THE ORIGIN AND ANTIQUITY

Of our ENGLISH

WEIGHTS and MEASURES

DISCOVER'D.

By their near Agreement with such Standards that are now found in one of the EGYPTIAN Pyramids.

Together with

The Explanation of divers Lines therein heretofore meaſur'd.

By Mr. *JOHN GREAVES*,
ASTRONOMY PROFESSOR at *Oxford*.

AS ALSO,

Some Conjectures concerning the Time when theſe Pyramids were built; in Anſwer to certain Letters, *&c.*

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TO THE

SKILFUL READER.

THE *Standards in this* Pyramid *ſo nearly agreeing with our preſent* Engliſh *Meaſures, and with thoſe of the antient* Perſians, Greeks, *and* Romans, *deſerve the Conſideration of the Learned, as being in all Likelihood introductory to the Diſcovery of all other Matters of greater Importance. For 'tis ſcarce to be doubted that the Antients who thus carefully preſerved here their primitive Meaſures with ſo much Accuracy, would be leſs careful to leave behind them ſome Monuments of what other Arts their Wiſdom and long Experience had found out for the Benefit of Mankind. And how probable it is that the other* Pyramids *not yet opened may produce ſomething of that Nature, is not (methinks) very hard to gueſs. This gave me a Thought that theſe Papers, if publiſhed, might at one time or other become uſeful. But the true Origin of our* Engliſh *Meaſures, (a Thing not yet taken Notice of) and their great Antiquity here found,*

To the SKILFUL READER.

by their near Agreement with these most antient Standards, was a prevailing Motive with me not to conceal these Things; which I believe were, not only for the Service, but very much for the Honour of our English *Nation. Having therefore endeavour'd to give you a short Account of those primitive Rules, whereby, in old Times all Mens Rights and Properties were set forth, distinguish'd, and valu'd; and in what Measure they have been observed by our* English *Nation until this Day; it is now left to the Reader's Judgment, to determine what near Approaches I have made to Truth. I confess, here are some Conjectures which I will not say are infallible. And if they be erroneous, the Antiquity of our* English *Weights and Measures will not be thereby lessen'd; for tho' the* Pyramids *(according to the common Opinion) were built since the Flood, yet that these Weights and Measures are as old as* Noah *seems undeniable, from what I have said in Section* 10, *in Answer to the third Letter. Yet in these Matters I shall be willing to subscribe to their Opinion, that have more Learning and Judgment than I shall pretend to; whose favourable Acceptance of what I have done, and Pardon of such Faults as may be found herein, will be an Encouragement to,* &c.

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THE

THE ORIGIN

Of divers *English*

WEIGHTS and MEASURES;

BEING

An Answer to the first LETTER, *&c.*

SIR,

§. 1. TOUCHING the great Antiquity of our *English* Nation (in old Times called *Saxons*) whom you affirm to be of the same Stock with the *Germans*, and those other Nations whose Language is a Dialect of the old *Teutonick*, nothing cou'd have given me more Satisfaction than your last on that Argument. And as to what you are farther pleased to add concerning our Ancestors, how firmly they adhered to their old Usages and Customs, and how carefully

and exactly they have preſerved their moſt ancient Weights and Meaſures; be pleaſed to read what I here offer to your Conſideration, which, in my Opinion, very much confirms what you ſay. You find in Mr. *Greaves's Pyramidographia*, an exact Deſcription of that which he calls the firſt and faireſt of the *Egyptian* Pyramids. You have alſo ſeen the preſent Lord Biſhop of *Peterborough*'s learned Tract of Scripture Weights and Meaſures; wherein 'tis obſerved that one 4th Part of the Length of the exterior Superficies of the Tomb (ſuppoſed to be the Tomb of *Cheops* or *Chemnis*) is equal to the antient *Ammah* or *Cubit* of 6 *Palms*. Then the whole Length thereof muſt be equal to 24 *Palms*, which by Mr. *Greaves*'s Meaſure is 7 Feet 3 Inches and a half, by the *Engliſh* Standard, conſequently the Length of the antient *Palm*, according to this Standard in the *Pyramid* is $3\frac{31}{48}$ Inches, or by the decimal Way 36,458333, &c. Alſo the *cubick Palm* contains 48,46078378 *cubick Inches* and Parts. Now, it ſeems very probable, that from this *Palm* (the Breadth of a Man's Hand) all the moſt antient Meaſures are derived; 6 of theſe make the antient *Ammah*, which in the Book of *Ezekiel* is ſaid to be a *Cubit* and a Hand's Breadth, being the Length of a Man's Leg, from the Bottom of the Heel to the Top of the Knee.

Knee. And by this Standard is $21\frac{7}{8}$ *Inches*, being ſhorter than the *Cairo Cubit* by 13 Parts in a Thouſand of an *Inch*, which, according to Mr. *Greaves* reduced into *Inch* Meaſure, is 21,888; whereas $21\frac{7}{8}$ in Decimals is 21,875, whoſe *Cube* is $10467\frac{271}{512}$, or in Decimals 10467,529296875. Then *Bath*, the 6th Part of this, is $1744\frac{1807}{3072}$ *cubick Inches*, or in Decimals 1744,588216145833, &c. *Hin* is the 6th of *Bath*; and contains 290,7647 *cubick Inches* and Parts. Our *Engliſh* Wine Pint, as we ſhall ſhew by and by, is the 10th Part of an *Hin*, or 60th Part of *Bath*, and contains *cubick Inches* and Parts 29,07647. Likewiſe the antient *Core*, equal to our *Engliſh* Corn Quarter, contains 10 *Epha*'s or *Baths*, which in *cubick Inches* is $17445\frac{1155}{3536}$, or in Decimals 17445,882161458333, &c.

§. 2. Theſe Things gave me the Curioſity to examine the other Dimenſions of the Tomb, and I find the Depth and Breadth of its Outſide are each of them by Mr. *Greaves*'s Meaſure 3 *Engliſh* Feet 3 *Inches* and 3 Quarters, or rather 39,7494 *Inches* and Parts, equal to 10,9027 *Palms*, whoſe Cube is 1296. Now there being 36 *cubick Palms* in *Bath*, it will follow that theſe 1296 *cubick Palms* are equal to 36 *Baths*, equal to the Cube of the Tomb's Breadth or Depth: This Cube, at 1000 Ounces to the *Bath*,

 holds

holds 36000 Ounces of Water, each Ounce about or near equal to the old *Roman* Ounce, equal to our *Avoirdupois* Ounce, equal to two *Jewiſh* Shekels; which 36000 Ounces are equal to our *Avoirdupois* Tun, for 36000 Ounces to the *Tun* at 16 Ounces to the Pound, comes to 112 Pounds and a half to the Hundred. And it being the Cuſtom of our Anceſtors to divide their Weights and Meaſures into Halfs, Quarters, 8th Parts, &c. To the End therefore that there might be no Trouble with Fractions or Parts of a Pound, the half Pound is taken from the Hundred, and added to it again in the Over-weight or Turn of the Scale, called Draught: For which half a Pound in the Hundred ſeems to have been the ancient Allowance, from which Over-weight 'tis probable, it had the Name of *Avoirdupois*. But 36000 Ounces to the *Tun*, at 18 Ounces to the Pound (which *Pound* is ſomething near equal to 120 *Attick* Drachms) comes to 100 Pounds to the Hundred even Ballance without Draught. For 100 times 18 Ounces *Avoirdupois* equal to the 20th Part of this *Tun* are alſo equal to 112 *Avoirdupois* Pounds and a half. By which it may ſeem *Exod.* 25, 39, 37, 24. 1 *Chron.* 39, 7. that this Hundred (ſomewhat near equal to the *Perſian* Talent mentioned by *Joſephus*, *Antiq. lib.* 3. c. 7. called *Kincbares*) had its Name from the Num-

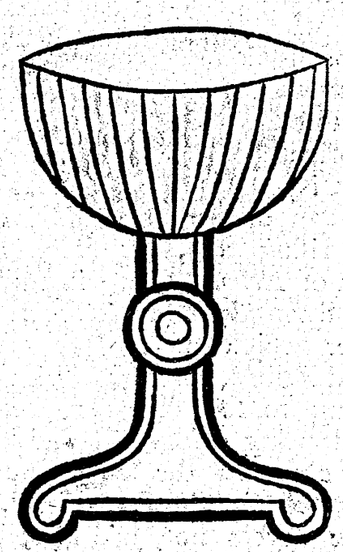
Number of *Minæ* or Pounds of 18 Ounces therein contained.

§. 3. Before we examine the Dimenſions of the Tomb's Cavity, wherein we may find ſome other Standards little different from our preſent *Engliſh* Meaſures, it will be fit to deſcribe the Figure of the Veſſels or Meaſures of Capacity, which are Standards for thoſe enſuing. We have found the Figure of that Solid which is the Standard for the antient *Tun* to be a *Cube*. And the Line, by which the Solidity of that *Cube* is found, is the Side of the ſame *Cube*, being the Breadth or Depth of the Tomb's Outſide. But the Solids which are Standards of ſuch Meaſures, whereof we are now to ſpeak, are of ſuch a Figure which may be called a regular *Polygon* of 24 Sides inſcribed in an *Hemiſphere*. And the Lines here found, by which we compute their Solidity, are the Axes of the ſeveral Spheres, within whoſe *Hemiſpheres* theſe regular *Polygons* are inſcribed.

§. 4. The Figure of ſuch Solids or Veſſels, which are Standards for the enſuing Meaſures, may be deſcribed as follows. Let a regular *Polygon* of 24 Sides be inſcribed in the great Circle of a Sphere. Let 12 other great Circles be deſcribed

upon the Sphere's Surface, repreſenting *Meridians* or Hour Circles, dividing the firſt great Circle into 24 equal Parts, each of theſe *Meridians* paſſing through the *Poles* of the firſt great Circle, and the angular Points of two oppoſite Angles of its inſcribed *Polygon*. Then let infinite Circles be deſcribed upon every Part of the Sphere's Surface parallel to the firſt great Circle, and in every of theſe Parallels, let a regular *Polygon* of 24 Sides be inſcribed, the 24 Angles of each *Polygon* touching the 12 *Meridians* before named; by which Means there will be an infinite Number of *Polygons* in one *Hemiſphere*, which will make the polygonious Figure intended. A Veſſel of this Figure may be repreſented to the Eye as follows. The Solidity of ſuch a Figure is equal to a *Pyramid*, whoſe *Baſe* is equal to the *Polygon* inſcribed in the great *Circle* of the *Sphere*, and its Height equal to the *Axe* of the *Sphere*, being equal to $\frac{2}{3}$ of a *Priſm* of the ſame *Baſe*, whoſe Height is equal to the *Sphere's Radius*, it will alſo be found, as 1 to 25881907, ſo the *Cube* of the *Axe* of the *Sphere* to the ſolid Content of this inſcribed *Polygon*. In this Figure the Brim of the Veſſel is in a great Circle at right Angles, with all the beforenamed *Meridians*; but if the Plane of its Brim had been in any other great Circle of

of the *Sphere*, the Content of the Veſſel had been the ſame.



§. 5. We ſhall find that every Dimenſion of the Tomb's Cavity is the *Axis* of a *Sphere*, within whoſe *Hemiſphere* ſuch an inſcribed *Polygon* is a Standard for ſome antient Meaſure of Capacity: For which Cauſe I conjecture that this Figure of a Veſſel in old Times was well known, and ſeems to be the ſame with that of the *Laver* in which the Prieſts in thoſe Days were uſed to waſh; which receives Confirmation by what may be gather'd from

from *Apion*, in *Joſephus cont.* Ap. " *Moſes* " (ſays he) as I have heard it ſpoken by the " moſt antient *Egyptians* was born at *Helio-* " *polis*, who, being inſtructed in the Faſhi- " ons of his Country, converted ſuchPrayers " which were wont to be ſaid in openPlaces, " and abroad, and cauſed them to be uſed " in private Cloyſters, ſuch as were within " the City, and ordained that in praying " they ſhould turn themſelves towards " the riſing Sun, for ſuch is the Situ- " ation of *Heliopolis*, and inſtead of *Obeliſks* " and *Pyramids* he erected certain Pillars, " under which there were certain engra- " ven'd Baſons, on which the Shadow hap- " pening to fall (the Place wherein they " ſtood being diſcover'd and in open Air) " they obſerved the ſame Courſe that the " Sun does in the Firmament." To this *Joſephus* agrees not, and ſays, he need not refute the ſame, by reaſon 'tis refell'd by the Effects. " For (ſays he) when *Moſes* built " that firſt Tabernacle in Honour of God, " he had no ſuch Intent, nor faſhion'd any " ſuch Form, nor ordain'd any of his Suc- " ceſſors to do the like. And after this, " when *Solomon* builded the Temple in *Je-* " *ruſalem*, he never thought of any ſuch " Curioſity as *Apion* forgeth." Why *Joſe-* *phus* ſhould ſay thus I can by no means ſee, being he acknowledges, *Antiq. lib.* 3. *cap.* 7.

7. that the Door of the Tabernacle looked Eaſtward; that the Altar ſtood before the Door of the Tabernacle. And, the brazen Laver, *Exod.* 30. 18. ſtood betwixt the Tabernacle and the Altar. And *Antiq. lib.* 8. *cap.* 2. *Joſephus* makes the right Side of the Temple to be Southward, and the left Side thereof Northward; from whence it appears that the Front of the Temple was towards the Eaſt. He likewiſe affirms, the brazen Sea of King *Solomon* to be an *Hemiſphere*, altho' in the Bible it does not appear to be ſuch. Yet 'tis plain, that *Joſephus* thought thoſe Veſſels in old Times were of that Figure. Alſo in the Time of the ſecond Temple, inſtead of the great Sea that was made by King *Solomon*, there ſeems to have been divers Lavers, or Baſon-like Veſſels, placed before the Altar; *Zachar.* 14. 25. And as touching the Pillars mention'd by *Apion*, we find 'tis very plain, *Exod.* 24. 4. that *Moſes built an Altar, and* 12 *Pillars, according to the* 12 *Tribes of Iſrael.* Neither is there any doubt to be made that the *Iſraelites* in *Egypt* did worſhip God privately and within their Cities; whereas *Abraham*, *Iſaac*, and *Jacob*, built Altars, and worſhipped in open Places abroad. Tho' it appears, that their Poſterity in *Egypt* durſt not do ſo for fear of the *Egyptians*, Exod. 8. 25, 26. *Shall we ſacrifice the Abomination of the*

the Egyptians before their Eyes, and will they not ſtone us? From hence it may not only be obſerved, how both *Joſephus* and *Apion* are of Opinion that the Lavers before the Altar were of an hemiſpherical or baſon-like Figure, but alſo the 24 Angles of this *Polygon* repreſent the 24 Hours of the νυχθήμερον. And 'tis probable the *Equator Tropicks* and other Parallels were deſcribed therein, to the end that the Prieſts might by the Sun's Shadow more eaſily diſcover how their *ſolar* and *lunar* Computations agreed with the Motions of the Luminaries. And perhaps theſe were the moſt antient Inſtruments that ever were uſed in Aſtronomical Obſervations. However, we may conclude, that this Figure of a Veſſel was in old Times of very famous and noted Uſe, which might be one Reaſon why the Standards of ſuch Meaſures (whereof we are now to ſpeak) are of that Figure. Yet 'tis poſſible there might be alſo other Reaſons for it, in as much as the Laver ſeems to be a Symbol of Innocency and Purity of Life. Thus *Pilate* waſhed his Hands before the Multitude, and ſaid, *I am innocent of the Blood of this juſt Perſon.* And *Pſal.* 26. 6. *I will waſh my Hands in Innocency*, &c. Likewiſe, *Exod.* 30. 19, 20. *&c.* The Prieſts before they went into the Tabernacle, and before they approached the Altar, to offer burnt Offerings, were to waſh in the brazen Laver leſt they died. Then if we allow Weights and Meaſures to be the Symbols of juſt and upright dealing with Men, and the Laver to ſignify Purity in the Sight of God, the Standards of theſe antient Meaſures here preſerved in the Figures of ſuch Veſſels may perhaps make up the Character of ſome excellent Perſon in thoſe Days here intombed.

§. 6. Proceed we now to examine the Dimenſions of the Tomb's Cavity, the Depth whereof by Mr. *Greaves*'s Meaſure is 2 Feet and 86 Centeſimals of a Foot, which may be 2,86045, equal to 9,415 Palms and Parts equal to the Axis of a Sphere, within whoſe Hemiſphere is inſcribed this *Polygon*, the Content whereof is 216 cubick Palms for the Cube of the Axis is 834,32, wherefore, 1, : 25881907 : : 834, 32 : 216 the Content of this Veſſel being 216 cubick *Palms*, equal to the *Egyptian Ardub*, equal to 6 *Baths*, equal to the *Cube* of the antient *Cubit*.

§. 7. Now 10 of theſe *Baths* being equal to the antient *Core*, which in the Book of *Ezekiel* is made the Rule of other Meaſures, (as hath been obſerved in Scripture Weights and Meaſures) then this *Core* muſt contain 360 cubick *Palms*, which divided by 64, the Number of Corn *Gallons* in our *Engliſh*

gliſh Corn *Quarter*, quotes 5,625, which in cubick Inches is 272,5919, very little different from Mr. *Oughtred*'s Eſtimate of the Corn *Gallon*, who makes it to be 272 cubick Inches and a quarter. Here we may ſee by the *Cubit* on this Tomb, being one 4th Part of the Length of its exterior Superficies, and alſo by the Content of this *Polygon* how near our *Engliſh* Corn *Quarter* agrees with the antient *Core*, alſo with this Length of the *Cubit* being 21,875 Inches and Parts agrees the Side of the Cube of the antient *Tun*, which is both the Length and Breadth of the Tomb's Outſide. So that here are found three different Standards all agreeing in this Length of the *Cubit*.

§. 8. The Length of the Tomb's Cavity by Mr. *Greaves*'s Meaſure is 6,488 Feet and Parts, which by my Computation in Foot Meaſure is 6,487575, agreeing very well with Mr. *Greaves*, who does not give Account of theſe Meaſures to leſs than the thouſandth Part of a Foot. This is equal to the *Axis* of a *Sphere* within whoſe Hemiſphere is inſcribed this *Polygon* of 24 Sides, the Content whereof is 70 *Baths*, equal to 2520 cubick *Palms*; for the *Axis* of this *Sphere* being 6,487575 Feet and Parts, is equal to 21,35345 Palms and Parts, whoſe *Cube* is 9736,53. Therefore: 1 : ,25881907 : : 9736,53 :

: : 9736,53 : 2520, the true Content of this Veſſel equal to a great Beer *Tun*, or double *Tun*, containing 12 Beer *Barrels* of 36 *Gallons* to the *Barrel*; 2520 cubick *Palms* make 12212,175 cubick Inches, which divided by 432, the Number of *Gallons* in 12 *Barrels*, quotes 282,688, the Number of cubick Inches in the Ale *Gallon*, which is commonly reckoned at 282 cubick Inches. Here it may be obſerved, that 70 *Baths* make the double *Tun*, alſo 35 *Baths* the ſingle *Tun*, which is leſs than the *Tun* mention'd Section 2, by one *Bath*. The Reaſon whereof may be farther enquired into.

§. 9. The Breadth of the Tomb's Inſide, according to Mr. *Greaves*, is 2,218 Feet and Parts. This we take to be 2,2188158, which is within leſs than one Part in a thouſand of a Foot of Mr. *Greaves*'s Meaſure, and in *Palms* is 7,3028 equal to the *Axis* of a *Sphere*, within whoſe *Hemiſphere* is inſcribed this *Polygon* of 24 Sides, whoſe Content is 1008 cubick Palms and Parts; for the *Cube* of the *Axis* is in *Palms* 389,46; then : 1 : ,25881907 : : 389,46 : 100,8 the Content of this Veſſel in cubick *Palms*, equal to half a *Tierce* of Wine, or the 12th Part of a *Tun*; for 100,8 *Palms* in cubick Inches are 4884,847 which divided by 21, the Number of Wine Gallons in half a Tierce, quotes 232,

6117 for the Wine Gallon, which we commonly eſtimate at 231 cubick Inches; whereby it ſhould ſeem that our Wine Meaſure differs from theſe antient Standards more than any other *Engliſh* Meaſure, yet not ſo much as 3 Pints and a half in a Hogſhead, which in ſo many Ages might very well happen.

§. 10. According to this Meaſure the Wine Pint is the 10th Part of the antient *Hin*, there being 60 Wine Pints in *Bath*. And the Wine Tun is leſs than the *Avoirdupois* Tun by one Part in 15 (the Reaſon whereof another time may be worth our Enquiry) then it will be,

As 15 to 14. So the old *Tun* to the Wine *Tun*.

As 15 to 14. So *Ardub* to the Wine *Tierce*.

As 36 to 35. { So the old *Tun* to the Beer *Tun*. / So *Ardub* to the Beer *Barrel*.

As 25 to 24. { So Beer *Tun* to the Wine *Tun*. / So Beer *Barrel* to the Wine *Tierce*.

There is in this *Pyramid* Standards of divers other Weights and Meaſures, as alſo the true antient Eſtimate of the Weight of Water, which will be a farther Confirmation of the Origin and Antiquity of theſe our *Engliſh* Meaſures,

SIR, *Your's*, &c.

The Time when the Egyptian *Pyramids were built.*

In Anſwer to the ſecond Letter.

SIR,

§. 1. IT ſeems reaſonable to believe that you have made a very probable Conjecture concerning the Antiquity of theſe *Pyramids*. Yet as you are pleaſed to obſerve, 'tis the common received Opinion that they were built by certain *Egyptian* Kings after the Deluge, which is grounded upon the Authority of *Herodotus*, *Diodorus*, and their Followers. And upon this Account it is that Mr. *Greaves* places their Founders in the 20th *Egyptian* Dynaſty, in the Time when the Judges ruled in *Iſrael*, becauſe theſe antient Writers make *Cheops* or *Chemnis* to be the Founders of the firſt *Pyramid*; *Chabris* or *Cephren*, the Son or Brother to the former King, to be the Founder of the ſecond *Pyramid*; and *Mecherinus* the Son of *Chemnis* the Founder of the third *Pyramid*. Now, ſays Mr. *Greaves*, if Credit may be given to *Herodotus* and *Diodorus*, we may with much Certainty place theſe Kings

betwixt the Reign of *Amenophis* the laſt King of the 18th Dynaſty, (ſuppoſed to be coetaneous with *Moſes*,) and the Reign of *Vaphres* or *Hophra*, the 8th King of the 26th Dynaſty, coetaneous with *Hezekiah*; for both of them deſcribe the Founders of theſe *Pyramids* to have reigned many Ages before *Vaphres*, and long after *Soſoſtres* the Great, who is ſuppoſed to be the Son of *Amenophis* beforementioned. But in the Dynaſties of *Manetho* the Names of *Cheops* or *Chemnis*, *Cephren* or *Chabris* and *Mecerinus* are not found. And all the intermediate Dynaſties between *Amenophis* and *Vaphres* have their peculiar Kings, except the 20th, which has the Names of no Kings aſſign'd it; wherefore Mr. *Greaves* conjectures, that theſe Kings muſt belong to that Dynaſty.

§. 2. Yet *Diodorus* ingeniouſly confeſſes, that there is little Agreement either amongſt the Natives or amongſt Writers, concerning the Founders of theſe *Pyramids*. And *Pliny*, after he has recited the Names of many Authors that have deſcribed them, concludes, *Inter omnes eos non conſtat a quibus facta ſint*.

§. 3. And as touching the Authority of *Herodotus*, let us hear the learned *Scaliger*, *Canon Iſagog. lib.* 3. Either (ſaith he) the Perſons who gave

gave him his Intelligence were ignorant themſelves, or elſe, like true *Egyptians*, they were cunning enough, but impoſed upon *Herodotus* being a Stranger, and unacquainted with their Artifices, or elſe he did not underſtand his Interpreter, or was deceived by him; or laſtly, *Herodotus* might have ſo much of a *Grecian* in him, as to adulterate the true Hiſtory with ſome Fables of his own. Wherefore he rather adheres to *Manetho* than *Herodotus*, as to the *Egyptian* Hiſtory. And it appears very plain in Mr. *Greaves*'s *Pyramidographia*, that both *Herodotus* and divers of his Followers are guilty of many groſs Errors, in their Deſcriptions of theſe *Pyramids*; even in ſuch Things whereof they pretend to be Eye-witneſſes, which ſufficiently ſatisfies me, that his Authority is not to be confided in: For if I cannot truſt him in in ſuch things whereof he pretends to be an Eye-witneſs, I have leſs Reaſon to credit him in ſuch Matters which he pretends to no farther Knowledge of than from ſome obſcure *Egyptian* Traditions, or uncertain Conjectures of his own. Yet there are ſome will have it, that *Herodotus* did not firmly believe the Stories he tells, but took them on Truſt himſelf, and ſo delivered them to the World. Others impute it to his Ingenuity, that he calls his Books of Hiſtory by the Names of the *Muſes*, on purpoſe to tell his Readers, that they muſt not look for

meer Hiſtory in him; but a Mixture of ſuch Relations, which, tho' not true, yet might pleaſe and entertain his Readers. However, there is nothing to be found either in *Herodotus*, or any *Greek* Writer, that can be confided in, touching the Time when theſe *Pyramids* were built. But,

§. 4. Mr. *Greaves* mentions certain *Arabian* Traditions about the Founders of theſe *Pyramids*; and amongſt others *Ibn Abd Alhoklm* diſcourſing of this Argument, confeſſes that he could not find amongſt the Learned in *Egypt* any certain Relation concerning them; wherefore, what is more reaſonable (ſaith he) than that the *Pyramids* were built before the Flood, for if they had been built after, there would have been ſome Memory of them amongſt Men; at laſt, he concludes, the greateſt Part of Chronologers affirm, that he which built the *Pyramids* was *Saurid Ibn Salhonk*, the King of *Egypt*, who was before the Flood 300 Years. The ſame Relation Mr. *Greaves* affirms himſelf to have found in ſeveral others, that *Saurid* was Founder of the three firſt *Pyramids*. The Author of the Book intitled, *Morat Alreman* writes of divers different Opinions concerning them; he ſays alſo, that the *Sabeans* will have one of them to be the Sepulchre of *Shiit*, that is *Seth*; and the ſecond the Sepulchre

chre of *Hermes*, and the colour'd one the Sepulchre of *Sab*, from whom they are called *Sabeans:* Wherefore your Opinion concerning the Time when theſe *Pyramids* were built, in ſome Meaſure agrees with theſe *Arabian* Traditions, which likewiſe ſay, all Sciences are to be found within them inſcribed in *Hieroglyphicks*. And by what is already diſcover'd, it may ſeem that there is more ſtill to be found, which muſt be left to the Enquiry of future Ages; when the other *Pyramids* come to be open'd, and ſome Vaults and Compartments which 'tis probable are ſtill to be found in this. And 'tis probable there are ſubterraneous Paſſages from the firſt to the two next *Pyramids*, or a Paſſage into the Hollow of that huge *Sphinx*, whereof Mr. *Greaves* ſpeaks, which, together with divers Reaſons we have to believe that the *Pyramids* were built before the Flood, makes the *Arabian* Traditions concerning their Founders the more credible. And may it be conſider'd, that

§. 5. *Manetho* in *Euſebius* affirms, That he took his Hiſtory from ſome Pillars in the Land of *Seriad*, in which they were inſcribed in the ſacred Dialect by the firſt *Mercury Thoyth*; and after the Flood were tranſcribed out of the ſacred Dialect into the *Greek* Tongue in Hieroglyphick Characters, and

are

are laid up amongſt the Reveſtries of th *Egyptian* Temples: By this I ſuppoſe was hi Name by interpretation in *Greek Agathodæmon*, the ſecond *Mercury* the Father of *Tat*. *Manetho* has been very hardly cenſur'd for pretending to take his Hiſtory from theſe Pillars of *Thoyth*. But it ſeems to me very unlikely that he ever deſign'd to be ſo underſtood; but rather that the Books from whence he took his Hiſtory bore ſuch a Title, as *Euſebius* gives us, out of this *Egyptian* Writer, which might be to this Effect. Inſcriptions on the Pillars in the Land of *Seriad*, in which they were written in the ſacred Dialect by the firſt *Mercury Thoyth*, &c. for the right underſtanding this Title, and the Reaſon of it, we may do well to conſider the Origin and true Nature of *Hieroglyphicks*, which I take to be as follows. It pleaſed God in old Times to reveal himſelf to the Prophets by dark and obſcure Viſions, conveying divers things to their Underſtanding by ſuch viſible Objects, as had a certain Likeneſs or Reſemblance of the things they repreſented; the right Underſtanding whereof in thoſe Days was thought a Piece of Wiſdom, and may be ſuppoſed to be the Origin of that antient way of expreſſing Things by *Hieroglyphicks*. Some Footſteps whereof may be found in the Books of the holy Scriptures, eſpecially in the *Apocalypſe*, from

form whence it appears that *Hieroglyphicks* may be expreſſed by Letters, Words, and Sounds, as well as by the Similitudes and Images of viſible Objects. As *Nebuchadnezzar*'s Viſion is as well expreſſed by the Words of *Daniel*, as by ſuch an Image as the King ſaw in his Dream. The like may be ſaid of the Beaſts that we read of in that Book, and in the *Revelations*, which obſcure way of expreſſing Things in the firſt Ages of the World, when the Earth was of one Language, was practiſed by the Wiſe and Learned; to whom it ſeemed good, not to expoſe every thing they knew to the Eyes of the Vulgar, who could not reliſh ſuch Matters that were too ſublime for their otherwiſe diſpoſed Thoughts; but rather to teach them only ſuch things that were the moſt neceſſary and moſt convenient for them to know. Much of their Knowledge at the ſame Time being concealed by an obſcure way of Writing or Speaking, which by King *Solomon* is called the *The Wiſdom of the Wiſe, and their dark Sayings*. An obſcure Way of expreſſing Things was alſo uſed by the *Egyptians*, tho' perhaps very different from that of the Antients; yet ſome ſuch like Way they had, as appears by the Title of their Books in *Manetho*; which are ſaid to be tranſlated out of the ſacred Dialect into the *Greek* Tongue in Hieroglyphick Characters, by which 'tis impoſſi-

impoſſible to underſtand any other thing than ſuch an obſcure Way of Writing before-mentioned. Now all the moſt antient Learning amongſt the *Egyptians* is attributed to the firſt *Mercury*, *Thoyth*, called *Triſmegiſtus*, who was before the Flood, and is ſaid to be the ſacred Scribe to *Oſiris*. The *Phœnicians* called him *Tautus*, and made him chief Counſellor to *Saturn*. *Jamblicus* ſays, the *Egyptians* attributed all their Books to him, becauſe he was reputed the Father of Wit and Learning. This Learning of his they ſuppoſe was inſcribed on certain Pillars, and ſo preſerved during the Flood; after which, and the Confuſion of Languages there was a general Decay of Learning in the World, at which time there was another *Oſiris*, a great King of *Egypt*, perhaps *Miſrain*. There was alſo in thoſe Days a ſecond *Hermes* or *Mercury*, who was a great Reſtorer of Learning amongſt the *Egyptians*. This Man was ſuppoſed to tranſlate and interpret theſe Inſcriptions on the Pillars of *Thoyth*. To him likewiſe they attributed many new Arts, as the interpreting of Languages, the Invention of their new Letters, and the like. Wherefore theſe *Egyptian* Books of *Manetho* are in the firſt Place attributed to *Thoyth*, as the Father of Wit and Learning, for him they made the Author of all their Books, as ſays *Jamblicus*; but whereas theſe Books were tran-

tranſlated out of the ſacred Dialect into the *Greek* Tongue in Hieroglyphick Characters; the ſecond *Mercury* (as being the firſt Inventor of Letters after the Flood, and Interpreter of Languages) muſt have the Honour of that; wherefore the tranſcribing and tranſlating of theſe Books (in like manner as we call warlike Affairs, Martial; and witty Inventions, Mercurial) belongs to him. This I take to be the Expoſition and Reaſon of the Title of thoſe Books from whence *Manetho* took his Hiſtory. Whereby it appears, that according to the Tradition of the old *Egyptians*, the Pillars of their firſt *Hermes* or *Mercury* were built before the Flood. And as touching the Teſtimony of *Manetho*, we may conſider,

§. 6. That the *Egyptians* were a very antient and learned People, which is undoubtedly true from the Teſtimony of holy Scripture, where, in the Book of *Iſaiah*, the Counſellors of *Pharoah* are called, *wiſe Counſellors*, and he is called, *the Son of the Wiſe*, and *the Son of antient Kings*. And we find it the Commendation of ſuch a Man as *Moſes*, to be *ſkill'd in the Learning of the Egyptians*, which in the Days of King *Solomon* was made the Standard of all human Wiſdom, as appears by the Compariſon that is made betwixt their Wiſdom and his, and what

what Time the Learning of the *Greeks*, tho' about the Days of *Homer*, was not worth taking notice of. But the *Egyptians* are ſaid, by *Strabo*, to have conceal'd their Learning under many Symbols, and were not eaſily drawn to unfold it: Neither does it appear that the moſt myſterious Parts thereof were ever known to Foreigners. And 'tis probable after ſuch time as they were conquer'd firſt by the *Perſians*, and after that by the *Greeks*, their Nobility (which were alſo their Prieſts, in whoſe Books and Breaſts their antient Learning was locked up) being much decay'd, if not almoſt ruin'd, I ſay, 'tis very probable after theſe great Alterations, that the latter *Egyptians* ſcarce underſtood their antient Learning, for which cauſe they have been eſteem'd fabulous in whatever they wrote. Inſomuch, that *Joſephus* ſaith, if that which they report were true, it were impoſſible that they ſhould ſo much differ; but they labour in the Invention of Lies, and write neither agreeable to themſelves nor to each other. And *Manetho* is thought by ſome to deſerve this from *Joſephus* as much as any of them. And the Truth is, his firſt Dynaſties of *Egyptian* Kings have but little Truth in them, unleſs we ſuppoſe many of them to be coexiſtent, and alſo at the ſame Time that there was one *Pharoah* or King over all *Egypt*. If this be ſo,

ſo, then he reckons ſeveral Dynaſties of their Princes which alſo were Prieſts inſtead of Kings; which 'tis likely was more than he deſigned. But if *Manetho* did ſo little underſtand his Books, yet we have at leaſt this Advantage by it, that what he writes concerning the Title of theſe Books, he ſets down as he finds it, not pretending to explain the Meaning thereof, which makes him in this Caſe the more authentick; and concerning the antient *Thoyth* it may be obſerved; that,

§. 7. The Memory of *Adam* (as ſome conjecture) was preſerved among the *Greeks* by the Name of Κρόνος or *Saturn*; and amongſt the *Egyptians* by the Name of *Oſiris*, whoſe ſacred Scribe was *Thoyth*, ſay the *Egyptians*: But the *Phœnicians* will have him Counſeller to *Saturn*, by either of which Names may be underſtood *Adam*. And the Name of *Seth* (as a late learned Man, (*Stillingfleet* in *Origines Sacræ*) has obſerved) was of common Uſe amongſt the *Egyptians*, as appears by *Plutarch de Iſide & Oſiride*. And in this very Place in *Manetho* where it follows ω Βίβλω Σώθεως, a Book bearing the Title, which according to *Vettius Valens Antiochenus* is not Σῶθις but Σώθ, and the Name of the Place, where ſtand the Pillars of *Seth*, is taken out of *Joſephus*, by *Euſtathius in Hexameron*,

ameron, and called Τετράδω, the very ſame with this in *Manetho* where ſtand the Pillars of *Thoyth*. Here then we find the Authority of *Manetho* confirmed by *Joſephus*, and that the *Egyptian Thoyth*, to whom they attributed all their Books, was *Seth*.

§. 8. We have already obſerved out of Mr. *Greaves*, that *Ibd Abd Alhokm* an *Arabian* Writer ſays, 'tis the Opinion of the greateſt Part of Chronologers that the *Pyramids* were built before the Flood by King *Saurid*, which he confirms out of *Egyptian* Books. And according to *Arabian* Traditions, one of the *Pyramids* is the Sepulchre of *Seth*. Now 'tis very probable, that the old *Egyptians* might call the Place where theſe *Pyramids* ſtood by the Name of their Founder, with which *Seriad*, the Name of the Place, where ſtood the Pillars of *Thoyth* or *Seth*, has ſome Affinity. And it ſeems probable that the *Pyramids* are the Pillars of *Seth*; not only from theſe *Arabian* Traditions that one of them is *Seth*'s Sepulchre, and the new Agreement of *Terra Seriadica* with the Land of *Saurid*, which 'tis likely in old Times was the Name of this *Lybian Sarra*, or Deſart, wherein theſe *Pyramids* ſtand; but for that there neither is, nor can it be found that there ever was, any other Monument in the World, made by the Art of Man able to

to endure ſuch a Deluge. So that either theſe are the very Pillars of *Thoyth* or *Seth*, or elſe there never was any ſuch in Being ſince the Flood. Contrary to theſe antient both *Egyptian* and *Jewiſh* Traditions, which are of too great Antiquity to be wholly neglected without ſufficient Reaſon. And if we view the Maſſineſs of theſe Structures, one of them covering near eleven Acres of Ground, and near a Furlong in Height; the Greatneſs of the Stones, ſome of them 30 Feet in Length; the Richneſs of the Materials, well poliſhed Marble hewn out of the Mountains of *Arabia*, the Cloſeneſs of the Joints, and exquiſite Truth of the Work, being as firm as the Rock upon which they ſtand; (ſpeaking of this Eaſtern *Pyramid*) Mr. *Greaves* ſays, The Structure of it has been the Labour of an exquiſite Hand, as appears by the Smoothneſs and Evenneſs of the Work, and cloſe Knitting of the Joints: A Property long ſince obſerved by *Diodorus* to have run through the whole Body of this *Pyramid*. And ſpeaking of a certain Gallery therein, ſaith, This Gallery or Corridore (or whatever elſe I may call it) is built of white and poliſhed Marble, which is very evenly cut in ſpacious Squares, or Tables; of ſuch Materials as is the Pavement, ſuch is the Roof, and ſuch are the ſide Walls that flank it; the Coagmentation

or Knitting of the Joints is ſo cloſe, that they are ſcarce diſcernable by a curious Eye. I ſay theſe Things conſider'd, we can take them for no other than the Works of thoſe long-liv'd Men before the Flood, that could undertake ſuch great Things with Hopes to ſee them finiſh'd. And ſome Reaſon may be given why theſe Men ſhould raiſe ſuch expenſive Structures, for having by Divine Revelation a Fore-knowledge of the Deluge, and finding the Vice and Wickedneſs of Youth to encreaſe more and more, left off the Care of their hopeleſs Offspring whom God would deſtroy, and endeavour'd to do ſomething for thoſe whom he would be graciouſly pleaſed to preſerve, and to perpetuate the Memory of their firſt Parents and Benefactors, by raiſing for them ſuch Monuments that might withſtand the Force of the Waters, and be ſupported againſt all the Injuries of Time; hoping alſo by this Means to preſerve ſo long as the World endures thoſe Sciences, which their long Experience had found out for the Good of Mankind.

§. 9. But after the Flood and Confuſion of Languages, when Mens Lives were ſhorten'd, and Death grew more common, when it was no Rarity for a Man to die as it had been during the firſt 1000 Years of the World, and all Fears of a future Deluge were

were over; why Men ſhould build ſuch huge expenſive Monuments for a few dead Men, to impoveriſh themſelves, and endanger the Ruin of their Poſterity, I can by no means ſee. King *Solomon* reigned over many Countries, was endued with Wiſdom from above, and erected many magnificent Structures; but all the Buildings of King *Solomon* put together, would not equal the Expence of one of theſe. *Diodorus* ſays, That the Greatneſs of the Work, and the Art of the Workmen ſtruck an Admiration in the Beholders. *Herodotus* ſaith, That altho' there was a Temple at *Epheſus* very renown'd and another at *Samos*, yet the *Pyramids* are more worthy of Relation; each of which ſingle might be compared with many of the moſt ſumptuous Buildings of the *Grecians*. Then ſurely, a vaſt deal of Treaſure would be conſumed in building ſo many, there being about twenty now ſtanding. If the old *Egyptians* had ever been fond of ſuch Works, they never had a better Opportunity for them, than when the *Iſraelites* were their Slaves. But we hear nothing of this Matter in thoſe Days; finding them hard at Work about Things more profitable and leſs expenſive. They made Bricks to build Treaſure Cities for *Pharoah*. Here is no Mention of hewing great Beams or Tables of Marble out of the *Arabian* Mountains; nor of employing Myriads of Men

to fetch these great Stones from so remote a Place; which would certainly have been spoken of, if such a great Task had been enjoyn'd them. But, instead of that, their Work lies at Home, except when they were scatter'd over the Land of *Egypt* to gather Stubble instead of Straw. Yet *Josephus* thinks the *Israelites* were employ'd in these Works; and any Man would think the same, that believe these *Pyramids* were founded by *Egyptians*: For if that were so, I can see no Reason why some of these mighty Structures were not erected whilst the *Israelites* were in *Egypt*, seeing those who follow *Herodotus*, *Diodorus*, &c. acknowledge that both before and after that Time, there were *Pyramids* built. And if we consider the Standards of our *English* Measures here found, which you have seen, and the Standards of such antient *Persians*, *Grecian*, and *Roman* Measures, which you shall see if you please, you will find it very hard to conjecture that they were all in Use amongst the *Egyptians*. And the best Reason that can be given, why they were expressed with so much Obscurity, that in all Likelyhood they might forever remain unintelligible, is, that the Contrivers of these antient Monuments had a Fore-knowledge by Divine Revelation, that in the latter Days they should be understood: Also the Figure of the

the Laver here preserved (in my Opinion) shews the Religion of their Contrivers, as plain as the Pattern of the Altar set up beyond *Jordan* shewed the Religion of the two Tribes and a half; which makes it appear that the Founders of these *Pyramids* were Worshippers of the true God, which 'tis certain the *Egyptians* were not; for their Religion was so contrary to that of the *Jews*, that they first worshipped those Beasts which they last sacrificed to God; insomuch, that the *Jewish* Sacrifices were an Abomination to the *Egyptians*. So that the *Egyptian* Priests were never employ'd in such Sort of Services in their religious Worship as the *Jews* were, neither were these Lavers or Basons (mentioned by *Apion*) in Use amongst the *Egyptians*; but are spoke of by him, as Things to which they were unaccustomed.

§. 10. I know, Sir, you will ask, how it comes to pass (if these *Pyramids* be the Pillars of *Seth*) that we find no Inscriptions upon them. To which I must say, that what is in these *Pyramids*, yet undiscover'd, I know not; but this I believe, that what Learning is here to be found, was also written upon Tables, or in Books, whose Title was *Inscriptions on the Pillars of* Seth. And that these were in the Time of the Deluge pre-

preſerved by *Noah*, and by him tranſmitted to Poſterity; from which Tables or Books, and not from the Pillars, the Poſt-diluvian World had their original Learning. Thus I have given you ſome Reaſons, why your Opinion may ſeem moſt probable concerning the Time when thoſe *Pyramids* were built; which do in ſome Meaſure confirm what you ſay.

SIR, *Yours*, &c.

Divers

Divers antient Weights and Meaſures whoſe Origin is from the Weight of Water, and from the Weight of Wheat.

ALSO

The Origin of our Engliſh *Land-Meaſure, and Foot-Meaſure.*

In Anſwer to the third Letter, *&c.*

SIR,

§. 1. WHAT you confirm concerning the Stature of Men, before the Flood, ſeems to be very true for the Reaſons you have given. And the Length of the Cavity of this Tomb, which is 6 Feet 5 Inches, and about 85 Centeſms of an Inch, confirms me in the Opinion, that

that the Stature of Men now is the ſame as at the Beginning of the World. And as touching the Invention of Weights we find that when Men began to multiply upon the Face of the Earth, and divers Arts were found out, they had alſo the Invention of Metals long before the Flood, which we may ſuppoſe introduced the Uſe of Weights, without which the Value of Metals could not be known. And that the Standards for other Meaſures might alſo be Standards for theſe, they take a Sort of Water, whoſe Weight was known to be conſtant and certain, and this is ſuppoſed to be Rain Water probably, at ſome certain Time of the Year in the oriental Countries, where it falls only at certain Seaſons; and with this Water they fill the Meaſure called *Bath*, whoſe Weight is made the fixed Standard for Matters of Gravity which we call Weights. This great Weight is decimally divided, the 1000th part whereof is an Ounce, whoſe half is equal to the *Jewiſh* Shekel. This Ounce, as appears in Scripture Weights and Meaſures, is about equal to our *Avoirdupois* Ounce, from whence proceed the moſt antient ſmall Weights; yet you are very much in the right, where you affirm that the lighteſt Sort of Rain-Water is heavier than 1000 Ounces to the *Bath*; for if ſuch a Meaſure be truly and exactly fill'd to the Brim it weighs

weighs more than 1000 Ounces. But 'tis not uſual to fill a Meaſure ſo full, neither can it conveniently be done in ordinary Uſe without ſpilling; ſo that when this Standard was inſtituted, the Meaſure was filled ſomewhat within the Brim, that is to ſay, 10 Ounces more would exactly fill it; which is demonſtrable by an antient Standard in this *Pyramid*, whereby it appears, that the true antient Eſtimate of the Weight of Water was 1010 Ounces to the *Bath*, when that Meaſure is exactly filled.

§. 2. After ſuch time as Weights became much in Uſe, there were divers new invented Meaſures both of Gravity and Capacity, which proceeded from the Ounce, as 12 of theſe Ounces made a Pound, from whence they computed by 10 s. 100 s. and 1000 s. of Pounds Weight. Alſo the Meaſure that held 10 Pounds of Water was by the *Romans* called *Congius*, the 6th part whereof was a *Sextary*, 8 *Congii* made *Amphoræ*, 20 *Amphoræ* made *Culeus*: Theſe were antient, and after the Rate of 10 Pounds to the *Congius*; their proportionable Weight in Water filled them exactly to the Brim, as appears by the Height of the Room wherein this Tomb ſtands, which I find to be a Standard for theſe Meaſures, and according to Mr. *Greaves* is 19 Feet and a Half; which 19 Feet and a Half,

or

or rather 19,500033 is the Axe of a Sphere within whoſe Hemiſphere is inſcribed the before named *Polygon* of 24 Sides, whoſe Content is 68435,64 cubick Palms; for 19 Feet and a Half in Palms is 64,184 whoſe Cube is 264415, then: 1 : ,2588 1907 :: 264415 : 68435,64 the Content of the *Polygon* equal to 100 *Roman Culæi*, equal to 16000 *Congii*; for the Content of this *Polygon*, which is 68435,64 cubick Palms and Parts turned into cubick Inches, is 3316444, 75; this divided by 16000 the Number of *Congii* in 100 *Culæi*, quotes 207,2778, much about equal to the Standard *Congius* of *Veſpaſian* now at *Rome*. And this 207,2778 cubick Inches and Parts exactly hold 10 Pounds of Water, after the Rate of 1010 Ounces to the *Bath*, which both ſhews the Antiquity of the *Roman* Meaſures, and that this was the Weight of that Water which was the Standard for all Meaſures of Gravity. This alſo very well agrees with what we find in Scripture Weights and Meaſures taken out of Sir *Jonas Moor*, founded in Experiments made by Dr. *Wyberd* and others, concerning the Weight of pure Rain or running Water, who ſuppoſe 1000 Ounces of ſuch Water will fill 1725,56 cubick Inches. But according to Doctor *Wyberd* (as Sir *Jonas Moor* affirms) 14 Pounds *Avoirdupois* are equal to 17 Pounds *Troy*, at which Rate the *Avoirdupois*

dupois Ounce is 437,1428 Grains and Parts *Troy*. Whereas according to the Experiment made by *Thomas Everard*, Eſq; and others in *February* 1696, in the Preſence of divers Members of the *Houſe of Commons*, when a Bill was depending in Parliament for laying a Duty upon Malt, as appears in his Book intitled *Stereometry*, &c. the 4th Edition printed in the Year 1703, the Standard Buſhel of *Henry* the 7th in the *Exchequer* filled with common Spring-Water, and the ſaid Water meaſured by a regular *Parallelepipedon* (whoſe Baſe was 4 Inches Square, and Depth 14 Inches) was found to contain 2145,6 ſolid Inches. The ſaid Water was alſo weighed by the Standard Weights in the *Exchequer* (by a Beam which would turn with 6 Grains with 30 Pounds in each Scale) and found to be 1131 Ounces and 14 Penny-weights *Troy*: At the ſame Time alſo, the Standard *Troy* Weights were compared with the Standard *Avoirdupois* Weights, and it was found that 15 Pounds *Avoirdupois* was equal to 18 Pounds 2 Ounces and 15 Penny-weight *Troy*; at which Rate the *Avoirdupois* Ounce is equal to 437,5 Grains and Parts *Troy*. Then according to Dr. *Wyberd*, if 1000 Ounces of Water at 437,1428 Grains and Parts to the Ounce will fill 1725,56 cubick Inches and Parts, then the ſame Number of Ounces at 437 Grains and a Half to

the Ounce will fill 1727 cubick Inches, which is much about 1010 Ounces to the *Bath*, for at that Rate 1000 Ounces fills cubick Inches 1727,315. Alſo by Mr. *Everard*'s Experiment 1000 *Avoirdupois* Ounces fill 1728 cubick Inches, from whence it may ſeem that our *Avoirdupois* Ounce of 437 Grains and a Half is nearer the Weight of the old Ounce equal to 2 *Jewiſh* Shekles than the *Roman* Ounce, which according to Mr. *Greaves* is 438 Grains *Troy*. By reaſon that the Water from whoſe Weight the moſt antient Weights are derived, is ſuppoſed to be Rain-Water, as is obſerved in Scripture Weights and Meaſures, which ('tis very likely) could not be heavier than the common Spring-Water, in Mr. *Everard*'s Experiment. Proceed we now to

§. 3. The Weight of Wheat which you take to be ſo various, that 'tis hard to conjecture the Antients ever derived their Meaſures from ſuch an uncertain Standard; yet we may conſider that the Cuſtom of weighing ſuch Grain is founded upon very good Reaſon, inaſmuch as the Goodneſs of Wheat well gathered, not damaged by Rain or other Caſualty, clean from Seeds or other Mixture, is better diſcover'd that Way than by the Eye or Hand. Likewiſe the true Quantity of a Heap of Wheat is beſt known by

by its Weight, for according to the uſual Way of meaſuring Wheat, a Quantity thereof can ſcarce be meaſured twice exactly alike; for (without great Care) it will ſometimes lie lighter, and ſometimes fall cloſer into the Meaſure, inſomuch that (as I am told) there is about the 10th Part Difference betwixt a Meaſure of Wheat ſhaked down together, and the ſame Meaſure of Wheat if lightly poured in; for which Cauſe 'tis common in divers Parts of *England* to keep Meaſures ſomewhat bigger than the Statute, that they may be ſure to hold out with the Standard. And for the ſame Reaſon ſome will have larger Meaſures ſtill, that they may be ſure to hold out with their Neighbours, which I ſuppoſe is true enough. And this amongſt other Things occaſions much Inequality in Corn Meaſures, which might be prevented, if it was uſual to ſell Grain by Weight, as it ſeems the Antients did; and alſo made the Weight of ſome good Sort of Wheat (when ſo long inned as to be fit for Uſe) the Standard whereby to judge of the Goodneſs of all other Wheat; by which means the Price thereof was the better proportioned to its Goodneſs. And the antient Eſtimate of the Weight of this Wheat appears to be after the Rate of 5 *Core* or *Quarter* to the *Avoirdupois* Tun, with the Allowance of 15 in the Thouſand over and

above for Waſte in grinding. So that as 10100 to 7308, ſo is the antient Eſtimate of the Weight of a Meaſure fill'd up to the Brim with Water, to the Weight of the ſame Meaſure fill'd up to the Brim with Wheat. But a Meaſure fill'd with Water is allowed to want 10 Parts in a 1000 of the Brim. Likewiſe being fill'd with Wheat there is an Allowance of 15 in the 1000 for Waſte in grinding, wherefore as 100 to 72, ſo the Weight of a Meaſure of Water (as 'tis uſually filled with Liquids) to the antient Eſtimate of the Weight of the ſame Meaſure of Wheat, excluding that Allowance, at which Rate 5 *Cores* or *Quarter* of Wheat ground will be equal in Weight to one *Avoirdupois* Tun. Alſo 5 *Cores* or *Quarter* of Wheat together with the ſaid Allowance is equal to 36540 *Avoirdupois* Ounces, equal to one *Avoirdupois* Tun, and 15 in the 1000 over. This Tun, being equal to 20 Hundred of 112 *Avoirdupois* Pounds to the Hundred, and 8 Ounces in the Hundred allowed for Draught, (which Hundred is alſo equal to 100 Pound weight at 18 Ounces to the Pound upon an even Ballance without Draught) this 36540 Ounces we ſhall alſo find equal to 20 old *Perſian* Talents, each Talent equal to 100 *Minæ* at 120 *Attick* Drams to the *Minæ*. Now ſuch a fixed Standard as this is ſure and certain, and its Conſtancy

ſtancy undoubted, from which it will appear are derived divers very antient Weights and Meaſures.

§. 4. For the Length of the Room wherein this Tomb ſtands by Mr. *Greaves*'s Meaſure is 34,38 Feet and Parts, its Breadth half ſo much; this 34,38 or rather 34,3817 is the Axe, and its half the Radius of a Sphere within whoſe Hemiſphere is inſcribed this *Polygon* of 24 Sides, whoſe whole ſolid Content is 375095,7623 cubick Palms and Parts, for 34,3817 Feet and Parts turned into Palms make 113,165, whoſe Cube is 1449258,597, wherefore as 1 to ,25881907 ſo 1449258,597 to 375095,7623 the Content of this *Polygon* in cubick Palms. This Veſſel holds as much Water as is equal to the Groſs Weight of 144 great *Cores* of Wheat, 10 Quarter to the *Core* being alſo equal to twice 144 *Avoirdupois* Tuns, and 15 in the 1000 over; for at the Rate of 1010 Ounces to the *Bath* 375095,7623 cubick Palms and and Parts, will hold 10523520 Ounces of Water, which divided by 144 quotes 73080, being the Double of 36540, and conſequently equal to 2 *Avoirdupois* Tuns, and 15 in the 1000 over, which is the old Eſtimate of the groſs Weight of 10 *Cores* of Wheat, at which Rate the Buſhel of Wheat upon an equal Ballance weighs 57

Avoirdupois Pounds one Ounce and a Half, much about our Eſtimate thereof at this Day, for the ſimple Weight of a Buſhel of Wheat ground, where Allowance was made for Waſte in grinding, and no Toll of the Mill, is commonly eſtimated at half an *Avoirdupois* Hundred. From this Standard of the Weight of Wheat are derived divers antient Weights and Meaſures; for the *Attick* Dram by Mr. *Greaves*'s Eſtimate is 67 Grains *Troy*, and according to the learned Biſhop *Cumberland*'s Eſtimate in Scripture Weights and Meaſures, 'tis 66 Grains. If we fix it betwixt theſe two Eſtimates at 66,609375 Grains and Parts, then this *Minæ* or Pound will be 18,27 Ounces and Parts *Avoirdupois*, equal to 120 *Attick* Drams, conſequently 100 *Minæ* equal to the old *Perſian* Talent mentioned 1 *Chron.* 29. 7. and by *Joſephus Antiq. l.* 3. *cap.* 7. called *Kincharès*, is alſo equal to our *Avoirdupois* Hundred, and 15 in the 1000 over; 24 of theſe Talents make the groſs Weight of Corn Tun which we call *Wey*, equal to 6 *Cores* of Wheat. Now the Weight of this *Minæ* in Water fills the *Attick* Sextary to the Brim, 6 Sextaries make x^{s}, 12 *Choes* make *Metretes*, 6 *Choes* are the *Perſian* Bath mentioned 2 *Chron.* 4. 5. 3000 whereof were about equal to 2000 antient *Baths* mentioned 1 *Kin.* 7. 26. We alſo find 2 *Chron.* 2. 10.

10. x^{os} is called *Bath*, where the 20 *Cores* of Oil mentioned 1 *Kin.* 5. 11. are made equal to 20000 *Baths*; here if we make *Bath* to be x^{os}, and theſe *Cores* great *Cores* of 10 Quarters to the *Core*, 20 of them will be ſomewhat near equal to 20000 *Baths*, we ſuppoſe abſolute Exactneſs was not intended. And if it be admitted that the Weights and Meaſures mentioned in the Books of *Chronicles* are *Perſian*, which it ſeems to me cannot be avoided, then we may find what the 300 Pieces are, 2 *Chron.* 9. 16. which we tranſlate Shekles, and are equal to 3 *Maneh*, 1 *Kin.* 10. 17, for the *Maneh* was 30 Ounces, as is made plain in Scripture Weights and Meaſures, which is ſomewhat near equal to 100 double *Attick* or *Perſian* Drams mentioned in the Books of *Ezra* and *Nehemiah*; conſequently 300 double *Atticks* are near equal to 3 *Maneh*. It may ſeem that theſe *Perſian* Weights and Meaſures were antiently uſed in Traffick and Commerce amongſt the Eaſtern Nations, and it ſeems were known to the *Jews* long before the *Babyloniſh* Captivity, as appears by the Talent mentioned by *Joſephus*, *Antiq. lib.* 3. *c.* 7. and the Shekles mentioned 2 *Sam.* 14. 26. ſeem to be more than ſingle *Atticks*, ſuch as thoſe mentioned 1 *Chron.* 29. 7.

§. 5. 'Tis

§. 5. 'Tis very probable, there ought to be the ſame Proportion betwixt the *Avoirdupois* and *Troy* Ounce, as betwixt the *Attick* and *Roman* Sextaries; for the Weight of the Ounce *Avoirdupois* ſeems to have been eſtimated at 600 Grains of Wheat, it being much about the Weight of ſo many dry and full Grains: And alſo agrees very well with our *Engliſh* Eſtimate thereof, which by the 31 *Edw.* I. is 32 Grains of Wheat to a Sterling Penny. If the *Avoirdupois* Ounce weighs 600 Grains of Wheat, then the Weight of *Core* filled with Water to the Brim will weigh 6060000 Grains, the Content of which *Core* is $17445\frac{1355}{1728}$ cubick Inches, equal to 360 cubick Palms. But a Cylinder being thought the moſt convenient Figure for dry Meaſures, and it being their ordinary Way in old Times to gauge theſe Meaſures by the cubick Palm or cubick Digit, a Digit in Length being the 4th Part of a Palm or Hand's-breath, and it being alſo found that there could be no convenient Dimenſions of a Cylinder for theſe antient Meaſures, except theſe following, without computing to ſome minute Part of the Palm or Digit, it was therefore ſo order'd (as we have good Reaſon to think,) that

The

The Diameter of a Cylinder, whoſe Content is a Great Core, which we call a Laſt, ſhould be 76 Digits, and the Depth of the Cylinder 50 Digits.

The Diameter of a Cylinder, whoſe Content is a Core, ſhould be 38 Digits, and its Depth 20 Digits.

The Diameter of a Cylinder, whoſe Content is an Epha, ſhould be 19 Digits, and its Depth 8 Digits.

The Diameter of a Cylinder, whoſe Content is an Homer, ſhould be 7,6 Digits, and its Depth 5 Digits.

Theſe Meaſures above are ſucceſſively in a decuple Proportion to each other. But theſe following ſucceſſively exceed each other in octuple Proportion, which was alſo of antient Uſe, as will be ſeen when we come to ſpeak of Land-Meaſures.

Alſo, that the Diameter of a Cylinder, whoſe Content is a Gallon, ſhould be 9 Digits and a half, and the Depth of the Cylinder 5 Digits.

The Diameter of a Cylinder, whoſe Content is a Buſhel, ſhould be 19 Digits, and in Depth 10 Digits.

The Diameter of a Cylinder, whoſe Content is a Core, ſhould be 38 Digits, and in Depth 20 Digits.

Now

Now according to theſe Dimenſions (the Proportion of the Square of the Diameter to the Area of the Circle being taken as 452 to 355) the Content of the Buſhel is 2146$\frac{1}{2}$, or, by the Decimal Way, 2146,875 cubick Inches, which is very near the Standard Buſhel of *Henry* the 7th, in the *Exchequer*, according to Mr. *Everard*'s Experiment, who found it to be 2145,6 cubick Inches. But in Inch Meaſure a Cylinder of 18,5 Inches Diameter and 8 Inches deep makes ſomewhat near the Meaſure of this Buſhel, its Content being 2150,42 cubick Inches, this exceeds the Standard Buſhel of *Henry* the 7th, according to Mr. *Everard* almoſt 5 cubick Inches. Yet it being conſider'd, that in the ordinary Way of meaſuring Corn, ſuch Exactneſs as this is rarely obſerved, and there being no other convenient Dimenſions (without counting to the hundreth Part of an Inch) that would come ſo near as theſe, It was enacted in the Act *For laying Duty upon Malt*, That every round Buſhel with a plain and even Bottom, being 18,5 Diameter throughout, and 8 Inches deep, ſhall be eſteemed a legal *Wincheſter* Buſhel, according to the Standard in His Majeſty's *Exchequer*. Now I take it that theſe laſt mentioned Meaſures were in old Times proportioned to the antient Eſtimate of the ſingle Weight of Wheat, with-

without Allowance for Waſte in grinding, which is at the Rate of 900 Ounces, or half an *Avoirdupois* Hundred to the Buſhel; and that this Allowance was made afterwards by adding as Over-meaſure a Pint to each Buſhel, or a Gallon to each Quarter. For we find that our Corn Gallon has commonly been eſtimated at 272$\frac{1}{2}$ cubick Inches; and Buſhels have ordinarily been made proportionably as great, and greater than that comes to, where no ſuch Allowance is to be claimed in Over-meaſure; at which Rate the Buſhel amounts to 2178 cubick Inches, which is about a Pint greater than this Standard of *Henry* the 7th. But the true Corn Gallon, according to the Standards in this *Pyramid*, (leſs than which we ſeldom uſe) is 272,5919 at which Rate the Buſhel will be 2180,73527 cubick Inches; if out of this I ſubſtract the Allowance for Waſte, there remains 2148 Inches and a Half, the ſimple Content of the Corn Buſhel; for to this 2148,5 add 15 in the 1000, the Sum is 2180,73, *&c.* as before. But a Cylinder of 19 Digits Diameter, and 10 Digits deep, contains cubick Inches 2146,875. Let this be reputed a Buſhel, and the Pint will be 33,545, which added to 2146,875 makes 2180,42 for the full Buſhel with Allowance for Waſte, which agrees likewiſe with theſe antient Standards in the *Pyramid*; wherefore, although this Cy-

Cylinder of 19 Digits Diameter and 10 Digits deep want 1 cubick Inch and a Half of the true ſimple Meaſure of a Buſhel, yet a Pint being allowed to each Buſhel in Overmeaſure, makes up that Deficiency, by giving to the ſimple Meaſure of a Buſhel ſo much over and above 15 in the 1000, the uſual Allowance for Waſte, as that comes to. Then to re-aſſume what I ſpoke of before, if the *Avoirdupois* Ounce weighs 600 Grains of Wheat, then 10100 ſuch Ounces (the Weight of *Core* filled with Water up to the Brim) will weigh 6060000 ſuch Grains; but by the former Proportion of the Weight of Water to that of Wheat, a *Core* of Wheat fill'd exactly to the Brim weighs 7308 *Avoirdupois* Ounces, each Ounce equal in Weight to 600 of theſe Grains of Wheat, conſequently 7308 Ounces (the Weight of a *Core* of Wheat) weighs 4384800 ſuch Grains, from whence it likewiſe follows that 4384800 ſuch Grains of Wheat will fill the Meaſure of *Core*, equal to 360 cubick Palms, equal to $17445\frac{1333}{1338}$ cubic Inches. But if I take the ſimple Meaſure of this *Core* without Allowance for Waſte, which after the Rate of 2148,5 to the Buſhel contains 17188 cubic Inches, and fill it with ſuch Grains of Wheat, it will hold 4320000. Then the ſimple Meaſure of *Epha*, equal to 1718,8 cubic Inches is 432000 ſuch Grains; alſo the ſimple

ple Meaſure of the 432d Part, *Epha* (which the *Rabbins* ſay is equal to a Hen's Egg) equal to 3,9787 cubic Inches and Parts will hold 1000 ſuch Grains; and being fill'd with Water 10 Parts in 1010, within the Brim, (as it was uſual to fill a Meaſure with Liquids) weighs 997,76 Grains *Troy*, which 'tis probable ſhould be 1000, for then there would be the ſame Proportion betwixt the Ounce *Troy* and *Avoirdupois*, as betwixt the *Roman* and *Attick* Sextaries, which is as 480 to 438,48. Likewiſe it would be as the antient Eſtimate of the Weight of Water to that of Wheat; ſo the Grain *Troy* to the Weight of a Grain of Wheat, after the Rate of 600 to the *Avoirdupois* Ounce. I will only add, that by the Number and Weight of theſe 1000 Grains of Wheat, that fill'd this little Meaſure, is known both for Weight and Fulneſs of the Grain what that Wheat is, which the Antients made the Standard whereby to judge of the Goodneſs of all other Wheat.

§. 6. As touching the moſt antient Land-Meaſures, they proceed from the *Cubit* of 6 *Palms*; yet there are Meaſures of leſs Antiquity derived from the *Cubit* of 5 *Palms*, as the *Grecian* Foot, Pace, and Furlong, which we have no Occaſion to ſpeak of here. The moſt antient Way of meaſuring Land

was by the *Cubit*, computing decimally by Unites, 10 s. 100 s. 1000 s. *&c.* of *Cubits* as follows.

10 Cubits in Length make one Decade equal to 10 Cubits in Length.

10 Decades in Length make one Time the Side of the *Egyptian* Aroura equal to 100 Cubits in Length.

10 Chiliads in Length make one Myriad equal to 10000 Cubits in Length.

The Side of a Square whoſe *Area* is equal to 10 ſquare *Cubits*, is in *Engliſh* Inch Meaſure 69,1748224, or in Foot Meaſure 5,764568, *&c.* This we may call a Pace.

10 Square Cubits make one Square Pace equal to 10 Square Cubits, or to 1 Square Pace.

10 Square Paces make one Square Decade equal to 100 Square Cubits, or to 10 Square Paces.

10 Square Decades make one Square *Roman* Clime equal to 1000 Square Cubits, or to 100 Square Paces.

10 Square *Roman* Climes make one ſquare *Egyptian* Aroura equal to 10000 ſquare Cubits, or to 1000 Square Paces.

10 Square *Egyptian* Aroura make one Square ſhort Stade equal to 100000 ſquare Cubits, or to 10000 ſquare Paces.

10 Square ſhort Stades make one ſquare Chiliad equal to 1000000 ſquare Cubits, or to 100000 ſquare Paces.

10 Square Chiliads make one ſquare Mile equal to 10000000 ſquare Cubits, or to 1000000 ſquare Paces.

10 Square Miles make one ſquare Myriad equal to 100000000 ſquare Cubits, or to 10000000 ſquare Paces.

Alſo, 10 Paces in Length make the Side of Clima equal to 10 Paces in Length.

10 Times the Side of Clima in Length make 1 ſhort Stade equal to 100 Paces in Length.

10 Short Stades in Length make 1 Mile equal to 1000 Paces in Length.

Twelve times the Side of *Clima* makes the great *Stade* equal to 120 Paces in Length; alſo 12 *Chiliads* make *Paraſang* equal to 12000 *Cubits* in Length; from theſe are derived all the moſt antient Land-Meaſures.

§. 7. But in ſurveying great Quantities of Land larger Meaſures (which we may call groſs Meaſures) were alſo uſed, by rea-

ſon Allowance was made for Waſte; that is to ſay, for Meers and free Bounds (as our Countrymen word it) Fences and Roads. The Allowance for Meers is 4 in the 1000, which was given to all Lands, that their Bounds might be marked with Stones or other Land Marks; and a Wadd (as they term it) or Meer driven from one Land Mark to another without touching or treſpaſſing upon the Lands on each Side. This alſo where Lands were incloſed with a Wall or ſuch like Fence, was left out for the Wall or Fence to drop upon. Likewiſe where Lands were incloſed by a Ditch, the Meer was alſo left out, to the End the Ditch might be ſufficiently ſcoured and repaired, without digging or encroaching upon the next Neighbour. The Allowance for free Board was 10 in the 1000; and this when a Lordſhip was incloſed is left out, to the End that a Wagon, Cart, or the like, might be driven upon Occaſion on the Outſide thereof, without treſpaſſing upon the next Lordſhip. Beſides all this, there was alſo 10 in the 1000 allowed for Fences, and to all Lands above a ſquare *Chiliad* 24,576 in the 1000 was allowed for Roads and High-ways, ſo that the whole Allowance for Waſte is 24 in the 1000 to all Lands under a ſquare *Chiliad*, for Meers, Fences and free Boards, and 48,576 in the 1000 to all Lands from a

a ſquare *Chiliad* upwards, for the ſame Uſes, and alſo for Roads and High-ways. The Proof of theſe Allowances for Waſte appears by their Agreement with divers known antient Meaſures, and alſo by the Uſe of divers antient Rods, Perches, and other Meaſures in ſurveying of Lands.

§. 8. And theſe are chiefly the *Pace*, the half *Cubit*, the *Rod* or *Reed* of 6 *Cubits*, the *Rod* of 8 *Cubits*. The *Engliſh* Foot Meaſure, and Inch Meaſure. The Perch, and the *Chain* of 4 Perches. The Pace in Inches is 69,1748224. A *Chain* equal to 10 of theſe Paces, equal to the Side of the *Roman* Clima, being divided into 100 Links, is a very good *Chain* to meaſure a Piece of Ground, ſo as to give the *Area* thereof in ſquare *Cubits* ſimple Meaſure. One ſquare Pace being equal to 10 ſquare *Cubits*. And the Square of this *Chain* (equal to the ſimple Meaſure of a *Roman* Clima) containing 1000 ſuch Cubits, it follows that a Decimal Computation is hereby readily made agreeable to the *Area*'s of ſuch antient Land Meaſures, which ſucceſſively exceed each other from the leaſt to the greateſt in decuple Proportion. But where full Allowance is made for Waſte, a *Chain* of 32 Cubits is much more ſuitable, divided into 8 Perches, and each Perch into 8 Links, each Link equal to $\frac{1}{2}$ a Cubit; for the Square of this *Chain* equal to

1024 ſquareCubits exceeds the ſquare of the *Chain* of 10 Paces by 24 in the 1000, which is the full Allowance for Waſte to all Lands, from the *Clime* to the *Chiliad*. Likewiſe 32 of theſe *Chains* in Length, at 32 Cubits to the *Chain*, make 1024 Cubits in Length, equal to the Side of the *Chiliad* groſs Meaſure, the Square whereof is 1048576 Square Cubits, but the ſimple Meaſure of a Square *Chiliad* in Square Cubits 1000000, the Difference is 48576, which is after the Rate of 48,576 to the 1000, the full Allowance for Waſte to all Lands from a Square *Chiliad* upwards. Now this groſs Meaſure of a Square *Chiliad* is equal to 8 times the Square of an *Engliſh* Furlong, for 1048576 Square Cubits, equal to the Square of a *Chiliad* are alſo equal to 3484444,444, *&c.* Square *Engliſh* Feet, the 8th Part whereof in *Engliſh* Foot Meaſure is 435555,55, *&c.* whoſe Square Root is 659,966329, *&c.* equal to the Side of an *Engliſh* Furlong, equal to 40 Perches in Length, at 16,49915825 Feet to the Perch, which by our *Engliſh* Eſtimate is 16 Feet and a Half. This *Chain* of 32 Cubits is equal to the Side of the *Roman Clima* groſs Meaſure, which is known to be equal to 60 *Roman* Feet in Length; for the Length of the Cubit in Inches is 21, 875, this multiply'd by 32 makes 700 Inches, equal to 60 *Roman* Feet at 11, Inches to the Foot. This agrees very well with that

that Foot on the Monument of *Statilius*, which in Inch Meaſure is eſtimated at 11, 664 Inches and Parts. Then the Square of this *Chain* being equal to the *Roman Clima* it will follow, that

8 Square Chains make 1 ſquare *Roman* Jugerum.
16 Square Jugera make 1 ſquare *Engliſh* Furlong.
8 Square *Engliſh* Furlongs make 1 ſquare Chiliad.
8 Square Chiliads make 1 ſquare *Engliſh* Mile.

In ſurveying Land by this Sort of Meaſure, the Computation is by *Ogdoads* inſtead of *Decades*, thus

8 Links in length make 1 Perch in length.
8 Perches in length make 1 Chain in length.
8 Chains in length make 1 Change in length.
8 Changes in length make 1 Ogdoad of Changes in length.

Where the Length of a Piece of Ground is to be multiply'd by its Breadth, the Work is in ſuch Sort performed, that the Value of the Places in which each Figure ſtands, from

from the right Hand to the Left, ſhall ſucceſſively exceed each other in Octuple Proportion, which is ſomewhat eaſier than the Decimal Way, by reaſon that we make Uſe of no Figure exceeding 7. For Example, let the Length of a Piece of Ground ſet down in *Ogdoads* be 75236, *i. e.* 7 *Ogdoads*, 5 *Chanes*, 3 *Chains*, 2 *Perches*, and 6 *Links*, and let the Breadth be 6173 in the ſame Denominations as before; the Multiplication is performed in the ſame Manner as in common *Arithmetick*, excepting where by the vulgar Way for every 10 in the Product, I carry one to the next Place, here I carry one for every 8, and the Work will ſtand thus.

					7	5	3	2	6
					6	1	7	4	3
				2	7	0	2	0	2
			3	6	5	5	1	0	
		6	5	5	7	3	2		
		7	5	3	2	6			
	5	6	0	4	0	4			
5	7	7	3	3	2	6	5	0	2
K	I	H	G	F	E	D	C	B	A
2	7	7	5	11	2	6	5	0	2

The

The whole Product conſiſting of 10 Places, I have marked them with 10 Letters. And to reduce this into the before named Denominations of Land-Meaſures, I halve all the Figures on the left Hand F, ſetting down the halves underneath, ſaying, half 5 is 2, which I ſet down under K, and carry one to I, which in that Place is 8, this added to 7 makes 15, half that is 7, which I ſet down under I, and carry one, *&c.* proceeding thus until I come to G, if in that Place I find an odd Number, one is to be carry'd to F, which in that Place makes 8, and is to be added to the Number over F, and the Sum ſet down under F in a little Column diſtant from the Numbers on both Sides. Likewiſe, all the Figures on the right Hand F, are to be brought down, ſo as to ſtand as in the Example above, whereby their Denominations whill be as follow.

Square

Square Links	K	I	H	G	F	E	D	C	B	A
Ogdoads of Square Links	2	7	7	5	11	2	6	5	0	2
Square Perches										
Ogdoads of Square Perches										
Square Roman Climes										
Square Roman Jugera										
Square English *Furlongs*										
Square Chiliads										
Square English *Miles*										
Ogdoads of Square English *Miles.*										

The *Rod* or *Reed* of 6 Cubits is the 64th Part of the great *Stade* groſs Meaſure, which *Stade* is equal to 12 Chains in Length of 32 Cubits to the Chain. And 32 of theſe *Stades* in Length make the groſs Meaſure of *Paraſang*, whoſe ſimple Meaſure is 12000 Cubits. Then a Chain conſiſting of 8 of theſe *Rods* or *Reeds* being divided into 64 Links is very well ſuited to find the *Area* of Land in *Paraſangs* and *Stades*, in the ſame Manner as its Content in *Chiliads* and *Climes* is found by the Chain of 32 Cubits; for as the

the *Clime* to the *Chiliad*, ſo this *Stade* to the *Paraſang*. By the *Arabian* Canna or Pole of 8 Cubits the *Area* of Land is found in ſhort *Stades* groſs Meaſure, the Computation is made after the Decimal Way, and the *Canna* is divided into 10 Links, each Link equal to the *Roman* Foot and a Half of that Foot on the Monument of *Statilius*, equal to one *Roman* Cubit equal to $\frac{4}{5}$ of the antient Cubit; 10 *Canna* make the antient *Schœne* or Chain. If I take the *Area* of a Piece of Ground in Square *Schœnes* and Decimal Parts, the Reduction is made

Into *Stades* groſs Meaſure in dividing the *Area* by 16,00.

Into *Arourœ* groſs Meaſure in dividing the *Area* by 01,60.

Into *Climes* groſs Meaſure in dividing the *Area* by 00,16.

The Side of *Clima* groſs Meaſure being 700 Inches, the Side of the great *Stade* will be 700 *Engliſh* Feet, equal to 384 Cubits. If the *Area* of Land be taken in *Engliſh* Feet, it is reduced in Square *Stades*, in dividing by 490000. A Rod of 10 *Engliſh* Feet we find within the *Pyramid*, in the Height of a little Room, by Mr. *Greaves* called the ſecond Anti-Cloſet. If Land be meaſured by a Rod of 7 *Engliſh* Feet, 10000 ſquare Rods will

will make the Square of the great *Stade*; this Rod is found in the Length of the ſame little Room or Anti-Cloſet within the *Pyramid.* If Land be meaſur'd by a Rod of 100 Inches the *Area*

Divided by 49 gives the Content of the Land in *Climes* groſs Meaſure.

Divided by 490 gives the Content of the Land in *Arouræ* groſs Meaſure.

Divided by 4900 gives the Content of the Land in *Short Stades* groſs Meaſure.

But the Number of Square *Engliſh* Perches and Square Chains (each Chain in Length equal to 4 Perches) contain'd in every one of theſe antient Meaſures, with full Allowance for Waſte, are as follow; whereby it appears that the *Engliſh* Perch in Length is the 10th Part of the Side of the *Roman Jugerum*, and is very well ſuited to all theſe antient Meaſures. The Square of the great Mile I make to be equal to the 10th Part of the Square of *Paraſang*, the ſimple Meaſure of whoſe Side is 12000 Cubits.

Square

Square Engliſh *Perches.*	*The antient Land Meaſures.*	*Square* Engliſh *Chains.*
1843200	*Paraſang.*	115200
1280000	*Myriad.*	80000
184320	*Great Mile.*	11520
128000	*Short Mile.*	8000
12800	*Chiliad.*	800
1800	*Great Stad.*	112,5
1250	*Short Stad.*	78,125
125	*Aroura.*	7,8125
100	*Jugerum.*	6,25
12,5	*Clima.*	,78125
102400	Engliſh *Mile.*	6400
1600	Engliſh *Furlong*	100
160	Engliſh *Acre.*	10
16	*Chain.*	1
1	Engliſh *Perch.*	,0625

Hereby it appears that the Allowance for Waſte was the ſame I mentioned. The *Roman* Clime, the *Engliſh* Foot Meaſure, the Rod of 6 Cubits, the *Arabian* Canna, the *Schene* of 80 Cubits, the *Engliſh* Furlong and Perch, exactly agreeing with it. And that out of this, 4 in the 1000 was allowed for Meers, we have an Example in the Ground upon which this *Pyramid* ſtands, which is the Square of the great *Stade*, with Allowance only of 4 in the 1000 for that Purpoſe. This ſeems to be the Quantity of Land, which according to *Herodotus* (amongſt the *Egyptians*) was allowed to each *Calaſſiry*, containing 12 *Arouræ*, for if I take a Chain equal to the Side of *Clima*, the Square of 10 of theſe Chains is equal to 10 *Arouræ*; therefore *Herodotus* being not over curious in ſuch Matters, makes the Square of 12 Chains, equal to the Square of this *Stade*, to be alſo equal to 12 *Arouræ*; the Side of the leſſer *Stade* (whoſe Square is equal to 10 *Arouræ*) being in Proportion to the Side of the greater *Stade* (whoſe Square is the Quantity of Land allowed to each *Calaſſiry*) as 10 to 12. Now upon the Banks of *Nile* there could be no Fences, by Reaſon that the Flood which comes once a Year would deſtroy them; but here was this Allowance for Meers, to the End that after the Flood was paſt, and each Man's

Man's Lands meaſur'd out, there might be ſo much as the Breadth of a Furrow round each Plot, that a Meer might be driven either by marking it out with the Plough, or otherwiſe without diminiſhing the Lands. And the Side of the great *Stade*, with full Allowance for Waſte, is 700 *Engliſh* Feet, equal to 100 Rods, at 7 Feet to the Rod. But the Square of this *Stade* ſimple Meaſure, is 144000 Square Cubits, to which add 4 in the 1000 for Meers, and the Sum will be 144576, whoſe Square Root in *Engliſh* Foot Meaſure is 693,133, which is 99,019 Perches, at 7 Feet to the Perch, and may well paſs for 99 Perches equal to 693 Feet, equal to the Side of the *Pyramid*'s Baſe, according to Mr. *Greaves*'s Meaſure, from whence it ſeems that the antient Eſtimate of the Length of the Side of the great *Stade*, with Allowance of 4 in the 1000 for Meers, was 99 Perches, at 7 *Engliſh* Feet to the Perch. Not that this Allowance would be exactly ſuch, but very near it. And we may ſuppoſe, that this Length of the Side of this great *Stade* was fixed upon as moſt proper for vulgar Uſe, becauſe no other convenient Meaſure could be found out commenſurable to this Perch, that would come ſo near as this which the Perch exactly meaſures. Likewiſe, if I make the Side of this *Stade* 99¼ ſuch Perches, that will be much

about 10 in the 1000 added for Fences, beſides the Allowance of 4 in the 1000 for Meers. To which Meaſure that Foot on the Monument of *Coſſutius* is proportionable, for theſe 99½ Perches are equal to 720 of theſe Feet on the Monument of *Coſſutius*. Whereas the groſs Meaſure of the Side of this *Stade*, with Allowance of 24 in the 1000 for Meers, Fences, and Free-boards, is equal to 100 of theſe Perches, equal to 700 *Engliſh* Feet, equal to 720 of thoſe Feet on the Monument of *Statilius*; at which Rate the Length of the *Roman* Foot on the Monument of *Coſſutius* will be in *Engliſh* Inch Meaſure 11,608333, *&c.* for if only 14 in the 1000 be allowed for Meers and Fences, the Side of this *Stade* will be 99,51 Perches, which may well paſs for 99½, equal to 720 Feet at the Rate of 11,608333, *&c.* *Engliſh* Inches to the Foot, which differs little or nothing from Mr. *Greaves*'s Eſtimate of the Length of that Foot on the Monument of *Coſſutius*; wherefore as 1024 to 1014 ſo (or very near it) is the Square of that Foot on the Monument of *Statilius* to the Square of that Foot on the Monument of *Coſſutius*. The firſt being proportioned to ſuch Land Meaſures, where Allowance is made for Meers, Fences, and Free-bounds; the laſt to ſuch Meaſures which belong to leſſer Parcels, where Allowance is only made for Meers and

and Fences. We find in the *Bible* ſomething that ſeems to allude to this Allowance of 10 in the 1000 for Fences, as *Revel.* 5th and 11th compared with *Daniel* the 7. and 10. The Plenitude of the Church at the Times there propheſied of, is expreſſed by adding *Chiliads* of *Chiliads* to *Myriads* of *Myriads*, i. e. a Square *Chiliad* to every Square *Myriad*, which is 10 to every 1000. But in the 14 of the *Revel.* the State of the Church at the Time there propheſied of, is expreſſed by 144000, being the Number of Square Cubits in the Square of the great *Stade* ſimple Meaſure. This laſt, the Inheritance of a mean private Perſon upon the Banks of *Nile*, whoſe Floods permit it not to be incloſed: The other a large Poſſeſſion, like that of a mighty Prince, with a ſuitable Allowance for Fences; all Roads and High-ways excluded.

§. 9. The *Engliſh Hyde* I take to be the ſame with the antient *Chiliad* groſs Meaſure, equal to 80 *Engliſh* Acres. Eight *Hydes* make a Square *Engliſh* Mile. Alſo a hundred *Hydes* are equal to a Square *Myriad*. The 4th Part of this *Hyde* or *Chiliad* equal to 20 *Engliſh* Acres is a Yardland called *Virgata Terræ*, becauſe in open Fields its Parcels in Meadows are commonly meaſured with a *Pole*, *Rod*, or the like, as is uſual in the Place where I live. Here

alſo the Parcels and Shares belonging to each *Hyde* are equal to that of 4 Yard-lands, and theſe *Hyde* Parts are uſually ſevered and divided from each other with MeerStones, each containing 4 Yard-land Parts. But (excepting that theſe Pieces of Meadow Ground, and of ſuch that is Lot-Graſs, or parting Graſs, are commonly called *Hydes*) the Name of *Hyde* is ſeldom uſed. In computing by the *Hyde* our Anceſtors (it ſeems) had reſpect to its Value as well as Quantity, inaſmuch as Lands in old Times were uſually rated and aſſeſſed by the *Hyde* and Yard-land. Every *Hyde* as far as I can gather was valued at 4 l. *per Annum*. [Let this be better enquired into, for at the Writing hereof I had not the Opportunity to get ſufficient Information about it.] And conſequently a Yard-land or the 4th Part of a *Hyde* at 20 s. *per Annum*. Yet in ſome Places the *Hyde* ſeems to have been divided into more Yard-lands, as alſo into Parts, otherwiſe denominated according to the Cuſtom of each Country. This Value of the *Hyde* ſeems to have been in the Times of the old *Saxons*, long before the Conqueſt, but afterwards when the Country grew more populous, and Lands came to be improved, when Trade began to encreaſe, and Coin became more plentiful, and when the Crown Piece, or Ounce of Silver, which at firſt was valued

valued at 20 d. was raiſed to 5 s. then Lands were alſo at a much higher Rate. But at the firſt, the *Hyde* as it reſpected the Quantity of a Piece of Land contained 80 Acres, equal to 12800 Square Perches at 16½ to the Perch, which is equal to the antient *Chiliad* groſs Meaſure; and as it reſpected the Quality of Land, it contained ſo much as was worth 4 l. *per Annum*, for which Reaſon there was allowed (from hence proceeds the Difference in our *Engliſh* Miles according to the vulgar Computation in each Country) ſometimes 7 or 8 Yards to the Perch more or leſs according to the Goodneſs of the Land. But theſe *Hydes*, that by the antient Eſtimate were of equal Value, in after Ages became very unequal; not only for the different Improvements that have been made of Lands by Reaſon of Incloſures, and lying near great Towns or the like, but it ſeems that Lands were uſually taxed by the *Hyde*, and for that Reaſon, in latter Times when Enquiry has been made into their Value, they have in many Places been given in at a leſs Number of *Hydes* than what they were at firſt rated at; as we may ſee at this Day, when Taxes are laid by the Pound Rent 'tis uſual in many Places for Men to get their Lands valu'd at as low a Rate as they can. We may alſo find in the antient Records ſince the Conqueſt, that the

Hyde

Hyde in ſome Places has been valu'd at leſs than 4 l. *per Annum*, but this is not to be underſtood of the full Value, but of a ſmall reſerved Rent to the King, as Lord of the Manor. As to the Meaſure of the *Hyde* there has been much Inequality therein for other Reaſons beſides what have been mentioned. As Lands let out to Tenants by Lords of Mannors were often meaſured by a leſs *Pole* or *Perch* than thoſe which they reſerved to themſelves. Yet notwithſtanding the different Meaſures of the *Hyde*, and conſequently of the *Acre* and *Perch*, which for diversReaſons have heretofore been uſed in *England*, our Statute Meaſures do very well agree with thoſe of the greateſt Antiquity. If therefore

§. 10. The old *Saxons* (as you have made it appear) were a free People from the Beginning, and ſcarce ſo much as felt the Power of the *Romans*, and have ſtill preſerved their moſt antient fundamental Laws; altho' ſince their coming into *Britain* they were overpowered by the *Danes*, and conquer'd by the *Normans*, it cannot ſeem improbable that they ſhould alſo preſerve their moſt antient Meaſures. If the *Egyptians*, that were ſucceſſively ſubject to the *Perſians*, *Greeks*, and *Romans*, and now for more than 1000 Years Slaves to *Mahometans*, have ſtill preſerved

ſerved their *Cubit* and *Ardub*, very near the ſame with theſe antient Standards; if the old *Romans* (whoſe Beginnings were about the 7th *Olympiad*) had their *Ounce*, *Pound*, and *Congius* agreeing with them; if the *Attick Dram* and *Sextary* be found in this *Pyramid*, when the old *Greeks* are not able to give an Account from whence they had them, how much more likely is it that the old *Saxons*, a Nation as antient as any in the World, ſeated in *Germany*, when the Earth was firſt divided amongſt the Sons of *Noah*; a free People, cloſely adhering to their antient Laws and Cuſtoms, ſhould hand down to us their moſt antient Meaſures, the very Rules whereby all Mens Rights and Properties are ſet forth, diſtinguiſhed and valued; the Alteration whereof might bring much Inconvenience, without any Proſpect of Advantage. For ſuch Reaſons as theſe it may ſeem probable, that we have received from our prudent old Anceſtors theſe very Meaſures, which they had carefully preſerved from the Time they firſt became a Nation. But their near Agreement with theſe moſt accurate Standards, whereof 'tis impoſſible the old *Saxons* could have the leaſt Knowledge, being of that remote Antiquity which ſeems to out-do all human Records of Time, fixed in a Place with whoſe Inhabitants they had no Commerc

merce or Acquaintance, expreſſed in ſuch a Manner that was never rendred intelligible to theſe Parts of the World; or for ought we know underſtood by the Natives themſelves, is to me a powerful Argument that they were the very ſame which we, and all other Nations, at firſt receiv'd from *Noah* himſelf.

SIR, *Your's*, &c.

POST-

POSTSCRIPT.

WHEREAS in my Anſwer to your firſt Letter I ſuppoſed it very probable, that from this Palm (equal to the 6th Part of the antient Cubit, four of which Cubits make the Length of the exterior Superficies of this Tomb) all the moſt antient Meaſures were derived; how this holds good, not only in our *Engliſh* but in ſundry other antient Meaſures, you have already ſeen, and may obſerve that 360 Cubick Palms make the antient *Core*, the ſimple Meaſure of which *Core* (equal to a *Cylinder* 38 Digits Diameter and 20 Digits deep) is alſo equal to the *Engliſh* Corn Quarter, or to 8 *Wincheſter* Buſhels according to the Standard of *Hen.* 7th. in the *Exchequer*; which wants of the antient *Core* 15 in the 1000, for the Reaſons I have given; alſo 7 Times 360 cubick Palms, equal to 7 antient *Cores*, make the great

great Beer Tun or double Tun, equal to 1260 cubick Palms, equal to the Number of Years contained in the great Lunar Period of the Antients, in which all their Lunar Emboliſms and Intercalations made their Revolutions; and in the *Bible* is called *Time, Times and a Half*, becauſe the Circle being divided into 360 Degrees, it follows that 3 Revolutions and a Half in the Motions of thoſe Bodies, by which we meaſure Time at the Rate of 360 Degrees to a Revolution, made in all 1260 Degrees. Alſo 360 Wine Pints make *Ardub*, equal to the Cube of the antient Cubit, 7 of theſe are equal to 12 Wine Barrels, or half Hogſheads. But 12 of theſe Barrels make 7 Times 360 *Roman Sextaries*. Yet 'tis to be remembred that the *Roman Sextary* is to be filled to the Brim, and the antient Wine Meaſures within 10 Parts in 1000 of the Brim, at which Rate alſo a Wine Rundlet of 18 *Engliſh* Gallons is equal to 20 *Congii*, 8 of which Rundlets make the *Roman Culæus* equal to 144 *Engliſh* Wine Gallons. Here it may be fit to obſerve that the *Romans* had two *Amphoras*, one the 20th Part of *Culæus*, equal to 48 *Sextaries*, the other (eſtimated at 45 *Sextaries*) equal to the Cube of the Foot on the Monument of *Coſſutius*; from hence *Modius*, the third Part of *Amphora*, or Quadrantal, was ſometimes reckoned at 15, and ſometimes

times at 16 *Sextaries*, yet 45 *Sextaries*, equal to 1554 cubick Inches and a Half, could not exactly fill the Cube of that Foot, which is equal to 1562 cubick Inches and a Half, but it comes very near it. If then the Cube of one of theſe Feet held 45 *Sextaries*, then the Cube of 2 Feet held 360 *Sextaries*, this being the 7th Part of 12 Wine Barrels; 6 Hogſheads, is alſo equal to 54 *Engliſh* Gallons, or 432 Wine Pints, and this it comes to at 231½ cubick Inches to the Gallon; from whence it appears that our *Engliſh* Wine Meaſures have a nearer Proportion to the Cube of this Foot, than either to the *Roman Sextary*, or to the moſt antient Wine Meaſures. Yet they vary not much from either. Here you may alſo perceive, that the ſimple Meaſure of *Core*, which wants 15 in the 1000 of 360 cubick Palms, has the ſame Proportion to 360 *Roman Sextaries*, as the antient Eſtimate of the Weight of Water to the antient Eſtimate of the Weight of Wheat. Conſequently the Wine Meaſures now mentioned are proportioned to the Beer Meaſures, as the Weight of Wheat to the Weight of Water. From what I have ſaid it alſo appears, that the Origin of our *Engliſh* Weights and Meaſures may be found without the Help of any other Standards in this *Pyramid*, except thoſe in the Dimenſions of the Tomb's exterior Su-

perficies. The *Roman* and *Attick Sextaries* being known, and alſo the antient Eſtimate of the Weight of Water which is known to be after the Rate of 10 *Roman* Pounds to the *Roman Congius*. Yet as the other Lines in this *Pyramid*, which we have mentioned to be Standards for theſe Meaſures, were alſo intended for ſuch, muſt be granted, unleſs we ſuppoſe that the Contrivers of theſe Structures could hit upon them by Chance, which is more improbable than theDimenſions of certain Rooms, each of them containing a round Number of *Engliſh* Feet, or that certain regular Plots or Parcels of Land, each of them containing a round Number of *Engliſh* Acres, ſhould be contrived, meaſured, and laid out by thoſe that knew Nothing of our *Engliſh* Meaſures. But that they ſhould exactly jump upon them even as blind Chance would have it.

As touching the Origin of our *Engliſh* Land Meaſures, 'tis eaſy to obſerve that 32 antient Cubits make the Side of the *Roman Clima*, 32 of theſe make the Side of a Square equal to the *Engliſh Hyde*, equal to the Square of 1000 Cubits, with Allowance for all Manner of Waſte; 8 of theſe *Hydes* make the Square of an *Engliſh* Mile. The 8th Part of an *Engliſh* Hyde is a Square *Engliſh* Furlong, which contains 16 *Roman Jugera*, each

Jugera equal to 100 Square *Engliſh* Perches, equal to 8 *Roman* Climes. The Side of this Clime equal (as we have ſaid to 32 antient Cubits) is alſo equal to 60 *Roman* Feet of that Foot on the Monument of *Statilius*, equal to 700 *Engliſh* Inches. Alſo 12 times the Side of *Clima*, equal to the Side of the great *Stade*, is equal to 700 *Engliſh* Feet, which contains 100 Perches in Length at 7 *Engliſh* Feet to the Perch, from whence comes our Foot Meaſure and Inch Meaſure; a Standard of which Perch and another of 10 *Engliſh* Feet is found in this *Pyramid*. Now the Allowances I have made for Waſte in theſe antient Land Meaſures, give you the Origin of the two *Roman* Feet, and their proportional Cubits, 10 Cubits by that Foot on the Monument of *Statilius* being equal to 8 antient Cubits, equal to the *Arabian Canna*, 10 whereof made an antient Meaſuring-line, or Chain, proportioned to the Meaſure of Lands, where Allowance was made for all Sorts of Waſte. And a Meaſuring-line equal to 100 Cubits, proportioned to that Foot on the Monument of *Coſſutius*, is ſuited for the Meaſure of Lands, where Allowance is only made for Meers and Fens. Theſe Allowances for Waſte alſo clear certain Doubts concerning theLength of the Side of the *Pyramid*'s Baſe; and agree very well with the antient Cubit, and

the old Way of counting by *Ogdones*, and the dividing their Meaſures into half Quarters, *&c.* ready for the Memory, and moſt ſutable to mean Capacities, which in old Times they thought fit to comply with; for 32 Times 32, which is the Number of Cubits in the Side of the antient *Chiliad*, or *Engliſh Hyde*, is rightly fitted to ſuch Way of counting, and it exceeds 1000 Cubits by 24. The Square whereof exceeds the Square of 1000 Cubits by ſo much as is the full Allowance for all Manner of Waſte, in all the moſt antient Land Meaſures.

I hope I have ſufficiently made out the Origin and Antiquity of our *Engliſh* Weights and Meaſures; and tho' you here find ſome Things which are only my Conjectures, yet you know in ſome Caſes 'tis that we truſt to, and think our own Gueſſes cannot deceive us, when the Teſtimony of others may. As if I ſhould ſee two Men of equal Make and Size, one of 20 Years of Age, and the other of 60, I think I could gueſs which was oldeſt, without the Help of other Evidence than my own Conjecture, upon what I ſaw in their Faces. And if any one ſhould ſay otherwiſe, I perhaps ſhould give them little Credit.

APPENDIX.

Being a ſhort, but clear

INTERPRETATION

Of the moſt Antient

HIEROGLYPHICKS

Found in the

HOLY BIBLE.

ALL the Hieroglyphicks in the Bible may be compriz'd under theſe Five Heads, *viz.* 1. The third Heaven. 2. The lower Heaven. 3. The Earth. 4. The Sea. 5. Death, Hell, and the bottomleſs Pit. And the Things in them contain'd.

HEAD I.

Of the third Heaven, and the Things therein contain'd.

1. BY the *third Heaven* in the *Apocalypſe* we underſtand the happy State of the Saints here on Earth, who live the Life of Righteouſneſs; which Life reſults from the Union of God and the Soul, as the natural Life reſults from the Union of the Soul and the Body: Alſo metonymically, the third Heaven ſignifies, all the holy Saints on Earth.

2. By the *Temple of God* in Heaven, the Place of his Worſhip, is meant the true Worſhip of God in his holy Church. And by the Metonymy, it ſignifies all thoſe that worſhip him in Spirit and Truth. And as this Temple is but one, ſo there ought to be an Unity in the Doctrine of the Church, and an Uniformity in the Worſhip of God. By the Temple is alſo underſtood every faithful and true *Chriſtian*, in whom *Chriſt* dwells.

3. By *God's Throne* we may underſtand the Seat of his Divine Majeſty, whereſoever he is truly worſhipped; either in the Congregation

gregation of the Faithful, or in the Heart of every true Believer.

4. By the *Rainbow* about the Throne we underſtand thoſe holy Sacraments inſtituted by *Chriſt*, as generally neceſſary to Salvation; for as the *Rainbow* is a Token of the Covenant that God made with *Noah*, that the Earth ſhould be no more deſtroy'd by a Deluge, ſo are the Sacraments in the Church duly and rightly adminiſtred, and worthily received, not only a Token of that Covenant, which God through *Chriſt* made with all Mankind, but a renewing and confirming the ſame to every faithful and true Chriſtian in particular. Now the *Rainbow* being round about the Throne, ſhews, that in and through theſe Myſteries we make our Approach to the Throne of Grace.

5. By the *Lamb* is meant our Lord *Jeſus Chriſt*. The *Lamb* ſignifies Truth and Innocency. The *Horns* of the *Lamb* ſignifies Power; and his *Eyes* Wiſdom. By 7 *Horns* and 7 *Eyes* we underſtand Fulneſs of Power and Wiſdom.

6. By the 7 *Lamps* before the Throne are meant the *Holy Ghoſt*, whoſe Gifts are manifold. Seven does not ſignify the preciſe Number of thoſe Gifts, but the Plenitude of

of that Effuſion which was in the Times of the Apoſtles.

7. By the *Sea of Glaſs* before the Throne is ſhew'd the Firmneſs, Livelineſs, and Purity of that Faith, upon which they ſtand that approach this heavenly Throne. And by its Slipperineſs a Caution is given to thoſe that ſtand to take heed leaſt they fall.

8. By the *Ark of the Teſtament* is meant the Word and Sacraments truly and rightly taught, and adminiſtred; for as the *Ark* was a Teſtimony of God's Preſence in his holy Temple, ſo are the Word and Sacraments rightly taught and adminiſtred, a Teſtimony of his real Preſence in his Publick Worſhip. And as none but Prieſts might bear the *Ark*, ſo none ought to adminiſter the Word and Sacraments, but thoſe that are called, as was *Aaron*.

9. By the *Four Beaſts* in the midſt of the Throne, and round about the Throne, are meant the Books of the Four *Evangeliſts*. By their *Eyes* are meant Wiſdom and Knowledge.

10. By the 24 *Elders* are meant the Books of the *Old Teſtament*; not (I ſuppoſe from the

the Number of the holy Penmen, but for that ſuch Numbers as conſiſts of 7*ns*, 10*ns*, and 12*ves*, are often uſed in the *Old Teſtament* as the moſt perfect Numbers, which Numbers in the *Apocalypſe* St. *John* alſo uſes. Alſo, by a Metonymy, the 4 *Beaſts* and 24 *Elders* may ſignify all ſuch *Chriſtians* who are excellent in the Knowledge and Practice of the Things in thoſe Books contained.

11. By *Angels* are meant ſpiritual Powers; alſo, ſuch Things that are Symbols, whereby ſuch Powers are expreſſed are called *Angels*.

12. By the *Altar* is meant *God's Juſtice*.

13. By the *Horns of the Altar* is meant *God's Power*.

14. By the *Fire of the Altar* is meant *God's Wrath*.

15. By the *Angel with the golden Cenſer* is meant our *Lord Jeſus Chriſt*, in and through whom alone the Church offers up her Prayers to God the Father; which, together with the Incenſe of his Mediation and Interceſſion, aſcends up before the Throne of Grace.

HEAD

HEAD II.

Of the lower Heavens, and the Things in them contained.

1. BY the *lower and visible Heavens* is to be understood the outward and more visible State of the most pure Part of the *Catholick Church*.

2. The *Sun* is the Light and Heat of Heaven; by its Light we understand divine Knowledge, the Light and Knowledge of the Gospel. By its Heat we understand the Influences of that holy Spirit, which so warms our Affections that we become Doers of the Word, and put that Knowledge into Practice, so as to bring forth the Fruits thereof in our Lives and Conversation. By the Sun then is meant all Spiritual Blessings.

3. By the *Moon* is meant all Worldly Blessings; such as Length of Days, Riches, and Honour.

4. By the *Stars* are meant such Men of Eminency

Eminency which are Lights and Ornaments of the Church.

5. *Thunder* is the Voice of Heaven; the Doctrine of the Church preach'd or written.

6. By the penetrating Nature of *Lightning* is set forth how quick and powerful the Word of God is, sharper than a two edged Sword.

7. By the Body of *Air*, and the various Dispositions thereof, is shewn the State of the Laity in the most pure Part of the Church.

8. By *Clouds* are meant such Nations and Kingdoms which are Parts of *Christ*'s true visible *Church*.

9. By *Rains* and *Dews* are meant the Assistance of the divine Grace, whereby the Fruits of Faith are brought forth in our Lives and Conversations.

10. By *Hail*, *Whirlwind*, and *Tempest* are meant God's temporal Judgments on those that regard not his Word. *Exod.* 9. from 17 to 27.

11. By

11. By *Winds* are meant Hereſy and falſe Doctrines, God's ſpiritual Judgments on thoſe that regard not his Word.

12. By *Fowls* are meant thoſe that have a temporal Power and Rule in the Church.

HEAD III.

Of the Earth, and the Things therein contained.

1. BY *Earth* is meant ſuch Part of the Church which is full of groſs Errors, and Corruptions. Sometimes by Earth is meant the Church of *Chriſt* before our Saviour's Coming in the Fleſh, when the Truth was not yet fully reveal'd. Likewiſe, by Earth may be meant ſuch Members of the viſible Church, in whom is ſeen little or nothing either of the Knowledge or Practice of Religion.

2. By *Mountains* and *Iſlands* are meant ſuch Nations and Kingdoms which are Parts of ſuch a Church.

3. By

3. By *Cities* are meant Churches of great Eminency.

4. By a *Wilderneſs* is meant ſuch Part of the Church which is leaſt viſible.

5. By *Graſs* is meant the weaker Sort of *Chriſtians*.

6. By *Corn*, *Grain*, and *Fruit* of the Earth are meant God's People fruitful in good Works.

7. By *Trees* are meant ſound and ſtrong *Chriſtians*, which look upward far above the Earth, from whence they are ſprung. Alſo that which from ſmall Beginnings ariſes to be very great, is compared to a Tree.

8. By *Beaſts* are meant thoſe that have a temporal Power and Dominion in the Church, as the Beaſts cover the Graſs of the Field which they tread upon and devour.

9. By their *Horns*, are meant the Strength and Power of ſuch Beaſts.

10. By *Sheep* are meant the People of God in the midſt of a crooked and perverſe Generation.

11. By *Beaſts of Prey* are meant ſuch that make Havock and Deſtruction in the Flock.

12. By *Horſes* we underſtand Warlike Power.

13. By *Locuſts* are meant thoſe that are ſent by the juſt Judgments of God, to make Deſtruction in the Church, as the Locuſts deſtroy the Graſs of the Field, and Fruits of the Earth.

14. By *Earthquake* is meant Commotions in the Church about Matters of Religion.

15. Of Metals, *Gold* ſignifies that which is moſt deſirable. Silver, that which is valuable and ſerviceable. *Braſs* is leſs valuable, but more ſtubborn and obdurate. *Iron* moſt ſtrong and invincible.

16. Of Colours, *White* ſignifies Purity.

Red, War and Bloodſhed.

Black

Black, ſignifies Impurity.

A *pale* or *lead* Colour ſignifies Death.

Green ſignifies that which is pleaſant and delightful. *Cant.* 1. 16.

17. *Weights* and *Meaſures* ſignify Juſtice.

By certain Numbers of known Meaſure is ſometimes meant certain Particles of Time.

18. The Purity of the Holy Scriptures is expreſs'd by *Fountains of Water*. Thoſe Streams which flow from hence are compared to Rivers.

19. *Man* ſignifies ſuch temporal Power by which the Church is protected. Our *Lord Jeſus Chriſt* is the Son of Man.

20. By *Woman* is meant the Church. By a Whore or an Adultereſs is meant a Church full of Corruptions.

21. By the *Sign* or *Likeneſs* of the Son of Man is meant the Power, Wiſdom, and Truth of God's Word. His Head and Hairs, *Apocalypſe* 1. 14. betoken the antient of Days; his *Flaming Eyes*, which pierce the Secrets of all Hearts, do ſhew his Infi-

nite Wiſdom. His *Feet* are as firm as brazen Pillars to ſupport his Church; and as terrible as conſuming Fire to deſtroy his Enemies: His *Voice*, which is his Word in the Mouths of many Nations and *People*, is like the Sound of many Waters. His *Golden Girdle* ſignifies Truth in Perfection. With his two-edged Sword he enlarges the Bounds of his Empire, and deſtroys Enemies. His *Face* ſhining like the Sun in his Strength, ſhews that all Men ſhall ſee his Glory. By all which is ſet forth the Power, Wiſdom, and Truth of him, whoſe Name (*Rev.* 19. 14.) is the Word of God.

22. *Fire* is that which conſumes all combuſtible Matter; by Fire is therefore meant whatſoever conſumes and deſtroys. God's Judgments upon Sinners is expreſs'd by Fire; the like is alſo ſignified by a Sword. Fire is that which purifies Gold and other Metals, by Fire is therefore ſometimes meant ſuch Tryals which God ſends upon his Children, which conſumes the Droſs, and purifies the Gold. Fire is beneficial to Man by its Light, and by its Heat; by *Light* is ſometimes meant Wiſdom and Knowledge, ſometimes Virtue and Goodneſs. The Influencies of the Divine Spirit which inflames our Hearts with holy and good Deſires is compared to Heat. The contrary whereof is Coldneſs. *Rev.* 3. 15. 16. Fire may alſo ſignify ſuch Gifts of the *Holy Ghoſt* which are as burning and ſhining Lights.

23. By *Darkneſs* is ſometimes meant Ignorance and Folly. Sometimes Vice and Wickedneſs.

24. By *Smoak* is meant ſuch Hereſies and falſe Doctrines, by which the Truth is clouded and made obſcure.

25. By *Sulphur* and *Brimſtone* is meant ſuch Damnable Doctrines which do wholly choak and deſtroy the Truth.

HEAD IV.

Of the Sea, and the Things therein contain'd.

1. BY *Sea* is meant ſuch Nations and Kingdoms which are out of the Pale of the viſible Church.

2. By *Fiſhes* are meant thoſe that have Power and Dominion therein.

3. By

3. By *Ships* are meant *Christian* Congregations amongst *Infidels*.

4. By many and great *Waters*, or *Floods*, are meant Nations and People.

HEAD V.

Of Death, Hell, aud the bottomleſs Pit, and the Things therein contain'd.

1. BY *Hell* or ᾅδης, we underſtand what is Diametrically oppoſite to the Third Heaven; if therefore by the third Heaven is underſtood the happy Eſtate of the Saints here on Earth, who live the Life of Righteouſneſs, which Life reſults from the Union of God and the Soul, as the natural Life reſults from the Union of the Soul and Body, then by *Hell* or ᾅδης is meant the wretched State of thoſe evil Men who are dead in Treſpaſſes and Sins; which Death reſults from the Separation of God from the Soul, as the natural Death is the Reſult of the Separation of the Soul from the

the Body. Alſo Metonymically by ᾅδης is underſtood all Men that are in ſuch State and Condition. And in this Senſe I ſuppoſe it is to be taken, *Rev.* 20. 14. where *Death* and *Hades* are ſaid to be caſt into the Lake of Fire.

By Hell may Sometimes be meant the State of thoſe that are ſo far loſt that they ſeem irrecoverable. As *Jonas* in the Whale's Belly, *Jonas* 2. 2. which was alſo a Sort of Death, as appears by the Parable of the Prodigal Son, *He was dead, and is alive, was loſt, and is found.*

2. By the *Bottomleſs Pit* we underſtand a great Abyſs of Darkneſs, *Gen.* 1. 2. That is an unmeaſurable Depth of Folly, Vice, and Wickedneſs, which alſo may be called Hell.

3. The Everlaſting State of the damned in the Lake of Fire, prepared for the Devil and his Angels, is in the *Apocalypſe* call'd, ὁ θανάτος ὁ δεύτερος, the ſecond Death, *Chap.* 20. 14.

4. By the *Dragon*, *Old Serpent*, and *Scorpion*, is meant the Devil; by Dragon is underſtood his Power; by Serpent his Cunning; by Scorpion his Malice; when he raiſes

raiſes Perſecution againſt the Church he is called Dragon, when he by his Wiles draws Men into Sin, as he did our Firſt Parents, he is called Serpent, when Men, apprehenſive of the Guilt of Sin, are by him driven into Deſpair, he ſtings as a Scorpion.

As there are divers Sorts of Deaths, ſo there are divers Sorts of Reſurrections, there being a Poſſibility of a Reſurrection from all Sorts of Death, except the ſecond Death.

FINIS.