad; therefore they commonly allow 1000 to the Square, and of Nails as many.

*Shingling,*

## *Shingling,*

The laying on of Shingles, V. Shingles.

## *Shinlog.*

V. Bricks, N. 5.

## *Shop-windows,*

Theſe may be afforded at the ſame rate as plain or bat-on'd-doors, beſides the Iron-work, as Bolts, Staples, Hinges, Locks, Keys, Latches, Chains, *&c.* V. Doors, N. 4.

## *Shreadings,*

The ſame as *Furrings.*

## *Silery,*

As Cilery.

## *Skew back.*

V. Arches, N. 7.

## *Skirting-boards,*

The narrow Boards fitted round the under-ſide of Wainſcot againſt the Floor.

## *Slabs,*

The out-ſide ſappy Planks, or Boards ſawn off from the ſides of Timber.

## *Slating.*

1. *What.*] Slating is the Covering of Houſes with Slate.

This kind of Covering is very neat, eſpecially the *Blue-ſlate*; as for the other kind of Slate, (known in ſome places by the name of *Horſham-ſtone,*) V. Horſham-ſtone.

This Blue-ſlate, cut into long Squares, or Eſcallops, ſhews very handſome, and is commonly us'd in covering of Summer, and Banquetting-houſes in Gardens; it being a very light and laſting Covering.

But as this kind of Covering is very handſome, ſo alſo 'tis very chargable; for Roofs cover'd with Slate, muſt be (firſt) boarded over, the Slates hang'd on Tacks, and laid with finer Mortar than Tiles.

But if theſe Slates be rudely cut, and carelefly laid, (in reſpect of Form,) it is then accounted a cheaper Covering than with plain Tiles; eſpecially in thoſe Countreys where the Earth affords plenty of them.

2. *Price of.*] This kind of covering is valu'd by ſome from 3 *s.* to 6 *s.* the Yard ſquare, or by the Square of 10

Foot, (that is 100 Feet,) from 30 *s.* to 3 Pounds, or more in ome places.

3. *Price of Pointing of Slates.*] The Pointing of Slates, [that is hewing them, and making them fit for the Work,] is worth, (ſays Mr. *Wing*,) about 12, or 13 *d. per* Square.

4. *Price of Slates.*] Slates at the Pits are worth, (ſays Mr. *Wing*,) 12 or 14 *s. per* Thouſand, which will nearly do 36 ſquare Yards.

5. *Of Meaſuring.*] Slating is in ſome places meaſur'd by the Rod of 18 Foot Square, which contains 324 Superficial Feet, or 36 ſquare Yards.

In meaſuring this ſort of Work, where there are Gutters or Valleys, there is commonly an Allowance, which is to ake the length of the Roof all along upon the Ridge; which makes the Gutters double Meaſure, *viz.* as much more as really it is; which in ſome places is allow'd, and in others not; which depends upon the Cuſtom of the Place.

## *Slates.*

V. Slating, N. 3. 4.

## *Sleeper,*

In Architecture is the Oblique Rafter that lies in a Gutter, V. Hip, N. 1.

## *Slipper,*

The ſame as Plinth.

## *Sluces,*

Vents, or Drains for Water, V. Alder, N. 3.

## *Smiths.*

1. *Work.*] Smith's Work in relation to Architecture, are of divers kinds, as *making of Caſements*; (for which ſee Caſements, N. 2.] Palliſado-work in Gates, or other ways, (V. Palliſado, N. 4.) For making Dogs, Bars, large Hooks, Thimbles, Hinges, Staples, Grates, *&c.* they have in ſome places 3 ½ *d.* in others 4 *d. per* Pound. But for ſmall and neat Hooks, Hinges, Staples, *&c.* they have from 4 *d.* to 8 *d. per* Pound. For Iron Balconies, 5 *d.* the Pound.

2. *Bill to make.*] A Smith's Bill ſhould be made after this manner.

*Mr.* Zachariah Zinthos *of* London, *his Bill of Materials had of, and Work done by* Sam. Smith. 1702.

| | l. | s. | d. |
|---|---|---|---|
| *June* 24. For 8 large Caſements, weighing 80 lb. at 6 *d. per* Pound. | 2 | 0 | 0 |
| *July* 2. For 10 ſmall Caſements, weighing 60 lb. at 6 *d. per* Pound. | 1 | 10 | 0 |
| 12. For 10 pair of Hooks and Rides for Doors, weighing 60 lb. at 4 *d. per* Pound. | 1 | 0 | 0 |
| *Sept.* 10. For 2 great Bars for the Chimney, weighing 40 lb. at 4 *d. per* Pound. | 0 | 13 | 4 |
| *Octo.* 13. For 3 Bars for Doors, weighing 30 lb. at 4 *d. per* Pound. | 0 | 10 | 0 |
| 30. For 4 Dogs, weighing 25 lb. at 4 *d. per* Pound. | 0 | 5 | 0 |
| *Nov.* 3. For 3 great Bolts for Doors, weighing 4 ½ lb. at 4 *d. per* Pound. | 0 | 1 | 6 |
| Sum | 5 | 19 | 10 |

## *Soils.*

V. Sells.

## *Solder*, or *Sodder.*

1. *What.*] There are ſeveral kinds of Solder; but that which more immediately relates to our preſent buſineſs is Solder for Lead, which is made of Lead, and ½ as much Block-tin. This for Plumbers uſe; for Glaziers uſe it may be ſomewhat finer.

2. *Price of.*] This is ſold from 8 *d.* to 10 *d. per* Pound, according to its fineneſs.

3. *To know if fine enough for the Glazier's uſe.*] Some Glaziers tell me, that to know whether their Solder be fine enough for their uſe; they take a piece of it, and bend it too and fro near their Ear; for if it be of a fit temper it will crackle like Nits.

## *Sommering.*

V. Arches, N. 7.

## *Spira.*

As Liſt.

## *Splaying*

Of Windows and Doors, V. Bricklayers, N. 2.

## *Springs*

*For Caſements.*] Some Smiths tell me, they have *6 d. per* piece for Springs for Caſements, of the common or ordinary Faſhion. But I have ſeen ſome Springs for Caſements that were ſomething extraordinary in their Workmanſhip; they being a kind of double Springs, which ſeem'd as if a right and left-hand Spring had been joyn'd together; for about 3 or 4 Inches from the Shoulder, where they were driven into the Timber; but at the end where the Scrolls were at leaſt 2 Inches aſunder, they had a Scroll turn'd both upwards and downwards in each Spring; ſo that each Spring ſeem'd like 2 Springs turn'd back to back. The Smith that made theſe Springs, told me, that he had 1 *s. per* piece for 'em.

## *Square,*

A certain Meaſure, (made uſe of in Meaſuring ſeveral Artificers Works,) conſiſting of 100 Superficial Feet.

## *Square-nails.*

V. Nails, N. 21.

## *Stairs.*

1. *What.*] Stairs are the Steps whereby we aſcend and deſcend from one Story of a Houſe to another.

2. *Dimenſions of.*] Several Writers of Architecture, have laid down ſeveral, and different Rules, for the heighth, breadth, and length of Stairs, or Steps, and that according to the ſeveral Capacities of the Stair-caſes. But (in general) they forbid more than 6, and leſs than 4 Inches for the heighth of each Stair; and more than 18, and leſs than 12 Inches for the breadth, and more than 16, and leſs than 6 Foot for the length of each Stair.

But here we muſt underſtand, that they mean theſe Meaſures ſhould be obſerv'd only in large and ſumptuous Buildings: For in common and ordinary Houſes, they may be ſomething higher, and narrower, and much ſhorter; yet in theſe they ought not to exceed 7, or (at moſt) 8 Inches in heighth; for if they do, they will be difficult to aſcend; for our Legs do labour much more in *Elevation*, than in bare Horizontal Progreſſion. Neither ought they to be leſs than 9 or 10 Inches in breadth; nor ought their length to be leſs than 3 Feet.

To reduce this Doctrine (of the Dimenſions of Stairs) to

ſome

ſome Natural, or at leaſt Mathematical Ground, *Vitruvius*, (as we ſee, *Lib. 9. Cap. 2.*) Borrows, thoſe Proportions that make the Sides of a Rectangular Triangle, which the Ancient School did expreſs (in its loweſt Terms,) by the Numbers 3, 4, and 5. That is 3 for the Perpendicular heighth of the Stair, 4 for the Horizontal breadth of it, and 5 for the whole Inclination, or Slope in the Aſcent. But this Rule is ſo far from being follow'd in our modern Buildings, that the contrary is rather practis'd; for by this Rule, the lower the Stairs are, the narrower they ought to be; and if a Stair be but 6 Inches high, he muſt (according to this Rule) be but 8 Inches broad; whereas in this caſe we ſeldom make 'em leſs than a Foot broad. And if we ſhould make Stairs ſo low as 4 Inches, (for ſuch the Ancient Architects make mention of,) they muſt (by this Rule) be but 5 Inches broad; which certainly is too narrow for any Stair.

3. *Of making.*] Tho' we have laid down Rules (in the foregoing Number) for the heighth and breadth of Stairs; yet Workmen are not to be ſo ſtrictly ty'd to thoſe Rules, as not to vary in the leaſt from 'em: For they muſt ſtill obſerve to make all the Stairs of the ſame Stair-caſe of an equal heighth and breadth: To do which, they muſt firſt conſider the height of the Room, as alſo the Width, or Compaſs they have to carry up the Stairs in.

Then to find the height of each particular Stair, they ought firſt to propoſe the heighth of each Stair, and by that propoſed heighth divide the whole heighth of the Room; which done, the Quotient will ſhew the number of Stairs: But if the Diviſion fall not out exact, but that there be a Remainder; then (in this caſe) take the Quotient, (not regarding the Remainder) for the number of Stairs, and by that number divide the whole heighth of the Room; ſo the Quotient ſhall give you the exact heighth of each Stair.

*Example.* Suppoſe the whole heighth of the Room be 9 Foot 3 Inches, and ſuppoſe you deſigned to make each Stair 6 Inches high, turn the whole heighth of the Room into Inches, 'twill be 111 Inches, which divide by 6, the Quotient will be 18, and 3 remaining; therefore take 18 for the number of Stairs, and by it divide 111, the Quotient will be $6\frac{3}{18}$ Inches, or $6\frac{1}{6}$ Inches, which muſt be the exact heighth of each Stair.

Then, to find the breadth of each Stair, divide the width, or compaſs (that you have to carry them up in,) by the number of Stairs, and the Quotient will ſhew you the exact breadth of each Stair.

There is another thing to be obſerv'd in making of Stairs, *viz.* That they be laid (where they joyn) *con un tantino d'*

*scarpa*, (as the *Italians* speak:) we may Translate it *somewhat* (tho' but *little*) sloaping, (*viz.* a little highest behind,) that so the Foot may in a sort both ascend and descend together; which tho' observ'd by few, is a secret and delicate Deception of the Pains in Mounting.

## *Stair-case.*

1. *What.*] A *Stair-case* is sometimes taken to signifie the Inclosure of a pair of Stairs; whether it be with Walls, or with Walls, and Rails, and Balisters, &c. And sometimes 'tis taken for the whole Frame of a pair of Stairs.

2. *Of making.*] To make a compleat *Stair-case*, is a curious piece of Architecture: The vulgar Cautions about it are these.

(1.) That it have a liberal *Light*, against all Casualties of Slips and Falls.

(2.) That the space over-head be large and Airy, which the *Italians* use to call *Un bel Sfogo*, as it were, good Ventilation, because a Man spends much breath in mounting.

3. That the half-paces, (if there be any) be well distributed at competent distances, for reposing on the way.

(4.) That to avoid Encounters, and besides to gratifie the Beholder, the whole Stair-case have no niggard Latitude. But this ought to be regulated in proportion to the Quality of the Building: For a great Stair-case in a little House would be as improper, as a little Stair-case in a great House; both of them equally Ridiculous.

(5.) That there be great care taken in the well placing the Stair-case; for there is not a little difficulty to find a place convenient, so as the Stairs may be distributed without Prejudice, or hindrance to the rest of the Building.

III. *Kinds.*] There are many kinds of Stair-cases; for in some the Stairs are made *straight*, in others, *Winding*, in others, mixt of both. Of *straight-flairs*, some fly directly forward, others are Square, others Triangular; others are call'd *French* Flights. Of *Winding-flairs*, (which in general are call'd *Spiral*, or Cockle-flairs,) some are *Square*, some *Circular*, or *round*, and some *Eliptical*, or *Oval*; and these again are various; for some wind about a *Solid*, others about an *open Newel*. Stairs mixt of *straight* and *winding*, are also of various kinds; some are call'd *Dog-leg'd*, others there are that both wind about a Solid-Newel, and fly about a Square Open-Newel. I shall particularly, (tho' briefly) describe all these several kinds, in the following Numbers.

IV. *Straight Stairs.*] These are such as always fly, and never Wind, and therefore are by some call'd *Flyers*. Of these there are several kinds, as

1. *Di-*

1. *Direct-flyers, or plain-flyers.* These fly directly from one Floor to another, without turning to the right or left, and are seldom us'd, unless it be for Garret, or Cellar-stairs in ordinary Houses.

2. *Square-flyers.*] These fly round the sides of a Square-Newel, either solid, or open, (so that there are 2 kinds of 'em,) and at every corner of the Newel, there is a Square Half-pace, that takes up $\frac{1}{4}$ of a Circle. So they fly from one Half-pace to another; and the length of the Stairs is Perpendicular to the side of the Newel.

3. *Triangular-flyers.*] These fly round by the sides of a Triangular Newel, either solid or open, (so that there are also 2 kinds of these,) and at each corner of the Newel there is a trapezial Half-pace, that takes up 120 Degrees, (or $\frac{1}{3}$) of a Circle. So they fly from one Half-pace to another; and the length of the Stairs is Perpendicular to the side of the Newel.

*Palladio* tells us, that *Triangular-stairs* are to be seen in some ancient Edifices; and of this sort, (says he,) are those of the Cupolo of St. *Maria Rotunda*, which are open in the middle, and receive Light from above. Those also at *Sancto Apostolo* in the same City, are of the same kind.

4. *French-flyers.*] These kind of Stairs, first fly directly forward, till they come within the length of a Stair of the Wall, and then they have a square Half-pace; from which you immediately, (without any Stairs between) ascend to another Half-pace; and from this second Half-pace the Stairs fly directly back again, parallel to the first flight.

V. *Winding-stairs.*] These are such as always wind, and never fly: There are many kinds of these Stairs; for some wind round a Circle, others round an Ellipsis, or Oval, others round a square, and others round an Equilateral Triangle: and of each of these, some wind round a solid Newel, and others round an open, or hollow Newel. Again, some are set upon Columns, and some Stairs are double, and some are Quadruple. I shall describe each of these in the following Numbers.

1. *Circular-winding-stairs.*] These are of 4 kinds. First, Such as wind about a solid Newel, and the fore-edge of each Stair is a right-line pointing to the Centre of the Newel. These are common in Church-steeples, and great old Stone-Houses. Secondly, Such as wind round an open Newel, and the fore-side of each Stair is a right Line pointing to the Centre of the Newel. Of this kind are those in the Monument of *London*. Thirdly, Such as wind round a Solid Newel, but the fore-side of each Stair is an Arch (of a large) Circle, that points quite by the Centre, (and near to the Circumference) of the Newel. In these, the Stairs are much longer than in the common Winding-stairs. Of these there may

may be 2 kinds: For their Ichnography being drawn, the Stairs may be contriv'd to be either Concave, or Convex on the fore-ſide. Fourthly, there are other Stairs, in all reſpects like thoſe laſt deſcrib'd, only they have an open Newel. Theſe kind of Stairs are ſaid to be invented by *Mark Anthony Barbaro*, a Gentleman of *Venice*.

Any of theſe kinds of Winding-ſtairs, take up leſs room than an other kind of Stairs whatſoever.

In Stairs that wind round a Solid Newel, Architects make the Diameter of the Newel $\left\{\begin{matrix}\frac{1}{3}, \text{ or}\\ \frac{1}{4}, \text{ or}\\ \frac{1}{5}, \text{ or}\\ \frac{1}{7},\end{matrix}\right\}$ of the Diameter of the whole Stair-caſe; according as the Stair-caſe is in bigneſs; for if the Stair-caſe be very ſmall, they make the Newel but $\frac{1}{3}$ of its whole Diameter; and if very large, then $\frac{1}{7}$; and ſo proportionably of the reſt.

In ſtairs that wind round an open Newel, *Palladio* tells us, the Newel muſt be $\frac{1}{3}$ the Diameter of the whole Stair-caſe. But I ſee no reaſon, why theſe open Newels ought not to be proportion'd to the ſize of the Stair-caſe, as well as the ſolid ones.

Then, as to the number of Stairs in one Revolution, *Palladio* tells us,

That if the Stair-caſe be $\left\{\begin{matrix}6, \text{ or } 7,\\ 8,\\ 9, \text{ or } 10,\\ 18,\end{matrix}\right\}$ Foot Diameter, then there may be $\left\{\begin{matrix}12\\ 16\\ 20\\ 24\end{matrix}\right\}$ Stairs in one Revolution about the Newel.

2. *Elliptical-winding-ſtairs.*] Of theſe there are 2 kinds; one winding round a Solid, and one round an open Newel, They are much of the nature of Circular Stairs, only in thoſe, the Newel is a Circle, but in theſe an Ellipſis, or Oval. Theſe kind of Stairs are very handſome and pleaſant, (ſays *Palladio*,) becauſe all the Windows and Doors are commodiouſly placed in the middle and head of the Oval. I have made one of theſe, (ſays he,) with an open Newel at the Monaſtery of *Charity* at *Venice*.

3. *Square-winding-ſtairs*] Theſe wind round a Square-Newel, either ſolid, or open; (and therefore are of 2 kinds,) and

and the fore-side of each Stair is a right Line pointing to the Centre of the Newel.

4. *Triangular-winding-stairs.*] These wind round a Triangular-Newel, and the fore-side of each Stair is a right Line, pointing to the Centre of the Newel. And because the Newel may be either solid or open; therefore there are 2 kinds of 'em.

5. *Columnated window-stairs.*] *Palladio* mentions a pair of Stairs belonging to the *Portico* of *Pompey* at *Rome*, that were set upon Columns, that the light (which they receiv'd from above,) might distribute it self to all parts alike. Such another pair were made by *Bramante*, (an excellent Architect in his time) at *Belvedere*, the Pope's Palace.

6. *Double-winding-stairs.*] *Scammozzi* mentions a Stair-case of this Form, made by *Piedro del Bergo*, and *Jehan Coffin* at *Sciamburg* in *France* in the King's Palace. They are so contriv'd, that 2 Persons, one ascending, and the other descending, shall not come at one another. Mr. *Grew* (in his *Musæum Regalis Societatis,*) gives us the Description of a Model of this kind of Stair-case, (which Model is kept by the Royal Society, in *Gresham-college,*) thus; The foot of one of these Stair-cases (says he,) is opposite to that of the other; and both make a Parallel Ascent, and within the same Cylinder. The Newel in the middle is hollow, and built with long Apertures to convey Light from Candles placed at the bottom, and on the sides of the Newel into both the Cases.

7. *Quadruple-winding-stairs.*] *Palladio* mentions a Stair-case of this Form, which King *Francis* the first caus'd to be made in the Castle of *Chambor* near *Bloyse*: It consists of 4 Stair-cases (carri'd up together,) which have 4 Entrances, *viz.* one to each; and go up one over another in such manner, that being made in the middle of the Building, the 4 may serve for 4 Apartments; so that the Inhabitants of one need not go up and down the Stairs of the other; and because 'tis open in the middle, they all see each other go up and down without any hindrance to one another.

VI. *Mixt Stairs.*] These are such as do both fly and wind; and therefore are by some call'd by the general Name of *Flyers and Winders.* There are several kinds of 'em As——

1. *Dog-legg'd-stairs.*] These first fly directly forward then wind a Semicircle, and then fly directly back again, parallel to the first flight.

2. *Square Flyers, and Winders.*] These have a Square Newel, either solid, or open; (and therefore are of 2 kinds,) they fly by the sides of the Newel, and wind (a quarter of a Circle) at each corner.

3. *Solid, and open Newel'd-flyers, and Winders.*] These are of 2 kinds. For some do first wind (a quarter of a Circle,) about

about a Solid Newel, then fly by the ſide of a ſquare open Newel, then wind by a ſolid Newel again, then fly again, as before, and ſo alternately. Others fly firſt, and then wind, and then fly again, and ſo alternately.

Let this ſuffice at preſent for the various kinds of Stair-caſes. I might here ſhew a Method of making all theſe kind of Stairs: But the Bookſeller deſiring this firſt Edition ſhould not be too big, and I having been already very large upon ſome of the foregoing Letters; I muſt be forc'd (at preſent) to omit it: But if this firſt Edition find Acceptance in the World, and I any Encouragement thereby, *This*, and ſeveral other Curioſities, (not publickly known to the World,) may find a place in another Edition.

However, in the mean time, the bare Deſcription of theſe ſeveral kinds of Stairs, together with what has been ſaid above, N. V. §. 1. and in *Stairs*, N. 3. may be a pretty good Guide to the ingenious that have a mind to make any of theſe kind of Stairs.

VII. *Price of Stair-caſes.*] The Price of Stair-caſes is various, according to their various kinds, Sizes, and Curioſity of Workmanſhip. They are ſometimes rated at ſo much *per* piece; and ſometimes at ſo much *per* Stair.

An ordinary pair of Stairs with Flyers and Winders, of about 6 Foot, and 4 Foot, made of Elm Boards, are accounted to be worth 2 *s.* 6 *d.* or 2 *s.* 8 *d. per* Stair, the Workman finding all Materials, as Boards, Nails, *&c.* But if the Materials are found by the Owner, then 9 *d.* or 10 *d. per* Stair, is a good Allowance for the Workmanſhip.

But for Stair-caſes that have an open Newel, with a Landing place at every 6*th.* or 8*th.* Stair, being about 3 Foot all the way: Theſe Stairs, with Rails, Ballaſters, String-boards, Poſts, Balls, Pendants, and ſuch other Ornaments may very well be worth 4 *s.* 6 *d.* 5 *s.* or 6 *s. per* Stair.

## *Stancheons,*

The ſame as Punchins.

## *Staples,*

What they are every one knows. For their Price, V. Iron, N. 4. and Smith's Work, N. 1.

## *Steening of Wells.*

V. Bricks, N. III. §. 1.

## *Steps,*

The ſame as Stairs.

*Stiles,*

## *Stiles*,

In Joynery, the upright pieces that go from the bottom to the top in any Wainſcot, or the like, are call'd Stiles.

## *Stillatory*,

The Room that a Still, or Limbeck is ſet up in, for Diſtilling Strong-waters, *&c.*

## *Stilobatum*,

The Body of the Pedeſtal of any Column.

## *Stock-bricks.*

V. Bricks, N. III. §. 15.

## *Stones.*

1. *Their Kinds.*] There are ſeveral kinds of Stone; as *Marble*, *Fire-ſtone*, *Purbeck-ſtone*, *Rag-ſtone*, *Alabaſter*, *Free-ſtone*, and *Common-ſtone*; of all which, except the 2 laſt, I have already treated in their proper places of the Alphabet. As for *Free-ſtone*; there is a ſort of Stone commonly digged in the *peninſula* of *Portland* in *Dorſet-ſhire*, (and commonly known by the Name of *Portland-ſtone*,) that is much us'd in Building; it being much ſofter and whiter than *Purbeck*-ſtone, and is commonly rais'd out of the Quarries in bigger Blocks than *Purbeck*-ſtone. This *Portland-ſtone* is by ſome Authors call'd Free-ſtone, tho' there is a ſort of Stone found in *Oxfordſhire*, that is call'd *Free-ſtone*: And ſome call *Rigate*, or *Fire-ſtone*, *Free-ſtone*.

*Common Stone* needs no Deſcription; it being that which is commonly us'd, and found almoſt every where; and is that of which I ſhall principally ſpeak in the following Numbers of this Word.

2. *Of their Nature.*] If I had leiſure (ſays the Honourable Eſq; *Boyle*,) I could eaſily ſhew you, that ways (hitherto unus'd,) may be found out, (as I have partly try'd) to examine the *Nature* and *Goodneſs* of *Marble*, *Alabaſter*, and other Stones. A competent Knowledge of the Sap that is to be found in Stones imploy'd for Building, is of ſo much Importance, that the experienced Maſter Workmen have confeſt to me, that the ſame ſort of Stone, and taken out of the ſame Quarry, if digg'd at one Seaſon, will moulder away in a very few Winters; whereas digg'd at another Seaſon, it will brave the Weather for very many Years, not to ſay Ages.

Again, ſays the ſame ingenious Author in another place,) Experienc'd Maſons tell us, that as there are ſome ſorts of Stone that will decay in few Years; ſo there are others that will not attain their full hardneſs in **30, or 40, or** a much longer time.

Again,

Again, (says the same Author,) There are in some places Quarries of solid and useful Stone, which is employ'd about some stately Buildings I have seen, and which yet is of such a Nature, (wherein divers other sorts of Stone are said to resemble it,) that tho' being digg'd at a certain Season of the Year, it proves good and durable, as in those Structures newly mention'd; yet imploy'd at a wrong time, it makes but ruinous Buildings; as even the chief of those Persons, whose Profession makes him more conversant with it, has himself acknowledged (to me) to have found by sad Experience.

3. *Of drawing.*] An ancient and experienced Mason of my Acquaintance, tells me, that common Stones have a cleaving Grain, (as they lie in the Quarry,) and a breaking one; the first, (he says) runs parallel with the Horizon; the other is perpendicular to it. The Method which he uses in *drawing of Stones*, [that is, getting them out of the Quarry,] is thus. Having uncoped it, [that is, taken off the Earth from the Stone,] they observe (by the Grain) where the Stone will cleave, and there they drive in a good many Wedges, till they have cleft him off from the rest of the Rock; and having thus loosen'd him, they next proceed to *break him*, which they thus perform; they applying their Rule to him at both ends, mark out the breadth they would have him, (e. g. suppose 10 or 12 Inches, or more, according to the use they design the Stones for;) and by these Marks they strike a Line with the corner of their Stone-axe; and by this Line they cut a little Channel with their Stone-axe, and in this Channel they set 6 or 8 Iron-wedges, (supposing the Stone to be but 3 or 4 Foot long;) which they drive very carefully with soft and gentle Strokes, keeping them all forward together, and not one before another, least it break the Stone a-cross, and not by the length of the Channel. Yet, he says, that this Method of driving the Wedges, is not always to be observ'd, for sometimes a Stone is not through the whole length of an equal Solidity, but is in some places softer, and in others harder; this they find, (and observe) in cutting their Channel; and those Wedges that stick in those softer places, they venter to drive a little faster than the others. And this, he says, he has found by long Experience, to be the best way of breaking Stones.

Having thus broken them in length, which by this Method they can do to any size within less than an Inch; (which is near enough for rough Stones; they next apply a Square to the straight side, and striking a Line, they proceed to break them in breadth, in the same manner, as before in length; so now they size them for the length, as before for the breadth.

By this Method of drawing of Stones, he says one Load of Stones, which will do as much Walling as a Load and half of such Stones, as in drawing are broken at random; for in this

this laſt caſe, one Stone has commonly a very acute Angle, another a very obtuſe one; whence it comes to paſs, that they require abundantly more ſcapting, and waſt much more of the Stones, than when drawn by the Method above mention'd.

The ſame ingenious old Man tells us, that ſome *London* Stone cutters have told him, that hard Stones have not a Cleaving grain, as the ſoft ones (in our Countrey) have: And therefore when they are minded to break up a Stone in ſuch Quarries, they have great heavy Stone-axes, with which they work down a deep Channel in the Stone, into which Channel (at the top,) then lay 2 Iron bars, (ſuch as Smiths have from the Forge to work out,) and between theſe Bars they drive their Iron-wedges to break off the Stone; for their Wedges will not go where there is not a Channel made for them, as they will in ſoft Stones.

Some in drawing of Stone make uſe of Gun-powder; concerning which, take the following Account (in his own words) from the Honourable Eſq; *Boyle*. It has long been, and ſtill is in many places, (ſays he,) a Matter of much Trouble and Expence, as well of Time as Money, to cut out of Rocks of Alabaſter and Marble, great pieces to be afterwards ſquar'd, or cut into other ſhapes; but what by help of divers Tools and Inſtruments, cannot in ſome Quarries be effected without much Time and Toil, is in other places eaſily and readily perform'd, by making with a fit Inſtrument a ſmall Perforation into the Rock, which may reach a pretty way into the Body of it, and have ſuch a thickneſs of the Rock over it, as is thought convenient to be blown up at one time; for at the further end of this Perforation, there is plac'd a convenient quantity of Gun-powder, and then all the reſt of the Cavity being fill'd with Stones, and Rubbiſh ſtrongly ram'd in, (except a little place that is left for a Train,) the Powder, (by the help of that Train) being fir'd, (and the impetuous Flame being hindred from expanding it ſelf downwards, by reaſon of the newly mention'd Obſtacle, concurring with its own tending another way, diſplays its Force againſt the upper parts of the Rock which in making it ſelf a Paſſage, it cracks the Rock into ſeveral pieces, moſt of them not too unweild to be manag'd by the Workmen. And by this way of blowing up of Rocks a little vari'd and improv'd, ſome ingenious Acquaintance of ours, imploy'd by the Publick, to make vaſt Piles, have lately, (as I receiv'd the account of themſelves,) blown up, or ſcatter'd with a few Barrels of Powder, many hundred, not to ſay thouſand, Tuns of common Rock.

4. *Load of Stone, how much.*] Some Maſons tell me, that 25 Foot of Stone make a Load. But (*notandum eſt,*) they do not mean 25 ſolid Feet, but Superficial meaſur'd on the *Face* of the Stones, and not on any of the Beds.

For

For a clearer underſtanding of this, it muſt be noted, that every ſquared Stone has 6 Plains, or Sides, *viz.* The upper, and under Bed, the Face, and the Back, and the 2 Heads, or Ends. Of theſe 6 Plains, thoſe 2 oppoſite ones that are the cleaving way of the Stone, (and which in the Quarry lay parallel to the Horizon,) are call'd the *Beds*; and of the beſt of the 4 Plains that are perpendicular to theſe, (and conſequently are the breaking way of the Stone,) they make the *Face*, and the Plain oppoſite to the *Face*, (and which commonly goes rough as it comes from the Quarry,) they call the *back* of a Stone; and the other 2 perpendicular Plains are call'd the Heads, or Ends.

5. *Cord of Stone, how much.*] In ſome parts of *Kent*, Stones are ſold by the Cord, conſiſting of 27 ſolid Feet, *viz.* 3 Feet long, 3 broad, and 3 high.

6. *How much Walling a Load of Stones will do.*] An old and experienced Maſon, tells me, that a Load of Stones will build about 20 Foot of 18 Inch Wall; this he reckons a Medium, the Extreams he reckons 15 and 25.

7. *Soft Stones, how wrought ſmooth.*] An old experienced Maſon, tells me, that ſome Stones are too ſoft to bear a good edge; for when they are ſcapt'd, and wrought ſmooth, their edges crimble off; and therefore (in this Caſe) to make them ſmooth, they proceed thus: After they are ſcapt'd, they take an old Card, (ſuch as Wool is Carded with,) and with it they work out the Strokes of the Axe, then they bring it to a better likeing, by rubbing it with a piece of the ſame Stone. And thus our Countrey-maſons manage all ſoft Stones.

8. *Price of drawing and carrying of Stones.*] The old Maſon mention'd above, Number 3*d.* tells me that he has 3 *s.* the Load for drawing of Stones, after the Method mention'd, Number the 3 *d.* and for the carriage of a Load, (tho' it be not above ½ a Mile) he has 2 *s.* the Load.

Another Maſon tells me, that he has drawn Stones for 9 *d.* the Load; but then they lay almoſt level with the Ground, and requir'd but very little uncopeing. He alſo told me, that another Maſon, which he nam'd to me, (and whom I alſo knew,) uſed to draw Stones for 1 *d. per* Foot.

Alſo a *Suſſex* Gentleman of my Acquaintance, tells me, that he can have very good Stones drawn for 2 *s.* 6 *d. per* Cord, and have them carry'd almoſt a Mile for 3 *s.* 6 *d. per* Cord.

But as the Price of drawing Stones is various in different places, according to the different manners of drawing them, and according to the different Circumſtances of *Difficulty*, or *Facibility* of drawing them, *&c.* So alſo is the Price of carrying them very various in different Places, according to the Cuſtom

Cuſtom of thoſe Places. See more concerning this Matter, in the word Aſhlar.

9. *Price of Scapling Stones.*] Several Maſons tell me, that they commonly give 5 *s.* for Scapling 100 Foot of Stones; this is Journey-man's Wages, out of which (they ſay) the Maſter has but ſmall profit. They alſo tell me, that they reckon 50 Foot a Days Work, tho' ſome Workmen will do 60 Foot in a Day: But (*notandum eſt,*) the Meaſure is Superficial, and they meaſure only the *Face* of the Stone, tho' they ſcaple 5 ſides to each Stone, *viz.* A *Face*, 2 *Beds*, and 2 *Ends*; ſo the *back* goes rough as it came out of the Quarry: But in Scapling, they always, (if they can conveniently,) chooſe *that* for the *Face* of the Stone which will be moſt for their Advantage.

## *Stone-work.*

*Of Meaſuring.*] In ſome parts of *Suſſex*, Maſons have a Cuſtom to meaſure their Stone-work thus; they apply one end of a Line to the top of the Copeing, and ſo carry it along the ſlant of the Copeing, and preſs it under the Toothing, (if any be,) and from thence they carry it to the Water, or Ground-table, (if any ſuch be in the Wall) where they preſs it in likewiſe, and then carry it over the Table to the bottom of the Foundation; and this Dimenſion, thus taken, they account for the heighth; which multiply'd into the length, gives the Content.

But (I think,) in moſt places they are not ſo nice, as to take the heighth by a Line, but are contented with the perpendicular heighth.

## *Stove.*

A Hot-houſe, or Room. *Palladio* obſerves, that the Ancients us'd to warm their Rooms, with certain ſecret Pipes that came through the Walls, conveying Heat, (as I conceive it, ſays Sir *Henry Wotton,*) to ſeveral parts of the Houſe from one common Furnace. Whether this were a Cuſtom, or a Delicacy, (ſays Sir *Henry Wotton,*) it was certainly, both for Profit, and Uſe, far beyond the *German* Stoves.

## *Strait,*

A Term us'd by Bricklayers, it is half, (or more, or leſs than half) a Tile in breadth, and the whole length. They are commonly us'd at the Gable-ends, where they are laid at every other Courſe, to cauſe the Tiles to *break Joynt*, as they phraſe it; that is, that the Joynts of one (Courſe) may not anſwer exactly to the Joynts of the next Courſe, either above, or below it.

*Straight-arch.*

V. Arch. N. 7.

*Structure.*

V. Building.

*Struts.*

V. Dragon-beams.

*Stuff,*

The Wood that Joyners work upon they call in general *Stuff.*

*Stretchers.*

V. Arch. N. 7.

*Subſtruction.*

V. Foundation, N. 2. §. 7.

*Summers.*

V. Breſs-ſummers. Alſo V. Girders, N. 2.

*Supercilium.*

As Liſt.

*Symmetry.*

Is the Conveniency that runs between the *parts* (of a Building) and the *whole.*

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*Table, or Glaſs.*

V. Caſe of Glaſs.

*Tabern,*

A Cellar.

*Tacks.*

V. Nails. N. 22.

*Taper,*

All ſorts of Stuff, or Work that are ſmaller at one end than the other, and diminiſhing gradually from the biggeſt end, is ſaid to be *taper.*

*Tarrace,* or *Tarras.*

An open Walk, or Gallary. Alſo a flat Roof on a Houſe. Alſo a kind of courſe Plaſter, durable in the Weather.

*Taſſels,*

## *Taſſels,*

Pieces of Board that lie under the ends of the Mantle-tree.

## *Teeth.*

As Dentils.

## *Templets.*

V. Houſe, N. 4.

## *Tenia.*

As Liſt.

## *Tennon.*

A ſquare end of a piece of Timber fitted into a Morteſs, V. Morteſs.

## *Terraſs.*

As Tarrace.

## *Tetradoron,*

A kind of Brick ſo call'd, V. Brick, N. III. §. 18.

## *Thack-tiles.*

As plain Tiles, V. Tiles, N. III.

## *Thatching.*

1. *What.*] Thatching is the covering the Roof of a Houſe or Barn, with Straw, or Reed.

2. *With Straw.*] Thatch, (ſays Mr. *Worlidge*,) is a common Covering in many places, yet is ſome to be prefer'd before other ſome; the beſt which I have ſeen, (ſays he,) is that which is call'd *Helm*, that is long and ſtiff Wheat-ſtraw, (with the Ears cut off,) bound up in bundles unbruis'd; which well laid, lies thin, laſts long, and is much neater than the common way.

Thatchers commonly allow about 2 good Load of Straw for 5 ſquare of Thatching, or one Load to 2 ½ ſquare.

A Thatcher of my Acquaintance, tells me, that one *Rubble* a Maſon of *Rootham* in *Kent*, proffer'd (for a ſmall matter) to teach him how to Thatch a Roof ſo, that no Mouſe nor Rat ſhould come into it: But he was not ſo thoughtful then, as to get the Receit of him, tho' it would have been of no ſmall uſe to him; for the *Rootham Maſon* ſaid, he knew a Thatcher that had 4 *d. per* ſquare more for doing it ſo. It is a thing worth inquiring after.

In ſome parts of *Kent* they uſe no Withs to bind on their Thatching-rods, but (inſtead thereof) they uſe *Rope-yarn*, (as

they call it,) which is a ſingle Strand-line, about the ſize of a Penny Cord; it is Pitched with Pitch, according as ſome do their Well-ropes. A *Kentiſh* Thatcher told me, that one Pound of it (which coſts 2 *d.*) will do about a ſquare of Thatching. He had about 18 pound of it for 18 ſquare and 90 Foot of Thatching on a Barn; and I think he had but 40 pound for 48 ſquare and 88 Foot: He tells me, 'tis more durable than Withs; for *they* when they are grown ſear, will fly and break; but this will not, V. P. *Withs.*

3. *With Reed.*] In ſome parts of *Suſſex* and *Kent*, they Thatch with Reed inſtead of Straw. Some Workmen tell me, that this kind of Thatching will indure 40, 50, or 60 Years. They alſo tell me, that Reed is ſold by the Thouſand, *viz.* A Thouſand handfuls, each handful being about 8, 9, or 10 Inches in Circumference, bound up in a little Band; a Thouſand of which will coſt 15 or 16 *s.* and will cover about 3 ſquare of Roofing. For laying of which they have 4 *s. per* ſquare.

4. *Price of.*] Common Thatching is done in ſome places for 2 *s.* 6 *d. per* ſquare; but in other Places they have 2 *s* 8 *d.* and in others 3 *s. per* ſquare. And for Thatching with Reed they have 4 *s. per* ſquare.

5. *Of Meaſuring.*] Thatching Is meaſur'd by the ſquare as Tiling: And in ſome places they are allow'd ſo many Feet more as Corners and Cables are Feet in length. In other places they are allow'd (only) ſo many half Feet more to the whole, as the Gable heads are Feet in length; and the Reaſon they urge for this Cuſtom, is, becauſe they have more trouble in turning the Straw (at the Gables) that it may be cut, as it is at the Eves. If one ſide of a Roof (only) be Thatched, and not the other; they (then) take their Dimenſions over the Ridging, as far as the new Straw goes.

## *Thimbles.*

V, Iron, N. 4.

## *Thorough framing.*

V. Framing, N. 7.

## *Through-lighted.*

Rooms are ſaid to be Through-lighted when they have Windows on both ends.

## *Tiles.*

V. Tyles.

*Timber*

## *Timber.*

1. *What.*] All thoſe kinds of Trees, which being cut down and ſeaſon'd, are uſeful for the Carpenter, Joyner, or other wooden Tradeſman to work upon, are call'd *Timber* when they are cut down, and *Timber Trees* when they are growing.

2. *Kinds.*] There are many kinds of Timber; it were tedious to mention 'em all. I ſhall content my ſelf at preſent, briefly to ſhew the moſt common uſes, and of the moſt common kinds of Timber; as I find it ſet down in Mr. *Evelin's Sylva*, and Mr. *Worlidge's Syſtema Agriculturæ*. As follows.

1. *Oak.*] The ſeveral uſes of Oaken-timber for Buildings, and other Mechanick Uſes, is ſo univerſally known, that 'twere needleſs to enumerate them. To endure all Seaſons of the Weather, there is no Wood comparable to it; as for Pales, Shingles, Poſts, Rails, Boards, *&c.* For Waterworks alſo 'tis ſecond to none; eſpecially where it lies obvious to the Air as well as the Water, there is no Wood like it.

2. *Elm.*] If the Elm be fell'd between *November* and *February*, it will be all Spine, or Heart, or very little Sap, and is of moſt ſingular uſe (in the Water,) where it lies always wet, and alſo where it may be always dry. It is alſo of great uſe for its toughneſs, and therefore us'd by Wheelwrights, Mill-wrights, *&c.* It is alſo good to make Dreſſers, and Planks to chop on, becauſe it will not break away in Chips like other Timber.

3. *Beech.*] Its uſe is principally for the Turner, Joyner, Upholſterer, and ſuch like Mechanick Operations, the Wood being of a clean, white, and fine Grain, and not apt to rend, or ſlit: Yet it is ſometimes us'd, (eſpecially of late Years) for Building-timber. And if it lie always wet, (as for Ground-guts, and the like,) 'tis thought to endure longer than Oak will in that Caſe.

4. *Aſh.*] The uſe of Aſh is almoſt univerſal, good for Building, or any other uſe where it may lie dry; ſerves the Occaſions of the Carpenter, Plough-wright, Wheel-right, Cart-wright, Cooper, Turner, *&c.* For Garden uſes alſo, no Wood exceeds it; as for Ladders, Hop-poles, Paliſade-hedges, *&c.* It ſerves alſo at Sea, for Oars, Hand-ſpikes, *&c.*

5. *Fir.*] This kind of Timber is commonly known by the name of *Deal*, and is of late much us'd in Building, eſpecially within Doors, for Stairs, Floors, Wainſcot, and moſt ornamental Works.

*6. Walnut-tree.*] This Timber is of universal use, (unless for outward Edifices,] none better for the Joyner's use, it being of a more curious brown colour than Beech, and not so subject to the Worms.

7. *Chestnut-tree.*] This Timber is (next to Oak) one of the most sought after by the Joyner and Carpenter, and of very long lasting, as appears by many ancient Houses and Barns built of it about *Gravesend* in *Kent*.

8. *Service-tree.*] This Timber is useful for the Joyner, it being of a very delicate Grain, and is fit for divers Curiosities: It also yields Beams of a considerable bigness for Buildings.

9. *Poplar, Abel, and Aspen.*] These kinds of Timber differ but little from one another; and of late they are often us'd instead of *Fir*; they look as well, and are tougher and stronger.

10. *Alder.*] This is useful for Ladder and Scaffold-poles, as also for Sewers, or Pipes to convey Water; for if it lie always wet, it will harden like a very Stone; but where it is sometimes wet, and sometimes dry, it rots immediately.

11. *Lime tree.*] I have known, (says my Author,) excellent Ladders made of Lime-tree-poles, and of a very great length.

III. *Time of Felling.*] The Time of the Year for this Work is not usually till about the end of *April*, (at which Season the Bark does commonly rise freely, and if there be any quantity of Timber fell'd, the Statute obliges us to fell it *then*, the Bark being necessary for the *Tanner.*) But the Opinions and Practice of Men have been very different concerning the best time to fell Timber: *Vitruvius* is for an Autumnal Fall; others advise *December* and *January*: *Cato* was of Opinion, that Trees should have first born their Fruit, or at, least it should not be Fell'd till the Fruit was full ripe, which agrees with that of the Architect: And tho' Timber unbarked be indeed most obnoxious to the Worm, yet we find the wild Oak, and many other sorts Fell'd over late, (and when the Sap begins to be proud,) to be very subject to the Worm; whereas being cut about Mid-winter, it neither casts, rifts nor twines; because the Cold of the Winter does both dry and consolidate: Happy therefore were it for our Timber, if some real *Invention* of *Tanning* without so much Bark, (as the Honourable Mr. *Charles Howard*, has most ingeniously offer'd,) were become universal; that Trees being more early Fell'd, the Timber might be the better season'd, and condition'd for its various uses.

Then for the Age of the Moon, it has been religiously observ'd; and that *Diana*'s Precedency in *Sylvis* was not so much celebrated to credit the *Fictions* of the Poets, as for the Dominion of that moist Planet, and her

her Influence over Timber: For my part, I am not so much inclin'd to these *Criticisms*, as to Fell Timber altogether at the Pleasure of this mutable Lady; however there is doubtless some regard to be had, *Nec frustra signorum obitus speculamur & ortus.*

The old Rules are these: Fell Timber in the *Decrease*, or 4 Days after the New Moon; some say in the *last Quarter*, *Pliny* says, (if possible,) in the very Article of the Change; which happning, (says he, in the last Day of the Winter Solstice, *that Timber* will prove immortal: *Columella* says, from the 20*th.* to the 30*th.* Day: *Cato*, 4 Days after the Full: *Vegetius*, from the 15*th.* to the 25*th.* for Ship-timber, but never in the Increase, Trees then most abounding with Moisture, which is the only Source of Putrefaction.

Then for the Temper and Time of the Day; the *Wind* low, neither *East* nor *West*; neither in *Frosty*, *Wet*, or *Dewy* Weather; and therefore never in a Forenoon.

Lastly, Touching the Species; Fell *Fir* when it begins to spring; not only because it will then best quit its Coat and Strip; but for that they hold it will never decay in Water; which howsoever *Theophrastus* deduces from the old Bridge made (of this Material, cut at this Season,) over a certain River in *Arcadia*, is hardly sufficient to satisfie our Curiosity. *Elm* (says Mr. *Worlidge*,) is to be Fell'd between *November* and *January*; for then, (says he,) it will be all *Heart*, or at least will have but very little Sap. And this he also says is the only Season for Felling of *Ash*.

Some Authors advise in Felling of Timber, to cut it but into the Pith, and so let it stand till it be dry, because, (say they,) by drops there will pass away that Moisture which would cause Putrefaction.

IV. *Of Seasoning.*] Timber being Fell'd, and Sawn, is next to be season'd; for doing of which, some advise, that it be laid up very dry in an airy place, yet out of the Wind, or Sun; at least, (say others,) it ought to be free from the Extremities of the Sun, Wind, and Rain; and that it may not cleave, but dry equally, you may daub it over with Cow-dung. Let it not stand upright, but lay it along one piece upon another, interposing some short Blocks between them, to preserve them from a certain Mouldiness, which they usually contract while they sweat, and which frequently produces a kind of Fungus, especially if there be any sappy parts remaining.

Others advise to lay Boards, Planks, *&c.* In some Pool, or Running-stream for a few Days, to extract the Sap from 'em, and afterwards to dry 'em in the Sun, or Air; for by so doing, (say they,) they will neither chap, cast, nor cleave;

(Mr. *Evelin* particularly commends this way of Seasoning of Fir,) against *shrinking* there is no Remedy.

Some again commend *Buryings* in the *Earth*, others in *Wheat*; and there be Seasonings of the *Fire*, as for the scorching and hardning of *Piles*, which are to stand either in the *Water*, or the *Earth*. Thus do all the Elements contribute to the Art of *Seasoning of Timber*.

Sir *Hugh Plat* informs us, that the *Venetians* use to burn and scorch their Timber in the flaming Fire, continually turning it round with an Engine, till they have gotten upon it a hard, black, coally Crust; and the secret carries with it great probability; for that the Wood is brought by it to such a hardness and dryness. *ut cùm omnis putrefactio incipiat ab humido*, nor Earth nor Water can penetrate it. I my self, (says Esq; *Evelin*,) remember to have seen Charcoals dug out of the Ground, amongst the Ruins of ancient Buildings, which have in all Probability lain cover'd with Earth above 1500 Years.

V. *Of Preserving.*] When Timber, or Boards are well season'd, or dry'd in the Sun, or Air, and fix'd in their places, and what Labour you intend is bestow'd upon 'em. The use of Linseed-oyl, Tar, or such like Oleaginous Matter, tends much to their preservation and duration. *Hesiod* prescribes to hang your Instruments in the Smoak, to make them strong and lasting; *temonem in fumo ponere*: Surely then the Oyl of Smoak, (or the vegetable Oyl, by some other means obtain'd,) must needs be effectual in the Preservation of Timber. Also *Virgil* advises the same, *Et suspensa focis explorat Robora fumus*, says he.

The Practice of the *Hollanders* is worth our notice, who, for the Preservation of their Gates, Port-cullis's, Draw-bridges, Slaces, and other Timbers expos'd to the perpetual Injuries of the Weather, Coat them over with a mixture of Pitch and Tar; upon which they strew small pieces of *Cockle*, and other *Shells*, beaten almost to Powder, and mingl'd with *Sea-sand*; which incrusts, and arms it after an incredible manner, against all the Assaults of Wind and Weather.

When Timber is fell'd before the Sap is perfectly at rest, (says Esq; *Evelin*,) it is very subject to the Worm; but to prevent, or cure this in Timber, I recommend the following Secret, as most approved.

Let common yellow Sulphur be put into a Cucurbit-glass, upon which pour so much of the strongest *Aquafortis*, as may cover it 3 Fingers deep; distil this to dryness, which is done by 2 or 3 Rectifications: Let the Sulphur remaining at the bottom, (being of a blackish, or fad Red-colour,) be laid on a Marble, or put into a Glass, where it will easily dissolve into Oyl: With this anoint what Timber, is either infected with Worms, or to be preserved from 'em. It is a great

great and excellent *Arcanum* for tinging the Wood of no unpleasant Colour, by no Art to be wash'd out; and such a Preservative of all manner of *Woods*, nay, of many other things also, as *Ropes*, *Cables*, *Fishing-nets*, *Masts*, *or Ships*, &c. That it defends them from Putrefaction, either in *Waters*, under, or above the *Earth*, in *Snow*, *Ice*, *Air*, *Winter*, or *Summer*, &c.

'Twere superfluous to describe the process of making the *Aquafortis*; it shall suffice to let you know, that our common *Coperas* makes this *Aquafortis* well enough for our purpose, being drawn over by a *Retort*: And for *Sulphur*, the *Island* of St. *Christophers* yields enough, (which hardly needs any refining) to furnish the whole World. This *Secret* (for the *curious*,) I thought fit not to omit, tho' a more compendious way may serve the turn, three or four Anointings with *Linseed-oyl*, has prov'd very effectual: It was experimented in a *Walnut-tree-table*, where it destroy'd Millions of Worms immediately, and is to be practis'd for *Tables*, *Tubes*, *Mathematical Instruments*, *Boxes*, *Bed-steads*, *Chairs*, &c. *Oyl of Walnuts* will doubtless do the same, is sweeter and better Varnish; but above all is commended *Oyl of Cedar*, or that of Juniper.

For *Posts*, and the like, that stand in the Ground, *the burning the out-sides* (of those ends that are to stand in the Ground) *to a Coal*, is a great Preservative of 'em. I have already, (in the fore-going number,) mention'd the Practice of the *Venetians* in a like case, mention'd by Sir *Hugh Plat*; to which he adds, that a *Kentish* Knight of his Acquaintance, did use to burn (in this manner) the ends of the Posts, for Railing, or Paling: And this was likewise practis'd with good Success by a *Sussex* Gentleman, *Walter Burrel* of *Cuckfield*, Esq; And this Practice was probably deduced, from the *Observations* made by several that digged in the Earth they have found *Charcoal*, which they conjectur'd might have, lain there about 100 Years, (nay, Esq; *Evelin* says 1500 Years, V. above in the fore-going Number, and yet was not in the least inclin'd to Putrefaction, but was very firm and solid; which plainly demonstrates, that *Timber* thus calcin'd, will resist Putrefaction much longer than it can do without it.

This of burning the ends of Posts, is also practised in *Germany*, as appears by the Abstract of a Letter, written by *David Von-der-beck* a *German Philosopher*, and *Physician* at *Minden*, to Dr. *Langelot*, registred in the *Philosophical Transactions*, Num. 92. Page 1585, in these words, hence also, they slightly *burn* the ends of *Timber* to be set in the Ground, that so by the Fusion made by Fire, the *Volatile Salts*, (which by accession of the Moisture of the Earth, would easily be consum'd,

fum'd, to the Corruption of the Timber,) may catch, and fix one another.

VI. *Of cloſing the Chops, or Clefts in green Timber.*] Green-timber is very apt to ſplit and cleave after 'tis wrought into Form, which in fine Buildings is a great Eye-ſore. But to cloſe the *Chops*, and *Clefts* in *Green Timber*, I find this Expedient, to anoint, and ſupple it with the *Fat* of *Powder'd-beef-broth*, with which it muſt be well ſoak'd, the Chaſms fill'd with Spunges dip'd into it: this to be done twice over. Some Carpenters make uſe of *Greaſe*, and *Saw-duſt* mingl'd; but the firſt is ſo good a way, (ſays my Author,) that I have ſeen *Windſhock-timber* ſo exquiſitely cloſ'd, as not to be diſcern'd where the Defects were. This muſt be us'd when the Timber is green.

VII. *Of Meaſuring.*] Timber is commonly meaſur'd and ſold by the *Tun*, or *Load*, which is a ſolid Meaſure, containing 40 or 50 ſolid Feet, *viz.* 40 Feet of round Timber, and 50 Feet of hewn Timber is call'd a *Tun*, or *Load*; which Denomination, (I conceive) it receives from the Suppoſition, that 40 Feet of round Timber, or 50 Feet of hewn Timber weighs about a *Tun Weight*, (*i. e.* 20 Hundred,) which is commonly accounted a Cart-load. Now ——

*For Meaſuring of round Timber*, the Cuſtom is, to gird the Tree about in the middle of the length, and folding the Line twice (to take a quarter of it,) they account that for the true *ſide of the ſquare*; then for the *length*, 'tis counted from the But-end of the Tree, ſo far up as the Tree will hold *half a Foot Girt*, (as they phraſe it,) *i. e.* The Line half a Foot, when twice folded.

The Dimenſions thus taken, the Timber may be meaſur'd; either by multiplying the ſide of the ſquare in it ſelf, and that Product by the length, by the Method of *Croſs multiplication*, (V. Croſs multiplication,) or more eaſily and ſpeedily. By *Gunter's Line*, by extending the Compaſſes from 12 to the ſide of the Square in Inches; for that Extent turn'd twice (the ſame way) from the length in Feet, will reach to the Content in Feet.

If the Tree have any great Boughs which are Timber, (as they phraſe it,) *i. e.* which will hold half a foot Girt; they commonly meaſure them, and add them to the whole: The Solidity of the whole being thus found, they divide it by 40, which brings it into Tuns.

But (*Notandum eſt.*) If round Timber be meaſur'd in Order for Sale; they commonly (for *Oak*) caſt away an Inch out of the Square for the Bark; [*i. e.* if a Tree be 10 Inches Square, they meaſure him as if he were but 9,] but for *Aſh*, *Elm*, and *Beech*, an Inch is too much to be allow'd for the Bark. (2.) That this way of taking $\frac{1}{4}$ of the Circumference

for

for the true Square, is erroneous, and always gives the Solidity less than the truth, by about a fifth part.

*For measuring hewn or squar'd Timber*, their Custom is to find the middle of the length of the Tree, and there to measure the breadth of him, by claping 2 Rules, or other straight things) to the sides of the Tree, and measuring the distance between them, and in the same manner they measure the breadth the other way; which if they are unequal, they add them together, and take half their Sum, which they account the true side of the Square.

The Dimensions thus taken, it is measur'd in the same manner as round Timber. So the Content being found in Feet, they divide it by 50 to bring it into Tuns.

But *notandum est*, ['tis to be noted.] (1.) That if the Timber be unequal sided, this Method of taking the Dimensions, always gives the Content more than the Truth, and the greater is the difference of the sides, the greater is the Error. (2.) That tho' the Method of taking the Dimensions, both of square, and round Timber, are both erroneous yet Custom has made them currant.

VIII. *Price of Felling and Hewing.*] Carpenters about us in *Sussex*, and *Kent*, have about 1 *s.* or 1 *s.* 2 *d. per* Load for *Felling* of Timber, and about 3 *s. per* Load for *Hewing*.

IX. *How much to a Square of Framing.*] Mr. *Leybourn* tells us, that 20 Foot of solid Timber, (cut into convenient Scantlings,) will compleat a *Square*, (*i. e.* 100 Superficial Feet) of Framing in any Building, great or small. I mean, (says he,) of the Carcass, *viz.* the out-side Frame, Partitions, Roof, and Floors.

X.—*Buildings of facing with Brick.*] V. Facing, also V. Brick, N. 9.

*Tinea*,

As List.

*Tondino*,

As Astragal.

*Top-beam*,

As Coller-beam.

*Torcus*,

*Torus*,

*Totus*, or *Thorus*,

A Member in the Base of a Column, in the Form of a Semicircle.

*Torsels*,

## *Torſels,*

As Taſſels.

## *Trammel,*

An Iron moving Inſtrument in Chimneys, whereon they hang the Pot over the Fire.

## *Tranſom.*

1. *What.*] The piece that is fram'd acroſs a double *Light-window.*

2. *Windows.*] Tranſom-windows in great Buildings, are worth making, (ſays Mr. *Wing.*) 1 *s.* 9 *d. per* Light, or 7 *s. per* Window.

## *Traverſe,*

A Term in Joynery, ſignifying to plain a Board, (or the like) acroſs the Grain.

## *Traverſe-tile.*

V. Tile, N. 10.

## *Triglyph,*

A Term of Architecture. The Word is Originally Greek, and ſignifies a *hollow Graving like* 2 *Furrows, or Gutters.* In Architecture, Triglyphs are thoſe kind of ſtops, (in the Dorick Freeze) between the Metops, V. Metops.

## *Trim,*

When Workmen fit a piece into other Work, they ſay they *trim* in a piece.

## *Trimmers,*

In Architecture are thoſe pieces of Timber fram'd at right Angles to the Joyſts againſt the Ways for Chimneys, and Well holes for Stairs.

## *Trochilus.*

V. Capital, N. 4.

## *Turn'd lead.*

V. Lead, N 10.

## *Tuſcan order.*

V. Column, N. 2.

## *Tusk,*

A Bevel Shoulder, made to ſtrengthen the Tenon of the Joyſt which is let into the Girder.

*Tiles.*

## *Tyles.*

1. *What.*] What they are every one knows: Yet Bp. *Wilkins* defines them to be a ſort of Artificial Stones, (of a laminated Figure,) us'd about the Roofs and Pavements of Buildings.

They are made of Clay, kneaded together, then ſqueez'd flat in a Mould, and then bak'd in a Kiln.

II. *Kinds of.*] There are many kinds of Tiles, and thoſe known by ſeveral Names; as *Plain*, *Thack*, *Ridge*, *Roof*, *Creaſe*, *Gutter*, *Pan*, *Crooked*, *Flemiſh*, *Corner*, *Hip*, *Dorman*, *Dormar*, *Scallop*, *Aſtragal*, *Traverſe*, *Paving*, and *Dutch Tiles*: Of which I ſhall treat in the following Numbers.

III. { *Plain*— } or { *Thack*— } Of which I ſhall give

1. *Their Deſcription.*] They are the common or ordinary Tiles (of an Oblong Figure,) us'd about covering of Houſes, *&c.*

2. *Their Dimenſions.*] By the Statue of the 17*th.* of *Edw. Cap.* 4*th.* Plain Tiles ought to be in length 10 ½ Inches, in breadth 6 ¼ Inches, and in thickneſs half an Inch and half a quarter at the leaſt. But by obſervation, I find our *Suſſex* Tiles to be of different Dimenſions; for ſome I find to be 10 Inches long, 6 ¼ broad, and ⅝ of an Inch thick. Others I find to be but 9 ½ Inches long, 5 ¾ broad, and about ½ an Inch thick.

3. *Their Weight.*] Mr. *Leybourn* ſays, that one plain Tile weighs about 2 ½ Pounds; whence 100 of 'em will weigh 250 Pounds, and 1000 of 'em will weigh 2500 Pound. But by my Obſervations one of the largeſt ſize of thoſe I meaſur'd, (*viz.* thoſe of 10 Inches long,) will weigh but about 2 Pound 3 Ounces, ſo that 100 of 'em will weigh about 220 Pounds, and 1000 of 'em about 2200 Pounds. And one of the other ſize that I meaſur'd, weigh'd about 2 Pounds; ſo that 100 of 'em will weigh about 200, and 1000 of 'em about 2000 Pounds.

4. *Their Price.*] They are in ſome places dearer, and in others cheaper, according to the Scarcity, or Plenty of the Earth whereof they are made, and of the Wood wherewith they are burnt. Mr. *Wing* ſays, they are from 25 to 30 *s.* the Thouſand in *Rutland-ſhire*; Mr. *Leybourn* ſays 25 *s.* the Thouſand in *London*; but about us in *Suſſex* they are ſold from 15 to 17 *s.* the Thouſand.

IV.

IV. { Ridge— / Roof — or / Creaſe— } Of theſe I ſhall alſo give

1. *Their Deſcription.*] Theſe are ſuch Tiles as are us'd to cover the Ridge of a Houſe; they being made Circular breadthwiſe, like a half Cylinder.

2. *Their Dimenſions.*] Theſe, by the fore-mention'd Statute, ſhould be in length 13 Inches, and in thickneſs the ſame with plain Tiles. I have meaſur'd ſome of theſe, and found one of 'em to be 13 Inches long, about 16 broad by the Compaſs on the out-ſide, and in breadth (from ſide to ſide) on the in-ſide about 11 Inches, ſome not above 9 or 10 Inches.

3. *Their Weight.*] I weigh'd of theſe kind of Tiles, and found him to weigh about 8 ¼ Pounds. Whence 100 of 'em will weigh about 875 Pounds, and 1000 about 8750 Pounds.

4. *Their Price.*] In ſome places, ſays Mr. *Leybourn*, 5, 6, or 7 of theſe Tiles are allow'd into every Thouſand of plain Tiles; but if bought by themſelves, they are ſold from 20 to 25 *s. per* Hundred. About us in *Suſſex*, they are ſold at 2 *d. per* piece, or 16 *s.* the Hundred.

V. { Hip-- / Corner-- } Of theſe I ſhall alſo give

1. *Their Deſcription.*] Theſe are to lie on the Hips, or Corners of Roofs. As to their Form, they are at firſt made flat like plain Tiles, but of a Quadrangular Figure, whoſe 2 *ſides* are right Lines, and 2 *ends* Arches of a Circle, one end being a little Concave, and the other Convex, which Convex End is about 7 times as broad as the Concave End; ſo that they would be of a Triangular Figure, were not one corner taken off. Then before they are burnt, they are bent (upon a Mould) in their breadth, after the manner of *Ridge Tiles*. They have a hole at their narrow end to nail them on by, and are laid with their narrow ends upwards.

2. *Their Dimenſions.*] By the Statute above mention'd, (Num. III. §. 2.) The Tiles ought to be 10 ½ Inches long, with convenient thickneſs and breadth. I have meaſur'd ſome of 'em, and find them to be in length 10 Inches, in breadth (according to their Compaſs) at the narrow end 2 Inches, and at the broad end 14 Inches; and the Right-lined breadth at the broad end, about 11 Inches.

3. *The*

3. *Their Weight.*] I found the weight of one of these Tiles to be about 3 Pounds, and 3 or 4 Ounces, V. P. Num. 6. §. 3.

4. *Their Price.*] They are usually sold, (says Mr. *Leybourn*) at Three-half-pence, or 2 *d. per* Tyle, or from 10 to 15 *s. per* hundred. About us in *Sussex*, they are usually sold for Three-half-pence a piece, or 12 *s.* the hundred.

VI. *Gutters.*] Of these I shall also give,

1. *Their Description.*] These are to lie in Gutters, or Valleys in cross Buildings. They are made like corner Tiles, only the corners of the broad end are turn'd back again with 2 Wings; so that the broad end resembles the upper part of the Character from the *Sign Libra.* These have no holes in 'em, but are laid (with their broad ends upwards, and) without nailing at all.

2. *Their Dimensions.*] I suppose *these* are made in the same Mould as *corner Tiles*, for they have the same Dimensions on the out (or Convex) side. Their Wings, (mention'd in the foregoing §.) are each about 4 Inches broad, and 8 Inches long, pointing out short of the narrow end, about 2 Inches.

3. *Their Weight.*] These, (for the Reason mention'd in the foregoing §.) are of the same weight with *corner Tiles.* So that 100 of either of these kinds of Tiles will weigh about 321, or 322 Pounds, and 1000 of 'em will weigh about 3210, or 3220 Pounds.

4. *Their Price.*] They are of the same Price as corner Tiles, V. above, N. 5. §. 4.

VII. { *Pan*— / *Crooked*— / or / *Flemish*— } Of these I shall give

1. *Their Description.*] They are us'd in covering of Sheds, Lean-too's, and all kind of flat Roof'd Buildings. They are in the Form of an Oblong Parallelogram, as plain Tiles; but they are bent (breadth-wise,) forward and backward in the Form of an S, only one of the Arches is at least 3 times as big as the other; which biggest Arch, or Hollow of the Tile is alway laid uppermost, and the lesser Arch, or Hollow of an other Tile, lies over the edge of the great Hollow of the former Tile. They have no holes for Pins, but hang (on the Laths) by a knot of their own Earth.

2. *Their Dimensions.*] They are usually in length 14 ½ Inches, and in breadth 10 ½ Inches.

3. *Their Price.*] The Price of these Tiles in most places is about 7 or 8 *s.* the hundred.

VIII. { *Dormar*— / or / *Dorman*— } Of theſe I ſhall give

1. *Their Deſcription.*] Theſe Tyles conſiſt of a plain Tyle, and a Triangular piece of a plain Tile ſtanding up at right Angles to one ſide of the plain Tyle, and this Triangular Piece at the broad end is about the breadth of the plain Tyle; and ſwept with an Arch of a Circle from the other end, which other end terminates in a point, or has no breadth; and of theſe kind of Tyles there are 2 ſorts, for in ſome the Triangular piece ſtands on the right, in others on the left ſide of the plain Tyle; and of each of theſe there are again 2 ſorts, for ſome have a whole plain Tyle, others but half a plain Tyle; but of all theſe ſorts, the plain Tyle has 2 holes (for the Pins) at that end where the broad end of the Triangular piece ſtands.

2. *Their Uſe.*] They are uſed to be laid in the Gutters betwixt the Roof and the Cheeks, or ſides of the Dormars, the plain Tyle part lying upon the Roof, and the Triangular Part ſtanding Perpendicularly by the Cheek of the Dormar. They are excellent to keep out the wet in thoſe places, which 'tis very difficult to do without either *them*, or ſome Sheet-lead. Theſe Tiles are much us'd in ſome parts of *Suſſex*, the Bricklayers not caring to do any Healing (where there are Dormers) without 'em; tho' to my knowledge, in ſome parts of *Kent*, they know not what they are; and I believe they are ignorant of 'em alſo in moſt other parts of *England*; For I never ſaw any Author that ſo much as mention'd 'em.

3. *Their Dimenſions.*] As to their Dimenſions, the plain Tile part is of the ſame Dimenſions as a plain Tyle, both as to its length and breadth; the Triangular part is of the ſame length, and its breadth at one end 7 Inches, and the other nothing.

4. *Their Weight.*] I have weigh'd one of theſe Tyles, and found him to weigh about 4 ½ Pounds; whence 100 of 'em will weigh about 450, and 1000 about 4500 Pounds: This was a whole one, a ½ one weigh'd 3 lb. 2 ʒ.

5. *Their Price.*] They are commonly ſold at Three-halfpence, or 2 *d. per* piece, or 12 or 16 *s.* the hundred.

IX. { *Scallop*— / or / *Aſtragal*— } Of theſe I ſhall give

*Their Deſcription.*] Theſe are in all reſpects like plain Tyles, only their lower ends are in the form of a *Aſtragal*, *viz.* a Semicircle with a Square on each ſide. They are in ſome places us'd for Weather Tyling, and look very handſome.

I have not yet learn'd their *Price*, *Weight*, or *Dimenſions*; but I think the latter is the ſame as plain Tyles.

X. *Travers.*] Theſe Tyles are (by our common Bricklayers) call'd *Travis*, or *Travas Tyles*; but I ſuppoſe it ſhould rather be *Travers Tyles*; for the word *Travers* is perfect *French*, ſignifying *Irregularity*; and theſe Tyles which they call *Travers Tyles*, are only irregular plain Tyles, *viz.* Such as have the Pin-holes broken out, or one of the lower Corners broken off. Theſe they lay (with the broken ends upwards) upon Rafters, where pin'd Tyles cannot hang.

XI. *Paving.*] Theſe are by ſome call'd *Paving Bricks*, V. Bricks, N. 3. §. 10.

XII. *Dutch.*] Of theſe I ſhall give

1. *Their Deſcription.*] Of theſe there are 2 kinds, which I ſhall diſtinguiſh by the Appellations of *Ancient* and *Modern*: The *Ancient Dutch Tyles* were us'd for *Chimney-foot-paces*: They were Painted with ſome Antick Figures, and ſometimes with the Poſtures of Soldiers, *&c.* And ſometimes with Compartments, and in them ſome irregular Flouriſhes; but in general they are nothing ſo well done, (nor with ſo lively Colours) as the Modern ones. The *Modern Dutch Tyles* are commonly us'd inſtead of *Chimney-corner-ſtones*, (being Plaſter'd up in the Jambs, (V. Corner-ſtones.) Theſe Tyles ſeem to be better glazed, and thoſe that are Painted, (for ſome are only white,) are done with more curious Figures, and more lively Colours than the ancient ones: But both theſe ſorts ſeem to be made of the ſame whitiſh Clay as our white glazed Earthen Ware. The *Modern* ones are commonly Painted with *Birds*, *Flowers*, &c. and ſometimes with *Hiſtories* out of the *New Teſtament*.

2. *Their Dimenſions.*] Thoſe which I call *Ancient Dutch Tyles* are $5\frac{1}{4}$ Inches ſquare, and about $\frac{3}{4}$ of an Inch thick. The *Modern Dutch Tyles* are $6\frac{1}{2}$ Inches ſquare, and $\frac{3}{4}$ of an Inch thick.

3. *Their Weight.*] I have weigh'd ſome of both theſe ſorts of Tyles, and I found one of

the {Ancient / Modern} ſort to weigh {1 $\frac{1}{2}$ Pound, / 1 lb. 3 Ounces,} whence 100

of them will weigh {125 lb, and 1000, 1250 / 169 lb, and 1000, 1690} Pounds.

XIII. *Method of Making and Burning.*] Tyles, (says Mr. *Leybourn*) are made of better Earth than Brick Earth, and something near the Potters Earth. According to the Statute of 17 *Edw.* 4. *Cap.* 4. Earth for Tyles should be cast up before the first of *November*, shired and turned before the first of *February*, and not made into Tyle before the first of *March*, and should likewise be tried and sever'd from Stones, Marle, and Chalk.

In *Sussex* and *Kent*, Tyles are commonly made of a kind of Clay: But as to the particular Method of making 'em, I must at present omit, for Reasons often already mention'd. But for the Method of burning them, V. *Bricks*, N. 5. where you will find it at large.

XIV. *Price of Making and Burning.*] For making 1000 of plain Tyles, (says Mr. *Leybourn*) 2 *s.* or 2 *s.* 6 *d.* is the usual Price: But I know not how, or where he means; for an experienced Workman tells me, that for casting the Clay, and shireing it, and making it into Tyles, and burning them, they have 6 *s per* 1000.

XV. *How many will cover a Square.*] This is various, according to the width they Gage for the Laths: At 6 *Inches Gage*, about 800 will cover a Square 6 ½ at *Inch Gage*, 740 Tyles will cover a Square; at 7 *Inch Gage*, 690; at 7 ½ *Inch Gage* 640, and at 8 *Inch Gage* 600 Tyles will cover a Square, or 100 Superficial Feet. These Numbers suppose the breadth of the Tyles to be 6 Inches; for (if they are Statute Tyles) they will be there abouts when they are burnt, allowing ½ of an Inch for their shrinking with burning. If your Tyles are broader than 6 Inches, then fewer will cover a Square, if they are narrower there must be more.

## *Tyling.*

1. *What.*] By *Tyling*, is meant the covering the Roof of a Building with Tyles.

2. *Of Measuring.*] Tyling is measur'd by the *Square* of 10 Foot, *i. e.* 100 Superficial Feet. And in taking their Dimensions, they measure to the middle of the *Gutters*, *Corners*, and *Ridge-tyles*; and having cast up the Area, they have a Custom to make an *Addition* for all *hollow Ware*, (as they call *Ridge-tyles*, *Corner*, *Gutter*, and *Dormar-tyles*,) and this *Addition* (I think) is in *London* one Superficial Foot for every Lineal Foot of such hollow Ware. But I am sure, in some parts of *Sussex*, 'tis the Custom to reckon one Superficial Foot for every such Tyle; 100 of which they reckon one Square of Work, and add it to the Area before found.

3. *Price of*—] Tyling is commonly done by the Square, which in *new Work*, (says Mr. *Leybourn*,) and the Workman finding all Materials, as Tyles, Mortar, Laths, and Nails, is usually

ſually valu'd at 30, or 32 *s.* *per* Square. (Mr. *Hatton* reckon but 28 *s.* *per* Square.) And for ripping of old Work, and new Covering, and making good the old, they reckon 12 or 14 *s.* the Square, according as they find the old Tyling.

But for Workmanſhip only, they reckon for *new Work* 5 *s.* *per* Square at *London*, in the Countrey various. Mr. *Wing* ſays 3 *s.* in *Rutland*, in ſome places, ſays he, 2 *s.* 6 *d.* In ſeveral parts of *Suſſex*, I know 'tis commonly done for 3 *s.* *per* Square, and I am inform'd (at ſecond hand,) that in ſome parts of *Kent* they do it for 2 *s.* 6 *d.* *per* Square; but then their Tyles are large, and they lath wide, at 8 Inches Gage, and pin but half their Tyles, the other half they lay Travers Tyles.

And for Ripping, and Healing again, (only Workmanſhip,) our *Suſſex* Bricklayers reckon 3 *s.* 6 *d.* *per* Square, and if they Counter-lath it, then 3 *s.* 9 *d.* or 4 *s.* But in ſome parts of *Kent*, they Rip, and Heal, and Counter-lath, for 3 *s.* *per* Square, which is very cheap; but then 'tis ſuppos'd their Work is done accordingly.

4. *Laths and Nails to a Square of*—] For the number of Laths and Nails, commonly allow'd to a Square of Tyling, V. Laths, N. 8. and Nails, N. 23.

5. *Mortar to a Square of*—] Mr. *Leybourn* ſays, that about a quarter as much Mortar as is allow'd to a Rod of Brick-work, will do for a Square of Tyling, V. Mortar, N. 12.

6. *Pins to a Square of*—] Mr. *Leybourn* ſays, they uſually allow a peck of *Tyle-pins* (from 2 *s.* to 4 *s.* the Buſhel) to every Thouſand of Tyles; but ſurely this muſt be a miſtake, for an *Experienced Workman* tells me, he uſes but about a peck of Pins to 3 Square of Healing, which at 7 Inch Gage, (the ſize he commonly Gages) is more than enough for 2000 Tyles. And I think this Workman told me, he reckon'd *Tyle-pins* at 6 *d.* the Gallon.

7. *Without Mortar*—] Some lay Tyles without Mortar, or any thing elſe, laying them dry as they come from the Kiln. Others lay them in a kind of Mortar made with Lome and Horſe-dung, (V. Mortar, N. 20.) In ſome parts of *Kent* they have a way of laying Tyles in *Moſs*; when the Workmen get the Moſs themſelves, they are allow'd 2 *d.* in Square the more for their Work. But an old Workman of theirs condemns this way of Tyling with Moſs; for he tells me, that in windy wet weather, when the Rain, Snow, or Sleet is driven under the Tyles (in the Moſs) if there follow a Froſt while the *Moſs* is wet, *it* then freezes and raiſes the Tyles out of their places.

8. *With Pan-tyles.*] Theſe Tyles are for the moſt part laid dry without any Mortar; yet ſometimes pointed within ſide.

The Laths whereon they hang, are 10 or 12 Foot long, an Inch and a half broad, and an Inch thick. They are usually sold at 2 *d.* or 3 *d.* the Lath, or at 10 or 13 *s.* the Hundred.

The Gage for nailing on these Laths (with 4 *d.* Nails) is ten Inches and a half, and the breadth of a Tyle when laid 8 Inches; whence about 170 Tyles will cover a Square, (or 100 Foot of this kind of Tyling.

A great Covering with these spends but little Mortar (if pointed) and but little time in laying. Mr. *Wing* reckons it worth about 1 *s.* 8 *d. per* Square, Workmanship.

9. *Of its Weight.*] V. Horsham-stone, N. 4.

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## *Valleys.*

THE Gutters over the Sleepers in the Roof of a Building, V. Gutters.

## *Vault.*

A Cellar Arched over.

## *Under-pinning.*

1. *What.*] By this *Term* is meant, the bringing it up with Stones under the Ground-sells of a Building. Sometimes it signifies the Work it self, when done.

2. *Price of.*] In several parts of *Sussex*, I know the usual Price (for the Workmanship only) is 1 *d. per* Foot Superficial. In some parts of *Kent* they have three Half-pence *per* Foot. In some places 'tis the Custom (in Measuring it) to take in half the Sell into their Measure.

## *Volute,*

The Spiral Wreath, or Scroll in the Capital of the Ionick Column, V. Capital, N. 4.

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## *Wainscot,*

THE Pannel'd Work round (against the Walls of) a Room.

## *Wainscotting.*

1. *What.*] The making, and setting up of Wainscot is call'd *Wainscotting.*

2. A *Note* in—] Some Joyners, (as I am inform'd,) put Charcoal behind the Pannels of their Wainſcot, to prevent the Sweating of Stone, and Brick-walls from Ungluing the Joynts of the Pannels, which otherwiſe, (eſpecially in ſome places) 'tis very apt to do; and others make uſe of Wool in the ſame manner, and for the ſame purpoſe; yet neither of theſe ways will prevent their ungluing in ſome Houſes: But the moſt effectual way to prevent it, is by priming over the Back-ſides of the Joynts well with *White-lead*, *Spaniſh-brown*, and *Linſeed-oyl*.

3. *Of Meaſuring.*] Wainſcot is generally meaſur'd by the Yard ſquare, *i. e.* 9 Superficial Feet. Their Cuſtom is to take the Dimenſions with a String, preſſing it into the Mouldings; for they ſay, (and 'tis but Reaſon,) we ought to be paid for all where the Plain goes.

Therefore when Joyners would take the Dimenſions of a Room they have Wainſcotted; they take up a Line on the top of the corner of the Room, and as they carry it down to the bottom, they preſs it (with their Fingers) into all the Mouldings; this they account the *breadth*, and (they meaſure) the Circumference of the Room from the *length*: Some Joyners will meaſure this alſo with a String, but others do not. The Dimenſions being thus taken in Feet, they multiply the length by the breadth, and the Product is the Content in Feet; which being divided by 9, the Quotient is the Content in Yards. But——

Note, (1.) That you muſt make Deduction for all *Window Lights*, and meaſure the *Window-boards*, *Cheeks*, and *Saphetæ's* by themſelves.

(2.) That for *Window-ſhutters*, *Doors*, and ſuch things as are wrought on both ſides, they reckon *Work and half*; for indeed the Work is half more.

(3.) That *Corniſhes*, *Baſes*, and *Sub-baſes* are ſometimes meaſur'd by the Foot Lineal Meaſure; ſo alſo are *Freezes*, *Architraves*, and *Chimney-pieces* meaſur'd; unleſs agreed for by the Great.

4. *Price of*—] The Price of *Wainſcotting* is various, according to the variety of *Stuff* and *Workmanſhip*.

Wainſcotting with *Norway Oak*, the Workman finding Stuff, is worth 6 or 7 *s. per* Yard. The Workmanſhip only is about 2 *s.* in *London*, in *Rutland* 3 *s.* 6 *d.* or 4 *s. per* Yard; and if the Mouldings are large, 5 *s.* ſays Mr. *Wing*.

Plain-ſquare Wainſcotting, (the Workman finding Deal) is worth 3 *s.* or 3 *s.* 6 *d. per* Yard. For only Workmanſhip about 1 *s. per* Yard.

Ordinary Biſection Wainſcotting, (the Workman finding Deal) is worth in *London* 3 *s.* 6 *d.* in the *Countrey*, 4 *s.* 6 *d.*

*per* Yard. The Workmanſhip only about 1 *s.* 6 *d. per* Yard.

Large Eiſection-work is worth 6 or 7 *s. per* Yard of Dantzick Stuff.

5. *Of Painting of Wainſcot*,] V. Painting.

## *Walls.*

I. *What.*] By this Term in Architecture is meant the *Incloſures* of whole Houſes, or particular Rooms; as alſo of Gardens, Orchards, *&c.* if made of Brick or Stone.

II. *Kinds of*—] There are ſeveral kinds of Walls, diſtinguiſhable by different Names, according to the ſubſtance whereof they are made, as *Plaſter'd* or *Mud-walls*, *Brick-walls*, *Stone-walls*, *Flint*, or *Boulder-walls*, and *Boarded walls*; of all which I ſhall diſcourſe in the following Numbers.

III. *Plaſter'd, or Mud*—] Theſe kind of Walls are common in Timber Buildings, eſpecially of ordinary Buildings; for ſometimes the Walls are made of Brick betwixt the Timber: But this is accounted no good way; becauſe the Morter corrodes and decays the Timber.

Theſe Mud walls (as they are call'd in ſome places) are thus made. The Walls being quarter'd and Lathed between the Timber, (or ſometimes Lathed over all) are Plaſter'd with *Lome*, (V. *Lome*, alſo, V. Mortar, N. 8. and 11.) which being almoſt dry is Plaſter'd over again with *white Mortar*, (V. Mortar, N. 4.)

This kind of Work is commonly meaſur'd by the Yard. For the Price of it, V. Pargeting, N 2. and Plaſtering, N. 1.

IV. *Brick*—] Here I ſhall ſay ſomething

1. *Of Building them*,] And here are ſeveral things to be conſider'd and taken notice of; as firſt, That all *Walls* ought to be moſt exactly Perpendicular to the Ground-work; for the right Angle (thereon depending) is the true cauſe of all *Stability*, both in Artificial and natural Poſitions, a Man likewiſe ſtanding firmeſt when he ſtands uprighteſt.

*Secondly*, That the maſſieſt and heavieſt Materials be the loweſt, as fitter to bear than to be born.

*Thirdly*, That the *Walls* as they riſe, diminiſh (proportionally) in thickneſs, for eaſe both of Weight and Expence.

*Fourthly*, That certain Courſes, or Ledges (or Quoins) of more ſtrength than the reſt, be interlay'd like Bones to ſtrengthen the whole Fabrick.

*Fifthly*, That (all along) care be taken in *laying* the Bricks, concerning which, V. Bricks, N 8.

*Sixthly*, That the *Angles* be firmly bound, which are the Nerves of the whole Edifice. And therefore in working up the *Walls* of a Building, do not work any Wall above 3 Foot high

high before you work up the next adjoyning Wall, that ſo you may joyn them together, and make good Bond in the Work: For 'tis an ill Cuſtom among ſome Bricklayers, to carry, or work up a whole Story of the Party-walls, before they work up the Fronts, or other Work adjoyning, that ſhould be bonded, or work'd up together with 'em, which occaſions cracks and ſetlings in the Walls.

*Seventhly*, That if you build (a Houſe) in the City of *London*, you muſt make all your *Walls* of ſuch thickneſſes, as the *Act of Parliament* for Re-building of the ſaid City enjoyns; (which *Act* you may ſee in *Houſe*, N. 4.) but in other places you may uſe your Diſcretion; yet for ſome Directions in this Matter, V. Houſe, N. 3.

*Eighthly*, It may be worth your Notice, that a Wall of a Brick and half thick, with the Joynt, will be in thickneſs 14 Inches, or very near; whence 150, or 160 Bricks will lay a Yard Square, meaſur'd upon the Face of the Building, and to the Square of 10 Foot (which is 100 ſquare Feet) are uſually allow'd 1700, or 1800 Bricks, and 4600, or 5000 Bricks will compleatly lay, (rect, or build one Rod, Pole, or Perch ſquare; which Rod, Pole, or Perch, (for by all theſe Names 'tis call'd) contains in length, (according to the Statute) 16 ½ Feet; whoſe Square is 272 ¼ Feet, ſuperficial Meaſure, which is 30 Yards and a quarter.

But tho' I have here laid down the number of Bricks for each of theſe Squares, yet theſe Numbers are not to be rely'd on as abſolutely exact; for no exactneſs can be diſcover'd as to this Particular, and that for ſeveral Reaſons: For tho' the Bricks were all made in the ſame Mould, and burnt in the ſame Kiln, or Clamp; yet the Nature, or Quality of the Earth whereof they are made, (whereby ſome ſhrink more than other ſome,) and the Bricklayers Hand and Mortar, may cauſe a conſiderable variation, and beſides ſome Bricks are warp'd in burning, (whereby they will not lie ſo cloſe in the Work,) ſome miſcarry, (or are broken,) in every Load, or 500 Bricks, and the Tally, or Tale is (for the moſt part, if not look'd after) too little: And beſides all theſe Uncertainties, when Bricks are dear, and Lime cheap, the Workman (by the Great) will uſe more Mortar, and make the ampler Joynts, which is much worſe for the Building.

*Ninthly*, It may be alſo noted, that (when all Materials are ready) a Workman with his Labourer will lay in one day 1000 Bricks, and ſome 12 or 1500.

*Tenthly*, All Brick-work, according to theſe Rules, is ſuppos'd to be one Brick and half thick, which is the Standard Thickneſs. If they are thicker, or thinner, they muſt be reduc'd to that thickneſs, as ſhall be ſhewn how in the next Section of this Number.

1. *Of Measuring them.*] Bricklayers most commonly Measure their Walls by the Rod square, each Rod, Pole, or Perch, (for by all these Names 'tis call'd) being (by the Statute) 16 ½ Foot long; so that a square Rod contains 272 ¼ Superficial Feet.

Therefore, having taken the Dimensions, (*viz.* the length, and heighth) of a Wall in Feet, they multiply the length by the heighth, (V. Cross-multiplication, N. 2.) and divide the Product by 272 ¼, and the Quotient shews the number of square Rods in the Superficies of that Wall. But it being something troublesome to divide by 272 ¼, Workmen commonly have a Custom to divide by 272 only, which gives the Content something more than the Truth, which notwithstanding they take for it.

Having thus found the Area, or Content of the whole Superficies of a Wall, they next consider his Thickness; for they have a certain Standard Thickness, to which they reduce all their Walls, and this Standard is *one Brick and a half thick*, as they phrase it, (*i. e.* the length of one Brick, and the breadth of another,) so that a Wall of 3 Bricks (length) thick of the same height and length with another of 1 ½ Brick thick, the former will contain twice as many square Rods as the latter.

Now, to reduce any Wall to this Standard Thickness, take this plain and easie Rule: Say, as 3 is to the thickness of the Wall in half Bricks, [that is in the breadth of Bricks, the breadth of a Brick being always ½ his length,] so is the Area before found, to the Area at their Standard Thickness of 1 ½ Brick.

Thus, if the Wall be all of one thickness from the Foundation to the top, it is easily reduc'd to the Standard Thickness of 1 ½ Brick. But if the Wall be of different thicknesses, (as in Brick Houses they commonly are, being made thickest below, and thinner at every Story,) then the best way is to measure every different thickness by it self, and reduce it to the Standard Thickness; then add all these several Area's into one Sum, out of which deduct the Doors and Windows (measur'd by themselves,) and so the Remainder will be the true Area, or Content of the whole Wall.

See more (concerning measuring of Brick Walls,) N. V. of this word, *viz.* in Fence-walls. Also, see *Brick-work*.

Note, In some Places 'tis the Custom to measure by the Rod of 18 Foot long, in others by the Rod of 16 Foot: In the former case, you must divide the Area in Feet by 324, in the latter by 256.

3. *Of their Price*] The Price of Building of Walls is various in different Places, according to the various Prices of Materials. Mr. *Leybourn* says, (and with him agrees Mr. *Hatton*,)

ton,) that the usual Price in *London*, for Building a Brick and half Wall, (the Workman finding all Materials,) is five Pound, or five Pound ten Shillings *per* Rod square. And for the Workmanship only 30 *s.* *per* Rod square, which is about 1 *s.* *per* Yard square.

Mr. *Wing* says, that the usual Price in *Rutland*, (the Workman finding all Materials,) is for a Brick and half Wall 3 *s.* *per* Yard square, [which is but about 4 *l.* 10 *s.* *per* Rod,] for a 2 Brick-wall 4 *s.* for a 2 ½ Brick-wall 5 *s.* *per* Yard Square. And for the Workmanship only (of a Brick and half Wall) 8 *d.* *per* Yard square, which is but about 20 *s.* *per* Rod, Statute Measure. So that you see Mr. *Wing*'s Prices are much cheaper than those about *London*; the Reason of which, I conceive proceeds from the Viliority of Commodities in his Countrey.

About us in *Sussex*, a Rod of Brick and half Wall, Workmanship and Materials, will cost at least eight Pounds. For the Workmanship only, the usual Price (about us) is 24, or 25 *s.* *per* Rod square in a Brick and half Wall.

It should seem, that in or about *London*, Workmen do sometimes find only Mortar and Workmanship in building of Walls; for says Mr. *Leybourn*,) if the Bricks are laid in at the Builder's Charge, then 2 *l.* 10 *s.* *per* Rod is the usual Price. But, (says he,) to erect new Structures, by taking down old Walls, it may be worth 3 Pounds, or 3 Pounds 10 Shillings *per* Rod; because in taking down the Walls, and clearing the Bricks, there is much Time spent, and also more Mortar used in laying them again, than in new Work.

V. *Fence*.] Walls built round Courts, Gardens, Orchards, *&c.* are commonly call'd *Fence-walls*. Of these, some are made of Stone, some of Flints, or Boulders, and some of Brick: Of the two former, I shall speak in the two following Numbers, *viz.* Num. 6 and 7. Of the latter I shall speak here, and therein I shall say something,

1. *Of their making.*] These are commonly made (of Statute Bricks) a Brick and half thick.

But in some parts of *Sussex* they are commonly made of a sort of great Bricks which are 12 Inches long, 6 Inches broad, and 3 Inches thick. I have very often discours'd with the old Man who first introduced, not only those sort of *Great Bricks*, but also their necessary Concomitants, *Pilaster* and *Coveing Bricks*, and the Method of making Fence-walls of 'em, V. P. Bricks, N 3. §. 4. 9. and 13.

These Walls are but the breadth of a Brick, (or 6 Inches) in thickness, only at the Pilasters, where they are the length of a Brick, (or 12 Inches thick.) They usually set a Pilaster at every 10 Foot. I know a Wall of these sort of Bricks, (of about 9 Foot high, that has been built near 30 Years, and stands very well.

2. *Of*

2. *Of Measuring them.*] Fence-walls built of Statute Bricks, are commonly measur'd, as is taught above, N. 4. §. 2. But I shall here add, that some Workmen which I know, measure 'em by the Rod in length, and 1 Foot in heighth, which they account a Rod of Measure. And in taking their Dimensions, they do it with a Line, going over the Pilasters; this for the length; so likewise for the heighth, they measure it (also) by a Line, going over all the Mouldings, (after the manner of Joyners Measuring their Work,) even to the top, or middle of the Coping.

I shall further add, that some Workmen (in Fence-walls of Statute Bricks) will, (if they can perswade their Master to it,) measure all that is above 1 ½ Brick thick, (*viz.* The Projecting of the Pilasters, or Buttresses, and all below the Water-table) by the solid Foot, which afterwards they reduce to Rods. But this way is a considerable advantage to the Workman, and a loss to the Master Builder; for it makes ⅛ part of Measure more than the Truth; because a Brick and half Wall is 14 Inches thick.

Fence-walls built of great Bricks, are generally measur'd by the Rod in length, and a Foot in heighth, (which they account a Rod of Measure,) the Dimensions being taken by a Line, as was said above.

3. *Of their Price.*] For the Price of Brick-walls, V. (above,) N. 4. §. 3. But some Workmen in *Sussex* reckon for Building of Fence-walls, (the Workmanship only) of Statute Bricks (a Brick and half thick) 1 *s.* 6 *d. per* Rod, at a Rod long, and a Foot high, taking their Dimensions by the Line, as was shewn how in the preceeding §. of this Number. Sometimes they build these kind of Walls by the Square of 100 Foot, at 8 *s. per* Square, which is but about 1 *d. per* (Superficial) Foot.

For Building of Fence-walls with great Bricks the common Price (for the Workmanship only) is 1 *s. per* Rod, at one Rod long, and one Foot high, the Dimensions taken by the Line, as above.

4. *Of Coping them.*] Fence-walls built of Statute Bricks, are sometimes coped with Stone, sometimes with Brick: If the former, the Coping is left out in the Measure, and rated by it self, for the Price of which, V. Coping, N. 2. If the latter, *it* is measur'd into the rest of the Work. And this kind of Coping is done thus; on one side the Wall is carry'd upright to the top, and on the other side there is 2 Courses of Bricks standing on end in an Oblique Reclining, or Slant Position, and a stretching Course on the top finishes the Wall.

But Fence-walls built of great Bricks, are coped with *Copeing Bricks*, of which, V. Bricks, N. 111. §. 3. And this Copeing is alſo meaſur'd and rated with the reſt of the Wall.

VI. *Stone*—] Stone-walls ſerve not only for Walls of Houſes, *&c.* but alſo for Fence-walls round Gardens, *&c.* Of theſe I ſhall ſay ſomething.—

1. *Of Meaſuring them.*] Theſe are in ſome places meaſur'd by the Rod of 18 Foot Square: But in moſt places (I think they are meaſur'd by the Foot Superficial. Concerning Meaſuring of Walls, there are theſe three things to be further taken notice of, *viz.* That if the length of the Walls at the *ends* (of a Garden, or Houſe) be taken on the out-ſide (of the Garden, or Houſe,) then the length of the Walls on the *ſides* (of the Garden, or Houſe,) ought to be taken on the in-ſide. (2.) That when the Walls of a Houſe are meaſur'd, the Doors and Windows are likewiſe to be meaſur'd, and deducted from the whole. (3.) That in Meaſuring Fence-walls, they commonly meaſure the heighth by a Line, (preſs'd into all the Mouldings) from the top of the Copeing, to the bottom of the Foundation.

2. *Of their Price.* Mr. *Wing* tells us, that Fence-walls, and Walls of ordinary Buildings, are each (only the Workmanſhip) from 16 *s.* to 3 *l.* 10 *s. per* Rod of 18 Foot Square, which (ſays he) depends upon the goodneſs of the Work. He alſo tells us, that the ſetting of Fronts in great Buildings, *viz.* Aſhlar, Architrave, Windows, and Doors, with the Ground-table, Faſhia's, and other Members, is worth from 3 *l.* 10 *s.* to 5 *l. per* Rod, which (ſays he) depends upon the heighth, and well performing of the Building. The Truth is, I don't well underſtand what he means by all this Tattle; for he never tells us any thing of the thickneſs of the Walls; and beſides 3 *l.* 10 *s. per* Rod, is but little above 2½ *d. per* Foot; and 5 *l. per* Rod, is but little above 3½ *d. per* Foot; either of which is certainly too little for ſuch Ornamental Work, as ſetting of Fronts in great Buildings. And then, for his Fence-walls, or Walls in ordinary Buildings; I can't ſee how the goodneſs, or badneſs of ſuch plain Work can vary the Price from 16 *s.* to 3 *l.* 10 *s. per* Rod; but ſurely it muſt be very ordinary Work that is worth but 16 *s. per* Rod, which is but little above a Half-penny a Foot.

Mr. *Hatton* talks much after the ſame manner; for, ſays he, one Foot of plain Work, (as Walls, *&c.*) is worth about 8 *d.* working and ſetting. He mentions nothing of the thickneſs neither.

But I ſhall leave theſe Authors in the dark, as they have left *us*, and proceed to tell *you*, what ſome experienced Workmen in *Suſſex* tell me; namely, That for building a 12 Inch Wall, they have 2 *d. per* Foot, for an 18 Inch Wall 3 *d.*

and

and for a Wall of 2 Foot thick, they have 4 *d. per* Foot. Theſe Prizes are to be underſtood of Walls that have 2 fair ſides; for if they have but one fair ſide, (the other ſtanding againſt a Bank,) they have a leſs Price; for in this caſe, I have known ſome Workmen build a Wall 2 Foot thick, for 2 ½ *d. per* Foot.

VII. *Flint, or Boulder*—] Walls of Flints, or Boulders, are much us'd in ſome parts of *Suſſex* and *Kent*, where I have ſeen, not only Fence-walls round Courts, Gardens, *&c.* but alſo Walls of Stables, and other Out-houſes built of them, which ſhew'd very handſome.

To build Walls of *Flint*, (ſays Sir *Henry Wotton*,) is, (as I conceive, ſays he,) a thing utterly unknown to the *Ancients*; who obſerving in that Material a kind of Metallick Nature, (or at leaſt a Fuſibility) ſeem to have reſolv'd it to nobler uſes; an Art now utterly loſt, unleſs perhaps kept up by Chymiſts.

Some Workmen tell me, that for building of Flint, or Boulder Walls, they uſe to have 12 *s. per* Hundred, (for ſo they phraſe it,) by which they mean 100 Superficial Feet; but I forgot to ask them at what thickneſs, or whether they have but one thickneſs for all their Walls. They alſo tell me, that a right and left handed Man fit well together for this ſort of Work; for they have a Hod of Mortar pour'd down upon the Work which they part betwixt them, each ſpreading it towards him ſelf; and ſo they lay in their *Flints*. They alſo tell me, that their *Mortar* (for this Work) muſt be very ſtiff, and that 'tis beſt to have a good length of Work before 'em; for they work but one Courſe in heighth at a time; for if they ſhould do more, it would be apt to ſwell out at the ſides, and run down. They alſo ſay, that in miſty Weather 'tis very difficult to make the Work ſtand.

VIII. *Boarded*—] Sometimes Walls are boarded, particularly the Walls of ſome Barns, Stables, and other Out-houſes. But of this kind of Work, V. Weather-boarding.

## *Walling.*

The making of Walls (of what kind ſoever) is call'd *Walling*. Therefore, for the Price, *&c.* of *Walling*, V. Walls.

## *Walnut-tree-painting.*

V. Paint N. 4.

## *Waſh houſe,*

A Room to Waſh in.

## *Water-table,*

In Stone, or Brick-walls, is a ſort of Ledge left in the Wall, ſome 18 or 20 Inches, (more or leſs) above the Ground, at which place the thickneſs of the Wall is abated, (or taken in) on each ſide the thickneſs of a Brick, (in Brick-walls,) namely, 2 Inches and a quarter; thereby leaving that Ledge, or Jutty, that is call'd a Water-table. Theſe Water-tables are ſometimes left plain, and ſometimes they are wrought with Mouldings; if the latter, (beſides the plain Meaſure of the Wall,) they are rated at ſo much *per* Foot, running Meaſure.

## *Water-courſes,*

Theſe are commonly rated by the Foot running Meaſure, *viz.* If the Workman find Materials at about 10 *d. per* Foot, if he find no Materials, at about 8 *d.*

## *Weather-boarding.*

1. *What.*] A Term of Architecture, ſignifying the nailing up of Boards againſt a Wall, (V. Walls, N. 8.) Sometimes 'tis us'd to ſignifie the Boards themſelves, when nail'd up. This Work is commonly done with Feather-edg'd-boards, (V. Feather-edg'd.) In plain Work they nail the thick edge of one Board, an Inch, or an Inch and half over the thin edge of another: But if the Work is to be a little extraordinary, they ſet an O--G on the thick edge of every Board.

2. *Price.*] The Price of plain Weather-boarding, (*viz.* fitting and nailing up the Boards,) is from 8 *d.* to 12 *d.* the Square, according to the length and breadth of the Boards, and Conveniency of the Place. But if the lower, (*viz.* the thicker) edge of the Boards be wrought with an O--G, it may be worth 18 *d. per* Square. This for the Workmanſhip only. But——

If the Workman find the Materials, (*viz.* Boards and Nails,) it may be worth 12, or 13 *s. per* Square, or about three Halfpence *per* Foot.

*Weather-*

## *Weather-tyling.*

1. *What.*] Is the Tyling, (or Covering with Tyles) the upright ſides of Houſes.

2. *Price.*] In ſome places Weather-tyling is done at the ſame Price as other plain Tyling. V. Tyling, N. 3. But in other places they have more, in conſideration of Scaffolding; for ſome Workmen tell me they have 4 *s.* *per* Square for Workmanſhip only.

## *Well-hole,*

The Hole left in a Floor for the Stairs to come up through.

## *White Painting.*

V. Painting, N. 7.

## *Wind-beam,*

The ſame as Collar-beam.

## *Windows.*

1. *What.*] Every one knows that Windows are thoſe parts of a Building that are made to let in the Light.

2. *Situation of*—] Concerning the Situation of Windows, obſerve, firſt, that they be as few in number, and as moderate in Dimenſions, as may poſſibly conſiſt with other due Reſpects: For in a word, *all openings are weakenings.* Secondly, Let 'em be placed at convenient diſtance from the Angles, or corners of the Building; becauſe that part ought not to be open and inſeebl'd, whoſe Office is to ſupport and faſten all the reſt of the Building. Thirdly, Beſure take great care that all the Windows be equal one with another in their Rank and Order; ſo that thoſe on the right Hand may anſwer to thoſe on the left, and that thoſe above may be right over thoſe below; for this Situation of Windows, will not only be handſome and uniform, but alſo (the *void* being upon the *void*, and the *full* upon the *full*,) it will be a great ſtrengthning to the whole Fabrick.

3. *Dimenſions of*—] In making of Windows, you muſt be careful, not to give them *more*, or *leſs* Light than is needful, that is, make them no *bigger*, nor leſs than is convenient; where-

wherefore you ought to have regard to the bigneſs of the Rooms that are to receive the Light; it being evident, that a *great Room* has need of a *greater Light*, and conſequently of a *greater Window*, than a *little Room*, *& è contra*.

The Apertures of Windows in middle ſiz'd Houſes, may be 4 ½, or 5 Foot between the Jambs, and in greater Buildings they may be 6 ½, or 7 Foot, and their heighth may be double the length at the leaſt. But in high Rooms, or larger Buildings, their heighth may be a third, a fourth, or half their breadth more than double their length.

Theſe are the Proportions for Windows of the firſt Story, and according to theſe muſt all the reſt of the Windows in the upper Stories be for their breadth; but for their heighth they muſt diminiſh: For the ſecond Story may be one third part lower than the firſt, and the third Story one fourth part lower than the ſecond.

4. *Price of making.*] Window-frames are uſually agreed for by the Light, (ſays Mr. *Leybourn*,) ſo that if a Window have 4 Lights, and it be double rabitted, (as the Workmen call it,) it may be worth 12 *s.* that is 3 *s.* a Light for Materials and Workmanſhip. But if the Builder find Timber and Sawing, then 1 *s.* a Light is fair.

Tranſom-windows, (ſays Mr. *Wing*) are worth making (for great Buildings) 1 *s.* 9 *d.* *per* Light, or 7 *s.* *per* Window. Some Workmen tell me, they make 'em for 12 *d.* 14 *d.* 16 *d.* or 18 *d.* *per* Light, according to their bigneſs.

Luthern Windows, (ſays Mr. *Wing*,) the making and ſetting up, is valu'd from 9 to 14 *s.* *per* Window, according to their bigneſs. Some Workmen tell me, that (if they ſaw the Timber) they commonly have 20 *s.* *per* Window.

Shop windows, (ſays Mr. *Leybourn*) will be afforded at the ſame rate as plain or batton'd Doors, V. Doors.

5. *Price of Painting.*] The Painting of Window-frames, (ſays Mr. *Leybourn*) is not uſually meaſur'd, but valu'd at 3 *d.* 4 *d.* or 6 *d.* *per* Light, according to their bigneſs, and Caſements at three Half-pence, or 2 *d.* *per* piece, and Iron-bars at 1 *d.* or more, if very large, V. Painting.

## *Withs*,

Theſe are us'd by Thatchers to bind their Thatching-rods to the Rafters. They are commonly ſold at 6 *d.* the Hundred, and a hundred of 'em will do about 3 Square of Thatching; for ſome Workmen tell me, that they uſe about 33, or 34 Withs, and as many Thatching-rods, (which are of the ſame Price with the Withs) in a Square; for they bind down their Straw at every Foot, or thereabouts, *viz.* at every other Lath;

Lath; (for they Lath but 2 Laths in a Foot,) and each Courſe of Thatching (bound down with one length of Rods,) is about 3 Foot in breadth.

## *Zacco,*

THE lower part of the Foot of a Column, (or of the Pedeſtal of a Column,) in the form of a ſquare Brick, or Tyle.

## *Zoporus,*

The ſame as Freeze.

*F I N I S.*