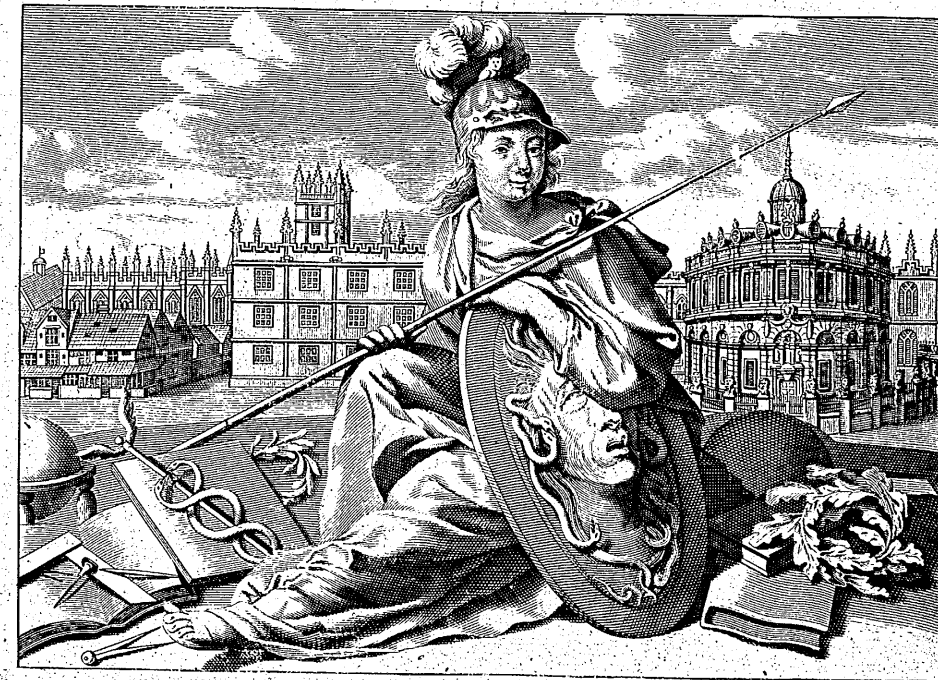


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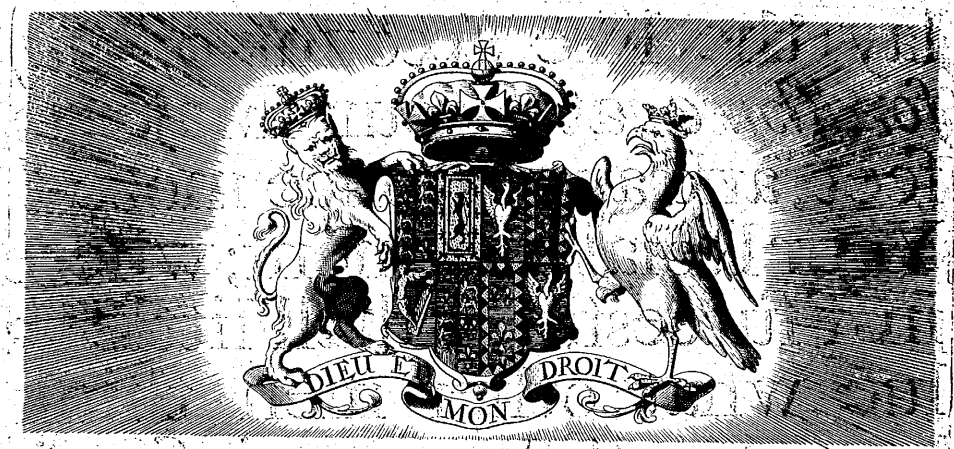
THE *J. 6. 5.*
Natural History
Lauderdale OF *History &*
STAFFORD-SHIRE.
 BY
 ROBERT PLOT. LL.D.
 Keeper of the
ASHMOLEAN MUSÆUM
 And
 PROFESSOR of CHYMISTRY
 in the
 UNIVERSITY
 of
OXFORD.

Ye shall Describe the Land, and bring the Description hither to Me, Joshua 8. v. 6.



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 APRILIS 16,
 1686.



To the Most Sacred Majesty
 OF
JAMES the SECOND
 KING of Great BRITAN, FRANCE and IRELAND
 Defender of the *FAITH*, &c.
May it please Your Majesty,

THE Character Your Majesty was pleas'd publicly to afford the History of *Oxfordshire*, when You last vouchsafed your University of *Oxford* the Honor of a visit, gives me confidence to lay
 lay

lay the like account of *Staffordshire* at Your Majesties feet, and appeal once more to Your Roial Judgment; wherein if succesful, I shall little value what other men think; but cheerfully acquiesce in Your Majesties decision, as in duty becoms

Your Majesties most Loial,

and most Obedient

Subject

ROBERT PLOT.

THE
P R E F A C E
to the Reader.

HAVING for the most part persued the very same Method in writing this History, that I used in that of Oxfordshire, I shall have little occasion further to enlarge myself here, than to acquaint the Reader with those few alterations he will find I have made, which I doubt not he will judg, so advantageous and reasonable, that he will easily approve of what I have done, and excuse me of all levity, and unsetledness of temper.

The first and cheifest of which alterations, he will meet with in the Map; where he will find many Letters, as well as figures set over the Sheilds, and these divided with lines drawn between them; the figures on the right hand each Escoccheon, shewing what Armes belong to the Houses, as they did in Oxfordshire; and the Letters and figures on the left hand division, shewing on the contrary what Houses, belong to each Armes: so that whereas in Oxfordshire upon the sight of a house, one could easily find the Armes that belong'd to it; in this, upon sight of any mans Armes (which are easily met with, being all placed in alphabetical order) one may as quickly find the house belonging to them; by seeking the same Letters and figures over the Armes, in the Western and Northern Limbs of the Map, and finding where they meet in a right angle: the houses (as well as parishes and villages, whereof there is an Index also annext to this History) being always within or somewhere at least touching the lines of the squares, wherever these Letters and figures meet; that are set over, or after, those Armes, or parishes. So that the Reader hereby tho' never so great a stranger, may not only when he sees a Gentlemans seat with figures annext, quickly find whose tis; but (which is of greater use) if he know but any persons name in the County, he shall as quickly find his Armes, and whereabouts he lives; as he may also any Town, Parish, or village, if he read any thing remarkable in this History, found or done there, and would know whereabouts it is situate in the County.

Concerning the distances, and Scale of Miles in the Map, they were taken after the same manner as in the History of Oxfordshire, and set off in the Map at the rate of two miles in an inch, as may be found upon comparifon of a Rule with the Scale, and of the
a
Scale

The PREFACE to the Reader.

Scale with the Squares, the mean or middle sort of reputed Miles of this County (which I have followed here as I did in Oxfordshire) containing for the most part about 10 furlongs, of which about 55 answer a degree, so that $\frac{2}{3}$ parts of a mile or $\frac{1}{3}$ and $\frac{1}{2}$ make a minute; according to which computation the degrees of North Latitude are divided into minutes on each side the Map, being chiefly made off from the Latitude of Stafford, which hath been observed to be situat in the 52^a minute of the 52^a degree, proxime; the 53^a degree beginning at the line passing betwixt Knighton and Radwood on the West side of the Map, and so through Hanchurch, Trentham, Blurton, Huntley, Bradley, and Denston: by which division 'tis easy to know to a minute of a degree, nay almost to a second, in what latitude every Town, Parish, Village, and Gentlemans house, is seated.

Which is all wherein the Map differs from the former: and as for the History it self, I have so little reason to repent me of the Method I follow'd in that of Oxfordshire, that I hope it differs not from it at all; unless in case of meliority, viz. in a greater variety of parallel Histories, whereby the more unusual ones, I met with in this County, have been all along confirm'd; and in the determination of more difficult Questions; whereby there is scarce a Chapter in this History but has been render'd the more considerable, I mean in the stating of some one, or more of them: which I hope all men will find done with that accuracy, that they will accept of them in excuse of the long delay, that has partly been made upon that account, in the publishing this History; it having been really so far from a prejudice, that I think I can satisfy any reasonable man, that this History could not have possibly been, what (I hope) it is, in a much less time.

I know 'twill be objected I publish it in print, that this History should be extant by such a time precisely, now long since past; which I here as publicly deny, as ever it 'twas asserted: for the truth whereof I appeal to the very papers subscribed by the hands of the Nobility and Gentry, who encouraged the work, and if it be found otherwise then is here profess't, let me never enjoy the benefit of them; nor of any thing there mention'd, if I doe not literally and with advantage, make all good I there promised: which I hope is as much as will be expected of me, by any judicious unprejudiced persons, and for others, I am not concern'd to give them satisfaction.

To

To the most Sacred Majesty

OF

JAMES the SECOND

Upon occasion of D^r PLOT'S

presenting to HIM

THE

NATURAL HISTORY

OF

STAFFORD-SHIRE

Describe the Land, Israel's Commander said
And the glad Artists strait the word obey'd,
Here Jordan flows, and here Asphalte stands,
See Beth'lem's fields, in which the skillfull hands
Let fall the Chain, and silent stop their pace,
Retain'd by th' mighty Genius of the place,
Some boding glimpse of wonder they descry,
Rejoice and tremble, but they know not why:
You Sir are Israel's King and 'tis by You,
That we enjoy A happy Canaan too;
Not only land and sea attend your State,
But all the *Muses* on Your triumphs wait,
Our lives and fortunes by the lawes are due,
And gratitude directs our pen's to You,
Thus the great Owner of the Starrs and Skies
Takes some small offering for a sacrifice;

a 2

These

These *Lands* of old did own the *Mercian* sway,
 And now rejoice Your *Scepter* to obey;
Trenta, and *Tama* raise their awfull Brow
 Proud to become a present unto You,
 As *Sacred* groves approaching Gods perceive,
 And hush'd in silence do attendance give;
 So when *just Fate* conducts You to the throne,
 These *Aged Stream's* do thus the blessing owne.

Now *JAMES'S* East do's mighty beams disperse,
AGenial warmth spreads thro' our *Universe*;
 We feel the God---, see how wing'd *Victories* flie,
 And croud with laurells thro' the glitt'ring Skie;
 When on our banks old Bards did Chant his name,
 The list'ning waves danc'd to his dawne of *Fame*;
 The joyfull murmurs hastned to the deep,
 Where waiting *Tryphons* *Neptunes* court do keep;
 Here angry waves their heads do prostrate lay
 And lowly bow toth Master of the sea:
 Nigh Majesty do's blesse *Thames* elder Stream,
 Let us do something may be told to Him.

Thus spake the *Aged Sires*, and *Nymphs* prepare,
 In hast to execute the pleasing care;
Winter its cold and garments lay's aside,
 And *February* takes up *Aprils* pride,
 Then *Staffords Fields* new youth and vigour gain
 And seem to date their birth from *JAMES'S* reigne,
Aquarius hasts these wonders to descry,
 Produc'd ('tis said) by tears that flow from joy.

When great *Augustus* in his stedy hand,
 The *Earth* and *Sea's* and plenty did command,
 When *Janus* slept retir'd from civill rage,
 And time seem'd to return the golden age,
 When cares and fears and even *Treachery* fled
 And hid in darkness its dishonest head,

De-

Described Provinces * his Empire greet
 And throw their plenty at his glorious feet,
 The *Naked Rhine* and *Nitred Tigris* come,
 And croud to bow unto *Victorious Rome*;
Parthia resigns her *Spoils*, the fruitfull *Nile*
 Presents his *Palm's*, and thirsty *Crocodile*;
Octavian's triumphs do Your *Temple's* bless,
 And in Your *Sunshine* can our *Muse* be less?
 Reproachfull *Rebell's* vain attempts do show
 How much of Heaven's care belongs to You;
 'Tis for Your sake *Nature* resigns her lawes
 And *Warlike Muses* dare assert your cause,
 Soft as their shades, and as retir'd as *Night*,
 They could in *Arms*, and *Rebell's* blood delight;
 So do's chast *Pallas* for her *Helmet* call
 And see's proud *Giants* by *Joves* thunder fall:
 But now in *Albion's* *Feilds* rich *Laurells* grow,
 Such as become *Sir* Your *Victorious Brow*,
 Your *Learned Athens* brings such gifts as these,
 And at her *Altars* thanks You for her *Ease*.
 Fair *Isis* and ye conscious *Groves* declare,
 Whose name from ev'ry tunefull *Swain* you hear;
 'Tis *JAMES* the *Second* fill's each *Echo's* voice,
 And with his praise do's ev'ry shade rejoice,
 Each *Science* feels new warmth, her wandring eyes
 Beholds *Apollo* mount the *Eastern* skies;
 Our *Author* do's not give but just restore
 What Your great *Genius* had inspir'd before:
 Thus *Pearls* and *Gold* and all that men call great
 Doe owe their birth to the *Suns* ruling Heat.
Nature, whose scorne do's common *Mortals* flie
 Is proud to be the object of Your *Eye*,

* *Æthicus* in his *Cosmography* (which was transcrib'd by *Orosius* tells us the whole Empire was Survey'd and describ'd in the Reigne of *Augustus*, and gives the names of Those, who had the care of it, v. *Voss. de Lat. Hist.* l. 1. c. 13. & *Caſp. Barth.* l. 14. c. 8.

She decks herself, sets all her stores in view,
 That she may recommend herself to *You*;
 Thus *Philip's Son*, when in his arms he bore
 A Conquer'd *World* and weeping wisht for more,
 Receives the Labours of the *Stagarite*,
 And *Learning* fills the *Heroe's* appetite:
 Tho' *Sir Your Empire*, so expanded lie
 That its vast bounds no setting *Suns* descry,
 Yet do's it not to this its greatness owe,
 'Tis therefore great, *because possess'd by You*.

THO. LANE M.A.

and Fellow of

Mert. Coll.

To Dr. PLOT on his Natural

History of Staffordshire.

I.

WHAT strange *Perversity* is this of *Man*!
 When twas a *Crime* to tast th' *inlightning Tree*
 He could not then his hand refrain,
 None then so *inquisitive*, so curious as *He*:
 But now he has liberty to try and know
 God's whole *Plantation* below,
 Now the *Angelic* fruit may be
 Tasted by all whose arms can reach the *Tree*,
 His now by *Licence* careless made,
 The *Tree* Neglects to *Climb*, and *Sleeps* beneath the *Shade*.

2.

Such restive *Sedentary* Soules have they
 Who could to *Patriarchal* years live on
 Fix'd to *Hereditary* Clay,
 And know no *Climate* but their own.
 Contracted to their narrow *Sphere*
Rest before *Knowledge* they prefer,
 And of this *Globe* wherein they dwell
 No more than of the *Heavenly* Orbs can tell,
 As if by nature placed below
 Not on this *Earth* to *dwell*, but to take *Root* and *grow*.

3.

Dull Souls, why did great Nature take such care
 To write in such a *Splendid Character*
 If man the only thing below
 That can pretend her *hand* to know,
 Her fair-writ *Volum* does despise,
 And tho' design'd for *Wisdom* won't be *Wise*?
 Th' *Allmighty* gets no *Praise* from this *dull* kind,
 The *Sun* was never *Worship'd* by the *Blind*.
 Such *Ignorance* can ne'r *Devotion* raise,
 They will want *Wisdom*, and their *Maker Praise*.

4.

They only can this *Tribute* duely yeild
 Whose active spirits range abroad
 And traverse ore all *Natures* field
 And view the great *Magnificence* of *God*.
 They see the hidden wealth of *Natures* store,
 Fall down, and *Learnedly* adore.

But

But *they* most justly yet this tribute pay
Who dont *Contemplate* only, but *display*,
Comment on Natures text, and to the sense
Expose her latent excellence.
Who like the *Sun* not only *travel* ore
The world, but give it *light*, that others may adore.

5
In th' head of these *Heroic* Few
Our *Learned Author* first appears in view,
Whose searching *Genius* like the *Lamp* of day
Does the Earth's furniture display,
Nor suffer's to ly burid and unknown
Natures rich *Talent*, or his *own*.
Drake and *Columbus* do in thee revive,
And we from thy *Research* as much receive.
Thou art as great as they, for tis all one
New Worlds to *find*, or nicely to describe the *known*.

6
On mighty *Hero*, our *whole* Isle survey,
Advance thy *Standard*, Conquer all the way.
Let nothing but the *Sea* controul
The progres of thy active Soul.
Act like a pious *Courteous Ghost*
And to mankind retrieve what's *lost*.
With thy *Victorious* Charitable hand
Point out the *hidden Treasures* of our Land.
Envy or *Ignorance* do what they will
Thou hast a *blessing* from the *Muses Hill*.
Great be thy *Spirit* as thy *Work's* divine,
Shew thou thy *Maker's Praise*, We Poets will sing *thine*.

J. NORRIS M. A.

and Fellow of

All-Souls Coll.

Ad

Ad Authorem *Historiæ Naturalis Comitatus Staffordiæ*.

HÆserunt alii tenui sub cortice Mundi,
Vix strinxit summas sterilis *Geometria* glebas;
Intima scrutaris *Matris* penetralia *Terræ*,
Ignotosque aperis, Populo mirante, recessus.
Infans *Cæsareo* partu producit aurum,
Lucinam supplente Stylo; Ferrumque ligonum
Impatiens, paret Calamo; Pennamque sequutum,
Non magis ire lubens, quamvis *Magnete* procante
Gestit in amplexus; vel si quando evocat ardens
Mulciber ad Fulmen *Siculi* fornacibus antri.

Ipsam etiam Fulmen sub *Te* Vibrante, priori
Exiit Flamma: Sic mittit tela secundo
Jupiter augurio; liquidum sic *Æthera* inaurat
Dum castigato *Semelen* Uxorius igne
Quærit, & innocuos *Baccho* inspirare calores.

Cætera, quæ volitant super Aera corpora, nobis
Naturam absolvens, plenè *Tua Pagina* miscet.
Roscida *Virgilii* non sic depingitur *Iris*,
Quando averfa comam refecat morientis *Elisæ*,
Quamvis *Mille trabens* varios à sole colores.

Hoc cælo nitidus majore *Parbelius* orbe
Splendet, nec solum demonstrat *Apollinis* ora,
Te quoque reflectit, geminata luce superbus,
Quam bene sic junctos ostendit in *Æthere* vultus.

Sed quæ *Te* dignè celebrabit *Musa*, relinquat
Parnassi exhaustos latices, siccumque *Heliconæ*.
Æternas aperis Lymphas, hoc Fonte *Camæna*
Non Labra, at *Vestra* se totam proluat Urna.
Oblitusque maris, veterisque oblitus *Amoris*,
Phæbus in hoc aliam venetur *Terhya* Ponto.

Hic Pater *Oceanus* vastas dispensat aquarum
Justus opes, *Nymphis* ferri sua dona per orbem
Hinc jubet; huc iterum desertis *Naiades* antris
Cum redeunt, liquidæ referunt dispendia *Gazæ*;
Humoris quantum cogit frondescere Plantas;
Quanto *Flora* sui variavit sidera cæli;
Quicquid & in solidas jussit lapidescere quercus.
Quod superest, nec plus *Cybele* fatiata requirit,
Per plures Rivos, per Flumina mille revertens,
Maternos repetit blando cum murmure *Fluctus*.

Quam sibi *Scriptorem* *Fœlix Staffordiæ* plaudit
Adjecta *Oxonio*! quid plus vel vota rogabunt,
Ni postquam *Vestra* lustrata *Britannia* curâ est,
Mens Majora sonans, totum percurreret Orbem,
Quaque patet *Natura*, extenderet impigra Regnum.

S. WELSTED.

DIRECTIONS

For a right understanding of the Map.

1. Let the Reader take notice that the Armes of the Nobility and Gentry, and the figures over the right hand of each Sheild, are put according to the Alphabetical order of the names, and numeral order of the figures, except when the Persons live in Lichfield or Stafford, in which case, those of Lichfield are markt with an *, and those of Stafford with S.

Table listing various locations and their corresponding letters and numbers, such as Abbots-Castle, Acton, Adbafton, etc., with letters like 'A' and numbers like '5'.

An Index of the Towns, Parishes, and Villages, &c.

Large index table listing towns, parishes, and villages with their respective letters and numbers, including entries like Cotwall, Cotwallton, Coven, etc., and a final entry 'The' at the bottom right.

Of STAFFORD-SHIRE.

Table listing various locations in Staffordshire with their respective letters and page numbers. Includes entries like 'The Oake', 'Oakley', 'Oaken', 'Offley-Bishops', etc., under letters O, P, Q, R, S, T.



THE NATURAL HISTORY OF Staffordshire.

CHAP. I. Of the Heavens and Air.



HAVING already in the Introduction to my Natural History of Oxfordshire prescribed my self a Method, whereof I have no reason to repent me, I shall forbear all further Preface to this, than to acquaint the Reader in short, that I intend the same again, not only in the Whole, but in the particular Chapters; and that I shall make all Relations (as formerly) in a plain familiar Stile, without the Ornaments of Rhetorick, least the matter be obscured by too much illustration; and with all the imaginable brevity that perspicuity will bear; it being an indisputable truth, that an Author by enlarging to the utmost compass of his Theme, sometimes advances his Papers to so disproportionable a Bulk, that by writing too much, He had almost as good have writ nothing, Experience convincing us that voluminous Works have but few Buyers, and much fewer Readers.

Nat. Hist. of Oxford-sh. Chap. I. §. 1, 2, 3.

A

2. Upon

2. Upon this account too, I have industriously set my self this irrepeatable Law, to remain inviolable in all other *Histories* I shall write of this kind: That whatever I meet with in one *County*, already described in another, shall be only just mentioned as found, seen, or heard of, at such or such a place, always referring the *Reader* for the Description, or Philosophical account of it, to the former *Book*; unless the thing differ in some considerable circumstance, or be but imperfectly described: thus whatever Curiosity either of *Nature* or *Art* (be it of the greatest moment) that I have met with in *Staffordshire*, if sufficiently described already in *Oxfordshire*, shall be but barely mention'd here, reference being made to the *Chapter* and *Section* of that *History*, where it has been discoursed on before: Nor need I doubt but the *Staffordshire Nobility* and *Gentry* (Learning and Ingenuity being so frequent amongst them) will allow me this privilege, without the least imputation of detracting from their *Country*, since hereby I avoid all vain repetitions, and yet shall amply repay them again, if I live to write the *History* of any other *County*, by referring in like manner as much or more to theirs; which 'tis manifold odds, but I shall certainly do, if I ever meet hereafter with the like noble encouragement, that they have so plentifully and generously afforded me.

3. To come then forthwith to the subject in hand, the *Natural History* of the *County* of *Stafford*; the first thing I met with relating to the *Heavens*, and one of the first too that I heard of after I set to work in earnest, was a pretty rural observation, of late years made by some of the *Inhabitants* of the *Town* of *Leek* in the *Moorelands*, of the setting of the *Sun* in the *Summer Solstice*, near a *Hill* called the *Cloud*, about six miles distant, in the confines of *Staffordshire* and *Cheshire*; which appearing almost perpendicular on the *Northern* side, to such persons as are standing in *Leek Church-yard*, the *Sun* seems so nicely at that time of year to cut the *Edg* of it at setting, as in *Tab. 1. Fig. 1.* that notwithstanding what is taught by *Astronomers*, that the *Sun* whilst it occupies that *Cardinal* point, appears *Stationary* for some time without giving any sensible increase or decrease to the length of the days; they can plainly perceive by the help of this *Hill*, that no two days are equal, but that there is a sensible difference every day: just as at the *Temple* of *Tentiris* in *Egypt* where there are as many *Windows* as days in the year, so placed, that the *Sun* rising in a different degree of the *Zodiac* every day, it also sends in its beams every day into a distinct *Window* from the day before^b.

^b *H. Vanhelvins's* present State of *Egypt* chap. ult. p. 246.

For

For when the *Sun* comes near the *Solstice*, the whole disk of it at first sets behind the *Hill*, after a while the *Northern Limb* first appears, and so every night gradually more, till at length the whole *Diameter* comes to set *Northward* of it, for about three nights; but the middle night of the three, very sensibly more remote, than the former or the following, when beginning its recess from the *Tropic*, it still continues more and more to be hidden every night, till at length it descends quite behind it again.

4. Which *Phænomenon* though worth notice for its own sake alone, yet might be render'd of much more use to the *Publick*, would the *Curious* that for the most part reside thereabout, make annual and more strict observations for the future by suitable *Instruments*, noting every year the day precisely, that the *Limb* of the *Sun* first cuts the edge of the *Hill*, and how many *Digits* or parts of *Digits*, of its own *Diameter*, it daily advances; also carefully noting the nearest distance 'twixt the edge of the *Hill*, and the *Rim* of the *Sun*, on the very day of the *Solstice*, and lastly the *Mean* between both: For by this means in time the *Sun's* greatest *Northern Declination* (which *Astronomers* say is less now than heretofore) may be gradually adjusted, and at length perhaps limited; Which I take to be an *Experiment* of so valuable a consideration, that I cannot but recommend it to my worthy friends the *Worshipful Thomas Rudyerd* of *Rudyerd* Esquire, *M^r. Parker*, and *M^r. Thomas Gent*; at least that they would take care in some one year or other, when there is least of *Refraction* upon account of the *Atmosphere*, from some fixt point, so to adjust the distance betwixt the *Hill* and the *Sun* on the day of the *Solstice* by an *Azimuthal Quadrant*, the new *Micrometer*, or some other agreeable Instrument, that future *Ages* however (if it cannot be in this) may see the difference.

5. Next the true and genuine, the *Spurious* or *Mock-Suns* that have been frequent in this *County* fall under consideration, so frequent indeed (their causes already having been hinted in *Oxfordshire*^d) that they scarce deserve any; at most but bare mentioning: Such were the *Parelia* seen about twenty years since, by that great Example of *Valour* and *Fidelity* to his Prince, the *Worshipful Colonel John Lane* and *Mr. Persepowse* of *Nether Gournall*; as they were walking between *Bentley* and *Willingworth* (near *Darlaston*) they appear'd in the *West*, the *Sun* not above half an hour high standing in a line parallel to the *Horizon*; and so did the *Mock-Sun* seen *July 12. 1678.* by the virtuous,

^c *Job. Bapt. Riccioli Almagestum Nov.* Lib. 3. Chap. 27. ^d *Nat. Hist. of Oxfordsh.* Chap. 1. §. 5.

A 2

learned,

learned, and most ingenious Gentleman the Worshipful Walter Chetwynd of Ingestre Esquire, and Mr. Fisher Dilke as they were walking on Hopton Heath. I was also informed by the same ingenious Gentleman Mr. Fisher Dilke that on August the 28. 1679. He saw much such another at or near Haselour, neither of them having any Circle of light about them, or passing through the Disks of Mock or true Sun, as is usual, and both of them of so strong and even a light, as hard to be distinguished from the true Sun; only differing in this, that the first Mock-Sun appear'd about ten degrees to the South of the true one, and the latter to the North, but both of them in Almicanars or lines parallel to the Horizon.

6. And thus it seems they generally do, *nec supra ipsum nec infra*, says Pliny, *sed ex obliquo*, neither above nor beneath the true Sun, but on either side; *nec noctu, sed aut Oriente aut Occidente*, nor in the night season, but when the Sun either riseth or setteth, only once indeed he says in the same Chapter, that such were reported to have been seen at noon day in Bosphorus; and we are informed by the learned Monsieur Hevelius that near Marienburg in Borussia Feb. 5. 1674. He saw in the Evening the true Sun sending forth very long reddish rays tapering gradually upward for 40 or 50 degrees toward the Zenith, and under it a Mock-Sun nearer to the Horizon of the same bigness (to sense) with the true one, and in the same Vertical or Azimuth line.

7. Which though instances amongst Authors so very rare, that we hear of but these two, now in sixteen hundred years, yet one of them seems to have happened so very lately as Dec. 4. 1680. and to have been carefully observed, by my worthy, learned, and most ingenious friend, the Worshipful Francis Wolferstan of Staffold Esquire, who riding between his own house and Clifton Campvill, as near as he could guess about twelve at noon, His Man first espied somewhat unusual in the Heavens, which not without amazement quickly shewing to his Master, He presently perceived about the Azimuth or hour line of two (*viz.* two hours before the Sun or thereabout) a more than ordinary brightness of the same altitude with the Sun, which through the tenuious clouds that were passing over it, appear'd for a while not unlike another Sun, the true Sun shining at the same time.

8. But immediately after (the clouds passing away) there appeared in the same place the usual colours of the Solar Rainbow, somewhat of an oval form, with smaller beams issuing from

^e Nat. Hist. Lib. 2. Chap. 31. ^f Ibidem. ^g Philos. Transact. Numb. 102. p. 25 how this may be, see Des Cartes Meteororum Lib. 10. §. 5.

each

each side; and a larger white ray or stream of light darting downward from the bottom, as in Tab. 1. fig. 2. most remarkably differing from the Phenomenon of Hevelius, the ray of light in his issuing from the true Sun and tending upward, this from the Mock-Sun (for I can call it no less) and tending downward: Its colours whilst it continued in that form were strong and beautiful, but languishing by degrees, it became at length a small portion or Segment of a Solar Iris as in Tab. 1. fig. 3. which because so notoriously imperfect, and thus irregularly posited in the Heavens, may deserve perhaps as much or more of our admiration, as was given the imperfect Iris drawn by the great Master Aristides^h, beyond what would have been afforded to the most perfect one he could have painted: not only because appearing in the South contrary to the known rule amongst the Meteorologists, *nullæ ad Austrum pinguntur Irides*, but for overthrowing in a manner the whole doctrine of Rainbows. As first that the Center of the Sun, the Rainbow, and the Eye of the Beholder, must be in one right line; secondly the Spectator between the Sun and the Rainbow; and thirdly the horns or banks of the Bow always terminating in the Horizon: whereas this, being but 30 degrees from the Sun, the Concave toward it, and the Convex Westward from it, and consequentially the Cornua one above another in the same Vertical, can be no way agreeable to any such Axioms.

9. Nor yet was this Phenomenon so very irregular, but that somewhat of this kind seems to have happen'd before, for says Fortunius Licetus, *bis jam vidimus Irides in Meridiano ad Austrum*ⁱ, that He had twice seen Rainbows in the South; And Cornelius Gemma acquaints us that on the 25 of September in the morning Anno 1560. He saw a Rainbow of a like in the whole, though quite contrary position to ours in the parts, *Stabat enim convexa parte Solem versus, concava vero versus cujusdam Parbelii subobscurum typum, qui quasi ad Circium annuebat*^k: *Cornua igitur*, says Fromondus, *non in Terram spectabant, sed averfa ab exoriente Sole, directe in Occidentem intendebantur*^l: For it stood, says He, with its Convex part toward the Sun, and its Concave toward a somewhat obscure representation of a Mock-Sun to the Southward; whence Fromondus rightly concluded, that the Horns could not respect the Earth, but being averse from the rising Sun, must needs be stretched to the Westward. And what comes yet nearer to the business, Gisbertus ab Ifendoorn saw two exactly of the same

^h C. Plin. 2^{da}. Nat. Hist. Lib. 35. Cap. 11. ⁱ Fort. Licet. de novis Astris & Cometis, Lib. 6. cap. 2. ^k Corn. Gemm. Cosmoelit. Lib. 2 cap. 1. ^l Lib. Fromond. Meteorolog. Lib. 6. cap. 1. Art. 1.

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kind with ours at the same time Apr. 8. 1645. both of them standing with their Concavities to the Sun clasping it on each side at equal distance, whereof He has given us a *Diagramme* in his *Medulla Physicæ* Lib. 2. cap. 5.

10. To these add an *Iris* seen about nine years since, at the Parish of *Tresle* by Mr. *William Barnesley*, a good old Gentleman, whose assistance in riding about and shewing me the *Country* (notwithstanding his Age) must by no means be forgotten, which though perfect indeed in figure, was yet irregular in position; the *Horns* of the *Bow* terminating in the *Horizon*, the *Centers* of it and the *Sun*, and the *Eye* of the *Beholder* being also in the same right line; But the *Spectator* not between the *Sun* and the *Rainbow*: for it appear'd it seems in the *Clouds* on the same side of the *Hemisphere* with the *Sun* it self, and not on the opposite; so that the *Sun* and *Spectator* were the two *extreams*, and the *Iris* in the middle, and not the *Beholder*: A *Phænomenon* (if not a *Segment* of some vast *Halo**) I think not very easy, if at all to be parallel'd: But I am inclined indeed to believe it was only so, for though *Seneca* acquaints us with certain *Græcians* that deny'd there could be any such *Circle* about the *Sun*^m; to whom *Epicurus* also seems to give his assent, only mentioning them to happen about the *Moon*ⁿ; and though *Aristotle* himself (who allows them indeed to both *Planets*) is positive that they still appear of a uniform *white* colour, and not adorn'd with the colours of the *Solar Rainbow*: yet so frequently has there appear'd such about the *Sun* (not to mention those two eminent instances of *Seneca* and *Cardan*, to be met with almost in all *writers* on this Subject) that *Gassendus* alone professes he had seen them himself at least an hundred times^p: And that they are many times *large* enough for such a purpose, especially when the *Sun* is near setting, is also evident from the joyn't concurrence of all *Authors*, who assert the *Diameters* of these *Circles* to take up usually 45 degrees, an eighth part of the *Heavens*.

11. And such a large *Halo* as one of these it was, that was seen about the *Sun* May 17. 1681. at *Edingall* in this *County*, by the above mention'd curious and observing Gent. the *Worshipful Francis Wolferstan* Esquire, and many others, having the lively colours of the *Solar Rainbow*, and extending its *Diameter* as near as he could guess (for he had no *Instrument* with him) about 40. degrees; which yet was not so remarkable in these

* *Coronam si diviseris Arcus erit* L. An. *Seneca* Nat. *Quest.* Lib. 1. cap. 10. ^m *Ibid.* Lib. 1. cap. 2. *sub finem.* ⁿ *Diogenis Laertii* Lib. 10. in *Epist. Epicuri ad Pythoclem* ^o *Aristotelis meteorologiarum* Lib. 3. cap. 3. ^p *Pet. Gassendus* in Lib. 10. *Diogenis Laertii de Meteorologia Epicuri*, Tom. 2. p. 1129.

respects,

respects, as for the unusual form it appear'd in, for though the colours were apparent in all the parts, yet the *Circle* was not every where (as commonly they are) equally broad, but narrower on each side to the East and West, and much broader above and below the *Sun*, toward the *Zenith* and *Horizon* as in *Tab. 1. fig. 4.* And in this form it moved along with the *Sun* from half an hour past *ten* in the Morning, to as much past *one* in the Afternoon: what should occasion this *Phænomenon* indeed is hard to determine, yet certainly it must arise from some peculiar position of a *rorid* cloud or vapor, whose parts were made up of small threads (as 'tis also in *Parelia's* and *Rainbows*) having the figure of equilateral triangular *Prismes* which cause the colours, that must accompany the *Sun* for all that time; for should it be ascribed to the *Sun* it self, we should certainly before now have heard of others of the kind: I know it is the opinion of the ancient *Philosophers*, that the motion of this *Meteor* is not true but apparent, *i. e.* that the same *Halo* does not continue, but that a new one is still generated, as the *Sun* holds on its course *, as may sometimes be seen by some faint remains of the *old ones* left behind in the *Clouds* which the *Sun* has deserted; yet certainly in this case of ours it must be granted to be otherwise, unless we shall groundlessly allow that the same *Cloud*, of the same make and position did stretch it self before the *Sun* for 45. degrees together (for that the *Halo* continued in this form no less than three hours) which seems to lye under so great an improbability, that it can hardly be admitted.

12. But that which seems to put all out of doubt, on the *Tuesday* sevenight following *May 24.* being *Whitsun-Tuesday*, either the same, or another of the like kind, was seen again by the same worthy person, which appeared also for several days in the following week, and was seen not only in *Stafford-shire*, but at *Oxford*, and *Rocheſter* in *Kent* by my worthy friend *Robert Conny* M. B. of *Magd. Coll. Oxon.* Whence it plainly appears probable, not only that the same *Cloud* did accompany the *Sun* for some time at least; but also that notwithstanding the ancient *Philosophers*, have restrain'd the *Clouds* to the *middle Region*, *viz.* that they never transcend the tops of *Mountains*, yet they are sometimes mounted much higher, being strongly attracted by the *Rays* of the *Sun*, and then easily upheld, and thus carryed about with it for some considerable time; for otherwise how could such a *Halo* be seen at so far distant places as *Stafford-shire* and *Kent*, at the same time.

13. From the *Sun*, both *Nature* and my *Method* direct me, to de-

* *Lib. Fromondi Meteorolog.* Lib. 6. cap. 2. Art. 2.

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scend to the *Moon*, and the *Accidents* attending *Her*, which are much of the same kind with those of the *Sun*, though they happen not so frequently, such as *Irides Lunares* whereof (though *Aristotle* professes that He could see but two in above fifty years⁹) there have as many been seen here in less than two years; One at *Tunstall* near *Wolverhampton* in *October* 1678. by Mr. *Franc.* and Mr. *Jo. Wightwick*; and another the very next year following *Aug.* 6. 1679. by the ingenious and every way accomplish'd *Gentleman* the *Worshipful Thomas Broughton* of *Broughton* Esquire, who in the way between *Lichfield* and *Asbinbrook* in company with six other persons, about *Nine* at *Night*, the *Moon* then wanting five days of the *full*, and at that time of night possessing the *S. S. W.* part of the *Hemisphere*, saw an *Iris Lunaris* of a faint whitish colour, entire and well determined, which after a quarter of an hours time spent in beholding it, they left as strong and compleat as they found it, not knowing how long it had been there before they saw it, or how long it continued.

14. Which is not the first time that two of these have happen'd in so few years, for *Willebrordus Snellius* in his description of the *Comet* in *November* Anno 1618. tells us of two that were seen in the same space, one in *December* 1617. and another the day before the *Calends* of *January* 1618: That which is most remarkable is, that the increasing *Moon* presently upon her entrance into the second *quarter* (being then but $\delta\chi\tau\omicron\mu\textcircled{\text{C}}$ and of a weak light) five days before the *full*, and so near her *Southing*, should cause such an *Iris*, for they have always hitherto been thought never to happen, but at, or very near to the *full* of the *Moon*, and when few degrees above the *Horizon*. And yet *Albertus* gives us an instance almost equal to this viz. that He saw such a *Lunar Iris*, when the *Moon* was $\alpha\mu\phi\iota\upsilon\sigma\iota\textcircled{\text{C}}$, in her decrease, and possessing at that time the very point of the *Meridian*, the *Bow* being in the *North*. Which shall suffice at present for *Lunar Irides* the nature of them, and why not adorned with those beautiful colours we see in *Solar Rainbows*, having been already discoursed of in the *History* of *Oxford-shire*.

15. Next to these impressions made in the clouds, I descend to others made from them, such as the amazing and sometimes deplorable effects of *Thunder* and *Lightening*, which though they most commonly happen together, yet because the *Lightening* first affects the Sense, I give it the precedence as is usual amongst *Naturalists*. That *Lightening* should happen in the *Winter-quarter*

⁹ Meteor. Lib. 3. cap. 2. L. An. Seneca Nat. Quæst. Lib. 1. cap. 3. Willebrordi Snellii Descrip. Cometa Anno 1618. cap. 5. p. 33. Lib. Fromondi Meteorolog. Lib. 6. cap. 1. Art. 16. Nat. Hist. of Oxford-sh. Chap. 1. §. 7.

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has been always accounted a great rarity; yet not only this, but a more unusual accident (perhaps not to be met again in many Ages) was shewed me at *Stafford*, by the foremention'd worthy *Gentleman* the *Worshipful Francis Wolferstan* Esquire, who having built a new *Gate* before his house Anno 1675. and placed fair *Globes* of the finest and firmest stone over the *Peers* of it (whereon He depicted with his own hand two *Globe Dials* in oyl colours, and on the *terrestrial* the several *Empires* and *Kingdoms* of the *World*, that He might see how day and night succeeded in each of them) in *January* 1677. had them both struck with *lightening* in the same point (where the *great Meridian* of the *World*, and the *North* part of the *Polar circle* meet) there appearing first a little hole just in that place, and cracks radiating from it to all parts on that side, and the stone it self swelling forth so far as the cracks went, and quickly after dropping from the rest of the *Globes* (the parts coming away being as soft and as much disjoyned as moist *Sand*) as in *Tab. 1. Fig. 5.*

16. Yet the *Globe* on the left hand the gate going forth, seem'd to have been stricken first, and the other not till the day following; which if so, the accident was so much the more strange, that they should be stricken exactly in the same point at different times: But doubtless they both received these impressions the same instant, and that by *Lightening* too, which being of a very subtile nature (*Des Cartes* thinks like *Aqua fortis**) and solvent of the parts of bodies to that degree that it is said by the *Ancients*, to melt *Swords* in their *Scabbards*, and *Money* in mens *pockets***, did doubtless dissolve the parts of the stone (all being made of *Salt* and *Sulphur*) by consuming the *Sulphureous* parts, which knit the *Saline* ones of the stone together; as it happens in the burning of *Lime* where the *Sulphureous* parts of the *Lime-stone* being burnt away, the *Saline* parts separate and swell to a greater bulk upon the access of *moisture*; as I suppose these *Globes* did, being exposed to the *rains* and *mists*, that frequently happen at that time of year.

17. And here perchance by the way it may be no great digression, to enquire into the nature and efficient cause of those *Rings* we find in the *grasses*, which they commonly call *Fairy circles*: Whether they are caused by *Lightening*? or are indeed the *Rendezvous*es of *Witches*, or the dancing places of those little *pygmy Spirits* they call *Elves* or *Fairys*? And the rather, because 1. a *Question* (perhaps by reason of the difficulty) scarce yet attempt-

* Ren. Des Cartes Meteoror. Cap. 7. §. 9. Quod contigit M. Antonio Mureto Romæ.
 ** L. An. Seneca Nat. Quæst. Lib. 2. cap. 31, & cap. 52. Vid. etiam Plutarchum Sympof. Lib. 4. Quæst. 2.

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ed, and 2. because I met with the largest of their kind (that perchance were ever heard of) in this County: one of them shewed me in the grounds between *Handsworth Church* and the *Heath* being near forty yards *Diameter*; and I was told of another by that ingenious *Gent.* (one of the most cordial encouragers of this work) the Worshipful Sir *Henry Gough* Knight, that there was one in his grounds near *Pury-Hall* but few years since (now indeed plowed up) of a much larger size, he beleived near fifty, whereas there are some of them not above two yards *Diameter*; which perhaps may be near the two extremes of their *Magnitude*.

18. Nor is their difference only in the extent of their *Diameters*, they varying also in divers other respects, though not proportionably so much: for I have always observed that the *Rims* of these *Circles*, from the least to the biggest, are seldom narrower than a *foot*, or much broader then a *yard*; some as bare as a path way in many parts of them, others of a *russet* finged colour (both of these having a *greener* grass in the middle) and a third sort of a *dark fresh green*, the grass within being of a *browner* colour; the first kind seldom less than five or six yards *Diameter*, and the other two of various *Magnitudes*; And all these again, as well imperfect, as perfect; some of them obtaining three parts of a *Circle*, others being *Semicircular*; some of them *Quadrants*, and others not above *Sextants* of their respective *Circles*.

19. Now that *Wizards* and *Witches* have sometimes their field *Conventicles*, and that they dance in such *rings*, we have ample Testimony from divers good *Authors*, some of them *Judges*, who received it in confession from the *Criminals* themselves condemned by them, all agreeing (if to be beleived) that their *dances* were always *circular*, but that as they served a different *Master*, so they performed this *exercisè* in a different *manner* from other *Mortals*; *Porro circulares esse omnes Choros qui sic agitantur, atque ab averfis saltatoribus tripudiarum affirmant*, says *Nicholaus Remigius**, i. e. that they affirmed all their *dances* to be *circular*, their *faces* being turned away from one another; for which he alledges the *Confessions* of *Achen Weber*, *Johanna Gerardina*, *Dominicus Petronius*, *Hennel Armentaria*, *Anna Ruffa*, *Zabella* the Wife of *John Deodat*, *Odilla Gaillarda*, and many others; to which *Sybilla Morelia* it seems added another *circumstance*, that the *Circle* was always led to the *left hand*, as *Pliny* observes the ancient *Gaules* did, though they danced single, *totum corpus circumagendo, quod in Lævum fecisse, Galliaè religiosius credunt*†.

* Nich. Remigii Demonolatriæ Sag. Lib. 1. cap. 17. † Nat. Hist. Lib. 28. cap. 2. vid. etiam Lucanum Belli Civilis Lib. 1. v. 450.

20. Which *Relations* (especially if compared together) being somewhat obscure may in part at least be cleared out of *Baptista Codronchius*, who speaking in like manner of the same *Conventicles* and *dancings*, which they call *Dianæ ludos*, the sports of *Diana*; *Choreas*, says He, *à nostris penitus absimiles ducunt; feminae namque post dorsum masculis inhaerentes retrocedendo saliant, terga dando inclinant, caputque non ante, sed retro, &c.* that the *dances* they lead are quite unlike ours, for the *Womens* faces standing to the *Mens* backfides, they dance retrograde, bowing their *bodies* forward, and their *heads* backward, as the same *Codronchius* says they worship the *Devil*, *non faciem, sed terga illi obvertentes, caputque non in pectus, sed in scapulas inclinantes*‡, not turning their *faces*, but their *backs* towards Him, and bowing their *heads* not downward toward their *brests*, but backwards upon their *shoulders*: which though it pretty well explain the phrase of *Remigius* [*ab averfis saltatoribus*,] yet how this posture can agree with leading the *Ring* always to the left hand according to *Sybilla Morelia's* information, I freely confess I do not understand.

21 But to come close to the business, let us return again to the forecited *Remigius*, who was a *Judge* in *Lorrain*, and perhaps the best skill'd in matters of this nature that the *world* has yet known (having had the *Examinations*, *Confessions* and *Condemnations* of no less than nine hundred *Wizards* and *Witches* in fifteen years time) who, to omit many others of the like kind, gives us a most remarkable relation of such a *Conventicle*, and no less suitable (if true) to our present purpose. On the eighth of the *Calends* of *August* (says He) An. 1590. one *Nicolaea Lang-Bernhard* having been grinding at a *Quern* not far from *Assenuncuria*, and returning about noon, as she walked by a hedg side, saw in an adjoining field, an assembly of *Men* and *Women* dancing in a *Ring*, but in a quite different manner from the usual practice of others; for says my author, *aversi terga ostendentes id faciebant*, i. e. that they did it turning their *backs* upon one another; but at length viewing them more attentively, she perceived some amongst them to have *cloven* feet like *Oxen* and *Goats*, at which being sore astonished, and almost dead with fear, and calling upon the auxiliary name of *Jesus* to help her well home, they forthwith all *vanisht* except one *Petter Gros-Petter*, whom quickly after she saw snatcht up into the Air, and to let fall his *Maulkin* (a stick they make clean *Ovens* withal before they set in their bread) and *Her self* was also driven so forcibly with the *wind*, that it made her almost lose her breath, and when she was got home to keep her bed no less than three days.

22. The fame of which matter being quickly spread by her self

‡ Bapt. Codronchii de Morb. Venef. Lib. 3. cap. 8. † Ibidem.

and Relations through the whole Village, this Petter at first brought an action of slander against Nicolæa, but knowing his own guilt, and fearing to proceed too far, he desisted again; which breeding suspicion in the Judg, upon enquiry into his life and manners, he was at length apprehended, and at last freely confest the whole matter, and discovered others of his Companions, as Barbelia the wife of Johannes Latomus, Mayetta the wife of Laurence Super Major, both which though examined a part, yet confest expressly in the same words, de saltato à se averfis una cum intermediis Cornuipedibus choro, &c. i. e. that they had danced intermixt with those cloven footed creatures at what time Petter was amongst them.

23. And for further evidence of the business John Michael Herdsman did also confest that while they thus danced, he plaid upon his crooked staff moving his fingers upon it, as if it had been a Pipe, sitting upon a high bough of an Oak; and that as soon as Nicolæa called upon the name of Jesus, he tumbled down headlong to the ground but was presently caught up again with a whirlwind and carryed to Weiller Meddows, where he had left his herds a little before: Add hereunto (which is most of all to the purpose) that there was found in the place where they danced a round circle, wherein there were the manifest marks of the treading of Cloven feet, as plain as are made by Horses that run the Ring, as was testified by NickelClein, Desiderius Vervex, Gasper Sutor, and divers others that had been to see it, and were examined by the Judg as Witnesses upon it: which circle remained from the day after Nicolæa had discover'd the business, till the next winter when the Plow cut it out^b.

24. And as the Devils and Witches do sometimes leave the lively marks of their dancings after they have held such Conventicles, so Athanasius Kircher expressly acquaints us from the informations of Cysatus and Schulzius, that the Viruli or Virunculi montani, little Pygmy Spirits that infest the Mines of Helvetia and Hungary, do sometimes also leave the prints of their feet in the moist sand and soft tenacious earth of the Mines, about the bigness of the feet of Children of three years old: whence some men perhaps may think it probable enough, that some few of these Circles (especially the bare ones that have but little grass) may sometimes indeed be made by the forementioned mixt dances of Devils and Witches, and others by those little dwarf Spirits, we call Elves and Fairies.

25. Not that there are any Creatures of a third kind distinct from Men and Spirits of so small a stature, as Paracelsus fancied,

^b Nich. Remigii Demonolatriæ Sag. Lib. 1. cap. 14. Athanas. Kirch. Mundi subterr. Tom. 2. Lib. 8. §. 4. cap. 4.

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which he was pleased to stile non-Adamical Men; but that the Devils as they are best pleased with the sacrifices of young Children (which are frequently offered by Midwife-Witches in some Countries, their fat being the chief ingredient wherewith they make the Oyntment indispensably necessary for their transportation to their Field-Conventicles^d) so it seems they delight themselves chiefly in the assumption of the shapes of Children of both Sexes, as we are credibly informed by sober Authors, such as Georgius Agricola^e, Wierus^f, and others; who affirm them so frequent, especially in the German, Hungarian, and Helvetian (Mr. Busbell seems also to hint the same in our Welsh Silver^g) Mines, that they have given them divers names in their respective places, as in Germany those in the shapes of Men they call Cobalos, and those in the shapes of Women, Trullas, and Sibyllas albas; so in Italy they call them Folletos and Empedufas, and in other places Screlingeros, Gutelos, Bergmanlin, &c.^h More particularly such were the Annebergius and Snebergius of Agricola, and the Hutgin of Tritheimius. Nay so frequent has been the appearance of these Demunculi (as some report) in the more Northern parts of the world, that perhaps it has given the occasion to the stories of Pygmies mentioned by Olaus Magnusⁱ and the antient Geographers, Ctesias having given them a most agreeable colour making them all Negroes, and placing them in the midst of India, μέση τῆ Ἰνδικῆ ἀνθρώποι εἰσι μέλαρες, ἢ χαλκῶν τῶν πυγμαῖοι, μικροὶ δὲ εἰσι λίαν are his very words, i. e. that in the midst of India there are a sort of black men called Pygmies which are very little ones^k: For 'tis hard to believe there is, or ever was, any such dwarfish sort of people considering them nationally, and not as rare and single instances; notwithstanding the Testimonies of the ancient Poets and Historians; or now of late, of Van Helmont, who would perswade us from the Relation of a Canarie Merchant, that there were formerly of them in those Islands; or of Marcus Marci who belyes Pigafetta making him say that he saw Pygmies in the Isle Aruchet near the Molucca's^m; whereas indeed he only says, that an old Pilot of the Molucco's told his Company of such, that lived in Caverns there, and had so very long Ears that they slept upon one, and cover'd themselves with the other; but that the wind and stream being against them thither, and his Men di-

^d Bapt. Codronchii de Morb. Venef. Lib. 3. cap. 8. & Job. Bodini Mag. Demonomania. Lib. 2. cap. 5. ^e Geo. Agricola de Animantibus subterraneis sub finem. ^f Job. Wieri de prestigiiis Daemonum Lib. 1. cap. 22. ^g Busbell's Remonstrance of his Majesty's Mines Royal in Wales An. 1642. see also Mr. Hook's Lecture de Potentia Resitut. p. 41. ^h Athanas. Kircheri Mund. subterr. Tom. 2. Lib. 8. §. 4. cap. 4. & Lib. 10. §. 4. cap. 11. ⁱ Olaus Magni de mira natura Rerum Septentr. Lib. 1. cap. 11. ^k Ex Ctesia Indicis excerpta Historia a Photio p. 681. Edit. Steph. An. 1592. ^l Job. Bapt. Van Helmont Demonstr. Thef. p. 432. Edit. Venet. An. 1651. ^m Job. Marc. Marci Idearum Operatr. Idea, cap. 6. de Pygmaïs & Gigantibus.

trusting the *relation*, would not go to see them". Which makes me also suspect that he may also abuse the two *Oderici*, whom also he cites to have found such in their *Travels*.

26. And not only the bad but the good *Genii* also appear in the shapes of young *Children*, if we may credit the relation of a pious man an acquaintance of *Bodinus*, who had constantly the assistance of such a *guardian Angel*, which indeed he never saw but once, and that when he was in great danger of his Life, it appearing to *him* in the likeness of a *Child*, clad in white rayment somewhat inclining to purple, of a most lovely *visage* and delicate *forme*. And to come nearer home if we may believe the story of *Anne Bodenhom* the Witch of *Fisberton Anger* in the County of *Wilt*s, set forth at large by *Edmund Bower*, and the Reverend and Learned *Hen. More D. D.* The Spirits which she raised (as confest by *Anne Stiles* who was frequently at her *Conjurations*) always appear'd in the shape of little ragged *boys*, who ran round the house where the *Witch* had drawn her *Staff*, her *Dog* and *Cat* dancing with them, &c.^p. Some of the *Witches* also executed at *Exeter An. 1682.* unconstrainedly confest, that the *Devil* appeared to them like a short black Man about the length of one's *Arme*. All which put together seems not a little also to favour the opinion that such *Demunculi* may be the *Fairies* so much talk't of, and that they may indeed sometimes occasion such *Circles*; but herein every Man is left to choose his own *Creed*.

27. For my part though my faith be but weak in this matter, (notwithstanding it cannot be deny'd but the bad as well as good Angels may be Ministring spirits and converse with Mankind) yet if I must needs allow them to cause some few of these *Rings*, I must also restrain them to those of the *first* kind, that are bare at many places like a *path-way*; for to both the others more *natural causes* may be probably assigned: As first according to the opinion of the ingenious *Mr. Lister*, that at least some of them may be occasioned by the working of *Moldwarps*, which however for the most part irregular they may be, yet may have a time when perhaps by instinct of nature they may work in *Circles*; as 'tis certain *fallow Deer* do in the time of *Rutting*, treading the same *Ring* for many days together: indeed the strange fertility of these green *Circles*, even upon the most barren Heaths, beyond any place else about them, doth argue some extraordinary dung or compost, which he supposes to be the Excrements of *Moles*, or *Moldwarps*: others have fetcht their Origin from the *dung* and *urin* of *Cattle*

^p Viaggio del Sign. Ant. Pigafetta attorno il Mondo. tra gli Viaggi raccolti da Gio. Bart. Ramusio p. 368. Stampat. Venet. An. 1588. ° Joh. Bodini Mag. Daemonomanie Lib. 1. cap. 2. ° Dr. More's Antidote against Atheism, Lib. 3. chap. 7.

fed in winter time at the same *pout* of hay, for their heads meeting at the *Hay* as the *center*, and their bodies representing as it were so many *radii*, has made some imagin that such *Circles* are described by their *dung* and *urin* falling always from them in due distance, and *fertilizing* the ground in a more than ordinary manner by the largeness of the quantity. Others again have thought them described by the *water* and some of the *Hay* it self, falling plentifully in wet weather from the *Eaves* of round *hay-stacks*, that have been situate within them, which rotting into dung thus fertilizes the Earth in a *circular* manner; and indeed 'tis possible that some of them may be made either of these ways.

28. But for the *Circles* mentioned §. 17. of this Chapter of 30, 40, and 50 yards *Diameter* (too too large for the situation of any *Hay-rick*, or to be described by *Cattle* feeding at a *hay-pout*) and some of them running through *bedge* and *ditch* as shall be shewn in fit place, we must seek for other *causes*: In order whereunto (having good opportunity in *New-Parks* near the *City of Oxford*, where there is always plenty of them) I thought fit to examin the nature of the *Soile* under the *Rims* of them, especially how it differed from the adjoining *earth*, and found by digging up several, that the ground under all of them, was much *looser* and *dryer* than ordinary, and the parts interspersed with a white *boar* or *winew* much like that in *mouldy bread*, of a *musty rancid* smell, but to tast insipid; and this scarce any where above six inches deep, the *earth* again below being of its due consistence and genuin smell, agreeable to the rest of the *soils* thereabout.

29. Whence it being equally plain that I was no longer to enquire for the *origin* at least of these *larger Circles*, either from any thing under or upon the ground; it remained that I should look for some *higher principle*, and indeed after a long and mature deliberation, I could think of none nearer than the *middle region*; viz. that they must needs be the effects of *Lightning*, exploded from the *Clouds* most times in a *circular* manner; perhaps for this very reason by the *ancient Naturalists* called *fulmen discutiens*: which though of a viscus sulphureous consistence, yet taking fire and violently breaking the *Cloud* wherein it was pent, must naturally expand it self every way *obliquely*, for the most part in a uniform *conical* manner so as at due distance to become a *Circle* as in *Tab. 1. Fig. 6.* and in that *forme* to strike the *Earth* as may be seen sometimes in *arable grounds*, but chiefly in wide and open *pastures*, whether *Meddows* or *Uplands*, where *Trees* and *Hedges* interrupt least.

30. And not only in a *single*, but sometimes in a *double* and *treble Circle* one within another, as was lately shewn me by my
Worthy

Worthy and Ingenious friend *John Priaulx M. A.* of *University Colledge* in the field between *St. Giles's Church* near *Oxon* and the garden called *Jericho*: They are rarely also seen of a *quadrangular* forme, encompassed with another larger of the *Circular* kind, as in *Tab. 1. Fig. 7.* whereof there were shewn me no less than *two examples* by my Ingenious and observing friends *John Naylor* and *Hugh Todd M. M. A.* and *Fellows* of *University Colledge* in the same *St. Giles's* fields: which yet may all be reconciled to the same *Hypothesis*; the former proceeding from *three* different *flashes*, the *second* widening the *orifice* of the *Cloud* more than the *first*, and the *third* than the *second*, and so consequently the *Circles*; the latter from the *Clouds* breaking first in a *quadrangular*, and after in a wider *Circular* forme as in the same *Tab. 1. Fig. 7.* All these *Rings* and *Squares* being greater or less in proportion to the distance of the *Cloud* from the *Earth*, and tenaciousness of the matter, and all appearing at first of a *rufset* colour, the *grafs* just then being singed with the *Lightening*; but the year following of a *dark luxuriant green*, the earth underneath having been highly improved with a fat *sulphureous* matter (received from the *Lightening*) ever since it was first striken, though not exerting its fertilizing quality till some time after.

31. Yet we must not esteem this improvement by *Lightening* to be so *natural* and *genuin*, as what is made by our ordinary *Compost*, for these only stimulat the principles of *vegetation*, whereas in this case the bonds of the *natural mixtion* seem to be dissolved, the parts of the body opened, and the true *spirit* of *vegetation* flying away, the *Salt* also and *Sulphur* (having lost the *spirit* which was their common *vinculum*, and preserved the *temperament*) endeavour a divorce, get into exaltation, and joyning with the adventitious *sulphur* of the *Lightening*, seem unnaturally to enforce this *luxuriant vegetation*, leaving behind them in the dry effete earth, that hoary white substance, of a musty soure smell, which I take to be the *faces* of both *sulphurs*; in which opinion I am the rather confirm'd for that the *Cattle* which feed in these *pastures*, unless driven to it by extream *drought*, will never touch this *rank* sort of *grafs*, it not having the *genuin* tast of the rest.

32 And hence it is that so many *Borasco's*, or stormes of *Thunder* and *Lightening* have such effects upon *liquors*, as to make them *stink* and acquire a *soureness* viz. by opening the bodies of them, and letting flye that *spirit* that before secured the *temperament*, by restraining the *Sulphur*; which being also of a *volatil* nature and the principle of *odours*, getting into exaltation (in this dissolution or rather corruption of the *Compositum*) endeavours the like divorce and causes the *stink*; as the *Salt* in like manner freed from the bonds

bonds of the *Sulphur*, gets at length the dominion and causes the *sourness*; which no question they likewise did under the *Rims* of these *Circles*, for having kept some of this *earth* by me but a natural day, it smelt just like the soure tappings of dead beer in a *Cellar*.

33. Yet that this is the true *Philosophical* account of them, I will not be so confident as firmly to pronounce; but for the matter of fact that they are caused by *Lightening*, I take it to be most certain, having not only observed them my selfe after *Thunder* and *Lightening* to be first *rufset* and afterwards of a *dark luxuriant green*; but received it also from divers other sober persons of indisputable credit: more especially we may relye on the faithful testimony of one *Mr. Walker* a man eminent not only for his skill in *Geometry* but in all other *accomplishments*, who by chance one day walking in a *Meddow* amongst *Mowers* (with whom he had been but a little before) after such a storme of *Lightening* presently espyed one of these *Rings* about five yards *diameter*, the *Rim* whereof was about a foot broad, newly burnt bare as the colour and brittleness of the *grafs* roots did plainly testify, which the year following came more fresh and *verdant* in the place burnt, than in the middle, and at mowing time was much taller and ranker *grafs* than any in the *Meddow*.

34. If it be objected; that if *Lightening* causes these *Circles*, it must also be allowed that it descends *vertically*; which we know to be seldom or never seen. And that secondly if their *origin* be ascribed to *Lightening*, they must always remain of the same magnitude, never enlarging themselves to a *greater diameter* than they had at first; which yet we cannot but acknowledge some of them certainly doe; having not only took notice of the thing my self, but had it from others of unquestionable fidelity, that remarked the same in two of the *Circles* mention'd §. 17. of this *Chapter*: That at *Handsworth* having been observed for divers years by the Reverend *Mr. Ange Rector* of the place, who seriously told me that when he first knew it, it exceeded not 4. yards *diameter* at most, whereas when I measured it *Anno 1680.* it was increased almost to 40. having run through the *bedg* into another field: As that other at *Pury-Hall*, being in a field near the *River* (as I was informed by the aforementioned *Sr. Henry Gough*) so increased from a *smaller* to a *larger* extent, till at length it came to be of near 50. yards *diameter*, and to run into the *water*. If I say these matters be objected,

35. It must be answered first, that though it be true, that

Communicated in a Letter from the ingenious *Mr. Jessop* of *Broom-hall* in *York-shire*, to my Learned and Ingenious Friend *Martin Lister* Physician at *York*, *Philosophi. Transact.* Numb. 117. p 394.

Lightening indeed seldom descends *vertically*, yet that it is as seldom found too that any of these *Rings* are *Mathematically* round, (unless they happen to be on Hills or Banks sides, which may be obverted in right Angles to any point of the Heavens between the *Zenith* and *Horizon*) most of them being rather of a *parabolical* figure, coming so much the nearer to a round, or receding farther from it, in proportion as the *Lightening* comes forth nearer or more remote from the *Zenith*: whence also it comes to pass that when *Lightening* is exploded (as most frequently it is) in an oblique Line, these *Circles* are imperfect, and that there are more *Semicircles*, *Quadrants*, and *Sextants* amongst them, than any other, according to the foresaid proportion as the *Lightening* breaks forth of a *Cloud* more remote from the *Zenith*, or nearer to the *Horizon*; thus if it proceed from a *Cloud* not above 15. degrees above the *Horizon* the lower part only of the *circular explosion* will brush the surface of the *Earth* as in *Tab. 1. Fig. 8.* and will make perhaps but the *Sextant* of a *Circle*; if 22. degrees and $\frac{1}{2}$ above it, a *Quadrant*; if 45, a *Semicircle*; if 67 $\frac{1}{2}$, three fourths of a *Circle*, and so proportionably more or less in the *intermediat* degrees.

36. And as to their growth, though it press much harder than the former, yet the difficulty appeareth not so insuperable, but that it may be replied, that as the *Explosion* of *Lightening* when it first breaks the *Cloud* presses equally outward on every side, so 'tis like it may retain the same tendency after it has striken the *Earth* in such *Rings* as are intire, such being supposed to be made by streams of *lightening* descending in a *Conical* figure, and to strike the *Earth* in oblique lines on every side pointing all outwards, which possibly too infecting the *Earth* (for I look on them as a disease) with some noxious quality that may have somewhat of the nature of the *Herpes* $\epsilon\alpha\delta\upsilon\omega\mu\epsilon\upsilon\sigma$, a sort of *Shingles* which *Sennertus* describes to be *Morbus, qui una parte sanescente, in proxima serpit, or Malum ubi medium sanescit, extremis procedentibus*, i. e. a Disease that creeps on in the out parts, the middle growing well; these *Circles* I say being infected thus at first from the *Clouds* with something of this nature, may continually perhaps extend themselves in the like manner.

37. Wherein I am the more confirmed, having observed some of the *imperfect* Segments of these *Circles*, especially the *Semicircles*, and such as obtain *three parts* of a *Circle*, to grow inward in the *middle*, where the *Lightening* hath struck the *Earth* strongest, much faster than elsewhere, so as to render them on that side *irregular* and *crooked*, as in *Tab. 1. Fig. 9.* which had they not done might have been an unanswerable objection against this *Hypothesis* it being

¹ Dan. Sennerti Oper. Tom. 3. Lib. 5. part 10. cap. 17.

impossible

impossible indeed that such as these, made by a *circular explosion* of *Lightening*, that only brushes the *earth* on the lower side, the upper part vanishing in the thin *Air* should extend themselves otherwise. And thus much for these *Circles*, and enough too perhaps may the *Reader* say to break my promise so solemnly made in the first §. of this *Chapter*, of not enlarging to the utmost compass of my *theme*; but herein I do not doubt but he will easily give me pardon (as in all other *subjects* of the like kind) it having scarce ever been treated on before, by any other *Author* that I could either meet with, or hear of.

38. Next *Lightening* I proceed to the effects of *Thunder* that have sometimes happened in this *County*, which though not quite so *deplorable* as many mentioned by *Authors*, yet being as wonderful in *operation* as any of them, are therefore no less remarkable: That *Thunder* now and then proves mortal to *Animals*, where the *bolt* has fallen any thing near though it never touch them, is evident from what happened at the *Town* of *Uttoxater* Anno 1678: at the House of the worthy and most courteous *Gent.* the Worshipful *Thomas Kinnerley* Esq; where the *bolt* piercing the roof of his new *Stable* and cleaving the *Timber* in several places, and passing through two *floores*, and so through a *Saddle* that hung by the Walls into the *pavement*, though it never touched Mr. *Wodenot's* horse of *Rocester* then in the *Stable* (that could be perceived by any mark upon him) yet kill'd him out right: But that *Thunder* should mortally affect *Animals* at a great distance, and not near any probable fall of a *bolt*, is a much greater difficulty; and yet even this we find asserted from long experience, as I was informed by the forementioned worthy *Gentleman* the ingenious *Thomas Broughton* of *Broughton* Esq; who *June* the 14th 1680. having 15. dozen of *Crevice*s brought him by a poor man that made it his business to catch them, and finding the better half of them dead, made enquiry of him what the reason might be; to whom the *Man* gave this ready reply, that the late *Thunder* had done it, and that he had observed it to have the same effect on them divers times before; wherein I am very much inclined to believe him, having found it also at *Queenborough* in the *Isle* of *Shepey* in *Kent*, to kill their *Lobsters* in the like manner, and more especially those of the larger size, a fish so altogether *analogous* to a *Crevice*, that they seem only to differ in magnitude, and place of abode.

39. Now that the *Horse* was kill'd by the pestilential sulphureous steam that the *bolt* brought with it (as I suppose all other *Animals* are in the like Circumstances) is plain from the Testimony of the *Groome*, who had he not been near the *door* had hardly escaped it: But how the *Crevice*s should be thus secretly destroyed

where no such *stench* is perceptible, at least to human sense? is a much harder *problem*; nor can it be resolved but in such *general termes*, as that the *Air* is certainly induced by the *Thunder* with a peculiar quality that *pestilentially* affects the *juices* of these *Animals* so as to destroy their *temperament*; perhaps in the same manner as in §. 32. of this *Chapter*, which yet may not be perceptible to other *Animals*: Nay it has sometimes fallen out that a certain *Individual* of the same *species* of *Animals* has had a temperament so peculiar as to be violently moved by *Thunder*, though at a great distance, others of the same kind being wholly undisturbed, as is avouched to us by the Learned Dr. *Nathaniel Fairfax*, concerning one Mrs. *Raymond* of *Stow-Mercat* in the *County* of *Suffolk*, who when ever she hears *Thunder* even a farr off, begins to have a bodily distemper seize on her, growing faint, sick in her stomach, and ready to vomit, &c.

40. After *Thunder*, that which next falls under consideration, are other more uncommon *Meteors*, that have been observed here; such as that seen at a place called *Broad-beath* in the parish of *Seighford* between that and *Ranton Abbey* about seven at night near *Michaelmas* time Anno 1676. by Mr. *John Nash* the worthy *Vicar* there; which at a distance (he told me) appeared like a great fire, but coming nearer, its forme and motion were plainer to him, it being of a *globular figure*, moving by *jerks* and making short rests, at every one of them letting fall drops of fire, which were part of its body, for it decreased in magnitude the farther it went, and the oftner it dropt, so that it wholly disappeared at about 3 quarters of a mile's distance: which upon computation of *time*, and other *circumstances*, I take to be the very same mentioned in our *Philosophical Transactions* that was seen in so many distant places of *England*, Sept. 20. 1676. about the same time of night, viz. in *Kent*, *Essex*, *Suffex*, *Surry*, *Hamp-shire*, *Devon-shire*, *Sommerfet-shire*, *Glocester-shire*, *Oxford-shire*, *Northampton-shire*, *Worcester-shire*, and (I believe I may add) *Stafford-shire*; whereof there being already so large an account given by the Reverend and Learned Dr. *John Wallis* *Savilian Professor* of *Geometry* in the *University* of *Oxford**; I shall add little more concerning it.

41. But that, notwithstanding it appear'd at *Oxford* and *Seighford* in somewhat a different shape, and motion; at *Oxford* somewhat long with a round knob at the end, and moving equally swift; at *Seighford* *globular*, and making short rests; yet it still might be the same individual *Meteor*, which (not to mention the mistakes perhaps occasioned through the inadvertency of the surprized *Relators*) might possibly alter a little in so great a distance: How-

* *Philosoph. Transact.* Numb. 29. see more of the secret operations of *Thunder* Numb. 127.
* *Philosoph. Transact.* Numb. 135. p. 863, 864.

ever

ever the thing were, it was certainly no other than one of the *Meteors* called *Caprae Saltantes*, for I find them both of a *round* and *long* figure, and to be so called, not from any thing they have of a *goat*, but their moving by *jerks*, somewhat like the lascivious leaps of that *Animal*, and the little *languets* of fire that hang at, and sometimes fall from them, which antiquity has been pleased to fancy like the beard, or locks of a *Goats* wool: These frequently fly so high (notwithstanding they seem very low) that *Meteorologists* have placed them in the *upper Region*, but have not so firmly fixt them there, but that they allow the like also in the *middle*, and *lower*: How high this might be is not easy to determine, but certainly it could not be very low, it being seen at so many distant places both in *Longitude*, and *Latitude*, so near the same time; which I presume that an ordinary *Meteor* in the *lower Region* could by no means be, though we allow its motion never so swift. Such a *Capra* it was that was seen about the bigness of the *Moon*, when *Paulus Aemilius* waged War against *Persens* King of *Macedon*, *Nos quoque vidimus* (says *Seneca*) *non semel flammam ingentis pilee specie, quae tamen in ipso cursu suo dissipata est*, i. e. that he also had seen a flame in the form of a great ball which dispersit it self in its flight: such another he says was seen upon the departure of *Augustus*; another upon the *Tragedy* of *Sejanus*; and that the death of *Germanicus* was signaliz'd by another.

42. To which add another *Meteor* also of a *globular* figure, seen Nov. 22, Anno 1672. about 12. or one at night, not in motion but stationary, against the West door of *Wednesbury Church*, by the Ingenious Mr. *Miller* *Vicar* there, and two others in his *Company*; which shon so bright, that it gave them light (though a very dark night) at half a miles distance; where it continued for about $\frac{1}{2}$ of an hours space, and then of a sudden disappeared; whereupon there immediately followed a great storme of *Hail* and *Rain*: And of such as these we have also plenty of parallel Examples in ancient *Histories*, *Si minore vi mittuntur ignes, destuunt tantum et insident, non feriunt, nec vulnerant*, says *Seneca*, i. e. that many times these fiery *Meteors* only slide down and rest upon fit subjects, such as the *Masts* of *Ships* at *Sea*, the *Spears* and *Ensignes* of *Soldiers* at land; *Gylippo Syracusae petenti, visa est stella super ipsam lanceam constitisse*; in *Romanorum castris visa sunt ardere pila, ignibus sc. in illa delapsis*, says the same *Seneca*, that there was a fiery *Meteor* in the shape of a *Star* that sat upon the spear of one *Gylippus* as he was marching to *Syracuse*, and that the like were sometimes seen, to be fixt upon the *Javelins*, amongst the *Tents* of the *Romans*.

43. Nor want there instances of the like kind near our own

* *La. An. Seneca Nat. Quaest. Lib. 1. cap. 1.* " *Ibidem*

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times

times, for *Fromondus* informes us that such another fire fate quietly upon the *Standard* of the valiant *Collonel William Verdug* before the decisive battle of *Prague Anno 1620*. All which, together with this of ours at *Wednesbury*, I take only to be the *Helena* of the *Ancients* foretelling great *stormes* and ensuing *devastations*, such as the Rape of the *Lady* whose name they bear, brought upon *Greece*; the *Physical* reason whereof perhaps may be assigned right enough by the *Ancients*, viz. that while the *Meteor* remains compact and indisperst, it is a signe that the matter of the ensuing *tempest* is no where spent, as it proved in this of ours at the Church of *Wednesbury*, a great *storme* of *hail* and *rain* immediatly following it; whereas when such *Meteors* are divided, the *prognostic* is quite different, it being thence presumed that the matter of the *tempest* is weak and broken, the parts whereof anciently were called *Casfor* and *Pollux*, *Deities* it seems so favourable to *Seamen*, their appearance always boding a prosperous voyage, that they usually made them the *Signours* of *Ships*, as we find them on the *Ship* of *Alexandria* in which *St. Paul* sailed from *Melita* to *Syracuse*.*

44. Nor have the *Heavens* and *Air* only presented the *Eye* with unufual *Objects*, but also the *Ear* has sometimes been as much surprized from them: for not to mention some unknown noises pretended to have been heard about *Alrewas*, nor the shrieks as it were of persons about to be murdered said to be heard about *Frodley*: We need go no farther for an instance than the same *Town* of *Wednesbury*, where the *Colyers* will tell you that early in the morning as they go to their work, and from the *Cole-pits* themselves, they sometimes hear the noise of a *pack* of *bounds* in the *Air*, which has happened so frequently that they have got a name for them, calling them *Gabriels bounds*, though the more sober and judicious take them only to be *Wild-geese*, making this noise in their *flight*; which perhaps may be probable enough, for upon consulting the *Ornithologists* I find them one of the gregarious *migratory* kind, to fly from *Country* to *Country* in the night, *noctu trajiciunt* says *Aldrovandus* of them*, and to be very *obstreperous* either when wearied with flying, or their order is broken, they flying *ordine literato* after the manner of *Cranes*.

45. And this perhaps may be the *Musick* that was heard in the *Air* by *Francis Aldridg* of *Hammerwich* a sober person about two in the morning near *Michaelmas* An. 1668. though he described it to be a sort of *whistling* in the *Air*, and the tune more melodious to him than any he ever heard in his life time, before or since; it being performed he said (as he judged) by some *winged* creatures, for he could hear their *wings* beat the *Air*, though he could not

* *Aldr. 2.8. v. 11.* * *Ulyf. Aldrovandi Ornithologiae Lib. 19. cap. 18.*

see

see any thing by reason of the darknes: Though some will needs have it a consort of *Angels* transporting some blessed *Soul* that expired hereabout at that time, from *grace* to *glory*, haveing the unquestionable *Testimony* of *St. Augustin*, *Nicephorus*, *Gregory* the *great*, and divers others, that such things have happened; for he sayd they seemed to take the *tune* from one another, as if they bore different *parts* in the same *Antiphone* for a quarter of an hour together; much after the same manner as *Johannes Herbinus* reports it happen'd upon the death of *Christopher Suesenbach* Pastor of *Bicine* in *Silesia*, where such a *Consort* was heard also for a quarter of an hour together, all the *Town* over; some thinking it in the *Tower* of the Church, others in the *Town-house*, others upon the *Walls*; nay so distinctly was it heard, that the *Organist* of the *Town* being present, attempted to *prick* it down as a celestial pattern for all *Church Musick*, but all to no purpose, it so far transcended his skill.

46. More common are the noises of *Storms* and *Tempests* whether of *Hail*, *Rain*, or *Wind*, though sometimes too, these happen to be very extraordinary, as at *Chebsy* the Sunday before *St. James* tide An. 1659. there fell a storm of *Hail*, the stones near as big as *pullets eggs*, which beat the young *apples* and *leaves* from the *trees*, and the *Cabbage leaves* from the *stalks* so that they appeared naked; nay so violent was it that it raised a *steam* in the *street* so thick that they could not see cross it; and yet falling *perpendicular* it broke none of their *windows*; as did another storme of *Hail* that on *June* 16. An. 1676. fell at the Village of *Dunfall* in the Parish of *Tatenbill*, which as I was informed by my worthy friend *Mr. John Bott* also cut the *stalks* of the *Wheat* and *Barley* (then in *spindle*) quite asunder, and so the very *grafs* it self; the *stones* being some of them near four inches about, and most of them of unequal various figures. It spoiled also the *Peas* that were then upon the ground, yet they came so well again as to be fit for *fodder*; the *Barley* also sprang again so well that they had little less than they expected, only some of it was lighter and not so fit for *Mault*: Both which *stormes* were but of small extent, the former of the two being circumscribed every way within a *furlong* of the *Towne*; and the latter (as appear'd by the mischief it did) not above a quarter of a mile broad; and about a mile, or a mile and a long.

47. Hither also must be referr'd all unufual sorts of *Rain*, whereof the *Ancients* have transmitted to us some very prodigious ones, as of *Milk*, *Blood*, *Flesh*, *Iron*, *Wool*, *Tiles*, *bricks*, and *great Stones*; to which *Munster*, and others add *Rats*, *Mice**, and *Froggs*, the lat-

* *Joh. Herbinii de Cryptis Kijoviensibus cap. 6. §. 8. com. 7.* * *C. Plinii secundi Nat. Hist. Lib. 2. cap. 56. § 8.* * *Vid. Olaus Wormium, Musai. Lib. 3. cap. 23.*

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ter whereof ha's been thought by some to have happen'd in this County at the Parish of Tixall, at the house of the right Honorable Walter Lord Aston, and more especially about the Bowling-green, where after a showre of Rain they have appear'd so thick, that it has been found difficult not to tread on them in walking: Nor will it suffice to say that they came out of their holes where they lay hid before, upon tast of the sweetness of the celestial distillation as some have fancied; for as I was told by that severely inquisitive Gent. the Worshipful Walter Chetwynd of Ingestre Esq; a near neighbour to the place, they have been sometimes found in great numbers upon the Leds of the stately Gate-House there; whither how they should be brought otherwise, ha's been thought equally strange, as that they should come thither by rain; it being very improbable that they should either crawl up the walls, or leap up the stairs (could they come at them) they being always but small, and all of a Size; which too seems to imply that these are not produced in the ordinary course of Nature, for then we should have had them of different sizes, according as the Spawne came to perfection sooner or later; so that Cardan's opinion seems almost necessary to be embraced, that the Spawn or Seed of Frogs may be either blowne from the tops of Mountains, or drawn up with the vapours out of uliginous places, and be brought to perfection in the Clouds, and discharged thence in Showers.

48. And indeed I think we must have acquiesc'd in it, but that the same difficulty seems to press this opinion, as the former; for why should they not fall from the Clouds, as well as come forth of their caverns, in different sizes? Besides in all likelihood we should find them all bruised against the ground, trees, or building, and half dead with their fall, should they come from thence; than which nothing less: Much rather therefore should I think them produced upon the surface of the earth, and tops of houses where they are first found, by a fermentation excited in the dust (which in some places may have a peculiar disposition for it) by the fall and commixtion of rain water with it, in hot fouldry weather. The ingenious Mr. Bobun Fellow of New-Coll. Oxon, acquaints us that Sr. Thomas Roe in his East-India Voyage met with a sort of rain, that accompanies the Tornado blasts of that Country, so noisome that it made their cloaths who stirr'd much in it, to stink upon their backs; and that the water of those hot and unwholsome showers, would presently bring forth worms, and other offensive Animals: And we are told that the rain that falls in the plain called Magotti Savanna in the Isle of Jamaica, as it settles upon

* R. Bobun's discourse concerning Winds: pag. 240. 241.

the

the seams of any Garment (where dust, if any where, usually lodges) turns in half an hour to Maggots^b.

49. Now if some rains or earths be disposed for the production of worms and Maggots, why may not others for frogs? especially since the opinion seems to be strengthen'd by the concurrent Testimonies of Scaliger and Fallopius: Nos complutam terram sola aqua (says the former) sine ranis, Gyrinulis tamen post semiboram scatere totam vidimus, i. e. that he had seen the ground wet only with water at first, and no frogs appearing, which yet within half an hour has abounded with imperfect ones: To whom agrees the latter. vidi inquit aliquando cecidisse guttas quasdam magnas in pulverem, & statim abortas esse ranulas, that he had sometimes seen great drops of water fall into dust, and presently after frogs to spring thence^c. Which solves all the difficulties of their being found on the tops of houses, as well as below on the ground, that they are all of a size, &c. it being allowable enough, that an agreeable dust for such a purpose may be carryed with the wind, or otherwise, to such high places, where meeting with rain also well disposed for the same purpose, may produce such animals there, as well as below. And thus I suppose it comes to pass for the most part, that some places on a sudden are thus infested with frogs; I say for the most part, for if it be true what the ingenious Author of Mercurius Centralis delivers to us viz. that there is one at this time living, that walking through a low marsh ground in England a foggy morning had his hat almost covered with little frogs that fell on it as he walked: we must allow Cardan's opinion at least sometimes to be true.

50. As to such rains as are usual and frequent amongst us, I met with nothing observable concerning them, but an uncommon prognostick when they should happen, communicated to me by the learned and ingenious Gent. Edwin Skrymsber of Aqualat Esq; who had it from one Samuel Taylor a person belonging to the Severne, but employed by Mr. Skrymsber in making his boats for the large, deep, and most pleasant Meer that stretches it self before his house for above a mile in length; who foretold them by the Winds backing to the Sun as he call'd it, i. e. opposing its course; viz. the Sun moving from East by South to West and North and so to East again; and the wind from West by South to East and North and so to West again: Ex. gr. suppose the wind now in the North, if it shift thence to the East agreeable to the Sun's course, it most times proves fair; but if it back to the Sun and shift Westerly and thence Southerly, &c. so as to oppose its motion, it seldom fails of

^b Philosoph. Transact. Numb. 27. p. 500. ^c Jul. Scaligeri de Subtilitat. Lib. 15. Exercit. 191. ^d Gabr. Fallopii Tract. de Metall. cap. 9. ^e Mercurius Centralis p. 24, 25.

D bringing

bringing rain*; and so in all the other Cardinal and intermediat points: The reason whereof may be, that the Sun by the same power by which at first it raised the vapours (of which Clouds consist) now drawing them along with it from East to West, and the Westerly winds compressing the contrary way, does so condense the spungy parts of them upon meeting in the South, that thereby they become aqueous, too weighty for the Sun any longer to sustain, to preponderate the subjacent Air, and so to descend in showers or rain: whereas when the winds accompany the motion of the Sun imprest upon the Clouds, as they doe from the East, they attenuat and disperse them, and force a serenity; which seems to be the thing that Virgil intends by his Juppiter Densans and Rarefaciens.

----- Et Juppiter humidus Austris
Densat erant quæ rara modo, & quæ densa relaxat †.

51. Much more accurat and certain was the same Samuel Taylor in predicting the winds, than the rains that attend them, though even in this too he made use of the Clouds themselves, which when ever he perceived to rise in the form of the letter V, jagged on each side, and therefore called by the water-men the Harts-head; he forthwith concluded infallibly that the next point of the Compass to which the wind should shift, would be either the opposite one to the most patulous part of the V or Harts-head (which though happens but seldom) or the point to which the acute angle of the same Harts-head seems nearest to direct it self, and this most frequently happens, always one of the two; which I am told is a truth that no water-man whatever that sailes the Severne will call into question: And indeed I do not doubt but the latter of the two must needs be most frequent, since we see in Æolipiles, Wind-Guns and all other explosions of Air, that it still spreads as it proceeds from the terminus à quo; well therefore may it be concluded that the wind must proceed from that quarter, whence the Clouds appear more patulous and open; as the Ancients observed it in Halo's, which if intire and well defined argued a calm season, but if rent or broken on any side, they expected a wind from that point of the Heavens, on which the Cirque of the Halo was interrupted: Inde ventum Nautici expectant, unde contextus Coronæ perit, says Seneca, that the Mariners expected a wind from that quarter of the world on which the parts of the Circle were discontinued: with whom agrees my Lord Verulam, who amongst his prognosticks numbering this, quâ parte is Circulus se aperuerit, expe-

* Vid. Camdens Britannia in Staffordsh. and chap. 2. §. 15. of this History. † Pub. Virgilii Georgic. Lib. 1. v. 418. ‡ L. An. Senecæ Nat. Quest. Lib. 1. cap. 2.

Æetur

Æetur ventus says he^h, let the wind be expected from that point of the Horizontal arch, where the Circle opens it self.

52. Which perhaps indeed may be some of the most certain prognosticks we can hope for of winds, but then we must restrain them to such as have their origin in the middle Region, from the rarefaction of vapors by the Sun, either before or after their coalition into Clouds: which rarefaction making a greater repletion, and consequently a protrusion that way where the Medium is most yeilding, causes a wind from such or such a peculiar point of the Compass rather than any other, and is certainly shewn by the opening of the more loose and floating Clouds (those whence we expect wind being not so dense or opacous as those pregnant with showers) which are sensible of the impression for some time, before the Air here below is assimilated to the motion begun at so great a distance; where nothing intervening to controul or interrupt its course, it is propagated in a right line, and is much more certain than any wind generated either from the Æolian caverns of the Earth, or the lower Region, which are obnoxious in great measure to the situation of the Countries through which they pass, making Mæanders, defections and undergoing various repercussions, according as they meet with Forrests, Promontories, Mountains, or winding Valleys betwixt them, in their way; though indeed in the wide Seas, and open level Countries, these winds are near as regular, as those that blow aloft; as they really would be every where, were the terraqueous Globe of a uniform superficies.

53. Nor heard I of any thing more relating to winds, but that not long since betwixt Offley-bay and Slindon, there happen'd a Typhon or Tornado-wind, which though not above forty yards broad (as appeared by the mischief it did) or extending it self in length above three or four Miles, yet was so powerful as it pass't through a Coppice near Sr. John Pershal's house of great Signal that it tore up the greatest Okes by the roots and made as it were a Vista through it, as was shewed me by the courteous and obliging Gent. Mr. Bosvile of Byanna, which I take to have been done by a dip of wind, express't obliquely from a narrow passage betwixt two Clouds as in Tab. 1. fig. 10. which meeting with some cross wind or denser part of the Atmosphere at A, was thrown violently towards the ground at B which take for Offley-bay, was strongest at C which suppose to be Signal, and rose again at D which may pass for Slindon, and so mounted into the Air again to E, out of all distance for doing any further harm, curling it self into a Helix after the manner of Tornado's, as Mr. Bobun in his discourse of the Origin of Winds has in-

^h Hist. de Ventis inter prognostica ad Aric. 32. §. 8.

D 2

geniously

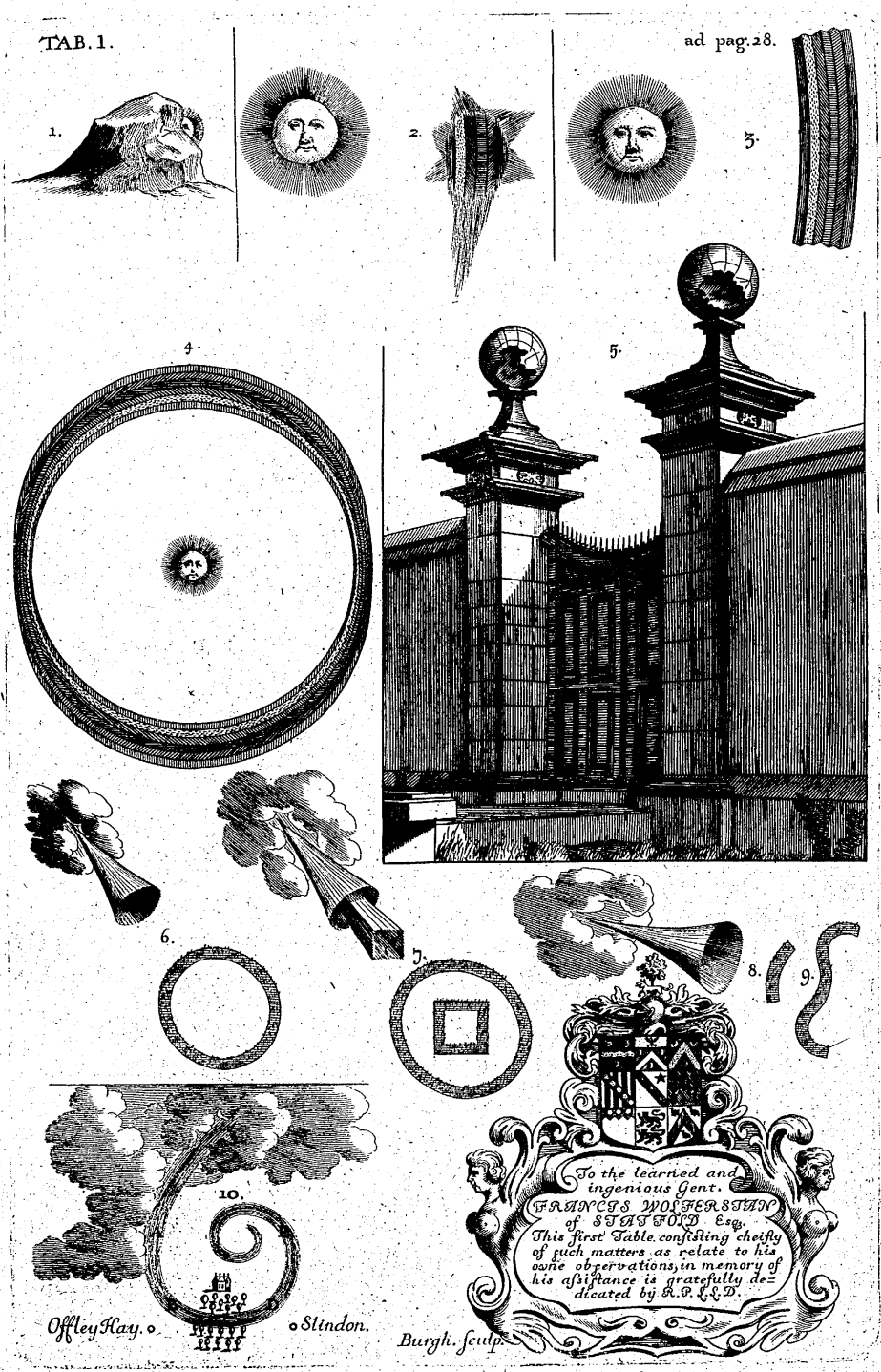
geniously exprefs't it: whence 'tis easy to collect both the reason of the narrowness and brevity of this wind, and why the greatest force must be needs in the middle. As also of the narrow and short storm of Hail that happen'd at Dunstal, mention'd §. 46. of this Chapter.

54. And now having so long entertained the Reader with the serious and sometimes Melancholy effects, let me refresh him a little with the Sports, of Nature; such as a new discourse with the Nymph Echo, a Mistris notwithstanding what is discover'd in Oxfordshire, yet has new intrigues, and must farther be courted, before she will throughly be understood; not but that I think the distribution and admeasurement of Echo's is rightly and fully assigned in that History; but that I have met with some here, that though they may all be reduced to some one or other of the species there mentioned *, yet differ from them all in some considerable circumstances, by no means to be past by without observation: And such is the Echo near the Church at the parish of Tatenbill, which will return four or five syllables at least, though spoken almost with as low a voice as we ordinarily use in our common discourse; the object of which Echo or the Centrum phonocampticum, is certainly enough the Tower of the Church, and the place of the speaker or centrum phonicum an opposit Hill due Westerly from it, upon the bank side under the Hedg, whence a line being drawn to the Tower, directly falls upon it at right angles; the distance between the two Centers being not above 70. yards or thereabout, which is the thing wherein this Echo is extraordinary: for whereas Blancanus will not admit that any one syllable can be return'd clear and distinctly under 24. Geometrical paces, 120 feet, or 40 yards distance from the object^k; and Mersennus by no means under 69 feet or 23 yards: this returns a syllable in 42 feet or 14 yards. i. e. five syllables at least in 210 feet or 70 yards accounting modestly (for I believe it will returne more if spoken quick) which is the most by far in so little a space, that I ever yet read or heard of.

55. At the same Town of Tatenbill I was told of another by the Reverend Mr. Masters Rector of the place, that near his Parsonage house, there was once an Echo that so strangely depended on Frosty weather, that it returned an answer at no other time: And I was informed by the ingenious Mr. Miller Vicar of Wednesbury that there is a very distinct Echo there, when the wind-mill windows stand open towards the Church, otherwise none at all, two of the three windmils there, answering the five Bells orderly and distinctly, which seems to be a cogent argument that though the Cavities

* R. Bohun of Winds. p. 19. * Nat. Hist. of Oxfordsh. cap. 1. §. 14. * Jos. Blancani Phonometria Theorem. 5.

of



Chap. I. Of STAFFORD-SHIRE. 29

of buildings do contribute to *Echo's*, yet they avail but little, unless there be *actual* admission of the *voice* into them. Both which are extraordinary in their respective *kinds*, but wholly depend upon the authority of the *Relators*, for being at *Tatenhill* in *August*, and at *Wednesbury* when the *wind* did not serve for my purpose, I had no opportunity of examining either.

56. Other *Echo's* there are none so very different from those of *Oxfordshire* as the three above mentioned, nor indeed are there any of the same *kind*, so very considerable as that of *Woodstock*¹; the best polysyllabical articulat *Echo's* we have in this *County*, are 1. that of *Dunston* in a field *west* of the *Chappel*, where in the path way at due distance from it, you may have a return of seven or eight syllables; and so you may 2. From *Elmhurst-Hall* in a *Meddow* to the South-East of it. But 3. that which comes nearest to *Woodstock*, and indeed is the best of the kind in the *County*, is that at *Norbury*, *North-easterly* from the *Manor* near a little bank under the wood side about 80. poles or 440. yards distant, which in a *still day* will repeat 10. or a 11. syllables distinctly, or 12. or 13, if spoken quick; the *Object* whereof must needs be the *Manor* for there can be none nearer whatever there may be further off, and yet in this, as at *Woodstock* (however it was at *Tatenhill*) if we take the *Manor* for the *object*, there will go 120 feet or 40 yards to each syllable, or if further off (for the *voice* methinks seems to pass by the *Manor*, to the trees on the left hand of it) perhaps twice as much; which instructs us we must allow a much greater *Latitude* in these matters; though of the same *kind*, than has hitherto been thought of.

57. But as for *Tautological polyphonous Echo's*, such as return a word or more often repeated from divers objects by *simple reflection*, there are as good here, or perhaps better than any in *Oxfordshire*; there being one at *Beaufort* in the little *Park* about the middle of the path that leads from the *pale* to the *House*, that from a treble *object* answers distinctly three times: And another near *Hampsted* (The seat of the much honored and my truly noble Patron, the right worshipful Sr. *John Wyrley* Kt.) on the bank side in a field South-easterly from the *house*, that from a quadruple *Object*, answers as distinctly four times, though the *objects* indeed be as *obscure* as the matter of fact is *plain* und *evident*; which perhaps may be as good an one of this kind, as one shall easily meet with, all the *objects* and *returnes* being still more *remote*, and *weaker*, than one another; the second than the first, the third than the second, and the fourth than the third, and so onward; so that af-

¹ *Nat. Hist. of Oxfordsh. chap. 1. §. 15.*

ter four returns, the *fift* is most commonly out of the *reflex action* of the *voice*.

58. Unless in such *Echo's* as have divers *objects* placed so near together, and near at hand, that though they scarce will admit of a *Dissyllable*, yet by numerous *reflections* to and froe from one *object* to another, will return a *Hum* or *clap* with the *hands* much more *quick* and frequently, perhaps some of them ten or a dosen times or more, the *voice* or *clap* fading as it were, or dying away by degrees in a *trembling* manner, rateably to the *remoteness* and *weakness* of the *reflections*. And such a *tremulous Echo* there is (for I cannot fit it with a better *Epitbet*) at *Elmburst-Hall* on the *tarras* walk in the *Garden* behind the *house*, where the various *windings* and *angles* of the *walls*, return a *hum* or *clap* with the *hands* (the weather being calm) ten or a dosen times, so thick and close that it admits of nothing *articulat* unless we may account a *monosyllable* so. Which was shewn me by the *Worshipful Michael Biddulph* Esq; the *Proprietor* of the *place*, whose *favours* have been so *signal* in promoting this *work*, that I could do no less in gratitude than represent the *House* in *Sculpture Tab. 2.* it being one of the chief *seats* of the *Family*, and as uniform, splendid, and commodious a *building* as most in the *County*.

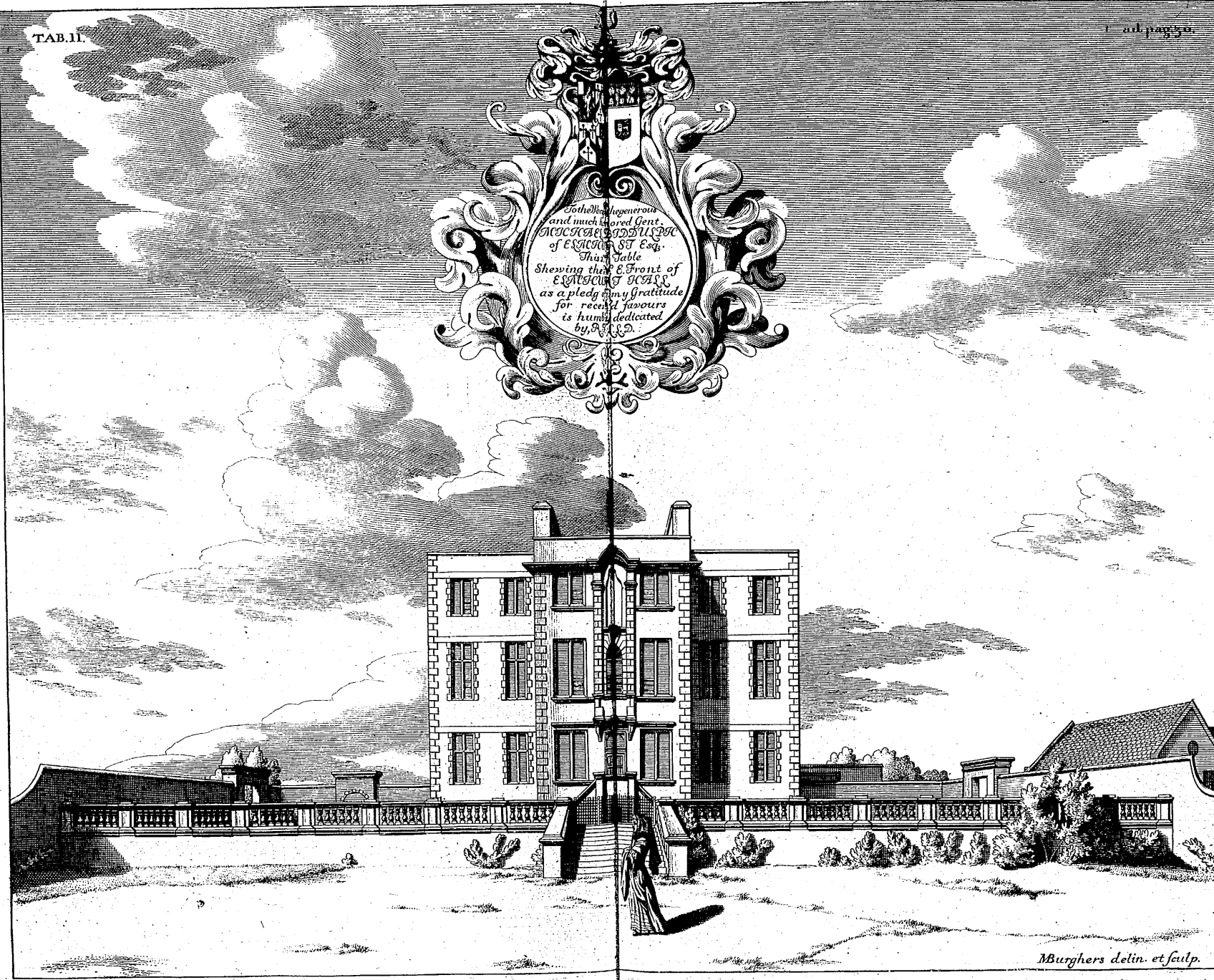
59. And these are all the *Echo's* I thought worthy *notice*, whereof I have only given a *summary* discourse relating chiefly to matter of *fact*, the *Philosophy* of them having been already laid down in my *History of Oxfordshire* ^m, whither for brevity sake I refer the *Reader* least I should seem as *Tautological* as some of the *Echo's*: Nor have I more to add of *Aerial matters* but a very odd *experiment* relating to *sounds*, which as I was inform'd by the learned and ingenious the *Worshipful William Cbetwynd* of *Rugeley* Esq; is constantly practised amongst the *Operators* in *Iron*, who carrying on their *work* day and night, and sleeping by turns, notwithstanding the *great noise* of the *water* and *Hammers*, take their *rest* as quietly and indisturb'd as other *Mortalls*, yet when their time allowed for *sleep* is expired, and there is occasion for them, are all *awakened* with a little blow (or *tanck*) upon a pair of their *tongues* (which is the common means they use for that purpose) though a *noise* incomparably *less*, than what was made in the *Mill* before, during the time of their *rest*: Whence we may infallibly conclude that *great noises* if they are *customary* and *constant* do not *affect* so much as *lesser noises* provided they are *sudden* and *unusual*; nor sometimes so much as *no noise* at all; the absolute *privation* of a *customary noise* being as *disturbing* as an *unusual* one: as was attested to me by a *Reverend Clergy man* who living next door to a *Brasier*, though

^m Nat. Hist. of Oxfordsh. chap. 1. from §. 14. to §. 31.

indeed

TAB. II.

ad pag. 50.



M. Burghers delin. et sculp.

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indeed he was disturb'd at first, yet the noise at last grew so agreeable to him, that removing after to a *Parsonage* in the *Country*, he wanted his *Brasier* so much, that he protested to me he could not *steddily* apply himself to his *business* till after he had been there a considerable time. And as it is in *sounds*, so it is in *motion*, the absolute *privation* whereof, if it have been (though but a small time) *constant*, will *disturb* ones *quiet*, as I have found it by people a *sleep* in a *Coach*, who during the *motion* notwithstanding the *jolts* and *rubbs*, have continued their *rest* but upon the *Coaches* *stopping* though gradually done, have all presently *awakened*.

60. To conclude, these are all the *observations* I could make my *self*, or hear of from *others* relating to the *Heavens* and *Air*, and to this *County*; unless I should have taken upon me to have given some account of the late prodigious *Comet* in *Dec.* 80. which I might indeed have done from the accurat *observations* of my worthy *Friend* the worshipful *Francis Wolferstan* of *Statfold* Esq; but having lodged them in a much better hand than my owne for that purpose, and the *Comet* it self relating as well to other *Countries* and *Kingdoms* as *this*, I choose rather to pass it by, only taking notice that they generally happen in *Winter*; upon or after considerable *Frosts*; and (with *Gaffarel*) that they occasion great *droughts*, which inflame Mens blood and drive them into *Frensiess*" (witness this following year 81) and as my Lord *Bacon* well observes, that those *droughts* bring an open *beginning* of *winter*, the former *heat* still bearing the *sway*, and yet hindering a sufficient multiplication of vapours". All which having happen'd precisely after *this*, will I hope procure our *observation* of them, after another *Comet*.

" *J. Gaffarel's unheard of Curiosity*; Part. 4. S. 11. • *Nat. Hist.* Cent. 9. Experim. 814.

C H A P.

CHAP. II.

Of the Waters.

I. **T**He learned, and therefore truly Noble *Philosopher*, my Lord *Viscount St. Albans*, in his *History* of Life and Death, or prolongation of Life; as well considering the *consumption* of the body of Man, as *reparation* of it; the one being as much to be *prevented*, as the other *promoted*; in the former of these makes the *ambient Air* of eminent concern; some sorts of it being as predatory and wastful of the body, as others again are comfortable and refreshing: Whence it is that *Persons* of plentiful *Estates*, that have (as we say) the world at will, and are not tyed to a single *Seat*; either build or make choise of one for their most common residence, that is situat in a good and wholesome *Air*: where by *Air* they intend not the *simple Element* of the *Ancients*, for in this sense all *Air* (if there be any such thing) is equally pure; but that somewhat grosser substance that immediately incompasses the *terraqueous Globe*, wherein we daily breath, live, and have our being; which is commonly fill'd with all sorts of *Exhalations*, and is comparatively good or bad, healthy or otherwise; as it partakes more or less, of wholesome or noxious, *vapors* or *fumes*; exhaled either from quick liveing streams, or stagnant pooles and uliginous boggs; from dry wholesome Soils, or mineral Earths. Which seeming indeed the more immediat causes of *sickness* or *health* than the pure *Air*, that being only the vehicle of diseases, and not fundamentally good or bad, but by participation, as was hinted in *Oxfordshire*^a; 'tis plain that the consideration of the *health* of this *County*, rather belongs to this *place*, and the following *Chapter*, than to the former of *Air*.

2. But that the *Reader* may not only be amused with *generalls*, let us treat of this matter more *distinctly* than usual, and strictly examin whether this *Air* we breath in, do indeed so much affect the *body of Man* as is commonly pretended; and if so, which it is that comforteth and conserveth it most, and which most preyeth upon it, so as to hasten its consumption; that certainly being to be esteemed the most *healthy*, that prolongeth; and that the most *unhealthy*, that abridgeth its duration: Wherein I shall not need to trouble the *Reader* with any of the nice *Experiments* of the *Air-Pump*, whereof some not unfitly might have been reduced to this

^a Nat. Hist. of Oxfordsh. chap. 1. § 32.

subject

subject; nor with a profound explication of the *flammula Cordis*, or what ever else it is that continually gives *accension* to our *blood*, and is cherish'd by the gentle refocillations of the *Air*: It being sufficient for my purpose, and evident even to *rural Observators*; first that the *Air*, impregnated with *vapors* and *fumes* (such as is the *Atmosphere* wherein we breath) doth sensibly affect the *body of Man*; witness the common *fumigations* made in *hysterical diseases* to recall the *Spirits*, and the too too common *Experiment* of *Drunkenness*; with which no question its more inartificial operations bear some proportion, though they are not so sensible.

3. It being plain then that the *Air* as it may be variously qualified does affect the *Spirits* and *humors*, and consequently the whole *Crafsis* of the body: it remains secondly that we shew which *Airs* they be, that most refresh and preserve it; and on the contrary which prey upon it, so as either to consume it gradually, or destroy it on a sudden: for the clearer disquisition of which matter I must premise some *postulata*, which I need not to doubt (I think) but will be easily granted, since they are such only as are universally agreed on: As first that the *blood* principally, and other *humors*; are the *subjectum in quo*, or vehicle of the *spirits* by which the *Animal operations* of the *body* are performed; and 2. that the more the *spirits*, *flammula*, or *heat* do prey upon the *humors*, or the *humors* oppress the *spirits*, so much the shorter is the continuance of that *body*; and that therefore 3. in order to a lasting duration, the *spirits* ought to be kept in such a moderate temper, that (as the Lord *Bacon* well observes^b) they should be in their *substance*; dense, not rare: in *Quantity*; sufficient for the offices of life, not redundant or turgid: in *heat*; strong, not eager: in *motion*; sedate, not fluttering and unequal: And 4. that the *humors* should also be moderately dense; not thick, or too fluid: sufficient; and not multiplied to excess, so as either to clog or extinguish the *spirits*: all which being granted (and I think no body will deny them) it will naturally follow

4. That *Air* too much *heated* either by the reflex beams of the *Sun*, or by *Mineral fumes* (above the heat of the ambient *Air* of the *Cline*) must be none of the *healthiest*: for (to omit the inflamed scorching *Air* on the banks of *Euphrates* that sometimes suddenly stifles *passengers*, and the burning-winds of *Arabia* and *Persia*, in their *Annals* there call'd *Bad Semum*^c) this even in *Europe* frequently exalts the *spirits* to such a redundancy, that they become eager and violent in their motion, so as to occasion *Favours*, *Frenzies*, *Calentures*; which do not sip, but rather carouse upon

^b Hist. of Life and Death, Intent. 1. Operat. 1. Numb. 10. ^c Bobuns disc. of the Origine of Winds. p. 177, 178, 180.

E

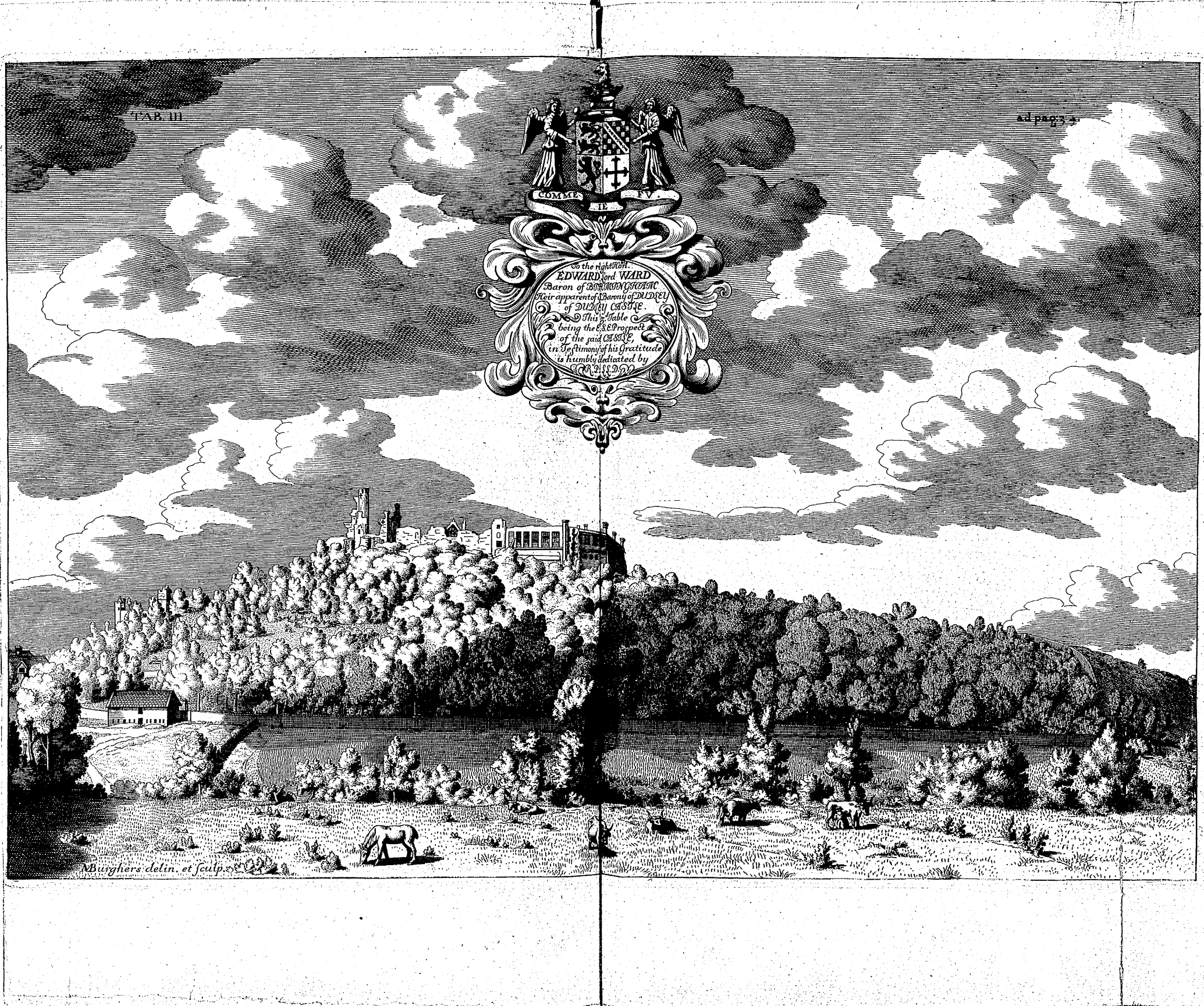
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the *juices*, till at length they are all exhausted, and the *body* brought to a final *Arefaction*: Or at least so opens the *pores*, and rarefies the *spirits* that some of them fly away, which thickens the *blood* and *humors* by a sort of *Evaporation*, and so gradually *desiccates* them, and at length brings the body to an early old Age, as it happens in *Africa* amongst the *Negroes*, whose lives, says *Leo*, are very short ^d, their *bodies* undergoing through the heat of their *Clime* so quick an *arefaction*, that as *Crescentiensis* reports, they are old at thirty^e. To prevent these *depredations* of over heated *Air*, even in this *temperat Zone*, the *Ancients* were so careful, that they declined not either the trouble or charge, of anointing their bodies all over with *Oile*, thereby filling up the *pores*, and preventing both the flight of the *spirits*, and all manner of other *injuries* from the external *Air*.

5. Thus *Pollio Romulus* (and *Jobannes de temporibus*, as my Lord *Verulam* also acquaints us ^f;) who was above a *hundred years* old, preserved it seems his body to that extream *old Age*; for being ask't by *Augustus* (who then lodg'd at his house) what means he had used to maintain that *vigor* of body and mind, he saw, he enjoy'd; answer'd *intus mulso, foris oleo* ^g; *i. e.* that he used *Metheglin* within, and *Oile* without: which, says *Roger Bacon* upon the place, in the *MS. Preface* before his book *de Retardatione Senectutis* (which was never printed with the book it selfe) was an *Oile* mentioned in the Chapter *de his quæ naturalem virtutem excitant*, whither I refer the *Reader* for satisfaction about it ^h. The same *Roger Bacon* also further acquaints us that a certain *British Lady* whom he calls *Dominam de Torneri* ⁱ found an ointment wherewith her *Woodward* having anointed himself all but the soles of his feet, lived *three hundred years* without any pain but in his feet ^k. The ancient *Britans* painted their bodies with *woad* and were exceeding long lived; and some have thought the *Picts* had their name from hence; 'tis certain the *Brasilians* paint themselves at this day, and are very long liv'd; as if *painting* did preserve the living body, as *oile colours* and *varnish* do dead wood and Iron.

6. Yet much worse is this *Air* if both *beated* by the *Sun*, and fill'd with noisom stinking *vapors*, exhaled from stagnant *waters*, *Moorés* or *Boggs*, nothing more quickly or certainly inducing *putrefaction* than the concurrent operations of excessive *heat* and *moisture*; the former procuring a more easy access for the *vapors*

^d *Leo Afer* his description of *Africa*. Lib. 1. ^e *Petri Crescentiensis de Agricultura*, Lib. 1. cap. 5. ^f *Hist. of Life and Death*. Intenr. 1. Operat 2. Numb. 13. ^g *C. Plinii secundi Nat. Hist.* Lib. 22. cap. 24. ^h In *Prefat. ad Libellum de Retardatione senect.* MS. in Bib. Bodl. ⁱ *Alias de Nemore in Epist. Baconi ad Parisiensem*, cap. 7. ^k In *Libello, de mirabili potestate Artis & Naturæ*, di 70.



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into the *blood*, by attenuating and separating the parts; and the latter at the same time advancing the *humors* to so disproportionate a *bulk*, that the *spirits* being oppress'd, are thereby render'd unable to actuat them with that briskness, as otherwise they would have done: so that the *blood* circulating but flow and heavily, the *Inhabitants* of such *Air* become generally stupid, clownish, morose, like the *Bæotians* in *Horace*, who by reason of the *foggy Air* they lived in, were of a dull, melancholly, unpleasant conversation.

*Bæotum in crasso jurares aere natum*¹.

whereas those of *Attica*, where the *Air* was coole and serene, were *Men* of most acute, refined parts, and pleasant behaviour: so true is that of *Plato* κατὰ τὴν ἕραν τὸ πνεῦμα ἰδὼν γενέσθαι, that the *manners* of *Men* are agreeable to the *Air* they live in^m.

7. But the effects of an *ill Clime* upon *Mens carriage* and *wits*, are not near so deplorable as upon the *Constitutions* and *temper* of their *bodies*, which are not only alter'd but frequently destroyed by it; some of these *Fens* and *boggy places* sending forth such noisom contagious smells, from crude *sulphurs*, and filling the *Air* with such unagreeable *Salts*, that the *humors* thereby if not absolutely poison'd, are at least incorrigibly distemper'd, either by *coagulation* or *thinning* them too much, whence *Scurvies*, *Coughs*, *Catarrhs* &c. Others, says *Varro*, produce a sort of *Animals*, so small that they are invisible, and are suckt in through the *mouth* and *nostrils*, which cause grievous obstinate incurable *diseases*ⁿ: And indeed all sorts of such *misty foggy air*, bring so much of *moisture* and *viscosity* with them, and are so altogether unfit for the office of carrying off the ἀπορροια or *fuligines* from the *Lungs* that arise from the *accension* of the *blood*; that they rather check and return them upon the *juices* again, and so clog and stifle the *motions* of the *spirits*, that they are at length quite *suffocated*; whence follows a *stagnation* of the *humors*, and so *dissolution* and *corruption* both immediatly succeed. What then must I do, says *Fundanius* in *Varro*, if my *lot* be fallen into such a *Heritage*, that I cannot avoid such an unwholsome *air*? To this, says *Agrius*, I can readily answer, *vendas quot assibus possis, & si nequeas, relinquant*; sell it, says he, for as much as thou canst, or if thou canst not, rather leave thy *house*, than prejudice thy *health*^o.

8. Yet much worse is it still if this *adulterated air*, whether from *vapors* or *fumes*, be concluded betwixt *hills* in a *low situation*, or a place close beset with *thick woods* or *groves*; which though perhaps they may be reckon'd but as *secondary causes* of the *unhealthiness* of a *Country*, yet they sometimes happen to be more pre-

¹ Q. Horatii Flac. Epist. Lib. 2 v. 244. ^m In Timæo. ⁿ M. Terentii Varronis de re Rustica Lib. 1. cap. 12. ^o Ibidem.

judicial than the *primary ones* could have possibly been without them; such *Foggs* and *Steams* stagnating in the *valleys* and amongst *trees*, and heating much more there than in any *plain*, the rays of the *Sun* being contracted and strengthened in these *hollowes*, much after the manner we see they are by a *Concave glass*; whereas if either happen in an *open Country*, or upon rising ground, without *woods* or *groves* within a competent distance, there is seldom such a *calme*, but that the *Wind* at least will ventilate, if not strongly disperse them, so that they can be little prejudicial to the adjacent *Inhabitants*: And therefore says *Petrus Crescentiensis*, *qui loca elegit habitabilia, cognoscere debet quomodo ejus existit dispositio secundum altitudinem & profunditatem, discooperturam & cooperturam* ----- & *si sit ventis exposita, aut in terra profunda*^p. i. e. That whoever makes choice of a *seat*, must be satisfied how 'tis *situated*, whether on a *Hill* or in a *Vale*; open, or close covered; whether exposed to the *winds*, or in a *deep hollow Country*: whereof which is the better, is determined both by *Varro*^q and *Baptista Porta*^r, *potius in sublimi loco aedificet, qui quod perflatur, &c.* rather let him build, say they, in a high place that is continually *ventilated*, where if any thing incommode him it will easily be dispersed by the brisk piercing *gales*: Which naturally brings me next

9. To the consideration of that *acute purifying air*, which being neither heated above the usual constitution of the *Clime*, nor fill'd with moist thick slimy *vapors*, but rarify'd by the *Sun* to a useful *serenity*, and sharpened by an agreeable portion of *Niter*, so cooles and cherishes both the *spirits* and *humors* by a gentle *ventilation* (carrying off the *fuligines* arising from the accension of the *blood* whether in the *Lungs* or *Heart*) that both are kept in due temper; neither prevailing, but both mutually preserving each other to a most lasting duration: And this it is we may justly call *healthy Air*, that has *heat* enough to cherish that *Platonic flame*^s in the *blood*, so as to make it *shine*, but not *burne*; and *moisture* enough to help to conserve that *gentle fire*, but not drown or extinguish it; all which seems most evidently made out to be thus indeed by the *Aerial Noctiluca* of the Honourable Mr. *Boyle*, and by the *solid Phosphorus* of my ingenious Friend *Frederick Stare M. D.* made for the most part out of *Urine*, and might as well (He thinks) have been out of *blood*, could it have been procured in as great quantities, since *Urine* is its *Recrement* separated by the *Kidneys*; which whenever exposed to the *air* in its ordinary temper (as I saw it in *Nov. 1681.*) only *shines* illustriously, but if

^p Pet. Crescentiensis de Agricult. Lib. 1. cap. 5. ^q M. Ter. Varronis de re Rustica, Lib. 1. cap. 12. ^r J. Bapt. Porta, Villæ Lib. 1. cap. 22. ^s Ignis ille qui phos & alysi, Lumen & splendor nuncupatur, qui lucet, sed non ardet. Plato in Timæo.

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held to the fire, breaks out into a violent *flame*, and if immersed into water, is presently *restinguish'd*.

10. And this, I say this, is that *subtile refined air*, that refrigerates the *spirits*, that cherishes the *humors*, and gives them both their due *condensation*; neither exalting the one or the other so far, as that the *spirits* either fly away or prey upon the *humors*; or the *humors* overwhelm or drown the *spirits*; that renders a *Man* long-liv'd, most healthful and free from all manner of *infirmities* both of body and mind; that keep him sound, lusty, vegete and nimble; and makes him cheerful, quick, witty, subtile, and what not? Which whoever would enjoy in the highest perfection, must ascend the dry gravelly barren hills, and place his *seat* there, as the *Emperor Constantine* advises, *χρη γέν τοις οικησεις οικουδμεναι επί τῶν ὑψηλοτέρων τόπων εἰς ἀποφυγὴν καὶ κατασκοπὴν τῆς χώρας*. We ought to build, says he, in *high places* where there is a delicate *prospect*, where one may see all over the *Country*; where the reflected beams of the *Sun* are but of small force, at least not strong enough to make the *air* any thing *predatory* by reason of *heat*; or of *moisture*, upon account of the drought or barrenness. I know

11. *Cato* and *Columella* commend a rich fruitful Soile whereon to place their *Villa*^t; but they describe the *Farme*, where indeed the *commodity* is commonly more regarded, than *health*; and not the *Hall* or *Manor* (as the *Gentleman's seat* is usually call'd in this *County*) which ought to be situated, not upon or near the *best Soile* which commonly yields the worst *air*, but on a *dry rising ground* at least, if not on a *Hill*, where there are no standing *Waters* or *Mines* in the *valleys* below, to occasion *vapors* or *fumes*, nor thick *woods* or *groves* to hinder the *dispersing* them, whenever they do (if at any time) happen, or preclude the pleasure of a far and wide *prospect*. Where by the way, let the *Reader* take notice, that I only exclude *stagnant Waters*, *Mines* in low and close *valleys* and *thick woods*; and not so far mistake me, as if I thought plenty of *waters* and *mines*, or *large woods* and *groves* a dishonour to a *County*; for in these consist both the *pleasures* and *riches* of it; where the *waters* flow from *quick* and *living* springs, the *Mines* are work't on *high* or *open* Countrys, and the *woods* lye dispersed at due distance, and if any thing large, have *lawnes* or *vista's* cut through them; as they are usually found all over this *County*, as shall be shewn of each in their respective places.

12. Though it be true indeed that those places that are situate *highest*, and enjoy the fewest *waters*, *mines* and *woods*, must undoubtedly be the *healthiest*, in proportion as they are free from

^t Constantini Cæsaris Pogonati diæt. Γεωπονικῶν βιβ. β. κεφ. γ. ^u Columelle de re Rustica Lib. 1. cap. 2. ^v M. Porcii Catonis de re Rustica, Lib. 1. cap. 1.

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one, more, or all of them; Upon which account I take *Swynerton*, the Village of *Beech* and all the *Hill Country* betwixt that and *Trentham* (being void of most, if not all of these) to be the healthiest spot of Ground in all the *County*, which seems amply to be made out by an observation they have there, viz. that they have three *Christenings* for one *Buryal*: Nor comes the Town of *Wolverhampton* far behind it, being situate high and where they have but four weak *Springs* to supply that large *Town*, which too rise all together behind the *Cock-Inn* (so that they may be esteemed but as one) having different names appropriated to their respective uses, as the *Pudding-well*, the *Horse-well*, the *Washing-well*, and the *Meat-well*, from which last they fetch all the *water* they use for *Meat* or *Drink* all over the *Town* in great leather *Budgets* or *Boraccia's* laid cross a horse with a *tunnel* at the top whereby to fill them, such as they use much in *Spain*, and some other *Towns* in *England* as *York*, *Worcester*, &c. bringing to the other three, their *Tripes*, *Horses* and *Linnen*. From which *scarcity* of *waters* and *high situation* it is, that notwithstanding the adjacent *Cole-mines* they enjoy a more settled *health* than most of their *Neighbors*, as breathing a more subtle and refined *Air*, and that too so lyable to *ventilation* that if at any time *fumes* do arise from the *Mines*, they are quickly disperst: Whence perhaps it comes to pass, that the *Plague* has scarce ever been known in this *place*, but the small *Pox* frequently, both signes of *salubrity* as has been shewn in *Oxford-shire*.

13. To which may be added the Parish of *Cannock* (vulgarly *Cank*) and all the dry *hills* and gravelly *plains* of *Cank-wood*, as *Tropically* so call'd as *Lucus à non lucendo*, now the *woods* are most destroyed, and the *Wind* and *Sun* admitted in so plentiful a manner between the *Coppices*, which at due distance now only crown the *summits* of some few *hills*, such as *Gentle-Shaw*, *Stile-Cop*, &c. and afford a most pleasant prospect to *Passengers*: the *Plains* or *Hays* below in great part being covered only with the purple odoriferous *Ling*, as that excellent *Poet*, *Mr. Masters* of *New College* in his *Iter Boreale* is pleas'd to call it, who (having pass'd by *Cank town*) thus most exquisitely describes it *

Hinc mihi mox ingens Ericetum complet ocellos,
 Sylva olim, passim Nymphis habitata ferisque:
 (Condensæ quercus, domibus res nata struendis,
 Ornandoque foco, & validæ spes unica classis)
 Nunc umbris immissa dies; Namque æquore vasto
 Ante, retro, dextra, læva, quo lumina cunque
 Verteris, una humili consurgit vertice planta,

* Nat. Hist. of Oxfordsh. cap. 2. §. 9. * Tho. Masters Iter Boreale, pag. 5. Purpureoque

Purpureoque Ericæ tellurem vestit amictu,
 Dum floret, suaves & naribus adflat odores:
 Hæc ferimus saltem amissæ solatia sylvæ.

The Parish of *Aldridge* in the confines of *Cank* seems also to partake of the like dry gravelly constitution, lying high, and solo sicco as *Hippocrates* would have it ^y; and *Mr. Burton* seems to commend the Parish of *Hanbury* in the Margin of *Needwood* for such a lofty situation ^z;

14. Both which no doubt enjoy a fresh, pleasant *air*, though I must confess I should have liked them considerably better, had they been thinner beset with *trees* and *inclosures*; unless the buildings had surmounted the tops of them all, so as to have been more exposed to the *ventilations* of the *Air*, as at *Dudley Castle* whose magnificent ruins as well as habitable part (built on a lofty rock) notwithstanding the *shrubs* and *trees* all about it, are mounted so high above them all, as not only to afford a most wholesome *air*, but a delicat prospect over the *County* below it, as the *Reader* cannot but be satisfied it must needs do from the *Sculpture* of it *Tab. 3.* which notwithstanding its ruins (the marks of its *Loyalty* in the late *Civil war*) yet remains the *Seat* of the right Honorable *Edward Lord Ward Baron of Birmingham*, a person of most exemplary *fidelity* to his *Prince*, and a most noble encourager of this *Work*, and is therefore here represented wrought off a *Copper plate*, that I might gratefully render his *Lordships munificence* as immortal as the *brass*. Had, I say, *Aldridge* or *Hanbury* thus lifted themselves up above the *trees* and *inclosures*, their *Situations* had certainly been much better; and therefore I much wonder that the observing *Mr. Burton* should omit the *Situation* of *Tutbury Castle*, being so near a neighbor, mounted on a *hill* toping all the *trees* and *buildings* near it, and overlooking *Darbyshire* and all the *Country* round to the *East*, *West* and *North*, like *Acrocorinthus* the old *Castle* of *Corinth*, whence *Greece*, *Peloponnesus*, the *Ionian* and *Ægean Seas* were *semel* and *simul* at one view to be seen. *Abbots, alias Ap-wood Castle* in the *Confines* of *Shropshire* has much such another *situation*, overlooking that *County* to the *South* and *West* to a vast distance: But that which excells them all for a *prospect* is the old *Castle hill* above *Beaufort*, which is elevated so high above all the *Country* near, that it commands the *Horizon* almost all round, whence 'tis said may be seen the nine several *Counties* of *Stafford*, *Darby*, *Leicester*, *Warwick*, *Worcester*, *Salop*, *Chester*, *Montgomery* and *Flint*.

^y Hippocrat. dei. diætan. 6. 7. 7. Anatomy of Melancholy, Part. 2. Sect. 2. Memb. 3. sub finem.

15. And indeed this County is full of such high situations that must needs be happy in a cool, serene air, as Bentley, Bradwal, Aulton and Stone Lodges, and many others; but such as these most commonly having too little water, and sometimes (in winter) too much Wind, for the coldness of our Clime: Others have thought more expedient to build their Seats somewhat lower, still provided on a dry and gravelly Soil, as Gerards Bromley, Trentham, Drayton Manor, &c. of which more in due place: or else at most but on the sides of hills, for the more conveniency of water and shelter from the wind when in some points of the Compass, as Beaufort and Ingestre-Hall; which is also agreeable to the Emperor Constantines directions, for says he *τόποι υγιεινότεροι, ἢ οἱ ἐν τοῖς ὄρεσι, ἢ οἱ ἐν τοῖς ἀνακαλιμένοις τόποις πρὸς Βορρᾶν*^a. The most healthy places are both on the tops and descents of hills facing the North, the winds from thence blowing cool and dry, whereas those from the South are hot and moist, and therefore unwholsome: Yet Baptista Porta on the contrary will by all means have the front of a house to stand to the South^b, to whom agrees Stephanus a Frenchman, approving especially the descent of a hill to the South or Southeast, with trees to the North^c; which indeed may both be true^d or false, according to the different Clime for which each opinion was calculated, the Emperors being most agreeable to the Southern, and the other to the more frigid Northern regions, especially where the East and South wind which in other places usually brew rains, bring fair weather; as Mr. Camden observes they do in this County, unless (as was observed chap. 1. §. 50.) when the wind turns from West to South.

16. For the South, says Porta, is not everywhere unhealthy^e, but as Palladius also accounts it, most comfortable in the Winter and cool in the Summer, and therefore advises, *Totius fabricæ tractus unius lateris longitudine in quo frons erit meridianam partem respiciat, in primo angulo excipiens ortum solis hyberni, & paululum ab occidente avertatur hyemali; ita proveniet ut per hyemem sole illustretur, & calores ejus æstate non sentiat*^e, i. e. that the tract of the whole building all the length of that side in which the front is designed, be placed to the South, so as at the first corner or end to receive the rays of the rising Sun in winter, and that it be turned a little away from the winter West; whence it will come to pass that it shall enjoy the Sun all winter, and the shade all Summer. To which last prescriptions there are two Seats in this County viz. Ingestre and Enfield Halls, so exactly conformable, that neither Step-

^a Constantini Cæsaris Pogonati diē. Γνωμονικῶν βιβ. 8. κεφ. 7. ^b Joh. Baptist. Porta, vil-
lae, Lib. 1. cap. 22. ^c Prædii rusticæ Lib. 1. cap. 4. ^d Auster non ubique insalubris. Ibidem.
^e Rutilii Palladii de re Rustica, cap. 8. de ædificio.

nus or Palladius themselves, had they had the building them; could have possibly contrived them more to their own minds; both being situated upon declivities, fronting the South and open to the East, and fenced to the West (as all agree buildings ought to be, the western winds being the most pernicious of any) with trees that are also fit for shade in the Summer, and both well water'd; which perhaps may be two as agreeable patterns for an English situation, as can any where be met with.

17. For whatever the ancients have written in commendation of the lofty, dry, and open situations (which perhaps may be best in hotter Climes) ours in England ought neither to be without trees for shade, which may be Oak, Ash or Elm planted pretty thick and close to the building to the West and North, that they may serve too for shelter against the injuries of those Quarters; and if it shall seem good to have any for walks or other ornaments to the East or South they ought to be set further off, and had best either be trimm'd Cypress or Yew, or best of all Firrs, these being most pervious to the wind, as at Ingestre Hall: Nor ought the English situation to be altogether dry, but water'd if possible with a quick and clear stream as at Enfield Hall; wherein these two delicate seats mutually excell one another: there being little danger of fogs rising at all, much less of their continuance, where the trees are planted sparsum and always capable of ventilations, and the Currents be swift as they are generally in this County. which brings me next to

18. A more close consideration of waters, wherein perhaps it may be expected that I should determine also their goodness and badness, as before of Air; but the healthyness and unhealthyness of the Air depending so much upon the goodness and badness of the waters as has been shewn above, it seems so far to have been performed already, that it may well suffice here to add in general (which perhaps may pass for an Aphorisme) that as that air is counted best that comes nearest the pure Æther, and that the worst which is fill'd most with Exhalations and comes nearest water; so that is to be esteemed the best water which comes nearest air, and that the worst which is stagnant, muddy, and fill'd with terrestrieties, and comes nearest Earth: In a word, wouldest thou have a wholsome water indeed for thy common use? choose that which has neither colour, taste, or smell, from Salts or Sulphurs, or as little of them as may be; for these will some way or other affect thy meats or drinks, or whatever else thou employest them about, otherwise than thou didst intend they should. that is to say choose those that will receive heat, and cool sooner than others; into which a glass Hydrometer or water-Gage, or any other natant weighty body will sink deepest; or which will cause least refraction; all which argue a freedom from Salts and Sulphure, where-

with waters are sometimes so highly sated, that an ordinary fire will scarce stir them; that they will bear an Egg, and much magnify and refract an object seen through them:

19. Whereas the waters that are thin, clear, and void of these, and come any thing near the nature of air, quickly boile; are less buoyant; and scarce will shew any sensible refraction; whereof Vitello gives us an eminent example of one that he saw in the subterranean cavity of a Mountain at a place called Cubalus between Padua and Vincentia that was so very thin and clear, that what ever was put in it, would appear of the same figure and magnitude to sense, as if only air interposed: And we are told that the water of the River Silas in India, is so rare and tenuious that it will not support the weight of Ships. Both which no question, and all others that come near them, must needs be excellent for all common uses, being so indifferent to all; having few or no Salts or Sulphurs whereby to introduce any extraneous unagreeable tastes or odors: I say for all common uses relating to meats or drinks, or other household affairs; all the Saline and Sulphurous waters having also their uses, variety of mixture commending the Medicinal, as much as purity does the ordinary Springs: of both which in their order.

20. And first of those of more common use; whereof though there be none indeed that come very near, much less equal those of Cubalus and Silas; yet I am confident there are as many, perhaps more clear limpid Springs, as free from forraigne qualities, that rise in this County, as in any part of England, of the like quantity of ground: For besides that the great and profluent river of Trent (which says Camden is justly reputed the third River of England^b) riseth in this County, out of New-pooles (belonging to the right worshipful and ingenious Gent. Sr. John Bowyer Baronet one of the noblest Promoters of this designe) and two other Springs near Mole Cop, and Horton Hay; its subservient branches of Sow, Penk, Tame, Dove, Churnet, Blithe, Tene, Manyfold, Hans or Hamps, Rewle, Black-brook, Lyme, Swarbourne, Dunsmoore, Endon, and innumerable other Rindles that fall into them, also rise within the County, and most of them within less than thirty miles of the Western Sea; yet all make Eastward, and discharge themselves with Trent into Humber, and so at length into the German Ocean, near an hundred miles from their first rise. Whence the learned and ingenious Sr. Simon Degg Knight (whose assistances I must always gratefully acknowledge) has some thoughts that the Eastern, may be much lower than the Western Sea; the descent of Trent through Staffordshire, Derbyshire, Nottinghamshire and Lincolnshire seeming much greater, than the Dane, and some other branches of the Ri-

^a Vitellonis Opticæ, Lib. 10. Theorem. 42. ^b Lib. Fromondi Meteorolog. Lib. 5. cap. 3. artic. 3. ^c Camdens Britannia in Staffordsh.

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ver Wever, that rise about Biddulph, Talkon the hill, Audley, Betley, and Madeley, can possibly have through the level County of Chester into the Irish Sea. Of which perhaps more hereafter in due time and place*.

21. Nor has Trent only and Wever these great supplies of water from the fountains of this County, but many branches of the Severn (the second River of England) have their rise here also, as the Terne, Smestal, Flaßbrook, and the others that come forth Aqualat and Snowdon poole: To which add that the Meese, Stour, and Severn it self (the only navigable River in it) also pass through this County: All which summ'd up together, we find at the foot of the account, that it is water'd with no less than 24. Rivers of name, though a Mediterranean County; besides the endless number of anonymous Rindles and small brooks that must needs attend them; a number perhaps that very few Countries of the like extent can be found to surpass, if any that equals, it. And some of these too of so rank precipitant streams especially the Dove and Dane (there being here and there in them, near the fountain heads some small Cascades) that in time of floods they breakdown Bridges, and remove stones of immense magnitude, and the Dove sometimes will change its channel; which I suppose has been the cause that a part of Staffordshire in the parish of Mathfield lyes on Derbyshire side the River, and a little below (near the bridge you pass over to Snelston) a part of Derbyshire on the Staffordshire side: Nay so very sharp too are some of the lesser brooks upon sudden rains; that, as I was seriously told by that ingenious Gent. Mr. Philip Hollins of Moseleie, the little Rivulet called Cowms brook that runs betwixt his house and Basford, into Churnet; once removed a stone of three or four Tun, at least a bows shoot.

22. The Currents also of most of the other Rivers are rapid enough, but some of them indeed much quicker then others, as the Trent than Sow, and Sow than Penk; yet all of them so swift, as to prevent any vapid noisom vapors from ascending thence to infect the Air, though it must needs indeed be rateably better or worse, according as their streames be swifter or slower. Beside the Rivers, the Meers and Pools of this County are many and large, whereof that at Aqualat is 1848 yards long, and 672 yards broad, which it holds within a trifle more or lesse, almost from one end to the other; and Ladford poole is said to contain about threescore Acres; to which add Cockmeer, Ecclesball Castle pooles, New-pooles, the poole at Mare, with divers others: All which either having Rivulets that continually pass through them, or being fed with liveing Springs, and plentifully stock't with Fish which perpe-

* Vid. §. 84, 85, 86. of this Chapter.

tually move the *Waters*, they are always kept so clear and free from *stagnation*, that in a manner they send up as few noxious exhalations as the *Rivers* themselves.

23 Amongst which we must not forget the *Poole* or *Lake* mentioned by Mr *Camden* out of *Gervase* of *Tilbury*, who in his *Oria Imperialia* to *Otho* the fourth, says that in the *Bishoprick* of *Coventry* and *County* of *Stafford*, at the foot of a *Hill*, which the inborn people of the *Country* have named *Mahull*, there is a water spread abroad in manner of a *Meere*; in the territory of a *Village* which they terme *Magdalea*; in which *Meer*, or *Marsh* there is a most clear water, which hath such an effectually virtue in refreshing of bodies, that so often as *Hunters* have chased *Staggs*, and other *Deere* untill their *Horses* be tired, if in the greatest heat of the scorching *Sun* they tast of this water, and offer it unto their horses for to drink, they recover their strength of running again which they had lost, and become so fresh as one would think they had not run at all. But where about this should be, says Mr *Camden*, I cannot yet learn, nor indeed could I hear of any such *Hill*, though that at *Heyley Castle* having a great *poole* at the foot, seems agreeable enough to it, being near also to the *village* of *Madeley*, perhaps anciently called *Magdalea*; which I so little doubt will refresh a *Horse* if he drink thereof after he is tired with running, that I firmly beleive all the *pooles* in the *County*, will doe the very same, being generally clear & brisk; and but few flat or vapid.

24 Tis true indeed in the *Moorelands* where they burn much *Peat*, their pits are usually fill'd by the frequent rains brought by the *Tropæan* winds from the *Irish Seas* in which the water being fated with a crude *Sulphur*, and stagnating besides, must needs emitt contagious vapors; yet are not these neither so bad as some have fancied the water is of the *black-Meer* of *Morrige*, which I take to be nothing more than such as those in the *peat-pits*; though it be confidently reported that no *Cattle* will drink of it, no *bird* light on it, or fly over it; all which are as false as that it is *bottomlesse*; it being found upon measure scarce four *yards* in the deepest place, my *Horse* also drinking when I was there as freely of it as I ever saw Him at any other place, and the *fowle* so far from declining to fly over it, that I spake with several that had seen *Geese* upon it; so that I take this to be as good as the rest, notwithstanding the vulgar disrepute it lyes under.

25. Though indeed they are all *unwholsome* enough in themselves, and would be so to the *Inhabitants*, but that the *Moorelands* is an open *Country* lying high, and the *Hills* cloathed neither with *woods* or *groves*, so that being lyable to the smallest *brises* of wind,

¹ *Camden's Britannia in Staffordshire sub finem.*

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the noxious exhalations whenever they arise (except in deep *Calmes* which are every where unwholsom) are always dispersed; which is so *sovereign* a remedy, that the *Mooreland* *Country* notwithstanding their *Boggs*, is really as healthy perhaps as the best part of the *County*; if the great *Age* and constant health of the *Inhabitants*, that have been lately, and are now living there, may pass (as sure they ought) for sufficient proof of the matter, of both which, were I put upon it, I could no where find such pregnant instances; The *Worshipful* Mr. *Biddulph* of *Biddulph* (as I was informed by divers) having not long since had twelve *Tenants* all living at a time within the two *Parishes* of *Biddulph* and *Horion*, whose *Ages* put together made up a thousand years: And the *Worshipful* *William Leveson Gower* of *Trentbam* Esq; having now four *Tenants* all living at *Cocknage* in the edge of the *Moorelands* that one with another make 360 years; which I take for such cogent and insuperable *Evidences* (to omit many others of the like kind) that nothing more need be added in this place; the *Longevity* of persons belonging to another.

26. And so much for the *waters* of more common use, as they are ordinarily found in *Pooles*, *Springs*, or *Rivers*; come we next to consider those that have somewhat unusual in them, whether in their *Exit*, *course*, or saturation with *Sulphurs* or *Mineral Salts*, or howsoever remarkable upon any other account: And first of the *Pooles*; whereof there is one at *Penford*, which though a standing *Lake* yet is seldom dry, and tolerably clear in settled fair weather, only against *rain* it becomes troubled, rising full of *bubbles*, and in a little time thickening at the top into a yellow *Scum*, which presently as it rains vanishes away, and the *water* recovers again its former colour and clearness: All which has frequently been observed and found to be true by the worthy Mr. *Fowler* an inhabitant of the place, who freely confess that he had often been admonisht by it in time of *harvest* to fetch in his *Corne*, and at other times made the same use of it, as we do of *weather-glasses* or other *Hygrosopes*, so that as to the matter of fact I doubt not at all, though I had not opportunity of making *Experiment* of it.

27. But how this should come to pass is the great question? in order to the solution whereof I could not but call to mind that upon the approach of *Rain* there are few standing *pooles* that do not rise in *bubbles*, which some have attributed to the *Eeles* or other fish, which they would have to be as sensible of approaching *stormes* as we daily see *birds* and *beasts* are, and perhaps so they may: whether this *Poole* were stock't with *fish* or no I did not enquire, nor matters it much whether it be or no, since I am sure the same happens where there are *none*; beside, that it would be somewhat

unaccountable too, how they should raise a yellow Scumme: It seems therefore in my judgment much more probable, that the pores of the Earth being at such times unlock't (bodies much more compact also yeilding and expanding themselves against rain as we see it in our *wainscots*, in the boards of Mr. *Conniers's*^k, and *coards* of the *Sieur Grillet's* new *Hygrometer*^l) many *seams* breath forth, which being as various as the *earths* from whence they proceed, produce as different *fermentations* in the *mud* and *water*, which thicken it and occasion those *bubbles* to ascend; whence passing into the *Air*, and repelling its pressure, they may be as likely too, to cause the falling of the *Quicksilver* in our *Barometers*, as any thing perhaps that has hitherto been thought of.

28. The ascent of these *seams* that thus disturb the *Mud* &c. I take also to be the occasion that *Ducks* and other *water fowle* clap their *wings* and rejoyce upon approaching *rains*, and are after so busy with their heads under water, I suppose, to see what they can catch by the way: Which if true in the *general*, let us now come home to the *particular* case in hand, and see how it comes to pass that such a yellow *scumme* should be sent up thus to cover the face of the water. Wherein though it cannot very well be expected that I should allege very many, or very probable reasons, being unhappily prevented of seeing the place, by ill weather and approach of night; yet perhaps I may not over much miss of the mark, if I guess it may be done by the ascent of *Niter* or some *nitrous fume*, that mixing with a *Sulphur* in the bottom of the *Lake*, and sharply corroding and separating its parts, may thus send them up to the surface of the *water*, which may be repell'd or dispers'd again upon the descent of the *rain*: in which *conjecture* I am not a little confirm'd, because at *Codsall* not far off there is *sulphur* enough in the *earth* as shall be shewn in due place, which yet I am not solicitous should longer pass for the reason, than till a better can be brought to supply its roome.

29. And as this foretells *Rain*, so there are several other *Pooles* that prognosticat a *dearth*, either by rising, or overflowing: such is the *Moss poole* near *Mearton* in the parish of *Forton*; and *Drudemeer* in the parish of *Aldridge*; the rising of the former, and *exundation* of the latter, (which generally at other times is near dry) being taken for certain *signes* of a *dearth* of *Corne*: and perhaps so they may indeed not without reason, our *dearths* here in *England* being most frequently the *consequents* of great *Rains*. But that which excells all the rest in this *feat* is *Hungry pit*, situat in a field below the old fortification not far from *Billington*, but in the parish of *Seighford*, so called I suppose, for that contrary to the rise

^k *Philosoph. Transact.* Numb. 127. and 129. ^l *Weekly Memorials*, Numb. 1. p. 8.

of

of *Nile* upon the pillar of *Mikias* in the *Isle Roud* or *Garden*^m which brings plenty, this predicts scarcity by its rise upon *sticks*, set upright in the mud, which the people place there every one for their own particular *observations*; forejudging the rise or fall of *corne* in the *Mercats*, by the rise or fall of the water on these *sticks*, and so either keeping or vending it accordingly: wherein it so little regards the quality of the *weather*, that it overflows sometimes in the greatest *droughts* (as I saw it do in the dry Spring Anno. 1680.) and as often has nothing in it after great falls of *rain*; as was testified to me from the frequent *observations* of divers sober persons now living thereabout: who also assured me that the remarks made upon it had been so profitable to some (whether by *casualty* or not, they could not tell) that they had advanced their *fortunes* considerably by it.

30. How many concurrent causes and circumstances attending them, may unite in producing of such an effect, though it be hard to determin, yet thus much I think we may pronounce for certain, that it must needs be done by the mediation of *Springs*: into which opinion I am the rather induced, because I find the same *intermissions* in many *fountains*, particularly in the *Well* South of *Whittington* Church, which though it want not *water* at any time whatever, yet *overflows* (they say) extremely against a *dearth* of *Corne*: But in the *Church* field not far from thence, in a piece of ground call'd *Hunger-moore-slade* belonging to Mr. *Nicholas Harvey* of *Whittington*, there is a *Spring* that breaks forth (according to the opinion of the people) only before a time of great *dearth*, being at all other times *dry* though at the *wettest* seasons, as I found it in *Autumn* An. 1680. after a full *Month's* rain: And when it does break forth (which for the most part happens not in several *years**) it then seldom runs above thirty poles, at which distance it sinks into the *Earth* again.

31. Near *Ashwood* bridg in the parish of *Kings-Swinford* and not far from *Swyndon*, I was shewed another *Spring* with a small *Lake* before it, by my worthy friend Mr. *John Paston* Rector of *Himley*, somewhat agreeable to this, commonly called *Hunger-wall*, because it is usually either quite *dry*, or at most *stagnats* and runs not at all, but (as the vulgar will have it) against a *dearth* of *Corne*: which how true it may be I shall not here dispute, but most certain it is, it does not always *run*; and when it does, it sometimes they say comes forth with such a *noise*, that it ha's frightened people, that have then happen'd to be near it, as particularly they

^m *F. Vanflebius* his present State of Egypt. Cap. of the Pillar *Mikias*. * *Nonnulli [fontes] ad multum tempus cessant: effluere, deinde rursus emergunt. Geo. Agricola de Natura Eorum quæ effluunt ex terra Lib. 3.*

will

will tell you it did some *Rabbit-stealers*, that were not far off, when it once thus happen'd to burst out: much after the same manner I suppose as at that celebrated *Spring* in the *Peak* of *Derbyshire* called *Weeding Well*, which as my worthy, learned, and most ingenious friend, the Worshipful *Charles Cotton* of *Beresford* Esq; in his *historical Poem* of the wonders of the *Peak*, also acquaints us, sends forth a hollow murmuring noise^a, before the approach of the waters, that it emits in like manner but at certain times; and that too at such unequal periods, that 'tis a hard matter to hit the time of its flowing; so untruly is it said to keep correspondence with the *Sea*, so as to observe its *Tides*; and so absurdly for that reason do some call it *Tides-well*; for says the ingenious Mr. *Hobbs*

*Fons hic temporibus nec tollitur (ut mare) certis;
Æstibus his nullam præfigit Ephemeris horam^b.*

32. And quickly after he tells us, that it is so uncertain, that it ebbs and flows sometimes thrice in an hour, and sometimes again not above once in a Month; which frequency of ebbing and flowing he ascribes to the rains, and the infrequency to droughts, to whom the ingenious Mr. *Cotton* objects,

*Though here it might be said if this were so
It never would but in wet weather flow;
Yet in the greatest drought the Earth abides
It never fails to yeild less frequent Tides,
Which always clear and unpolluted are,
And nothing of the wash of Tempest share^c.*

so wholly independent thinks that ingenious Gentleman this *Spring* to be of the temper of the season, though it has not indeed the repute of foretelling dearths, and other strange *Revolutions*, as this of ours has; for which very reason and its breaking forth with a noise, I take it to be the *Lake* of *Alexander Neckham*, to which he ascribes the very same qualities, and expressly says it is in this County, the Title of his *Poem* concerning it being

De Lacu Staffordiæ.

*Rugitu Lacus est Eventus præco futuri,
Cujus aquæ fera se credere nulla solet,
Instet odora Canum virtus, mors instet acerba,
Non tamen intrabit exagitata Lacum^d.*

of which other quality, that no wild beast will in any wise enter it,

^a Wonders of the Peak, p. 26. ^b Thome Hobbs de mirabilibus Pecci Carm. ^c Wonders of the Peak p. 29. ^d Camden in Staffordsh. sub finem.

though

though I must confess I heard nothing, yet this being the most agreeable to it of any I could hear of in the County, must either be it, or perhaps (which is more probable) there is none such at all.

33. *Walter* of *Hemingburgh* tells us of such intermitting prophetic waters called *Vipser's*, which *Gulielmus Neubrigensis* says were in the Province of *Deira* near the place of his birth, and that he knew them from his childhood to run but now and then against a time of dearth, non quidem jugiter sed annis interpositis, several years being interposed wherein they were dry, which drought too they esteemed as a certain signe of plenty. And I was told of such a *Spring* near *Spot-Grange* not far from *Hilderston* that breaks forth only against a dearth, which had then been dry for three or four years. The little fountain in *Cank-wood* so much observed by the right Worshipful Sir *Brian Broughton* Bar^e. may also be reckoned another of this kind; it running as well in dry, as wet weather, and sometimes in neither: All which put together: with some others hereafter to be mention'd, may pass I suppose for evidence enough, that there are indeed in the World such intermitting springs, that have no dependance at all upon the weather: but whither there be any such connexion between the profluence of these, and dearths, wars, plagues, and many other like prodigious Events as are said to follow them, I am very diffident, and want confidence either to assert, or insert them here.

34. For quite contrary to these I find *St. Hellens well* at *Rush-ton* *Spencer* so plentiful a spring that joyned with another but of equal force, they supply an overshot Mill not far distant from their rise, for many years together; yet so sometimes it comes to pass that this well will grow dry, after a constant profluence perhaps of eight or ten years, and this not by degrees, but altogether of a sudden; as well in wet, as dry years; and always about the beginning of May, when the springs are commonly esteemed highest, and so usually continues, as I was credibly informed by the Worshipful the ingenious *Robert Wilmot* of *Eardley* Esq; till about *Martin mas* following: And this the vulgar too imagin, never happens but before some stupendous Calamity, of dearth, Wars, or other grand Revolution: thus they will tell you it grew dry before the last Civil-warr; again before the Martyrdom of *K. Charles* the first of ever blessed memory; again about 10 years since before a great dearth of *Corne*; and lastly in An. 79. upon our late disturbances. Now that the same things should be portended, by the contrary operations of the same cause, upon the same Subject, seems pretty hard, that I say not unreasonably, to be allowed; so

^e Guliel. Nubrigensis Rerum Angl. Lib. 1. cap. 28.

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that

that I fear there is more of *Casualty* and *credulity* in the matter, than of any *dependence* that can probably intercede, the *flowing* and *dryth* of these *Springs*, and such *deplorable Events*.

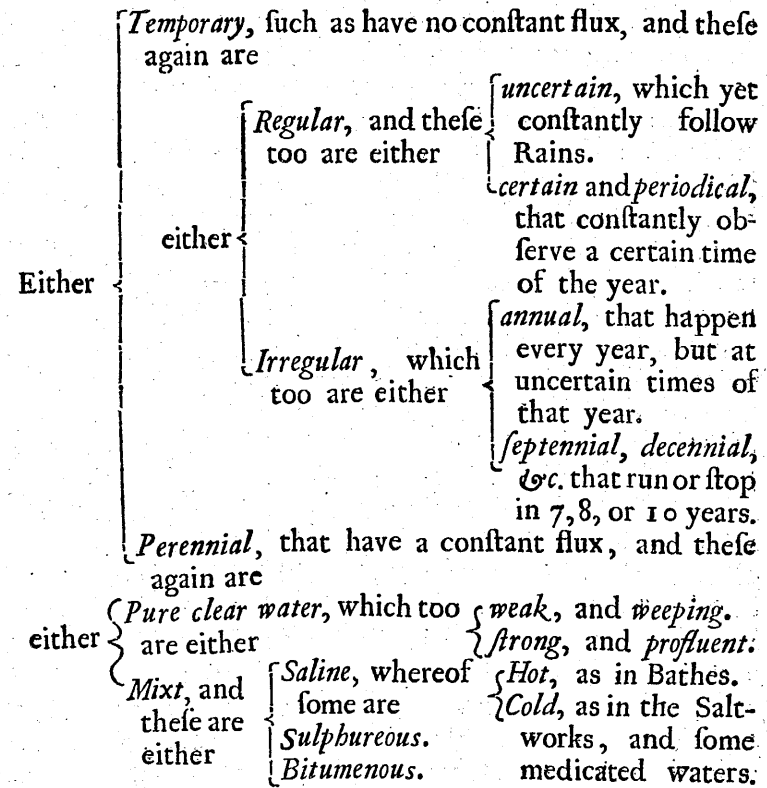
35. Much better therefore will it be, and much more instructive to the *Reader*; wholly to wave all consideration of these *rustick opinions*, imposed *gratis* on the incurious *Multitude*, and apply my self closely to a further consideration of these *temporary Springs*; and the rather, because they seem to conduce not a little (together with some others hereafter to be mention'd) to the illustration of the *Question* so much controverted by the *Learned*, viz.

Whether the Springs are supplied with that great Expence of water, that we see they daily vent, from Rains, Mists, Dews, Snows, Haile &c. received into the Spungy tops of Mountains and sent forth again at the feet of them, or somewhere in their declivities; or whether they are furnish'd from the Sea through subterraneous passages, as from the great Treasury of the waters, and are return'd again thither by the Rindles, Brooks, and Rivers? Or in short, whether they have their Origine from the Sea by a superior Circulation through the Clouds; or by an inferior, through Channels in the bowells of the Earth? or from both?

which though it be stated by so very many *Authors*, and so fully too, as that some of them have written whole *Treatises* about it, so that one would think there should nothing *material* remain unsaid upon this *Subject*, Yet having seen in my travels great variety of *Springs*, and observed many particulars in this *County* relating to them perhaps altogether unknown, at least not minded by others; I make bold to produce them, since it must be of concern that any thing can be added, to a *Subject* that has so fully been enlarg'd upon already.

36. And this that I might doe with as much *brevity* as may be, I have excluded all the wild extravagant opinions of *Nicholas Pappin* and others, in the very proposal of the *Question*; supposing all others that have any tolerable *pretence* may be reduced to one or other of its *branches*, without much force or constraint: To comethen close to the matter without further *preface*, let us first consider (that we may do't too with *perspicuity*) how many sorts of *fountains* we have to treat of, for by this means it will be evident, whether all sorts of *Springs* belong either to this, or that *Member* of the *Question*? or whether some to the one, and the rest to the other? which upon weighing the whole matter as they stand related to this *Problem* I find best distinguish'd by the manner of their *Exits*, time of *duration*, and their saturation with mineral *Salts*,

Salts, sulphurs, or bitumens; from which *Topics* they naturally divide themselves, into *Springs* that are



under some of which *heads* I suppose there is no sort of *fountain* whatever but may be most comodiously reduced without straining of *Courtesie*, at least none in *Staffordshire*, which whether they all come from *rains, mists, dews, &c.*? or all from the *Sea*? or some from *one*, & some from the *other*? is the *Question* to be debated.

37. In the *decision* whereof, I think I may be *peremptory* that amongst the *Springs* that have no constant flux, those which in the *Summer* time are commonly dried up, but after plentiful falls of *rain*, or competent *moist weather*, are constantly either *profuent*, or have a moderat *stream*; in short, that the *temporary regular uncertain Springs*, must certainly depend on *rains, dews, &c.* And I beleive most of those *perennial Springs* that are near the *tops* of *Hills* (whereof I have had the opportunity of viewing many) which I generally find to be but *weak* and *weeping* rather than *runing*, such as that upon the *Bruff* hill in the *Parish* of *Mare*, in all probability

probability too must either come from rains, or the mists that we see usually hang on the *Summits* of them, when it is clear and dry weather below in the *valleys*: And not only these, but as *Vitruvius*, *Peter Martyr*, *Cardan*, *Molina*, *Bernard Palissy*, *Gassendus*, *Le Pere Jean Francois*, and another *Anonymus French Author*, Printed at *Paris An. 1674*. *Mr. Ray*, *Mr. Hook*, &c. are of opinion, all other *Springs* and *running waters* whatever, owe their *origine* and *continuation* chiefly to *rains*, *dews*, &c. The probability whereof they insinuate principally by the following *reasons*, which I shall here repeat as faithfully and as succinctly as may be.

38. First because great inundations or overflowing of *Rivers* manifestly proceed either from the *rain* that immediately falls, or from the melting of *Snow* or *Ice* that hath formerly fallen upon the more eminent parts of *Mountains*. 2, Because many *Springs* quite fail in dry *Summers*, and generally all abate considerably of their *waters*. 3, Because no *Springs* break out either on the *top* of a *hill*, or so near the *top*, but that there is always *earth* enough above them to afford a supply, considering the condition of high *Mountains* which are almost continually moistened with *Clouds*, and on which the *Sun* beams have but little force. 4, Because 'tis observed that there are no *Springs* rise in any *plain*, unless there be hills so near that one may reasonably conclude they are fed from thence. 5, Because in *Clay Grounds* into which *water* sinks with difficulty, we seldom find any *Springs*, whereas in sandy, gravelly, rocky, stony, or other *grounds* into which *rain* can easily make its way, we seldom fail of them. 6, Because we are assured by those that have experimented and calculated it, that *communibus annis & locis* there falls water enough from the *Heavens* in actual *rain*, *mists*, *dews*, *snow* or *hail*, upon the surface of any *Country*, to supply all the water that runs into the *Sea* by the *rivers* of that *Country*. 7, Because they who would have *Fountains* to arise from, and to be continually fed from the *Sea*, have not as yet given any satisfactory account.

39. First, that there are any such *Caverns* or *subterraneous passages* in the *Earth* that come from the *Sea*; or 2. If there be, how water can ascend to the *tops* of *Mountains* and have its *efflux* there, since the *Sea* can have no such protuberances or elevated parts above the rest, as the *earth* has; and that no *water* will ascend above its own *Level*. or 3, How the water (if from the *Sea*) should become thus *fresh*, since it seems so far from being done by *transcolation*, that it cannot be so done by *distillation* though frequently repeated, but it will retain a *brackish* taste; for that *sea-water*, as *Varenus* asserts, has a *volatil* as well as a *fixt salt*, which latter though it can be separated either by *percolation* or *distillation*,

on, yet the *volatil* cannot, it being so *spirituous* that it will ascend with the most *rarefied water*. Nor 4. do they give any satisfactory account, why the *passages* through which these *percolations* are made (if the *salt* be continually left behind in them) are not long since stopt up with the *salt* that has perpetually been left behind in them from the beginning of the *World*. Nor 5. why the *Sea* is not long before this become all *fresh*, since we cannot but suppose that the whole *mass* of *water* has once at least past through the body of the *earth* since the *Creation* of the *World*, if not many more times than there are years since the *beginning*, as those that do hold the contrary opinion do freely admit. And these are the chief *reasons* (nor are they slight ones) upon which the *Authors* above mention'd have grounded their *opinion*, which is the most applauded one too, and most universally received; in relation whereof I have been so far from *abating* any thing of their *strength*, that I think I have proposed some of them with more advantage than the *Authors* themselves.

40. And yet this opinion seems to be prest with more, and more insuperable *difficulties* than the other of *Homer*, *Plato*, *Aristotle*, *Virgil*, *Seneca*, *Pliny*, the *Philosophers* of *Conimbra*, *Scaliger*, *Dobrzenski*, *Van Helmont*, *Lydiat*, *Pierre Davity*, *Des Cartes*, *Du Hamel*, *Le Pere Schottus*, *M. Jaques Robault*, *Petrus Barbay*, and the Reverend and Learned *Dr. Stillingfleet* Dean of *St. Pauls*, who all hold with little difference that some *Springs* at least are furnish'd from other *waters* in the bowels of the *Earth*, which most of them agree too must be supplied from the *Sea* by *subterraneous passages*, and that they are returned again thither by the *Rindles*, *Brooks*, and *Rivers*, by the *inferior Circulation*: It is prest I say with far more inexplicable *difficulties*, than that of *Homer*, *Plato*, &c. for beside that 'tis altogether unreasonable to admit that any of those *temporary irregular Springs* mention'd in the §§ 30, 31, 32, 33, 34. of this *Chapter*, (considering their circumstances) should by any means possible come from *rains*, *dews*, &c. though the waters they send forth indeed are but few and inconsiderable; it is altogether as improbable (that I say not impossible) that the *temporary regular periodical Springs* should have their *origine* thence: for besides that they constantly observe their *terms* whether in *wet* or *dry* weather, some of them happen at least (if not so directed by some unknown secret operation of *Nature*) either to *flow* only in the *dry Summer* quarter, or to be most *profusent* then, though in an extreme *drought*.

41. Thus the famous *borary Fountain Lers*, that rises out of a vast deep *Cave* in the mountains of *Foix*, near *Belestat* in *Languedoc*, and waters the *Mazerean* plains near *Tbolouse*, *Hic* (says *Emanuel Maignan*)

nan) per æstatem singulis horis, quadrante paulatim succrescit, non sine multo aquarum immugientium fragore, mox quadrante in uberrimum fluvium exundat; deinde alio quadrante subsidet, ac demum quadrante etiam interquiescens, aret. i. e. that this Spring in Summer (which Du Bartas says holds for four Months, Gassendus but three, and that it first breaks forth in May, June, or July) ebbs and flowes every hour, rising and increasing with a great noise the first quarter, and flowing plentifully the second; then subsiding again the third quarter, and growing dry the fourth: in both which excesses it is so considerable, that as Du Bartas testifies, for one half hour one may pass it dryfhod, and the next scarce at all; part of whose Poem upon it, Gabriel Lermeus ha's thus translated,

Per menses aliquot dum Sol utramque revisit
 Thetida, sex quater ille vices oriturque caditque;
 Nunc siccis pedibus sicca calcantur arena,
 Nec mora dimidiæ spatium uix fluxerit horæ,
 Ecce tibi subito ruit impete Lersus abundans
 Spumeus, & Cursus magnarum imitatur aquarum*.

42. Amongst these temporary regular periodical waters, we may also reckon those of Niger, Ganges, and Rio de la Plata, these having their rise at stated times, as well as those of the great River Nile, which beginning its decrease on the 24 of September, and so continuing till May following, is then so low and weak, that it seems rather to stagnat than run; but precisely about Sun rising on the 12 of June or Baoni of the Copties, which is the 17th of ours, in the height of Summer, it begins to increase, and so continues till the 17 of their September which is our 24th, in the mean time overflowing and strangely fertilizing the whole Country of Egypt: The Origine of which increase the learned Vansebius (who lived there some years and carefully observed it) thinks chiefly to proceed from the fall of certain drops, somewhat like dew, that mixing with the waters cause such a fermentation and corruption in them, that they expand themselves and swell to a great height, long before it can any way be possibly effected by the great rains in Habessia, which according as Ludolfus was informed by the Habessian Abbot Gregory do not fall till their winter, which begins not till the 25 of June, and must have some time did they precisely fall on that day (and were not stopt by the Cataracts) to run that vast

* Emanuelis Maignan Tolosani Perspectivæ horariæ Lib. 1. Prop. 1 §. 3. * Gassendus tells us of another of this kind, which he calls Fontem Collis Martiensis, that Ebbs and Flowes 8. times in an hour. Phys. Sect. 3. Memb. pr. Lib. 1. cap. 7. And Dr. Merret acquaints us with one near Kilken in Flintshire that ebbs and flows 4. times in an hour, Pimax Rerum Nat. p. 222. c. Jobi Ludolfi Hist. Æthiop. Lib. 1. cap. 5. §. 34.

tract

tract of Land between Goiam (where the Nile rises) and Egypt; though Vansebius says they fall not till July, August, and September, so that they can neither be the first nor sole cause of its increase.

43. During this rise, occasion'd by the fermentation, there is a green kind of Scumme superinduced upon the water, which endures betwixt twenty and forty days, more or less according as the great rains fall sooner or later in Habessinia, which when they come down into Egypt turne the River red, being so tinged with the earth by the way before they come thither, the Soil of Egypt being black and therefore unlikely to do it. The learned Cambræus as cited by Gassendus thinks this fermentation to be caused by Niter, wherewith the Country and especially the Channell of the River is acknowledged to abound, which being heated by the Sun, thus dilates it self and makes the River to swell: Wherein if he intend that sort of Niter which we call Borax (I mean the natural and not the factitious) otherwise call'd Chrysocolla, described by Rulandus and others to be a green sort of Earth*, and that every body knows (though we have none but the factitious) huffs and swells with heat, I readily subscribe to him: And the rather because we find it mention'd to be plentiful in Egypt, and that the waters in the Rivers cause an itching over the body, as Vansebius informes us upon its first increase, which seems also to argue that the pungent particles of Niter, or perhaps of the Natron of Egypt, which too is a species of Niter*, are then very active: And thirdly because hence we can give some rational account of the green scumme, which I take to be nothing but the froth of the fermentation made by the heat of the Sun whilst it works on the Borax or green Earth, which says Wormius is the better, by how much the nearer it comes to the colour of a true Smaragd^z. Not but that I know too that common Niter in its detonation or alcalisation with coales, acquires a green colour, which perhaps it may also yield, upon the excessive heats of the Sun, in that Country.

44. Nor is the River only lyable to this remarkable fermentation, but the Ponds and Lakes too any where near it, and they are also covered with the same green Scumme, which Vansebius says in the year 72. was thicker than it had been known to be, for many years before; more particularly the waters of the Well of Argenus or Gernus a Monastery of the Copties near Benbese a Towne in the middle of Egypt, is observ'd to be sensible of the fall of the drops or dew, and to rise the very same night, and in the same man-

* Vansebius's present State of Egypt, Chap. of the River Nile. w Petri Gassendi Physicæ Sect. 3. Memb. pr. cap. 3. & 5. * Mart. Rulandi Lexicon Alobemæ in verbo Chrysocolla. † Vansebius's present State of Egypt, Chap. of the River Nile. * Observations Sur les Eaux Minérales par le Sieur Du Clos. p. 83. † Musæi Wormiani. Lib. 1. Sect. 3. cap. 10.

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ner with the *River*, which having no possible communication with the rains in *Habestia*, shews evidently that the increase of the water in the *River*, comes partly at least from another cause, and most likely from the fermentation made by the *Niter*, which however it comes to pass seems to leave its own pits (whereof there are abundance in *Egypt*) at the time of the increase and goes into the *River*; *Pliny* saying expressly that whilst *Nile* rises and flows, all their *Niter* pits are dry, and that when it falls again and returns within its channel, then they yield their nitrous juice again for 40. days together. ^b Which too is further confirmed by this one very strange, but true Experiment viz. that if you take of the *Earth* of *Egypt* adjoining to the *River*; and preserve it carefully, that it never come to be wet, nor any way wasted, and weigh it daily, you shall never find it more or less heavy till the 17. of *June*, at which day it begins to be more ponderous, and augmenteth with the increase of the *River*, whereby they have as infallible knowledge of the state of the future *Deluge*, as by the *River* it selfe: the humidity of the *Air* no question having recourse through all passable places and mixing with the same *Niter* in the *Earth*, increaseth the same as it does the water, as was confirm'd to *Alpinus* from the frequent Experiments seen of it, by *Paulus Marianus Venetus* the French Kings Consul there, *Bapt: Elianus* a Jesuit, *Franciscus Saxus*, *Franciscus Bonus*, and one *John Varot* an English Gentleman; which has put me upon deliberation whether there may not fall such diurnal as well as annual dews (that may also vary with the changes of the *Moone*) which in some measure may cause the flux & reflux of the green Sea (in proportion to the parts of the *World* where the *Tides* are great, small, or none at all) by such fermentations.

45. Nor less unlikely are the wonderful periodical waters of the *Zirchnitzer see*, or rather *Lake* of *Carniola*, to depend upon rains; of which though *Georgius Wernerus* has written at large, ^{*} and made a *Map* of the *Lake*; yet the learned and ingenious *Dr. Edward Browne* has much better, and I believe more truly described it: Which He says is about 2 *German* miles long, and one broad; unequal in the bottom, being in some places but 4 foot, but in the *Valleys* (whereof there are 7 more eminent that have names) twenty yards deep; in these valleys there are many fish as *Carps*, *Tench*, *Eeles* &c. which together with the water, some time in the Month of *June*, all descend annually under ground through many great holes at the bottom; the *Earth* while the waters are thus

^b Excedente Nilo siccantur, decedente madent succo Nitri. Nat. Hist. Lib. 31. cap. 10
^c Prosp. Alpini de Medicina Aegyptiorum. Lib. 1. cap. 8. * Geo. Wernerus de admirandis Hungaricæ aquis. sub finem.

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funkt, making a speedy production of grass yielding food for their Cattle in the Winter season: which in the Month of *September* following, as certainly return again by the same holes, the waters springing or mounting up to the height of a *Pike*, and running and overspreading the whole place again (as *Wernerus* describes it) with that velocity, that they will overtake a swift *Horseman*. It being remarkable too, that this recess of water (as the rise of *Nile*) is foreknown to them by a stone there is in it, called the *Fishers stone*; the *Prince* of *Eckenberg*, whose *Lake* it is, giving all people Liberty then to take the fish, which they do by standing in the water by the holes, and intercepting their passage †.

46. But we need not run so far either as *France*, *Egypt*, or *Carniola*, to find out intermitting periodical waters that have no dependence on weather, for (though I find none in *Staffordshire*) goe we but to *Lambourn* in *Berks* & there we have a Rivulet as remarkably such, as any of the foremention'd, as I have been inform'd by many, but more particularly by the ingenious *J. Hippisley Esq;* an Inhabitant of the place, and late high Sheriff of the County, who has been pleas'd to favour me with divers Letters concerning it; importing chiefly that the Rivulet there called *Lamb-bourn*, which very likely as *Mr Camden* thinks gives name to the *Towne*, runs much more plentifully in the *Summer* than *Winter*, and that the Springs in the *Towne* it selfe are sometimes so low in the latter Season, that they are commonly forced to digg their Wells deeper for want of Water: And expressly writing to Him to know how the Springs held the last great drought in 81, He sent me word that they were so far, from sayling, that (if there were any sensible difference) the Springs and Rivulet then were rather higher than ordinary, and fayled not till about the middle of *September* (the usual time) before which there had fallen rain enough, yet then not a drop to be seen in the *Channel*, till about the middle of *Febr.* when the springs as customarily, began to recover themselves again.

47. Nor has this been only observed of late, but admired and celebrated also in former Ages, though by none so signally as the Poet *Sylvester* in his Translation of *Du Bartas*, who lived long at *Lambourn* in a house now of *Mr. Hippisleys*, in quality of a *Steward* to the antient family of the *Esses*, which for many Generations flourish't there; where He compares it to the foremention'd *Lers* of *Du Bartas*, and describes its Qualities as followeth,

And little *Lambourn* though thou match not *Lers*,
 Nor hadst the Honor of *Du Bartas* verse;
 If mine have any thou must needs partake,

† *Dr. Brown's* account of his Travels into Hungary, &c. p. 127, 128. * See Nat. Hist. of *Oxfordsh.* chap. 2. §. 17.

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Both for thy owne, and for thy Owners^d sake,
 Whose kind Excesses thee so nearly touch,
 That yearly for them thou dost weep so much,
 All Summer long (while all thy Sisters shrink)
 That of thy tears a million dayly drink,
 Besides thy Waast; which then in hast doth run
 To wash the feet of Chaucers Donnington^d.
 But (while the rest are full unto the top)
 All Winter long thou never show'st a drop
 Nor send'st a doit of needles subsidie
 To Cram the Kennet's wantles Treasury.
 Before her stores be spent and Springs be staid:
 Then, then alone, thou lend'st a liberal aid,
 Teaching thy wealthy neighbours (mine of late)
 How, when, and where, to right participate
 Their streams of comfort, to the poor that pine,
 And not to grease still the too greasy Swine:
 Neither for fame nor forme (when others doe)
 To give a morsel or a mite or two,
 But severally, and of a selfly motion,
 When others miss, to give the most devotion^f.

48. I know Mr. Ray says that the Rivers which flow from the Alps run lowest in the Winter, and abound most with water in the Summer time, so that sometimes they overflow in the hottest Months when no rain falls; and that He testifies the same of the River Rhodanus; but attributes it wholly to the melting of the Snows at that time of Year, which lye thick on those Mountains for 6 months together, no rain falling on them all the winter Season (excepting the lower parts) but only Snow, and perhaps indeed it may be so^g: I know also that Gassendus alleges the same cause for the flowing of the Lers in the Summer Months^h: However it may be with those, I am sure there is no pretence for the same cause at Lambourn, for having strictly enquired, as there are no Hills thereabout considerable enough to preserve Snow on their tops any longer than in other parts of England, nor large Clefts or Caverns in them that might conserve it so long as to be melted only in Summer, and then to make this copious flux; So could I not hear of any other known means whereby this might be done, More than for the great River of St. Francis the chief of Pharnambuck, which as Piso acquaints us, by some hidden cause in Nature overflows

^d Sr. William Effex. ^e Donnington Castle upon this Rivulet, once a seat of Sr. Geofrey Chaucer, our famous English Poet. ^f Sylvester's Translation of Du Bartas the third day of the first Week. p. 55. ^g Observations Topographical, &c. p. 103. ^h Pet. Gassendi Physica §. 3. Memb. pr. Lib. 1. cap. 7.

in this manner in the Summer time when all other Rivers are lowest: Or for the fountain near Pesquera in Spain which as Cardan informes us begins to run in the Spring, overflows in the Summer, begins to fail in Autumn, and is quite dry in Winter^k. To which let me add the Gips upon the Woolds in Yorkshire, which says the Worshipful Edward Leigh of Rusball Elq; in the drought of Summer, when all other Springs seem to be dryed up, burst out and rise up five or six yards in height and so fall into the Dales and make a little River, by which the Townes near refresh their Cattle, when the Valley Springs fail^l.

49. Of which sort of Springs and Rivers there are so many in the World that the day will scarce serve me to recount them all: The wells near the Lake Ascanius says Agricola, Hyeme siccari, æstate usque ad labra repleti solent, i. e. that they use to be dry in winter, but in summer full to the very brim; he tells us also of the Vallesian Spring ad calidas Lucenses that runs plentifully all the summer from May to September but then grows dry^m: And Varenius acquaints us that at the Towne of Villa nova in Portugal there is a fountain that flows only from the Kalends of May, to the Kalends of November, and then growes dry; and of another in Vallisland near the bathes of Leuckerbad that ceases to run in Autumn, and begins not again till the May following; Another of this kind he says there is in Spain 2 miles from Valladolid; and another near the Church of St. Jean d' Angely somewhere in Aquitan in Franceⁿ: To which Wernerus adds one at Psevers a towne of the Grisons, which constantly failes in October, and springs forth not again till May; and another in Switserland that always becomes dry in August, and runs no more till June following^o; with many others that I omit, least I hurt the patience of the Reader.

50 And as it is improbable that any of these Temporary Springs (Except such as never run but after rains, and fail upon all droughts) so it is altogether as unlikely that Constant waters that abate not at all in the greatest siccity, should wholly depend upon so uncertain principles as Rains Snows &c whereof there are plenty in this County; particularly of a sort of fountains which Agricola mentions, Qui semper abundant Aqua, sed nunquam effluunt^p, that are always full of water but never overflow so as to make any streame; such are those pits of water in the moorish ground near Eccleball Castle, which they will tell you are bottomless because always full and never failing, yet never runing over: There are

^k Guil. Pisonis de Med. Brasl. Lib. 1. p. 7. ^l Hieron. Cardani de subtilitate, Lib. 2. sub finem. ^m England described by Edw. Leigh, in Yorkshire, p. 219. ⁿ Geo. Agricola de natura Eorum que effluunt ex terra, Lib. 3. ^o Bernb. Varenii Geograph. Gen. Lib. 1. cap. 17. prop. 17. ^p Geo. Wernerus de admirandis Hungariae Aquis sub finem. ^q Geo. Agricola de natura Eorum que effluunt ex terra, Lib. 3.

much such wells too in *Dunsmoore* Meddowes near the village of *Rudyerd* over against *Heracles* in the parish of *Leek*, which all stand equally full in the greatest *drought* and the *wettest* season; when I was there in *July 79* they were all brim full, though the *Rivulets* near them were in a manner dry; they are 8 or 10 in number, and all very deep, yet none of them empties it self into the *River*, but the biggest which my worthy friend *Mr. Thomas Gent* found by the plummet to be but 9 or 10 yards deep, though they had always before been esteemed bottomless. And

51. *Dr. Boat* informes us that the *Springs* in *Ireland* (where there are very many) for the most part of them are of this fashion, like to a small pit full of water to the brim, and runing forth at the lower side, without noise or bubbling, as the biggest of those at *Dunsmoore* does; and another of this kind on *Alrewas Hays* near the North-West Angle of the *Plate course*, which thus always overflowes, and by the vulgar is falsly reputed bottomless; though indeed it be not inconsiderable, that being 4 foot square at the top, which it holds for as many foot deep, and after turning into a round of two foot and $\frac{1}{2}$ diameter, and situat in a fine plain almost level, without any thing deserving the name of a hill to assist it, the forementioned ingenious *Mr. Wolferstan* found the plummet to descend in it 42 foot, before it reacht the bottom: For if the greatest rains as *Seneca* asserts sink into the Earth never above ten foot, or if as the *Anonymous French Author* believes, who seems to have taken a great deal of care in this matter, they never wet above a foot and a half; and if as the same *Author* thinks all rains that fall upon plains are spent in the nourishment of *Plants*, &c. I see not how this sort of *Springs*, whether they run or not, that lye so deep, and are constantly full if they do not run, as well in *droughts* as *wet* weather, should have their supply from rains, snows, &c. or from any other place, but some *Magazine* of waters in the bowels of the Earth.

52. But it may be it will be objected that though these *Springs* are constant, yet they are but weak, and some of them never profluent, so that a very small supply even from the *superficies* of the Earth may keep them so; which though scarce to be granted, yet let us admit for once that it may be so; but what then shall we say to those mighty *perennial Springs* that constantly throw forth great quantities of water, without sensible abatement in what season soever? whereof there is one near *Aston Trussel*, and *Forwel Spring* in *Cank wood* may pass for another, that do constantly so; but those which excell all the rest of this *County* (as well upon this, as

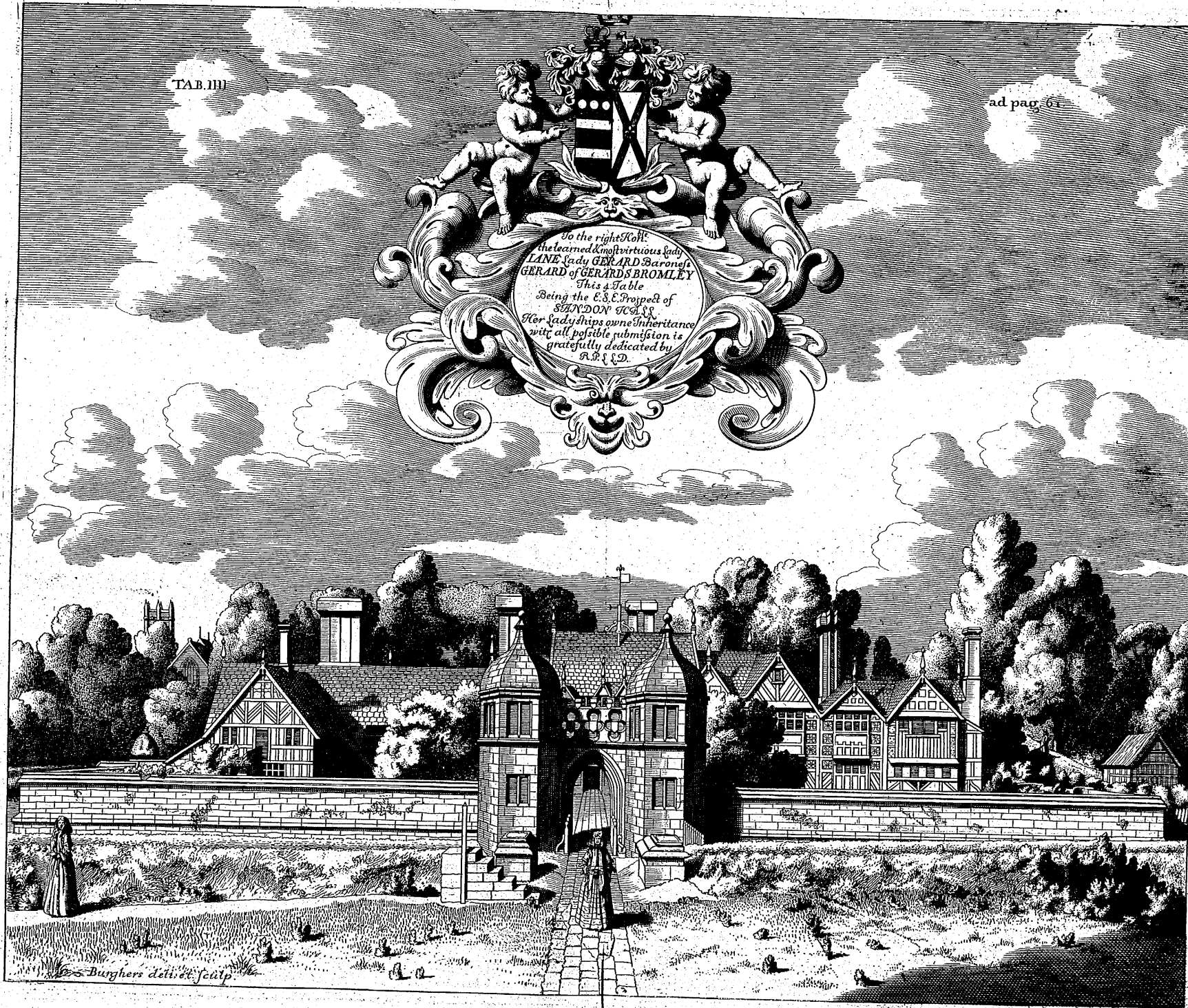
^a *Ger. Boat's Nat. Hist. of Ireland*, Chap. 7. Sect. 1. ^o *L. An. Seneca Nat. Quæst.* Lib. 3. cap. 7. ^p *De L'Origine des fontains Partie seconde*, p. 167.

other

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TAB. III

ad pag. 61



Chap. II. Of STAFFORD-SHIRE. 61

other accounts hereafter to be mention'd) are the *Springs* at *Willowbridge*, belonging to the Right *Honorable* the *Virtuous* and most *Accomplish't* Lady, *Jane* Lady *Gerard* *Baroness* *Gerard* of *Gerards* *Bromley*, the first actual *Encourager* of this *Designe*, the *Prospect* of whose *Paternal* Seat, is here most deservedly added, *Tab. 4.* whereof there is one, that (notwithstanding it is oppress'd with a vast weight of water always lying upon it) throws out constantly at least 6 *cubick Inches* of water (and so does the Spring at the foot of *Berry bank* near the *Village* of *Darlaston*) beside 60 more great and small (that yield from six to one *cubic Inch* of water) which all rise beside it, within less than 20 yards square; and yet no considerable *Hills* near, like to receive rain enough to supply these waters; that from the *Wells* to the *Lodg* being but an easy ascent, and those 'twixt *Madley Park* and *Mare*, and of *Abley beath*, at too great a distance; and (if they do contribute anything) supplying the *Expence* of other *Rivulets* either flowing from them, or runing between them and these *Springs*, as the *River Tern* does between *Willowbridge*, and all the *Hills* near *Madley* and *Mare*.

53. I know that the right *Worshipful* the *Learned* *Sr. Christopher Wren* the now worthy *President* of the *Royal Society* has contriv'd a *Rain-bucket* to measure the quantity of *Rain* that falls, which as soon as 'tis full, empties it self into a *Cistern*, and so receives more; which how often it performs is recorded by a *Weather Clock*, as may be seen in the *Repository* of the *R. Society* at *Gresham College*, by which it might easily be computed whether sufficient *rain* falls *communibus annis* upon the declivities of ground toward any *Spring*, to supply the constant *flux* of it; which yet I think has never been duely observed for a whole *year* round: But the forecited anonymous *French Author* has been so industrious and curious in this point, that he computed the rise of *rain-water* in a *Conservatory* for divers years, and found the mean rise to amount to 19 *Inches* and 2½ *lines*; He made also an *Estimat* of the course of the *River Seine* from the *Spring* head to *Ainay le Duc*, 3 miles off (where there enters another *Rivulet* that swells it) with the declivities of the ground for a mile on each side, which was all he could reasonably think might contribute to its *flux*, and this *space* of three miles long and two broad, he made the *Conservatory* of the *rain-water* to furnish the *River* for a whole year: Upon which *Tra&t* of ground, being six miles square in surface, supposing that during a whole year, there have fallen *rain* to the height of 19 *Inches* and 2½ *lines* as aforefaid, it amounts he says to 280 *Millions* 899942 *Muids* of water.

^a *Hist. of the Royal Society* part. 2. *sub finem*.

54. Now that he might give a gross *Estimat* (for he pretends not at all to be precise in it) of the Quantity of the water runing away in this *River*, compared with the quantity of *rain* that fell upon that tract of ground before mention'd, he computed (from comparison made with the *River* of the *Gobelines* near *Verfailles* where it hath 50 Inches of water by measure) that this *River* could not have above 1000 or 1200 *Inches* of water always runing, compensating the lesser quantity that it hath at its source, with the greater that it hath towards *Ainay le Duc*: And following those that make profession of governing and conveying *spring waters*, he judg'd that a *cubick Inch* of water yielded in 24 hours 83 *Muids*, agreeing with those that say that a *cubical vessel* whose side is two foot *Paris* measure holds one *Muid* of water: Or (which is the same thing) that a vessel which contains 83 *Muids* of water will make an *Inch* of water run continually for 24 hours; so that for a whole year (which is near 366 times as much) there will be required 30378. *Muids* to make an inch water flow constantly: which 83 *Muids* (to put them into *English* measure) make 68 *Hogsheads* and 42 *Gallons*, *Ale* or *Beer* measure; every *French Muid* containing 16777 ²⁰⁰/₁₀₀₀ cubic *Inches English*, which is 59 ⁴⁰⁰/₁₀₀₀ or 59 *Ale* or *beer Gallons* and $\frac{1}{2}$ *proxime*; so that accounting 72 *Gallons* to the *Hogshead*, the *Muid* contains scarce $\frac{1}{2}$ of a *Hogshead*.

55. These *particulars* being granted him, he concludes that if one *Inch* of water require 83 *Muids* for a day, then 1200 *Inches* require 99600 *Muids*, wherefore for a whole year, which is near 366 times as much, there will be required 36453600 *Muids*; which being deducted from the 280899942 *Muids*, which he supposed to fall annually upon the *Conservatory* or tract of Land of six miles square that he judg'd might contribute to the *flux* of that *river*, there remains 244446342 *Muids*, i. e. *twixt* 6 and 7 times as much as was spent in the maintenance of the *River*: which he thinks so abundantly exceeds what is ordinarily required for other *occasions* and *losses*, such as the nourishment of *Plants*, supply for *vopors*, extraordinary swellings of the *River* whilst it rains, and *deviations* of the water other ways, that there needs but the fixt, at most but the fift part of the *rain* and *snow water* that falls, to make a *River* run the whole year. Which indeed is so vast a disproportion, that one would think at first sight that the *question* were determin'd; and there is no question but it had been so, did all the *Conservatories* and *Springs* in the *world* hold such a disproportion, though it were less by one half.

56. But let us see what this *Author* must very likely have con-

De L'Origine des Fontains seconde partie. from pag. 198. to pag. 207.

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cluded in case he had considered such *Springs* as those above mention'd at *Willowbridge* § 52, where the biggest constantly throws out (without any sensible abatement) at least six *cubick Inches* of water, beside 60 more that yeild other different proportions, from 6 *inches* down to one, and all these within (perhaps little more) than 10 *yards* square so that they may all without difficulty be esteem'd as one; Had, I say, this *Author* but lighted on such *Springs* as these, whose *Conservatory* too must be very narrow, for the *River Tern* running close by them, cuts of all contribution from one side, and receives in great measure what else might have been supposed to come from the other, he had found perhaps near as great a disproportion between the *Spring* and the *Conservatory*, as he did before between the *Conservatory* and the *Spring*: For granting *Willowbridg Park* to be the *Conservatory* for these *Springs*, whose surface we will also allow to be a *mile* square, and that the *rain* annually falling upon its *superficies* doth amount to 19 *Inches* and $\frac{2}{3}$ lines, yet supposing too (what cannot be reasonably denyed) that great part of the *water* that this tract of ground contributes is received all along into the *River* both above and below the *Springs*, it cannot well be thought (the whole *Conservatory* being but $\frac{1}{2}$ part of that for the *Seine*) that it can furnish $\frac{1}{100}$ part of water in 10 *yards* square, for which the *French Author* allowed no less than *three miles* in length.

57. But we will grant notwithstanding the differences of the *latitudes* of the *Conservatories*, and of the *longitudes* for the issues of the *waters*, that the *waters* of the *Conservatory* of *Willowbridg* do so concenter (which is very improbable) as to furnish $\frac{1}{100}$ part within that *little space*, of what the *French Authors* did in 3 *miles* in length, that is 28089994 *Muids* of water in a whole year, yet the disproportion will be great between these *Springs* and their *Conservatory*: For the greatest of these *Springs* alone (at the rate of 83 *Muids* for every *cubic Inch*) vents 2988. *Muids* or 2469 *Hogsheads* dayly; that is, 1093608 *Muids*, or 903654 *Hogsheads* yearly; to which add the other 60 *Springs*, venting different proportions from 6 *cubic Inches* down to one, the mean whereof will be each 3 *cubic inches*, they vent each 546804 *Muids*, or 451827 *Hogsheads* yearly; that is all of them together 32808240 *Muids*, or 27109620 *Hogsheads*; which 32808240 *Muids* being added to the 1093608 *Muids* of the greatest *Spring*, amounts to 33901848 *Muids*, which is 4811854 *Muids* more then 'twas supposed the *Conservatory* could furnish in a year: without allowance made for the great quantities that must needs be spent in the nourishment of *Trees* and other *Plants*, and the much greater in *Exhalations*: For if we may believe experience, the *vapors* that are

are exhaled into the *Air* for *Clouds* and distill again in *rains*, come not so much from the *Seas*, as from the *moisture* of the *Earth*; thus we see that in uliginous boggy *Countrys* (such as *Ireland*) the *rains* are frequent, whereas in the Sandy deserts of *Afric* and *Arabia* they have no *rains* at all: Not to mention with what difficulty *salt waters* do evaporat, or that our most lasting *rains* come from the *East* and *South* i. e. from the *Landward* and not from the *Sea*: to which add that the greatest *rains* obstruct the pores of the *Earth* by filling them with dirt, so that they cannot descend above a foot and $\frac{1}{2}$ (which is owned by this Author) and are therefore for the most part carried away in *floods*: Whence 'tis yet plainer how unlikely it is that such mighty *Springs* as these should be maintained by *rains* falling on such a *Conservatory*.

58. And yet how inconsiderable are these *Springs* at *Willow-bridg*, in comparison of some others there are in the world, and particularly of one in the *French Authors* owne *Country*, the fountain head of the River *la Sorgue* in the *County* of *Venaisin*; which says *Gassendus*, *ab ipsa statim scaturigine evadit navigabilis*, i. e. that comes from so great a *Spring*, that it is navigable presently at its very rise: whereof had he delivered us so nice an account as he ha's done of the other, he had certainly given himself and the world better satisfaction. But for clearer evidence of the matter in hand, because the *Conservatories* for single *Springs* are always as uncertain as they are unequal, let us consider the immense quantities of water that are disembogued into the *Sea* by all the *Rivers*, and make an *estimat* whether an annual rise of 19 inches and $2\frac{1}{2}$ lines over the whole face of the *Earth* will suffice for them; the *question* seeming to be rendred much less difficult, by how much 'tis enlarged, there being now but one, an 'other, to be consider'd, whereas before every little *Spring* was a new *question*. To come then quick and close to the business,

59. I will found my computation upon that of *Ricciolus* in his *Almagestum novum*, where he tells us that the *Eridanus* or *Po* being but 1000 paces broad, and 15 foot or 3 paces deep (a very inconsiderable *River* in respect of some others) pours forth into the *Adriatic* 18000000 of cubical paces of water every hour (supposing it to run but six miles in that time) that is 432000000 per diem, which is near 15552000000 of cubic paces per Annum, and yet I take this to be a *River* of the third and lowest *Class* of great *Rivers*, scarce so big as the *Thames* or *Severn* in *England*, or

^s Pet. Gassendi Phys. Sect. 3. Memb. pr. Lib. 1. cap. 3. near Blawbeher in the Dukedom of Wurtemberg in Schwabenland is much such another, that vomits up water in so great abundance that the River at the mouth of it is a furlong broad, Job. Herbinii de Cataractis. Lib. 1. cap. 11. ^t Job. Bapt. Riccioli Almagesti novi, Lib. 2. cap. 13.

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the *Rhosne* in *France*, whereof there may perhaps be above a hundred in the world (as well as these) not thought considerable enough to be numbred by *Varenius* in his *second Class*: In which he places the *Rhine*, the *Elve*, *Euphrates*, *Tanais*, *Borysthenes*, *Petzora*, *Pesida*, *Tabab*, *Yrtius* &c. to the number of twenty: And in his first, the *Nile*, *Niger*, *Danow*, *Oby*, *Ganges*, *Jenifcea*, *Parana*, *Rio de la Plata*, *Orellana*, *Maragnon*, *Omaranna*, *Canada* or of *St. Laurence*, *Jansu*, *Volga*, &c. to the number of 16 or 17: The last whereof [the *Volga*] alone (as the same *Varenius* ha's computed it) throws forth water sufficient within a year into the *Caspian Sea* to cover the whole *Earth*; which allowing for the depth of the innumerable *Valleys*, will amount at least to as much as the 19 inches and $2\frac{1}{2}$ lines can come too: Nor surely can that of *St. Laurence* pour forth less, it runing as the same *Author* informs us 600 German miles, and being broad at the mouth as *Ricciolus* declares, no less than 60 (I suppose he means *Italian*) miles.

60. Now if the *Po* do vent into the *Adriatic Sea* 1555200000 of cubic paces in a year, the *River* of *St. Laurence* being 60 times as broad (not to mention the likelihood of its being much deeper) must vent at least nine hundred thirty three thousand, one hundred and twenty Millions of cubical paces of water, which (to depend upon *Varenius's* supputation, and the near equality of the two rivers, to avoid multiplicity of *Arithmetic*) must either of them expend water enough to cover the superficies of the whole *Earth* to the height at least of 19 Inches and $2\frac{1}{2}$ lines: But if neither of these will be thought sufficient to do it, certainly it cannot be denyed to the *Argyropotamus* or *Rio de la Plata* otherwise call'd *St. Christophers* which I take to be the biggest *River* in the World, the same *Ricciolus* expressly asserting that *Nilus*, *Ganges*, and *Euphrates* put all together will not equal it; its mouth being 90 miles broad, and runing with such violence into the *Sea*, that it makes it fresh for 200 miles forward. Yet if any *Man* will be so unreasonable as to grant it to neither of these, nor to all three together, surely it will be difficult to find one, that will be so hardy as to deny it these, and 1000 more at least that there are in the World of all magnitudes, which put together, in my weak judgment cannot but exceed the 19 Inches &c. upon a modest account less than three, if not five hundred times over: Whence the *Reader* may be satisfied that a *Conservatory* of water over the surface of the *Earth* of such a height, is not like to supply all the *Rivers* of the World.

61. And if the cold fresh water *Rivers* be not furnish'd from rains, much less sure can the hot, Salt, or bitter ones have their

^v Bernb. Varenii Geograph. General. Lib. 1. cap. 16. Prop. 27. ^w Ibid. Prop. 5. ^x Job. Bapt. Riccioli Geograph. & Hydrograph. reformatæ, Lib. 6. cap. 19. ^y Ibidem.

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origine thence; for such we find there are in very good *Authors*: Whereof *Peter Martyr* says there is one in *Cuba* so large that it is *navigable*, and yet so *hot* that one can hardly endure to touch it^a; and there is a *Spring* in *Ireland* that is as *hot* as *water* can possibly be made with *fire*; and in *Japan* another yet much *hotter*, it retaining heat as *Caronius* writes 3 times longer than other *water* heated with *fire*^b: As unlikely too are the *Salt* or *bitter Rivers* such as *Exampeus* near *Callipadum* in *Asia minor*^c, to have their maintenance from *rains*; or any *Bathes*, *Saltworks*, or other *Medicated waters*; nay so far are they from it, that by the fall of *rains*, they are all much *prejudic'd*, if not rendered wholly *useless* by them, at least for sometime; the *Bathes* being *cooled*, the *brine* *weakened* by the mixture with the *freshes*, and all *Medicinal Springs* so diluted, that they become thence *ineffectual*, till these *rain waters* are carried off again.

62. Not that the *rains* descend so low as where the *waters* are *beated* by *fermentations* or otherwise, or made *salt* by the *Mineral glebes* they pass through; but by mixing with them here above at their *exit*: for it is plain that most of the *rain-waters* (as shall be further proved hereafter) which are not presently carried away by the *Rivulets*, stand in *ponds*, *high-ways*, or other *hollows* in the ground, till the *Sun* exhales them into *Clouds* again; and never descend into the solid *Earth* (which is sufficient for the nourishment of all sorts of *Plants*) above ten foot at most; whereas the *beats* for the *Bathes* lie very deep: For who ever met with any near the surface of the *Earth* sufficient to make *waters* so *hot* as they are here in *England* at the *Bath*, or *St. Vincents* rock, or at *Porcet* near *Aken* in *Germany*, where they have a little hole in the *street* which they call *Hell* cover'd with a moveable *Grate*, the *water* whereof is so *hot*, that the *neighbours* round about in the *Summer* time, when they have no *fire*, boyle their *Eggs* in it (letting them down in a *Net*) which it will do to *hardness*, in a little space^d: Or whoever met with any *rocks* of *natural salt* so near the *day* (as they call it) like to make such *brine* as they have at the *saltworks* in *Cheeshire*, or at the *Brine pits* in the *Parish* of *Wesson* in this *County*: The *Medicated waters* indeed are very *weak* in comparison of these, yet being spoiled with *rains* as well as the rest, 'tis probable at least that none of them come from *rains*, *dews*, &c.

63. Further add that if it be so unlikely that the *cold* or *hot*, *fresh* or *Salt Springs* come from *rains* where there fall plenty of

^a *Sommario de L' Indie Occidentali del S. Don Pietro Martire* cap. 7. p. 6. *Stamp. Venet. L' Anno 1565*, ^b *Beinh. Varenii Geograph. Gen. Lib. 1. cap. 17. Prop. 7.* ^c *Ibid. prop. 9.* ^d *Lod. Rouzee M. D. Treatise of Tunbridge waters, cap. 4.*

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them; more improbable is it still (that I say not impossible) that the *Springs* in such *Countrys* where there falls little *rain* should be supplied from it: and yet we are credibly informed that the *Springs* in such places flow as plentifully as elsewhere. In the *Isle Mayo* (one of those of *Cape Verd*) which lyeth in the *Torrid Zone* 13 degr. and 30 m. *North* of the *Aequator*, it never rains but 3 weeks in *July* in the whole year, yet there rises a *Spring* of pure fresh water, making a *Rivulet* about 14 foot wide and two deep in the middle of the *Island*, before it has run above half way to the *Sea*; of which dimensions it was found by the ingenious *Mr. James Young* of *Plimouth* after ten months *drought*; nor could he perceive by the banks that it could run much larger after the *showers* in *July*, than it did then after so long a want of them^e: Whence 'tis evident there may continue a constant *large flux* of *water* for ten or eleven months together without *recruits* from *rains*. Which being so remarkable a case, I cannot but recommend it to the examination of our curious *French Author*, desiring him to let us know, after allowance made for what the dry and parched *Earth* doth drink up of the *showers* (the *Island* being situated in the *Torrid Zone*) how many *Inches* there will be left (and *lines* too, for I know he must be critical) to supply such a *Current*. And after he has done with that, let him next consider another at *Rotunda* in the *West Indies* where it rains in like manner but once a year, which though a very small *Island*, has a *Spring* rising in the middle of it, so very *profluent*, that as we are told the whole *Island* would be short in proportion for a *Conservatory* sufficient to supply it, though it rain'd there constantly all the year round^f. As perhaps might the *Strophades*, which as the learned and ingenious *Sr. George Wheeler* tells us, are *Islands* judg'd distant about fifty miles from *Zant* and thirty from the *Morea*, lying very low, and the biggest not above five miles in circuit; nevertheless they report (says he) that there is such plenty of *fresh water* there, that one cannot thrust a stick into the ground but the *water* gushes out in the place. Much less still would the rock in the *Thracic Bosphorus*, on which stands the *Sconce* call'd the *Maiden-Tower*, be sufficient for this purpose, which, as the same worthy *Author* also tells us, though not above 30 yards about, and encompassed with a deep *Sea*, yet has a *fountain* of *fresh water* springing from it^g.

64. And as there are *Springs* where there is little or no *rain*, so in many places in the *World* there are no *Springs* at all, though there fall *rain* enough, and all other *requisites* in being that this

^e *Lecturæ Cutlerianæ de potentia Restitutiva* p. 28. ^f *Ibid. p. 32.* ^g *Sr. Geo. Wheelers voyages* p. 45, 46. and 208. vide etiam *Cardanum de varietate Lib. 1. cap. 6. in initio, ubi de fonte dulcis aquæ in Mariscopulo: of which see § 77. of this Chapter.*

Hypothesis demands, such as *lose pervious Earth* to receive, *Mountains* to contain, and a *well luted bottom* to support; as the same ingenious Mr *James Young* observed at *Lipari* an *Isle* near *Sicily* where all these concurred, and yet there *Springs* in it not one drop of water^f; whence it manifestly appears (whatever is pretended) how unapt *rains* are to cause *Springs*, though they may and doe sometimes accidentally increase them: But we need not goe so far as the fruitfull *Isle* of *Lipari* for satisfaction in this point, it being plainly so in a large tract of ground in the *County* of *Kent*, there rising not one *Spring* all along between the *Dover road* to *London* and the ridge of hills above *Charing*, *Lenbam*, and *Maidstone*; from *Ospringe* to the banks of the *River Medway*; which I take to be about 17 miles in length, and about 5 in bredth, and yet the *Earth* in all this *Country* is bibulous enough of *rain*, and has *Hills* (if they be so requisit) for *Cisterns* to contain it, and a close firm bed of *Chalk* at 10 or 15 foot distance underneath to support it, that it sink not too deep into the *Earth*: Underneath which *Chalk* 'tis true there are plentiful *Springs* enough; but no man that knows the place, or is well inform'd about it, can imagin that these can come from the *rains*; the bed of *Chalk* underneath the uppermost *mould*, being altogether impervious, and sometimes three-score, but very seldom less than ten or twenty fathom thick: which too certainly must be the reason that the *Sea Springs* doe not rise here as in other places, the bed of *Chalk* being as impenetrable to them below, as to the *Rains* from above.

65. Thus having made it probable at least that most *Springs* doe not so much depend upon *rain* as some would have us beleive, let us proceed from negative to positive arguments, and see whether we cannot prove that the *Springs* are actually furnish'd by *subterraneous passages* from the *Sea*, or that there is really such an *inferior Circulation* of waters between them, as that the *Rivers* never fail, nor the *Sea* ever grows full. That some *Springs* are maintained immediatly from the *Sea*, I take to be so certain, that there is scarce a *maritime Towne* in any nation but will readily subscribe it, their waters being generally brackish, but more or less according as they are nearer, or more remote from the *Sea*: *Putei effossi quo magis à mari distant, eo minus sunt salsi* says *Cardanus*, and so the aforesaid Mr. *James Young* found it at *Plimouth*^h, and thus I know it to be upon most of the *Sea-coasts* of *England*; thus *Cæsar* in his distres at *Alexandria*, digging on the *Shores* found great quantities of *fresh water* springing into his *pits* in one nights timeⁱ; and the

^f Ibidem. p. 30. ^g Hieron. Cardani de subtilitate Lib. 2. p. 166. Edit. Basil. An. 1582.
^h Lect. Cutlerian. de potentia restitut. p. 31. ⁱ A. Hirtii Panse Commentar. Lib. de Bello Alexandrino cap. 9.

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same Mr. *Young* tells us, that the *River* at the *Isle Mayo* disembogueing it self into the *Sea*, remote from the *Roads* at an inconvenient place for *boats*, the *Mariners* are constrained to dig *wells* in a bank of *sand*, which though between the *Ocean* and the *pickle* of a *Salt pond* that lyes between this *bank* and the *Island*, yet in 24 hours they can get 3 or 4 foot in depth of *clear water*, which visibly trickles through the *sand* and cannot possibly be other than *Sea water*, by reason of the situation of the *bank* and *Well*; yet tasting so little of *Salt*, that it is *drinkable*, and fit to boile meat in^k: From all which I think 'tis pretty manifest in the first place, that *Salt water* will gradually become fresh by *transcolation*.

66. So that it only remains to shew, that it may and does convey it self to great distances not only by this means, but by mighty *indroughts*, which perhaps are after divided into smaller *passages*, that at length diminish (before they come very near the *Spring head*) into *capillaries*, and lastly being somewhat more obstructed, become the *Calenders* themselves; which that it really does, it is more than probable, from the sudden stoppage, and intermissions of *Rivers* without mention of *droughts*, and from the change of *fresh water Rivers* into *Salt ones*: For how should such *Rivers* as the great *River Trent* that rises in this *County* become dry of a sudden as it was observed to be at *Nottingham* (and no question was so at other places) An. 1110. temp. H. 1. from the morning till 3 in the afternoon as *Knighton* informs us^l, had not its *Springs* been supplied by such *subterraneous passages*, which being casually stopt by the fall of *Earth*, could not furnish water till such time as it could work its way again, through that fallen *Earth*, or find some other *passage*. Four years after on the fixt of the *Ides* of *Octob.* An. 1114. as *Simeon Dunelmensis* and *John Bromton* acquaint us, the *River Medway* in *Kent* for several miles together did so fail of water, that for two whole days the smallest *vessels* could not pass upon it^m: The same *Authors* also tell us that the *River Thames* suffer'd the same lack of water at the same time, but *Matthew Paris* says expressly it was on the fourth of the *Kalends* of *April* half a year before, when he relates it was so dry for two days that the *Sea* it self also failed of reaching the *shore* for 12 miles forward, also for the same two daysⁿ; the other *Authors* adding, that *Children* could wade over between the *Bridg* and the *Tower*, and that it was not above the *knee* under the *Bridg* it self.

67. And yet they give us no account of any *drought* that occasion'd any of these; nor indeed was it likely since their *durance*

^k Lectur. Cutler. de potentia restitut. p. 29. & 32. ^l Hen. Knighton Canonici Leycestrensis de Eventibus Angliæ Lib. 2. ^m Simeon Dunelmensis Hist. de gestis Regum Ang. & Chronicon Job. Bromton. in Anno 1114. ⁿ Matth. Paris Hist. Ang. in Hen. 1. An. 1114.

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was so short; they must most probably therefore happen upon some stoppage of the great master Pipes that supplied them, which lye deep in the Earth, so that they could not run again till they had forced their passage: which perhaps may be also the true natural cause of the sudden standing of the Rivers Elva, Motala, and Gulf-pang in Sweden sometimes for 2 or 3 days, which Biazius, Herbinus, and Loccenius tell us, happen'd in the years 1566. 1632. 1638, 1639. 1665. For we cannot well suppose that such mighty things should happen from any stoppage of the small ductus's of rains and dews, which are many, and lye disperst at great distances, and cannot in any likelyhood be stopt thus together: whereas upon the obstruction of any of the great Canales that lye deep and come immediatly from the sea; it is easy to apprehend how the capillary Tubes proceeding from them may be all stopt together. And as the Communication between the springs and sea seems probable from the obstructions of the passages between them, so it seems to be manifest from the too much opening of them: Whence it is that sometimes fresh water springs have turned to salt ones; the sea water which supplied them (having gotten a wide open Channel) being upon this account not sufficiently percolated, and so remaining salt: as it happen'd once in Caria as Pliny reports, where the River near the Temple of Neptune which was known before to be fresh and potable, turned all upon a sudden into salt water*, which it could hardly have done (I think) had it been supplied by rains.

68. But these subterraneous communications appear yet more manifest, from the many Springs in the World that ebb and flow with the Sea, such as that mentioned by Camden in the Cantred of Bichan in Caermarthynshire, upon the Hill where Careg Castle stood; that of Marsac in Gascony, which says Varenus exactly observes the Tides of the Garonne at Burdeaux; and another that Gassendus mentions in a little Island at the mouth of the River Timavus: But these are inconsiderable in comparison of that on the top of a high Mountain in the Province of Connaght in Ireland which though it punctually observe the motions of the Sea, yet we are told is a Spring of fresh water; and so is that call'd Lou-Zara among the mountains of Cabret in Gallacia in Spain, which also ebbs and flowes, though it be distant no less than 20 leagues from the Sea; To which let me add (what exceeds all the rest)

* Job. Loccenii Historia Suecane Lib. 7. p. 370. & Lib. 8. p. 606. Edit. Franc. & Lipsie An. 1676. † Job. Biazii Senioris Historia Eccles. Succ. Lib. 8. cap. 14. ‡ Job. Herbinii de admirandis mundi Cataractis Lib. 4. Dissert. 8. cap. 17. * C. Plinii secundi Nat. Hist. Lib. 31. cap. 5. † Camden in Caermarthynsh. ‡ B. Varenii Geograph. Gen. Lib. 1. cap. 17. prop. 17. † Per. Gassendi Phys. §. 3. Memb. pr. Lib. 1. cap. 7. † Bern. Varenii Geogr. Gen. Lib. 1. cap. 17. prop. 17.

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that on the top of that part of the Mount Erminius in Portugal; which lifts it self up above all the rest in the manner of a Pyramid, (which part the Inhabitants for distinction call Mount Cantari) summa in cacumine in the very top of this says Vasconcellius, there is a Lake (many paces about) that most accuratly observes the reciprocation of the Sea. Which I suppose may be enough to justify my sentence, should I pronounce it for certain, that there are such communications between the Springs and Seas.

69. Yet for further Evidence it must not be omitted, that there are many Lakes in the World of Salt water, that have no supereraneous Vents into the Sea, and some of them full of Sharks and other Sea fish; as that in the Valley of Cajovani in the Province of Bæinoia in Hispaniola called Haguygabon, which says Peter Martyr is 30 miles long and 12 broad, and though it swallow no less than 24 Rivers of fresh water that flow from the Mountains, yet such mighty quantities of sea waters sometimes boyle into it (which bring Sharks and other sea fish along with them) that it is salt notwithstanding; And as it sometimes throws forth, so at other times again it ingulfs the waters with that mighty violence, that it often draws in the Fishermen, boats and all, which it never throws up again upon the shoars, as things usually are that are swallowed by the sea. He tells us also of another of this kind in the same Island, that answers the former in all respects, but in greatness. And Varenus informs us that there is another in the Isle Cuba two leagues round, that is also salt, and has sea fish in it, though it likewise receive fresh Rivers. He tells us also of another in Peru; another in Madagascar; and the Lake Asphaltites, though it receive the fresh water River of Jordan, is not sweet; and may pass for another.

70. To which add the vast Lake or rather Caspian Sea, which though it take in all the waters of the Volga which as has been said before throws into it enough in a year to cover the whole Terraqueous globe, beside many other great Rivers; yet is salt water, has Sea fish in it, and never overflowes; No more than the Mediterranean sea it self, which in regard it never vents it self into the sea, but receives water from it at both ends, from the Atlantic by the straights of Gibraltar, and from the Euxin through the Thracic Bosphorus, as it were from two Rivers; may pass too for a Lake: and yet I say though this Sea perpetually receives those vast influxes of water, it never overflowes so much as the

† Ant. Vasconcellii Descriptio Regni Lusitan. cap. 5. * Petri Martyris Anglerii de Orbe novo Dec. 3. cap. 8. † Bern. Varenii Geograph. Gen. Lib. 1. cap. 15. prop. 7.

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low Country of Egypt. Hither too may be referred all Rivers that are swallowed by the Earth and never rise again, such as those in the Province of Caizimu in Hispaniola, where there are several, that after they have run fourscore and ten miles, fall all into a great Cave, under the root of a very high Mountain. Now how these Lakes should come at all to be salt, or how Sea fish should be brought into them? or what should become of the mighty quantities of water received into such vast Lakes as the Caspian and Mediterranean Seas that never overflow, or into that great Cave in the Province of Caizimu? unless there are such communications between the Seas and such Lakes, for the conveyance of salt waters and fish, and for expence of the others, in supplying of Rivers; will be difficult I am afraid to be resolved to satisfaction.

71. Again that there are such passages is further evident, from the many heterogeneous bodies belonging to the sea, that are many times found by digging in the bowels of the Earth, such as the shells of Sea fish, Mafts, Anchors, parts of Ships &c. such were the subterraneous Cockle, Muscle, and Oyster shells found in the digging of a Well at Sr. William D'Oylies in Norfolk many foot under ground, and at considerable distance from the sea, of which the ingenious Author of Mercurius Centralis has given us an account; and such was the Mast He mentions dug out of the top of a high hill in Greenland with a pulley hanging to it. But the most prodigious story that we have of this kind, is that of Baptista Fulgofus, Ludovicus Moscardus, and Theodorus Moretus, who tell us that at the village of Bern in Switzerland An. 1460. in a Mine 50 fathoms deep, there was dug up a whole Ship, with its Anchors and broken Mafts, in which were the Carcasses of 40 Mariners, together with their Merchandise: which Fulgofus more particularly tells us, as a thing done in his owne time, and seen by many grave and sober men, from whom (qui in representes fuerè) He says He received a personal account of it. And yet this will not seem so very strange neither, if we consider what mighty Charybdes there are in the World, whereof Andreas Moralis informes us He met with one upon the coast of Hispaniola (which no doubt was it that supplied the Lake aforementioned §. 69. of this Chapter) where the water was drawn with that violence into the Earth, that notwithstanding their utmost endeavours, the Ship hardly escaped being sucked into it.

^a Petri Martyris Anglerii de novo Orbe Decad. 3. cap. 7. ^b Mercurius Centralis. p. 74. ^c Bapt. Fulgosi Diff. & Fact. Mem. Collect. Lib. 1. c. 6. Museo di Lud. Moscardo, Lib. 2. cap. 111. ^d Theo. Moreti Tract. de Aestu maris cap. 21. §. 275. 278. ^e And. Moral. Decad. 7. cap. 8.

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72. But that which exceeds all the rest in the world (to omit that on the coast of Sicily, that in the River Somme in Picardy betwixt Amiens and Abbeville, and that of Paulus Warnefridus) is the fluxus Moschonijs, the Moskofstroome or Maalstroome, between the Isles of Moskoe, Weroe, Roest and Loufouden, on the coast of Normay, now by some called the Mouk; but antiently *Ἰνφραλιον* by Homer; *umbilicus Maris* by Paulus Diaconus; *anbelitus Mundi*, by Mela; *Nares Mundi* by Solinus; *Acheron* by Suidas, and *Orpheus* in his *Argonautics*; and *Ἰνφραλιον* by Plato and Aristotle; Which as Ortelius describes it, is no less than 40 miles round, and upon the Tides coming in, swallows in a manner the whole sea with an incredible noise, drawing in Ships, Whales, or whatever else comes within its compass, and dashing them to pieces against the sharp rocks, that there are in the descent of this dreadful Hiatus; and then upon the Ebb throwing them out again with as prodigious a violence, in so much that some have attributed the whole flux and reflux of the sea (and not without some reason) to this vast Vorago. Now though indeed it be unlikely that the Ship found at Bern should be drawn in here, and carryed underground to so great a distance, all things suck't in here being supposed to be thrown out again as Peter Clauffon and the learned and ingenious Olaus Rudbeck have described it, who think too with Brinckius that there is no bottomless subterraneous passage *, though 'tis hard to think what less could receive such a prodigious Mass of waters; Yet who knows what vast Indraughts there may be in the Mediterranean (if not done by that near Sicily) that may be sufficient to perform it? For that there must be such passages and immense ones too, must be taken for evident from the constant consumption of the waters that are so constantly thrown in, unless any Man can shew us which way else they are disposed off.

73. I know it hath been conjectur'd that the waters received into the Mediterranean and the Baltic (to which also the water always sets inward through the Sound) are carryed forth again by an under current in the straights leading into those seas: and it must not be denied but there may be such a thing as a contrary motion of water in the same channel: thus the Watermen at London will all tell you, that at the turning of the water in the river Thames, it will be tide of ebb by the shore for some time, when it is yet flood in the middle; and so vice versa, flood by the shore, when yet ebbing in the middle. So in the Downes

^a Bernb. Varenii Geograph. Gen. Lib. 1. cap. 16. Prop. 28. ^b Pauli Warnefridi de gestis Longobardorum Lib. 1. cap. 6. ^c Homeri Odys. *πελ.* 2. v. 50. ^d Abrab. Ortelii Theaur. Geogr. in verbo Umbilicus. ^e Olai Rudbeck Atlanticae Lib. 8. §. 1. ^f vid. Rationes Joh. Herbini de Cataractis marinis Lib. 2. Dissert. 4. cap. 9. ubi etiam Mappæ hujus Voragini.

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they will tell you, where the Sea runs *tide* and *half tide* (as they call it) it will be *ebbing* water, or *flood* upon the shore, three hours before it is so in the *offing*, i. e. off at Sea: which it may be cannot well be conceived without an under, as well as upper Current. Though these home *Experiments*; I say, cannot well be denied, yet I find it little more than *gratis dictum*, or founded at most upon conjecture or slender authority, that it is so in the *Sound*, or *straights* of *Gibraltar*: But admit it should; I am still at a loss which way the *under current* should goe that carries away the water that comes into the *Mediterranean* from the *Euxin* Sea, unless carried away by the same *under current* which carries away that which comes in through the *straights* of *Gibraltar*; and if so, the *under current* must be at least 3 times bigger than the upper one, making allowance for the waters that increate this vast store from the *Rivers* of *Europe*, *Asia*, & *Afric*, that flow into the *Mediterranean* on this side the *Hellepont*: which if ever well made out I shall rest satisfied as to that particular. Yet still this will not account either for such *Lakes* as *ebb* and *flow* with the *Sea*; or that have *salt water* in them and *sea fish*, yet have no superterraneous communication with the *Sea*; that receive great numbers of fresh water rivers into them yet never overflow, such as the *Caspian* Sea, *Lacus Asphaltites*, *Haguygabon*, &c. mentiond §§. 69 and 70 of this Chapter.

74. Hitherto from *Philosophy* and profane *History* having made it probable at least that few *Springs* come from rains, *Snows*, &c. and manifest that many of them (if not all that are considerable) doe come from the *Sea* through *subterraneous passages*: Let us next add (what should put all out of doubt with a *Christian Reader*) the constant uniform concurrence, of *Holy Writ*; where they are expressly called *the Springs of the Sea*, and *the fountains of the Deep*; the whole *Circulation* whereof is more fully declared by the *Wise Man* in *Ecclesiastes*, where He says, *that all Rivers run into the Sea, yet the Sea is not full, unto the place from whence the Rivers come, thither they return again*. Which *Text*, if well considered, seems to include a *Problem*, and in the latter part, the *Wise-Man's* answer; The *Question* in the first part being, How it comes to pass, that all the *Rivers* runing into the *Sea*, yet the *Sea* is not full? To which He plainly answers; *unto the place from whence the Rivers come, thither they return again*. i. e. that there is a perpetual motion or circulation of the waters through the *Globe* of the *Earth*, and that the *Sea* sends as much forth again for the supply of the *Rivers* as it received from them; which manifestly shews us why the *Sea* is not full. I know that Mr *Ray* would

¹ Job. 38. v. 16. Amos. 9. v. 6. ² Gen. 8. v. 2. ³ Eccles. 1. v. 7.

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have this performed by the *superior Circulation* through the *Clouds*, and not by *subterraneous passages*, that is, that the *Sun* exhales water out of the *Sea*, which being poured down again from the clouds upon the *Earth* from part thereof falling upon and soaking into the higher grounds, He would have the *Springs* and *Rivers* arise; and that this way, whence the *Rivers* come, they should return again.

75. But I can by no means allow this for a *solution*, since it manifestly infringes the whole *Analogy* of the *Scriptures*; for beside that we find there issued a *River from the Earth*, as the *Vulgar Latin* and *Septuagint* translate it (which in all probability was the same that went out of *Eden*) before God had caused it to rain upon the *Earth*, the *Deep* is plainly said to send forth *Her Rivers*; And God Himself expressly distinguishes between the *waters* of the *Deep* (whence Spring the *fountains*) and the *waters* of the *Clouds*, intimating their different *origines* and *motions*: For when God destroyed the world by the *flood*, *the same day were all the fountains of the great Deep broken up, and the Windows of Heaven were opened*, most manifestly hinting that the *waters* of the former were to move as violently *upwards*; as the latter, *downwards*: Again, when this dreadful *Judgement* was overpast, *the fountains of the deep, and the Windows of heaven are said to have been stopped*: God is said also to *establish the Clouds above, and to strengthen the fountains of the Deep*: Likewise *Jacob* blessed *Joseph* with the *blessings of heaven above* (the *dews*) and with the *blessings of the deep that lyeth under*. So that unless one could conceive a thing to operate before it had being, or could reconcile *Contrarieties*, and make things the same which God himself has distinguished, by so many repeated and so different expressions, the abovementioned *solution* can be no way admitted.

76. Agreeable to which *Dictates* of the *Word* of God, and particularly that of *Solomon* (which says *Ricciolus* we are not to esteem as a *saying* of the *vulgar*, but an *Aphorisme* of the *divine wisdom*) we find the *Sentiments* of most of the *Ancients*; who generally thought the *Springs* and *Rivers* to have their *Origine* from an *Abyss* or great *Deep*, which *Homer* calls

Μέγα Θεῖον Ωκεανόν
ἐξ ὧν πάντες ποταμοὶ, καὶ πᾶσα θάλασσα,
καὶ πᾶσαι κρήναι, καὶ φρέιαται μακρὰ γέφυραι.

the great power of the *Ocean*, out of which flow all the *Rivers*, all

^m Joh. Ray his Observations Topographical &c. p. 300. ⁿ Gen. 2. v. 5. 6. ^o Ezekiel 31. v. 4. ^p Gen. 7. v. 11. ^q Gen. 8. v. 2. ^r Prov. 8. v. 28. ^s Deut. 33. v. 13. ^t Gen. 49. v. 25. ^u Joh. Bapt. Riccioli Almagesti novi Lib. 2. cap. 13. ^w Homeri Iliad. Παλ. φ. v. 195.

Seas, all Fountains, and all deep wells; which he at another place, some other of the Poets, Plato, &c. call also *Barathrum* and *Tartarus*: Only by these, 'tis plain they did not so much intend the *Sea*, as a vast collection of waters within the bowells of the *Earth*, derived from the *Sea* through a prodigious gulf; εἰς τὸ τοῦ χάσμα συρρέουσι τε πάντες οἱ ποταμοὶ, ἃ ἐκ τούτων πάλιν πάλιν ἔκρυσσι, into which hiatus or gulf, says *Plato*, all the *Rivers* flow, and from which again they disperse themselves abroad*. And 'tis plain from *Aristotle* and *Seneca* that many more of the *Ancients* were of this opinion, and so were most of the *Authors* (with little difference) mention'd § 40 of this *Chapter*: Which too being agreeable to *holy Writ*, the *Deep* and the *Sea* being distinguish'd in *Job*, the *Deep* saith it is not in me, and the *Sea* saith it is not in me; we cannot but subscribe, and allow it for authentic; and be induced to think, that by the word *deep*, the *Scripture* does most times intend not so much the *Sea*, as such a vast provision of waters in the *Caverns* of the *Earth*; and that where the fountains are called the *Springs* of the *Sea*, the mediation of the *Deep* ought to be understood (as perhaps it also should through the whole *State* of the *Question*) & when *Solomon* says, unto the place whence the *Rivers* come, thither they return again; there ought to be understood the mediation of the *Sea*.

77. Which being the *Summe* of what I have to say for this part of the *Question*, let us next see whether the *objections* brought against it §§ 38 and 39 of this *Chapter*, may not more easily be solved, than the *arguments* for it perhaps are like to be: The first whereof, that great *Inundations* &c*, I judg to be so very considerable, that it seems rather to make for, what it designs to overthrow, than any thing against it: For if the great *rains*, and the meltings of *snow* and *Ice*, goe away in *floods*; thence should I rather argue that these could not be the *causes* of *Springs*, there being so little left for the *Supply* of them; an allowance for *exhalations*, and the nourishment of *plants*, being also to be deducted. And to the *second* I answer that for such *Springs* that quite fail in *summer* we have already granted them § 37 to depend wholly on *rains*; though with the Reverend and learned *Dr. Stillingfleet* I might justly perhaps have rather imputed this failure to the *Suns* exhaling by his continual heat, those moist vapors in the *Earth* that should constantly have supplied these *Springs*, than meerly to the want of *rain*; And for such as considerably abate of their

* *Plato* in *Phaed.* p. 112. Edit. Hen. Steph. An. 1578. y *Aristot.* *Meteorolog.* Lib. 1. cap. 13. & 14. L. An. *Seneca* *Nat. Quæst.* Lib. 3. cap. 4. 5. z *Job* Chap. 28. v. 14. a See § 38. of this *Chapter.* b *Stillingfleeti* *Origin. Sacr.* Lib. 3. cap. 4.

waters,

waters, though we cannot allow them intirely to be supplied from rains, yet we are not so sanguine neither (nor does it prejudice our cause) but that we may readily yield that most *Springs* (if not all) may receive *augmentation*, though not their essence from them.

78. To the *third*, which infers that *Springs* must needs be from rains, because they are never found on the tops of *Hills*, which otherwise sometimes they might be, at least where the *Hills* exceed not the surface of the *Sea* in height; it may plainly be replied, that we are well assured from very good hands, that there are *Springs* on the tops of high *Mountains*, such as the fountain head of the *River Marfyas* which says *Q. Curtius* rises *e summo montis cacumine*, out of the very summit of the *Mountain*: and *Cardan* acquaints us that there is another does the like in the *Isle* of *Bonicca* near *Hispaniola*: He tells us also that from the very top of the highest rock of the *Isle* of *May* in the *Fyrth* of *Forth* upon the coast of *Fife* in *Scotland*, there Springs a fountain of fresh water, though the whole rock or *Isle* be scarce two miles about; which might also well have been considered § 63 of this *Chapter*: As might too what I find amongst the remarks of the Honorable *Mr. Boyle*, who traversing the maritim Country of *Waterford* in the Kingdom of *Ireland*, saw a *Mountain* from whose higher parts there ran precipitously a pretty broad *River*, that within but two or three years, before first broke forth without any manifest cause from a great *Bog* that had been immemorially at the top of that *Mountain*, and hath supplied the Country with a *River* ever since; which had it proceeded from rains or *Snows*, I suppose would have been there long before. Beside we are assured by *Scaliger* that in a field near his owne house, there issues forth a spring from the top of a *Hill*, than which there is no ground higher any where near: who also further adds that there is a *Lake* with liveing *springs* in it, in a plain upon the top of mount *Cinis*, amongst the *Cottian Alps* between *Savoy* and *Piedmont*, than which very high and spacious *Level* there is no place higher, to afford any such supply as is suggested in the *Objection*.

79. Which too partly might have past for a tolerable answer to the *fourth Objection*, which concludes in like manner (as the other from *Hills*) that all *springs* must needs be from rains, because there is none rise in plains: But the ingenious *Dr. Boat* expressly informes us, that in *Ireland* which is a place very full of *springs*, they frequently rise in flat and champain Countries; that sort of

c *Q. Curtii* *Resi Historiarum* Lib. 3. in initio. d *Hieron. Cardani* de subtilitate Lib. 2. p. 92. edit. Basl. An. 1582. e *Hieron. Cardani* de rerum Varietate Lib. 1. cap. 6. in initio. f *Jul. Scaligeri* de Subtilitate Lib. 15. Exercit. 46.

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fountains,

fountains, which forcibly burst out of a rock, or the foot of a Mountain, being rare to be found in that Kingdom: Nor are springs rising in plains only found there, but in many other Countries, some of the greatest Rivers in the World having their Origine in plains; thus *Pyramus* in *Cappadocea*, which though *Strabo* calls *πλωτός navigabile flumen*, yet he says it breaks out *ἐκ μέσσης τῆς πεδιάδος*^h in the middle of a plain field: And *Agricola* tells us that the great River *Tanaïs* rises in *campestri planicie Moscoviæ* in the champain fields of *Muscovy*: To which add *Danubius* the greatest River in Europe, whose fountain head says *Cluverius* (notwithstanding it is perennial and so capacious that it takes up 26 foot in length and 18 in breadth is *in humo plana atque aperta* in plain ground in the village of *Eschingen* or *Donasching*; or as *Jornandes* will have it, *in arvis Alemanicis*, and not as *Herodotus*, *Tacitus*, *Pliny*, and *Marcellinus* say, at the foot of a hill or great Mountain^k. To the fifth it may be answered, that the reason why we find few springs in stiff Clays, is not so much that rains cannot sinke into them, as that the springs cannot force themselves from below up through them, as the ingenious Mr. *Young* found it at *Lipari*^l, and as was further hinted in the bed of *Chalk* § 64 of this Chapter. And the *Sixt* seems to have been sufficiently enervated *Ibidem*, in all the *Paragraphes* from the 56. to the 60th.

80. Though it may be further added that the rains, Snows, &c. are so far from supplying all the water that runs into the sea by the Rivers, that bating what is spent in the nourishment of Plants; most if not all the rest, is exhaled again into vapors for the supply of rains and dews; whence it is, that dry and barren Countries have but little rain, and that the draining of bogs and fens, and cutting downe woods and groves (which cause the Air to stagnat, and so ingender moisture, and preserve it by their shade) will so alter the very temper of the Heavens, that the Country which before was cold and wet, shall become warme and temperatly dry. Thus *Pliny* tells us of old, that the Country about *Philippi*, being made dry by sluices, and artificial trenches, the whole disposition of the Air and weather was thereby altered, and the very habit of the heavens above their heads changed^m. And thus we are credibly informed that in our forreigne Plantations by destroying the woods, and laying all open to the sun, the rains are much abated, there being not half the rains now in *Barbadoes*, that there were heretofore; and that the rains still diminish in *Jamaica*, as they extend

^g G. Boate's Nat. Hist. of Ireland chap. 7. §. 1. ^h Strabonis rerum Geograph. Lib. 12. p. 536, edit. Paris. An. 1620. ⁱ Geo. Agricola de natura Eorum que effluunt ex terra Lib. 3. in initio. ^k Phil. Cluverii Vindelicæ & Noric. chap. 6. ^l Lectura Cusleriana de potentia Resistit. p. 34. ^m C. Plinii secundi Nat. Hist. Lib. 17. cap. 4.

their

their Plantationsⁿ; As I am told they have also in *Ireland*, and in *Lincolnsbire* and *Cambridgsbire* in *England*, upon draining the bogs and fens in those Countries.

81. And lastly to the *Seventh* and its several branches, viz. that those who would have the fountains supplied from the Sea, have not satisfied the world; first that there are such Caverns or subterraneous passages that come from it; I think I may safely say they have had full satisfaction from §§. 67.68.69.70.71 and 72 above written. And to the second, that if such Caverns should be allowed, it does not yet appear, how water should ascend to the tops of Mountains, &c. I answer first, that in case it should be admitted, that the Sea, can have no such elevated parts, as to be the cause of any Spring on the top of a Mountain, yet this hinders not but it may be of those in the Valleys (these being as much below the surface of the sea, as the Mountains are above it) which is as much as we contend for, it having been readily granted §. 37 that the Springs on, or near the tops of hills, if weak and weeping, may proceed from rains: But indeed if such as those mention'd § 77 (especially that from the rock in the Isle of May, which cannot well be supposed to come from rains) be intended in the argument, the case is more difficult, and requires secondly a more strict and direct answer; for if all water compose it self to a Level, above which it will never ascend in a Tube or other passage, how it should thus be conveyed to the tops of Mountains, is a Question indeed worthy of Solution: which yet we find not so insuperable, but that it may be said,

82. First, that notwithstanding it is true, that water continuing in an equal state, and vessel, ascends not naturally above its owne Level; yet that when there is an unequal weight between the water descending and the water ascending, as there is between the salt water of the sea, and the fresh of fountains; the former descending in large passages, and the latter ascending in tapering Tubes, diminishing into capillaries; the sea water being prest too with a vast weight of Air which is always incumbent upon its spacious superficies: I see no reason (these circumstances being well weighed) but that such water may well ascend above its owne Level, so far as to issue forth from the top of the highest Mountain; just as the Quicksilver ascends in the Tube of a Barometer by the pressure of the Air upon the stagnant poole of Mercury below. To which 2. let me add the great assistance afforded toward the performance of this work, by the constant heat in the lower Regions of the Earth, which warming the streames as they run along, there are continually rising some vapors, or little particles of water which

ⁿ Philosoph. Transact. Numb. 27. p. 497.

nimbly

nimbly pass through the pores of the Earth, till they come toward its superficies in the Caverns of the Mountains, which being invironed with cold, these vapors are there condensed again into perfect water as in the head of a Cucurbit or Still; and as Des Cartes and Dr. Stillingfleet learnedly observe, being now more gross, cannot descend again through the same pores, through which they ascended when vapors, and therefore seek out some wider passages near the surface of the Earth or Mountains, through which descending obliquely, and uniting in the way with all other vapors arrested in like manner, they grow at length into a considerable body of waters, which finding a fit vent at the foot of a Mountain or any declivity, they become at length a Spring, that is perpetually maintained, by the like as perpetual Evaporations and Condensations.

83. Now that there are such hypogeal heats or Estuaries in the third Region of the Earth, which that most acute Philosopher the Honorable Robert Boyle upon good grounds places lowest, and to commence at about 80 or 100 fathom deep, is evident from the testimony of Morinus and other ingenious persons cited by the same noble Author; who visiting the deep Hungarian mines, at the orifice of the Grooves found them temperatly warme, much as the Air above, but descending lower they felt it considerably cold, till they came to 80 or 100 fathom; which being past, they came by degrees to warmer regions, which still increased in heat as they went deeper and deeper: in some of these Mines Dr. Browne also acquaints us that He found it so hot at bottom, that to refresh Himself he was constrained to goe with his brest naked, though he had only Linnen cloathes on, for which reason too the Workmen, he says, were also forced to work naked: But I have met with such heats at a far lesser depth as may be seen in the Nat. Hist. of Oxfordshire; whence I am induced to beleive that there is a great latitude to be allowed in this matter, and that the heats lye deeper or nearer the surface, according as the principles doe, from whence they proceed; which whether from fermentations or subterraneous fires, being indifferent to my purpose, I shall not dispute; wanting time indeed, as perhaps the Reader may patience, to attend the decision of so nice a point.

84. Moreover 3. there may be subjoyned another social cause that may contribute not a little to the elevating water above its owne Level, I meane the vast quantities of Sand, Gravel &c. through which the Sea water is percolated in the Earth, in which 'tis plain

Ren. Des Cartes Princip. Philosoph. Part. 4. §. 64. & Stillingfleeti Origin. Sacr. Lib. 3. cap. 4. Mr. Boyles tract of the temperature of Subterranean regions. cap. 2. Dr. Brownes account of his Travels into Hungary, &c. p. 90. Nat. Hist. of Oxfordshire chap. 6. §. 61. from

from the Experiment of Magnanus, that water will ascend above its own Level: wherein the Reader may satisfye Himself, if he take a glass tube of an inch, or inch bore or thereabout, and fill it with sand, being first stopt at bottom with a clout, and set it in a bason of water; He shall presently see the water gradually ascend in the Sand, at least a foot higher than its superficies in the Bason, the grains of Sand wetting one another by approximation, as the threads in a filtre; which I have found true upon frequent Experiment of it: But then indeed, as the forecited French Author objects, though I made an orifice 4 or 5 inches above the water in the Tube, and affixt a slender pipe to it, into which I also put a filtre already wet, yet I could not by these, or any other means I could think of, procure the water to make any signes of dropping forth; though I doe not doubt but it would, could the Experiment be so ordered as that the water might ascend in vapor, and be condensed again above, so as not to be capable of returning, as the process was shewn above, to be performed in the Earth. Not to mention that the water may ascend of it self in the ductus of the Earth when they become capillary without further help, as we see it naturally does in capillarie Tubes*; or like the sap in trees, and descend again, so as to flow forth, as in the wounded Birch.

85. But 4. waving all that has hitherto been said, if the Seas at some places be higher than at others; or at some places and times, be violently throwne up as high as any Mountains that have Springs upon them, there will be no need of making use of any of the former allegations, of the unequal weight of the Sea water, pressure of the Air, hypogeal heats &c. for either of these being proved, the Axiom in Hydrostaticks [that water ascends not above its owne Level] needs not at all be infringed, to convey water to the top of the highest Mountain, for if one Sea be not high enough to performe the feat, another may: Now that Seas at some places are higher than at others, seems not only probable from what was alleged § 20. of this Chapter to prove our Western, higher than our Eastern Sea; but from the judgment of many ancient Mathematicians and Philosophers, such as the Grecian Architects, who affirming, as Eratosthenes relates it in Strabo, the Corinthian Sinus, to be higher than that [the Saronic] at Cenchreae, diverted Demetrius Polioretetes from cutting the Corinthian Isthmus; Which very consideration also, that the Ionian was higher than the Aegean Sea, caused Julius Caesar, C. Caligula, and Nero, who

De L' Origine des Fontains premier partie p. 125. Ibidem seconde partie, p. 154, 155. * De quibus vide Joh. Christophori Sturmii Collegium Experiment. Tentamine 8. Strabonis rerum Geograph. Lib. 1. pag. 54. edit. Paris. An. 1620.

all attempted the same thing, to defilt in like manner, least the City *Agina* should thereby have been drowned^w.

86. It was upon this account too that *Sesofres* King of *Egypt*, *Darius* the *Persian*, *Ptolomæus*; and since them, the *Sultans* of *Egypt*, and the *Emperors* of *Turky*, each in their respective raignes, proceeded not in their cutting the *Arabian Isthmus* between the *red Sea*, and the *Mediterranean*, or *Nile*; for that the *red Sea* being found by the *Egyptian Mathematicians*, to be three cubits higher than the *land* of *Egypt*, they feared an irrecoverable inundation over that *Country*^x. Nor have the *Ancients* alone been of this opinion; for *Cabæus* informes us that 'tis evident even to fight, that the *Ligustic Sea* or *Mar di Genova*, is much higher than the *Adriatic*, to any body that stands on the mount *la Bocchetta*, where it is plain it seems, that the *Ligustic Sea* is level with a place called *Serraval*, whence there continues a descent to *Tortona*, thence lower to *Pavia*, and thence yet lower to *Venice*^y. and *Ricciolus* tells us that the *Fathers* of the *Society of Jesus* informed Him, that standing upon the *Mountains* of the *Isthmus* of *Panama*, where they could see both the *Northern* and *Southern Seas* of *America*; it was plain to them that the former near *Nombre de Dios*, was much higher than the latter near *Panama*^z.

87. The reason of all which is, that the *Bottoms* of some *Seas* are higher than others, which is so far from a new *observation*, that it was taken notice of as long ago as *Aristotle*, who not only names several *Seas* that are higher than one another (though I think Him out in his *Method*) but expressly asserts the most *waters* to come from the *North*, because the *Earth* is highest there of any part of the *World*^a: For which very reason too, both *Fromondus* and *Van Helmont* owne the *Tides* to run swifter from *North* to *South*, than any other way, *etiam adverso vento*, though the *Wind* be against them^b; Nay so peremptory is *Van Helmont* in this point, that though He allows the *Corpus Terraqueum* to be round from *East* to *West*, yet He scruples not upon this account to deny it to be so from *North* to *South*, and proves it rather to be *Parabolical*, from the *Observations* of such as have sayled far *North*, who affirmed to Him, that they saw the *Sun* there a whole *Month* sooner than they should have done, had this united body of *Earth* and *Sea* been perfectly round; which so much exceeding the effect of a *Crepusculum*, He seems justly to ascribe it to the excessive height of the *Northern Regions* and *Seas* above the more *Southern*, instancing particularly in the

^w Job. Bapt. Riccioli Geograph. & Hydrograph. Reformatæ Lib. 1. cap. 16. ^x Ibidem, & C. Plinii secundi Nat. Hist. Lib. 6. cap. 29. ^y Cabæi Meteor. Lib. 1. text. 9. q. 9. & text. 73. ^z Job. Bapt. Riccioli Geog. & Hydrog. reform. Lib. 1. cap. 16. ^a Aristot. Meteorolog. Lib. 2. cap. 1. ^b Libert. Fromondi Meteorologic. Lib. 5. cap. 1. Art. 5. ^c Job. Bapt. Van Helmont Ortus Medicinæ Cap. Aqua. pag. 14. 35. edit. Venetis An. 1651.

Mediterra-

Mediterranean, and *Countries* about it, which He thinks to be the lowest of any: And perhaps indeed they may be so, the *Northern Seas* flowing into the *Atlantic*, and the *Atlantic* into the *Mediterranean*, as the *Volga* (if the *Caspian* have any Subterraneous passage into the *Euxine Sea*.) *Danubius*, *Tanais*, and *Boristhenes* also doe, which runing through vast *tracts* of *Land* from the *North*, and descending all the way, most evidently demonstrate it a much lower place than the *Northern Countries* are, whose *Seas* too being so high, may well furnish the more *Southern* highest *Mountains* with *Springs* enough.

88. But admitting the *sublunary world* to be *Globular*, yet if its *Center of Gravity* be never so little removed from the *Center of Magnitude*, by reason of the *lightness* of the *water* on one side the *Globe*, in comparison of the much more *weight* of the *Earth* on the other; the *water* on that side will so much exceed the highest *Mountain* on the other, in altitude; i. e. will be so much further distant from the *center of gravity* than the *top* of any *mountain* can be, that I cannot see what should hinder but the *water* should ascend naturally (waveing all other helps) to the *top* of the most elevated *Mountain* in the *World*, its *level* being higher; i. e. more remote from the *Center of gravity*, than the *top* of any *Mountain*. Now if we seriously consider the *terraqueous globe*, we shall indeed find such an unequal distribution of *Sea* and *land*, that the *Center* of its *gravity* must needs be removed from the *Center of Magnitude* at least as much (though I might say more) as between the surface of *Mare del Zur* or the *Pacific Sea*, and the bottom of it; that *sea*, if we begin on the coast of *China* at the 150 degree of *Longitude* and number to the 260th, containing very near one third part of the *Globe*, and the *Earth* the other two: so that admitting that there are but as many *depths* or *inequalities* at the bottom of this *sea*, as there are *Mountains* on the *Earth* opposite to it, it may easily be apprehended how it may send *water* to the *tops* of any of those *Mountains*.

89. Nor can it be objected that if the *Center of gravity* were thus removed from the *center of Magnitude*, the *Pacific sea* (to bring them together by an equal libration) must necessarily overflow a great part of *Asia* and *America*: for the *shoars* of all *seas* being dry sand, beach, or rocks, and somewhat higher than the *rim* or *selvege*, though lower than the *gibbous bulk* of its *waters* further off in the *Main*, (not to use herein the aid of the Omnipotent power of *God*, who ha's set a bound to the waters that they turne not again to cover

^c Job. Bapt. Van Helmont Ortus Medicinæ Cap. Aqua. pag. 34. 35. edit. Venetis An. 1651.

the Earth^a, and has said to the sea, *hither shalt thou come and no further*^e) not I say to make use of this *supernatural restraint*, the shoars being dry, and a little elevated above the rim of the sea, may contain it (without violence offerd to nature) notwithstanding its protuberance *in alto mari*, just as water or other liquor will be contained within the dry brims of a glass, though it be as much elevated above it, or perhaps in proportion more, than the sea need be above its shoars, to send water to the top of the highest Mountains.

90. And if the Sea considered in its quiet state (as it has been hitherto) may doe this, much more sure may it, in its disturb'd condition; when the waters of it are gather'd together in a heap^f, when God works his wonders in the deep, when He raiseth the stormy wind, which lifts up the waves thereof, so that they mount up to Heaven, and goe downe again to the depths^g; as the profane as well as inspired Poet, has also exprest it, in the midst of his troubles

*Me miserum quanti montes voluntur aquarum!
Jamjam tacturos sidera summa putes.
Quantæ diducto subsidunt æquore valles!
Jamjam tacturas tartara nigra putes^h.*

in which condition, it is very frequently in the gulfe of *Lione*, and the gulf *de las Yeguas* between *Spain* and the *Canaries*, in the Bay of *Biscay*, the *Japan* and *China* Seas, and near the cape of *Good Hope*ⁱ, which alone might supply water enough for the Springs on the tops of Mountains, they being but few, at least till there happen new stormes, though possibly they may have them interchangeably, which solves the difficulty better. But the Sea indeed is never at rest, having always its flux and reflux; and at some places boiling up, by the ascent of hot subterraneous exhalations, like a seething pot: by one, more, or all which ways together, or else by some other yet unthought of (using more of them, or less, according to the condition of the place) the Sea conveys its waters to the tops of Mountains.

91. For that Salt water some way or other does ascend in the Earth above its owne Level, I am perfectly convinced from some wells that I am assured we have in *England* near the sea side, which being situat on so elevated ground that their bottoms lye not near so deep as the surface of the sea, yet by some means or other are constantly supplied with brackish water; a thing that could hardly be, unless the salt water did ascend above its Level: Which being matter of fact is not to be disputed, though we cannot infal-

^a Psal. 104. v. 9. ^e Job. 38. v. 11. ^f Psal. 33. v. 7. ^g Psal. 107. v. 24, 25, 26. ^h Pub. Ovidii Nasonis Tristium Lib. 1. Eleg. 2. ⁱ Job. Bapt. Riccioli's Geograph. & Hydrograph. reformat. Lib. 10. cap. 1.

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libly assigne the Method whereby it is done. I say is not to be disputed, at least not by such Adversaries, as allow that the sea water exhaled by the sun, is really separated not only from its fixt Salt, but volatile too, before it descends again in rain, meerly because matter of fact, though they can no more tell how nature performs it in the Air, than we can, how she does it in the Earth. Which may pass for an answer to the third branch of the Seventh Argument, which equally concludes against our Adversaries, as us; for if it be done in the Air by a celestial distillation alone, though it cannot by an artificial; much more should I think it might, by a subterraneous percolation and evaporation too; it being absurd to think, says Aristotle, and the learned Lydiat, that the same thing should not as well be performed under ground as above it, by the same principles [the power of heat^k] whereof if they can give us no tolerable account, there is little reason they should expect it from us; though 'tis easy to imagin how it must needs be done, if one reflect on the many thousands of percolations and evaporations that water may receive in its passage through a mass of Earth of four or five, or perhaps of six or seven thousand miles thick.

92. And to the fourth branch of the same Argument, which requires satisfaction, why the passages through which these percolations have been made from the beginning of the world, are not long since stopt up? it may briefly be answered that in all probability they are so far from being stopt, that 'tis next to certainty that they dayly grow wider; it being found by sad experience amongst Seamen, who when they want fresh water, sometimes percolate salt water through a Tub of Sand or earth, that though at first the water comes tolerably fresh, yet upon repeated transcolations, the passages grow so enlarged, that at last it comes forth again but little alter'd: Whence we cannot but conclude these passages in the Sea (where the great Voragines are) must needs by this time be so very large, that they are altogether unlikely to be any way stopt: Yet granting they should; there is no salt, and but little Earth of so close a texture, but it will admit of percolation: Some few Clays indeed there are, and some other Earths perhaps there may be, whose parts are so fast and united that nothing will pass through them, nor is there any necessity it should, for few of these indraughts here and there intersperst, will (and I suppose doe) serve for this purpose; whence it is that Springs, as the learned Dr. Stillingfleet very well observes, are not indifferently every where to be found, but only in the particular channels wherein they are included like the blood in an Animal, which if prick't in some parts sends forth blood immediatly, but if the incision happen between the sinews, or in the

^k Tho. Lydiati Disquisit. Physiolog. de origine fontium Cap. 2. in initio.

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more

more *callous parts*, the *blood* either comes not at all, or not till it be made very deep¹.

93. Thus if you *dig* in some places incredibly *deep*, you shall hardly meet with *water*, whereas at another, though but a *coyts* cast distant, you shall find it plentifully, and near the *day* too; whereof I have met with several considerable *instances* in *this* and other *Countries*; particularly that at *Barlaſton* near *New caſtle* under *Lyme* is very remarkable, where in the *South Chancell* of the *Church* belonging to the worthy Mr. *John Bagnal*, there rises a *Spring* whenever they have occasion to dig a *grave* (notwithstanding it is always shelter'd from *rains*) that quickly fills it with *water*; whereas if they dig in any other part of the *Church* or *Church-yard* round about it, they find the *Earth* as dry as in most other *places*; whereof the same Mr. *Bagnal* gave me a very cogent though uncomfortable *Testimony* from his owne *Well* hard by, which though 22 yards deep, had scarce any *water* in it in *winter*, much less in *Summer*. Thus at *Ternall* also in *Staffordſhire* upon the *Hill* above the *Church*, the *Springs* rise within 3 yards of the surface, whereas the *Wells* near the *Church* 20 yards below, are all betwixt 20 and 30 yards deep; so that the *Springs* on the *Hill*, lye at least 40 yards higher than those in the *Vale*; though they are not distant above 200 yards. So at *Longdon* as well within the *Church* as *Churchyard*, though upon higher ground, the *Springs* lye so near, that many times the *Coffins* are cover'd with *water*, when they put them in their *Graves*; whereas at the *Parsonage Houſe* that stands on a much lower ground, and but just without the *Church-yard* wall, the well is 30 yards deep at least, and sometimes wants *water*. And in the *Church* and *Churchyard* of *St. Michael* at *Lichfield*, is found the same thing, though the *Church* stand on the very summit of a *Hill* (the ground falling every way from it) and that no small one neither.

94. But the most eminent *Instance* of this kind, that ever I met with in all my *Travells*, is at *Blounts Court* in the *Parish* of *Rotberfield Pypard* in the *County* of *Oxon*: where though they dug a *Well* on one side of the *Houſe* (as I received the account from that great *Encourager* of all ingenious designs, the *Worshipfull* Tho. *Stonor* of *Stonor* Esq; *Proprietor* of the Place) above 60 yards deep, yet could procure no *water*, it remaining a dry well to this day, 48 yards deep, 12 yards and upwards being since fill'd up with *Timber* and other *Rubbish* thrown into it; whereupon attempting another but on the other side the *Houſe*, 43 yards distant, upon higher ground, they found so plentiful a *Spring* at 15 foot deep, that it sometimes stands (as the forecited worthy *Gent.*

¹ *Stillingfleet's Origin. Sacr. Lib. 3. cap. 4.*

lately

lately sent me word) 12 foot deep in *water*, though situated in a high, fast, & stony *Country*. Nor is the *water* of *springs* only conveyed in particular *Channels*, but as the *blood* in the *veins* of *Animals* also ascends in them, whereof we have a very remarkable *instance* at *Tixall* in this *County*, where the *Spring* near the *Church*, which serves the *Towne* which *water*, has been sometimes exsiccatd, (as I was informed by the learned and observing *Gent. Walter Chetwynd* of *Ingestre* Esq;) when the right *Honorable* *Walter Lord Aston* has had occasion to cleanse some of the *ditches* in his *grounds* below, betwixt the *River* and the *Towne*, the *water* being thereby intercepted in the way, which could by no means be, unless the *water* did ascend thence, in such *duſtus's* or *channels* up to the *Towne*.

95. Lastly to the *fiſt*, which requires of us, how it comes to pass that since we allow that the whole *maſs* of *Sea water* may perhaps have annually pass through the *body* of the *Earth*, that the *Sea* is not long since become *fresh*? it is obvious to reply, that upon the many *percolations* of the *Sea water* through the *sands* and other *Earths* in the bottom of the *Sea*, the *salt* and grosser parts of it must needs in great measure be left immediately there; by which, together with the many and great *rocks* of *natural Salt*, that are here and there latent in the *Sea*, as well as *land*, and perpetually waſht by its *fluxes* and *refluxes*; all the *waters* poured into the *Sea* by the *Rivers*, are sated again with *Salt* as fast as they arrive: by the immense quantities of *Salt*, I say, left in the bottom of the *Sea*, which cannot be dissolved by the *Sea water*, because sufficiently impregnated with it already, but may by the *freshes*. Now that there is indeed such a vast quantity of *Salt* more in the bottom of the *Sea* than near the surface, is more than probable, from the much greater coldness of the *Sea water* at the bottom (unless in some few places where there are *hot Springs* or *subterreſtrial Exhalations*) than near the top, as is universally verified by all *Urinator*s that have had occasion to descend thither to recover goods lost by *Shipwrack*, or to fish for *pearl* or *Corall*; the cold still increasing with the *depth*; which I take as certainly to proceed from the greater quantity of *Salt*, as that by the help of it, every *Ruſtic* can shew the *Experiment*, of freezing a *pot* by the *fire*: Nor is this only found true in the lower region of the *Sea*, but also in our inland *Salt-works*, where the *water* is also coldest at the bottom of the *pits*, inſomuch that when the *Bri-ners* goe to cleanse them, they cannot abide in them above half an hour, though for all that time, they drink nothing but *strong waters*.

96. Beside the great quantities of *Salt* left at the bottom of the *Sea* by means of *percolations*, it is as certain that there are also

^m *Mr. Boyle* of the temperature of *Submarine regions* Chap. 3. and 4. ⁿ *Philos. Transact.* numb. 53. and in *Mr. Collins's discourse* of *Salt and silbery* p. 9.

vast

vast rocks of natural Salt which contribute not a little to the Saltiness of the Sea, and will perpetually doe so, whatever quantities of freshes may be poured into it to the end of the World: Thus the Rivers Ochus, and Oxus, as Pliny tells us, are made Salt, by great pieces or fragments of rock Salt that fall into them from the adjoining mountains: and all our inland brines no question are thus made by the passage of waters through inexhaustible rocks of mineral Salt, which doubtless are as frequent in the Sea, as Land; whereof the Isle Ormus is so eminent an Example that I need add no more, it being nothing else (as Du Hamel informes us) but a rock of white Salt, a few such instances being sufficient for the purpose, notwithstanding the boundless extent of the Sea, especially if we consider that the Sea water is not so salt as some imagin; 5 or 6 gallons of it not yielding so much Salt, as one of Chesbire brine. And thus I have as breifly as so difficult a point would bear, given the grounds of my present opinion concerning the Origine of Springs, which as I have not assumed meerly out of a spirit of contradiction to other worthy Authors, but upon mature deliberation; So I shall always be as ready, when the reasons I have brought be solidly answer'd, and more cogent ones urged to the contrary, retract it again: For I would have the Reader take notice that I write nothing dogmatically in any part of this Work; but cum animo revocandi whenever I shall be better instructed, either by my owne, or the more accurate Observations of Others.

97. Hitherto having treated of the waters of this County, only as they have some way or other related to the matters of health, or origine of Springs: let us next consider the Rivers of this County, and then the fountains, that have any thing otherwise unusuall attending them. Amongst the former whereof, the Rivers Manyfold, and Hans alias Hamps (two branches of the Dove) have this remarkable in them, that they are not only (like the Nile in Æthiopia, Tigris in Armenia, Ganges in India, the Rhine above Bon in Germany, the Danow in the upper Pannonia, the Po in Italy, Anas in Spain, and divers others mention'd by Seneca, Agricola, and Pictorius) swallowed up, and run under ground for about 3 miles, but have also these other peculiarities: 1. That each of them have, not one, but many Inlets; the first that receives the Manyfold being near Wetton Mill, and the first that swallows Hamps a little below the water Houses, on the River side betwixt Waterfall and Cauldon; both of them, when they swell so high that the first will not receive them, having divers others below at no great dif-

^o C. Plinii 2^{da}. Nat. Hist. Lib. 3. cap. 7. ^v Joh. Bapt. Du Hamel Phys. part. 2. Traët. 2. cap. 4. ¹ Geo. Agricola de Ortu & Causis subterraneorum Lib. 1. ² See the map of Ganges in the English Atlas of East India. ³ Geo. Agricola de natura Eorum quæ effluunt ex terra, Lib. 3. l. An. Seneca Nat. Quæst. Lib. 3. cap. 26. ⁴ Geo. Pictorius de fluminibus miraculosis.

tances that usually doe it all the Summer. 2. That though for the most part they run under ground all the Summer, yet they doe not so in Winter; for when their waters are so high, that all the Inlets will not suffice to swallow them, then they have Channels (which lye dry all the Summer) wherein like other Rivers they are conveyed above ground meeting near Beeston Torr, about ½ a Mile North of Throwley, and so runing on to Ilam, joyning the Dove a little below, North of Blore Park. And 3. though in Summer they fall into the ground at 2 miles distance, yet as above in Winter, so below in Summer, they joyne again somewhere under the great Hills through which they pass; for we find but one exit for them both, which is a little below Mr. Ports House near Ilam Church; unless we shall rather say, that either, or both of them, never come forth again at all, and that the Spring at Ilam may have no dependance on them; which may be easily tryed, were Feathers thrown into the water at the Indraught of one, and Chaff (or some other agreeable materialls) at the other: But having no opportunity of making the Experiment my self, I recommend it to the ingenious Charles Cotton Esq; and the worthy Mr. Port, next neighbours to them, who joyntly may try it with little trouble.

98. Beside, there is a Rivulet coming from West of Broughton Chappel, and runing by Fair-oak, that two meddows below the houses, falls into the ground within Blore Park, belonging to the right Reverend the Lord Bishop of Lichfield, which but two Meddows beyond, rises again under a flat stone before it comes to Blore Pipe: This tis true is but inconsiderable, it being but a small Rindle, and runing underground but a little way, and not very deep; yet the greatest flood (as I was told) never causing it to run above ground, as Hamps and Manyfold doe, I thought it worth mentioning. To which let me add some other such waters, which though not constant, yet in all Landfloods run violently from the Hills, and are received below into rocky subterraneous passages, whereof there are two under Cauldon Low, but whither they convey the water no man knows; and there is another such Indraught at the foot of Ribden that also swallows the Landfloods, which tis believed come out again at Criftage; but not certain; however it be, the water that comes from Criftage, certainly falls in under a rock at the foot of Reeden, and what becomes of it after, no man knowes: of which no more, but that Ribden, Reeden &c. under which these Cryptæ lye, are Hills between Ramsor and Pantons in the Dale. Nor have I more to add concerning Rivers or Rivulets but that the Manyfold is fuller of windings (whence doubtless it has its name) than Meander it self, if its turnings are no where thicker than about Palatsha, whereof the learned and ingenious

Sr. Geo. Wheler ha's given us a draught *; and that there are two branches of the Trent and Dane, that though they run quite contrary ways yet have their Origine from the same Spring in New poole belonging to the right worshipfull Sr. John Bowyer Baronet, one of the most chearfull Encouragers of this work, it emptying it self when full at both ends, and supplying in part both those Rivers. Which brings me next

99. To the Springs that have any thing peculiar belonging to them, whereof there is one at Park-ball in the parish of Caverswall, belonging to the Worshipfull and most obligeing Gent. William Parker Esq; which not only sends so full and uninterrupted a stream, that it drives a Mill within less than a bows shoot, but also makes such a noise in its Exit, that it may be heard at some distance without any difficulty; these Springs the Germans call Bolderbourns, whereof because I have given an account already in the Hist. of Oxfordshire * with the reason of the noise, I forbear it here. And proceed to another Spring of a more unusual kind, which rising very plentifully from under a rock in the ground of Mr. Tho. Wood between over and nether Tene, on the West side of the River, and called the Well in the Wall, produces all the year round, except in July and August (as I was assured by the Proprietor of it) small bones of different sorts and sizes, most of them like the bones (as the people will have it) of young Sparrows or very young Chicken, some of them like pinneon bones, others like thigh bones near two inches long, but of these but few; most of them being but an inch, or inch and halfe long; some few indeed there are like rib bones, but these also very rare: they break like hone, being all of them (except those like ribs) hollow, and seeming to have had marrow in them; and are sometimes so plentiful (about the fall of the leaf) that as Mr. Wood seriously told me, He had often seen near half a peck of them at a time.

100. Mr. Camden in his Britannia tells us of just such another Well near Richards Castle in the County of Hereford, which is always full, says He, of little fishes bones; or as some rather think, of small frog bones, though they be from time to time drawn quite out of it, whence it has justly merited the name of Bone-well, as ours might as well have done, from the multitude of such bones most times found in it. What bones they should be, whether offrogs or other Animals I could not indeed presently determin, because the Bones of the other parts, of the head, back &c. were here wanting, nor could I imagin the reason of it, nor what should have become of them; till coming in Aug. An. 1681. to the Worshipfull Leveson

* Whelers Voyages Lib. 3. pag. 186. and 268. x Nat. Hist. of Oxford sh. Chap. 2. §. 21. y Mr Camdens Britannia in Herefordshire.

Gower's at Trentham Esq I found several Frogs in the Fountain in the Garden lying dead at the bottom of the Bason, and the fleshy parts of most of them so consumed that there was nothing left but the Skeletons of them; the Cartilaginous parts of the head &c. in some of them yet remaining, but in others quite consumed; which comparing with the bones, I had from Tene, I not only found them to be frogs bones, but also quickly apprehended the whole process of Nature in the manage of the business, viz. that Frogs in July and Aug. being in a declining condition, doe creep into such Caverns of rocks, as whence this Spring comes, and are there kill'd by the excessive coldness of the water; and not only their fleshy but gristley parts too, there consumed as soon at least as the ligaments that hold the leg and rib bones together, which are the only parts solid enough to resist the dissolving power of the water: Whence it is that we meet only with these at the mouth of the Spring, and no others, brought out by the violence of the water, and in the most plentiful manner about the fall of the leaf, quickly after the death and dissolution of these Animals; which being taken away, there come forth gradually fewer every Month all the year after, the whole stock being usually spent about 2 Months before the return of the year, which is the occasion that there are none, or very few, to be found there in the Months of Iuly and August.

101. Another sort of Springs I have met with in this County, that have this yet more surprizing Quality with them; that though they are all cold, yet never will freez in the hardest weather; such is the Spring that feeds the Millpool at Overholm near Leek, and the Spring which serves the Mill at Tittenfor, whence it is that the Mills of both those places, never fail of going in the severest frosts: There are Springs also about Hynts that doe not freez, nor will the standing pooles that have these Springs in them: Thus Clayers pool in the Corner of the Park at Enfield never freezes in the hardest winter, being fed by a Spring (coming out of a spout) called Shadwell, under which though cold (as I was seriously inform'd by a very worthy person) if you set a vessel of water frozen, it will certainly thaw it. Of this sort both Cardan and Varenius inform us, there is not only a River but a great Lake too in Scotland, that have this strange quality. In Scotia Lacus est & fluvius Nessæ, qui calidus quidem non est, nunquam tamen frigore congelatur; and the waters of the Chalybeat Spring I mention in my Hist. of Oxfordshire that did not freez in the hard winter An. 1676 (when all the Rivers were frozen up) but continued open and smoking all the time, was as cold notwithstanding as any

* Bernh. Varenii Geograph. Gen. Lib. 1. cap. 17. prop. 7.

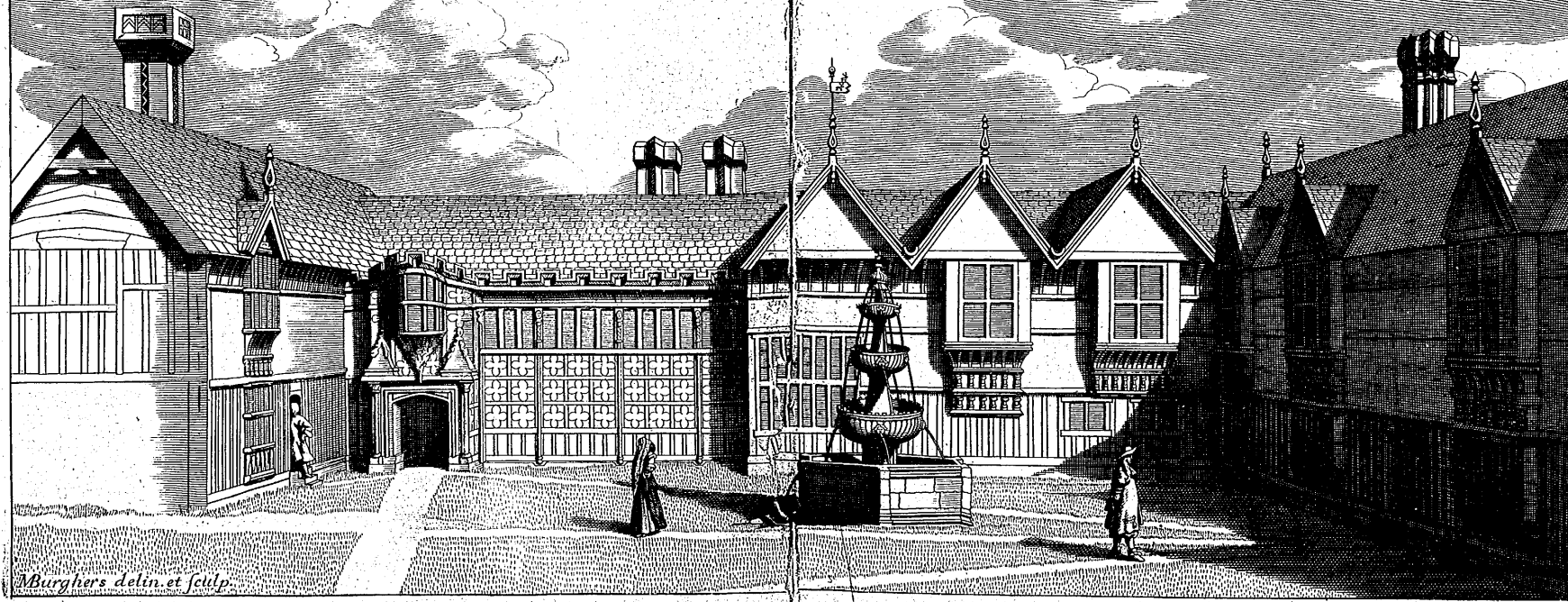
water whatever. Now what these waters should have in them, that should thus prevent freezing *adris rands doretu rdo*, none but the industrious shall ever find. *Cardan* I know attributes the not freezing of the River and Lake *Nessa*, to the great abundance of *bitumen* (which He says is hotter than *salt*) found in those waters; which if true, perhaps indeed may solve the difficulty in that instance, for Experience teaches us that no *oleagenous* substances will easily freeze, and some of them never^a:

102. But I do not remember I must confess that any of the *Staffordshire* or *Oxfordshire* waters seemed to carry with them any sign of a *Bitumen*, or any other oily substance: Much rather therefore should I think them accompanied with some fine insensible fumes of Spirit of *Niter* or other *Salt*, prepared by a more subtile *Chymistry* in the bowells of the *Earth*, that might do this feat; for we find that the Spirits of *Niter* and *Salt* will neither of them freeze^b; and that their fumes are not hot^c. Or else that their freezing is prevented by some unknown fermentation (made by some certain salts) which may produce coldness, as others do heat: For that there are cold fermentations as well as hot, is evident from a mixture of the Honorable *Robert Boyle's*, that emitted steams plentifully enough; of whose being rather of a cold than hot nature, He says there was this (though he might have said more than) probability, that the mixture whence they ascended, even whilst its component ingredients were briskly acting on one another, was not only sensibly, but considerably cold. Which too has been made most evident by my worthy Friend *Dr. Fred. Staré*, by mixing a volatile Salt of human blood, and Spirit of *Verdigrease*; which though they make so high an ebullition, that they take up much more room than before, and will not be contain'd in shallow vessels, yet produce a cold sensible to the touch, and most conspicuous on the weather glass^d. And as these will not freeze by reason of a cold fermentation there may be in them, so there are others that will not upon account of a hot one; whence it is that our *Barbes* are always open, for that 'tis most probable they are all heated by fermentations, I think is sufficiently evinced by *Monsieur de Rochas* and the ingenious *du Hamel*^e: But of these there are none here very considerable; a little Spring there is indeed near *Beresford* house (which though dry in the Summer) in the winter time flows forth briskly, is rapid, and in the Extremity of frost and Snow smoaks like a Pot, upon which account I suppose 'tis, they call it *Warm-wall*. And I was told of another at *Hynis* by the Worshipfull *Matthew*

^a Hieron. *Cardani de rerum Varietate* Lib. 1. cap. 7. ^b Mr. Boyle's *Hist. of Cold* Tit. 3. ^c Mr. Boyle's *Treat of the temperature of Subterranean Regions* chap. 9. ^d *Philosop. Transact.* Numb. 150. ^e *Joh. Bapt. Du Hamel de Fossilibus* Lib. 2. cap. 3.

TAB. V.

ad pag. 93



Burghers delin. et sculp.

Chap. II. Of STAFFORD-SHIRE. 93

Floyer Esq; that in the *Winter* Season was sensibly *Warme*. But these being so mean and inconsiderable in their kind, that 'tis not worth while to give an account here what *salts* or other *Minerals* they be, that most likely may cause *fermentations* sufficient to produce such *heats* as we find in some *waters*, I therefore pass them by (though I think I know them pretty well) and proceed next

103. To the *salts* that make the *salt springs* in divers parts of this *County*; Amongst which the most considerable are those at the *Brine-pits* in the parish of *Weston*, belonging to the right Honorable Robert Lord *Ferrers* Baron of *Chartley* not far distant; which ancient seat of the *Ferrers's* of *Chartley*, his *Lordships* great and noble *Ancestors*, is here justly placed *Tab. 5.* as a thankfull remembrance of his *Lordships* munificence in promoting this *work*. The *Salt Springs* I say that are most worthy notice, are those of the *Brine-pits*, made so no doubt by a *Mineral Salt* there is, that their *waters* pass through not long before their *Exit*: Which though not very strong (by reason of the *poverty* or *hardness* of the *glebe* of *salt*, or its somewhat too great a *distance* from the *Pits*; so that either the water cannot easily dissolve it, or if it doe, its weakened again by the way) yet they make as good *white salt* for all uses perhaps as any is in *England*, though not to so great *advantage* indeed as in *Worcestershire* and *Cheshire*; where at *Upwich* and *Middlewich* the brine is so strong, that they yield a full *fourth* part of *Salt*; and at *Northwich* and *Namptwich* a *sixth*; whereas here in *Staffordshire* it affords but a *ninth*; three *Hogsheads* of brine (without giving it the advantage of the *brine* left in the bottom of a former *Pan*, which is commonly done to make it work the better) scarce yielding a *strike* of *salt*; but with the help of that *brine* at first, and *five times* filling the *Pan*, they usually procure *nine* strike, i. e. 15 *Hogsheads* of brine, makes *nine* strike of *salt*, which is 16 hours in evaporating away.

104. The *Pit* from whence they pump this brine, is nine yards deep, and two square, that which comes from the *bottom* being much the stronger both in *Saltness* and *stink*, and of a clearer complexion; that on the *top* having contracted a *yellowishness*, I suppose from the *freshes* that now and then break into it notwithstanding all care: And the *Pans* wherein they boyle it are *three* in number, made of *forged Iron*, 2 yards $\frac{1}{2}$ long, and, 1 yard $\frac{1}{4}$ broad, and their fuel *Pit-coale*; whereof when the *Pans* are all kept going, they spend two *Tuns* to a *drawing*. During the boiling of the brine the *salt* is cleared from *sand*, of which there is some (at least will be after it has exhaled for some time) in all brines whatever; which is thrown off (the fire acting most violently upon

the middle of the *Pan*) towards the *Corners* of it, where are placed small square Iron *pans* to receive it, this brine which is evaporating so long, yielding ordinarily from the *five fillings*, 10. *Pans* of *Sand*, each of them weighing ten pounds, i. e. in all 100 pounds of *sand*; which is above one *fourth* of as much *sand* as *salt*, allowing a bushel of *salt* to weigh about 50 pounds. About 3 hours before the *Evaporation* is finish'd, i. e. before they begin to *draw* (at the fifth filling) they *clarify* the brine with the *white* of one *Egg*, which being broken into a *bucket*, and mixt both with *cold*, and some of the *hot* brine; by the motion of the hand is brought into a *Lather*, and gently sprinkled all over the *Pan*; Where upon there presently appears a *scum*, that thickens by degrees as the *impurities* rise, which thus catch't and detained, I suppose by the *viscosity* of the *white* of the *Egg*; before the brine boiles again, is drawn over the side of the *Pan* with a thin oblong square board, fixt to a staff or handle, call'd a *Loot* or *Lute*.

105. After the *scum* is taken off, they boile it again gently till it begin to *Corne*, which that they may have done according to desire, if they intend a large *Corne*, and have but little time to let it *corne* by a gentle fire of it self, they put into it about the quantity of a *quart* of the strongest and stalest *Ale* they can get, which *cornes* it greater or smaller according to the degree of its *staleness*: Or if they would have it finer than it usually *cornes* of it self, they either draw it with a *quick* fire, which will break the *cornes* small, or sprinkle the surface of the *brine* with fine *wheat floore*, which will make the *salt* almost as fine as the *sand* which comes from it; which being both the *finest* and *whitest* that I ever saw any, it gives me reason to suspect that it may be of admirable use in the making of *glass*. But (to return again to the matter in hand) during the time of its *corning* they generally *slacken* their *fire*, supplying the furnace now, rather with the *Sinder* of the *Coale* (which is the smaller sort of it fallen into the *Asbes* and gotten from them with a *Seive*) than the *coal* it self; this giving the *brine* a gentle heat without flame, and *corning* it better than a forcible fire, which (as I said above) breaks it small: Quickly after it has spent some time in *corning*, they begin to *draw*, i. e. to take the *corned salt* from the rest of the *brine* with their *Loot* or *Lute*, which they put into wicker baskets they call *Barrows*, made in a *Conical* form, and set the bottom upwards, each containing a *bushell*; through these being set in the *Leach-troughs*, the *salt* drains it self dry in 3 hours time, which *draining* they call their *Leach-brine*, and choicely preserve it here to be boiled again, it being stronger brine than any in the *Pit*.

106. This draught of the *corned Salt* continues here for about six

fix houres, and is performed gradually, the *Salt-workers* getting first about two *bushells* or *Barrows* full, then by a gentle fire they *corne* it again, in half an hour, for the three first pair of *Barrows*, but afterwards not under an hour, the *brine* being then thinner, and the *Pan* cooler: They do not evaporate all the brine out of the *Pan*, but leave some in the bottom towards the next *filling*; which together with the addition of the *Leach brine*, heightens the weak liquor, and much advances and facilitates the following *operation*. After the *Barrows* are fully drained, they are removed into the *hot-house*, behind the *Saltern* to dry, and are set over the brick conveyance of the flame from under the *Pans* to the tunnel of the *Chimney* (which passage for that purpose is made about six or seven yards long) where after they have continued for 24 hours, the *Salt* will become so dry, that it is fit for carriage, or publick sale.

107. And this is the tedious process of making of *Salt* in this *County*, which though much more chargeable than in *Worcestershire* or *Cheeshire*, where they spend not ordinarily above half the *time* or *fire* (nor need they above a quarter) of what the great quantity of *brine* they must use here, necessarily requires for its *evaporation*; yet its being always clarified with *Eggs*, and not with *bullocks blood*, as it is most commonly in *Cheeshire*, which gives the *Salt* an ill colour and favour; and its being better cleared from *Sand* by long *boiling* than either *Cheeshire* or *Worcestershire Salts* are; have given it such a reputation amongst considering Men, that the *Undertaker* is encouraged still to prosecute the *work*: Which perhaps might be improved to better advantage, were the *brine* either ripen'd on *Clay* before *boiling*, or *laved* on *hovels* cover'd with *Mats*, made of reeds straw or flaggs, as they serve a weak brine they have at *Halle* in *Saxony*; which by being *ventilated* in the *Air*, and *percolated* through the *Mats*, as we are assured by the Honorable *Robert Boyle Esq;* is so beneficially exhaled and enrich't by the *Sun*, that were ours served so, no doubt a great part of the Expence of *coales* (if not *time*) might be saved.

108. Beside the *salt* above mention'd, they have another *sort*, that during the *Operation* grows to the bottoms of the *Pans*, which they are forced to scale thence with an instrument call'd a *picker*: This at the *Seals* at *Droyt-witch* they term *Clod-salt*, and is there the strongest *salt* of all, being used to salt *Bacon* and *Neats tongues*, which it makes *redder* than any other *salt*, and renders the *fat* of *Swine close* and *firm*, though fed with *Mast*: The *Women* also put it in their *Runnet pots*, it making (as they say) the best *Cheese*: And upon the *scales* of it laid upon the *coales*, the *Brine-men*

⁸ Mr Collins's discourse of Salt and Fishery. p. 7.

and others will broil their meat ^b. But I could not find it put to any of these uses at this *Staffordshire* work, nay so insignificant was it here, that they had no name for it, nor told they me any thing concerning it, but that once in three weeks or thereabout they scaled it off their *Pans*; and indeed it seems here to deserve little more, for whatever it may be in *Worcestershire*, upon examination I found it here very weak, and to consist much more of sand than salt, which doubtless is the cause that it will not dissolve in fresh water, though it has salt in it.

109. And thus I had done with the *Brine pits* of this County, but that upon a hint given me by the worthy Mr *Collins* in his accurate discourse of *Salt* and *Fisbery*, that the great quantities of sand which we find in all brines, is not in the brine before it is boiled, but produced by a sort of petrification during the *Evaporation*; I thought not fit to pass by so odd a *Phænomenon*, but to examine whether this (as He says all brines may) could be strained through a most pure fine *Holland* of eight foldings, and yet no symptoms of any sand left behind in the *Filtre*: Wherein (being now at a great distance myself) I was bold to request the most ready assistance of that careful *Observer* the Learned *Walter Chetwind* of *Ingestre* Esq; who together with his ingenious Chaplin Mr. *Charles King* M. A. and Student of *Ch. Ch.* were so strict and nice in making the Experiment that to the eight folds of fine *Holland*, they added as many more of fine *Cambrick*, through which though they strained a whole bottle full of brine, yet found nothing left in this very close *Colander*, but a little black dust; which they imputed only to the foulness of the water, it appearing nothing like sand, either to the touch, or in the *Microscope*.

110. Yet notwithstanding this Experiment, upon further tryal, they had good grounds given them strongly to suspect, that the sand must needs be in the brine before, and not produced in the boiling; For having carefully observed it with an excellent *Microscope* before they strained it, though they mist of the sand, yet they found (what they expected not) a great multitude of very minute *Animals* (much smaller than those that are in pepper water) swimming about in it, and withall a very many small transparent plates, some of them a little bigger, and some less than the insects, and all of them of a rectangular oblong figure: Yet both these and the *Animalcules* so very small, that they all pass through the *Holland* and *Cambrick* though of 16 folds. For viewing the brine again after it was strained, they found them swimming as thick in it then, as before: But at this they did not wonder, because the pores of the *Holland* did appear in the *Microscope* (though it was extremely fine) to be

^b *Ibidem* p. 9. ¹ *Ibidem* p. 52.

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at least twenty times greater than either the *Animalcules* or plates; yet these they judged to be the component particles both of the Sand and Salt, which as the brine exhaled in boiling, only gather'd together, and made greater cornes of each.

111. Wherein they were confirmed by looking with the *Microscope* upon some of the strong brine that dropt from the *Barrows* when the Salt was first put in, which appearing full of those oblong particles, as they looked upon them they could sensibly perceive them to gather together, and club to make greater bodies, till at last they appear'd as the water dryed off the glasses, as bigg and not unlike a large *Table-diamond*: Which made them think that the Sand too, might probably be produced after the same manner, it being very white, and seeming nothing else to them (pardon the expression) but an insipid Salt, whose parts are not so sharp and pointed as the other, but rounder and blunter, and consequently not so pungent on the Tongue. To clear which point I endeavour'd to dissolve some of the sand again in fair water, to see whether I could discover any of its principles, but without success; the parts of the Sand being so inseparably fixt that it would by no means dissolve; I also tryed the Salt, which though it dissolved, yet would not render it self again into plates: so that I can only add, that as it seems to be pretty certain that the Salt is made out of the oblong plates, so it is very agreeable to the Method of Nature, in the production of the gravelly *Caddis-houses* in the *Nat. Hist.* of *Oxfordshire**, that the Sand should also be produced of those minute bubbles (that move like *Animals* in pepper water, yet perhaps are nothing so) which being of a glutinous nature and fit to receive the *Terrestrieties* of the brine, may be easily harden'd into sand, by the power of heat.

112. Beside the *Salt Springs* above mention'd there are other weak brines that gently rise out of the earth about *Enson*, *St. Thomas*, and in the parish of *Ingestre*, in a ground called the *Marsh* belonging to the much Honored *Walter Chetwynd* Esq; where the brine of it self breaks out above ground, and not only frets away the Grasse, but the very earth also, so that it lies in a place half a foot lower than the turf all about it, just as a sort of weak brine is said to do in some boggy places at *Nantwich* and *Droytwich*¹: Now if such weak brines spontaneously issuing forth of the earth, are indicative (as good reason they should) of much stronger, deeper in the earth, as they are at the *Townes* above mention'd: what might one suspect in the *Marsh* at *Ingestre*? where the subterraneous brine is so strong, that the Cattle standing in it in Summer time and throwing it on their backs with their tails, the Sun so candies it upon them that

* *Nat. Hist. of Oxfordshire* Chap. 7. §. 25. ¹ *Philosoph. Transact.* Numb. 53. & 142.

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they appear as if covered with a *hoar frost*. In *Pensnet Chase* South from *Dudley* about a mile and half there is another *weak brine* belonging to the right Honorable *Edward Lord Ward*, of which his *Lordship* once attempted to make *Salt*; but the *brine* proving to *weak*, He thought fit to desist, though possibly it might have been advanced to profit by the *Art of tunnelling* much used in *Cheshire* to keep out the *freshes*. In *Newbold* grounds about midway between *Burton* and *Braunston* there are also *Salt-Springs*, where one *Mr. Fownes* about 10 years since (then owner of the *Lands*) attempted to make *Salt*; but the mixture of the *freshes* proved so unavoidable to Him, that his laudable endeavours were also frustrated.

113. Between *blew-Hills* and *Clusterbury edg.*, about $\frac{1}{2}$ a mile from *Over-Holm* in the parish of *Leek*, I met with a *stream* coming out of a *Sough* belonging to the *Coale-Mine* in *blew-Hills*, as *Salt* as any of these, tingeing the stones and earth all along as it runs of a *rusty colour*, and the button moulds of the poor people (who employ themselves here much in making of *buttons*) of a black colour (especially if made of *Oak*) in half an hours time: with the least infusion of *powder* of *Galls*, it presently turned as black as *Ink*: all which shewed it to be a strong *Vitriolic* water. Yet endeavouring to evaporat severall *Gallons* of it away in a *Iron pot*, I could procure no *Salt*; which beside the *tincture* it gave the *stones*, evidently convinced me that it held some quantity of the *mineral* of *Iron*; it being certain that a *Salt water* which contains any *Metall* in it, cannot be sodden to *Salt* in a *vessel* of the same *Metall* which it self contains, except *Vitriol* in *Copper Vessels*^m: Wherefore procuring about the quantity of six *wine-quarts*, by the assistance of the Worshipfull *Tho. Rudyerd Esq; Proprietor* of the place, to be boyled away in an agreeable *Vessel*, there remained about $\frac{3}{4}$ of an *ounce* of a strong *vitriolic ferrugineous salt*; though I cannot but think it must also contain somewhat of *Copper*; for after *solution*, *filtration*, and *evaporation*, so far only as to beset to *shoot*, it would tinge my *knife*, being put into it, of a *copper colour*, just like *Hungarian* or *Cyprian Vitriol*, which our common *English Vitriol*, though sated with *Iron*, will by no meanes doe.

114. That *Petrifications* arise from the *coalition* of minute, though obutse parts of *salt*, having been fully shewed already in *Oxfordshire*, with the several *Species* and *Methods* nature uses in the production of themⁿ; I shall add no more here but that they belong to this *place*: Nor indeed do the *waters* of this *County* that have this quality deserve any great matter of consideration, those

^m *Philosoph. Transact.* Numb. 7. p. 128. ⁿ *Nat. Hist. of Oxfordshire* chap. 2. from §. 23. to 31.

in *Cunfall woods*, and below the *Iron Mills* on the River *Churnet*, and that in *Pensnet Chase* about $\frac{1}{2}$ a mile eastward from *Bromley* in the parish of *Kingwinford*, only incrustating sticks and the fibers of moss with a *gravelly* kind of *stone*: The best of this kind being performed by a *sulphureous* sort of *water* (as I believe most are) in some grounds of the right Honorable *Robert Lord Ferrers*, about midway betwixt *Sandon* and *Gayton*, where the branches of the *Moss* are so delicatly petrified, that its forme is preserved even in the *capillary parts*. The best I say, unlits the hard stone found in *Church-Eyton* Lordship, by my hospitable Friend *Mr. Walter Jennings*, *Rector* of the place (which pretty well shews indeed the grain of the wood) should be a *petrification*, it being beside two inches thick, and must be (if at all) a *petrification per minima*.

115. Having done with the *salt*, and *Petrifying* waters; come we next to those of *Medicinal* use; that have, are, or may be taken inwardly, or applyed outwardly, for the prevention or cure of divers *distemper*s: such was anciently the water of the *Well* of *St. Erasmus* (to begin with the *sulphureous oleagenous* waters) in the grounds of the Worshipfull *Walter Chetwynd Esq;* which was of so great esteem formerly, that there was a *Chappel* built near it, and I think endowed by some of that *ancient Family*; where the offerings were so considerable that the *Rector* of *Ingestre* (in whose parish it is) yet pays at this day for the *Dismes* of them, more than for the *profits* of the whole *parish* beside, notwithstanding its *Revenew* with all other such *Lands* given to pious uses, were taken into the *Kings* hands at the *Reformation*, and the *Chappel* be now demolished, and all applications thither long since ceased. Though I doubt not but the *water* remains as *good* and might be as *beneficial* as ever it was; for notwithstanding it lyes now wholly neglected, and overgrown with weeds, yet the *water* is still *clear*, and so exactly of the colour of *Sack*, that compared with it (in the judgment of several *Honourable persons* that were at the tryal) they were *indistinguishable* to the *Eye*, which is its only *Characteristic* wherein it sensibly differs from other *waters*, it having no very eminent either smell or taste: So that what should be the *ingredients* to give it this *colour*, proved hard to be found, without the tryal of many, and those very nice *Experiments*.

116. For having assayed it with the infusion of *powder* of *Galls*, the solutions of *Vitriol*, *Tartar*, and *sublimat*; the *Spirits* of *Niter*, *Urin*, &c. (as well *alcalis* as *acids*) yet none of them would either *stir* it or change its *colour*, but a solution of *Saccharum Saturni*, and *Syrup* of *Violets*; whereof the former did precipitat its *yellow colour* to the bottom, leaving the water above, white and limpid; and the latter changed the *amber* to a *grass-green* colour.

Befide upon *distillation* of about 3 pints of it in a *glass body* and *head*, when about a *moety* of it was come over in clear water, in the *remainder* there plainly appeared to the naked Eye an ineffable number of *blewifh shining films* or *plates* floating about in it, which were of fo thin and curious a substance, that they could not by any means be fo separated from the *water*, as to remain vifible upon any other body, nor indeed had I then any other means whereby to examin them.

117. But fince the ingenious contrivance of thofe fort of *Microscopes* whereby we fee the *Animals* in *pepper water*, and by the help whereof the worthy Mr. *Cherwynd* hath fo happily difcovered fuch *thin plates* in the *brine* of the *Salt-works* not far from this *well*, I am inclined to believe thefe come from *Salt* too, and that the *Minerals* wherewith this *water* is impregnated, are *Salt* and *Sulphur*, notwithstanding the little taft or fmell it has; and the rather becaufe the *brine* that fpontaneoufly iffues forth above ground in the *Marfb* aforementioned §. 111. is but a little way from it in the fame *Gentlemans* Eftate; and why may there not as well be a *fulphureous glebe* too? which being fretted away by the incisive particles of the *Salt*, may be brought away with them in the *waters*, as invifible as the particles of any *Metall* difolved in its proper *Menstruum*, only imparting the *colour*, as *Gold* does to the *water*, in the preparation of the *Crocus* or *Tincture* of *Gold*. Which *Salt* and *Sulphur* in all probability do fo involve one another, that their mutual embraces hinder the exertions of each others *vertues*, i. e. the *Sulphur* by its vifcidty, does fo flatten the *edges*, and fo fweeten the *pungency* of the *Salt*; and the *Salt* on the contrary fo condense and lock up the *volatility* of the *Sulphur*, that notwithstanding the great quantity of *both* in this *water*, yet it fends forth no very *fmart*, either fmell or taft.

118. Which may alfo be the reason that though *Salt* and *Sulphur* be both *Acids*, yet this *water* feems impregnated with an *alcalizat Salt*; the *acrimony* of its *Salt* being fo clofe lock't up by the *viscous particles* of the *Sulphur*, and render'd fo dull and unactive, that it feems to have nothing of the power of an *acid*: Whence it came to pafs that it *lather'd* well with *Soap*, and would not turn *milk*; having not *pungency* enough to infinuat it felf into the *pores* of the *alcalizat Salt* in the *Soap*, nor *astringency* fo to comprefs the *pores* of the *Milk*, as thereby to caufe any *precipitation*. Whence alfo it came to pafs, that having put on the *vigor* of a *fixt Alkali*, with *Syrup* of *Violets* it gave a *green tincture*; and its *yellow colour* was precipitated by a folution of *Saccarum Saturni*, the *acidity* of the *distill'd Vinegar* (ufed in the preparation of that *Salt*)

o N. Lemery's Course of Chymistry. chap. 1.

acting

acting upon the *Salt* of this *water* as an *Alkali*, and fo opening its parts, as to force it to let go the *fulphur* it fo clofely embraced; and yet no other *acid* (I could think of) would doe it but *this*; whence we may reasonably conclude that the *edges* of all *acids* are not alike, but fome better fitted for the opening of one body, and fome of another.

119. Near *Codsfall-wood* there is fuch another *Sulphur well*, but the *Salt* and *Sulphur* not fo equally mixt in the *water*, for though the *Sulphur* have fo fufficiently rebated the *acidity* of the *Salt*, as to render it wholly as unactive as an *Alkali*, fo that it *lathers* well with *Soap*, will not turn *milk*, and gives a *green tincture* with *Syrup* of *Violets*; yet the *salt* is too weak to lock up or restrain the *volatility* of the *Sulphur*; for it always emits a *fulphureous* fmell; but in *winter*, and fometimes againft *rain*, the odour is fo ftrong, that with advantage of the *wind*, one may fmell it now and then at leaft 20 yards off: nay fo *volatile* is it, and fo little restrained, that fet over the *fire*, it flyes away fo faft, that the *water* quickly loofes its fmell, I tryed it with *Galls* and *Oke leaves*, with the folutions of *sublimat* and *Tartar*, and with feveral *Acids*; but none of them would either throw downe the *Sulphur*, or *change* its *colour*, but *spirit* of *Urin*; which turned it of a faint redifh colour like *Champagne wine*: perhaps a folution of *Saccarum Saturni* might have made a *precipitation*; had I had any with me, or known the feeret.

120. The *water* of this *well* is much clearer then that at *Ingeftre*, and yet is moft certainly fated with *fulphureous* particles; for about 40 or 50 years fince, fome *persons* hereabout curious of knowing whence fuch *waters* fhould come, both dug and boared the ground near adjoining, and met with a fort of *mineral Earth* that crafh't in the boaring (as fome of them defcribed it) like *rotten wood*; which being carryed to *London* was found *fulphureous*, and I fuppofe muft needs be the *native sulphur*, depauperated of its richeft particles by the incisive *atoms* of the *Salt*, and left fo *spungy* that (as fome of them told me) it would *swim* on the *water*. This *water* was accounted in ancient times (when *Leprosies* were frequent) a foveraign *Remedy* for fuch as were troubled with that foule diftemper, for whofe better accommodation, there was a *houfe* built near it, which retains to this day the name of the *Leper-houfe*; and is in ufe at prefent againft *Scabs* and *Itch*, both in *Man* and *Beaft*, purging both by *Seige* and *urin*, and not only raking the body within, but moft effectually driving forth all ill *humors*; It alfo fometimes *vomits* according to the constitution of the *Patient*: They commonly drink about 3 quarts at a time, lefs fcarce working; except by *vomit*, where it meets with weak ftomacks. The *Inhabitants* hereabout brew their drink with this *water*, efppecially

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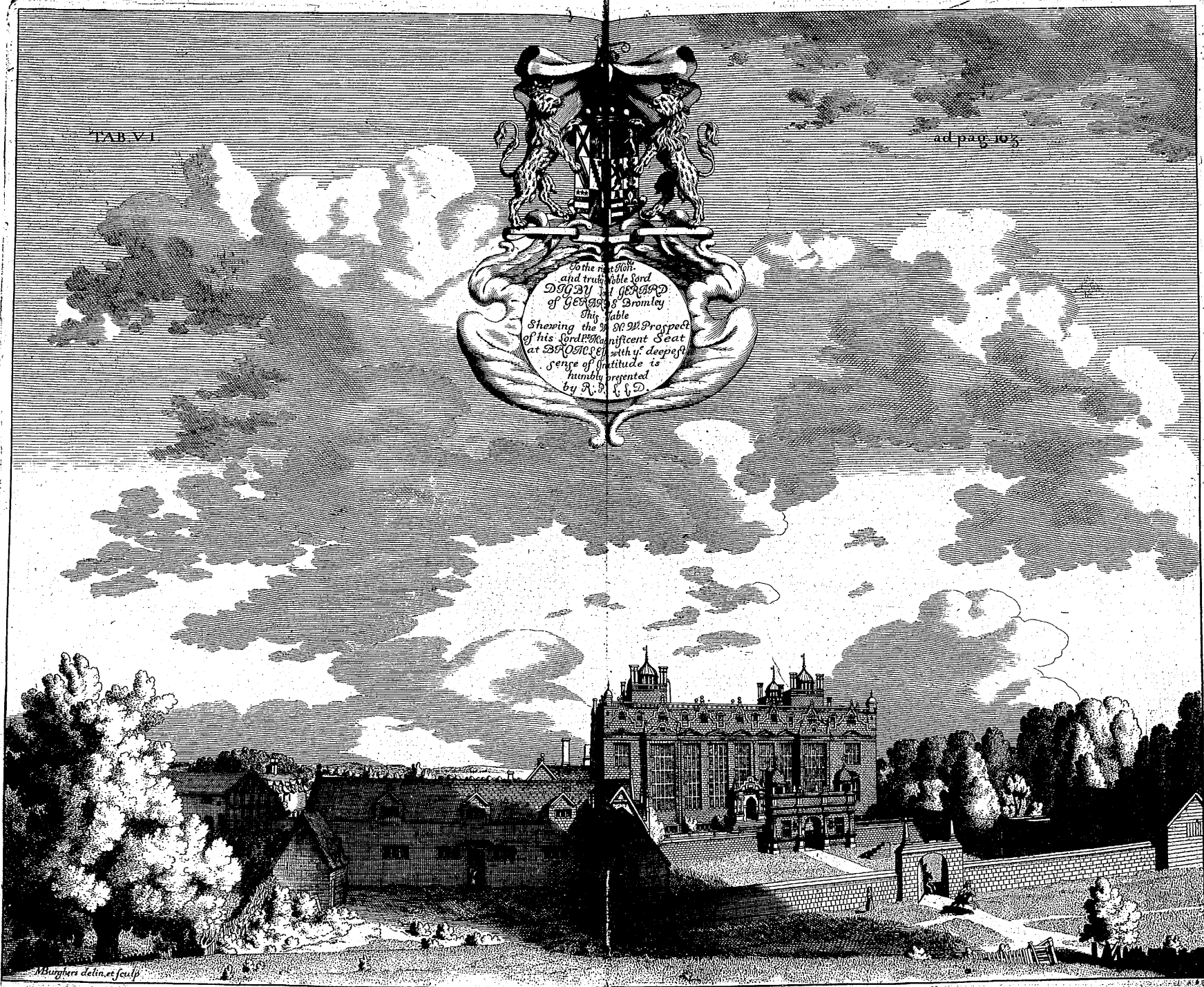
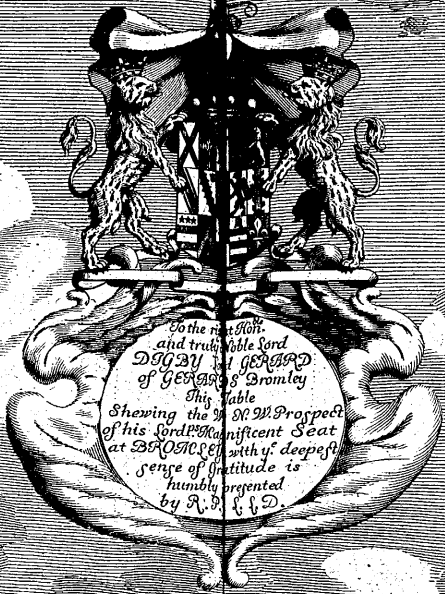
at that they call the *Brimstone Alehouse*; and boyle their meat with it; upon which 'tis observed, that none of them are ever troubled either with *Scabs* or *Itch*, or such like *Cuticular* diseases.

121. But the *water* that carries with it the most rectified *Sulphur* is that of the *well* in *Willowbridg* Park, it being hardly visible in the *water* it self, which appears (not like others) of a *yellow*, but a clear *Chrystalline* colour, only on the sides of the *glasses*, after they have been used a while, one may perceive (with good attention) a bright *oilyness*, which is so *volatile* that upon *distillation* it came over before the *water*, as *volatile Spirits* do, and then (being embodied) was of a *bright yellow*: to which putting a few drops of solution of *sublimat*, it presently turned of a deep *Sack-colour*, whereby it seemed like the other *waters* (the *Salt* being rebated by the viscosity of the *Sulphur*) to have somewhat of a *Lixiviat Salt* with it; but so very weak, that it made this deep *yellow* instead of the *Orange tauny* precipitat. Upon which account it was too (that like the other *Sulphur waters*) it *latherd* well with *Soap*, would not turn *milk*, nor would the *crude water* with *Syrup* of *Violets* turn either of the *red* or *green* colour, though we know there is an *acid* in it, that puts on the Nature of an *Alkali*; Nor could I procure the least signe of any *Salt*, though I evaporated divers *Gallens* of it away, so subtile are the *Salt* and *sulphur*, where-with this *water* is impregnated.

122. The *crude water* indeed would answer to *nothing* but the infusion of solution of *faccharum Saturni*, which inclined me to think it of the same *nature* with the *sulphur water* of *Ingestre*, only impregnated with much finer and more subtile *steams*; though the effect in *this* was quite different from *that*: for instead of precipitating the *sulphureous* particles, this only turned the whole body of the *water*, first of much such a *blew-yellowish* colour as is made by the infusion of the chips or shavings of *Nephritic wood* in common water, which after a while faded into a *muddy white*. A *Phænomenon* I must confess much more unaccountable, than the means whereby it *cures* so many *diseases*, which most certainly it performs by its *balsamic virtue*, and great *subtilty* and *volatility*, easily permeating the closest *texture*, and most unaccessible parts of the *body*, when once heated by the *stomack* if taken *inwardly*, or but by the external heat of the *skin* if applied *outwardly* by way of *Bath*; for so sensible is it of the least *heat* (as I plainly saw in *distilling* it in a *glass body* and *head*) that its *oil* or *sulphur* came over the *Helm* upon the first *beat*, and was all in the *Recipient* before the least drop of *water* appear'd. How extensive its *sanative virtue* may be, indeed is hard to determin, but I dare pronounce it proper, wherever the *syrup* of *Diasulphur* of the famous *Dr. Willis* has been so successfully

TAB. VI.

ad pag. 103



M. J. J. delin. et sculp.

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successfully administered; though if one might take an estimate from the many attested *Cures* it has done, it comes as near a *Panacea* as any *Medicin* in the *World*.

123. Of which *water* there is so great plenty, that I computed no less than 60 *springs* of it, of a most uninterrupted profluence (whereof enough §. 57 of this *Chapter*) all rising within the space of 10 yards square, in *Willow-bridg* Park, the *Propriety* of the right Honorable *Digby* Lord *Gerard* of *Gerards Bromley*, a most noble *Patron* of this *Work*; whose stately Seat at *Bromley* within two Miles and $\frac{1}{2}$, the most magnificent *Structure* of all this *County*, is here gratefully placed *Tab: 6*. The Property I say of these *Wells* is in this Noble *Lord*, but at present they are held in *Joyniture* by His most accomplished *Mother*, the right Honorable *Jane* Lady *Gerard* Baroness *Gerard* of *Gerards Bromley*, by whose most exquisite *sagacity* and *perspicacious insight* into the most hidden recesses of *Nature*, the *restorative virtues* of these waters were first *discovered*; and at whose charitable *expence*, several of the *Springs* have been inclosed with squared stone, to preserve them *pure* and *fit* both for *bathing* and *drinking*; and divers *appartments* built for lodging the poorer sort of diseased impotent people: So that 'tis hard to determine whether the *World* stands more indebted to this Honorable *Lady's* Philosophical, or Theological *virtues*? Whether to Her *knowledge* as first *finder*, or Her *Piety*, as *founder* of these *Sanative Wells*.

124. I say *Sanative Wells*, for (whatever some may talk) most certain it is that divers strange unaccountable *Cures* have been here performed; and more there might be, were these *waters* attended (as some *others* are) with a skillful *Physitian*, to prepare the *body* before hand, direct the use of the *waters*, and how to order the *body* after *drinking* or *bathing*: The success of using *Medicinal waters* depending much upon *Method*, as my Lord *Bacon* well observes it is with some other *Medicines*, which unadvisedly administered will do no *Cures*, but orderly applied, produce great *ones*. Nor let any Man wonder that there should be any such thing as a *cold Sulphur Bath* (as some have done) since *Baccius* informs us of divers such in *Italy*, and elsewhere; and *Wernberus* tells us that there are *salutares frigidæ* in the Kingdom of *Hungary*; Much less that there should be *waters* holding an *oily substance* and *salt* together, as this, and the two other mention'd above are said to do. Since *Cardan* teaches us that *Sal Terræ*, by which I suppose he means *mineral salt* (such as which perhaps this *water* may wash in its passage) does always partake of *sulphur*, and holds much *oile* in it, and that in some parts of the *Indies* they procure their

^v Fons Sanitatis, from p. 9. to 36. ^z Nat. Hist. Cent. 1. Experiment 60. ^z Andr. Baccii de Thermis Lib. 4. cap. 15. ^z Geo. Wernberus de admirandis Hungariæ aquis p. 69.

oile from *salt*: Whence he concludes too, that it comes to pass, that the *Olive Tree* flourishes best near the *sea side*, *salsum enim solum non leviter pingue est*, for that a saltish soil most commonly is fat and unctuous.

125. With whom also agrees our great Master *Aristotle* *λίπαρον ὃ ἐνέστι ἐν τῷ ἀλμυρῷ χυμῷ. σημεῖον δὲ ἐκκρίνεται ὃ ἐλαίον ἐν ταῖς ἀλέαις*, i. e. that *fatness* always accompanys a *salt* juice, whereof (says he) we have this certain signe, that in hot weather an *oile* may be separated from it. Again, that the *sea-water* yields an *oile*, we have also the testimony of the same great *Philosopher*, *ἀπὸ δὲ τῶν ἀλῶν ἐλαίον ἐφαίρειται*. i. e. that *oile* is gotten out of *sea brine*. Nay so frequently are *oiles* found joyned with *salts*, that none of them will mix with water *per minima* (as they doe in those above mentioned) without a *fixt salt*, as we see it does not in *soap*, from which as soone as ever the *salt* is sequester'd, the *oil*, parts from the *water*, and fwims at top; whereas whil't joyned with it, *Salt* exercises so absolute a dominion over *oile*, that it will carry it along with it through all the *parts* of *water*, and therefore is said by the *Philosopher* *ἐν ταῖς ἀλασιν ὑφιστάμενον τὸ ἐλαίον*, to be as it were a *subject* to it*. Which is all can well be said concerning this matter, and I hope the *Reader* expects no more: I shall only therefore add that such *oily springs* are not so very rare, but that there are of them, in *Italy*, *Sicily*, *Zante*, *Saxony*, *Schwabenland*, and in divers other places mentioned by *Pliny*^y, *Baccius*^z, *Cardan*^a, and *Varenius*^b, and as *Paulus Venetus* tells us near *Arzinga* in *Armenia*, and as *Athenæus*, at *Nissa* in the Province of *Megar*is in *Greece*, upon the *Saronic sinus*.

126. Beside these, there are other *sulphur waters* at many other places in this *County*, though not so clear and well concocted as these; being generally thick, of a blewish colour, and emitting unpleasent fetid odours, like the *sulphur well* at *Knarsbrough* in *Yorkshire*; because proceeding I suppose rather from a crude *Bitumen*, than a well digested *sulphur*: Such is that at *Tatenhil* on the high way side near the *pound*, which in the *summer* time (if undisturbed by *fowle*) has been observed to lay downe a *sediment* almost of all sorts of colours; and might possibly have the same use that other stinking *spaws* have, were it but kept *clean*. And so might that stinking water which crosses *Watlingstreet* way, not far from *Horsebrook*, and another of this kind betwixt *Willenball* and *Bently*, could it be kept from a mixture with other *water*. There is another

* Hieron. Cardani de subtilitate Lib. 5. p. 285, 286. edit. Basil. 1582. ^y Aristotelis Problematum Sect. 23. quæst. 9. ^z Ibidem, quæst. 15. ^a Ibidem, quæst. 32. ^y Plinii Nat. Hist. Lib. 31. cap. 2. ^z Baccii de Thermis, Lib. 5. cap. 15. ^a Hieron. Cardani de subtilitate, Lib. 2. p. 176. ^b Bernh. Varenii Geograph. Gen. Lib. 1. cap. 17. prop. 8.

of

of these in a watery *Lane* not far from *Eccleshall*, and I was told of another near *Hartley green*, beside that, which also petrifies; between *Sandon* and *Gayton* mentioned §. 113 of this *Chapter*. And there is another at *Butterton* in the parish of *Mathfield* by *How-brook* side, which like the *Baths* of *Banca* in *Hungary* will tinge *silver* of a blackish colour in an hours time.

127. There are other *sulphur waters* in this *County* that have a *Vitriol* joyned with them, whereof there is one in a ditch in the Park Meddow under *Broughton Park* pale, and another at *Monmoore green* near *Wolverhampton*, both which will strike with *Galls*, of so deep a red, that they become after a while of a *blewish*, and at last almost of a *blackish* colour. And I was shewed another at *Grindlestone* edge about a quarter of a mile Eastward of *Horton Church*, that though it turned red both with *Galls* and *Oak-leaves*, yet took *Soap* well enough, whence it plainly appeared though it were impregnated with an *Acid*, yet its edges were so flattened by the *viscosity* of some *sulphur*, that it could not act its part upon *Soap*, as such. Nor indeed met I with any *water* purely *Vitriolic*, but only one in *Needwood-Forrest*, about a mile and South easterly from *Hanbury*, which with *Oak-leaves* or powder of *Galls* turned of a faint red like *Champagne wine*, and seemed to be much like that at *Astrop* in *Northamptonshire*; and *Worton* in *Oxfordshire*, only scarce so strongly impregnated with the *mineral*. I was told (I must confels) of another at *Burslem* near *Newcastle* under *Lyme*, but finding upon tryal that it would not strike with *Galls*, though several that stood by, testified they had seen it do it, at another time; yet I choose to pass it by: Or at most can but refer it to that sort of water mentioned in *Oxfordshire*, that in *winter* time will turne with *Galls*, but not in *summer*, whither I also refer the *Reader* (if it be found to doe so) for the reason of the thing.

128. Hither also must be refer'd all *milky waters*, as holding somewhat of a *Vitriol* in them, whereof because at large in the *Hist.* of *Oxfordsh.* I shall only mind the *Reader* here that the *water* of the Well at *Hampsted*, the *Seat* of the right Worshipful Sr. *John Wyrley* Knight, whose most cordial furtherance of this *work* must by no means be forgotten, seems to be such an one; And so forth with shall proceed next to the *aluminous waters*, which though they will not strike with *Galls*, yet will coagulate *milk*, will not take *Soap*, and with spirit of *Urin*, turn of a *milky* colour: of these the most remarkable are at *Draycot* in the *Clay*, in the Parish of *Hanbury*, and near *Hore-Cross* Westerly from the *Hall*, by a brook side in a ground call'd *Broadfield*, belonging to the Worshipful *Robert*

^c Dr. Brownes travells into Hungary, &c. p. 87. ^d Nat. Hist. of Oxfordshire, Chap. 2. §. 62. ^e Ibidem Chap. 2. §. 64.

O

Howard

Howard Esq.; The water of the Well at *Hore-Crofs Hall* the Seat of the same most obligeing *Gent.* seems also of this kind; for though it will not turn *milk*, or strike with *Galls*, yet it takes not *Soap*, and discolours the meat *reddish*, that is boyled in it, both signes of an *acid*, though it seems not strong enough to compress the pores of *milk*; whence 'tis plain that the tryal of *waters* with *Soap*, is much more *nice* than with *milk*. The well water of the house of *Mr. John Cumberlege* now *Mayor* of *Walsall*, is also *aluminous*; and so is the fountain head of the *Rivulet* call'd *Stichbrook* between *Lichfield* and *Elmburst*; which is so apparently *such*, that the very *Alum flat* may be seen sticking in the bank side, whence the *water* issues.

129. Beside these, there are many other *waters*, not apparently (at least to sense) of any mineral *virtue*, that will not answer these *Experiments*, yet no doubt carry with them some more *subtile steams* whereby they performe unaccountable *Cures*: such is the water of the well near *Gawton Stone* in *Knyperley Park*, which has some reputation for cure of the *Kings-evill*, and so has the *Spring* called *Salters wall*, near *Newcastle* under *Lyme*; And such is the water of the three wells near *Shuston* house, and of *St. Ediths* well, both in the Parish of *Church Eyton*, of the two *St. Modwen's* wells, at *Burton* and *Cannal*, and all the *Holy-wells* in the *Country*; which the people still adorn at some certain times of the year, with *green boughs* and *flowers*, in grateful memory of the good they have formerly done. And amongst these must be reckon'd all sorts of *Eye-waters*, such as that of *Elder well* betwixt *Blymbill* and *Brineton*, and many others of the kind all over the *Country*. And so must the *Spring* in a narrow Lane about mid way betwixt *Wolverhampton*, and a house called *Sea-wall*, which was anciently of such repute that it still retains the name of the *Spaw*. Which are all the *waters* of note in this *County*; for as for the *Colepit waters*, especially those they call *Canker'd* waters, that kill all the *fish* wherever they fall into the *Rivers*, I hold them not *worthy* to have any place in this *History*.

C H A P. III.

Of the Earths.

1. *Staffordshire*, bounded on the *North* with *Cheeshire*, *East* with *Derbyshire* and *Leicestershire*, on the *West* with *Shropshire*, and on the *South* with *Worcester* and *Warwickshires*; is divided by the *Trent* into the *North*, and *South*, or rather into the *North-East* and *South-West* parts; And the *North-East*, as *Mr. Erdeswick* and some others will have it, subdivided again into the *Moorelands*, and *Woodlands**; which latter lying between the *Trent*, *Tene*, and *Dove*, others choose rather to call the *middle* part of *Staffordshire*: Whereof the *Moorelands* are the more *Northerly* mountainous parts, lying between *Trent* and *Dove*, from the *three shire heads* Southwardly, to *Draycot* in the *Moore*, yielding *Coal*, *Lead*, *Copper*, *Rance Marble*, and *Mill-stones*; and the *Woodlands* the more Southerly level part of that *Country*, from *Draycot*, to *Whichnor*, *Burton*, &c. between the aforefaid *Rivers*; including *Needwood Forrest* with all its *Parks*, also the *Parks* of *Whichnor*, *Hore-Crofs*, *Bagots*, *Chartley*, *Loxley*, *Birchwood*, and *Paynsley* (which anciently I suppose were all but as one *Wood* that gave it the denomination) producing *Salt*, *black Marble*, and *Alabaster*, beside great quantities of very good *Timber*; and both *Moorelands* and *Woodlands*, as goodly *Cattle*, large and fair spread, as *Lancashire* it self, and such as the *Grafsers* say will feed better; the warm *Limestone Hills* of the very *Moorelands* producing a short, but a fine sweet grass, and large *Oxen*, though in an open cold *Country*, as *Drayton* in his *Polyolbion*, speaking of the *Moorelands*, also plainly testifies;

*She from her chilly site, as from her barren feed,
For body, horn, and hair, as fair a Beast doth breed
As scarcely this great Isle can equal^b-----*

2. And if amongst the mountains of the *Moorelands*, much more can they breed and feed *Cattle* too, in the rich *Meddows* that adorn the banks of *Trent*, *Blitbe*, *Tene*, *Churnet*, *Hamps* and *Manyfold*, all in this *quarter* of the *Country*; and more especially still upon the famous *Dove-bank*, esteemed by many, the best *feeding land* of *England*; which lying upon a *Limestone* as *Mr. Camden*

* *Mr. Sampson Erdeswick's view of Staffordshire in princip.* b *Mich. Drayton's Polyolbion, Song the 12.*

imagins, sucks such fertility from it (though I think with the right Worshipful and most worthy Loyal Gent. Sr. Rowland Okeover of Okeover Knight, it rather proceeds from the Soil, especially the Sheeps dung, thrown down into the Meddows from the Hills in great rains) that in the very midst of winter the Meddows are adorned with a pleasant verdure; and if the River happen, as it does frequently (holding its course all along betwixt great Hills, which give it a sudden rise) to overflow them in the spring, it enriches them as the River Nile does Egypt, and makes them so fruitful, that the Inhabitants thereabout upon such occasions, usually chante this joyful Ditte,

In April, Doves flood, is worth a Kings good^c.

whereof the forecited Michael Drayton renders this very good reason,

Because the dainty grafs
That grows upon its bank, all other doth surpass^d.

as he saith the land of Needwood (wherein truly I think he is not mistaken) doth the land of all other Forrests in England.

Needwood doth surmount
In excellency of Soil, by being richly plac'd
'Twixt Trent and battening Dove, and equally embrac'd
By their abounding banks, participates their store;
Of Britans Forrests all (from th' les unto the more)
For fineness of her Turf surpassing^e

3. From which Limestone hills, and rich Pastures and Meddows, the great Dairys are maintained in this part of Staffordshire, that supply Uttoxater Mercat with such vast quantities of good butter and cheese, that the Cheesmongers of London have thought it worth their while to set up a Factorage here, for these Commodities, which are brought in from this, and the neighbouring County of Derby, in so great plenty, that the Factors many Mercat days (in the season) lay out no less than five hundred pounds a day, in these two commodities only. The butter they buy by the Pot, of a long cylindrical form, made at Burslem in this County of a certain size, so as not to weigh above six pounds at most, and yet to contain at least 14 pounds of butter, according to an Act of Parliament made about 14 or 16 years agoe, for regulateing the abuses of this trade, in the

^c Camden's Britannia in Staffordsh. ^d Mich. Drayton's Polyolbion Song the 12. ^e Ibidem.

make of the Pots, and false packing of the butter; which before sometimes was layed good for a little depth at the top, and bad at the bottom; and sometimes set in rolls only touching at the top, and standing hollow below at a great distance from the sides of the pot: To prevent these little country Moorelandish cheats (than whom no people whatever are esteemed more subtile) the Factors keep a Surveyor all the summer here, who if he have ground to suspect any of the pots, tries them with an instrument of Iron made like a Cheese-Taster, only much larger and longer, called an Auger or Butterboare, with which he makes proof (thrusting it in obliquely) to the bottom of the pot: so that they weigh none (which would be an endless business) or very seldom; nor do they bore it neither, where they know their Customer to be a constant fair dealer: But their Cheese, which comes but little, if any thing short of that of Cheshire, they sell by weight as at other places.

4. Nor comes this Northern part of Staffordshire much behind the South in breeding of Sheep, which indeed are but small, have generally black noses, and their wool but coarse; Nor (now of late years) in the production of Corn: for though the land employed for tillage for the most part indeed be naturally but mean, yet where the industry of the Husbandman has any thing shewed it self, in marling, limeing, or mixing lime with Es (as they doe commonly in the Moorelands) and so laying them together on their beathy grounds, as shall be shewen hereafter in fit place; it produces Corne of all sorts (according to the condition of the ground) plentifully enough. The black moorish and gouty grounds of the Moorelands, with the best helps are fit indeed only for Oates and Barley; but the arable lands about Marchington, Draycot in the Clay, Rolleston, Horninglow, and some other Townes about Needwood, are of so rich a Clay; that they produce as good Hard-corne (i. e. Wheat and Rye) Peas, Beanes, &c. as any in the South, though not so much; the quantity of arable land there, being much greater than 'tis in the North: the Sheep too of the South, bear somewhat a finer fleece, and it produces more and better Coale, and Iron stone; of each of which, hereafter in their proper places.

5. Beside Wool, for the supply of the Cloathing trade and Felting, which are chiefly exercised about Tamworth, Burton, and Newcastle under Lyme; they sow both Hemp and Flax all over the Country in small proportions, whereby they are furnish'd too, in some measure with Linnens: so that all things considered this seems to be terra suis contenta bonis, a Land that can as well subsist of it self, without the help, either of any domestick, or forraigne Countries, as any in the Kingdome; yielding Lead, Copper, Iron, Marble, Alaba-

ster, Millstones, Coale, Salt, Cattle and Corne of all sorts, both *Lin-*
nen and *Woolen*, and what not? and yet a *third part* at least, if not
half this *County*, must be confest when all's done, to be *barren hea-*
thy, and *gorfy* grounds, and *woodland*: which yet are so far from
being any disparagement to it, that these yield some of the *chief*
profits, as well as *pleasures* of the *Country*; for though the surface
be *barren*, yet the *subterranean* riches (which are considerable
here) I mean the *Mines*, are usually found in such uncultivated
places; and of this sort of *Land* is the *Chase* of *Canck-wood*, and
most of the *Warrens* and *Parks* of the *Nobility* and *Gentry*, whereof
before the late unhappy *Civil War*, there were near 50 in this
County stockt with *Deer*, and about 33 or 34 yet remaining; so
great plenty is there of this kind of *Land*, stored not only with
Mines, but with all sorts of *Game* both for *Hound* and *Hawk*; so
happily are the *profits* of the *Gentry* of this *County*, mixt with their
pleasures, *Utile dulci*.

6. This heathy, broomy, gorly, barren sort of *Soile*, for the most
part too is a gravelly fast land, whence it is that in *Canck-wood*,
and most of their *Parks*, they have so pleasant and secure pursuit of
their *Game*. Hence 'tis too, that their *high-ways* are so universally
good, except in the most *Northerly* parts of the *Moore-lands*, where
between the *three shire beads*, and *Longnor*, the *Hills* and *Boggs* are
such, that a *Horse* can scarce pass between those two places; and
indeed many of the *Mountains* of that part of the *Country*, which
they call *Roches*, *Clouds*, *Torrs*, *Edges*, *Cops*, *Heads*, &c. are hard-
ly passable, some of them being of so vast a height, that in rainy
weather I have frequently seen the *tops* of them above the *Clouds*;
particularly those of *Narrow-dale*, are so very lofty, that the *Inha-*
bitants there for that quarter of the year, wherein the *Sun* is near-
est the *Tropic* of *Capricorn*, never see it at all; and at length when
it does begin to appear again, as at *Lantbony* in *Monmouth-shire*^e,
they never see it till about *one* by the *clock*, which they call therea-
bout, the *Narrowdale noon*; using it proverbially when they
would express a thing done late at noone. Such *Mountains* as
these I say are hardly passable, but these are but in a little skirt of
the *Country*, the most of it being as level as most other *Countries*
usually are, and the earth so fast, and the *ways* so good (except
where now and then they pass through a *Marle*, and a little about
Wednesbury, *Sedgley*, and *Dudley*, where they are uncessantly worn
with the carriage of *coale*) that 'tis reported King *James*, speaking
jocularly of this *County*, should say, 'twas fit only to be cut out in-
to *thongs*, to make *high-ways* for the rest of the *Kingdom*.

^e Camden's *Britannia* in *Monmouth-shire*. in initio.

7. And thus much in general of the *Lands* of *Stafford-shire*:
Let us next consider such particular *Earths*, as have any thing re-
markable belonging to them: And first, before we begin to break
the *turf*; of such *Soils* as have any thing peculiar in their *surface*.
Amongst which those which induce upon the *teeth* of *Cattle* a
golden Armature (though they be pretty common) are not alto-
gether unworthy our consideration; and such are some grounds
at *Aston* near *Stone*, belonging to the Worshipful *Walter Heven-*
ingham Esq.; who having killed a *Cow* just before I came thither
of his owne feeding, its *teeth* were found tinged (on the outside
chiefly) with a *golden* or rather a *brasen* colour; which the inge-
nious Mr. *Lisler* Physitian at *York*, imagins might proceed from
its feeding on some plants, of the *Erica*-kind; or rather the *viola*
lutea grandiflora montana C. B. which he observes to be a great
part of the food for their *Cattle* in *May* and *June*, in the mounta-
nous pastures of *Westmorland*; where such *gilded teeth* are every
where met with: Whether any such *plants* did grow hereabout, I
must confest I observed not; however I rather guess that this
was superinduced the same way, the like *Armature* was, over the
Cornua Ammonis mentioned in the *History* of *Oxfordshire*^g, by some
urinous kind of *Salt* in the juice of the *grafs*, which in some *plants*
is so great, that as *Virgil* acquaint us, it may sometimes be tasted
in the very *milk* of the *Cattle*.

Et Salis occultum referunt in lacte saporem^h.

with which *gilding* quality, the *Lago di Rieti* in *Umbria* is so strong-
ly impregnated, that the *hoofs* of the *Cattle* that goe into it, are
covered with such a shining *brasen Armature*ⁱ.

8. It must also be ascribed to the *Saltiness* of the *Soile* and *Grass*,
that if any *Horned Cattle* of never so deep a *black* or other colour,
be put to feed in a place called the *Clots* in *Newbold grounds*, in the
Parish of *Tatenbill*, about a mile *East* of *Dunstall*, they will certain-
ly change the colour of their coat to a *whitish-dun* (like a *Daws*
head) in a *Summers* runing; and so they will if put upon *Taten-*
bill Common; or into *Buck-slew*, another parcel of *Newbold grounds*:
Nor does only the *Grass*, but the *Hay* of these grounds, will also
turn *Cattle* to this *whitish-dun*, which 'tis said they recover not in
two or three years time, though put into grounds that have
nothing of this quality. As for *Horses*, they are improved upon
these grounds, at a great rate; only they make them *dappled*. be
they of what colour loever. All which proceeds no doubt from

^g Nat. Hist. of *Oxfordsh.* Chap. 5. §§. 88, 89. ^h P. *Virgilii Georgic.* Lib. 3. v. 397.
ⁱ *Geo. Pistorius de paludibus & stagnis.*

the Saltness of the Soile, that not only communicates it self to the grafs but to all the waters thereabout, making them brackish at least, as was shewn above Chap. 2. §. 111. Salt being of a hot nature, drying up, and so restraining the succus nutritius, that none or very little can be afforded for the hair, which (as it does in old age) upon defect of moisture turns white, justly called by my Lord Bacon, for this very reason, the penurious colour. Pliny, indeed and Pictorius, tell us of divers Rivers that will effect the same, and yet they doe not say that any of them are Salt, or so much as brackish, but certainly they must be impregnated with some such thing, which they lick from the Earth as they pass along, at least if it be true, that Melas and Cephysus, coming forth the same Lake, doe make Sheep of quite contrary colours.

9. Another Earth there is at Ranton Abbey, the Seat of the virtuous Madam Anne Cope, that is also eminent for giving a colour, which it does at divers places, but more remarkably under a Closet that hangs over that corner of the Cloyster which is next the Steeple; where I was shewn on the ground, a reddish place, that looked much as if a calfe or sheep had been kill'd there; upon which the water falling whenever it rains, is presently turned of the colour of blood. This at first I thought might proceed from the nature of the soile, or stones, or covering of the House; but upon strict examination by digging the Earth, I found it a haste mould, very unlikely to give the water any such tincture; the stones of a light gray, and the House cover'd with Shingles, both as unlikely as the Soile; so that at present I judg'd it a thing unaccountable: But since having more fully consider'd the matter, I have thought that the Shingles being made of Oak, may first give the water a gallish tincture, which falling upon an Earth that may possibly be vitriolic, the water may come to turn of this blood-red tincture; just as vitriolic waters doe, upon infusion of powder of galls, which are but the fruit of an Oak, and have both of them the same astringent qualities.

10. It is also worth notice that one of Occamsley pits (whereof there are about 16 upon the Watlingstreet way, betwixt Knaves-Castle and Frog-Homer) never contains any water, or has any seen in it, for the least moment of time, after the most sudden shower, or most durable rain; though all the neighbouring pits at the same time are fill'd to the brim: of which truth I had an excellent opportunity (to my sorrow) of making an Experiment, for after above a Months constant rain, I found that one pit, as dry and hard, as the highest gravelly ground in the street-way, the weight both of my

^k Nat. Hist. Cent. 1. Num. 93. ^l C. Plinii secundi Nat. Hist. Lib. 2. cap. 103. vid. etiam Pictorium de fontibus & fluviis miraculosis.

fesse

fesse and Horfe, not making any visible impression in the bottom of it, though all the rest about it, stood then brim-full of water; and to all appearance lying higher i. e. not being so deep as this, and nothing interceding but a spongy heathy soil; which I must confess to this day remains unaccountable to me: Unless it be sufficient to suspect, that the bottom of the dry pit (though hard and found) yet may be a very loose open gravel, through which the water may presently descend; and the sides and bottoms of the rest, either a stiff clay, or some other Earth at least fit to hold water.

11. That the Earth is informed at least with a vegetative Soule, was the opinion of the Pythagoreans, Platonists, and Stoics: amongst whom says Plotinus τὴν μὲν ἐν φυσικῇ ψυχῇ ὅτι ἔχει ἢ ἢ, ἐκ τῶν φυσικῶν ἐξ αὐτῆς ἀν τῆς τελευτῆς, i. e. that any one may be convinced that the earth has a vegetative Soule by those things which are produced by it^m: Yet seeing it seems not to be nourish't by any aliment internally received, or to have any offspring of its own Species, more viventium, it may well indeed be doubted, whether it be indued with vegetation, in a strict sense. But that the Earth in many places does receive augmentation, is very evident from all old buildings, whose very windows (which certainly were never built so at first) are now level with the ground; more especially in great Townes, such as Lichfield and New castle, which 'tis very plain stand on higher ground now, than they did formerly; other pavements being many times found about a yard below these they now use, when they have occasion to sink Wells or dig Cellars: which I suppose may have come to pass upon rebuilding these Towns after some general conflagration. It is also likely, if not certain, that all valleys rise by attrition i. e. by Earth continually brought down from the tops of mountains by rains and Snows, whence all Mountains are become lower than they were formerly, and the Valleys risen higher; So that in time all the Mountains (except the rocky, such as the Roches in the Moorelands) will by great shoots of rain be quite washed away, and the whole earth levelled:

12. Whereof the ingenious Mr. Ray gives us a very pertinent confirmation from the steeple of Craich in the Peak of Derbyshire, which in the memory of some old men yet liveing, could not have been seen from a certain hill lying between Hopton & Werksworth, whereas now not only the steeple, but a great part of the body of the Church may be seen thence, which without doubt comes to pass by the deterration or sinking of a hill between the Church, and place of viewⁿ: And I am told of just such another example of a hill between Sibbertoft and Hasleby in Northampton. by my worthy Friend Mr. Maurice Wheeler, whence yet we may only infer, that the parts

^m Plotini Operum Emend. 4. Lib. 4. cap. 22. ⁿ Mr Rays observations Topograph &c. p. 8.

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of

of the *earth* doe change their Situation, giving as much increase (in proportion) at one place, as it takes away at another, without any augmentation, or diminution in the whole. But we are told by the Learned Sr. George Makenzie his Majesties *Advocat* for the *Kingdom* of *Scotland*, that near his *dwelling house*, and at another *farm* of his 20 miles distant, He has two *plots* of ground out of which for these many years he has dug a *stiff, clayish, moist* earth (used there for a *soile* to *barley land*) which in two years time, though dug a *foot* deep, will grow up again and fill the *excavated* place: And the *banks* of the *black Meer* in the parish of *Norbury* in this *County*, doe yearly grow forward upon the *surface* of the water, 3 or 4 yards in seven years, the water standing under them; perhaps the *Moss* near *Hixon* may have been such a *Meer* too, now grown totally over from the *bank* side as 'tis supposed this would be, were not the *banks* cut away to prevent the loss of *Cattle*, which ha's frequently happen'd here by reason of these hollow banks. In which two last *instances*, there being an increase of *bulk*, without *deteration* from any other place, possibly some may conclude somewhat of a genuine *vegetation*: For my part I think the same of them, I doe of the *peat pit* earths of *Oxfordshire*, which will grow up again in some years, by virtue of the *stringy roots* that are always found in them, and are perpetually putting forward, which no more argues any *vegetation* in the *earth* it self, than any other *plant* does that grows upon it.

13. Of such kind of stringy bituminous earths (*roots* and *oily* substances being very *boyant*) the *floating Islands*, so much talk'd of, and admired in many parts of the *world* are most certainly constituted, whereof there are *two* about 20 foot broad, but about 30 or perhaps 40 foot long, in *Kinson* poole, belonging to the courteous, and most obliging Gent. *Walter Fowler* of *St. Thomas* Esq; which An: 1680 began in *March* to move from under the *Hill* on the N. W. side of the *poole*, and came together like the *Symplegades*, first to the S. W. corner, where after they had continued about 3 weeks, they began to move again, and were come in *May* (when I was there) to the S. E. corner, lying just in the passage of the water out of the *poole* toward the *Mill*: I was told also of such in *Aqualat Meer*, which 'tis like at first might be nothing but a kind of *Scum* upon the *water* mixt with a few *weeds*, cover'd over above in part, with *dust* brought by the *winds*, and supplied at the same time underneath, with other *viscous terrestrieties*, elevated by the *vapors* from the bottoms of the *pooles*; and so in process of time becoming a *fungous* sort of *earth*, bearing *weeds*, dwarf *willows*, and such kind of trash, and *floating* above *water*. And from such

^o *Philosoph. Transact.* Num. 117. p. 396. ^p *Nat. Hist. of Oxfordshire* Chap 3. §. 41.

small

small beginnings as these, the *floating Island* in the *Lake Lounund* in *Scotland*, others in the *Lago di Bassanello*, the great *Tarquian* Lake, and divers other Lakes in *Italy*, mention'd by *Pliny* and *Baccius*, may have also their Rise (for ought I know) as well as these.

14. Having done with the *Soiles* in general, and the *peculiarities* attending some of them in their very *surface*, come we next to break the *turf*, which they cut in the *Moorelands* in the *Spring* time with an instrument call'd a *push-plow*, being a sort of *spade*, shod somewhat in the form of an *arrow*, with a *wing* at one side, and having a cross piece of wood, and the upper end of the *belve*, after the manner of a *Crutch*, to which they fasten a *pillow*, which setting to their *thigh* and so thrusting it forward, they will commonly dispatch a large *turf* at two cuts; and then turn it up to *dry*; which in good weather is done on one side in eight, on the other, in 4 or 5 days at most: when *dryed*, if they intend them for *fuel* in winter, they pile them up round in manner of a *Hay-rick* 10 or 12 foot high, and let them stand all *Summer*: But if for *manuring* their land, they heap it up round a good quantity together on the ground, and set it on *fire*, which it will take of it self, if it be *dry*; otherwise they give it the assistance of *wood*: These heaps they will keep burning sometimes 3 weeks together, still covering them over with new *turf*, as the old ones burn away, only giving them vent by *Air-boles*, which they make with a stick: The *Ases* of these *turfs* they call *Ets*, which laid on their *Meddows*, *Rye*, or *Barley* lands, some are of opinion goes further than *dung* or *Lime*. And these are all the uses they put their *turf* too; only as in *Oxfordshire* (beside for *bowling-greens*, and *grass-walks* in Gardens) they use it frequently to *ridg* and *head* their meaner houses, and sometimes wholly *batch* them with it.

15. Under the uppermost *turf*, in their moorish boggy grounds, they also dig *peats*, which because they order much after the same manner, as has already been described in *Oxfordshire*, I pass them over, and proceed to another *black, moist*, and *rotten* sort of *Earth*, that lyes just under the *turf* in heathy soiles, such as *Archer* moore near *Bereford*, and upon a hill called the *Gun* above *Rudyerd-Hall*, where, as I was seriously told by the Worshipful and most ingenious *Charles Cotton* Esq; *Tho Rudyerd* of *Rudyerd* Esq; & Mr *Gent* of *Ashbourn*, if one ride in a dark night in so wet a season that a *Horse* breaks through the *turf*, and throws up this *black, moist, spungy* sort of earth, He seems to fling up so much *fire*, which lyes shining

^a *Hieron. Cardani de Rerum Varietate* Lib. 1. cap. 7. ^c *C. Plinii* 2^{di} *Nat. Hist.* Lib. 2. cap. 95. ^e *Andr. Baccii de Thermis* Lib. 4. cap. 15. ^f *Nat. Hist. of Oxfordshire* Chap. 3. §. 40. ^g *Ibid.* §. 41.

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upon

upon the ground like so many *Embers*; by the *light* whereof one *Horse* may trace another, though at some distance, and it be never so *dark*; it continuing *light* upon the ground, and being gradually dying away, for near a quarter of an hour. To which let me add another agreeable *relation*, whereof I was informed by that worthy Loyal Gent. Capt. *Tho. Lane* of *Bentley* Esq; who endeavouring to help a friend and *Kinsman* of His (one *Mr. Jones*) who casually fell into a ditch in *Bescot* grounds in the night time, and having stirred the mud and dirt pretty much in performing that good office; they presently found their *gloves*, *bridles*, and *horses*, as far as the *water* or *dirt* had touch't them, all in a kind of faint *flame*, much like that (as He described it) of *burnt brandy*, which continued upon them for a miles rideing.

16. Of which odd *Phænomena*, though I might be reasonably excused from giving any *account*, having seen neither of them my self, the *Gent*: above mentioned having also been too incurious of the circumstances, to afford me any more than a bare *relation*: Yet that the *Reader* might not be left wholly in the *dark* concerning these matters, let us consider how many *things* there are beside *fire* (for we may well presume this to be none) that give any *light*; and in what *state* and *condition* they are, whilst they doe so; and then whether the *shining* of the *earths* and *mud* above mentioned, may not be reduced to some one, or more of them, at least so far forth as that a tolerable *conjecture* may be raised from the *comparisons*. First then upon enumeration of such *luciferous bodies*, that send forth a *light*, and yet have strictly nothing of the nature of *fire*, I find some of them to be *animate*, and others *inanimate*: As to the *animate*, 'tis evident that our *English Glow-wormes*, as well as the *American*, or *flaming-flies**, have a luminous juice in their *tailes* which shines in the *dark*: And 'tis as certain if we may beleive the learned *Monsieur Auzout*, that the clammy moisture of *Oysters* that *shines* in the *dark* of a violet colour, comes from *luciferous wormes* that have their holes in the *shells*, whereof He distinguishes no less than three sorts.

17. It is as true also, as 'tis a common *experiment*, that a *Cat* rub'd upon the back in the *dark* against the hair, sends forth *luminous sparks*. And there is a *Master of Arts* of this *University* that when He shifts Himself, emits such *sparks* so *violently* that they have been heard to *crackle* like the *sparks* of *fire*: all which (with other *instances* that might be brought) seem mightily to confirme that there are such *accensions*, or *Platonic flames* in the *juices* of *Animals*, which *shine* only, and doe not *burn*, as were hinted and proved,

* *Sr. Tho. Brownes Enquiries into Vulgar Errors*. Lib. 3. cap. 27. † *Philosoph. Transact.* Numb. 12. p. 204.

from

from the Aerial *Noctiluca*, and *solid Phosphorus* mentioned §. 9 of the *second Chap.* And as for the *inanimate luciferous bodies*, beside the *Bonian* and *Balduinian* stones; the *Phosphori*, *Smaragdinus* and *Fulgurans*, and of *Dr. Kunkelius*: Every body knowes that *rotten wood*, and *loaf Sugar scraped*, shine in the *dark*, and that the *Salt water* of the *Sea*, more especially when the wind is *South East*, or in any point 'twixt *South* and *East*, gives so great a *light* that being dash't with *Oars*, it seems to run off them, just like *liquid-fire*; Nay it has been observed at some places to be so very *luminous* in strong gales of wind (near the *Isles* of *Cape-verd*) that *Passengers* have seen the very *Keel* of their *ship* by it, and *fishes* playing underneath it.

18. Secondly, as to the state and condition these *luciferous bodies* are in, whether *animate* or *inanimate*, during the time of their *shining*; it is plain that (as *fire* it self) they shine only while they are in *motion*, upon *expencc*, or *both*: Thus all the *Phosphori* spend themselves, and some of them *shine* most (that I say not *burn*) when any *violence* is offer'd them: *Sugar* sparkles not, but when it is scraped: Nor doth the *Sea water* appear like *liquid flame*, but when dash't together by *stormes*, or striken against *Ships*, *rocks*, or with *Oars*. The *Cat* sends not forth its *luminous spirits*, but upon *rubbing* against the hair, and opening the *pores*, whereby no doubt there is some *expencc* of them too, as there is also of that *Gentleman*, that emits them so freely. As for the *Glow-wormes* whether *English*, or those of *Jamaica*, and the *worms* on *Oysters*, they shine no longer than whilst they are *living*, and their *luminous humors* are kept in *motion*. My *Lord Bacon* indeed confesses that they doe continue their *shining* a little after their *death*: *Dr. Stubbs* informes us that those of *Jamaica* will also hold their *light* for some days after: and the learned and most ingenious *Sr. Thomas Browne* ownes that its true that a *Glow-worme* will afford a *faint light*, almost a *days* space after many conceive it *dead*: But then (says He) this is but a mistake in the compute of *death*, and *term* of *disanimation*; for indeed it is not then *dead*, but if it be distended will slowly contract it self again, which when it cannot doe, it ceaseth to *shine* any more. Beside in case it would not thus *contract* it self, it would be too peremptory notwithstanding to determin an *Insect* to be *dead*, when it ceases to move; for that many times they are not so, though they afford not the visible evidences of life, as may be observed in *flies*, which when they appear even quite forsaken of their *formes*; by virtue of the *Sun*, or other *warmth*, quickly convince us, by their motion, they had never lost them.

* *Ligon's Hist. of the Barbadoes* p. 7. † *Nat. Hist. Cent. 4. Num. 352.* ‡ *Philosoph. Transact.* Numb. 36. § *Sr. Tho. Brown's Enquiries into Vulgar Errors* Lib. 3. cap. 27.

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19. Now

19. Now though it be possible indeed that there may be small *subterraneous Animals*, such as the *Oyster wormes* &c. that may be bred and live in such *black, bituminous, moist, rotten earths*, or the *mud* of *ditches*, and upon sudden commotions may send forth such *lights* as were at large above mention'd; Yet me thinks they may rather proceed from some *salino-sulphureous* mixtures that may be in those *Earths* and *Mud*, which being smartly moved as in the *ditch*, or violently striken with the *Horses feet*, as the *Sea-water* with *Oars* (which is also *salino-sulphureous* as was plainly shewn above *Chap. 2. §. 124*) may more likely occasion such *lights* from the same *principles* (howsoever they operate) as in the *Salt water* of the *Sea*, though others more probably may think (both *earths* and *mud* seeming in a state of *putrefaction*) that they may become *luciferous* by the same means, that *rotten-wood* and *sinking fish* are so: which yet shine not so much upon account of their *rottenness* as they doe of their *moisture* (as it is in these *Earths*, and the liveing tree in *Jamaica*, which shines most vividly after a shower of raine *), both of them ceasing to shine rateably as they become *dry*. Nor can it be objected that these are neither in *motion* or *expende*, since *putrefactions* are nothing else but gradual *consumptions*, having all of them also an *inward motion* in them, as well as *fire* or *light*.

20. At *Pipe-hill* in a hallow Lane S.W. from Mr. *Bulls* house, about two bow-shoots down the Lane on the left hand, in the side of the bank which seems to be of an orange colour'd *clay*, I found a nother shining sort of *Earth* (but not in the *dark* as the former) also of an orange colour, though made up in great part, with silver colour'd *Laminae*, somewhat weighty, very unctuous, and guilding the hands if rub'd upon them; of which I was inform'd by my most worthy Friend, *Sebright Repington* of *Ammington* Esq; who though a *Warwickshire* Gent. yet so zealous was He for the promoting this *work* that He became none of the least *Encouragers* of it: I was shewn the same again at the signe of the *Starr* at the foot of *Brereton Hill*, by the Worshipfull *William Chetwynd* of *Rugeley* Esq; where in digging a *Cellar* they found great quantities of it. These at first I thought might be the *Mica arenosa* of the *Naturalists*, which the *Germans* call *Catsilver* or *Glimmer*, for being dryed it became friable; but bringing it to a fiery triall in a *Crucible*, I found it of so obstinat a nature, that it would neither change its *colour* or *substance* by it, which all the sorts of *Micae* are said to doe^b. Then I tryed it with the strongest *acids* I could get, and divers other things, but it would not stir or make *Ebullition* with any of them; so that I presently concluded it to be a sort of *Talc*, which

* *Trapham's Hist. of Jamaica* Chap. 2. p. 29. ^b *Ceo. Agricola in Bermanno.*

fays

says *Cæsalpinus*, *in igne perennis est, neque enim funditur, neque comburitur, neque colorem amittit*, and therefore by the Ancients called *Argyrodamas, quasi argentum indomitum*, it remaining invincible even to fire it self^c: Whence the *Chymists* find it so difficult to draw an *oile* of *Talc*, which yet in this sort seems already done to their hands, for between the fingers it feels as soft and oily as butter, though it have somewhat too of the nature of the *Schistus*, its *Laminae* lying all the same way so as to give it a *grain*; but they are not so large, but it may be easily broken contrary to it: nay when dryed it becomes so very friable, that it serves very well in stead of *sand* to strew upon *Letters*, like the *Ammochrysos mollis friabilis* of *Cæsalpinus*^d and *Kentman*^e, which is the only use I can yet find it has, though I have made many tryalls with it in relation to guilding, painting &c.

21. Amongst the *underturf Earths*, the next that present themselves, are the *arable soiles*, which to mention more particularly than above, are either *Clay, marly, sandy, gravelly, light mould, black-land, moorish* and *gouty land*; each of which they fit with their most agreeable *grains* and *manures*, but the due application of them belonging to the *Chapter* of *Arts*, I shall consider only here the severall sorts of *Marles*, which though *manures* to other lands, yet being *Earths* too themselves, they plainly appertain to this place. Whereof I find in *Staffordshire* about four or five sorts. 1. a *red fat earthy* sort, having some *veins* of *blew* (which is the most common) found upon the *Trent* side about *Ingestre, Tixall, Heywood* &c, lying generally about 18 inches or two foot under the surface, though sometimes it lyes so *ebb* (as they call it) that they plow up the *head* of it, otherwise that which covers it, is a *hungry clay*, which yet makes them this recompence, that it holds the *Marle* so together above, that undermining it, they can have a *fall* of seven or eight score loads at a time, which could not be, were this taken away, beside being commonly blended with 3 or 4 yards depth of good *marle* underneath, it is hardly seen, much less doth any hurt. 2 About *Swynnerton*, and the more *Northberly* parts of the *Country* they have a *stiff blewish* sort *Marle* with *red veines*; and 3 another sort mixt for the most part *blew* and *red*, that is not so *stiff*, much better for *corne*; both which (like the former) will fall with undermining, & are commonly dug for 4 shillings 6 pence the hundred load, each load containing 12 measures: And 4 the learned and inquisitive Sr. *Simon Degg* told me of another *blew Marle*, somewhere about *Kinston*, much like *Fullers earth*, which

^c *Andree Cæsalpini de Metallis* Lib. 2. cap. 59. ^d *Ibidem.* ^e *Io. Kentmani Nomenclaturæ rer. foss. tit. 4.*

but

but that it differs in colour, I should otherwise have thought to have been the *Giscromargon* of *Pliny*†.

22. Beside these, about *Charnes*, *Broughion*, *Swynerton*, *Beech*, *Ellarton*, and *Heywood*, they have harder, stony, flatty sorts of *Marles*, at some places called *Slat*, at others *Dice-Marle*; which will not be got by *falling* like the former, but must be dug with *pick* and *Crow*, and costs at some places 8 or 9^s the hundred getting, it rising sometimes in great stones as much as two Men can load: of this sort there is *white*, *red*, and *blew*; the latter whereof perhaps may be the *Columbine Marle* of *Pliny*, rather than any of the rest, by reason of its colour, though they all equally fall under his definition, being fetcht out of the ground in *clots* or *lumps*: Which though most of them very hard, yet by the help of *frosts*, *Sun*, and *rains*, they dissolve like *Lime*, and spread well enough upon the ground in a little time, though at some places for expedition they apply a little *Iron mallet*. And these last are the *Marles* prefer'd by the *Husbandmen* much before the *Clay earthy Marles*, which bind and stiffen their lands upon long tillage; whereas these loosen the stiffest clay, and make it yeild much better *grafs* than otherwise it would. In short these seldom are known to faile the expectation of the *Husbandman*, upon whatsoever sort of *land* they have occasion to lay them, whether for *corne* or *grafs*: Besides, these are accounted more *beneficial* than the others, because spending themselves but gradually and lasting longer upon the ground, though the others tis like may fatten it sooner; according to that of *Agricola*, *Quanto quæque marga est pinguior, tanto magis ea pinguescunt arva; quo durior, eo plures annos durat antequam solvatur*. which is all I can think off at present concerning *Marles* as they relate to *Husbandry*, only in general that they seem amongst *Earths*, to be analagous to the *fat* in *Animals*; and that they are commonly reputed the better, the deeper they are dug; which tis like may be true enough, because their *Salts* in the uppermost parts in all probability may indeed be spent in the production of *Plants*.

23. But beside the use of *Marle* in matters of *Husbandry*, they have another use of them here in order to *building*, very good *bricks* being made of the *reddish clay marle*, whereof I saw great quantities at Mr. *Cherwynd's* at *Ingestre*, and many other places: They have very good *brick-earth* likewise about *Ricarscot* near *Stafford*, and on a bank by the way side, betwixt *Newcastle* and *Keele*, I met with a peculiar sort of *brick-earth*, which when burnt became all over *blew*, those bricks only which were placed furthest from the fire, having any *redness* in them: The *Romans* seem to have made

† *Plinii Nat. Hist. Lib. 17. cap. 8.* & *ibidem*.

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TAB.VII.

ad pag.121.



M. Bayne delin. et sculp.

Chap. III. Of STAFFORD-SHIRE. 121

use of some such *Clay* as this for making their *Urns*, those found at *St. Albans*, and near *Newington* in *Kent* being many of them *blew*; Whence we may reasonably conclude that there must be such *clay* in many other places, were they so well searched out elsewhere, as they have been in *Yorkshire*, by that curious *Observer Martin Lister* Esq; who informs me that such *clay* is found in many places amongst the mountains of that *County*. Beside for the *Bricklayers*, there are *Earths* also usefull in many other *Trades* found in *Staffordshire*, such as *Terra Saponaria* Fullers earth, whereof I met with some, much like that of *Wobourn*, near *Statfold*, but in no great quantity; what there might be found, were search made, remains uncertain; However it may not be amiss for the ingenious *Proprietor* of that *Estate*, upon this hint, to be mindfull whenever He has occasion to digg thereabout, what sorts of *Earths* are thrown up; for could He meet with a quantity of this, I need not acquaint, what would be the advantage.

24. As for *Tobacco-pipe clays* they are found all over the *County*, near *Wrottesley* House, and *Stile Cop* in *Cannock-wood*, whereof they make *pipes* at *Armitage* and *Lichfield*, both which though they are *greyish clays*, yet burn very *white*; There is *Tobacco-pipe clay* also found at *Darlaston* near *Wednesbury*, but of late disused, because of better and cheaper found in *Monway-field* betwixt *Wednesbury* and *Willingsworth*, which is of a *whitish* colour, and makes excellent *pipes*: as doth also another of the same colour dug near the *Salt water* poole in *Pensnet Chase*, about a Mile and $\frac{1}{2}$ South of *Dudley*. And *Charles Riggs* of *Newcastle* makes very good *pipes* of three sorts of *Clay*, a *white* and a *blew*, which He has from between *Shelton* and *Hanley green*, whereof the *blew* clay burns the *whitest*, but not so full as the *white*, i. e. it *shrinks* more; but the best sort He has from *Grubbers Ash*, being *whitish* mixt with *yellow*, it is a short brittle sort of *Clay*, but burnes full and *white*, yet He sometimes mixes it with the *blew* beforementioned. But the *Clay* that surpasses all others of this *County*, is that at *Amblecot*, on the bank of *Stour*, in the parish of *old Swynford* yet in *Staffordshire*, in the lands of that judicious and obliging Gent. the *Worshipfull Harry Gray* of *Enfield* Esq; whose beautifull *Mansion*, perhaps the best situate of any in the *County*, is here represented *Tab. 7*. I say the most preferable *clay* of any, is that of *Amblecot*, of a *dark blewish* colour, whereof they make the best *pots* for the *Glass-houses* of any in *England*: Nay so very good is it for this purpose, that it is sold on the place for sevenpence the bushell, whereof Mr. *Gray* has sixpence, and the *Workman* one penny, and so very necessary to be had, that it is sent as far as *London*, sometimes by *Waggon*, and sometimes by *Land* to *Beaudley*, and so down the *Severn* to *Bristol*, and thence

thence to *London*: the goodness of which *clay*, and cheapness of *coal* hereabout, no doubt has drawn the *glafs-boufes*, both for *Vessels* and *broad-glafs*, into these parts; there being divers set up in different formes here at *Amblecot*, *old-Swynford*, *Holloways-end* and *Cobourn brook*.

25. Other *Potters-clays* for the more common wares, there are at many other places, particularly at *Horsley-Heath* in the parish of *Tipton*; in *Monway-field* abovemention'd, where there are two sorts gotten, one of a *yellowish* colour mixt with *white*, the other *blewish*; the former stiff and weighty, the other more friable and light; which mixt together, work better than apart: of these they make divers sorts of *Vessels* at *Wednesbury*, which they paint with *Slip*, made of a *reddish* sort of *Earth* gotten at *Tipton*. But the greatest *Pottery* they have in this *County*, is carryed on at *Burslem* near *Newcastle* under *Lyme*, where for making their severall sorts of *Pots*, they have as many different sorts of *Clay*, which they dig round about the *Towne*, all within half a miles distance, the best being found nearest the *coale*, and are distinguish't by their *colours* and *uses* as followeth.

1. *Bottle clay*, of a bright whitish streaked yellow colour.
2. *Hard-fire clay* of a duller whitish colour, and fuller intersperst with a dark yellow, which they use for their *black wares*, being mixt with the
3. *Red blending Clay*, which is of a dirty red colour.
4. *White-clay*, so called it seems though of a blewish colour, and used for making yellow-colour'd *ware*, because yellow is the *lightest* colour they make any *Ware* of.

all which they call *throwing* clays, because they are of a closer texture, & will work on the *wheel*;

26. Which none of the three other *clays*, they call *Slips*, will any of them doe, being of looser and more friable natures; these mixed with water they make into a consistence thinner than a *Syrup*, so that being put into a *bucket* it will run out through a *Quill*, this they call *Slip*, and is the substance wherewith they *paint* their *wares*; whereof the

1. Sort is called the *Orange Slip*, which before it is work't, is of a greyish colour mixt with orange balls, and gives the ware (when annealed) an *orange* colour.
2. The *white Slip*, this before it is work't, is of a dark blewish colour, yet makes the ware yellow, which being the *lightest* colour they make any of, they call it (as they did the *clay* above) the *white Slip*.
3. The *red Slip*, made of a dirty reddish clay, which gives *wares* a black colour.

neither

neither of which *clays* or *Slips* must have any *gravel* or *Sand* in them; upon this account, before it be brought to the *wheel* they prepare the *clay* by steeping it in water in a square pit, till it be of a due consistence; then they bring it to their *beating board*, where with a long *Spatula* they beat it till it be well mix't; then being first made into great *squareish* rolls, it is brought to the *wageing board*, where it is slit into flat thin pieces with a *Wire*, and the least stones or gravel pick't out of it; This being done, they *wage* it, i. e. knead or mould it like *bread*, and make it into round *balls* proportionable to their *work*, and then 'tis brought to the *wheel*, and formed as the *Workman* sees good.

27. When the *Potter* has wrought the clay either into *hollow* or *flat ware*, they are set abroad to dry in fair weather, but by the fire in foule, turning them as they see occasion, which they call *whaving*: when they are dry they *stouk* them, i. e. put *Ears* and *Handles* to such *Vessels* as require them: These also being dry, they then *Slip* or *paint* them with their severall sorts of *Slip*, according as they designe their *work*, when the first *Slip* is dry, laying on the *others* at their leisure, the *Orange Slip* making the ground, and the *white* and *red*, the *paint*; which two colours they break with a *wire brush*, much after the manner they doe when they *marble* paper, and then *cloud* them with a *penfil* when they are pretty dry. After the *vessels* are painted, they *lead* them, with that sort of *Lead-Ore* they call *Smitbum*, which is the smallest *Ore* of all, beaten into dust, finely sifted and strewed upon them; which gives them the *gloss*, but not the colour; all the *colours* being chiefly given by the variety of *Slips*, except the *Motley-colour*, which is procured by blending the *Lead* with *Manganese*, by the *Workmen* call'd *Magnus*. But when they have a mind to shew the utmost of their *skill* in giving their *wares* a fairer *gloss* than ordinary, they *lead* them then with *lead calcined* into powder, which they also sift fine and strew upon them as before, which not only gives them a higher *gloss*, but goes much further too in their work, than *Lead-Ore* would have done.

28. After this is done, they are carryed to the *Oven*, which is ordinarily above 8 foot high, and about 6 foot wide, of a round copped forme, where they are placed one upon another from the bottom to the top: if they be *ordinary wares* such as *cylindrical Butter-pots* &c. that are not *leaded*, they are exposed to the *naked* fire, and so is all their *flat ware* though it be *leaded*, having only *parting-shards*. i. e. thin bits of old pots put between them, to keep them from *sticking* together: But if they be *leaded hollow-wares*, they doe not expose them to the *naked* fire, but put them in *stragers*, that is, in course metall'd pots, made of *marle* (not *clay*) of divers formes according as their *wares* require, in which they

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put

put commonly 3 pieces of clay called *Bobbs* for the ware to stand on, to keep it from sticking to the *Sbragers*; as they put them in the *sbragers* to keep them from sticking to one another (which they would certainly otherwise doe by reason of the *leading*) and to preserve them from the vehemence of the *fire*, which else would melt them downe, or at least *warp* them. In 24 hours an *Oven* of *Pots* will be burnt, then they let the *fire* goe out by degrees which in 10 hours more will be perfectly done, and then they draw them for *Sale*, which is chiefly to the poor *Crate-men*, who carry them at their *backs* all over the *Countrey*, to whome they reckon them by the *piece*, i. e. *Quart*, in *hollow ware*, so that 6 pottle, or 3 gallon *bottles* make a *dosen*, and so more or less to a *dosen*, as they are of greater or lesser *content*; The *flat wares* are also reckon'd by *pieces* and *dosens*, but not (as the *hollow*) according to their *content*, but their different *breadths*.

29. Having done with the *Smeetic* and *figuline Earths*, come we next to such as are used in *colouring* and *painting*; amongst which we may reckon the *yellow* and *red Ochres*; sometimes met with (but in small quantities) near *Stanfop* in the parish of *Allstonfield*; the *yellow Ochre* found upon *Willenballgreen* about a yard deep, which they beat up upon boards, and separate from *gravel*, & then make into *oval Cakes* which they sell abroad for 4 pence per *dosen* for the *Glovers* use; as they doe also a sort of *blew clay* found at *Darlaston* near *Wednesbury* amongst the *Iron stone*, which beat up after the same manner and made into *cakes*, are sold also to the *Glovers*, to give their wares an *ash-colour*. *Ruddle* or *Red-Ocher* they dig very good at the parish of *Ipston*, which they observe to lye chiefly in their best lands. I was told there was of it also about *Dilborne*, and at *Kingswood poole*, within *Wrottesley park*. And I was informed of a sort of *black Chalk* found between the beds of *Chirts*, and the beds of *gray Marble*, sometimes a finger thick, and sometimes less, in *Langley Close* near *Stanfop* (but in the parish of *Wetton*) belonging to the right Honorable *William Earle of Devon*. To which add a sort of fine *reddish Earth*, which I found under a rock where the *Springs* came forth near *Himley Hall*, belonging to the right Honorable the *Lady Dudley*, that when dry, proved near as good a *red-Chalk*, as any we have from *France*. As for *Medicinal Earths* I met with but few in this *Country*, the most likely to be such is a *red* sort of *Earth*, near *Tennal Hall* in the parish of *Harborn* by the way side, which *discolours* the hands, and strongly *adheres* if put to the *tongue*, like the *Bobus Armenus*; but whether as usefull as that, I left to the tryal of the learned and ingenious *Sr. Ch. Holt* a near *Neighbour* to it, whereof I have not yet had the favour to hear. I was told also at *Treasle* by *Mr. William Barnesley*,

Barnesley, that they had thereabout a sort of *white pebbles* containing a *mealy substance* within them, that perhaps may be the *Agaricus mineralis* of the *Naturalists*, of which because at large in my *History of Oxfordshire*, no more of it here.

30. And these are all the *Earths* strictly so call'd (amongst all those 179001060 different sorts of *Earths* reckon'd up by such as have written *de Arte combinatoria*) that I could find of use in this *County*; yet I must not conclude this *Chapter* here neither, the other *media Mineralia* such as *Sulphurs*, *Bitumens*, &c. of a middle nature betwixt *stones* and *Metalls*, being also taken in under this *head*, by most (if not all) the *Geoponic* writers. Upon which account the *History of Pit-coal*, otherwise called *Sea-coale* (though in this *inland Country*, and seldom carryed by *water*, much less by *Sea*) belongs to this place: Whereof there being great plenty of divers *kinds* found here, I shall first give an account of the severall *Species* of them. 2. of their *dipping*, *basseting* or *cropping*, and their *Rows* or *Streeks*, 3. of the *measures* or *floores* there are of them, their *partings* or *Lamings*, with the terms of *Art* for them in different places, 4. of the *damps* that attend them, by what means they seem to be *occasoned*, and how *cured*, 5. how the *coal-pits* come so many of them to take *fire*, and 6. of their severall ways of *finding* and *working* them, which last though more properly belonging to the *Chapter of Arts*, yet the right understanding them for the most part so intimately depending on some of the *particulars* just preceding, I thought fit rather to misplace them here, as I did the *Art of Pottery* above, than render either of them the less intelligible to the *Reader*: And the rather too that this *chapter* might bear some proportion with the rest, the *Arts* relating to *Earths* being sufficient beside, to fill up a competent share of their owne *Chapter*.

31. But first of the severall *Species*'s or rather *sorts* of *Coale*; which though they differ some what in all *pits*, nay in the severall *measures* of the same *pit*, yet none of them so signally as to obtain a distinct name, except the *Cannel-coal*, and the *Peacock-coale*, from the common *pit coal* of *Wednesbury* and other parts; which yet all come under the common *Genus* of *Lithanthrax* or *Stone-coale*, they being all of a competent hardness, and seem to be nothing else but *Bitumen* indurated by subterranean heats, though not equally; the *Cannel-coal* being the hardest, and of so close a texture, that it will take a passable *polish*; as many be seen in the *Choir* of the *Cathedral Church* of *Lichfield*, which in great part is paved *Lozengy*, black and white (as other *Churches* with *Marble*) with *Cannel-coale* for the black, and *Alabaster* for the white, both plentifully found in this *Country*; which when kept *clean*, so well represent black and white

³ Nat. Hist. of Oxfordshire, Chap. 3. §§. 26. and 30.

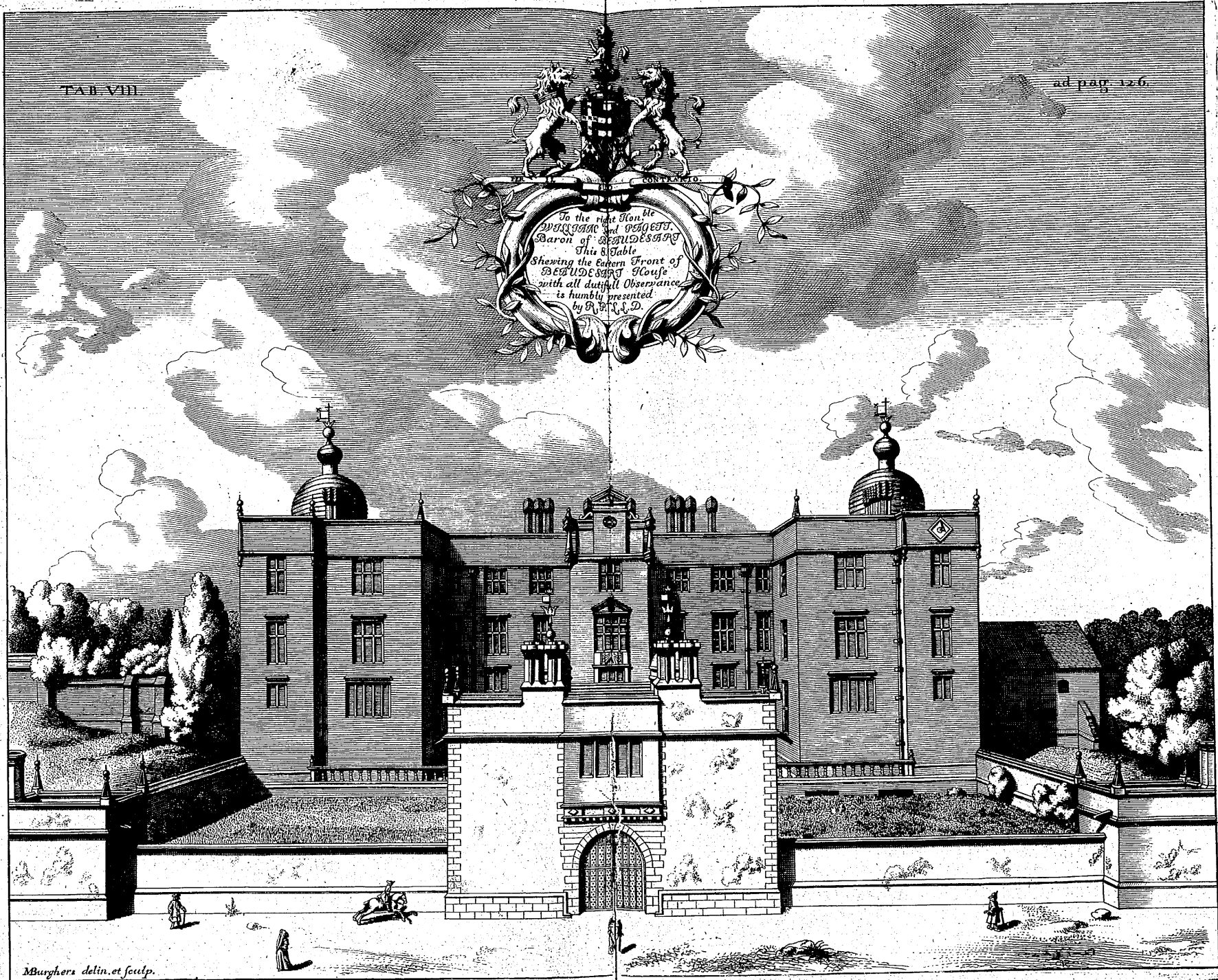
Marble, that to an incurious heedless Eye, they seem to be the same: It turnes like *Ivory* into many pretty knacks, such as *Ink-boxes*, *Candlesticks* &c. They cut it also into *Salts*, *Standishes*, and carve *Coats of Armes* in it, witness that of the right Honorable *William Lord Paget*, in the Gallery of his stately Seat at *Beaufort*, which as a thankfull memorial of the Encouragement He so readily afforded this *Work*, is here represented *Tab. 8.* And the rather here because this *Coale* is dug in the *Park* adjoining, also belonging to his Lordship, about 20.30. or sometimes 40 fathoms deep, lying between other beds of a softer kind, and is the best in *Staffordshire*, or any where else that we know of, except that in *Lancashire*, which (they say) has no grain, and therefore not cleaving as this will doe, upon which account esteemed somewhat better for making such *Utenfills* as were mention'd above.

32. And yet this at *Beaufort* will work so very well, that the *Kings* Majesties head is said to have been cut in it by a *Carver* at *Lichfield* resembling Him well: In the working wherof especially turning it, they use no edg'd tooles; it presently rebating them; but at first they use rasps, then finer files, and last *Seal-skin* and *Rulbes*, these giving the ultimat gloss, which is sometimes so high, that it has been thought to be the *lapis Obsidianus* of the ancients; but its non performance of the office of the *Basilitis* in touching gold and silver, as *Cæsalpinus* asserts the *Obsidian* stone will doe, gives full satisfaction it cannot be so: much rather could I afford it to be a *Species* of the *Gagates Lapis*, which all agree to be nothing else but indurated *Naphtha* or *Petroleum*, and to take fire like this, only this has not that *Electricity* of drawing straws and chaff, which *Rulandus* and others say that *Feat* has; so that they must not be allowed to be the same, though they agree in their original principles, colour, and curious politure. Notwithstanding which, the cheifest use they make of this *coale*, is for firing, wherein they much observe the grain of the *coale*, for if they would have it burn slow (as the poorer and thrifter sort of people are best pleased it should) they lay it flat ways upon the fire, as it lay before in the bed or *measure*; but if they would have it burn quick and flame clear (as the *Gentry* commonly will) they *surbed* it, i. e. set it edgways, the cleaving way next the fire, by which means it so easily admits it, that it presently flames as bright as a *Candle*, whence perhaps not unlikely it may receive its name, *Canmyll* in the *British* tongue signifying a *Candle*, from *Cann*, *candidus*; and *Gwyll*, *tenebræ*; eo quod albere, h. e. lucere faciat tenebras, says the learned *Dr. Davies* in his *British Dictionary*.

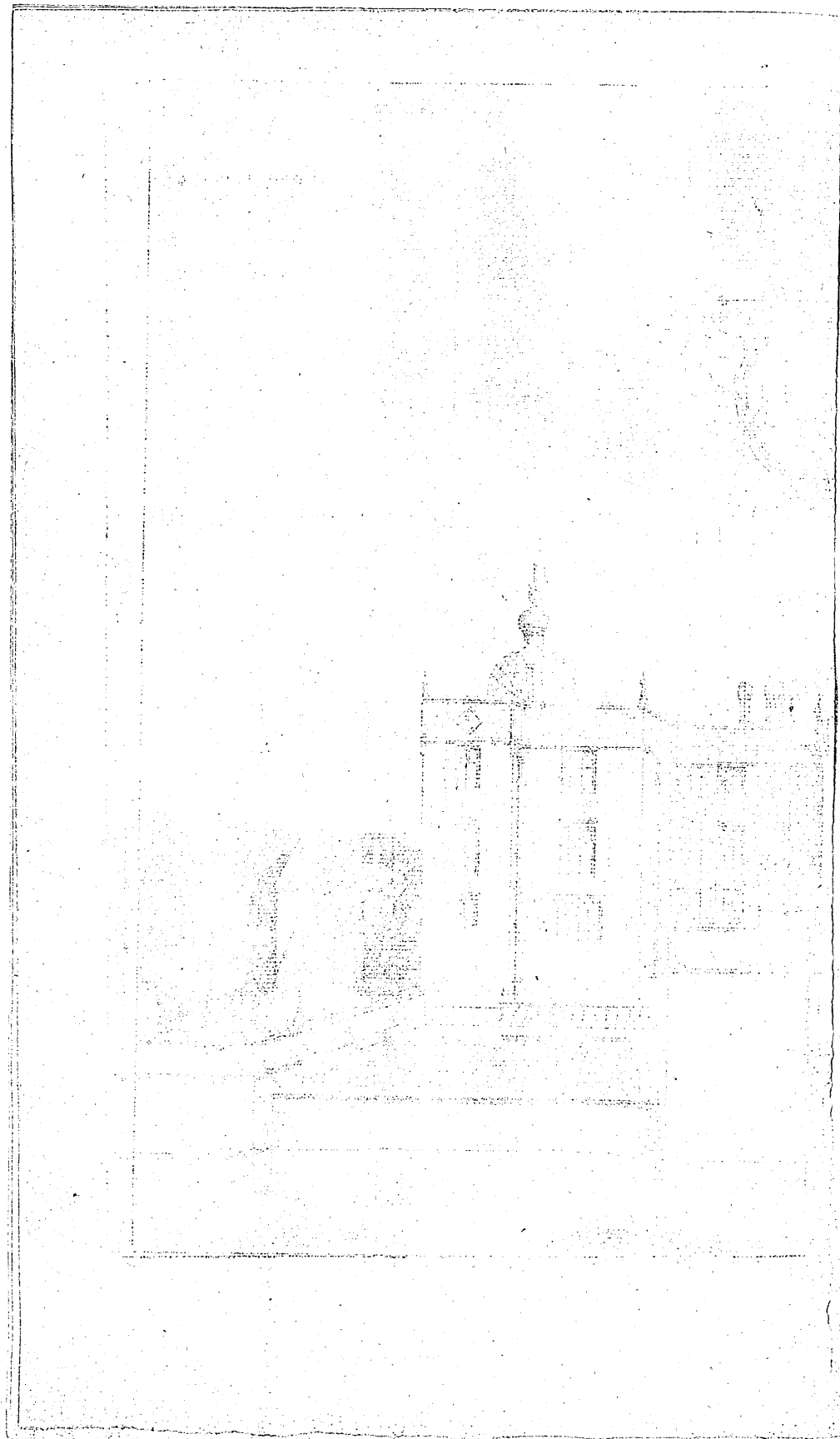
33. The *Peacock-coal* dug at *Hanley-green* near *New-Castle* under *Lyme*, is much softer than the *Cannel*, not exceeding the common

TAB. VIII.

ad pag. 126.



M. Burghers delin. et sculp.



Chap. III. Of STAFFORD-SHIRE. 127

mon sorts of other pits in hardness, the *blocks* of both being divided into much more sensible plates or *Scaia*, of about $\frac{1}{4}$ of an inch thick, which appear to the naked Eye; whereas the *Cannel* though it have a grain, yet the joynts are not visible; upon which account this is no more capable of politure than the common coal, yet is more gay to the sight, than if it were; it most vividly representing all the colours of the most glorious feathers in a *Peacocks* trayne (whence it borrowes its name) and that not emphatically, like the colours in a glass *Prisme*, or of variable filk, which are evanid at last, if not fantastical: but solidly & genuinely, the colours remaining fixt in all manner of obversions of the *coal*, though not so vivid when turn'd from the light. Whence 'tis plainly deducible that this *coal* has great variety in its texture, and that its parts and pores are not all of a shape, as 'tis probable they are for the most part in the *Cannel*, and the common coal of other pits, which appear uniformly black in all parts alike; diversity of colours in opacous bodies (such as this of the *peacock-coal* is) seeming to arise from the various figure, situation, and order of the innumerable *superficieculæ* that are differently obverted to the Eye, and to one another, whereof some reflect the light mingled with more, others with less shade*. Nor must it be objected that the *superficies* of this seems as smooth and polite as any other coal: for howsoever it may appear to our dull sight and touch, it is certainly only so in a *popular*, or at most a *physical*; but by no means in a rigid *Geometrical* sense. From which great variety of protuberancies it is, that the body of this *coal* must needs be of an open texture, whence 'tis like it comes to pass that it burns so swift, and is therefore better for *Smithy's*, than *Kitchen* fires.

34. Which are much better supply'd by the common *coal* of the Country, especially that of *Wednesbury*, *Dudley*, and *Sedgley*; which some stick not to prefer even to the *Cannel* itself; the texture and other qualities thereof being, such viz. that it is a fat shining coal, having a pretty open grain, lying seldom in a level with the *plane* of the *Horizon* but most times some what inclining to it (according to which it cleaves into blocks at the discretion of the Workman) that it burns away with a sweet bright flame, and into white ashes, leaving no such Cinder as that from *New-Castle* upon *Tine*. Of which sort there is so great plenty in all parts of the *County* (especially about the three above-mention'd places) that most commonly there are 12 or 14 *Colerys* in work, and twice as many out of work, within 10 miles round; some of which afford 200000 tons of

* There is much such a *Coalmine* bordering upon *Mendip* which they call there by the same name, that *Mr. Beaumont* thinks receives it's resplendency from a sulphury tincture, and so perhaps may ours. *Philosoph. Collect.* Numb. 1.

coal yearly, others three, four, or five thousand Tuns, the upper or topmost beds above the *Iron-stone*, lying sometimes ten, eleven, or twelve yards thick: nay I was told by Mr. *Persehouse* of nether *Gournall*, that in his grounds at *Ettingsall* in the parish of *Sedgley*, in a place call'd *Moorefields*, the bed of coal lyes 14 yards thick; in so much that some acres of ground have been sold hereabout for a 100 pound per acre; I was inform'd of one acre, sold for 150 pound, and well indeed it might be so, since out of one single shaft there have sometimes been drawn 500 pounds worth of coal. Nor indeed could the *Country* well subsist without such vast supplies, the wood being most of it spent upon the *Iron-works*, for it is here (as well as other *Countries* that fetch their winter stores from hence) thought not only fit for the *Kitchen*, but all other offices, even to the *parlour* and *bedchamber*.

35. And not only in privat *Families*, but now too in most, if not all the *Mechanic professions* (except the *Iron-works*) that require the greatest expence of fewell; witness the *glafs-houses*, and *Salt-works*, *brick-making*, and *maulring*; all which were heretofore performed with wood or charcoal, especially the last, which one would think should hardly admit of the unpleasent fumes of such firing: nor indeed does it, no more than of wood; for they have a way of *Charring* it (if I may so speak without a *solecisme*) in all particulars the same as they doe wood, whence the coal is freed from these noxious steams, that would otherwise give the *mault* an ill odour. The coal thus prepared they call *Coaks*, which conceives as strong a heat almost as charcoal it self, and is as fit for most other uses, but for *melting*, *fining*, and *refining* of *Iron*, which it cannot be brought to doe, though attempted by the most skillfull and curious *Artists*. In the *glafs-houses*, *Salt-works*, and *Brick-clamps*, they use the raw coal as brought from the pit; in the former whereof, as to the proportion, I am not so certain; but in the *Staffordshire Salt-works*, they spend two Tuns to a drawing; and for burning a *Clamp* of 16000 bricks, they use about 7 Tunns of coal. The last effort that was made in this *Country* for making *Iron* with *pit-coal*, was also with raw coal, by one Mr. *Blewstone* a high-German who built his furnace at *Wednesbury*, so ingeniously contrived (that only the flame of the coal should come to the *Oare*, with severall other conveniences) that many were of opinion He would succeed in it. But experience that great baffler of speculation shewed it would not be: the sulphureous vitriolic steams that issue from the *Pyrites*, which frequently, if not always, accompanies *pit-coal*, ascending with the flame, & poysoning the *Ore*, sufficiently to make it render much worse *Iron*, than that made with *char-coal*, though not perhaps so much worse, as the body of coal it self would possibly doe.

36. In

36. In digging all sorts of coal (that appears not to the day, as the *Miners* speak) after the Soil or arable, and the gravel, Sand, grit, and clays are removed, which keep no course; all the *Bass*, *Freestone* (of what sort soever) *Clunches*, *Bats*, and *Partings* lye one above another, and keep a regular course; wherein the things most observable are their *rise*, *cropping* or *basseting*; their *dipping*; and the *row* or *streek*; which after the *Species* or sorts of coal, were the next things proposed to our consideration. In the handling whereof I must first acquaint the *Reader*, that coal generally in this, as in all other *Countrys*, lyes in the earth obliquely i. e. neither in *plano Horizontis*, nor *perpendicular*; but *rising* one way toward the surface of the Earth, till it comes within a foot or two, sometimes a yard or more, of the *superficies*, which the workmen in this *Country* generally call *basseting*, others *cropping*; and *dipping* into the earth the other way so deep, that it is seldom or never followed to the end, or indeed any thing near it (except where a *Mine lips* or *crops* up again, as sometimes it does, as well in the *dip* as the *row*) by reason the *Workmen* are either prevented by waters, or too deep a draught. This *basseting*, and *dipping* of coal is various, sometimes greater and sometimes less, sometimes approaching to a *perpendicular*, cutting the *superficies* almost at *right angles*, which sort they call a *rearing Mine*, whereof I was told there was one at *Biddulph* that runs down *perpendicularly*. Others are again that come so near to a *plane* of the *Horizon* that they dip not above one foot in 10, 20 or sometimes 30 foot: these they call *flat Mines* by reason of their even and almost level course. The *open works* at *Wednesbury* seem to be of this kind, where there being but little earth lying over the *measures* of coal, the *Workmen* rid off the earth, and dig the coal under their feet and carry it out in wheel-barrows, there being no need for these, of *windles*, *roap*, or *carf*, whence these sort of *Coale-works* are commonly call'd *Foot-ridds*, or *Footrills*.

37. Though there are too of these, in the third and most common sort of coal, that *dips* one foot in three, or one in five, which they call *hanging coal*; but they cannot be made but where the coal is found to rise in proportion to the ascent of a *Hill*; in which case indeed the *Coaliers* can work a *cuniculus* into the side of the *Hill*, according to the course of the *row* or *streek* of the coal, for some hundreds of yards in a direct line upon a level, through which they bring forth the coal as easily altogether as in a *flat open work*; as they doe at the *Footrill* at *Apedale* belonging to the right *Worshipfull Sr. John Bowyer* Baronet one of the most noble promoters of this work, of which more in due place, when I come to treat of the ways of working of coal. Yet from that little has been said, 'tis easy for the *Reader* to conceive, how preferable these are to the o-

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ther more common *hanging mines*, in which they are forc't to follow the *coal* to a great depth, to be at the expence and labour of drawing all up by hand, and sometimes of freeing the *Mine* from water, both which are sav'd in this sort of *hanging Mine*, as well as in the *flat open works*. And that yet they fall short of the *latter*, in regard it is a long time (if ever) in these, before the *Colliers* can reach so far forward as to be hinder'd in their work either by want of *Air* or any long draught, and so are longer workable; whereas the *former* riseing with the *Hill* (though 'tis true they may work a vast way forward) before they want *Air*, yet haveing but one way to work beside *viz.* by making *setings up* with the *cropping* of the *coal*, they must work out at last, and cannot hold on so long, as where they may work every way round them, and perhaps further forward than the others can too.

38 However these are as preferable to other *hanging Mines*, as those are to the *rearing ones*, which are the worst of all: the *Colliers* quickly reaching to their utmost workable depth every way; though it must not be denyed but that the *coal* of these, and the common *hanging Mines*, is most times more firm, and better for burning, than that of the others; it being certainly true as well in *coal* as *stone*, that the deeper it is fetch't the harder and better; and the nearer they come to the surface, the softer and worse; till at last they are converted, if *stone*, most commonly to a little better than *sand*; and if *coal*, to a *shale*, *smut*, or *drofs*, that will not burn. Which is all I could hear of concerning the *rise* and *dipping* of *coal*; but that sometimes it will alter its *dip* to a *rise*, and *crop* to the same point of the compass it *dip*t before, which the *Workmen* call *leaping*. Nay so sportive sometimes does *nature* seem to be in this matter, that the *coal* which has *cropt* to the same point of its first *dipping*, as in the foremention'd example; before it has reach't the surface and *cropt* out, has taken another *dip* agreeable to the first, and then again another *crop* agreeable to the former; but these are but *rarities* not often to be met with.

36. Nor does it *leap* only in the *dipping*, but also in the *row* or *streek*, as I was inform'd by Mr. *Poole* of *Hardingswood* a person very skillfull in these matters, which as it leaps the *Workmen* accordingly follow, till (as sometimes it does) it *leaps* down again into the same *range* it lay at first. The *rows* of *coal* lye ordinarily one under another at certain distances, yet seldom so near, as that ever any body dug through one *row* down to another, though sometimes they will draw much nearer together at one place than another, as the same Mr. *Poole* inform'd me they doe at *Hardingswood*, where the *row* or *streek* lyeing to *North* and *South*, they draw together to the *Northward* and spread to the *South* to a good distance, and then

then run *parallel*. Of which there is little more worth notice, but this general rule (I think without exception) that to what points soever the *rise* & *dip* direct their course, the *row*, side *basset* or *streek*, lyes quite contrary: as suppoeing a *Coalery dip East*, the two points that the *dip* and *rise* respect, must be *East* and *West*: whence it necessarily follows that the *row* must run (as it does here at *Hardingswood*, about *New-Castle*, and as some are of opinion, it most times does) *North* and *South*, and so in all the intermediat *points* of the *compass*; as about *Cbedle* where the *coal dips S. W.* and by *S.* or as the *Miners* call it to the two a Clock-Sun, there the *rise* must be to the *N. E.* and by *N.* and the *row* or *streek* must lye *N. W.* and by *N.* and *S. E.* and by *S.* the two courses of the *dipping* and *row*, always cuting the *compass* into *right angles*, *proxime*; not *Geometrically* such, but such as are passable enough, in so gross a body as a *coal-Mine* is.

40. Hitherto we have considered this *mineral* of *Coal*, in two of its *dimensions*, *viz* its *longitude* and *latitude*; it remains that we now treat of the third, its *profundity*, or thickness as it lyes between the *roof* and the *warrant* or *pavement*; which are most times *bas* or *freestone* above, and *Ironston* or *earth*, below; or what ever else the substances be, that lye above the *coal*, or below it, wherein we shall give account of the *measures*, or *floors*; and the *partings* or *lamings* which the *coal* has in it self; which was the *third* thing to be discours'd on: all *coale-Mines* beside the separation they have from all other bodies by their *roofs* and *pavements*, haveing divers *partitions* in the body of the *coal* it self, made by thin substances called *partings* or *lamings*; which are sometimes no thicker than $\frac{1}{2}$ a *crown* or a *crown*, but sometimes 1, 2, 3, 4. or 5 inches thick; each division differing somewhat in texture and goodness: whence amongst the *Workmen* they obtain different names, which are not the same all over the *Countrey*, but vary almost in every *Coalery*, though but 3 or 4 miles distant. For example at *Wednesbury*, upon the surface they meet first with *earth* and *stone*, 2. *blew clunch*, and in the 3 place, *coale*. which they divide into an *upper* and *nether coal*: in the *upper coal* there are the following *divisions*, with their respective *depths*, and different *denominations*.

- | | |
|---|--|
| 1. The <i>top</i> or <i>roof floor</i> , 4 foot | 5. The <i>Kit floor</i> , 1 foot thick. |
| 2. The <i>overslipper floor</i> , 2 foot. | 6. The <i>bench floor</i> , 2 foot and $\frac{1}{2}$ |
| 3. The <i>gay floor</i> , 2 foot. | 7. The <i>spring floor</i> , 1. foot. |
| 4. The <i>Lam-floor</i> , 2 foot. | 8. the <i>Lower slipper Floor</i> , 2 foot and $\frac{1}{2}$. |

then a *bat* between 1 and 3 yards thick, which being past they come next to the *nether coal*, wherein there are the like *divisions*, with their respective *depths*, and different *names*.

- 1. The slip floor, 1 foot.
- 2. The lam floor, 2 foot.
- 3. The Oary floor, 1 foot.
- 4. The bench floor, 1 foot.
- 5. The spring Floor, 2 foot.
- 6. The slipper Floor, 2 foot.

between every one of which floors, both in the upper and nether coal, there are substances call'd partings of the thickness above mention'd, of consistence between an earth and a coal, or soft bat, then below the nether coal before they come to the ironstone, they have

- 1. Earth, 1 foot.
- 2. The Mee Floor, 1 foot.
- 3. Bat, 1 foot and 1/2.
- 4. The Omfry floor, 2 foot, and 1/2.
- 5. Ironstone Earths, of divers thicknesses.
- 6. Iron stone.

In all from the surface 22 different partitions: whence it appears as was hinted in *Oxfordshire*¹, how much the earth here, as also in the following instances, seems to be of a bulbous nature; several folds of divers consistencies still including one another, after the manner of the coats of a pearl, or an onyon.

41. At Amblecot in this County where the coal lyes deep, they have first the top earth, 7 yards thick. 2 a rock of 14 yards. 3 an earth called blew-clunch, 3 yards. 4 stones parted with earth, call'd the three frogs. 5 catch-earth, 1 yard thick, mixt with wild Iron-stone, which covers or lyes upon

- 1. The white, or top coal.
- 2. Heath, or tough coal.
- 3. Fine coal, or sea coal.
- 4. The veins.
- 5. The long coal.
- 6. Rough coal.
- 7. Spin coal.
- 8. Top of the suder height.
- 9. Bottom Bench.
- 10. Back-stone.
- 11. Iron-stone, 3 yards thick earth and all.
- 12. Heatben coal.

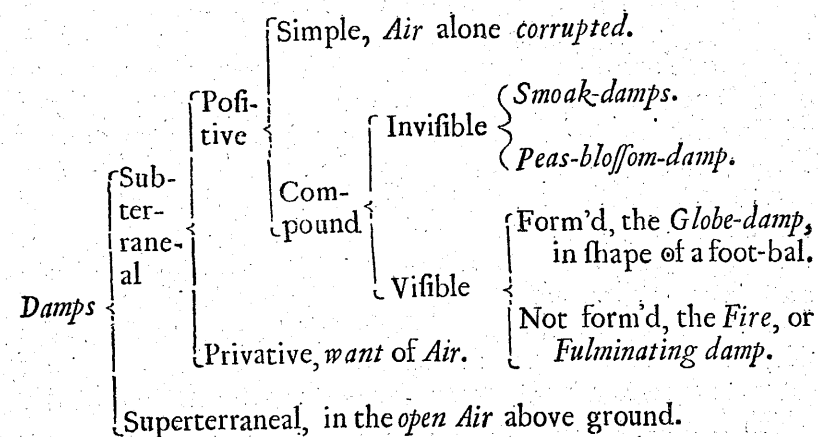
between every one of which measures of coal, lyes a laming or parting of various thicknesses. About Dudley as I find it in the *Metalum Martis* of Dud. Dudley Esq^k; the three uppermost measures, are call'd the white measures, from the white Arsenical substance contain'd in them. 4. the shoulder coal. 5 the toe coal. 6 the foot coal. 7 the yard coal. 8. the slipper coal. 9 the sawyer coal. 10 the frisley coal, all which 10 measure of coal make up one with another 10 yards in thickness. Next them lye the severall measures of Iron stone; and

¹ Nat. Hist. of Oxfordsh. chap. 3. §. 14. ^k *Metalum Martis* p. 38.

then

then coal again 2 yards thick, call'd the bottom, or heatben coal. These if they lye close & firm together, as generally they doe in this County, and the coal it self and partings, but tolerably clear of the Pyrites, and arsenical mixtures, are workt so much the more free from danger: not only upon account that if the coal be full of rifts, it is so much the more apt to colt in upon the Workmen, but from the natural fitness that such clefts have to admit either corrupted Air, or the poysonous vapours of such minerals; mortal to all Animals (except the Rat) which they call.

42. Damps, the fourth thing promised to be treated on relating to this mineral, which though they happen not so frequently in this County, as in some others, by reason (as I sayd) of the firmness and closeness of the measures of most coal there; yet because they doe sometimes fall out, and the knowledg of the means whereby they seem to be occasion'd, may not perhaps be thought less profitable to the Philosopher, than the cure of them to the Collier: I have thought fit to give some account of all the Species of them I have yet heard of, with their respective Cures. The Species of them naturally divide themselves into.



All which, whether super or subterranean, I take in general to proceed from stagnations in the subterranean Vaults of the Earth, for want of due Ventilations, and commerce between the inferior and superior Air. The material causes 'tis true may be various, either simple or compound: as the meer corruption of the simple Air alone upon a long stagnation in the Coal-rooms, and the rifts and clefts of the rock of coal it self, may be its material cause indeed, but the causa sine qua non of such a damp, I take to be the want of motion in those cavities, without which, the Air would never have corrupted; no more than water which never corrupts till it stagnates

ates, when indeed like the Air it becomes poysonous, though possibly not to that degree, the Air being a body much finer, and conveyed to the more tender parts of the body.

43. Whence it is that in the old works, wherein there has been no digging for a long time, no layeing, drawing, or pumping of water, all which keep the Air in motion, and the water from canckering, these dampes are most frequent and most dangerous. Whence it is too that the Works where the bed of coal is thin, and admits of but few or no such rifts or clefts for the Air to stagnat or corrupt in, are seldom or never troubled with them. Upon which account 'tis likewise that though a bed of coal have many of these rifts, and large ones too; yet as long as there is a profuence of water through them, there is no danger of their entertaining such dampes; which as soon as made dry by a Sough or free-Level, the same Mine shall become much more lyable to them; the wholesom Air that was in them whilst kept in motion by the flux of the water (having little or no communication with that above ground) now stagnating and corrupting to that degree, that it not only extinguishes the glowing heat of coales, and the flame of candles, torches &c. but the *flamula vite* too in most living creatures, so that the Animal which respire it, some times expires with it too. And as it is in simple dampes made out of corrupted Air only, so it is in the compound ones of one or more minerals, whether visible or invisible; whether arising from the smoak of coale it selfe, or as some will have one of them, from the scent of vegetables, or 2 from the steams of the Workmens breath, and sweat of their bodies, together with the smoak of the candles they work by; or 3 from sulphureous, arsenical, nitrous, or other such mineral steams that may be incident to Coalworks: for to all these they ascribe a particular sort of Damp.

44. The first sort whereof, which arises from the smoak of coal it self, is said to happen only in such grooves where they make use of great fires to soften the rocks to make them yeild to the pick-Axe, which sending up with the smoak a sulphureous or perhaps an arsenical vapour, in probability may so infect the quiet Air in such deep caverns, as to render it unfit for respiration: it having been long indeed observed that such mines are seldom or never free from dampes. And of this sort perhaps are the dampes of the coalworks about *Cbedle*; where above the Mines they have a rock of a greyish colour, call'd *Pox-stone*, so very hard, that where they doe not luckily meet with a cleft, they are forced to put fire to it, which in some time will make it flaw, or at least so soften it, that the pick-axes will enter it, which otherwise would not work away so much in a day, as will fill a hat. And yet these dampes are neither visible nor noisome, nor will they take fire, but are so gros & moist that they extinguish it

it & are suddenly mortal. Nor is the *peas blossom damp* (whereof we have an account from the learned *Martin Lister* Phyfitian at *York*)¹ either visible or noisome, it being so call'd, as they say, because it smells like the blossoms of *peas*, though they fancy it proceeds from the multitude of red *trifoyl* flowers, with which the Lime stone meddows of the *Peak* (where they have this sort of damp) doe much abound: and as it is not noisome, so neither was it ever heard that this was mortal to the *Workmen*, the scent perhaps freeing them from the danger of a surprize. Of this sort I enquired in the east part of *Staffordshire*, where the *Moore-lands* bound upon the *Peak-Country* of *Darbyshire*, and found it not only there, but as far as I could learn, to be the most common damp in the Country, it making their candles first to diminish, to burn round, and at length to goe out, perfuming the *Stauls* at the same time with a faint sweet smell, as those in *Darbyshire* doe, only with this difference, that here they are said to be sometimes visible, shewing like a thin smoak, which may be seen not only in the *grooves*, but fuming out at the top of the pit. But here they are wiser (where they goe for their coal 40 or 50 yards deep, and have no such thing as *trefoil*; for many miles, and yet have this damp) than to think it proceeds either from *peas* or *trefoil*; it being rather apprehended to arise from the *Workmens* breath and sweat, mixt with the steams of the golden *Marchasite* or brass lumps, than any thing else.

45. Not much unlike that (only in its fatality) we call the *Globe-damp*, thought to be compounded of the Workmens breath &c. and sweat of their bodies, together with the smoak of the candles they work by, which ascending to the uppermost parts of the *grooves*, there condense so much, that they become visible in the form and bigness of a *foot ball*, seeming to be cover'd with a skin, of the thickness and colour of a *Cobweb*. These if by any casualty they come to be broken, they immediatly disperse themselves, and suffocat all the company, being altogether as mortal though not so violent; as the *fulminating dampes* mention'd by the same worthy Gent. and the ingenious Mr. *Jessop* of *Broomhall* in *Yorksh*: to have happen'd not long since at *Haste-berg-hills*, and at *Wingerworth* within two miles of *Chesterfield* An. 1675^m. where the vapours takeing fire at the candles of the *Workmen*, they found themselves presently environ'd with flames, their faces, hands, hair, and cloaths in great part, being very much burnt, and one of them having his armes and leggs broken, and the rest of his body strangely distorted: the now enflamed damp of one of them goeing forth of the mouth of the pit like a clap of *Thunder*, shooting off the *Turn* or

¹ *Philosoph. Transact.* Numb. 117. ^m *Philosoph. Transact.* Numb. 117. and 119. *Windeleys,*

Windlefs, and shakeing the very earth so much, that a *Workman* in another *Bink* hard by, fear'd the roof would have fallen in upon Him and buryed Him. The ingenious Mr *Beaumont* tells us they have this sort of *Damp* too, in some *Coal-works* bordering upon *Mendip hills*ⁿ, and that in the most Easterly ones of them, they are so very frequent, that scarce a pit fails of them, many Men of late years having been there kill'd, many others lam'd, and a multitude burnt: many having been blown up at the *works* mouth, and the *turn beam* which hangs over the shaft, thrown off the frame by the force of it. It is also said to be in *Scotland* by Mr. *Geo. Sinclair* in a land call'd *Werdy*, West of *Leith*^o; which they there from its effects (that are very much like ours) are pleas'd to call *Wild-fire*, thinking it to proceed from a fat sort of coal, wherein there is a certain fire resembling an *Ignis fatuus*, which even in the day time is sometimes seen in the *Coalworks* in little holes shining like kindled *sulphur*, which uniting in the night when the *workmen* are gon home, if it meet with any fire at their return, it breaks out which such violence that it kills whomsoever it finds in its way.

46. Yet neither of these were comparably strange to the *fire-damp* that happend at *Mostyn* in *Flintshire* in the *Coalworks* there, belonging to the right Worshipfull Sr. *Roger Mostyn* Kt. Lord of that *Manor*^r, in the same year with that at *Wingersworth*; which upon making a *Witchet*, for drawing down the *Spring* that hinder'd their further wining of Coal, as soon as they were scanted of *Air*, the *fire-damp* appear'd in the crevisses or flits of the coal, (where water had been before) in a small blewish flame, which whilst the *Colliers* continued their work, was not so troublesome, as upon the intermission of 48 hours, within which time it got so much strength, that the *Workmen* looking into the Pit, could see it shooting from side to side like sword blades, cross one another, so that none durst venture to go downe into it. Upon this they took a pole and bound candles to it, which they no sooner put over the Eye of the pit, but the *Damp* would fly up at them with a long sharp flame, and put them out, leaving a foul ill scented smoak behind it. But finding this would not doe, they tyed many candles to the end of a hook fastend to a roap, and lowerd them down a little way into the pit, when up came the *damp* immediatly, and blew them all out, burnt their hair, beards, and clothes, struck down one of them, in the mean time making a noise like the roaring of a *Bull*, but louder, leaving a stink behind it worse than the former; so heating the water that though drawn out of another distant pit, it was *blood-warm* at least. After 3 days cessation more, the *Steward* going down

ⁿ *Philosoph. Collect.* Numb. 1. ^o *G. Sinclair's Miscellan. Observ.* p. 292. 293. ^r *Philosoph. Transact.* Num. 136.

with

with some others to contrive conveyance of *Air*, one of them unadvisedly puting his candle over the Eye of the pit, the *damp* immediatly fired at it, burnt and tore their clothes from their backs, and flew to and fro all over the hollows with a great roaring; carrying most of the Men 15 or 16 yards from their first station, and one of them out of the pits Eye above 30 yards high, with a noise like a *Cannon*, only somewhat shriller, which was heard no less than 15 miles off: it also forcibly drove up the buckets and rope, with the Trunk or barrel that wound them up, of a 1000 weight, and tore it to pieces, though fasten'd to a strong frame with locks and bolts, and bound about with Iron.

47. What should be the *material causes* of such prodigious effects as these, though it be hard to determin, yet I think I may be positive that the cause assigned by Mr. *Geo Sinclair* is insufficient^a, though it may indeed be allowed to be a social cause: the oyliness and fatness of the coal may be necessary indeed for its so quik takeing fire; but this will not account for its violence and noise: there must therefore certainly be somewhat of *Niter*, joyn'd with the *bitumen* and *sulphur* in the coal, to perform this feat. That *bitumen* must be a concurrent cause of such *damps*, I take to be evident indeed from hence, that in the relation at large of the *fire damp* above, it is said that it would play upon the surface of the water of a *rainbow* colour; and that *Sulphur* must also be an ingredient, I take to be as plain, for that in the same relation, it is expressly said, that in working the *roach* of coal 5 yards thick, when they came near the bottom, where the water was not mixt with *sulphureous* and *brassy Metals*, the *fire-damp* was neither seen or heard of; and that *Niter* must also have a share in such dreadful *Scenes* as these, I take to be as manifest as the facts themselves, since no such explosions can be made without it, and that the smoak that follows the firing such *damps*, is on all hands confest to have the smell and colour of *Gunpowder*. But of this matter further, when I come to consider, how it comes to pass that so many of the *coal-pits* take fire of themselves.

48. There is another sort of *damp* they call *want of Air*. i. e. want of Air sufficient for the breathing of *Animals*, and burning of *Candles*. This sort of *damp* (improperly so call'd) is that they commonly meet with in long *Soughs* for conveyance of water from the coale; or when to avoid charge they run in their work as far underground as possible, for wining of coal, without leting down a new shaft. The cause of which sort of *damp* is certainly nothing else, but the want of communication with the *Air* above ground; it being found by experience that the further a Man goes, into one of these *coal-*

^a *G. Sinclair's Miscellan. Observ.* p. 293.

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levels, the flame of his candle will gradually grow less and less, till it goes quite out, and his difficulty of breathing greater and greater, till he cannot breathe at all, & vice versa in his return. And so I found it in my entrance into the above mention'd *Footerill* at *Apedale*, where before we came 200 yards into it, 2 of the 3 candles I had in with me, went quite out, and the third was just expiring, in so much that I was forc't to make a retreat. This sort of *damp* is nothing so dangerous as some of the former, because not surprising, but coming so gradually, that a man may relieve himself at pleasure, though it be true enough too, that this will kill *Animals*, as well as extinguish *coales* or *candles*, if they be far enough removed from the *Air* above ground, and continue long enough there.

49. And these seven (including one that's to follow) are all the *Species* of *damps* I have hitherto met with, which as so many *diseases*, have their respective *cures*, known by most *Coalyers*: amongst which that of the first, or *smothering damp*, is the most difficult of any, it being sudden and surprising, coming upon them unawares when they little think on't, and then too not always equally pernicious, the uncertainty whereof the most *sagacious Workmen* say depends upon the *Wind*; which if it fit toward the *face* of the *work* (as they call it) there is no danger, the *subterranean Air* complying with that above, and by this means rather pressing the *corrupted Air* in the rifts and clefts, further into the *coal-Wall*, then bringing it forth: Whereas if it fit toward the *old Wafts*, the *Air* in the *coal-rooms* also presses that way, and as it were leads the *corrupted Air* forth, every thing naturally moving that way, where there is the least resistance. And therefore the *prudent Coalyer* that knows his work lyable to these inconveniencies, always minds the *Wind*, which is the only way they have to avoid this sort of *damp*. The second sort of *damp* occasion'd by *smoak*, they dispel either by *water*, where they have no *Air pits*, and in winter time; but chiefly by *fire*, which they let down in an *Iron cradle*, they call their *Lamp*, into the shaft or *by pit* next to that they intend to work, which making a great draught of *Air* from the bottom of the works, the *smoak-damp* must necessarily come away, and *fresh Air* from above come down the other pit, where the *Workmen* went down, and the *Coal* is drawn forth. Which very way they use about *Chedle*, and 'tis a secure one too, but very chargeable; the charge of one of these shafts, by reason sometimes of the hardness of the rocks, vastness of the depth, drawing water &c. often equalling, if not exceeding the ordinary charge of the whole *Work*: to
remedy

remedy which, I think the expedient devised and practised about *Luyck* or *Leigh*, communicated to the *Royal Society* by Sr *Robert Murray*, seems preferable to all others, for efficacy, ease, and cheapness.

50. As for the *peas blossom damp*, the scent most times frees them from danger of a surprise, which 'tis likely indeed is the occasion (more than the innocency of the thing) we seldom hear that this is *mortal*: but if the *Workmen* at any time through too much rashness, do happen to be stricken with it, they presently bring them up into the open *Air*, dig a hole in the ground, and lay them flat upon their bellies, with their faces in the hole, which (if not too far gone) infallibly recovers them. And for the *pestilential damp* that appears in the roofs of the *coal-works* in form of a *foot ball*, Mr *Lister* tells us they have a way by the help of a stick and a long roap, of breaking it at a distance; which done, they purify the place well by fire, and then enter it again without much scruple. Much after the same manner as they also avoid the *fire* or *fulminating damp*, which says Mr *Simclar*, in *Scotland* is prevented by a person that enters before the *Workmen*, who being cover'd with wet *sack-cloth*, when He comes near the *coal-wall* where the fire is feared, He creepeth on his belly with a long pole before him, having a lighted candle on the top on't, with whose flame the *wild-fire* meeting, it breaketh with violence, and runing along the roof, goeth out with a noise at the mouth of the *sink*; the person that gave fire escaping by creeping on the ground, and keeping his face close to it, till it be over past. Just as they did at first with the *fire damp* at *Mostyn*, where the workmen every morning before they went down into the pit, used to send a *resolute Coalyer* before, whose manner was to put on the *worst raggs* He had and wet them in water, and as soon as He came within danger of it, He fell groveling down upon his belly, and went in that manner forward, holding in one hand a long rod or pole to which he tyed candles burning, & reached them by degrees towards it, then the *damp* would fly at them, and if it mist of putting them out, it would quench it self with a blast, leaving a noisom ill scented *smoak* behind it.

51. The *privative damp* or *want of Air*, is best cured the same way the *smoaky damp* is, by setting down a shaft to the *adit*, as soon as the candles begin to burn orbicular and to lessen, and the *Workman* is any thing sensible of a difficulty of breathing; which infallibly cures it. And these are the peculiar *remedies* for each respective *damp*, most whereof may plainly be reduced to *motion*,

¹ *Philosoph. Transact.* Num. 5. ² *Ibid.* Num. 117. ³ *G. Simclar's Miscellan. Observ.* p. 294. ⁴ *Philosoph. Transact.* Num. 136.

which I take to be the *catholic remedy* of all *damps*, which confirms me in my first opinion that the *causa sine qua non* of all *damps*, is want of motion: for come they either from *corruption* of *Air* alone; from *smoak*; from the *scent* of *vegetables*; from the *sweat* or *breath* of *Mens* bodies; from the *steams* of noxious *minerals* &c. though never so mortal; or from *want* of *Air*; yet grant but a *circulation* of *Air* in the *coal-chamber*, or let the *waters* that commonly annoy such *Mines*, be drawn thence, not by a *Sough*, or *free natural course*, but by *force*, as by *laving*, *buckets*, *pumps* &c. either of them shall be so broken, dispersed, and at length gradually brought (with the motion of all other things that way) through the *Eye* of the *Pit* into the open *Air*, that they shall have little or nothing of the effect, which if suffered to unite (through cessation of labour or otherwise) they would certainly have. Whence it is that *Coal-works* that are wet, and always require a forcible drain; are much more wholesome, than those made dry, by a free course of water, as by a *Sough*, which by a constant unforced descent, quickly exhausts the rifts of a *coal-work*, and fits them for the reception of *corruptible Air*. Whence 'tis also that in *Mines* not drained by a *Sough*, when the *Springs* are low, and fill not up the passages in the coal, nor require so perpetual and forcible a *drain* as they use to do; that then, at that time of the year, at the latter end of *Summer*, the *coal-works* are most liable to poisonous *damps*, that the *Air* stagnates in the void spaces and corrupts, and is quietly impregnated with noxious *mineral* steams.

52. Which are sometimes so very strong, that they force their way through the *pores* of the *earth*, where there hath never been any *Sough* or *shaft* set down to give them vent, and are very noisom though in the open *Air* above ground, which may pass I think for a seventh sort of *damp*, though the same materially with some of the former: whereof there are two manifest *instances* in this *Connty*, near the same place; one, under the bank of the South side of *Tettenball* wood, where passengers sometimes in mornings and evenings, meet with a very offensive troublesome *damp*, of which they can give no account, which yet no question must come from some such *principles* as were the causes of the fore-mention'd *subterranean damps*, though I have not heard that any met with here, have proved mortal, as another of this kind (for I cannot imagin it any think else) which in the year 1671 in a house in *Tettenball*, struck 5 men and no more, of 200 that were then present at the *monthly meeting* of *Iustices*, whereof 3 dyed quickly after, the other two recovered in some measure, but are still troubled with *vertigo's* or disyness in the head, which I take to be some remains of the first *poison*. But how it should affect these

these 5 and no more, in so great a crowd, is hard to determine, unless we may think that it shot like a ray of light or *Sun-bean* through a cloud, and so only struck those five within its narrow compass: which fancy of mine (to call it no more) I am the more willing to favour, because the *fire-damp* at *Mostyn*, it seems affected that *figure*; it being said to shoot from one side of the pit to the other, like sword blades, cross one another; and that it would fly up at a candle in a long sharp flame^w.

53. These things being premised, an answer to the *question* how it comes to pass that so many of the *coal-pits* take fire, which was the first thing to be considered, is easily had. For if it be true (as it seems to be) what *Cæsalpinus* relates concerning *Bitumen*, *Peculiare est in bitumine accendi aqua*^x; which *Pliny* also asserts of the *Thracian* stone, by some translated *pit-coal*; and that the *fire-damp* at *Mostyn* did appear in the watery crevices of the rocks, and shine upon the surface of the water in the bottom of the pit, of a rainbow colour; if too the same *fire-damp* were found only where the water was mixt with *sulphureous* and *brassy Metals*, and that these *subterranean fires* were found actually kindled without any co-operation of *Man*^z, as *Mr. Geo. Sinclair* also asserts they are in like manner found in some coal mines in *Scotland*, and as *Mr. Beaumont* owns he heard one *Colemine* did, in or near *Mendip*^b; to which add that it has always been observ'd, that *heat* and *moisture*, do highly promote all sorts of *damps*: All these things (I say) being put together, what can there else be concluded but that some *Coal-pits* may and do take fire of themselves; as 'tis unanimously agreed they do at *Wednesbury* (where the *coal-works* now on fire take up eleven Acres of ground) *Cosley*, *Etingsall*, and *Pensnet* in this *County*, as *Mr. Camden* will have it, whereas indeed the place He mentions then on fire^c, was *Broadhurst* on *Pensnet* in the Parish of *Dudley* and *County of Worcester*, where He says a *Colepit* was fired by a *Candle* through the negligence of a *Groover*; and so possibly it might; but as for the rest (which are in *Staffordshire*) 'tis agreed they all fired natural of themselves, as they expect the *shale* and *small-coal* in the hollows and *deads* of all the old works, will do and have done, beyond all memory.

54. Which they say is occasion'd by a mixture of the *Laming* (that lyes between the measures of the coal) and the *steck* (more especially when very much mixt with *brass lumps*) which lying together in the old canker'd waters of the pits, heat to that degree, that they fire the small coal left there, which continues

^w Ibidem ^x *Andr. Cæsalpini de Metallicis Lib. 1. cap. 31. y C Plin. 2. di. Nat. Hist. Lib. 33. cap. 5. z Philosph. Transact. Num. 136. a G. Sinclair's Miscel Observ. p. 293. b Philosph. Cælest. Num. 1. p. 8. c Camden's Britannia in Staff.*

burning till it's all spent, and then goes out of it self as soon as it comes to the rock of coal, which if it have no rifts or clefts in it, admits it not: insomuch that the inhabitants of these places are not concern'd at it, nor have half the dread upon them for it, that those have that live remote, far enough out of its reach. The Worshipfull Dud. Dudley in his *Metallum Martis*^a says that *small coal with steck* thrown moist together (not mentioning any thing of *Laming*) by reason of its sulphurousness, will doe the same thing; which I am inclin'd to believe since I find amongst Dr. Powers observations that the *Pyrites aureus* being expos'd to the moist Air, or sprinkled with water, will smoak and grow exceeding hot, and if many be laid in a heap and water'd, will turn red hot of themselves, as He says He had seen them Himself. whereof He acquaints us with a very unhappy example, that fell out at *Ealand* a neighboring *Town* to Him in *Yorksh.* where one *Wilson* having piled up many Cartloads of them in a barn of his (for some secret purpose of his owne) the roof being faulty, and admitting rain water to fall copiously amongst them, they first began to smoak, and at last to take fire and burn like red hot coales, so that the *Town* was in an uproar about the quenching of them. Now if the *golden Marchasit* or *brass lumps* alone will thus take fire, much more will they sure when mixt with small coal: whereby as Dr. *Jorden* assures us whole heaps of coals mixt with this sort of *Pyrites* (call'd *metall coals*) have taken fire at *Puddle wharfe* in *London*, and at *New-Castle*, and been burnt before their time.

55. Whence 'tis plain how likely it is that the Coal pits at *Wednesbury* &c. take fire of themselves, in which there is so much *Sulphur* which sublimes by the heat of the fire from the *pyrites* in the coal, that there lyes great quantities of it upon the burnt surface of the earth a fire underneath, in its true colour fixt to the *Cinders* and *foxstone*, all striated, I suppose by the ascent of the heat and smoak: out of which, if not already so much burnt, as to be become effete, possibly some advantage might be made, either by casting it, as it is into rolls or *Magdaleons*, by making great quantities of *flowers of brimstone*, or oile of *Sulphur per Campanam*: with which, where there is mixt a due proportion of *Niter*, there is the true *natural Gunpowder* in all probability produced, that when fir'd, has much greater force and noise than the *artificial*: for 'tis thjs no question when fir'd, and pent up within the earth, that puts it into those convulsions we call *Earthquakes*; such as happen'd in this *County* in the *Christmasts* time An. 1677 about 11

^a *Metall. Martis* p. 37. ^c Dr. *Peawer's Microscop. Observ.* p. 62, 63. ^d *Jorden of Mineral waters* chap. 14 in fine.

at

at night which came with a noise plainly to beheard before the shaking: it was considerable about *Willenball* near *Wolverhampton*; but very short, giving the earth but one shock, and moving (as they thought by the noise) from *South* to *North*. The same *Earthquake* was felt also at *Hanbury* upon the confines of *Darbyshire*, but as Mr. *Villiers* of that *Town*, a sober grave *Gent.* assured me, it happen'd there about 8 in the evening, which argues its motion must be from *East* to *West*, and very flow; or else not the same *earthquake*; neither whereof can certainly be coucluded, for that no body knows in what *Mæanders*, the caverns of the earth run; nor with what obstacles it might meet by the way, to retard and prolong the time of its motion.

56. *Nov: 4. 1678* there happend another *Earthquake* in this *County*, it was most dreadfull of any place I could hear of, about *Brewood*, whither it came with a noise, not like a clap, but a flat rumbleing distant *Thunder*, yet so great that it wakened people in their beds, at 11 a clock by the night, about what time it began, and continued till towards *two* in the morning; the earth moving very sensibly three times, at about $\frac{1}{2}$ an hours distance, each motion from the other. The night following there happen'd another, but not so great, yet not without noise, as I suppose very few doe; if any, it must be where the *fire damp* kindles so deep in the earth, that the explosion cannot be heard through so dense a body as it may be thence to the *superficies*, though the convulsion may be sensible. That which was felt at *Oxon*: about 7 in the morning *Sept: 17. 1683*, was also accompanied with a noise like distant *Thunder*, the murmuring sound (as it appeared to me) preceding the shock about two *Seconds* of time. *Octob: 9th* in the same year, about eleven at night there happen'd another in *Staffordshire* and all the adjoining *Counties*, which as I have it from good hands, was not without a noise neither; whence I conclude that few or none happen without, and that all of them have their origin from the kindling and explosion of *fire-damps*; though I doe not remember I must confesse that the *earthquake* at *Bushbury*, that fell out there (they will tell you upon opening the *Friars Tomb*) within the memory of man (for I spake with one that remember'd it well) had any that attended it, though it was so considerable as to make the pewter clatter in their houses, and the great pot they boyled their meat in, at *Bushbury* hall, to leap up from the ground: but this indeed needed not any great explosion, for it was so very peculiar, that it did not extend beyond the bounds of the parish; nor was it valuable any where, but about the *Church*.

57. If

57. If it be objected that *Air* is so necessary to the being and duration of *fire*, that a subterranean one, though actually kindled, could hardly continue long without extinction, and surely much less be kindled there. And secondly that if these *noises* which attend *earthquakes*, proceed from the kindling and explosion of *natural Gunpowder* made up of *coal*, *Sulphur*, and *niter*, as the *artificial* is; we should find it some where, or some time or other, break forth of the earth and shew it self, which yet we hear little or nothing of. And thirdly that *earthquakes* many times happen, where one at least, if not more of these materials, were never known to be; as at *Oxford* above mention'd; and that therefore in such places however, it is by no means likely, that *earthquakes* should proceed from the assigned causes. To the first I answer, that *Air* is so unnecessary to that sort of fire kindled from the principles, and in the circumstances abovemention'd, that we find it in the relation of the *fire damp*s at *Mostyn*, they never began to appear till the *Workmen* perceiv'd a want of *Air*, that being esteem'd a great nourisher, as the *immission* of *Air*, from above, a destroyer of them. Which may give an account in some measure for the *perpetual Lamps* of the *ancients* shut close up in *Tombs* or other *subterranean Cells*, which could have no communication with *external Air*, and were preserved by it, the *oile* perhaps being somewhat of this kind, all *Histories* agreeing that they were all extinguish't presently upon the least *immission* of *external Air*. Not to mention that our *hot Bathes* may be also accounted for, this way, this sort of fire heating water as well as any other, as was plain at *Mostyn*, and as it is at *Mount Hecla* or *Hecklesfield* in the cold *Country* of *Ice-land*, which sometimes throws forth scolding hot water, and from whence 'tis they have springs so hot in that *Country*, that in a quarter of an hour they will sufficiently boyle great pieces of beef^h.

58. And to the second it may be replyed, that though in most cold regions, where the Earth is not so plentifully stored with *Minerals* as 'tis in the hot; and where the pores of it are shut in the time of earthquakes, which commonly happen here toward winter, and most commonly upon frosts, these fires seldom or never break out, but in all probability are extinguish't after some time with their owne filthy smoak: yet that in *forraigne Countreys* of a warmer *Climat*, where the earth is commonly replenish't with *Minerals*, and the pores of it always open with *heat*; there is nothing a more certain attendant of an *earthquake*, than an eruption of fire somewhere within its verge. The *earthquakes* that so fre-

^e *Philosoph. Transact.* Numb. 136. p. 897. and 898. ^h *Mr Collins's account of Ice-land.* p. 78.

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quently (that I say not always) precede the eruptions of flaming *Mountains*, make good this; whereof *Pliny* who was of this opinion, and compares *Earthquakes* to *thunder*ⁱ, gives us an extraordinary instance which fell out near *Rome*, *Lucius Martius* and *Sex. Julius* being *Consuls*; when two *Mountains* were seen to assault one another with a very great *noise*, smoak and fire issuing from between them at their congress and regrefs, a multitude of *Roman Knights*, their *servants*, and *Travellers*, looking on the while from the *Æmylian way*^k. And all *Vulcano's* indeed upon their greatest eruptions have *earthquakes* preceding them, as whoever consults those of *Vesuvius* or *Ætna*, whether ancient or modern, will always find them prefaced with such passages as these; *præcedente borrido. terræmotu: post ingentes terræ concussiones*: whereof there fell out a very terrible example March 8. 1669, when *Ætna* took fire after a most dreadful earthquake. The like happen'd not long after in the *Isle de la Palma*, one of the *Canary's* Nov. 13. 1677. where about a $\frac{1}{2}$ of an hour before Sun set, an *earthquake* began which continued to the 17th with a thundering noise in the bowels of the earth, more especially in the plain call'd the *Canios*; where, and in divers other places, the earth open'd several *moutbes*, to the number of 18. whence with the same thundering noise, issued *fire* and *smoak*, melted *rocks*, and *fiery stones*, which it threw so high into the *Air*, that the people lost sight of them^m. *Mount Hecla* too, which is always burning more or less, has also in proportion as constant an *earthquake* attends it, as *Martineir* informs us, who with his *companion* and two *guides* travel'd up it about half a league, when it was reckon'd pretty quiet, yet found it then to tremble so under their feet, and heard such a strange crashing and rumbling within, that they were glad to get back again as fast as they could, for fear of being swallowedⁿ; and if it trembled in this manner in its quietest condition, what must it doe when it burns with its greatest vehemence? when, as we find it in the *Geologia Norwegica*, it makes a terrible rumbling like loud thunder, whereas in other *Counties* where there is less exuberance of matter, these explosions (which are ratably weaker) must be strictly pent up to make an *earthquake*, which let loose through any *ductus* into the open *Air*, would cause no such matter, and this I take to be the reason why we have no such *fiery eruptions* upon *earthquakes* here, as they have abroad.

59. 'Tis true indeed that about *Oxford* we have no such matter as *coal* that yet we know of, and yet have *earthquakes* now and then

ⁱ *C. Plinii 2. li. Hist. Nat. Lib. 2. cap. 79.* ^k *Ibid. Lib. 2. cap. 83.* ^l *Iob. Alphons. Borelli de Incendiis Ætnæ cap. 4.* ^m *Leffio Cistler. de potent. resist. p. 52. 53.* ⁿ *Martineir's Northern voyage p. 134.*

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which

which was the third objection; and is answer'd already by Dr. Power § 54, where He says that the *golden Marchasit* or *brass lumps* moistned with water, are sufficient to produce heats and actual fire without *coal*; to which add *niter*, of both which there is plenty about *Oxford*, and we have sufficient materials to supply for an *earthquake*, and the *noise* too, that commonly attends them. Beside the *pyrites* or *Marchasits* about *Oxford* lye generally, if not always, in a dark blew clay, which after further concoction of many *Ages* perhaps many come to be *coal*: however as it is, it seems to be somewhat like the *laming* that lyes between the *measures* of *coal*, which according to one opinion § 54 was look't upon as one of the *materials* as productive of *heat* and *fire*, as any of the rest: which if so, this *blew clay* perhaps may supply the place of *coal* in the process of *nature* for begetting an *earthquake*, as perfectly and well, as if *coal* were at hand, though I must confess were there any other circumstances favorable, this would induce one to think *coal* could not be far off. Which brings me

60. Lastly, to the *signes* whereby they find *coal*, and the methods they use in finding and digging them; which though they properly indeed belong to the *Chapter of Arts*, yet for the reasons above mention'd, I shall treat of them here. For finding of *coal*, if in a place where never any have bin discover'd, they first consult the *springs* if any near, to see whether they can find any *coal water* i. e. an acid water having a *Car*, or yellow sediment: above ground they look for a *smut* as they call it, i. e. a friable black earth: when they meet with either of these, they reckon themselves under circumstances tolerably good for the finding of *coal*, which prompt them next either to *boar* or *sink a pit*; the former whereof if they think the *coal* lyes shallow, is the better of the two; but if it lye deep, it becomes almost as expensive as *sinking a pit*, the drawing the rods of the *Augre* expending very much time, in regard they are many, and that it must be done frequently; besides its leaving the *Searcher* under great uncertainties, in respect of the course of the *coal*, the *draining* it, its *goodness* and *thickness*; all which are very considerable in the *search* of *coal*. Whereas by *sinking*, all these uncertainties are removed, only the *charge* is certain, for that in all *virgin grounds* where the *coal* lyes intire and untouch't, there is always a great *affluence* of *water*, which many times brings the *unfortunat inquisitor*, not only under a necessity of a great expence for *drawing* of *water*, but sometimes too, to let Himself know that the work can never turn to account: However of the two, this is reckon'd the better, for the reasons above mention'd.

61. As it is also where search is made, where *coal* is already known to be, either by their appearing to the day any where

where, as by *Rivers* sides, or having been dug not far off: the *ranges* of the *Metalls* already known, and their *distances*, with their *diping*, and the *rise* of *ground* above them, giving directions almost infallibly where they shall set down their *pit*. For these being known, 'tis no great difficulty to judg whereabout they'l *crop* out; that which lyes lowest, comeing forth furthest; and that which uppermost, nighest to the place foreknown: So that supposing the worst that can befall the *Searcher* in the use of this *Method*, that He should find Himself mistaken in setting down his *Pit*, and meet either with a *Metal* that lyes above, or under the *coal*; in the first case all He has to doe, is to move in proportion so much backward, and in the latter so much forward, and He sinks his *pit* just upon it. In finding of *coal* the most skillfull *Workmen* give much heed to the *roof*, whereby they will not only tell what *mine* they are over, but the quality of the *coal* too, as to its goodness or badness; a *roof* of loose rotten stone without any certain *beding* or *diping*, being a certain *Index* of ill rotten *coal*; as a *firmer* *roof*, *vice versa*, is of a *good one*.

62. When the *coal* is found, they work it according to the greater or lesser *diping*: if it be a *rearing mine* or *edg-coal* as some call it, cutting the *superficies* of the earth at *right angles*, if yet of a sufficient thickness to be thought worth working at all, they sink a *pit* as deep as the water will give leave, and work along the *row* or *streek* as far as they think convenient: if it *rise* or *crop* with the ascent of a hill, and is fit for a *footrill*, as at *Apedale*, they follow the *row* or *side basset* of the *coal*, as far as the *want* of *Air* will permit them, and at due distances make *setings up* according to the *cropping* of the *coal*, i. e. as other *Coal* works are dug with a *side dip*, so these in an *up dip*. The *footrill* at *Apedale* is driven in thus upon a *level* about 200 yards, in which space there are 12 *setings up*, having *pillars* at each side which they call *ribs*, between which they must carry up their work, though the *coal* hath *leiths* or *joynts* in it that run otherways, according to which yet they cannot work it as they doe in the *Flat* and *hanging mines*; which they divide into partitions or *wallings* as they call them, more or less in number according as the *mine dips*: if but little, which they call a *flat mine*, the *wallings* are so many the more, in regard it is workable a great way, before either the *Mine* will *dip* to the *water*, or *crop* to the *grafs*: if a *hanging mine*, so many the less, in proportion likewise to the *diping*.

63. I went down into one of these *hanging mines* at *Hardingswood* belonging to the aforementioned Mr. *Poole* of this *County*, where He shewed me a *level* of 35 yards of *roach* as it lay in an oblique *diping* line above the *water*, which came to 35 foot perpendicular,

dicular, dipping one foot to every yard: in this *Level* He had five *wallings* or *Stauls*, out of which they dug the *coal* in great blocks; between the *wallings* there were *ribbs* left, and passages through them called *thurlings*, which give convenience of *Air*, and passage for the *coal* out of one *walling* into another, which in all *coal mines* stand thick or thin, partly according to the substance of the *coal*; most commonly thinner in the lower *wallings*, which are therefore consequently wider; and thicker in the upper *wallings*, which must be therefore narrower, the *coal* of the upper *wallings* being generally nasser; *i. e.* softer and more friable than that of the lower *wallings*, which are more firme and solid: whence they compare the *coal* of the upper *wallings* to brush wood, as burning swifter, sweeter, and clear from soot; and that of the lower *wallings* to hard wood, as being more solid and lasting, though making more soot. But in this point they mind not so much the *coal* as the *roof*, the *wallings* or *stauls* being made narrower or wider, according as that is found better or worse, which sometimes being nothing but a *bass*, full of *joynts*; and perhaps soluble in the *Air*, they are forced then to leave a yard of *coal* that lyes next under it for a *roof*, and make their *wallings* narrow: whereas on the contrary where there is a *strong rock* next the *coal*, and no *bass*, they will then venture their *roof* so far sometimes as to make their *wallings* 8 or 9 yards wide, which *roof* of *rock* puts me in mind that tis time to shut up this tedious discourse of *coal*, and proceed to the succeeding *Chapter* of *Stone*.

64. But before I enter on it, perhaps it may not be amiss to add a word or two concerning the Methods they use in laying their coales *dry*, when any thing troubled with *water*, which because they are not so frequently, or so much, as in some other *Countrys*, they are not forced upon such variety of expensive *Engines*. The ordinary ways they use are by *Sough* or by *Gin*. The former when they have the advantage of fall of ground enough, which they try by the *Level*, and then either dig a trench open to the surface, like a great ditch as deep as the *coale*, or drive in a *cuniculus* about a yard *diameter* to the pavement (if they can) of the lowest dip, of the lowest *measure* of *coale*, which without more adoe will lay all the *coal* so dry, toward the *Crop*, that it may be workt without difficulty. But when they have no fall, they draw it up by *Gin*, which is made either bigger, or less, according to the exigence of the work; the less they call a *Iack*, which is either turned by *Men*, as requiring less strength; or by *Horses*, according as the *Owner* thinks most fit. But the *Gin* is always workt by *Horses*, which likewise is two-fold, either by *chain*, or by *barrells*: the chain is made with leather *suckers* upon

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it at little distances, which bring up water, and discharge themselves into a *trough* set near the Eye of the pit, whence tis carryed off by a small trench. The *Gin* by *Barrells*, whereof always one goes up as the other goes downe, will also void great quantities of water, provided they be constantly followed day and night, else upon the least neglect, the water will get such head, that much time will be spent before it can be master'd again, which *Engines* being so common, and so easy of apprehension, as not to deserve a *Cut*, or the *Readers* view; I have saved my self the expence, and Him the trouble, both of the one and th' other.

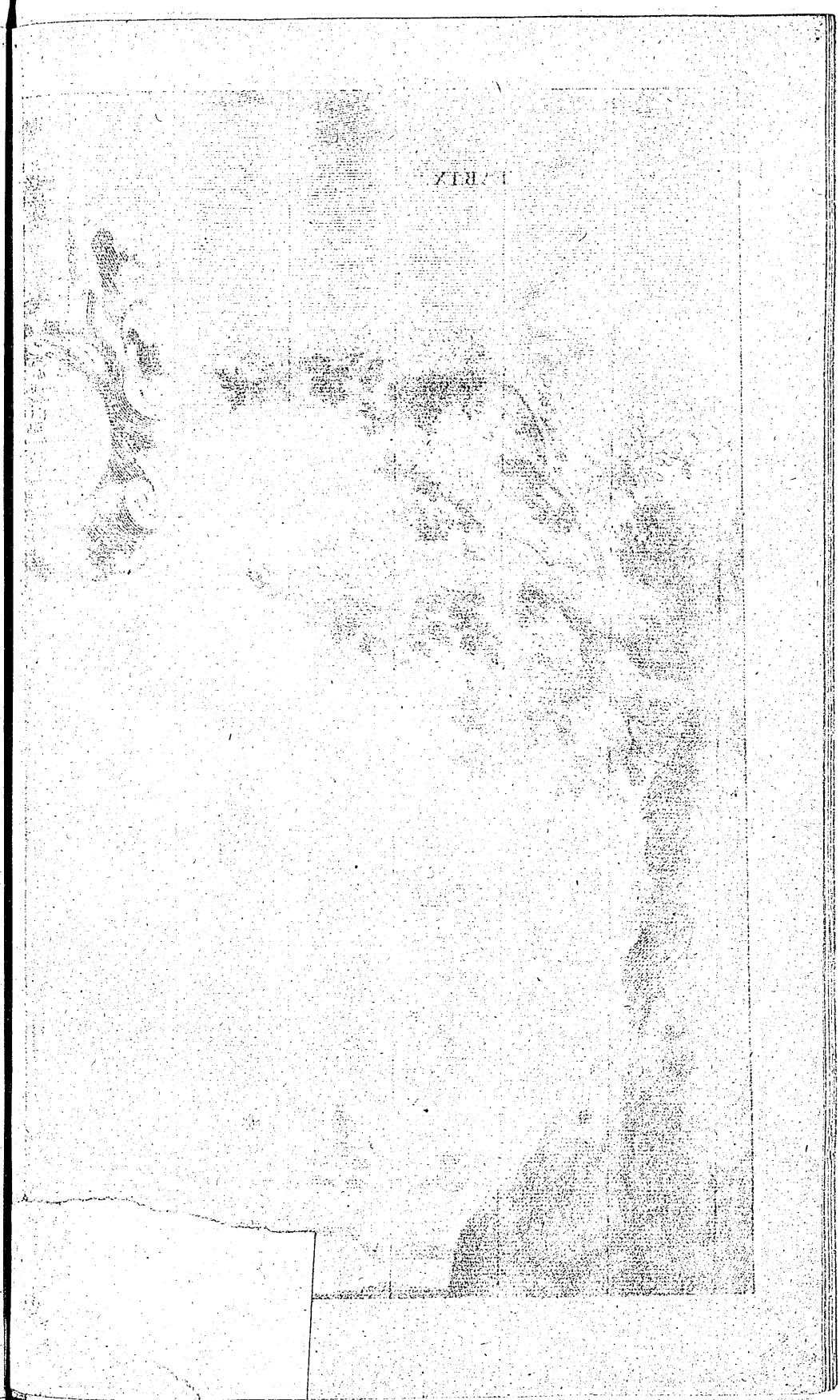
CHAP. IV.

Of Stones.

1. **I**N the two preceding Chapters, having run through the *Mineralia media*; the *Earths, Salts, Sulphurs,* and *Bitumens*; the order of *Nature* next requires me to descend to the *Stones* and *Metalls*, the two remaining *species* of the *Mineral Kingdom*, which will be both absolv'd in this, and the following Chapter. How all *stones* were chiefly made out of *Salts* with a mixture of *earths* and *sulphurs*, was shewn in generall, in the *History of Oxfordshire*^a, I shall only add here the particular *Method* nature seems to use in the production of them, and then consider the several *species* worthy notice in this *County*. It has been an opinion that challenges no great seniority, that *Stones* are coagulations of *Salts* and *earths*, which if finely mixt, sublim'd and percolated by the means of *heat*, and after condensed by *cold*, make a *transparent stone*; and if but grossly mixt with little or no percolation, an *opake* one; wherein though I cannot deny but there may be some-what of truth, yet I think it will be more particular, and more home to the business, if we further add, that this *coagulum* or petrification is rather made upon the meeting of the solutions of *acid* and *Alcalizat salts*; and that these doe compound transparent, semiopake, and opake stones, according as they are more or less mixt with *sulphurs*, and *earths*, of different finenesses and purifications.

2. And this I take to be very probable, because we know of no *things* in nature that unite so strictly as these *two* doe, making a *coagulum* in bodies that at first sight seem very unlikely to performe any such matter; witness the *offa alba* of *Helmont*, a thick gross substance, far from the nature of a *liquid*, made out of the spirits of *wine* and *urin* highly *rectify'd*; and another such like *Offa* made of the spirits of *Vitriol* and *Salt*, by a solution of *Saturne* made with distill'd *Vinegar*^b; to which add the *coagulum* made out of equal quantities of spirit of *Sal Armeniac* and spirit of *Wine* mixt, and shaken together in a *Viol*; and all these upon union of the *acids, alcalis,* and *sulphurs*, or whatever other principles they be, that constitute these bodies. Thus *transparent stones* having little or nothing of those terrestrieties the *opake* ones have; seem to be made of pure solutions of such like *salts*, and transparent *Sulphurs*, or *Ambers*,

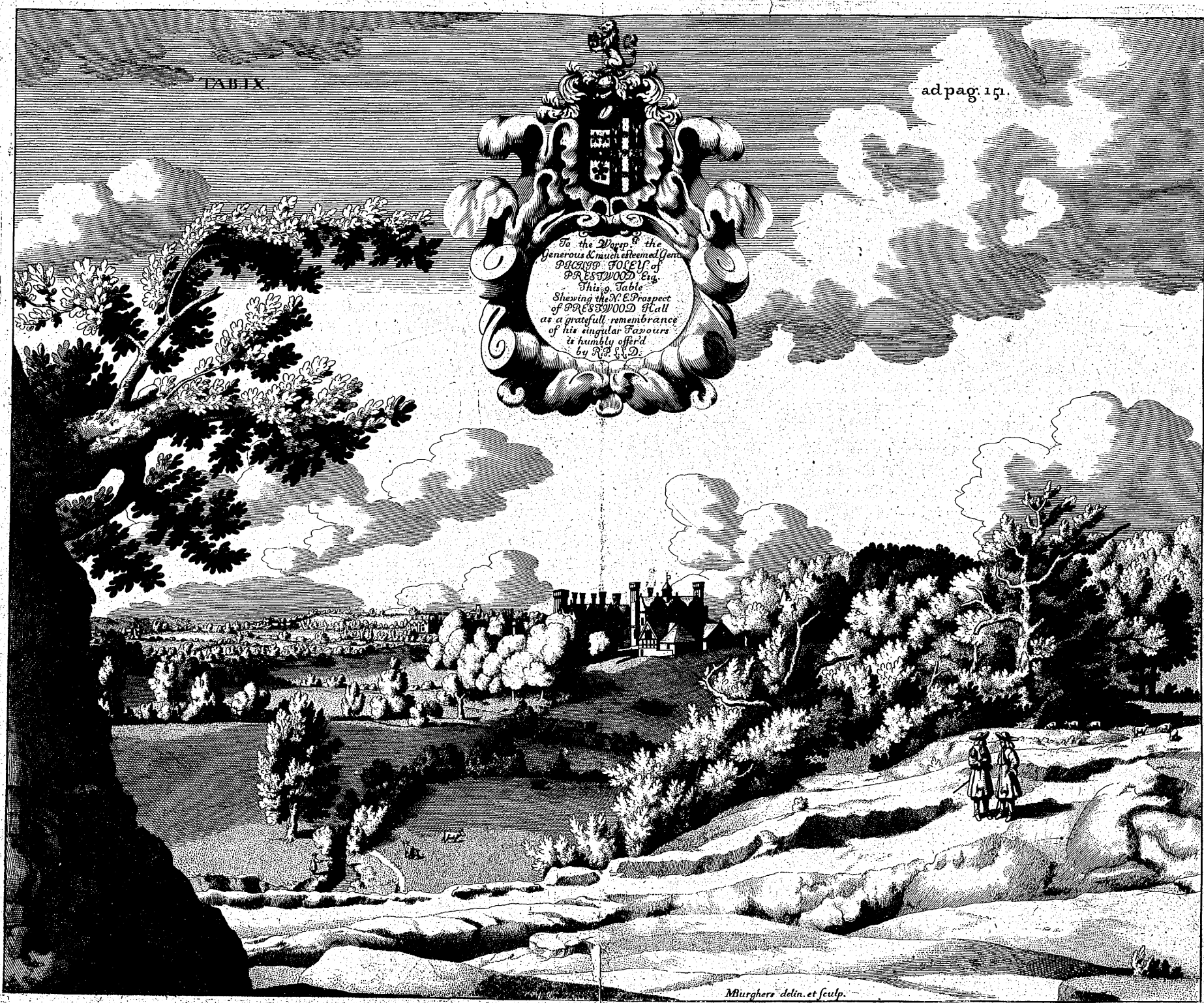
^a Nat. Hist. of Oxfordsh. chap. 2. §. 25. ^b Philosoph. Transact. Numb. 117. pag. 408.



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TABIX

ad pag. 15.



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Chap. IV. Of STAFFORD-SHIRE. 151

all purified by filtrations through the closest colanders, and then fixt upon meeting. Thus a *calcarious* or *Tartarious Salt* meeting with a pure solution of *Sal gemma*, and *white-ambrine Sulphur* or *bitumen*, 'tis like produces an *Adamant* or *Diamond*. The same *alcali's* meeting with a pure solution of *native Cinnaber* make a *Ruby*, with a solution of *blew vitriol* (for there is a natural blew Vitriol as well as an artificial) a *Saphir*, with solution of *green vitriol* a *Smaragd* or *Emrauld*, with solution of *Orpiment* a *Topaz*, and so for stones of all other intermediat colours, or mixt of these in proportion as they partake more or less of one or the other. But such stones as these I shall have little occasion to trouble the *Reader* with in particular, there being but few *transparent* found in this *County*; I shall therefore in the first place consider the *opaque* ones, and especially such first as hold any of these *principles* more signally than others: then 2. such as serve to supply the *necessities* of Mankind: and lastly such, whether *opaque* or *transparent*, that serve for the ornament or delight, either of his person, or buildings.

3. On the banks of the River *Stour* between *Prestwood* and *Stourton Castle* (a place remarkable for the birth of *Cardinal Poole*) now both of them the Seats of the virtuous and much honored *Philip Foley* of *Prestwood* Esq; both here represented in *Prospect Tab. 9.* as a gratefull recognition of his eminent favours: On the banks I say of that river, about mid-way between the aforesaid places, I was shewn a large rock at the foot of a hill, at which it has been observed that birds doe lye frequently pecking and licking it, and 'tis supposed for the *salt* they find in it: that many birds delight in licking of *Salt*, especially pidgeons, is very certain, but that there is any in this *rock* I must confess I could not find, though I endeavour'd it nicely, perhaps they may rather come for a sort of *gravel* in this rock, that may be fitter than ordinary for breaking the corn they have eaten, which in such *Animals* as these that have no *teeth*, is perform'd in the gizzard by the help of gravel: yet neither can I conclude that there is no *salt* in the rock, because I could not tast it, for I very well know that most other *animals* are nicer in their *Senses* (having noway debauch't them) than *Mankind* is, so that nothing hinders but the *birds* may be sensible of a *salt* in the rock, though I was not: if there be such a *salt*, in all probability it must be a good *fire-stone*, such as they use for the *Heartbs* of their *Iron furnaces*; and if so, were the *Iron-works* at that height in this *Country*, they were formerly, this rock could have never fallen into a better hand, than its present *Proprietor*.

4. For there is nothing in nature, except *Talc* and *Amiantus*, that

that supports the force of fire equally to *Salts*, whence 'tis that some sorts of stones endure fire much better than others, when they are well fated with *Salts*, and have but little *sulphur*, and the parts of those *salts* well adapted to one another without *cavities*; for wherever there are interstices betwixt the parts, there must be *rarefactions* upon the advent of *fire*, whence follows flawing at least, if not flying of the stone, neither of which can be endured in a *furnace*. The stone most prized for this purpose, of any I could hear of all over the *County*, is a sort they dig on *Whiston moor*, not far from *Chedle*, in the *Moorlands*; and at *Huntington* upon the edge of *Cank-wood*; these they trye first in their *Forge* fires; to see whether they will flaw or fly or no; and if the stone of any quarry pass two or three tryals, they then conclude upon the whole, and take it thenceforward for good, without further tryal: which is all concerning it: but that the best stone for this purpose, is generally observed to lye in *Clay*; and that if the texture of it happen not to be close and firme, it is apt to run upon *frosts* and *moist* weather; of which sort I take the stone to be, call'd *Glum-metall*, about *Brad-wall* in the *Moorelands*, which as I was told by the ingenious *Ralph Sneyd* Esq; though as hard to digg as any rock; yet the Air, rains, and frosts, will mollify it so; that it will run as if it were a *natural Lime*, and no question would they use it, must be good for land. And this brings me next to consider.

5. The *Limestone* rocks, whereof to their great benefit they have plenty enough almost in all parts of the *County*, it being a sort of stone not so much usefull here for their *buildings*, as for *fertilizing* their heathy, gorsy, and broomy lands; for though when burnt, it part with most of its *sulphur*, yet at the same time it admits fiery particles, which upon *moisture*, together with its *salt* now clear'd from the bonds of *Sulphur*, it freely dispenses to the cold poor ground, giving it at the same time *warinth*, and *saltiness*, the cheif principles of vegetation; forcing the ground to exert it self to so prodigious a rate (which is its only fault) that it sometimes beggers it for ever after: wherein they say *marling* is to be prefer'd before it, that cherishing and improving the innate strength of the Land, and continuing so to doe for a long time; this only hightening the present vigour, but preying upon it (like *brandy* upon the *Spirits* of an *Animal*) and quite extinguishing it in a little time. However it must needs be good for their cold, moist, black, bituminous earths; whereof there is great quantities in the *Moors* of this *County*, which without it would scarce produce any thing at all.

6. It is dug in great plenty upon the banks of *Dove*, from *Beresford* downward, and ha's been reputed to give the meddows on that river their great fertility; but I think it can doe but little before 'tis burnt

burnt, its salts being then clog'd and fetter'd with *Sulphur*, a better and truer cause of that fertility having been assigned before, Chap. 2. § 2. of this book.

6. At *Waterfall* also on this side the *County*, it rises in *tables* or *slats* about two inches thick; of so very fine a grain and close texture that it polishes like *Marble*, whereof in the *arbours* up and down the *County* I found tables made of it: but it is so far from a wonder that *Lime-stone* should be *marble*; that most *marble* (that I say not all) will burne to *Lime*, and is consequently a *Limestone*, though all *Limestone* be not *marble*. They dig *Limestone* also at *Madeley* on the other side the *Moorelands* in the Lordship of the Worshipfull *Iohn Offley* Esq; beside good *coal*, and *Marle*, which should have been mention'd before: but the best of all is said to be in the Southern parts of the *County*, in *Hurstfield* within the *Manor* of *Sedgley* belonging to the Honorable *William Ward* Esq; and in the old *Park* near *Dudley Castle* belonging to the right Honorable *Edward Lord Ward*; and all about *Walsall*, particularly at *Rusball*, in the lands of the learned *Henry Legh* Esq;

7. Where it lyes in beds for the most part *Horizontally*, and is broken up with *Iron* wedges knockt in at the partitions with great sledges, and prized up with great *leavers* with rings round them, to stay the feet of the *Workmen* who get upon them, whereof some weigh at least 150 pounds: Notwithstanding which vast force the *stones* will not rise, unless softened by fire, which upon that account they are constrain'd to make on it. When they have gotten the *stone*, they burn it in oblong pits, made in the ground, about seven yards long, 3 wide, and but 6 or 7 foot deep at the *but* of the pit: wherein first they lay a little wood or gorse to keep the *coal* from the ground, which is laid under the *stone*, the first *stratum* but thin, not above 3 inches thick; then a *stratum* of *stone* about 6 inches deep; the next floor of *coal* they make 10 inches thick, and the layer of *stone* above that, 18 inches: the next of *coal* above that, is usually about a foot thick, and the floor of *stone* over it double the thickness; then the 4 layer of *coal* is but 10 inches, and the 4 of *stone* but 18; then above all another *stratum* of *coal* about 2 or 3 inches, which they cover with *parget* or *mortar*, made with slak't lime and water to keep in the heat: the *coal* laid in this manner with the *stone* S. S. burning it gradually into *Lime* in about a weeks time. Which sort of *Lime pit* ha's this peculiar convenience above all others I ever yet saw, that they can take away the *Lime* that is first burnt while the rest is on fire, and can make up the *but* of the *pit*, whilst 'tis yet burning at the *mouth*.

8. Beside, in this Method and manner of burning of *Limestone*

the *Workmen* seem not to run the hazard other *Lime burners* doe, who burn it with wood after the common practise of other *Countries*; who if they keep not their fire still forward as they call it, but suffer it to slacken never so little before the *stone* is quite calcined, shall never after be able to make *Lime* of them at all: for if the *flame* which has once open'd the pores of the *stone* be but checkt a little before the work is finisht, the pores will some way or other so close themselves up, and the whole matter so sink into a lump, that twenty times the fuel that would have kept them open, and the mass of stone asunder, will never recover them so as admit the *flame* again, which cannot now rise amongst the *stones*, there being none of those *interstices* now left either in the body of the *stone* it self, or between them, for it to pass through as before. Whereas in this way of *Lime burning*, by *stratification*, as it seems morally impossible for the *Workman* to be so negligent as to slacken a fire which still burns on of it self; so it seems naturally so, that a mass of *stone* should ever so fall down into a lump, being thus divided by *coal*, as either way to be render'd incapable of being made into *Lime*.

9. Next the stones holding a signal quantity of *Salt*, I proceed to such as have a mixture of *Sulphur*, and such are all that with a steel, or by a quick attrition with any other fit body, will strike fire, or kindle its parts into *sparks*, all which by the *Naturalists* are aptly enough stiled *pyrites*; under which *genus* we may reckon *Sands*, *pebbles*, and *Marchasits*, of each of which, as many as I find any way remarkable, as breisly as may be. And first of *sands*, which says *Ferrante Imperato* are the least form of a stone^e; whereof I met with a sort at *Bilston* or *Bilson* that I think is so indeed, so very fine that it is hardly palpable, it is of a deep orange colour, and is sent for by *Artists* living at a great distance, and used by them as a *spaud* to cast *Metalls* with. Other *sands* of use I met with none, but *sands* for the *glass-houses*, whereof I was told of one that excell'd the rest, dug somewhere near *West Bromwich*; and a sort of *sand* they have at *Gaston* in the parish of *Ipston*, which being first wash't from the dirt, then dried and sifted from the smaller sand, and in another sieve from the pebbles it has amongst it, they then use it, being strewed upon a greasy board, as an excellent *sand* to whet their *Sithes*, whence it has the denomination of *Sithe-Sand*. Unless we may reckon a sort of friable stone of a deep yellow colour found *sparsum* in lumps amongst the stiffest and fattest *Marles* at *Eardley* in the parish of *Audley*, amongst the *sands*: which I think I need not scruple much to doe, since I find them to crumble between the fingers, yet so very fine are its parts that at the same

^e Dell' Hist. naturale Lib 1. cap. 21. sub finem.

time

time they give a colour, and as the ingenious *Robert Wilmot* of *Eardley* Esq; in whose grounds they are found, sent we word, are some sorts of them used by the *painters*, and by the *workmen* all call'd by the general name of *Rosemary-stones*.

10. What these should be, and how come to be produced in a substance of so quite a different nature from them, as a stiff fat *Marle*; was a *problem* that at first sight gave me some trouble: till remembering that in *Oxfordshire* I met with much such *yellow lumps* growing *sparsum* here and there amongst the *Chalk* in most of the pits of the *Chiltern Country*, there call'd *Iron moulds*^a; and that the learned *Martin Lister* Esq; mentions the same found in *Chalk* by the name of *Rust balls* near *Foulmore* in *Cambridg-shire*, and in the *Woods* in *Yorkshire*, which upon due calcination would apply to the *Magnet*. Calling these things to mind, and that *chalk* was a substance as quite different from the *Rust balls* and *Iron moulds*, as *Marle* could be from these *Rosemary stones*, and as unlikely to produce any such effect: I resolv'd to trye both the one and the other, according to the prescription of *Agricola* cited by Mr. *Lister*; which I did with that success, that I found within an hour that both the *Iron moulds* and *Rosemary stones* did acknowledg the *Magnet*; whence 'tis plain that notwithstanding they were all found in beds of such dissimilar substances, that yet they are all certainly *Iron-Ores*, and these our *Rosemary stones*, of the *arenaceous* kind; part whereof upon *ignition* being made into *Iron*, owned it self such upon application of the *Magnet*.

11. That *pebbles* as well as *sands* are also *pyrites*, beside their strikeing fire, we have this further evidence, that some *pebbles* at least are made out of *Sand*; wherefore if *sands* themselves are *pyrites*, the *pebbles* made of them must be so too. Now that some *pebbles* are made of *sand*, I was amply satisfi'd at *Bentley hall* the seat of the Worshipfull *Tho: Lane* Esq; (of which more hereafter) where I was shewn a large sort of oval *pebbles* of a reddish colour, dug up with the *brick-earth* near the *dog-kennel* poole, whose outward coats were hard and smooth, but within containing only a bulk of *sand* equal to the intended *bigness* of the *stone*; some of them having little more than an outward *shell*; others harden'd half way; others $\frac{2}{3}$ stone, and *sand* only at the *center*; and some quite petrified; the *induration* seeming to increase gradually *inward* in process of time, till at length the *petrification* is completed in the *Center*; just as I found it in the *round flints* in *Oxfordshire*^f, which contain *chalk* within, and have coats thicker and thinner according to the seniority of their induration. As I suppose also

^a Nat. Hist. of Oxfordsh. chap. 3. § 51. ^e Mart. Lister de font. Med. Angl. cap. 2. §. 9. ^f Nat. Hist. of Oxfordsh. chap. 5. §. 180.

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those white pebbles have, that contain a mealy substance in them, found about *Treasle*, which I take to be the *Geodes* of *Dioscorides*, or *Ætites Plinii*, 4th generis, *Tapbiusius dictus*°. Nor are these the only *Examples* that I have seen of this kind, for I have now a stone by me of a dark reddish colour, brought out of *Northamptonshire* and given me by the learned Dr. *Robert Pit* fellow of *Wadham College* and of the *Royal Society*, that has a firme coat without, yet is fill'd up within, with nothing but a loose sand; which whether a *pebble* or no, though I cannot safely say, yet I think verily I may, that it must be produced after the same manner.

12. Yet Nature does not seem to use the same *process*, in production of *stones* though of the same *kind* and *colour*, for in a ground call'd *Castle-croft* Northward of *Nether-Pen* in a red clay, the *pebbles* sensibly grow of the same colour with the earth about, but always commence their *induration* at the *center*, being gradually softer toward the out side, ending in a substance nearer to a *liquid* than the earth at some distance, which is more agreeable to the *Hypothesis* of all *stones* having been once *liquids*, and of their *augmentation* by *juxta position*. The latter whereof seems to be strongly confirmed, by a *firm pebble* that was shewn me by my worthy friend the *Worshipfull Francis Wolferstan Esq*; having a smooth hole through it about the bigness of a *Rye-straw*, out of which He pick't the intire rind of some sort of wood which was rotted away, whence He rationally collected that the *pebble* must have grown round it. The same worthy *Gentleman* still prosecuting the same *argument*, sent me not long after another *pebble* with an incrustation of clay and sand mixt, adhering to it; whereby it was plain that stones doe contract other *substances* to them, and gradually convert them into their owne kind; and hence He most ingeniously shewed too, how it comes to pass, that even the *pebble* (as this was) is frequently diversify'd with different colours, these being the *stones* of all others most lyable to be removed from place to place, whence they contract matter to them of different textures and qualities, and so consequently thence, are of *various colours*.

13. Whence in all probability the opaque pebbles on *Satnall hills*, and all over *Cank-wood* have their variety of colours, these being places of great action, and so the stones the more likely to have frequent disturbance; than which I never saw any more pleasantly variegated, or fitter for *Cabinets*, *hasts of knives*, or other *Lapidaries* work. Of this sort I was shewn severall finely polish'd by the virtuous and most ingenious *Iane Lady Gerard*; and had others given me by the hopefull young *Gent. Francis Wolferstan*

¶ C. Plinii 2 di. Hist. Nat. Lib. 36. cap. 21.

jun.

jun. and his virtuous Sister Ms. *Ann*, of their owne gathering about *Statfold*; I had also another presented me with blewish veins, by a fair Lady at *Lyswis*: which all took so specious and elegant a gloss, that they seem'd at least to equal, if not surpass the *Achat*. But no more of these here, they being so very fine that they should rather have been reckon'd amongst the stones of *Ornament*. Nor have I more to add concerning this sort of stones, but that in the hollow way between the hills on *Weeford heath*, as you pass between *Swynsen* and *Cannel yate*, there lye divers little heaps of them, and one great one at the top of the hill at *Weeford Park* corner, which according to the tradition of the *Country*, was placed there in memory of a *Bishop* of *Lichfield*, who rideing thither with a large attendance, was set upon by *Robbers*; and *Himself* and all his men being slain, that these heaps of *stones* were layd where each dead body was found: whence by the *Country* people and *travellers* they are call'd the *Bishops* stones. But this is merely a fable of them, the truth follows, as I received it from the learned and judicious *Antiquary Sr. Willam Dugdale Kt. Garter King at Armes*.

14. About the later end of the raigne of King *Henry the 8.* or shortly after, *John Vesly* then *Bishop* of *Exeter*, a man of a publick spirit, and borne close by, at *Sutton Cosfield* in *Warwickshire*, resolving with himself to become a *benefactor* to that place and the parts adjacent, procured for that *towne* not only a *Market* and *fairs*, but got it also incorporated by the name of a *Warden* and *fellowship*, building also a great number of houses upon the large waits of that *parish*, intending to set up the manufacture of *Kerseyes* there, as it was practis'd in *Devonshire* where he was *Bishop*: during these transactions at *Sutton Cosfield* the good B^p. was frequently thereabout, and finding the road above mention'd much annoy'd with these *rolling pebbles*, which frequently occasion'd *travellers* horses to stumble and sometimes to fall, amongst others of his *works of Charity*, He hired poore people to gather them out of the way, and lay them thus on *heaps*; and this is the true reason they are call'd the *Bishops* stones. Which relation was given in, and testified for truth, in King *James's* time, by a woman that lived at *Black-brook* hard by, who was examin'd upon a *commission* out of *Chancery*, then executed by one Mr. *John Brandreth* of *Weeford*, and others, concerning the extent of *Common* of the *Parishes* adjacent.

15. Hither also may be referr'd the *Mica, aurea* and *nigra*, if all that strike fire belong to this place; whereof the former was found in the *Fold-yard* near *Statfold* house, and given me by the *Worshipfull Francis Wolferston Esq*; and the latter on the banks of *Aqualat* mear, and on *Seafdon* heath, which may otherwise be call'd

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the rock *Mica*, it having been found so great in bulk, and so very hard, that they have made *Mill stones* of it. This, as I am inform'd from the *Cabinet* of the learned *Martin Lister*, is also to be met with at *Arncliffe* in *Yorkshire*; which though it seem to be a white marble fill'd with black sparks, He is pleas'd to demominat *Talcum aureum*, because after *calcination* these black sparks turn of a golden colour as ours also doe, and some of them owne the *Magnet*; whence 'tis clear they carry somewhat of an *Iron-Ore* with them, as well as a *sulphur*; and may the rather upon that account be reckond amongst the *Pyrites aurii*, though they carry not so much either of the one or the other as the golden *Marchasite* or *pyrites aureus* strictly so call'd, or the *pyrites argenteus*; the former whereof is found in every *coal pit*, and has so much *sulphur*, that 'tis the principal ingredient that sets them on fire; the latter 'tis true is more rare in this *County* and has less *sulphur*, but I met with it at *Sedgley* in the hands of Mr. *Ievon* of that *parish*, who gave me a peece of it which was found, as He told me, somewhere there about: both which *calcined* apply to the *Magnet*, and confes themselves in part to be the *Ores* of *Iron*, and lead me next to confider

16. The other *Iron Ores* of *Staffordshire*, they being all of them *stones*, and so falling under this *chapter*: which lye in some places but thin, others thicker, and as the *coal* is, divided into *measures* of different *donominations*. In *Tunstall* field, in the *Royalty* of the right *Honorable Digby Lord Gerard*, in digging for *Iron-stone*, they meet first with a small *bafs*, then a strong *bafs*, then a sort of stone from its colour call'd *blew-cap*, good for nothing; and after that the *Iron-stone* of a darkish blew colour, which ordinarily lyes here not above two foot in thickness. On *Mear-beath* they observe in digging for *Iron stone*, that if they meet with roches, sand, gravel, and clay, that the *head* of the *mine* is quickly eaten out; especially the last, which so keeps downe the head that it comes to nothing presently, all which they count bad, the works being thinner and more chargeable to dig: but if they meet with *Mine-earth* (as they call it) which is *white*, then they promise themselves good mines both of *Iron stone* and *coal*, which as at most other places lye here together, the *stone* above the *coale*, between four fingers and 1/2 a foot thick, having *bafs* above and below it; in which sometimes they also meet an *Iron Ore*, they call *ball-stones*, distinct from the *vein*; and then indeed 'tis thicker: this where the *Iron stone* and *coal* lye together, they call the *deep mine* which is not the best, the *chalky-Mine*, and the *little-Mine* being prefer'd before it; yet they are all work't by Mr. *Foley* of *Longdon* a village hard by.

17. About *Dudley* where the *Iron-stone* lyes, under the ten

Vid. Scrinium Listeri in Museo Ashmolean. Loculo 14.

yards

yards thickness of *coal*, and above the *beatben coal*, of a considerable thickness; it is divided, as I said the coale was, into divers *measures* of different *denominations*; which take as follows

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| 1. The <i>Black-row-grains</i> , | } | 4. The <i>Rider-stone</i> , |
| 2. The <i>Dun-row-grains</i> , | | 5. The <i>Cloud-stone</i> , |
| 3. The <i>White-row-grains</i> , | | 6. The <i>Bottom-stone</i> |
| all so called from <i>Earths</i> of those colours in which they lye | | 7. The <i>Cannoc</i> or <i>Can-not Stone</i> . |

at *Walsall* and *Rusball* they also divide their *Iron-Ore* into several sorts, such as

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|---|---------------------------|
| 1. <i>Black botlum</i> , | 4. <i>Gray measure</i> , |
| 2. <i>Gray botlum</i> , | 5. <i>Musb</i> , |
| 3. <i>Chatterpye</i> , being of the colour of a <i>Magpye</i> , | 6. <i>White measure</i> . |

the two first whereof are seldom made use of, they are so very mean; the two middle sorts but indifferent; the two last the principal sorts; but *Musb* the best of all, some of it being a small comby-stone, other some round and hollow, and many times fill'd with a briske sweet liquor which the *Workmen* drink greedily, so very rich an Ore that they say it may be made into *Iron* in a common *Forge*. Also at many other places, as at *Chestinbay*, *Red street*, *Ape-dale*, *Wednesbury*, *Darlaston* &c. they digg *Iron-stone*, the several measures whereof have also obtained different names, though gotten but at little distance from one another, which I forbear to enumerat, those above mentiond being sufficient, for a *specimen* of them.

18. And thus I had finish't my account of the *Iron-Ores* found in this *County*, but that I think the sweet liquor that attends some of them, may deserve a little further consideration, whereof I received a most accurat account from the *Worshipfull Henry Legh* of *Rusball* Esq; in whose lands, particularly in the *Mill-meddow*, near the *furnace* in the *Park*; in the *Moss-clofe* near the old *Vicaridg-house*; and in the *furnace* piece or *Lefow*: it is frequently met with amongst the best sort of *Iron-stone* call'd *Musb*; in round or oval blackish and redish stones, sometimes as big as the crown of ones hat, hollow and like a *bony-comb* within, and holding a pint of this matter; which according to the colour of the *comb* within (whatever the stone be without) is either *red*, or *white*, and whether the one or the other, of a sweet sharp tast, very cold, and cutting, yet greedily drank by the *Workmen*. The whitish sort whereof was also met with at *Sheriff-Hales* in this *County*, by the ingenious

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George Plaxton Rector there, especially in that sort of *Mine*, the *Country* people call the *White Mine*, which yeilds the best *Iron-stone*, where the *Workmen* commonly upon breaking a stone find it inclosed in the *Center*, sometime to the quantity of a *Hogs-head* in one cavity, of a sweetish tast, but accompanied with a *Vitriolic* or *Iron like* twang¹.

19. The same, as we find in that Letter of the inquisitive Mr. *Jessop* of *Bromhall* in *Yorkshire* communicated to the Royal Society by the learned *Martin Lister*, seems also to have been met with in a *coal-Mine* in *Darbyshire* 49 yards deep, by one Captain *Wain* a diligent and knowing person in *Mines*, who sent Mr. *Jessop* a whitish liquor, resembling *cream* both in colour and consistence, found there in great quantities². Mr. *Webster* also acquaints us that an experienced *Miner* found it in a hard stone, by his direction, in the *Lead-mines* of *Darbyshire*, which was of a whiteish colour and some of it very thin and liquid, and some of it soft like *butter*³. What this substance should be, or whence it should come, none of the *workmen* or others that I discourst about it, could give me satisfaction, and indeed it is hard to determin any thing in these *secrets* of *Nature*: but if I may have liberty to give my opinion which is not altogether groundless, I take it to be the *Gur* of the *Adeptists*, i. e. the matter of *Metalls* before it be coagulated into a *Metallic* form, or the *Metalla in suis principiis*: for taking some of this white liquor found in the *Iron-stone* at *Rusball* which I brought away with me and was now dryed pretty hard, and burning it in a *Crucible*, it was quickly *maturated* into *Iron*, and applyed to the *Magnet*; as I beleive that would have done which was found at *Sherriff-Hales*, and in the *Coal-mine* and *Lead-Mine* of *Darbyshire*, for though found in *Mines* of a different denominations, yet every body knows how frequently *Iron-stone* accompanys *coale*, out of which it might issue; and that possibly the *stone* in which this matter was inclosed in the *Lead Mine* might be an *Iron-stone* too, it being usuall for *Metalls* to be found mixt; though I must not deny neither, but that it might be the *Gur* of *Lead*, that being affirm'd to be of much the same colour and consistence.

20. Of the above mentioned *Ores* they make severall sorts of *Iron*, differing in goodness according to the *richness* or *poverty* of the *Ores*, and haveing *names* somewhat agreeable to the qualities of each *Metal*. The first and meanest whereof, they call *yellow share* an ill sort that runs all to dirt and is good for nothing, and such is the *Iron* made of the *Cannock* or *Cannot stone*, the lowest measure of *Iron Ore* about *Dudley*, which is so very sulphureous and terrestiall, that its not fit to make *Iron*: this sort some others are

¹ *Philosoph. Transact.* Num. 100. ² *Ibidem.* ³ *Webster's Hist of Metalls* chap. 3. p. 151.

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pleas'd to call *Redshare*, because says *Dud. Dudley* in his *Metal-lum Martis*^m, if a *Workman* should forge out a sheare of this for a plough, it is so brittle it would crack in the *red-beat*, so unfit is it to make a Husbandmans sheare. The second sort of *Iron* they stile *coldshare* which though it will not break when red hot, yet in *hot beat* or *cold*, the biggest bar of it may be broken with a small blow upon an *Anvil*, if it be perfect *coldshare Iron*; the *Ore* for this *Iron* they have at *Chestin-bay*, *Redstreet*, and *Apedale*, the worst and leanest being that from *Chestin-bay*, the next from *Redstreet* being a red stone, and the best of the three from *Apedale*, being of a blewish colour, and call'd *Boylom*; yet these three are commonly mixt together, and sometimes with others *stones* to make them better or worse: the only uses that I could hear of for this sort of *Iron*, being to make small *nailes* not above *two penny*, and *sheering nailes* for ships having broad heads and short shanks, to keep the timber from being eaten by *grubs*.

21. The third sort of *Iron* they make in this *County* they call *blend-metall*, of which they make *nailes* from three shillings to ten shillings, and all sorts of heavy ware, such as *Hammers* &c. and in some *Countries* *Hors-hooes*; for which they have the *Ore* from *Wednesbury* and *Darlaston*. The fourth and best sorts of *Iron* they call *tough-Iron* of which they make all sorts of the best wares, there being nothing so good but may be made of this, for which they have their *Ore* chiefly at *Rusball* in the grounds of the *Worshpfull Hen: Legh Esq*; They have some also from *Vvalfsall* but not so good, whereof the several *measures* were enumerated above. Of the *Iron* made of these (I say) they make their best wares, either mediately or immediatly, the best *Iron* of all being made out of the *fileings* and *parings* of the *Locksmiths*, which they make up into *balls* with water, and dry them by the fire into hard balls; then they put it into the fire and melt it by *blast*, licking it up with a rodd of *Iron* as they doe *glafs* at the *glaf-houses*, and then beat it into a barr, which they use chiefly for *keys*, and other fine works.

22. When they have gotten their *Ore*, before 'tis fit for the *furnace*, they burn or calcine it upon the open ground, with small charcoal, wood, or sea-cole, to make it break into small pieces, which will be done in 3 days, and this they call *annealing* it, or siting it for the *furnace*. In the mean while they also heat their *furnace* for a weeks time with charcoal without blowing it, which they call *seasoning* it, and then they bring the *Ore* to the *furnace* thus prepared, and throw it in with the charcole in baskets *viccissim*, i. e. a basket of *Ore*, and then a basket of *coal* S. S. S. where by two vast pair of *bellows* placed behind the *furnace*, and

^m *D. Dudley's Metallum Martis* p. 41.

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compreſs'd alternatly by a large wheel turned by water, the fire is made ſo intenſe, that after 3 days time the *metall* will begin to run, ſtill after increaſing, till at length in fourteenights time they can run a *Sow* and *piggs* once in 12 hours, which they doe in a bed of ſand before the mouth of the *furnace*, wherein they make one larger furrow than the reſt, next the *Timp* (where the *metall* comes forth) which is for the *Sow*, from whence they draw two or three and twenty others (like the *labells* of a *file* in *Heraldry*) for the *piggs*, all which too they make greater or leſſer according to the quantity of their *Metall*: into theſe when their *Receivers* are full they let it forth, which is made ſo very fluid by the violence of the fire, that it not only runs to the utmoſt diſtance of the *furrows* but ſtands boiling in them for a conſiderable time: before it is cold, that is when it begins to blacken at top, and the *red* to goe off, they break the *Sow* and *pigs* off from one another, and the *ſow* into the ſame length with the *pigs*, though in the runing it is longer and bigger much, which is now done with eaſe; whereas if let alone till they are quite cold, they will either not break at all, or not without difficulty.

23. In melting of *Iron-ore* ſome have great regard to the make of the *furnace*, and placing of the *bellows*; which that the *Reader* may the better apprehend, He muſt be inform'd, that the *hearth* of the *furnace* into which the *Ore* and *coal* fall, is ordinarily built ſquare, the ſides deſcending obliquely and drawing near to one another toward the bottom, like the *Hopper* of a *Mill*: where theſe oblique walls terminat, which they term the *boſbes*, there are joynd four other *ſtones*, but theſe are commonly ſet perpendicular, and reach to the *bottom* ſtone, making the *perpendicular ſquare* that receives the *Metall*; which four walls have the following names; that next the *bellows*, the *tuarn* or *tuiron wall*; that againſt it, the *wind-wall* or *ſpirit-plate*; that where the *Metall* comes out, the *Timp* or *fore plate*; that over againſt it, the *back-wall*: and theſe according as they may be pitch't leſſ *tranſhaw*, or more *borrow*; will mend, they ſay, or alter the nature of the *Iron*; if *tranſhaw* or tranſiring from the *blaſt*, the *Iron* will be more *cold-ſhear*, leſſ fined; more indeed to the *Masters* profit, but leſſ to him that has the *manuſactorage* of it, and to him that uſeth it: whereas the *Iron* made in a *borrow* work, is much more tough and ſerviceable. Nor is the ordering of the *bellows* of leſſ concern, which have uſually their entrance into the *furnace* between the bottom of the *Hopper* or *boſbes*, and the *bottom ſtone*, and are plac'd nearer or farther off according as the *Ore* and *Metall* require. Tis alſo of importance in melting of *Iron Ore*, that there be five or
fix

ſix *ſoughs* made under the *Furnace* (as it is at *Mare*) in parallel lines to the ſtream that turns the *wheel* which compreſſes the *bellows*, to drain away the *moiture* from the *furnace*, for ſhould the leaſt drop of water come into the *Metall*, it would blow up the *furnace*, and the *Metall* would fly about the *Workmens* ears; from which *ſoughs* they muſt alſo have a conical pipe about 9 inches at bottom, ſet to convey the *damps* from them into the open Air, which too otherwiſe would annoy the *Workmen* even to death.

24. From the *Furnaces*, they bring their *Sows* and *pigs* of *Iron* when broken aſunder, and into lengths, to the *Forges*; which are of two ſorts, but commonly (as at *Cunſall*) ſtanding together under the ſame roof; one whereof they call the *Finery*, the other the *Chafery*: they are both of them *open hearths*, upon which they place great heaps of *coal*, which are blown by *bellows* like to thoſe of the *Furnaces*, and compreſſed the ſame way, but nothing near ſo large. In theſe two *forges* they give the *Sow* and *piggs* 5 ſeverall *beats* before they are perfectly wrought into *barris*. Firſt in the *Finery* they are melted down as thin as lead, where the *Metall* in an hour thickens by degrees into a lump or maſs, which they call a *loop*, this they bring to the great *Hammer* raiſed by the motion of a *water-wheel*, and firſt beat it into a thick ſquare, which they call a *half bloom*. Then 2^d they put it into the *Finery* again for an hour, and then bring it again to the ſame *Hammer*, where they work it into a *bloom*, which is a ſquare barr in the middle, and two ſquare knobs at the ends, one much leſſ then the other, the ſmaller being call'd the *Ancony* end, and the greater the *Mocket head*. And this is all they doe at the *Finery*. Then 3. the *Ancony end* is brought to the *Chafery*, where after it has been heated for a quarter of an hour, it is alſo brought to the *Hammer*, and there beat quite out to a *bar*, firſt at that end; and after that, the *Mocket head* is brought alſo 4. to the *chafery*, which being *thick*, requires two *beats*, before it can be wrought under the *Hammer*, into bars of ſuch ſhapes and ſizes as they think fitteſt for *ſale*.

25. Whereof, thoſe they intend to be cut into *rodds*, are carryed to the *ſitting Mills*, where they firſt break or cut them cold with the force of one of the *Wheels* into ſhort lengths; then they are put into a *furnace* to be heated red hot to a good height, and then brought ſingly to the *Rollers*, by which they are drawn even, and to a greater length: after this another *Workman* takes them whilſt hot and puts them through the *Cutters*, which are of divers ſizes, and may be put on and off, according to pleaſure: then another lays them ſtraight alſo whilſt hot, and when cold binds them into *faggots*, and then they are ſitting for ſale. And thus I have given an account of the *Iron works* of *Staffordſhire* from the *Ore*
X 2 to

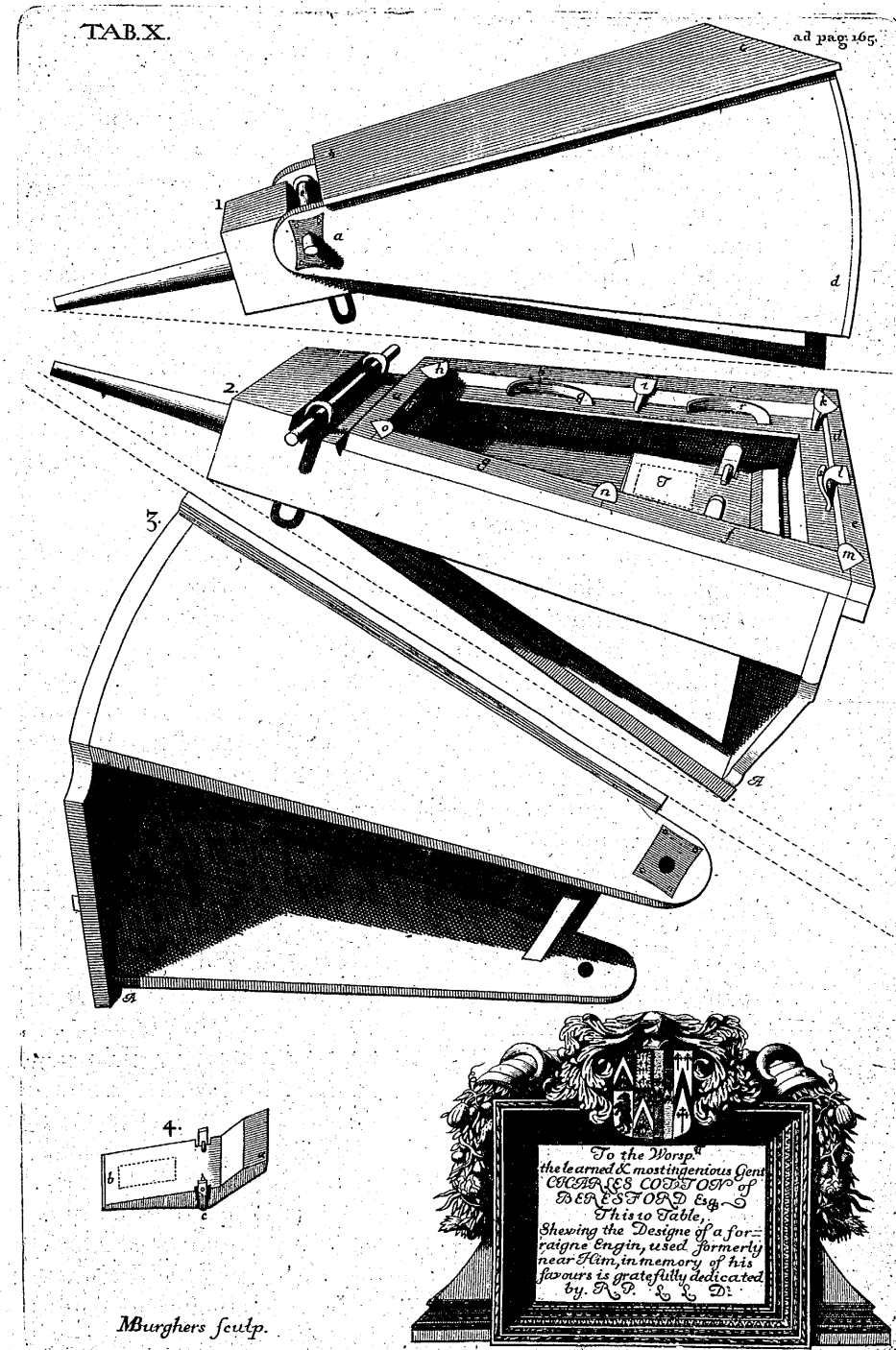
to the *slitting Mills*, as they are now exercised in their perfection; the improvement whereof we shall find very great, if we look back upon the *Methods* of our *Ancestors* who made *Iron* in *foot blasts* or *bloomeries*, by *Mens* treading the *bellows*, by which way they could make but one little lump or *bloom* of *Iron* in a day, not 100 weight; leaving as much *Iron* in the *Slag* as they got out. Whereas now they will make two or three *tuns* of *cast Iron* in 24 hours: leaving the *Slag* so poore, that the *Founders* cannot melt them again to profit. Not to mention again the vast advantage they have from the new Invention of *slitting Mills*, for cutting their *barrs* into *rodss*, above what they had anciently.

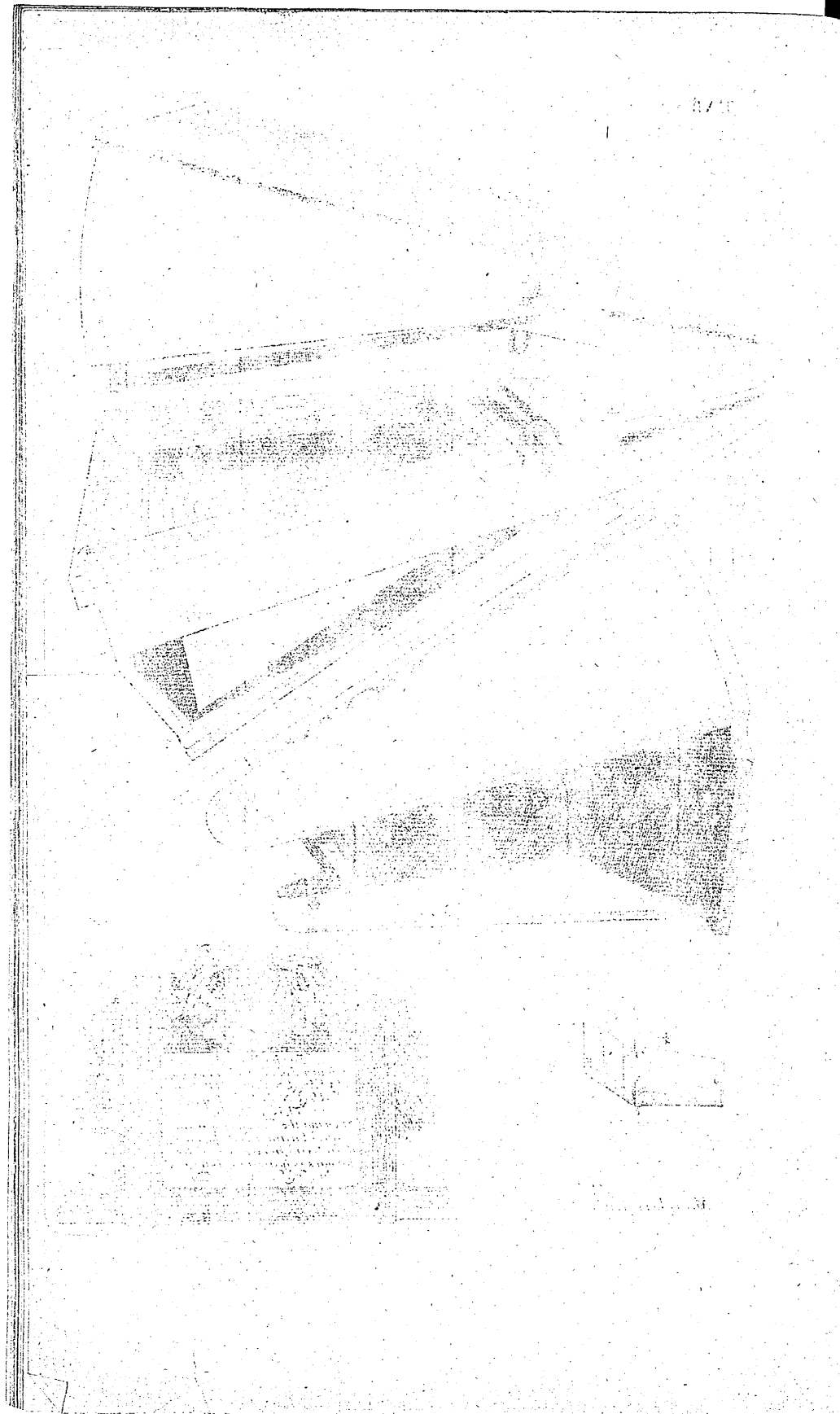
26. Thus I say the *Iron-works* are exercised in their perfection, and all their principal *Iron* undergoes all the foremention'd preparations; not but that for several purposes, as for the *backs* of *Chimneys*, *Garden-rolls*, and such like; they use a sort of *cast-Iron* which they take out of the *Receivers* of the *Furnaces*, as soon as it is melted, in great *Ladles*, and pour it into *moulds* of fine sand, in like manner as they cast the other softer *Metalls*. Thus the ingenious *Will. Cbetwynd* of *Rugeley* Esq; at *Madeley* furnace, cast *Iron-Rolls* for gardens, hollow like the *Mills* for *Sugar Canes*, of 5, 6, 7 or 800 weight a piece; the hollows whereof being fill'd with timber, and wedg'd up close, the other *Iron-work* of the *Roll*, is fastned to the wood in the same place as in other *rolls*, which are weightyer and more substantial than any other rolls I have elsewhere seen. For such purposes as these, this serves well enough, but for others it will not, for it is so brittle, that being heated, with one blow of a hammer it will break all to pieces.

27. And thus one would have thought, I should have done with the *Iron-works*, and all relating to them, as indeed I verily thought I had; but upon examination of a *reddish stone* very much like *Cinnaber*, very weighty, and being wet with the tongue, drawing red lines; found somewhere in the grounds of the worthy *Mr. Wightwick* of *Wightwick*, which I thought might have held some other *Metall*; upon *calcination*, according to the prescription of worthy *Mr. Lister*, I found it to apply to the *Magnet*, and to be nothing else but a *Hæmatites*, which for that reason he very rationally makes one of the *species* of *Iron-Ores*. And of this kind are the red stones found in *Tene* brook, which are also very weighty, and draw (being a little wet) red lines like *ruddle*, whereof I have a very large one in my *Staffordshire Cabinet*, given me by the truly *Honorable*, because truly *virtuous* and *learned*, *Jane Lady Gerard*

^a M₂ Listeri de Font. Med. Angl. cap. 2.

of





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of *Gerards Bromley*, which Her *Ladyship* truly named the *Sanguine* or *blood stone*, which they use it seems, by way of *signature*, to give in new milk, and sometimes in Ale warmed, to their *Cattle* that make a *mean*, or *bloody water*, and this with constant success: whereat I doe not so much wonder, since every body knows what *stiptical* qualities, always attend ferrugineous bodies.

28. The *Copper Ores* of this *County* must also be referr'd hither, not only as they are *Stones*, but also as they include much *Sulphur*; whereof there has been dug divers sorts, out of *Eton Hill* in the *Parish* of *Wetton*, belonging to the right Honorable *William Earl* of *Devon*: there is of it too about *Beresford*, near the most ingenious *Mr. Cottons*; and at *upper Elkston*, and some think at *Madeley*, both in the Lands of the Worshipful *John Offley Esq*; but none were ever thought worth digging but at *Eton Hill*, where the *Mine* was workt several years by my Lord of *Devon* himself, Sr. *Richard Fleetwood*, and some *Dutch men*, but they had all left it off, before I came into the *Country* as not worth their while; *Copper* comeing cheaper from *Sweden* than they could make it here; so that the *workmen* being disperst I could learn little more concerning it, but that the *veins* lay from eight, to fifty yards deep, but all dipt *North-Easterly*; that they broke the *rocks* with *Gunpowder*, and got 3 sorts of *Ore*; 1. a black sort which was the best; 2. a yellow sort, the worst; and 3. a mixt sort of both; which they *Smelted* at *Ellaston* not far off, where they had *Mills* &c. for the purpose; but all was out of order before I came thither, and the famous *wooden bellows* that had no *leather* about them, carryed away to *Snelston* in *Darby-shire* whither I went to see them; where though so laid up in an *out house* with other cumberfom matters upon them, that I could not take them downe, so as to examin them strictly, yet I could see so much of them that by the help of a smaller *pattern* in the *Repository* of the *Royal Society*, I have made shift to give a draught, and some tolerable account of them, as in *Tab. 10.* where,

Fig. 1. Represents the whole *Instrument* as it appears on the out side; the Cover *a. b. c. d.* being lifted up at every blast, and compress't with the water wheele, as is usual in other *furnace bellows*, and turning upon the pin, *e.*

Fig. 2. Is the lower part of the *bellows* which stands always fixt, and is covered by *Fig. 3.* *a. b. c. d. e. f. g.* are square sticks which lye loose, being only thrust under the hooks of *Iron* marked *b. i. k. l. m. n. o.* two ends being staid by one hook or hold-fast, every one of which sticks, hath a spring of *Iron* on the inside marked *p. q. r. s.* which keep them still close to the inside of the outward Cover, *Fig. 3.* and so keep in the *Air*. The *valve* in the bottom board is marked *T.* and the *prickt* lines shew the hole under it, to let in the *Air*.

Fig. 3. is to be whelmed upon Fig. 2. so that A. in Fig. 3. touch A. in Fig. 2. and then they appear as in Fig. 1.

Fig. 4. Is the valve or door, which when the Air enters in, rises at b. and dips at a. and when it goes out, dips at b. and falls upon a woolen list tacked round the hole in the bottom board, and rises at a. turning upon the pin, at c.

29. After the Copper, come we next to the Lead-Ores of this County, which also belong to this place; for beside that they cannot be said to be Earths, it is dug here in a yellowish stone, with Cawk and Spar, in Fowns field belonging to one Townley on the side of Lawton park; where the workmen distinguisht it into three sorts, viz. round Ore, small Ore, and Smitbum; the two last whereof are first beaten to pieces with an instrument called a Knocking-bucker, and the Ore separated from the stone with another call'd a Limp. and then washt in a Sieve made with Iron-wyer; yet further to clear it from terrestrieties: which done, it is sold to the Potters at Burslem for 6 or 7 pound per Tun, who have occasion for most that is found here for glazing their Pots. There has been Lead-ore also dug at Eton-Hill; where, some of it, lyes so near the day, that it was first found by the plough: Here also they distinguisht it into three sorts, but under different names from the former; the best being call'd Bing; the middle sort, Bowse; and the Lead dust, Smitbum. And there was Lead-Ore dug formerly by the right Honorable the Earle of Shrewsbury at Ribden, but none of these works were ever very considerable, nor is it likely any such should ever be found here, it being observed that wherever there is much coal, there is so much the less Lead, its sulphureous spirit being too strong for the production of that Metall: upon which account, when near Mendip there was found 2 or 300 weight of very good Lead-Ore growing to a vein of Coal, it was lookt upon by all, as a very great rarity.

30. But nothing so great, as what was told me lately concerning this Metall, by the Worshipful Philip Foley of Prestwood Esq; viz. that notwithstanding amongst Metalls, Lead holds the third place after Gold and Quicksilver, it being lighter than Gold about a third part, and heavier than Silver about a fourth; yet that Anno 1682. there was a Leaden-Coffin, of one of the Honorable family of Skeffington of Fisberwick, laid in the Vault of St. Michaels Church at Lichfield (which as I noted before is frequently floated) that swam so cleverly in 9 inches water, that one might thrust it to and fro with a common walking stick; which he told me too, was actually done, by that judicious Gent. Mr. Swinfen of Swinfen. This, by the vulgar being look't upon as little less than a Miracle, I

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thought

thought it concern'd me, having occasion to spake of this Metall, not wholly to pass it by, but to let them know that it is so far from a wonder, that if the Coffin were so thin, and the body so consumed (as no question they were) as to be lighter than that quantity of water which is equal to the bulk of the Coffin, the rules of Hydrostaticks require it must be so, and could no more be otherwise, than that a lighter body should not give place to a heavier, which would have been a wonder indeed: No bodies whatever sinking deeper in water, than to that point, where the immerst part of the floating body becomes equal in bulk, to as much water as is equal in weight, to the whole body.

31. Having done with the Stones holding Salts, Sulphurs, and Metalls, the next that offer themselves to my consideration, are such as only supply the necessities of Mankind in some peculiar manner; such as he diggs forth the Quarries for building, for grinding stones, Mill-stones, &c. of the former whereof there is plenty almost every where, within little distance, which for the most part as in Oxfordshire is gotten and workt easy, yet endures the weather so well, that it improves in it, to a competent hardness: There are several sorts of it differing in grain and colour; some finer, some coarser; some reddish, some white; some mixt of both those colours; and some streakt with black: about Lichfield they build chiefly with a reddish sort of stone, and so about Newcastle, and at Leek; at which last place they cleave it with wedges as they see the grain run, which is not always agreeable to the plane of the Horizon, or a little declining from it, but sometimes perpendicular to it. They have also a whiter harder stone, that is a good weather, but not a good fire stone, made of a finer grit, (as most white stones are than red) and working to a finer Arris. Much of this colour and consistence is the stone of the Quarry betwixt Ingestre and Salt, and about Beech; pretty white and hard, but not without a cast of redness here and there, and sometimes mark't with a yellowish sort of veine. The whitest and freest from any of those stains, being that dug at Fulford and Chappel Charlton, which are purely white, and of a fine grain enough.

32. But it would be endless to enumerat the Quarries of this County, should I continue to prosecute such as those above mention'd; wherefore I shall now restrain my self only to such as are some way or other more remarkable than others: amongst which I think I may reckon the Quarry at Penford in the Lands of Mr. Fowler, which lies in depth 14. or 15. yards as has been seen by many, some of the workmen assert it at least 20. yards thick, indeed they certainly know no bottom; the deeper they go the finer the grit; and for colour it is whitish at the top, then reddish to 10.

or

or 12. yards, and then whiter than at top, for 5. or 6. yards more; it being all of it good *weatherstone*, but not enduring the *fire*. As the stone of the *Quarry* in *Purton* park will, which is both a good *weather* and *firestone* too, and so free from *clefts*, that a stone may be had of any *Magnitude*, as big as any of the *Guglia's* at *Rome*, nay I was told by one of the *Masons* that he could undertake to get a stone at this *Quarry* fifty yards long, and that but two or three years before I came thither, they actually had gotten one (though they had no occasion for any such) about fifty foot long: of these large stones there are very good examples in *Purton* house belonging to the right Worshipful Sr. *Walter Wrottesley* Baronet, a Person of that great reputation in his *Country*, that his memory will never dye; till Loyalty and Integrity, Prudence and Ingenuity, be overborn by Faction, Impudence and Ignorance, and become unregarded, and of no esteem amongst us.

33. The *Quarry* at *Bilston* is also very remarkable, it lying in beds in *plano Horizontis*, one under another, 12 beds deep; every bed being thicker then that above it, an inch or more; so that the lower bed is about a yard thick of which they make *troughs, cisterns* &c. Some of the *Tables* of *stone* rising so large and even, that Mr. *Hoo* of *Bradeley* got one here 8 yards long, naturally so very even, that in the whole length it did not *bevel*, or depart from a true *level*, above an inch. Some of the *stone* dug at this *Towne* is also curiously streaked black, whereof there are elegant patterns, in the *Garden* at the right worshipful Sr. *Henry Gough's* at *Pury-Hall*. I met likewise with a white stone thus mark'd black, used in the building of the new *Dormitory* at *Kingston* Church by the right Worshipful Sr. *Simon Degg* Knight, but whereabouts it was dug I must confess I forgot to ask, but suppose it could not be very far off.

34. The stone of the *Quarry* above mention'd at *Purton* serves also for *Grinding stones*, which gives me occasion to treat of them next: which I find are esteemed so much the better, by how much they are made of a finer *Grit*: whence it is that the *Grinding-stones* dug near *Biddulph-Hall* of a red larger grit are not accounted so good as those dug at *Heaton*, a Village between *Swithamley* and *Rushton Spencer*, which are of a grayish colour, and of a fine small *grit*. But not so fine as those dug at *Bilston*, which are of so small a *grit*, that they are useful only for fine thin edg'd tooles, such as *Knives, Cissors, Razers*, &c. and are better than the *Grinding-stones* brought out of *Derby-shire*, which are used chiefly for thicker edg'd tooles, such as *Axes, Hatchets, Chisells, Adds, Twy-bills*, &c. Or those lately found, about 5 years since, at *Over Arley*, near the Parsonage house, and in the *manor* of *Heck-stones* adjoining to the glebe land,

land, which yet serve for most sorts of *Sithe-grinders, Smiths, or Cutlers* wares, especially for those of the thicker edges, so that the trade to *Darby-shire* for such *Grinde-stones* is quite ceased in these parts. Also in the lands of Mr. *Persehouse* at *Cotwall-end* they dig excellent grindingstones, as good as those at *Bilston* for thin edge tooles; and on the Windmill-bank at *nether-Gournall* in the same parish of *Sedgley*, they dig others for thick edg'd tooles, which must be of a grit both harder and courser; whereof some have proved as good as the *Darby* stones. Whether they dig any *Grinde-stones* now at *Braunston* or noe? I did not hear; though Mr. *Erdeswick* informes us it was anciently famous for them.

35. Another sort of *Grinding stones* are those we call *Millstones*, the Grit whereof need not be so fine, provided it be *hard* and doe not *sweat* in *moist weather*, which would both prejudice the *Meale* and clog the *Mill*. Of these some are made out of great *loose stones*, others dug out of *Quarries*. Of the former there have many been made out of great round *pebbles* found on *Braden-beath* between *Sheriff Hales* and *Blymbill*, and so there has at *Seasdon*, where on the *Heath* there lye some *pebbles* so vastly great, that as I was told, there have 3 *Mill-stones* been made out of one of them. These *Mill-stones* out of *Pebbles* they use for grinding *wheat*, and some think them not short of the *Colen stones*. At *Mole Cop* in this County they dig them as in a *Quarry*, which they cleave from the rock with a great number of small wedges, driven with as small stroaks, least the stone should crack or flawe; when they have got it from the rock, they presently binde it round with a joynted hoop of Iron, which they call a *Rivet-hoop*, and this they straighten hard about it also with wooden wedges, driven in between it and the edg of the stone, that it breake not in the working.

36. Which it so frequently does notwithstanding their utmost care, that there is but very few of them that are not made up of two or three pieces, thus bound together with a *hoop*; nay so very subject is it to crack and flaw, that whenever it happens that they finish one *intire*, yet it must be bound about thus with an *Iron hoop* to remain upon it even in the *Mill*, to preserve it from falling asunder in the motion. Nor is it any wonder that it should be thus, since it consists of a large angular shining *grit*, so knit together, that there are *interstices* between the parts, which are fill'd with a kind of *mealy* substance; this some people fancy tastes like *meale*, and amongst the *Workmen* the stone that has most of this (as it were by way of *signature*) is counted the best; though no question it must needs be so much the weaker, and yet as weak as it is, it lyes well enough in building, the parish

Mr Sampson Erdeswicks view of Staffordsh. M. S. in Braunston.

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Church of *Biddulph*, which is a reasonable fair one, being built with it. These are seldome used for grinding of *Wheat*, because these grind Bran and Meal altogether, whereas the blew stones only bruise the husk from the floore; but chiefly for *Rye*, *Barley*, and *Mault*, or for *shaling* of *Oates*: nor doe they ever use two of these stones together, but always pair them with a white sort of *Mill-stone* brought out of the *Peak*; the *Molecop-stone* being always the runner, and the *Darby-shire* stone, the *Legier*.

37. Which is all concerning stones of any peculiar use, unless that I may have liberty to suspect, that at *Rowley Regis*, in the corner of a ground formerly part of the *lower Moores*, adjoining to grounds call'd *Freebody's*, there must be that miracle of *Nature*, we call the *Loadstone*: For that, one Mr *Deeley* about 10 year agoe being appointed to measure the lands there, for the right honorable *Edward Lord Ward*, found that in that place his *Needle* varied so very much, that his work was out of order, which put Him to no small trouble, till He began to suspect what must needs be the matter. *Sept*: the 23. 1680 for further satisfaction, having procured the company of the same Mr. *Deeley*, I was willing to make the experiment over again, wherefore setting up a *stick* with a *hand-kerchief* on it at one end of the ground; and goeing to the other with my *Compass*, I found the *hand-kerchief* to bear upon such a point of it; but removeing the *hand-kerchief* and *Compass* interchangeably, when I came to view the *hand-kerchief* upon the opposite point to that upon which I had seen it before, I found it wide of the *mark* by *six degrees*. So that upon consideration of the matter, I could not imagine how this should come to pass otherwise than by the *Magnet*, unless by some old *Armour* that might be buried hereabout in the late *civil War*: Which might easily be determined, and at which end of the *field* this matter lyes, whatever it be, that thus affects the *Needle*; were the true *Meridian* of the place first taken, and a *touch't Needle* hung upon a thred and carryed about: for whether it be a *Loadstone mine* that occasions this difference; or such *Armour*, or other *Iron*, that may lye hid hereabout; the *Needle* will discover it by *dipping*, whenever it comes over it, or any where near it.

38. After the stones of a restrained peculiar use, let us next consider those of no use at all, at least that are put to none; which yet possibly may not altogether be unworthy our admiration, though no tolerable account, can be given of the condition, or present state they are in: and such are the vast *Rocks* or *Roches* as they call them, that bear no grafs, but here and there a turf in some cleft or hollow, but standing as bare as a stone wall; some of them kissing the clouds with their tops, and running along in mountainous ridges

ridges for some miles together. The first of these I met with was on *Wetley Moore*, which at a distance I took for some prodigious ruins, these representing them as much bigger than truth, as the *Florentine stones* doe it, less: but when I came to *Leeke*, and saw the *Hen-Cloud*, and *Leek Roches*, I was quickly undeceived, though my admiration was still heighten'd to see such vast rocks and such really stupendous *Prospects*, which I had never seen before, or could have beleived to be, any where but in *picture*: and that which yet further increast my wonder, was how they should come thus bare, having no turf upon them, or earth to produce one: which whether so from the *Creation*, or uncoverd by the *flood*, or the perpetual *detrations* which have happend since upon *rain*, to all *Mountainous* parts, as was not irrationally conjectur'd *Chap. 3. §§ 11. 12.* of this *History*, is hard to account for. Though possibly too, some of them may come to be thus, first by cutting the turf from them which they use for *feuel* much in this *Country*, and then the *detrations* by *rains*, will easily answer for the rest.

39. And yet so far are these *Roches* from any further *diminution*, that I think some of them carry such evident marks of growth, that I cannot avoid beleiving it so. For in such rocks as these, as you pass through the hollow way at little *Sandon*; and in another cut in the rock, about mid-way betwixt *Draycot* and *Chedle*; there are *pebble stones* plainly included in the body of the rocks, and so there are in the rocks near *Alveton Lodg* by the way side as you pass thither from *Wooton*: whence it must be concluded that these pebbles must have had a being before the rocks, and that the rocks themselves grew to be such, since that time. But the most indisputable evidence of the growth of such stone, we have from the ingenious Mr. *John Beaumont*, who tels us that at *Daulton* on the South side of *Mendip*, the Workmen sawe out of great blocks of stone of four or five Tun weight, dug in the *Quarrys* there, large pieces of fair cleft *Oak* included in the midst of them. This I say is as indisputable a proof as any I have met with, except one at *New-Castle* under *Lime* in this *County*, where at a place called the *Gallow-tree* (the ancient place for the execution of the *Malefactors* of that *Towne*) there was found, within memory, in a firm block of stone dug out of the *Quarry* there, an intire *Skull* of a *Man* with the teeth in it, &c. whereof Mr. *Weever* an *Alderman* of the *Town*, told me he had one, long in his possession: which place when used for executions, 'tis like might be nothing else but *sandy Land* wherein they used to bury the executed bodies, which in process of time has thus turned into stone.

40. The variety of *Caverns* and great clefts in these *Roches*, are

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also worthy my recounting, and the Readers notice, whereof some are *dry*, and others receive *water*: to the former of these belong the *Caverns* at *Holloway* in this *County*, near *Stourbridg* in *Worcester shire*, cut out of the living rock into divers *partitions* and *offices*, with *holes* forth at the top instead of *Chimneys*; wherein several people of meaner rank have their constant *habitations*, much after the manner of the *Aethiopian Troglodites*, who are a *subterranean Common-wealth* bordering upon the *Arabian Sinus* and the *Empire* of *Habessia*. But we need not run so far for *Examples* of this kind; for we are told of such in *Italy* near *Viterbo*, at *Buschet* in the *Isle* of *Malta*; and at *Nottingham* here in *England*. Near *Peakstones* in the parish of *Abveton*, under *long-Hurst* hill, there is also a hollow in the rock call'd the *Thurse-house*, where a family now lives, and wherein about 4 or 5 years since lived one *Helen Mil-lard* a widow woman of about 115 years old, who had she not chanced to dye a violent death by fire, might have lived much longer. There is also another *Thursehouse* or *Thursehole*, sometimes call'd *Hob-hurst Cave*, near *Wetton* mill (where the *Manifold* falls first into the ground, on the *Easterly* side of the dry *Chanell*,) which goes into a great *Mountain*, from the mouth to the further part, about 44 yards and is in the middle, as near as I could guess, about 30 foot high, the *roof* being supported by a rough *natural pillar*, which also in a manner divides it into several *partitions* or *rooms*: where I was shewed in the *roof*, the natural *effigies* of a *Man* with a *curled beard*, looking out of a *hole*, not very unlike what it was said to represent, though I suppose wholly casual, and never designed by *nature*,

41. But a little way from this, on the *Westerly* side on the same dry *Chanell* in the *Lordship* of *Grindon*, belonging to his *Grace* the *Duke* of *Albemarle*, there is a great hole through *Yelperley Tor*, that goes from the bottom to the top, at least 40, if not 50 yards high. Under *Kinfare edge* there is also a hole going into the rock, wide at first, but after low and narrow, call'd *Mag* a *Fox-hole*, for that *foxes* here use to shelter themselves; & at *Kinfare Towne*, by the *River* side near the bridge, there goes another *hole* into the rock a great way, call'd *whirleyhole*, from the *Eddy* of water the *River* makes at the mouth of it; how far either of these *holes* goe is very uncertain, but 'tis the tradition of the *Towne*, that though their *mouthis* are at a long *miles* distance, yet that they meet under ground. And now I am come to *Caverns* that receive *water*, I must not forget those that receive the *Rivers Manifold* and *Hans*, especially those under *Yelperley Tor*, which are very large ones, that will receive a *Man* standing upright; nor the rocky *indraughts* under *Cauldon Low*,

¹ Athanasii Kircheri Mundi subter. Tom. 1. Lib. 8. §. 4. cap. 3.

Ribden,

Ribden, and *Reeden*, that swallow the *waters* of the *landfloods*, that run violently from the *Hills* thereabout, though mention'd before Chap. 2. § 97, 98. of this *History*. To which let me add, the stupendous cleft in the rock between *Swithamley* and *Wharnford* commonly call'd *Lud-Church*, which I found by measure 208 yards long, and at different places 30, 40, or 50. foot deep; the sides steeped and so hanging over, that it sometimes preserves *Snow* all the *Summer*, whereof they had signal proof at the *Town* of *Leek* on the 17 of *July* their *Fair day*, at which time of year a *Wharnford* Man brought a *Sack* of *Snow* thence, and poured it down at the *Mercat Cross*, telling the people that if any body wanted of that *commodity*, he could quickly help them to a 100 load on't.

42. Beside the *Stones* that serve the *necessities* of *Mankind*, there are others in this *County* that will serve to *adorn*, both his *Buildings* and *Person*; such as *Alabaster*, wherewith the *Chore* at *Lichfield*; joyntly with *Cannel-coal* (as I noted before) is delicatly paved in imitation of *Marble*: as well indeed it may, rather with this, than any thing else; *Alabaster* being accounted amongst many of the *Naturalists* to be *Marmor incoctum sive imperfectum, quod si cultro scindi possit, gypsum rectius dixeris*, says *Joh. Schroder*. Of the latter sort whereof, I could hear of none in this *County*, that dug near *Frodswell Hall* (where there is a small *vein* fit only for *flooring* rooms, not thought worth the pursuing) and in *Heylinds* park, where too it was anciently gotten; being, as I was inform'd, as hard, as that which is gotten *South* of *Marchington Church*, which being likewise but of a *courser* kind, is prepared for making *plaster* for *floors*, *seelings*, and the *walls* of *Needle-work houses*, in this *Method*: First they lay on the ground a *stratum* of *wood* (which is best) or a load of *wood* and *coal* mixt together, upon which they pile as much rough *Alabaster*; then firing the *wood* they let it burn together till 'tis out, which makes the *Alabaster* so soft and brittle, that it needs only *thrashing* to reduce it to *powder*, the greater parts whereof being separated from the smaller by a *seive*, the former mixt with *water* are used for *flooring*, and the finer for *seeling* and *walling* of *Houses*.

43. When they lay their *floors* whether for *dwelling*, or *Mault-houses*, they wet a whole tub full and throw it down together; but when they *seel* or *parge* with it, they wet it by degrees, which they call *gageing*; and in both cases lay it on, and spread it as fast as they can, for it hardens, (as *Plaster of Paris*) in a very little time: the *Walls* and *Seelings* made with it having this convenience, that they are presently sweet, having nothing of the ill smell, of those made with *Lime* and *hair*; and the *walls* of their *houses* en-

¹ Chap. 3. §. 31. ² Joh. Schroderi Pharmacop. Medico-Chym. Lib. 3. cap. 8. §. 2.

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during like stone, if the *plaster* fall not out from between the *Timber*, as it sometimes does for want of *grooving* it round within side before the *plaster* be laid on, which if done, it enters the *grooves* whilst it is soft, and cannot any way fall out of them, when once it is hardened.

44. This sort of *Alabaster*, but yet of a *coarser* sort, is found also at *Coton* under *Hanbury*, and there has of it been dug at *Draycot* in the *clay*: indeed the whole bank of *red Marble* between the *Forest* or *Chase* of *Needwood*, and the *River Dove*, from *Marchington* to *Tutbury*, has *Alabaster* in it; but that at *Castle-Hays* is incomparably the best, of which they make *Grave-stones*, *Tables*, *Paving-stones*, *Chimney-pieces*, &c. and in smaller things, *Mortars* and *Salts*: they torne it also into *Candle-sticks*, *Plates*, and *Fruit dishes*, or whatever else the *buyer* desires: in some of it there are *veins* of a dirty red colour, which yet are not very unfightly; but they have a sort which is *harder* and *stronger* than the rest, bearing a better *polish*, and finely water'd with a *blewish* colour, much esteemed by *Artists*, it making as good work almost as *Marble*, upon which account it is carryed hence at a great charge, and made use off in some of the *choisest* works, in many parts of the *Nation*.

45. Nor have they only in this *County* imperfect *Marble*, but the perfect too, and that of different kinds; some of them exceeding any of their *Species* (as I have been inform'd by *Artists*) that we yet know of, that have been brought from beyond *Seas*; whereof too, there is so very great quantities (were there but tolerable portage) that it would have sufficed, I dare say, to have rebuilt *London*: there being whole *Mountains* of it in the Lordship of *Grindon* belonging to his *Grace* the *Duke* of *Albemarle*. It is a *Rance Marble* i. e. of a *white*, hard, shining *grit*, striped *red*; *Telperley Torr* (as one may see where the *River Manyfold* enters it) and most of the *Hills* thereabout, seeming to be all of this *Marble*; which receives so good a *polish*, that it has been thought fit for *Chimney-pieces*, *Monuments* &c. though I scarce think any has been made use of for this purpose, since I first discover'd it. And at *Stanfop*, not far off, in the parish of *Alstonfield*, I was shewed a *grey marble* not inferior in its kind, by Mr. *Jackson* of that *Village*, who told me there were also quantities of it for any purpose, though never yet made use of.

46. Add to these a very hard black shining stone found at *Powke-hill* near *Bentley Hall* belonging to the *Worshipful Thomas Lane* Esq; which upon *polishing* proved a tolerably fair *black Marble*, all the fault that the *Artists* could find with it, being a *hard pin* as they call'd it, which renders it scarce worth the labour to work it: However *burnt* and *pouder'd* it makes a very good *Emery*, as I was

was certainly informed by the ingenious *Jonas Grosvenor* of *Wolverhampton* Esq; which way possibly it may turn to a better account, than to be workt as *Marble*. At *Rowley Regis* in the lands of the right Honorable *Edward Lord Ward*, I met with the same stone again, and scattered here and there all over the *Towne*: whereof yet there is one more remarkable than the rest, about a mile N. W. of the *Church*; as big, and as high, on one side, as many *Church Steeples*: at the bottom of which on the highest side, if one stamp with ones foot, it returns a hollow sound as if there were a *Vault*, which made me suspect that some great person of ancient times might be buried here, under this *natural Monument* (for I scarce think so great a thing could be put here by *art*, it much exceeding those of *Stonehenge* or *Aubrey* in *Wilts*) but digging down by it as near as I could (where the *sound* directed) I could find no such matter.

47. In and about the second *Inlet* of *Manyfold*, under *Telperley Torr*, I was shewed by the ingenious *Charles Cotton* Esq; many of the block stones which they call *Crow-stones*, sometimes intire of themselves, and sometimes growing on the *Limestone*; some of them wholly *black*, and some streaked *white*; which *polish* so well, that I have seen them set in *Rings*, and have been taken at least for the *black Achat* or *Melanoleucus* of *Aldrovand*. And I had given me at *Wolverhampton* by Mr. *Richard Cumberlege*, a reddish *semio-pake Flint*, found somewhere there about, so very agreeable to the description of the *Sardachates* of the *Lithographers*, that I have been inclined without fear to pronounce it the same. Which brings me next to treat, of the *transparent stones*; whereof the two finest and best I met with in this *County*, were in the same *Town*, one set in a *Ring* of Mr. *Jonas Grosvenour's*, of an excellent *luster*, being part of a large *transparent pebble* found on *Coven* heath; and the other worne also in a ring by Mr. *Henry Bracegirdle*, *Sacrist* of the *Collegiat Church* of *Wolverhampton*, of an *Amethystine* violaceous colour, and a genuin *luster*, which was found at *Barrow-hill* in *Pensnet* Chace, where there have many other *transparent stones* been heretofore dug of an *dodecaedrous* figure, cut off at the top much like *natural Chrystal*, but somewhat harder. At *Fetherston* the ingenious Mr. *John Hunibach*, was pleased to bestow on me, a *transparent pebble* of a peculiar form; and the *Worshipful Tho. Broughton* of *Broughton* Esq; shewed me another of the same kind, but different *forme*, which belong not to this place; but are only mention'd here, to give me an apposite transition to the next *Chapter*, of *form'd Stones*.

* *Ulys. Aldrovandi. Musaei Metall. Lib. 4. cap. 1.*

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CHAP. V.

Of Formed Stones.

1. **A**LL inform'd Stones whatever, being upon no slight grounds, thought chiefly to have their *Origin* from the mixture of *Salts*, it may much more certainly be concluded of those which are *formed*; for as much as all *figure* (as has fully been shewn elsewhere^a) seems wholly to be attributed to that *principle*: the *mineral Salts* in the *Earth* being no less busy and luxuriant in production of *formed* bodies there; than the *volatile ones* in the *air*, in the pleasant *figurations* they make in the *Snow*, as has been shewn by *Des Cartes*^b, *Mr. Hook*^c, but much more fully by my worthy Friend the Learned and Ingenious *Mr. William Cole*, Surveyor of his Majesties *Customs* in the Port of *Bristol*, who 'tis hoped will speedily oblige the *World* with his curious remarks upon that *Subject*, and many others. The *mineral Salts*, I say, are no less exercised in the curious *formation* of bodies in the bowels of the *Earth* and *rocks*, than the *volatile ones* in the *Heavens*; for it sufficeth it them not to represent only *sublunary* things, but *celestial* ones too, either by reflection, or in solid; as in the *Selenites* and *Asteria*, both which though rarely found in this *County*, yet those which I have met with here of each kind, are quite different from those, I ever met with elsewhere.

2. The *Selenites* so called, not that it corporally contains the *figure* of the *Moon*, but only by representation, if obverted to it in right angles, as it were in a glass; as it will the *Sun* as well, and therefore otherwise more rationally call'd *Lapis specularis*; is so very rare in this *County*, that I could hear of it but in two places, viz. at *Hartley green* and the village of *Slindon*, where it is dug in the *Marle-pits*: from the latter of which places I had a piece given me by *Mr. J. Serjeant* of *Mill-Meeze* of a different figure from all those in *Oxfordshire*: for the Stone *Selenites* though it have nothing of the shape of the *Moon* in any of its *phases*, yet it is commonly found in some *certain figure* always agreeable to the *Salts* of the body wherein it grows, as it does at *Slindon* in a *Cubico-Rhomboidal* form, all the pieces of it being constantly *Hexaedra* of equal *obliquangular* sides, or *oblique angled Parallelepipeds*, as in *Tab. 11. Fig. 1.* and upon that account as was conjectured in *Ox-*

^a Nat. Hist. of Oxfordsh. chap. 2. §. 23, 24, 25. and chap. 5. §. 124, 125, 126. &c.
^b Des Cartes Meteor. cap. 6. ^c Mr. Hook's Micrograph. Obs. 14. Schem. 8.

fordshire

fordshire either formed by a *Tartarous Salt* in the *Earth*^d, or as the learned *Dr. Lister* perhaps would rather conclude, out of an immature *vitriolic* one, having found the *Crystals* of that *Salt* somewhat of this *figure*^e. As for *texture*, these of *Slindon* seem to have much the same, with the *Selenites* of *Oxfordshire*, and upon flitting (like them) briskly to represent the vivid colours of the *Solar Rainbow*, only the *Scia* of these are much more strongly cohering, and not so easily divisible, or into so thin *plates*, and therefore not so fit for many of the uses it was antiently put to, mention'd in the *History* of *Oxfordshire*, whither to avoid repetition I refer the *Reader*.

3. But the forme of the *Selenites* is not so different from that of the *Moon*, but the *figure* of the *Asteria* is on the contrary as agreeable to that of a *Star*, as we commonly paint them; all of them being branched with 5 principal *Rays*, of equal length, shape, and make; all issuing from a *Center*, which is either solid or hollow, where they joyn in *angles* of 72 degrees. Of these, as of the *Selenites*, I met with very few, and but at two or three places, viz. at *Beresford* near the Seat of the most ingenious *Mr. Cotton* in the rocks by the *Dove* side; in *Willmon-field*, betwixt *Heatley* and *Bagots Bromley*; and on *Newton-hurst*, and *Harley field*, near *Abbots-Bromley*; and these all of them differing in somewhat or other, from all those described in my *History* of *Oxfordshire*, and by the most accurat *Dr. Lister* in the *Philosophical Transactions*^f: for though they are found here heapt upon one another in *Columns*, all seeming to be fragments, and no intire bodies, some having 3, some 4, and some 12, or more *joynts* as in *Tab. 11. Fig. 2. 3. 4.* every joynt consisting of 5 *angles*, and issuing from a *Center*: yet none of them seem to be made up of *lamellæ* or *plates* lying obliquely to the *Horizontal* position of the *Star*, as those in *Oxfordshire*; and some of them having their *angles* so very sharp, and consequently their sides deep channell'd, that they seem, most of any thing, to represent the *rowel* of a *Spur*, not admitting any *Sculpture*, or indented *future*; and those that *doe*, of a quite different kind from any yet described.

4. The first kind whereof is carefully represented *Tab. 11. Fig. 2.* standing in a *quinquangular* case in a flinty sort of stone^g, the *Rays* issuing from a *solid Center*, of a coal black colour, not bigger than an ordinary *pin*, yet plainly a flat *quincunx*, the angles of this inner one, not pointing against the sharp *Rays* of the outer, but against the deep channels between them, both being smooth joynted, without any *hatching* or *engraving*. The second exhibit-

^d Nat. Hist. of Oxfordsh. chap. 5. §. 130. ^e Martini Listeri M. D. de fontibus Med. Angl. Exercitat. pr. cap. 5. ^f Philosoph. Transact. Numb. 112. ^g Like the Pentagonus of Lachmund ὀπενταγώνος §. 3. cap. 18.

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ed *Fig. 3.* is indeed a flat, not hollow-sided piece, such as represented to us by Dr. *Lister* * in the *Philosophical Transactions* Numb. 112. *Tab. 2. Fig. 5. 8. 11.* but the *hatchings* of it are very different from all his, and any I have yet elsewhere seen, as the *Reader* may see express *Tab. 11. Fig. 3.* where there is one principal *radius* extending it self from the *Center* to the extremity of each *angle*, with oblique lines issuing from it upwards, so that it not unnaturally represents so many *boughs* of a *Tree*. The third described *Fig. 4.* is also flat-sided, but the *joynts* or *internodia* all unequal, one being always more protuberant than his neighbour, and so alternatly through the whole *column* of them; which though a pretty large and long one, consisting of 12 *joynts*, the hollows of each *angle* are neither *hatch't* on the top, nor is the *column* bent, or the least inclining, as commonly those are which have any considerable length. Concerning which, I have little more to add to what is said in *Oxfordshire*, but that their admired quality of *moving* in *Vinegar*, seems to have been known to *Roger Bacon* near 400 years agoe, who in one of his *Epistles ad Parisensem*, mentions a *Stone* that would run in *Vinegar* *.

5. Next the *formed stones* relating to the *heavenly bodies* (in the handling whereof though in a particular *Chapter*, I shall observe the *method* of the whole *Essay*) I descend next, to such as are thought at least, to come from the *inferior heaven*, to be generated in the *Air* amongst the *Clouds*, and discharged thence in *thunder showers*, whence they are termed by Authors *Brontia* and *Ombria*: whereof I met with one in this *County*, in the hands of the *Worshipful Thomas Broughton Esq;* (which cannot be so well refer'd to any other *Species* of *natural bodies* that I yet know of) that though it have no *Umbelicus*, *Modiolus*, or *Center*; or *rays* made up of *points*; or *transverse lines*; or *points* surrounded with single, or double *Annulets*; as those in *Oxfordshire*: yet is a much finer stone than any of them: it being a *regular solid Hemisphere* (which may be apprehended well enough without a *Cut*) as transparent as *Chrystall*; and much harder, most likely, of any sort, to be of the *pebble-kind*. As I think I must also reckon a more oblong sort of *transparent Ombria*, of a *triangular* form, near two inches long, and an inch broad; the bottom and sides not flat, but protuberant, and carryed up round at the ends, till meeting with the top ridge; the *angles* not sharp like the *Prismaticall* glasse, nor representing any of those vivid colours though held to the Eye in the due posture; but more obtuse, as engraven *Tab. 11. Fig. 5.* which

* This worthy *Gent.* since the printing the beginning of this *History*, upon account of his extraordinary Merit, had a *Diploma* sent him for his *Doctors degree* in the Faculty of *Physick*, from the *Univerfity* of *Oxford*, ex mero motu, without his knowledge or seeking. * *Ad Parisensem. Epist. 6.*

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was found near *Fetherston* in this *County*, and given me by the ingenious and most obliging *Gent. Mr. John Huntbach* of the same *Village*. These transparent pebbles are sometimes also found in a *globular* forme, whereof the most exquisitely transparent, without any *blemish*, was shewn me by the virtuous young *Lady Madam Ann Bowes* of *Elford* in this *County*, in whose *Closet* I take it (amongst many others) to be a principal *rarity*.

6. I saw another of these express *Fig. 5.* found near *Lichfield*, in the hands of *Mr. Zach. Babington* of *Whittington*, and there are many of them in the *Ashmolean Museum* at *Oxford*, and in that of the *Royal Society* at *Gresham College London*. They are not found in digging, either amongst *Gravel*, or in *Quarries*, as most other *formed stones*, but upon the *surface* of the *earth*, as the ingenious *Mr. Beaumont* also says they are in *Somersetshire* and *Glocestershire*, in the *roads*, where the *earth* is *bare*; and produced, as he thinks, in clear *Evenings* by a *coagulation* of *dew* falling on *nitrous steams*, as the *hexangular Chrystalls* are observed to be, by *M. Antonino Castagna*, and *P. Francisco Lana*, at a place called *Mezzane* in the *Val Sabbia* in *Italy*, only in certain dry places, naked and bare of all *greens*: and perhaps as those *octaedrous Chrystalls* are, mentioned by *Scheffer* to grow upon the dry rocks in *Lapland*, which the people of that *Country* use instead of *flints* to strike fire with ^h. Whether this be the true method *nature* uses in the production of these *stones*, though I dare not pronounce; yet it moves me not a little, that the *hexangular Chrystalls* of the *Val Sabbia* being all gather'd from those bare and sterile places overnight, there will be others found next morning, whenever there happens to be a *serene* and *dewy* Sky. Howbeit, they still come from the *inferior heaven*, and are placed here for a much better reason than ever was thought of before; and most commodiously have afforded me an apt transition from the *heavens*, into the *Atmosphere* or inferior *Air*.

7. Which though thought incapable till now of giving any *figure* to *stones*, yet has many of its *Inhabitants* in part, if not in whole, represented in them, which before I descend to those belonging to the *waters*, I think ought to be consider'd here. Whereof that which deserves the first place, is a *Perdicites*, which I gather'd in the *Horse-way* near *Hollingbury-Hall*, the Seat of the truly *Loyal* and *Valiant Gent. Captain Richard Minors*, a person of approved *courage*, from his youth upwards, both at *Sea* and *Land*; which I call a *Perdicites*, not for the same reason other *Authors* doe, for this has nothing of the colour of the *feathers* on a

^e *Philosop. Transact. Numb. 83.* ^h *Job. Scheffer's Hist. of Lapland Chap. 33.*

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Partridges

Partridges breast, but that in solido it represents a Partridges Skull, in the true shape and bigness, having the Eyes and short beak, and hollowed behind, just as if the brains had been taken out, as most faithfully exhibited Tab. 11. Fig. 6. To which I must annex another pretty stone, belonging also to the feather'd Kingdom, found near Church-Eyton, and bestowed on me by the Schole-Master there, which from its most accurate resemblance of a Pullets heart, with the fat near the basis of it, and the Coronary Vessels descending from it, as most exactly delineated Tab. 11. Fig. 7. I think I must call Alethoricardites, this being a more restrained name than the Anacardites of Aldrovandus. Both which also seem to be of the pebble kind, but whether they ever were the designes of nature, or but casualties only, there being no more of their kind, I shall not dispute; but leave them wholly to the determinations of each Readers judgment.

8. As some stones have their figures from aerial waters, or dews, falling on nitrous steams; so there are others as likely formed by such steams and subterranean waters; and such I take the Chrystals to be, found in digging in Barrow-hill in Pensnet-Chase, belonging to the right Honorable Edward Lord Ward, which I have not scrupled to stile Chrystalls, because many of them are composed of two hexagonal Pyramids, & an intermediat Column, likewise hexagonal as in Tab. 11. Fig. 8. which according to Steno, is the very definition of a Chrystall. Some indeed of them seem only to be dodecaedrons, having only one hexagonal Pyramid, and the hexagonal Column; the other hexagonal Pyramid being hid in the rock wherein it grew, and left there, when the rest was broken off; which were the stones mention'd §. ult. of the former Chapter; but they are all (I believe) really octodecaedral when gotten intire, and true Chrystals: whenever therefore they appear otherwise, they may be suspected to be imperfect, and broken either in the getting or some other way. They are sometimes stained with a violacious colour, and perhaps may admit other tinctures sometimes, though it was not my fortune to meet with any of them; but they are ordinarily found of their own Chrystalline colour, the planes both of the Pyramids, and Columns, being all naturally polish'd.

9. From the same Origin I think I must also deduce (because not able to assigne any better) another sort of formed Chrystals, shewen me by the same noble Lord, though shooting forth of his Limestone rocks, near Dudley Castle; whereof his Lordship was pleas'd to favour me with that large pattern, described Tab. 11. Fig. 9. in which though the Chrystalls are set very confusedly, yet

Vid. Joh. Kentmanni nomenclat. rer. fos. tit. 5. cap. de Avibus. *Ulyss. Aldrovandi Mus. Metall. Lib. 4. Nich. Stensn. Prodrom. de Chrystallo. p. 53.

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they are all strictly of the same figure, with that engraven a part, Fig. 10. made up as it were of 12. Pyramids joyn'd in base, all cut obliquely off at the top, making two hexagonal bedrae there, and 12 Trapeziums, which are so joyned by pairs at their broader ends, in the middle of each Chrystall, where they are consequently biggest; that the acute Angles of one combination, meet with the obtuse ones of the opposite pair, and divide each Chrystall with an indented ridg, as is evident to view in the forecited figure. Which though plentiful enough in the Limestone rocks here, yet is not mention'd, that I know of, by any Author.

10. But though these Chrystalls may be supposed to have been made out of water, congealed by the steams of niter rather than any other Salt, because of its hexagonal shooting; yet I could never hear that any of these, were ever found to include any water in the Center of them uncongealed, as some have been said to doe. But there are a round or oval sort of blackish or reddish stones, hollow and like a honey-comb within, found amongst the Iron Ore at Rusball, not to be past by here, because of their constant forme, though mention'd before Chap. 4. §. 18. that always hold a red or white liquor fluctuating within them, of a sweetish tast, greedily drank by the workmen; of which the Poet Claudian, might with as much admiration enquired, as he did of the Chrystall,

Lymphæ, quæ tegitis cognato carcere lymphas,
Et quæ nunc estis, quæque fuistis aquæ;
Quod vos ingenium junxit? qua frigoris arte,
Torpuit & maduit prodigiosa silex?
Non potuit toto mentiri corpore gemmam
Sed medio mansit proditor orbe latex.
Sollers lufit hyems, imperfectoque rigore
Nobilior, vivis gemma tumescit aquis.
Auctus honor, liquidi crescunt miracula saxi,
Et conservatæ plus meruistis aquæ.

in which verses the very Poet seems to intimate, the true cause of these Enhydri (of which kind I must needs esteem them) viz. that they are as it were but the imperfect works of nature, which has not yet perform'd its utmost; the included matter of these stones (as was fully proved in the place above cited) being nothing else but the matter of the Iron Ore, not yet coagulated into a Metallic forme. Which is all concerning form'd stones that purely relate to liquids, unless one may take a verrucose stone found near a petrifying Spring (of which more anon) in some lands of the right

Cl. Claudiani Epigram. 6, 7, 8.

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Honorable

Honorable Robert Lord Ferrers between Sandon and Gayton, to be a sort of *Stalagmites*, generated of pearles of dew &c. as in the *Hist. of Oxfordshire*, whereof also there is a *Cut* so exactly representing this of *Staffordshire*, as well as those of that *County Tab. 3. Fig. 8.* that it would be nauseous to repeat either of them here again. Yet I must not pass so by another of this kind, in the possession of the right Honorable Walter Lord Aston, which being of a very fine texture, almost as white as *Ivory*, and the best of the kind I ever yet saw, I have caused it to be represented here *Fig. 11.*

11. After *Stones* made out of *waters* and resembling *inanimate figures*, come we next to such as represent the *formes* of *Animals*, the Inhabitants of that *Element*; whether *Fishes* of the marine, or fresh-water kind: of the latter whereof (as in *Oxfordshire*) I met with only one, and that of the same *species*, but of a different colour; it being a reddish yellow stone, found somewhere about *Clifton Camvill* by the Worshipful Francis Wolferstan of *Statfold Esq*; not unaptly resembling the middle part of a *Barbel*; like that mention'd in *Oxfordshire*, and express'd there in sculpture *Tab. 3. Fig. 11.* But as for *stones* found like *Sea-fish*, though in this *Mediterranean County*, I have met with many, and of many sorts; but chiefly resembling *Shell-fish* of the *testaceous* kinds, both *univalves* and *bivalves*; and of the former of these, some *not turbinated*, and others again of the *turbinated* kind. Of the first sort whereof, *viz.* *Stones* representing *univalves*, not turbinated, I had two bestowed on me by the curious *Observer* the Worshipfull Walter Chetwynd of *Ingestre Esq*; so altogether unlike any of the living *Shell-fish*, that alone they are sufficient to convince any unprejudiced person, that all these *formed stones* cannot be shaped in *Animal molds*.

12. The *Shell-fish* that comes nearest them is the *Nautilus*, or *Coquille de Porcelain*, or as *Rondelet* calls it the *testaceous Polypus*, as may be seen by their draughts *Tab. 11. Fig. 12.* and *13.* the place of the head being in the utmost *curl* of the stone, and the tail in the *center*, but so hidden and cover'd with the common coat, that the first *turne* is only visible, as 'tis in the *Nautilus*: the largest of the two, seems also to have three or four obscure joynts cutting the large outer *turne* in right angles, as some of the *Shells* of that *Fish* seem likewise to have (the texture of them all running that way) and the lesser, two cavities or orifices; one, on each side the first *turne* as it passes under the place of the head toward the *center*, and striated from a straight line on the ridge of that *turn*, toward the place of the head, somewhat like a feather, neither of which agree to the *Nautilus*: nor is that part for the head near *patulous* enough in either of our *patterns*, to give sufficient ground

ground for any body to think them, ever to have been the *spoils* of that *fish*; not to mention how much they fall short of the magnitude of the *Nautilus*, the biggest of the stones not exceeding a fair *Nutmeg*, and the least scarce equalling an ordinary *field pea*.

13. Yet if any body will be so obstinat, as to hold me to it, that these may, and must be reduced to the *Nautilus*; he shall and must excuse me then, from ever yielding that the *Ophiomorphites*, or *Cornua Ammonis*, can owe their *figuration* to that *fish*, the *turnes* and *ribs* of all these being numerous and protuberant, and visible from the place of the *head* to the *center*, neither of which are found in the *Nautilus*, whereof I have met with an *Arch* of one sort, amongst several other intire ones, found in the *Lime-stone* rocks near *Dudley Castle*, given me by the right Honorable Edward Lord Ward, quite different from any of those mention'd in *Oxfordshire*^a, and therefore engraven *Tab. 11. Fig. 14.* its *ribs* on each side joyning in large *protuberances* near the inner part of the *Arch*, and tending obliquely toward the convex part where they terminat in as large and distinct *protuberances*, but not right against one another, but the *protuberance* of one *ribb*, pointing between two others on the opposite side of the *stone*, and so alternately on each side: and these *protuberances* not separated at the back, with a rising ridge as usual, but with a *deep furrow* as express'd in the figure: whereof I have since met with another *Sample*, but not in this *County*, it having in proportion to the stone as deep a *furrow* in the back, though not interceding near so large *protuberant ribs*. And these are all the *Stones* representing *Univalves*, except the large *Strombites*, or turbinated *Univalve*, of *Georgius Agricola*^b, of a plain *superficies*, found somewhere in this *County* and readily bestowed on me by the generous Walter Chetwynd of *Ingestre Esq*; which because already described in *Oxfordshire*^c, is omitted here.

14. But for such as resemble the *σπαιροδερμα* or *bivalvular Concha* there are great plenty here, as well of kinds as individualls, such as *Cockles*, *Escallops*, *Oysters*, &c. whereof there are some curiously lined, and others plain, with but few or no such *Ornaments*; and some of them found always single with their *shells* a part, and some of them joyn'd. And all these (except a *Pectinites* or stone representing a *Escallop shell*, found in *Ingestre* field, and at *Beresford*^d, and another resembling the *Concha fasciata* of *Rondelet*^e, or rather the *Tellina* of *Buonanni*, found too some-

^a Nat. Hist. of Oxfordsh. chap. 5. from §. 87. to 95. ^b Agricola de natura fossilium, Lib. 7. ^c Nat. Hist. of Oxfordsh. chap. 5. §. 63. ^d M. Listeri Cochlearum Angl. part. 2. memb. 2. cap. 1. tit. 50. ^e Gul. Rondeletii de Testaceis. Lib. 1. cap. 33.

where thereabout, and most accurately express'd by his 44 Fig. 1) quite different from all those described in *Oxfordshire*, and from any of the shells I have yet met with, either in the *Astmolean Museum*, my owne small collection, or any where else: So little seems Nature to have need'd *Animal molds* for these productions. Witness first a sort of *Ostracites* or *λιθόστρον* shewn me by the ingenious Mr. Cotton in the rocks near his house at *Beresford* by the *Dove* side, which though as large and shaped somewhat like *Oysters*, yet certainly were never such, their *striae* not being bent to the *commiffure* as those of all *oysters* are, but descending quite contrary from the *commiffure* to the *rim* as in *Tab. 11. Fig. 15.* having 3 or 4 *Lacunæ* or furrows much larger and deeper than the rest, including 4 or 5, and sometimes 7 or 8. of the lesser *Striae*, that descending from the *commiffure* through the middle of the stone being always the biggest.

15. These are always found single with their shells a part, striated without as in the aforementioned figure, and some of them within too, having a deep depression in the middle, in form of a *heart*; as in *Fig. 16.* But others there are somewhat of this kind, having always the deep *Lacuna* descending from the *commiffure* over the middle of the stone, and only that large one, beside the common smaller ones, found always with their two shell-like stones conjoyned like large *Cockles*, but the *commiffure* never close, having a large striated furrow between the *rostra* of the shells, as in *Fig. 17.* to which I can find nothing like amongst the *Bivalves*, but the 73 or 80 of *Filippo Buonanni*, and the *Concha πολυλεπτοήγυλλου* of *Fab. Columnæ*, but then neither of those, have that deep furrow cutting the middle of their shells, as these of stone have. Upon which account too, and because they have no manner of shew of ever having had *Ears*, of both, or one side; though their *Striae* are equally spread from the *commiffure* to the *rim*, they cannot be reduced to the *Pectines* or *Pectunculi*, i. e. to any sort of *Escallops* shells; nor can they be refer'd to the *Chamae Striatæ Pectiniformes* of *Aldrovandus*, or the *Pectunculi* of *Belonius*, (which he expressly says have no *Ears*) nor the *Conchæ Striatæ*, or streaked *Cockle*-shells; because neither of an oblong figure, as all the former are; or bearing more toward the one, than the other side, as the *Conchæ Striatæ* doe: but spreading themselves to so great a circumference that they almost absolve a *semicircle*; the two uppermost *striae* wanting but little of meeting in a *right angle* at the *commiffure*, which I doe not find agreeable to any sort of *bivalves*.

¹ F. Buonanni observation' delle Chiocciolle Parte seconda classe seconda. ² Ibidem. ³ Fab. Columnæ Purpura. cap. 11. ⁴ Ulyss. Aldrovandi de Testaceis Lib. 3. cap. 69.

16. The most critical Observer Mr. *Chetwynd* of *Ingestre*, gave me some others of this kind, much less than the former, scarce striated at all, or having any other perfect furrow, but that descending through the middle of the stone, graven of its natural size *Fig. 18.* which I can no more parallel with any sort of *Shell-fish*, than those above mention'd. Nor with any yet described formed stone; that which comes nearest them of any thing I have yet met with, is the *Pectunculites anomius* *τριλοβος* of *Fabius Columnæ*, and Dr. *Lister*, whereof I had two presented me by the worshipfull *Fran. Woolferstan* of *Statfold* Esq; about two inches round, so exactly answering those described by *Columnæ* in their colours (one being wholly of a yellow, and the other of a blewish near the *commiffure*, but more obscure and yellowish toward the sides) that he had not, I believe, two more agreeable patterns, when he made that description. These, I think indeed, have some small resemblance of the stones above mention'd, yet so far are they still from seeming ever to have been cast in *Animal molds*, that (as the worthy Dr. *Lister* freely own's) neither can these be match't amongst the living *Conchilia*, no more than the others.

17. I met with the same also at *Dudley Castle*, found in the *Limestone* rocks, but these very small, not exceeding the *Rouncival* pea in bigness; and yet still less about *Ingestre*, some whereof not so bigg as the smallest *Vetch*; yet all consisting of two anomalous valves, of which (contrary both to *Columnæ* and Dr. *Lister*) I take the most protuberant, though hid at the *commiffure* by the *rostrum* of the other, to be the bigger; that having two long Lobes, and but one short one: and the more depressed valve, the less; it having but one long one, and two short ones: which shut into one another alternatim, as the teeth of the smaller *striae* doe, also betwixt one another: two straight lines passing between the three longer Lobes as may be seen in the *Cutt, Fig. 19.* and 20. which I have caused to be graven, notwithstanding they are to be found both in *Columnæ* and Dr. *Lister*; those books being in but few hands, and almost as rare as the stones themselves, beside, not well designed in either of them.

18. To which add two *Chamae*, or *Cochlites striati*, found somewhere about *Ingestre*, and given me by the most ingenious *Walter Chetwynd* Esq; Lord of the place; whereof one has both valves conjoyned, one of them being convex, and the other not flat but a little concave, as in *Fig. 21.* and both striated from the *commiffure* to the *rim*, somewhat like the *Pectunculus* of *Belonius*; only I doe not remember, that I ever met with any shell-fish whose flat

¹ Fab. Columnæ Purpura, cap. 15. ² M. Listeri Cochliturum Angliæ part. 2. memb. 2. cap. 2. tit. 57. ³ Ibidem. ⁴ Locis supra citatis. ⁵ Gesneri de Aquatilibus Lib. 4. p. 813.

shell was thus excavated; much less whose protuberant shell was striated within-side as that above mention'd fig. 16. and our other Conchites or Chamites striatus, given me by Mr. Chetwynd which was found single, set in a hard pebble, as exactly represented fig. 22. on which yet I lay not so much stress, as upon any of the rest; because the convex side being hid by the pebble, it may be argued, that this is only the bed of a petrified Chama, though I could not learn, that any such thing left forth it, upon the breaking the pebble.

19. Having done with the form'd stones relating to the waters, I hasten on (according to the Method I prescribed my self in the begining of this Chapter) to such as bear any similitude to terrestrial bodies, and amongst them, first of such as belong to the mineral Kingdom; some of the Ores both of the noble & viler Metalls, having been found shot into certain figures: thus as I was told by Mr. Persehouse of nether Gournall, a parcell of Silver Ore that was found in the hard rock in digging a well in his Garden (of the Metall whereof He shewed me a tooth-pick) was all figur'd like the shells of Escallops; nor need we much to wonder at it, if we reflect upon a relation of Peter Martyr Counsellor to Charles the first, who expressly tells us that in Hispaniola, not only the Ore, but pure native Gold it self, is found so naturally form'd, that it is thought to be a living Tree springing and spreading from a root through the soft pores of the Earth, and putting forth branches even to the day it self; shewing beautifull colours instead of flowers, round stones of golden earth instead of fruit, and thin plates instead of leaves: some of the branches being as small as threds, and others as bigg as a Mans finger, according to the largeness or straightness of the rifts or clefts of the earth or rocks, wherein it grows.

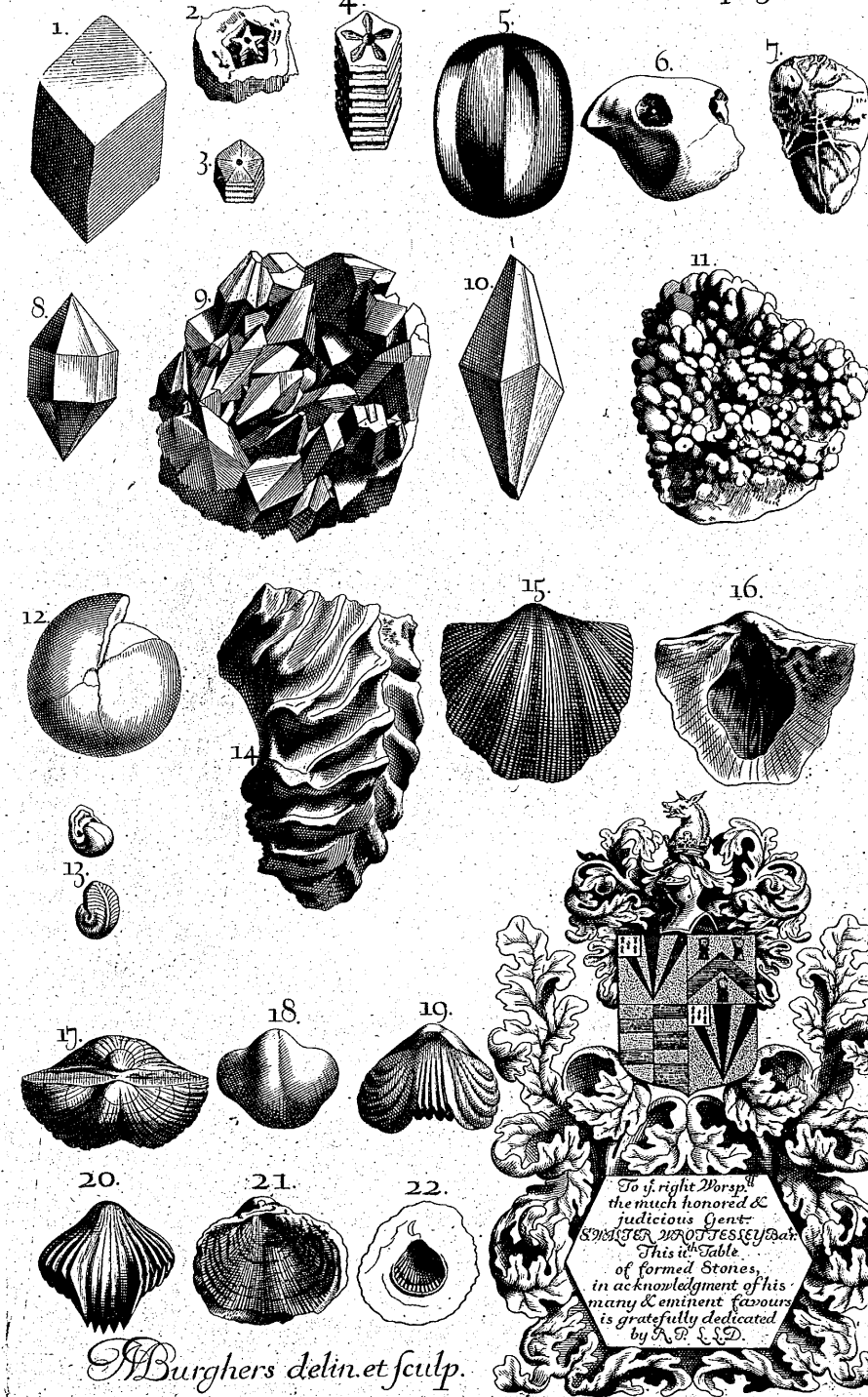
20. The truth of which History is amply confirm'd by that noble Philosopher the Honorable Robert Boyle Esq; who tells us that He spake with a very skillfull and credible person, that being in the Hungarian Mines had the very good fortune to see a Mineral that was there digg'd up, wherein pieces of Gold of the length, and almost of the bigness of a human finger, grew in the Ore, as if they had been parts & branches of trees. And the Reverend and learned my very good Friend Dr. Robert Huntington, Provost of Trinity College near the City of Dublin, has told me more than once, that he received it from very good hands, that native Gold has been thus found in the form of a Tree in Habessia, as well as Hungary and

^b Petri Martyris Anglerii de Orbe novo. Decad. 3. cap. 8. ^c Mr. Boyles Sceptical Chymist. p. 375, 376.

Hispaniola,

TAB. XI.

ad pag. 186.



To yr. right Worsp.
the much honored &
Judicious Gent.
JAMES WOODWARD Esq.
This is a Table
of formed Stones,
in acknowledgment of his
many & eminent favours
is gratefully dedicated
by J. B.

J. Burghers delin. et sculp.

Chap. V. Of STAFFORD-SHIRE. 187

Hispaniola, whereof an excellent pattern, was sent as a *present* from the *Emper* of that *Country*, to the great *Mogul*. Nor are these instances so new, but something like them was known as long agoe as *Virgil*, who seems to speak of this matter more like a *Philosopher* than a *Poet*,

————— *Latet arbore opaca*
Aureus & foliis & lento vimine ramus,

adding a little after,

————— *primo avulso non deficit alter*
Aureus, & simili frondescit virga metallo.*

21. The same is also asserted by *Munster* of *native Silver*, which He tells us has been found naturally shot in the form of *Trees, rods, twiggs* or *hairs*^a, whereof I have seen my self a tolerable *pattern*: But not such an one as *Wormius* was possess'd of, given Him by the Lord *Stenon Beck* the Kings *Treasurer*, which was an elegant *Mass* of *native silver* 12 Ounces weight, that imitated a *Vine* with all its branches varioussly spread abroad, and embracing one another, growing thick toward the root, and gradually tapering into the slenderest twiggs and clasps^c: Or that other branched piece of *Silver* of two Ounces weight growing out of a *Specular stone*, of a leaden colour without, but white within, also resembling a *Vine*, brought Him out of the *Mines* of *Norway* by *Nicholaus Fossius*^e. Now if *Metallic* substances doe thus usually take upon them the form of *Vegetables*; why not sometimes may they not of *Animals* too, as well as other stones? though we doe not very often find *Histories* of it: let that of *Valebius* in his *Commentary* upon the *Klein Baur* mention'd by Mr *Boyle* serve for all; who tells us that at *Maria Kirch* near *Strasburg*, a *Miner* upon opening the hollow of a rock, found a *Mass* of pure *Silver* of 500 pound weight standing upright in form of an *Armed man*: a much stranger thing than that *Silver Ore*, should shoot in the form of *Escallops*.

22 And as the *Ores* of the perfect and more noble *Metalls* sometimes take upon them the formes of *Vegetables* and *Animals*; so those of the baser and more imperfect kinds, doe sometimes shoot too into certain formes, but much more simple ones; which I have found true in this *County*, in the *Ores* both of the hard & soft *Metalls*. In the hard, which require ignition before fusion

* *Pub. Virgilio Aeneidos Lib. 6. v. 136, 137. & 144, 145.* ^a *Munsteri Geograph. Lib. 1. cap. 9.* ^c *Musaei Wormiani Lib. 1. § 3. cap. 3.* ^e *Ibidem.* ^f *Mr Boyles Scept. Chym. p. 365, 366.*

(not to mention again the *Iron Ore* impregnated with the milky liquor found at *Rushall*, which is mostly, if not always, of an oval figure without, and like a honeycomb within^a) In the Lime-work call'd *Radley* also in the parish of *Rushall*, and in those North of *Dudley Castle*, in the very body of the stone they sometimes find the *pyrites aureus* (which if torrefy'd according to *Agricola* & Dr. *Lifter*'s directions prove all *Iron Ores*) not only granulated, but sometimes formed in oblong squares, or right angl'd *parallepipeds* set irregularly in a common bed of *Limestone*, as in *Tab. 12. fig. 1.* which very pattern was found at *Radley-work*, & kindly bestowed on me by Mr *William Strong* of *Harding* alias *Hawarden*, and is the third of *Gesner*, which He calls *pyrites quadratus altera parte longior* in opposition to the cubic one^b;

23 Which too in the *Limestone hills* of the *Moorelands* in this *County*, is frequently met with, about $\frac{2}{3}$ of an inch square, of a purpleish colour, mixt with yellow shining parts without, but wholly gold-like ones within, such are also found upon the *Woods* in *Yorkshire*, and reckon'd by Dr *Lifter* amongst the *Iron-Ores*. *Wormius* also tells us they have them at *Osterdale* in *Norway*, but reputed there to be the *Ore* of *Copper*^c. Whether ours be one, or th'other, I shall not dispute, it being sufficient to justify it's being placed here, if it hold either *Metall*. However they seem to be the true *Ludus Paracelsi*, which says *Helmont* is so termed, *quod tali, tessaræ, aut Cubi formâ semper eruatur*^d, there being no other stone I have ever yet met with, near so agreeable: which pulveriz'd calcin'd, and mixt with a *circulated Salt*, and then set in a coole moist place to run *per deliquium*, and after digested *gr. 2.* till the *Ludus* swims like a thick *oyl*, upon the water contract'd from the moist *Air* of the *Cellar*^e, is the great *Arcanum* against the *Duech* or *lapis spongiosus*, generated in human bodies, of a middle nature between a *Tartar*, and the ordinary *Calculus humanus*.

24. The *Ores* of the softer *Metalls*, which have fusion before ignition, doe also sometimes shoot into a certain figure, witness a sort of *Lead-Ore* given me by the Worshipfull *Walter Chetwynd* of *Ingestre* Esq; but found in *Eaton* hill near *Warslow*, and sent him, I think, by the ingenious Mr *Cotton*, of an *Octædrous* form, made up of eight solid triangles, as in *Tab. 12. Fig. 2.* one of the acuminated parts being somewhat blunt where fixt to the rock. The ingenious Mr. *John Beaumont jun.* of *Stony-Easton* in *Sommerfet-shire*, informs us that *Lead-Ore* is often found in that *County* in a *pyramidal* form, much like the *Sparrs* that hang from the roofs of ma-

^a *vid. supra* chap. 4. §. 18. and chap. 5. §. 10. ^b *Geo. Agricola de re Metallica. Lib. 7. p. 194.* & *M. Listeri de fontibus med. Angl. Exercit. pr. cap. 2.* ^c *Comr. Gesneri de figuris Lapid. cap. 1.* ^d *M. Listeri de fontibus Med. Angl. Exercit. pr. cap. 2.* ^e *Musæi Worm. Lib. 1. §. 3. cap. 5.* ^f *J. Bapt. Helmsii de Lithiasi cap. 7. n. 22. 23.* ^o *Ibidem.*

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ny *Grotto's*. He also further adds in the same discourse, that the *rust* which often lyes there over the veins of *Lead-Ore*, shoots up *pyramidally* in many places, and is bounded round with six angles and sometimes with five; and that not only the *rust*, but the *Lead-Ore* it self, often shoots also *pyramidally* with rough irregular lines round it, and in some places bounded round very regularly with 4 angles, and in other places branched like a *plant*^a. But I doe not find him or any other *Author*, that it was ever found before in this form, unless that which he says ascends in 4. regular angles, be the same which ours, the other inferior 4 angles being hid in the rock.

25. After the form'd stones of the *Mineral*, I proceed next to those relating to the *vegetable Kingdom*, whereof there are some that resemble intire plants, and such is a *fungites* or *Tuberoïdes* which I found near *Hedgford* in the forrest of *Canck*, much such another as that described & engraven in the *Hist. of Oxfordshire*, & therefore not repeated here. To which add the *fungi lapidei coralloïdes* of *Fabius Columma*, which He honestly ownes, never to have had their origin, *ex fungorum cadaveribus, sed propria vegetatione ortum ducere*; that they were never *fungus's* and now petrified, but *lapides sui generis*, that have their growth & form, from another principle of their owne^b; and this He seems to prove, for that they have their *striae*, in the upper part, and not the lower as the terrestrial ones have (and therefore perhaps by *Baubin* call'd *fungi pileolo inverso*^c) the pedicle being smooth (says He) as *Clustus* has drawn them^d. In which particular only, ours differ from His; ours being most of them, striated from the lower part of the *pedicle*, to the very *cup*, and some of them further adorn'd with transverse protuberant circular edges, as may be seen in the *fig. 3 & 4.* which were freely bestowed on me amongst many others (wherof some are about an inch, others about 3, others 6 inches in compass) by the same worthy *Gent. Walter Chetwynd Esq;* who had them from about *Beresford*, and the fields about *Heatley*, and *Bagots Bromley*.

26. These, says the same *Columna*^e, have their vegetability the same way, with the porous *species* of *Coral*, of *Ferrante Imperato*, which He calls *Madreporæ*^f, whereof too I had an elegant pattern given me by the ingenious *Ch. King M. A.* and *Student* of *Ch. Ch.* Chaplain to Mr. *Chetwynd*, which was found at ----- in this *County*, and the most of any *vegetable* resembles a stoole of *reeds* or *rushes* cemented together by some *lapedescent juice*; but that this too

^a *Philosop. Transact. Num. 129. p. 734.* ^b *Ibid. p. 736.* ^c *Nat. Hist. of Oxfordsh. chap. 5. §. 132.* ^d *Fab. Columne dissertatione de Glossopetris. p. 39.* ^e *Job. Baubin. in paralipomenis sine Hist. admirabilis. fontis Bollenfis. Lib. 6. Exot.* ^f *dissertatione de Glossopetris p. 39. dell' Hist. Naturale di Ferrante Imperato Lib. 27. Cap. 4.*

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must be a stone of its owne kind, is evident from its being striated like the *fungi coralloides* at the top of every cylindrical branch, from a very promanent sharp center, as in *fig. 5.* which the inner parts of reeds or rushes, neither of them are; the former being hollow, all but the joynts; and the latter having a *pit* altogether inform'd. So far are these stones from being petrifications, or ever having borrowed their form from plants. As some stones, on the other side, as evidently doe: witness the petrify'd moss or rather *Equisetum* mention'd before Chap. 2. § 114 of this book, and represented here *fig. 6.* which is so certainly nothing else but a petrification of *Equisetum coralloides foliis mansu arenosis* (whose leaves are always full of sand and therefore of excellent use for scouring of Glasses) that in the boggy ground above mentioned betwixt Sandon and Gayton, some of it may be had half petrify'd, and half remaining still verdant.

27. Amongst the stones that have the shape of whole plants, we must also reckon one, found on Hall's furlong, at the village of Stanfop, in the parish of Alstonfield, and kindly sent me thence by Mr. Rich. Hall, to whom I am indebted for many other favours, so exactly resembling the *muscus pyxidatus*, or Cup-moss as in *fig. 7.* that possibly it may once have been really so, as well as the *Equisetum* in the preceding paragraph. But I have another sent me by Capt. Jackson of the same Village, a person curious in such natural observations, that though it ascend from a common root tapering upwards branching it self forth from several internodia as in *fig. 8.* so that it may not unfitly be reckon'd amongst the *flores arbore-scentes internodiis distincti*; yet it seems not at all probable that it ever was a plant, not only for that it would be a difficult task, to find to what species to refer it, but to account also for its being thus inclosed in a stone: much rather therefore should I conclude it, to have been heretofore some petrifying juice, that following the hollows of the rock, which casually were before of this figure, might naturally give it self this forme in the concretion, just as in a mold; though we see nature without any such help, does performe more excellent pieces of work than this; so that I must not deny neither but she might doe it, from an internal principle, as well as an external.

28. Hither also must be referr'd a most excellent Specimen of Mineral Corall, given me by the learned Walter Chetwynd Esq; much like that of Mr. Beaumont mention'd and engraven in the Philosophical Transactions, only the branches are not ruled up as his is: but what is more remarkable, they seem all to be joynted, as Mr. Ray informs us some of it is, as in *fig. 9.* very much resembling the *Corallium Tubulatum* of Ferrante Imperato: which

^y Philosoph. Transact. Numb. 150. ^z Historia Naturale di Ferrant. Imperato Lib. 27. cap. 4. whether

whether ever made in a coralline mold in this inland County, or a λιθόφωτον sui generis, out of principles of its owne, let the Reader determin. Somewhere about High-Offley, they have the fresh-water Adarce such as that described and engraven in the Nat. History of Oxfordshire, which was bestowed upon me by the right Honorable Lady, Jane Lady Gerard of Gerards Bromley, but this being rather an incrustation of an intire plant, or rather a plant sheathed within a stone, having its form ab alio, and not from any internal principle of its owne; I pass it by, as not properly a rock-plant, though perhaps not improperly mention'd in this place.

29. Other stones there are that only represent the parts of plants, such as the Stelechites, that are, or should be, like trunks of Trees; whereof there lyes one indeed near Dudley, betwixt Merryhill and Clyers-lane which they call a Pox-stone, i. e. a stone scarce vincible by fire; that so well resembles wood petrified, that I really thought it at first sight the stump of a Tree. But the Stelechites sibi facie of Aldrovand, whereof there are many in the rocks at Beresford, and Stanfop, and the rubble stones that lye loose above ground in the fields, near Heatley and Bagots-Bromley, seem not to deserve the name half so well; they being a sort of annular stones regularly joynted, and as regularly striated at top and bottom as in *Tab. 12. Fig. 10.* and therefore both as unlike the trunk of a Tree (though some of them are branched) or having the striae of Antimony (which are commonly irregular) as a thing can well be; nor can they indeed any way reasonably be compared to the trunk or stalk of any plant whatever. Wherefore the ingenious Mr. Ray ha's more rationally thought them, to be the Spinae dorsales or tail-bones of Fish petrify'd, they consisting for the most part of several plates or pieces sticking together like so many Vertebrae of the back-bone of some Fish; though at the same time he most ingeniously acknowledges, that these pieces are much shorter and thinner than the Vertebrae of any fish he had then observed. I am sure ours are so, the thickest of them scarce exceeding $\frac{1}{2}$ of an Inch, some not a $\frac{1}{4}$: though Dr. Lister tells us, he found some about Stock in Yorkshire full a quarter of an Inch thick.

30. Many of these being perforated some with a round, others with foliated or aserial inlets of 6 or 7 points, anciently when found single or but double or treble as in *Fig. 11* they were strung like beads, particularly by St. Cuthbert, which gave occasion to their other name of St. Cuthberts beads: and because thick set with small raies drawn from these perforated Centers or modiol

^a Nat. Hist. of Oxfordshire Lib. 5. §. 139. Tab. 6. Fig. 10. ^b Musaei Metallici Lib. 1. cap. 9. ^c Mr. Rays Observations Topograph. &c. p. 116. ^d Philosoph. Transact. Numb. 100.

to the rim, like the *spokes* of a *wheel*, by *Agricola*^c, and after him by *Gesner*ⁱ, *Boetius*^g, *Kentman*^h, *Wormius*ⁱ, and *Lachmund*^k, aptly enough call'd *Trochitæ*; and if compounded or piled upon one another, as in *Fig. 12. Entrochi*, or wheels within wheels; the *relieve* raies of one *Trochite*, always lying in the *intagli* or furrows between two protuberant raies of the other, as in the *Sutures* of a Skull. As for the *species* of them we find at the places above mention'd, most of those described and engraven by *Dr. Lister* and *Mr. Beaumont* in the *Philosophical Transactions*^l; with all the *varieties* of their length, greatness, joynts, cements, bores or piths, lineations, indentures, smoothness of some, ridges, knots, and branches of others; with all the accidental *injuries* that have befallen them: all seeming to have been dejected and broken; many of them deprest and crush't; and some of them having their very *Trochit's* dislocated.

31. I met too with some few of them, which had every second, third, or fourth *joynt*, larger than the intermediat ones; and with one of those *tapering* at both *ends*, and swelling in the middle like a barrel, marked with but obscure *raies*, as most of the old *Authors* say they generally are. But as for the *Summitates* (by *Lachmund* call'd *lapides figura penis absque præputio*^m;) the *Radixes*, and the several varieties of pentagonous, and hexagonous *plates*, supposed to incrustate them, found at *Broughton*, *Stock*, and *Bugthorp* in *Yorkshire*, at *Wansford-bridge* in *Northamptonshire*, and in the *Mendip hills* in *Somersetshire*, by *Dr. Lister* and *Mr. Beaumont*; whereof we have great variety in the *Ashmolean Museum*ⁿ; I met with none of them here, though possibly there may be enough, had I had time to have searched narrowly. However I have caused neither the *one* or the *other* to be engraven here, that have been done already, by either of the *forefaid* worthy *Authors*, in the *forecited* places: but shall content my self to proceed upon such matters only relating to them, which either they have wholly omitted, or but imperfectly described.

32. And first as to their *texture*, though *Agricola* and the rest after him, have observed that they are made out of *Lamellæ* or little thin Spar-like plates as the *Lapis Judaicus*, running 3 different ways, as that stone is described in the *History of Oxfordshire*: yet none of them have taken notice that the *raies* inscribed on the top of these *stones*, are made out of the *edges* of one of these *courses* of *La-*

^c *Geo. Agricola de Nat. fossilium Lib. 5.* ⁱ *Com. Gesneri, de figuris Lapidum, cap. 5.* ^g *Boetii de Boot, de lapidibus & gemmis Lib. 2. cap. 227.* ^h *Johan. Kentmanni rerum fossilium Catalog. tit. 4.* ⁱ *Musei Wormiani Lib. 1. §. 2. cap. 10.* ^k *Fred. a Lachmund. Opus. 703. §. 3. cap. 16.* ^l *Philosoph. Transact. Numb. 100. 129. 150.* ^m *Fred. Lachmundi Opus. 703. §. 3. cap. 16.* ⁿ *Vid. Scrinium Listeri in Museo Ashmoleano. Nat. Hist. of Oxfordsh. chap. 5. §. 136.*

mellæ

mellæ set obliquely like a pack of Cards, endways or edgways, according as the *striae* appear long or short; and that the *raies* of the following *Trochite* are made also out of the *edges* of such *Lamellæ* set obliquely too, but quite contrary to those of the former *Trochite*, and so alternatly; as may be seen in the *edges* of each *Trochite*, in the *Entrochus* graven *fig. 13.* though in some of them again the *courses* of the *Lamellæ* seem not to be terminated within the *verge* of every *Trochite*, but (which is very surprisng) though the whole *Entrochus* seem without side regularly divided into *Trochit's*, and radiated on the *top*; yet the *courses* of the *plates* pass sometimes undivided through several of them, so that they will not break off in the *joynts*, as I have made tryal upon divers; but in deep *indentures* passing through two or three *Trochit's*. Nor have they remarked, that upon breaking or scraping them, they emit a fetid nauseous odour, like the *Wolf stone* of *Sweden*, which the *Lapis Judaicus* of *Oxfordshire* or *Palestine* will neither of them doe; which is a probable argument that notwithstanding they appear outwardly to have the same texture of parts, yet that they must arise from far different principles.

33. Also in the *radiation* of them I have met with one sort, given me by the *Worshipfull Walter Chetwynd Esq.* that I doe not remember any where noted before, it having a double order of *raies*; the first reaching from the *modiolus* or Center (which is in the form of a *cinquefoil*) about half way to the *peripherie*, where they are cut off with a deep *hollow trench*, taking up about half the remaining distance to the *rim*, the other moyety being *striated* again as in *fig. 14.* I have another too procured me by the right *Worshipfull* the generous, and very obligeing *Gent. Sr Walter Bagot* of *Blithfeld* Baronet, that has four very near equidistant *raies*, much greater and more prominent than any of the rest, as in *fig. 15.* And I had another sent me by *Capt. Jackson* of *Stansop*, that has an invecked Line running through the *raies* near the *periphery* of the *Trochite*, as in *fig. 16.* Which are all the differences I have found in the *Entrochi* of *Staffordshire*, relating to the *raies*, only that some of them, have *ridges* within side as well as without, with deep furrows between them, that are also *striated* from an open *pentagonous bore*, as in *fig. 17.* which too is a sort of *center* or *pith*, no where mention'd, that I know of by any of the *forefaid* *Authors*.

34. The *Entrochi* of *Staffordshire*, especially those of *Beresford*, are also much larger, longer, and therefore consequently compounded of more *Trochit's*, than either those of *Yorkshire* or *Somersetshire*: for I have one by me, given me by the most ingenious *Mr. Cotton* 3 inches & $\frac{1}{2}$ about, the center whereof is also full $\frac{1}{2}$ an inch

B b

over

over; and He shewed me another in one of the *rocks* near his house about the same bigness, near $\frac{1}{2}$ a foot long; but it was so fast inclosed in the rock, that I could not possibly get it out intire: How many *Trochit's* it might be compounded of, I must confes I did not compute, but I have one by me (the gift of the same worthy person) which though but 2 inches & $\frac{1}{2}$ long, is made up of no less than 35 of them; a number I think exceeding any they mention. And this is all I can find different from what they have observed concerning this kind of *Entrochus*; but that in ours, those which have the thickest roundest *joynts* or *Trochit's*, such as the 11. 12. 13 & 18 of Dr. Lister; and those whose *joynts*, as Mr *Beaumont* says, shew like a parcell of little *Barrells* piled upon another, have generally, if not always, the smallest *bore*s; and those which the thinnest *joynts*, the largest.

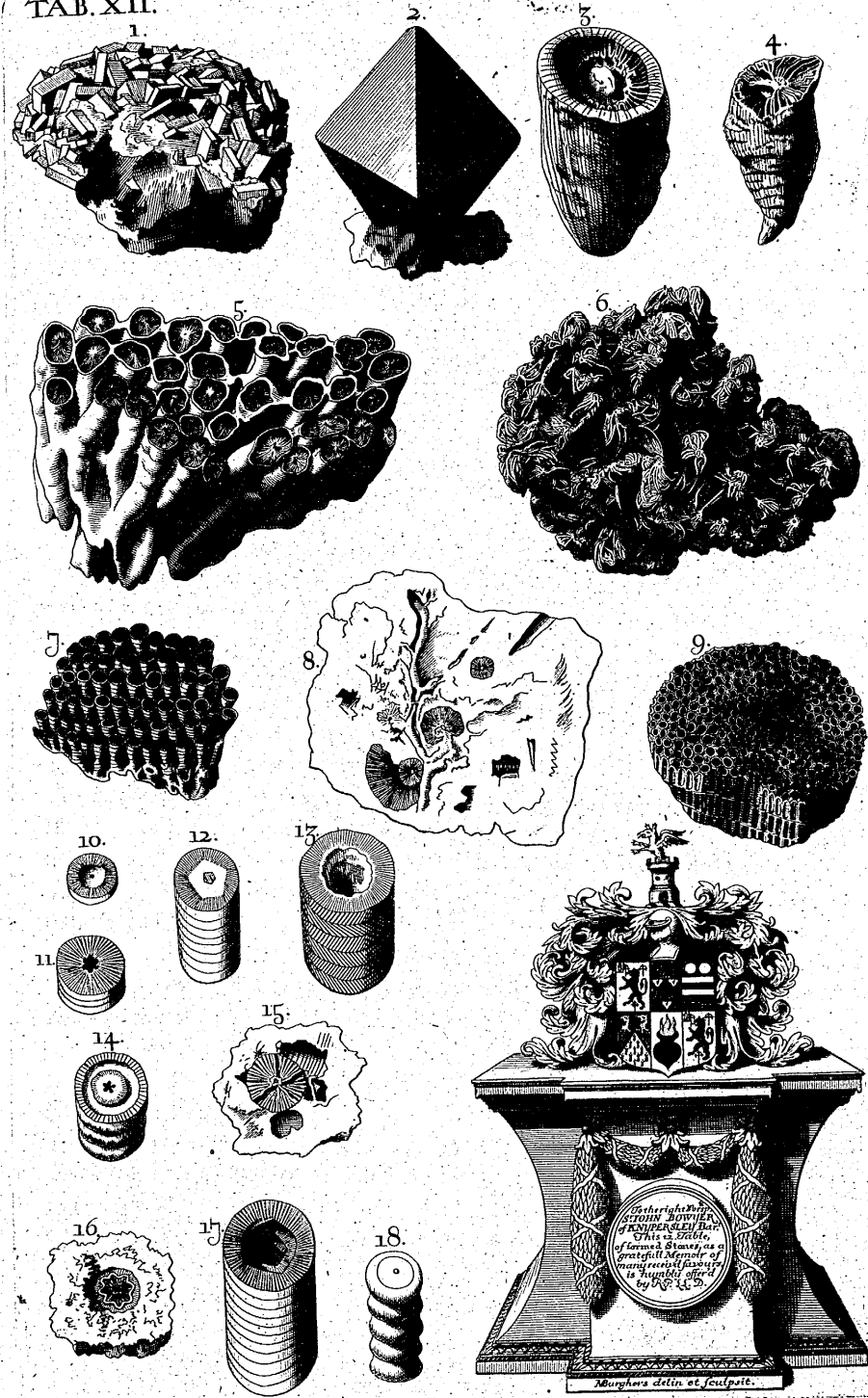
35. But both at *Beresford*, & *Stansop*; & about *Heatley*, and *Bagots Bromley*, they have another form'd stone, that seems with-outside, to be made up of thick *Trochit's* that have no *bore* at all; nor have they any *raies* on the top issuing from any solid *Center* as in *fig* 18. which I wonder not at, since upon breaking and cutting them, I doe not find they are compounded of such *plates* as the others are; nor doe they upon scraping or breaking send forth an odor: which different properties have induced me to beleive, that these may be rather the *Columnetta* of *Imperato*r, than *Entrochi* composed of *Trochit's*, though like them, they will rather break in the *joynts*, than any where else. Another sort they have rooat all the aforefaid places, that seem to be made up of *joynts* as the *Entrochi* are, but neither do the *Trochit's* appear round or square in their utmost *rims*, but sharp like the edge of a *screw* tapering from the place of their *joyning*, whence too they are only *friated* as in *Tab. 13. fig. 1.* so that the *raies* of one, doe not enter into the *furrows* of the other, neither doe the *Trochit's* or *raies* joyn with the *modiolus* or center (which in these is a large *cylinder* of black flint) in right angles, as the former doe.

36. Neither are these all of them *cylindrical* as the former, some of them *tapering* upwards from a broad *basis*, the lowermost *rings* being the *greatest*, and so gradually in the ascent decreasing in magnitude, as in *fig. 2.* And so far are they from having suffer'd any *accidental injuries* (scarce any of them seeming to be crush'd or dislocated, much less broken & imperfect) that they are generally, if not always substantially terminated at each end, & skreen'd as it were from *harms* by a *cavity* of hard stone, in which they are commonly found as in *fig. 3.* so that 'tis hard to conceive they were ever otherwise, since they shew not the least signe either of

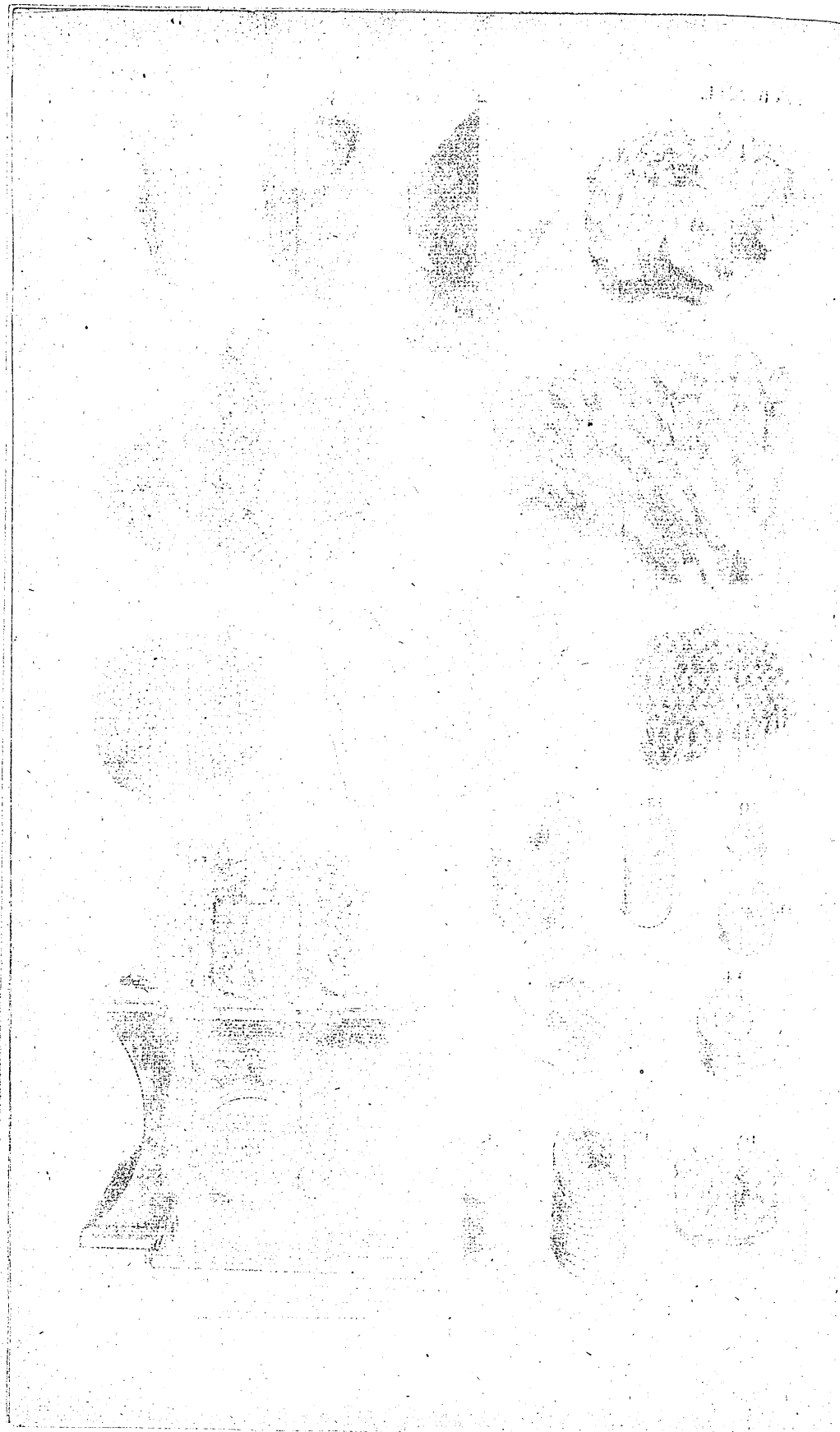
Historia Naturale di Ferrante Imperato lib. 24. cap. 22.

TAB. XII.

ad pag. 194.



Murgha delin. et sculpit.



Chap. V. Of STAFFORD-SHIRE. 195

a root or top. Nay so very different are these from the former, that some of them have also a *thin striated plate* passing from the *edge* of each *annulet*, to the sides of the *Cylindrical concave*, as in *fig. 4.* so that there appears a fair *cavity* betwixt each *ring.* And some again have *others* included in them as in that represented *fig. 5.* inclosed, says Dr. *Lister*, like a pair of *screws*: how His might be I cannot tell, but ours are so far from the *nature* of a *screw* (more than in the rising of the *edges*, from which reason only the *Country* people call them *screw-stones*) that they run not *helically*, but stand like *annulets* parallel to one another: nor doe the protuberant *edges* of the one, enter into the *furrows* of the other, as the male and female *screws* doe.

37. There are divers others too found in the same *places*, and given me by the same worthy *Gent.* that stand fenced thus in *cavities*, some of them in the form of *five columns* barely joyn'd, as in *Tab. 13. fig. 6.* others bound together by thin *annulets*, not striated, standing pretty thick and equidistant, as in *fig. 7.* Some again knit together by the same sort of *rings*, but by *pairs*, some distance interceding each *pair*, as in *fig. 8.* And others by *four* in like manner, as in *fig. 9.* To these add another sort fenced the same way, that are some of them *cylindrical*, of equal bigness from the bottom to the top, curiously wrought with small *rings*, first with *two* at some distance, then *four* close together, then *two* again, and so 2 & 4 alternatly, the whole length of the *stone*, as in *fig. 10.* and others wrought in the same manner, but *bigger* both at *top* & *bottom*, in form of a *pillar* with *pedestal* & *capitel* as in *fig. 11.* Lastly there are some very small ones that stand in such *cavities*, like straight smooth *pillars*, only purl'd with a row of *knobbs* on each side; & others there are that look like so many *buttons* piled upon one another: but many of these seem rather to be decayed great ones than any thing else, the *hollows* in which some of them stand, being as large as the rest, though the *pillars* very small.

38. Other stones there are formed like the *fruits* of *trees*, whereof I had one bestowed on me by the Worshipfull *Walter Cherwynd* of *Ingestre* Esq; in form and bigness, most exquisitely resembling the *bell* or *King-pear*; in all points the same with that described & engraven in the *History* of *Oxfordshire*¹; only this is a pebble, and that a black flint; and this but 9 inches about, whereas that was eleven: but not differing at all in form; I have forborne to give any *sculpture* of it. And I had a stone given me, by a poore man of the *Towne*, found on *Whittington* heath, tho not so very like the stone of an *Almond*, as some one would wish, it having 4 or 5 ribbs running the length of the stone as in *Tab. 13. fig. 12.*

¹ Nat. Hist. of Oxfordshire chap. 5. §. 134. Tab. 6. fig. 3.

yet it being very agreeable to the *Amygdaloides* of *Aldrovandus*, and not easily referrable any whither else, I have ventur'd (with favour) to give it place here. And I must beg the same licence for another of this kind, though one of the greatest curiosities of this nature I ever met with, for notwithstanding it represents in general the true shape of the *bicapsular seed vessel* of *Digitalis ferruginea*, or of some of the *Verbascum's*, as may plainly be seen *fig. 13.* having that patulous fissure at the top, that the *seed-vessel* of that *plant* naturally ha's when it is ripe: yet in the most protuberant part near the bottom, it is perforated with a small hole, round which there are several *striae* or lineations bent (not equidistant) but according as the form of the stone does permit, which indeed are not found in the *seed-vessels* of that *plant*, but in all other matters it truly resembles them, both in shape and magnitude: which being all concerning the *lapides phytoides*, but that this last was found at *Berresford*, and given me by the worthy *Walter Chetwynd* of *Ingestre* Esquire,

39. I proceed next to the stones relating to *Animals*, and first to those of the *Insect* kind, whereof I have one sent me by *Capt. Jackson* of *Stanfop*, so accurately representing the *combs* of *Bees*, that the *orifices* of each cavity are all *hexangular* as in *fig. 14.* just as *bony-combs* are. Others there are that seem to have been *Reptiles* petrify'd, of which some, found at the same place, & bestowed on me by the same worthy *Gent.* have the true resemblance of *land-snails*; which because already described and express'd in *Sulpture* in the *History of Oxfordshire*; are omitted here. And I saw part of a stone found amongst others in a *Marle-pit* between *Aqualat* house and the *Park*, that prettily represented a *Mole* or *Went* both in head and tail, but more especially in the foot, which was so very exact, that it was divided into claws, & was like the foot of that *Animal* in all particulars. The learned & ingenious *Edwyn Shrymsler* Esq; *Proprietor* of the place, told me also that there was found in the same pit, a stone resembling a *dog* couped about the *reins*, with nose and eyes so very perfect, and the hair standing up, as when that *Animal* is anger'd, yet without leggs; but this I did not see, it being some way disposed of, before I came thither. The same worthy *Gent.* gave me divers other stones found in the same pit; some *Umbilical*, having the form of a *Navil*, as in *fig. 15.* others in odd unaccountable shapes, yet having enough to shew *Nature* was designing somewhat. All which, in their constitutive parts, seem to be nothing else but a sort of petrify'd *Marle*, having all of them a small hole peircing them in some part or other, whereby I suppose they re-

^a *Ulyss. Aldrovandi Musaeum Metall. Lib. 4. cap. 1.* ^b *Nat. Hist. of Oxfordshire chap. 5. §. 140. Tab. 6. fig. 11.*

ceived

ceived the *Mineral steams*, or whatever else it is that gives them *form* and *augmentation*, as the ingenious *Mr. Beaumont* observes the *rock Plants* doe in *Mendip hills*.

40. Amongst the *stones* that any way shew the parts of *Animals* (to pass by the impressions of the *Cow* and *Calves* feet, on the great pebble, lying in the middle of the street at little *On*, with the fable belonging to them) I think we may reckon the *Orchites*, or *Lapides testiculares*, for I know not what else to term them, found near *Rudyerd Hall* at the *Conygre* there, which are much more proportionable to those parts in *Animals*, than those mention'd in *Oxfordshire* ^a but then we find them hear much more extravagant in their combinations; for hear you may gather not only the *Diorchis* and *Triorchis*, of *Aldrovandus*; but the *Tetrorchis*, *Pentorchis*, *Hexorchis*, and *Heptorchis*, such as described, *figures* the 16. 17. 18. and 19. The *Monorchis* too (if I may so call it, because found together with the rest) or single round stone, is plentiful here, all of them *granulated* as shewn in the *figures*, and *lapides sui generis*, never cast in any *Animal* mold. To which add a *Tbrichites*, so call'd because composed of short *filaments* like the hair of *beasts*, found in the bottom of the *Marle-pits* in the grounds of my worthy friend *Mr. John Bott* of *Dunball* in a place call'd the *Riddings* in *Barton-liberty*, much like that of *Oxfordshire* ^b, only it is of a whiter colour, and neither channell'd or joynted; however may so well be apprehended by that, that there needs no new representation of it.

41. Of *stones* that are strictly like the parts of *Men*, I have met with only two in this *County*, one found at *Whittington* near *Lichfield*, and given me by *Mr. Babbington*, and the other at *Drayton Bassett*, both so well resembling the *foot* of a *child*, that both may well enough be termed *Andrapodites*, and expressed in the same *sculpture*, *fig. 20.* they both seem to be of the *pebble* kind of a murrey colour, each between 4 & 5 inches long, but differing somewhat in bigness, yet so exactly of the shape of a *childs foot*, that I doubt not they might serve well enough for *lasts*, for *childrens* first, and second shoes. Nor has *Nature* been content to imitate the parts of *Men* in *stone*, but to delight Him with the representations of many *Utenfills* of *Art* relating to Him, such as a *Pipe* for his *Tobacco*, found in the same *Marle-pit* near *Aqualat* abovemention'd; which as the worthy *Mr. Skrymsler* seriously told me, so well resembled that instrument both in the *boll* and *heel* (but broken off at about an inch long in the *shank*) that it needed nothing of the strength of imagination to help it.

^a *Philos. pb. Transact. Num. 129.* ^b *Nat. Hist. of Oxfordshire chap. 5. §. 144. Tab. 7. fig. 5. 6.* ^c *Ulyss. Aldrovandi Musaeum Metall. Lib. 4. cap. 1.* ^d *Nat. Hist. of Oxfordsh. chap. 5. §. 145. Tab. 6. fig. 7.*

B b 3

42. In

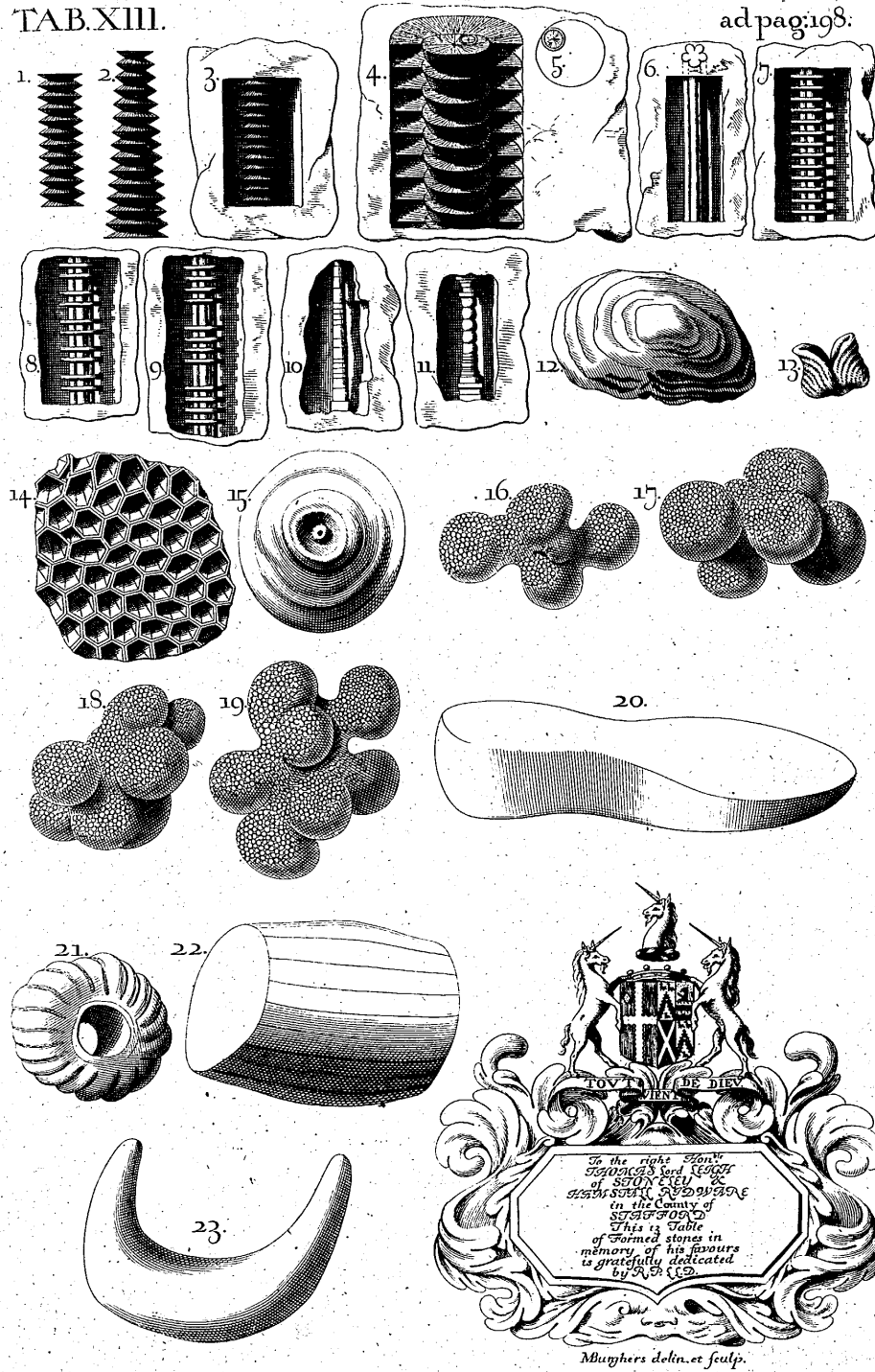
42. In the same Pit, was found another stone of a greenish-blew colour, with a bore through the middle, and furrowed from each orifice round the sides, like a *Cloak button*, as in *fig. 21*. which most certainly would really serve for a *button mold* of that form. Nor has *Nature* only provided *Man* with *buttons* to his *cloathes*, but with a *barrell* too, for his *drink*, as appears from a *stone* (were it hollow) found at *Alrewas*, and sent me by the worshiptull *John Turton* Esq; swelling in the middle and tapering at both ends, divided with such equidistant lineations the whole length of the *stone*, as are usually made by the *staves* of a *barrell*, as in *fig. 22*; but having no *hoops*: however perhaps it may well enough deserve the name of a *Cadites*. She seems also to have furnish'd Him with a *Saddle* for his *Horse*, if the *Ephippites* of *Aldrovand*, such as are frequently found in the Mountains near *Bononia*^y, will serve his turn; ours, found about *Walstanton* of a flinty substance, being exactly like his, only it has not the lifts round it, which contribute little to the name: however it being somewhat different, and but rarely met with it, I have caused it to be engraven *fig. 23*.

43. But amongst all the things of *Art* imitated by *Nature*, there seem none to be so surprizing, as the *rings* of *stone*, *Iron*, and *Copper*, found about the *stalks* of *Gorse*, in the lands of the right Honorable *Jane Lady Gerard* of *Gerards Bromley*; which I doubted not at all, when She gave me the first relation of it, were so shewen to her *Ladyship*, but always feared an *impostion* by some waggish hand: till I met with parallel Histories from other *Countries*, of what had been found of the like nature both in *stones* and *Metalls*. The former whereof is amply confirm'd from *Jamaica* by the ingenious *Mr. Stubbs*, where He says they find plants with stony *accretions* about their *boughs*, which are often loose and moveable, as *beads* upon a string^z. And *Bobuslaus Balbinus* in his History of *Bohemia*, tells us that 'tis so frequent in that *Country* for the *perfect Metalls* to conform themselves to the nature of the things among which they grow, that *Gold* and *Silver* is found in *stalks* amongst *Corn*, in *threads* about *Vines*, and sometimes growing in the insides of *Trees* about their *pith*^{*}. Now if so, why may not these *imperfect Metalls* (in a *Country* fruitful of them) grow in rings without side the *stalks* of *Gorse*, as well as the *perfect* both without and withinside other *plants*, in other *Countries*. However, these *Examples* of natural *rings* growing about *Sbrubs*, *Trees* &c. afford me a fair introduction to the next *Chapter* of *Plants*.

^y *Ulyss. Aldrovandi Museum Metall. Lib. 4. cap. 1. z Philosoph. Transact. Numb. 36. p 701.*
^{*} *Mr. Beaumonts Weekly Mem. Numb. 4. p. 29.*

TAB. XIII.

ad pag: 198.



In the right Stone
 of STUN CLEY
 in the County of
 SURFORD
 This is Table
 of Formed stones in
 memory of his favours
 is gratefully dedicated
 by R. A. C.

Murphers delin. et sculp.

C H A P. VI.

Of Plants.

1. **H**aving done with the *Mineral*, the order of *Nature* directs me next to consider the *Vegetable Kingdome*, the *Plants* of this *County*, whether Herbs, Shrubbs, or Trees; amongst which (as in *Oxfordshire*) I shall only treat of such as are

- Either {
1. wholly undescribed by any *Author* we yet know of, or described but imperfectly.
 2. that have not been found by the learned Mr. *Ray* to be *Indigenæ* of *England*.
 3. that have never till now been found to be *Mediterranean* plants.
 4. that have any unusuall *accidents* attending them.
 5. that are not commonly cultivated in the fields, where by the way, some of the *Agriculture* of the *Country*.

in which order, I shall consider all the aforefaid three *Species* of *Plants*, as far as each of them will bear it, and then proceed to the *Animal Kingdom*. And first of the *Herbs*; such as have a *carnous* substance, and will never become *lignous*; of which those that are *indigenous*, & wholly undescribed, or described but imperfectly, are these that follow.

2. *Muscus multiformiter pyxidatus, capitibus sive apicibus coccineis*. Which beautifull Scarlet-headed *Cup* or *Chalice-Moss*, in its flourishing condition, is of an ash-colour, sometimes darker according to the season of the year, and grows thick upon mole hills in *Cank-wood*, about *Wildmoore Hollies*, *Fair Oak*, and *Wolsely-park*, of the size, and sometimes of the figure of a *Clove*; the *Calix* now and then being square at the top, and sometimes round, and oval; never very deep but always set round or purled with *scarlet eminencies* about the bigness of small pins heads as in *Tab. 14. fig. 1.* which was first discover'd to me by the learned, and judicious *Edward Brych* of *Leacroft Esq*; and is so certainly an undescribed plant that I find nothing like it in any of the books; yet I cannot number this, nor any other *Cup-moss* amongst the *plants* properly so call'd as other *Authors* doe, neither of them producing either *flowers* or *seeds*, that have been yet discover'd; wherefore I rather chuse
to

to reckon it among the fungus's, which ushers in another undescribed fungus, that perhaps may not unfitly be stiled,

3. Fungus ramosus candidissimus ceranoides, sive digitatus minimus, nonnunquam corniculatus. This white branched finger formed Mushrom, whereof some of the blades are curled round, divided and jagged like the Spellers of a Bucks-head, as in Tab. 14. fig. 2. found plentifully both in Chartley and Ingestre Parks, ascends from a conjunction of many small branches at the bottom, about 3 or 4 inches high, commonly straight and somewhat flat, each blade (especially the greatest) channell'd near the top. The most like of any plant yet described to the Digitatus of Parkinson^a, only none of the blades of his are divided or horned, which perhaps may be accidental; yet it cannot be either his major, or minor, or the Digitelli of the Italians: which though a diminutive terme, are so large notwithstanding, that one of the white fingers (says he) will suffice a man for a meal. It remains therefore, that it must be an undescribed Fungus; and so must the

4. Fungus pulverulentus, cute membranacea, substantia intus spongiosa, pediculo brevi crassiori, in oras fere ducto. Which sort of fungus found near Packington, and first observed by Mr. Walter Ashmore of Tamworth, and after on Alrewas-bays near the deep spring mention'd Chap. 2. § 51. by Francis Wolferstan Esq; is very large, sometimes 4 or 5 inches diameter, and near two inches thick, and rises from a short thick pedicle, narrow at bottom, and extending it self broader almost to the brims of the fungus, like an inverted Cone as in Fig. 3. somewhat like the fungus tuberosus esculentus albus, fusco permixtus of J. Baubin^b: and the fungus durus Arborum sive igniarius of Parkinson^c. But can be nether of them, this being soft, and cover'd with a tough membranaceous skin, and the substance within much resembling a Spunge both in texture and colour; the Cavities whereof when it is ripe, are fill'd with just the same dust or fine powder, which flies from the Lupi crepitus or Fufs-ball upon which account I chuse to refer it to that kind of fungus, though it differ much from any yet described in the pedicle, and carnous substance; which as Mr. Ashmore orders some of it, is much like Spunk, or the downy part of Artimesia Aegyptiaca, and I beleive if boiled in Niter, like the fungus igniarius, might be render'd as usefull ad ellychnia, as any fungus whatever.

5. At Bentley in the park and lanes there about, at Oldfallings, & almost any where within 3 or 4 miles of Wolverhampton, the Fungus phalloides, or phallus Holandicus of Hadr. Junius, is frequently found in old dry ditch banks (about the middle of July and some-

^a Parkinson's Theatrum Botanicum. Tribe 14. chap. 63. ^b I Baubini Hist. Plantarum Lib. 40. cap. 16. ^c Parkinson's Theatrum Botanicum Tribe 14. chap. 94.

times

times if a warm Autumn, as late as Michaelmas. They are ordinarily betwixt 8 or 9 Inches long, and seem to be made up of 3 distinct parts: the Volva or round bagg at the bottom representing the Scrotum; the Coles or body; and the Capitulum Glandiforme, or nut of the yard; of which in their order. The Volva which is sometimes bigger than a Tennis-Ball (and seems to draw its nourishment by one or two small fibres, which are so tough that a man must pluck pretty hard to break them) is cover'd with a whitish tough membrane, which contains a thin pellucid gelley of an amber colour; under which there is another very white tunicle, that includes a dirty green farinaceous matter, which Baubinus compares to the tunica elytroides of the testicles; and then a third, smooth on the inside next the cavity in the center of the Volva, and faviginous like a bony-comb or tripe, without; out of which last membrane, both the body and nut of the yard, seem to grow; the whole length of the scapus or coles being faviginous without, and hollow within (the Cavity tapering at both ends, and growing wider in the middle in proportion as the scapus does) and the capitulum glandiforme also smooth underneath and faviginous without, the Cavities whereof are fill'd with that dirty green substance, that lay next it in the Volva, which corrupting becomes liquid, and sends forth that filthy stink, by the help whereof they are commonly found; though often too pass't by, upon that very account, many thinking it to be Carrion, lying hid somewhere near, and so heeding it no further.

6 All which may be clearly and fully understood by the exemplification of it Tab. 14. fig. 4, which I have caused to be engraven; because none of the Cuts either in Baubinus or elsewhere, seem agreeable to ours: wherein

- a. Shews the exterior membrane of the Volva.
- b. The pellucid gelley within it.
- c. The second tunicle, including the farinaceous matter.
- d. The third membrane, faviginous without, and smooth within.
- e. The hollow under it.
- f. The Veretrum, faviginous without.
- g. The hollow within, tapering at both ends.
- h. The capitulum glandiforme, smooth underneath.

i. Faviginous without, in the Cavities wherof lyes the stinking gelley, which is of the consistence of Tarr, first of a dark greenish colour, growing sadder by degrees as the plant decays, till it approaches a black. Standing in the Sun or rain it seems to admit of no alteration from either; all it has, proceeding from its self, which is very quick; its

^d J. Baubini Hist. Plantarum Lib. 40. cap. 60. 61.

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whole

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whole duration (after they begin to stink, till which time they are seldom found) seeming not to be above 3 or 4 days. Near the *phallus* here described, were found two other *baggs*, full of the same sort of matter as the *Volva*, joyned together with a tough fibre, having other roots or fibres issuing from it, as in *fig. 5.* which I take to be two distinct *Volva*, that had not yet sent forth their *phalli*, and not at all belonging to the intire *phallus*, but upon what account thus knit together, I must freely confes I doe not understand.

7. Which are all the *indigenous plants* either wholly undescribed, or described but imperfectly, that I met with in this *County*; and these too, only *fungus's*, plants improperly so call'd, having neither flowers or seeds, that we yet know of. Nor doe I much wonder at it; the most ingenious & most industrious Mr *John Ray* having lived so many years in the confines of this *County*, and no doubt searched it diligently. However I heard of one growing on the paper-Mill dam poole in *Heywood park*, though described by other *Authors*, yet not noted by that worthy person to be of *English* growth, viz. *Tithymalus Characias Monspelienfis*, or sweet wood-Spurge, the Eighth of *Gerard*; or great French wood-Spurge, the Second of *Parkinson*; which seem by the *Cuts* to be much the same, and are so well described by both those *Authors*, that I shall supersede any here.

8. And as for such as were never found till now to be *Mediterranean plants*, my worthy friend Mr. *Charles King*, Student of *Ch. Ch. Oxon*: and *Chaplin* to Mr. *Chetwynd*, shewed me the *Turbith* of *Serapio*, the *Tripolium vulgare minus*, or at least the *Tripolium minus Germanicum*, the *Sea Starr-wort* of *Germany*, well described, and whereof there seems to be a good Cut in *Johnson's* enlargement of *Gerard's* History of Plants. Which though generally said to grow upon the *Sea-coasts*, especially in *Salt marshes* where the *tide* eb- beth and floweth, as *Lobel* saith the *Tripolium vulgare minus* doth at the mouth of the River *Po*, and *Johnson* at the foot of the fort at *Gravesend*, in the *Isle* of *Sheppey*, and near *Sandwich* in *Kent*, all near to *Salt marshes*; yet here it is found in an inland *Country*, at least 50 miles from the *Sea*, in the grounds of the worthy Mr. *Chetwynd* of *Ingestre*, within two miles of *Stafford*; and yet not much to be wonder'd at neither: for though found thus in a *Mediterranean Country*, so far from the *Sea*, it seems not at all to have been out of its natural abroad: for it grows here in a ground call'd the *Marsh*, mentiond before in this *Hist. Chap. 2. §. 112.* near the

^e Gerard's Hist. of Plants enlarged by Johnson Lib. 2. chap 139. ^f Parkinson's Theatrum Botanicum Trib. 2. chap. 16. ^g Mattheae de Lobel Plantarum & Stirpium Hist. pag. 158. ^h Johnson upon Gerard Lib. 2. chap. 93.

place

place where the brine of it self breaks out above ground, frets away the grass, and makes a plash of *Salt-water*. Just as *Cordus* saith the *Tripolium minus Germanicum*, or *Anthyllis*, groweth in the *Salt Marshes*, that are nigh unto a *Lake* of brackish water, near *Staffurt* in *Germany*, which in all probability too is an inland *Towne*; as if this plant were confin'd to grow in places of the like situation and name, though in inland *Countries*, and far remote from the places of its usual growth.

9. As for extraordinary *Accidents*, that have happen'd amongst the *indigenous herbaceous plants* I have met with but few; and those I suppose arising chiefly, either from the *soile*; or from the *season* wherein the seed of them was sown; or from some other *external accidents*. From the first whereof, it most certainly comes to pass, that *plants* sometimes produce *flowers* of different colours from what they usually doe; as I have reason to suspect a *Digitalis* or *Fox-glove* that I found by the way side near *Norton* in the *Moor's* might possibly doe, from the poverty of the *Soile* there about, which ordinarily produces a *preternatural whiteness*, as was fully shewn in the *Nat. Hist. of Oxfordshire* ^k. Or else that the seed of this plant by some casualty or other, was not committed to the *Earth* in due time, which experience has taught us will make the same alteration in the colour of flowers as was found by that most skillfull *Botanist* Mr. *Jacob Bobart* of *Oxford*, who seriously told me He once sowed *stock-Gillo-flower* seeds in the *Spring* which produced red flowers, and others again three months after, out of the same paper of seeds, which brought all *white* ones: so very nicely doth the colour of flowers depend, upon the agreeableness of the *season*, as well as *soile*.

10. Nay so very unaccountable are the colours of the flowers of plants, that as the same worthy person told me more than once, from the seeds of the same *Anemone*, which was all of the same colour, and sown in the same place, were produced *Anemone's* of as great variety of colours, as if He had sown a mixt seed from divers: to which I can further add, that flowers of two different colours shall sometimes grow upon the same stalk, which may well be presumed to come from the same individual seed; as I was shewn it by an excellent *Florist* at *Bescot* in this *County* in the *Caryophyllus hortensis*, where there grew a red one and a white, on the same stalk: which whether to be attributed to the seed, or soil, seems to be an insuperable difficulty. Much more certain is it, that the thickness of the husks of the *Corn* of this *County*, which is another accident, proceeds solely from the soil it being held here for a

ⁱ Val. Cordi Variar. Observat. Sykva p. 222. ^k Nat. Hist. of Oxfordsh. Chap. 6. §. 9. 17, 18, 19, 20. and 38.

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certain

certain *Rule*, that the colder any *Country* is, the thicker will the *husk* of any sort of *grain* be; as if *Nature* designed to fence it against the *severity* of the *Clime*.

11. And these are all the *accidents* relating to *Herbaceous Plants*, I met with in this *Country*; except we may reckon untimely flowering, and bearing of fruit, for one; such as happened in the garden of one Mr. *Fobber* of *Aeton-Trussell*, who had once *Strawberrys* fresh and fragrant three days before *Christmases*: the same I once saw in *Merton College* garden in the University of *Oxford*. The reason whereof because not so commonly known, has the rather induced me to mention it here, and to let the *Reader* know that this may come to pass no less than two ways. 1. By *Nipping* the *Budds* before they come to *Flower*, and so putting them so far back, that they cannot recover this *injury* so as to produce their *Fruit* before the season above mention'd. Or else 2. By *Transplantation*, which is much the better and surer way, if one designe to have *Fruits* out of season (for the *Budds* nip't, sometimes will never make a second attempt,) thus *Strawberrys* transplanted before they *Flower*, and transplanted again in *Autumn*, if the *Winter* prove mild and temperate (which is absolutely necessary in both cases,) they may and doe perhaps, more frequently then noted, produce their *Fruit* about that time of year.

12. Of unusual *Herbaceous Plants* now cultivated in the fields, the *Vicia Sylvestris*, sive *Cracca*, the wild *Vetch*, here call'd *Targrass* has been observed in some parts to doe so well in *Meddows*, that it advances all starven weak *Cattle* above any thing yet known. And the *Pisum album majus* or garden-*Rouncival* has been sown in the common fields in the Parish of *Millwich*, which notwithstanding their great length, were found to run upon the ground without inconvenience, and to kern well. This as I was inform'd was first attempted by *Matthew Philips* of *Coton* in that Parish, with such success, that at first he sold these *Peas* for ten *Shillings* the *Bushell* in many other places in the *Vicinage*, to such Neighbours as were satisfi'd with the advantage of his good husbandry.

13. At Mr. *Traffords* of *Swytbamley* in the most Northerly *Moorelands*, I was first told (but found them almost every where else,) of a sort of *red-Oate* sowne thereabout, which upon examination I found indeed quite different from any sort of *Oate* any where cultivated in the *South* of *England*, the grain being redder, larger, and fuller of *Flower*, and requiring a stronger Soile then other *Oats* doe, of which they make their best *oaten* bread in that *Country*. And at *Burton* upon *Trent* I was shew'd by one Mr. Tomlinson

Tomlinson the *Avena nuda* or naked *Oat*, sown there by Him that very year, which grows in all points like other *Oates*, saving that they are much smaller, without husk, and are indeed perfect *gritts* naturally, requiring no *Mill* to make them into *Oatemeal*, as all other *Oates* doe.

14. To which I may add *Zeopyrum*, *Tritico-speltum*, or *Hordeum nudum*, naked barley, which I found sown at *Brocton* and *Ellarton grange*, where they otherwise call it *Bare-barley*, I suppose because without husk; and *Wheat-barley*, because though its *Eare* be shaped like *barley*, its *grain* is like *Wheat*, without any husk. For which very reason the *Latins* have termed it *Tritico-speltum*, it having the stalk, joynts, and bearded *Eare* of the true *Zea* or *Spelt* of *Lugdunensis*¹, though the *Corn* be like *Wheat*, and not husked, as all *Spelt* is. At *Rowley* in the Parish of *Hamstall Ridware* where it is also sown, they call it *French-barley*, because so like that which we buy in the *shops* under that name. In short it is a plant between *wheat* and *barley*, in goodness as well as form; it giving a flower, as worse then *wheat*, so better then *barley*; and is therefore sown that it may be used instead of *wheat* (for bread,) in a scarcity, and by the poorer sort at any time. It runs to *malt* as well as other *barley*, and makes a good sort of drink: but the great advantage lyes in the *increase*, it producing sometimes in an agreeable soile near twenty fold.

15. Yet a more improper sort of *wheat* then that above mention'd, is sown in the barren hungry lands of this *County*, viz. *Ocymum Cereale* sive *Tragopyrum*, commonly call'd *Buck-wheat*, not that it has any likeness either in the herbage or grain to any sort of *wheat*, but I suppose because the *Seed* of it serveth among the meaner sort for the same use, for making of bread. It is sown either alone, or mixt with other corn, as I saw it mixt with *barley* on *Heyley-Castle* hill, and so it is made into bread and eaten; which though less nourishing then *Wheat*, *Rye*, or *barley*, yet more then *Miller*, or *Panick*; and that nourishment good: for the *Country* People of divers places in *Germany* and *Italy* feed only upon this, and yet are strong and fit for the hardest labour. It digests easily and fattens quickly, especially *Cattle* and *Poultry*, which if not speedily kill'd after they are thus fatted, 'tis said, will dye of themselves, suffocated with their own fat.

16. *Triticum multiplex* or double-eared *wheat*, described in *Oxfordshire*^m, has been also sown at *Rowley Regis* in this *County* by *Hen. Warrant* tenant to Mr. *Amphlet* of *N. Clent*. And

¹ *Gul. Rovilii Lugdunens. Hist. Plantarum Lib. 4. cap. 4. Nat. Hist. of Oxfordsh. Chap. 6. §. 27.*

in *Worcestershire* and the S. W. parts of this *County*, *Triticum Polonicum*, *sive Triticum spica albicante aequaliter aristata, glumis foliaceis sive folliculis avenaceis, granis rufescentibus*, has been sometimes sown; and I was told by one at *Hilderstone* An. 1681. That he intended to sow it there the year following. This sort of *wheat* generally received by the name of *Poland*, is presumed originally to have come from thence; which rising from a fibrous root, grows 4 or 5 foot high more or less according to the quality of the land, with a larger stalk, and leaves, then other *wheats* usually have; bearing at the top a long *Eare*, with long spreading *foleaceous husks*, each about an *Inch* long; amongst which about the bottom grows the *grain*, which is longer and thicker than any other *wheat*; and is ordinarily some of it found to divide its *Ear* into smaller ones toward the lower part, somewhat like *Triticum multiplex*. Which being no where described that I yet know of, I have here caused to be graven *Tab. 14. Fig. 6.* And should have been numbred amongst the *undescribed plants* in the beginning of this *Chapter*, but that it is no native of *England*, and only cultivated here.

17. After the *herbaceous plants* I should have proceeded next to the *undescribed Shrubbs*, had I met with any in the *County*, but having failed therein, I immediatly apply my self, to those not noted by *Mr. Ray*, to be of *English* growth: whereof I met only the *Sambucus fructu albo*, growing plentifully in the hedges near the *Village of Combridg*, which differs not at all from the common *Elder*, in the growth, pith, scent, leaves, or flowers; only in the colour of the fruit and rind; which last in this, is also somewhat whiter. This says *Parkinson*, was first found by *Tragus*, in the Woods of *Germany*, not so much as imagining it grew any where in *England*: but I hear it grows also somewhere near *Maidstone* in *Kent*, as well as here at *Combridg*. The accidents attending *shrubbs*, also are not many, nor very considerable ones neither. At the *Honorable Harry Grays* of *Enfield* Esq; there grows a *Woodbine* in the garden 6 or 7 foot high, having several substantial branches, altogether independent of any support. And at *Millwich* at the South end of the *Vicaridg* house, grows an *Ivy Bush* which ascending to the top of the roof and twisting it self about a wooden pinnacle there, and having no higher support, after spreads into branches like an *Oak* or *Elm*, and carries a fine round top standing of its self like the *Cissos* of *Pliny*: which I could not but note as extraordinary in these two plants, they usually elsewhere requiring dependence.

* C. Plinii 2^a. Nat. Hist. Lib. 16. cap. 34.

18. Much more remarkable is it that happen'd to a *Vine* in the garden at *Aqualat*, which formerly bore a *red Muscadel*, now a very pleasant sweet *white Grape*. That flowers will change their colour from red to white upon the penury of the *Soil*, has been fully shewn in *this*, and the *History of Oxfordshire*: but that *fruits* should also doe it, is new to us; and yet that this must be the reason seems to be more then probable, because this very *Soile* that has so changed the colour of the *Grapes*, has changed *flowers* too; both whereof have been noted by the prudent and carefull observer *Edwyn Skrymsber* Esq; the Proprietor of the place, who could not well be deceived, having frequently eaten *Grapes* from it of both colours, and the *Vine* standing by it self, free from all others.

19. Thus having dispatch't both *herbs* and *Shrubbs*, I come at length to the *Trees*; amongst which some will needs have *St. Bertram's Ash*, that growes over a *spring* which bears the name of the same *Saint*, in the *Parish of Ilam*, to be of a different *undescribed species* from all others; and indeed it has a narrower sharper leaf, then ever I saw any: but whether this may not be ascribed to the *age* and *decay* of the tree, I much suspect. However it be, 'tis certain the common people superstitiously beleive, that tis very dangerous to break a bough from it; so great a care has *St. Bertram* of his *Ash* to this very day. And yet they have not so much as a *Legend* amongst them, either of this *Saints* miracles, or what he was; onely that he was *Founder* of their *Church*, where they shew you his *Monument*; of which I shall endeavour some account in the *Chapter of Antiquities*.

20. Much rather should I think the *yellow Yew* near *Smetbwick* Hall to be an *undescribed Tree*, which has some branches with all the leaves of a bright *yellow* colour: this I thought at first might proceed from some *disease*, or that those branches might have been wounded; but upon examination I found them all sound: Nay so far was this part of the tree from weaknets, that it had *berrys* on it, when the *green* part had none; and yet it differing from other *Yew-trees* only in colour, and not in any of the *Essentials*; I can neither afford to pronounce it a distinct *species*, nor allow it for an *undescribed plant*; the difference seeming but *accidental*, though perhaps hard enough to be accounted for.

21. As I suppose the *spots* may be upon the *leaves* of a *birch* in the *Copice* South of *Ranton Abbey*, which in the spring time are as red and shining as if *fresh blood* had fallen on them; upon which account it is reasonably enough call'd the *bloody Birch*: in

* Vid. Supra §. 9. of this Chap. and Nat. Hist. of Oxfordsh. Chap. 6. §. 38. Chap. 7. §. §. 13. 14. 15.

August indeed when I was there, the *spots* were of a somewhat darker hue; and the tree standing under an *Oak*, I suspected they might be caused from the dropping thence: but the *hassells*, and other underwood standing close by it, having no such matter on them; unless there be some secret quality betwixt an *Oak* and a *birch* that produces this dye, I cannot conceive how it should come to pass. However this is certain, that here is no sufficient ground to multiply the *species*.

22. No more then there is for a sort of *thorn* that grows in a hedgrow *Westerly* from *Whichnor* Chappel twixt that and the *Park*, which produces leaves in the *Spring* some years, of a brisk yellow or straw colour, which seemed to me, the leaves being less then of other thorns, and recovering their greeness (as was confest,) by *St. James-tide*, rather to be the effects of a *disease*; or the frequent cutting it for *presents*, then any thing else. Nor can I multiply the *species* for the sake of a *Black-Cherry*, growing in the Court before the house of the Honorable *Harry Gray* of *Enfeld* Esq; of so peculiar a vinous taste, that there are no others like them any where in the *County*; nor will they if transplanted to a competent distance, preserve the same goodness: which argues they have this quality from the agreeableness of the *Soil*, as the *Kentish* Cherrys have, which transplanted from that part of the *County* which is eminent for them, all degenerate more or less according to the quality of the *Soil*.

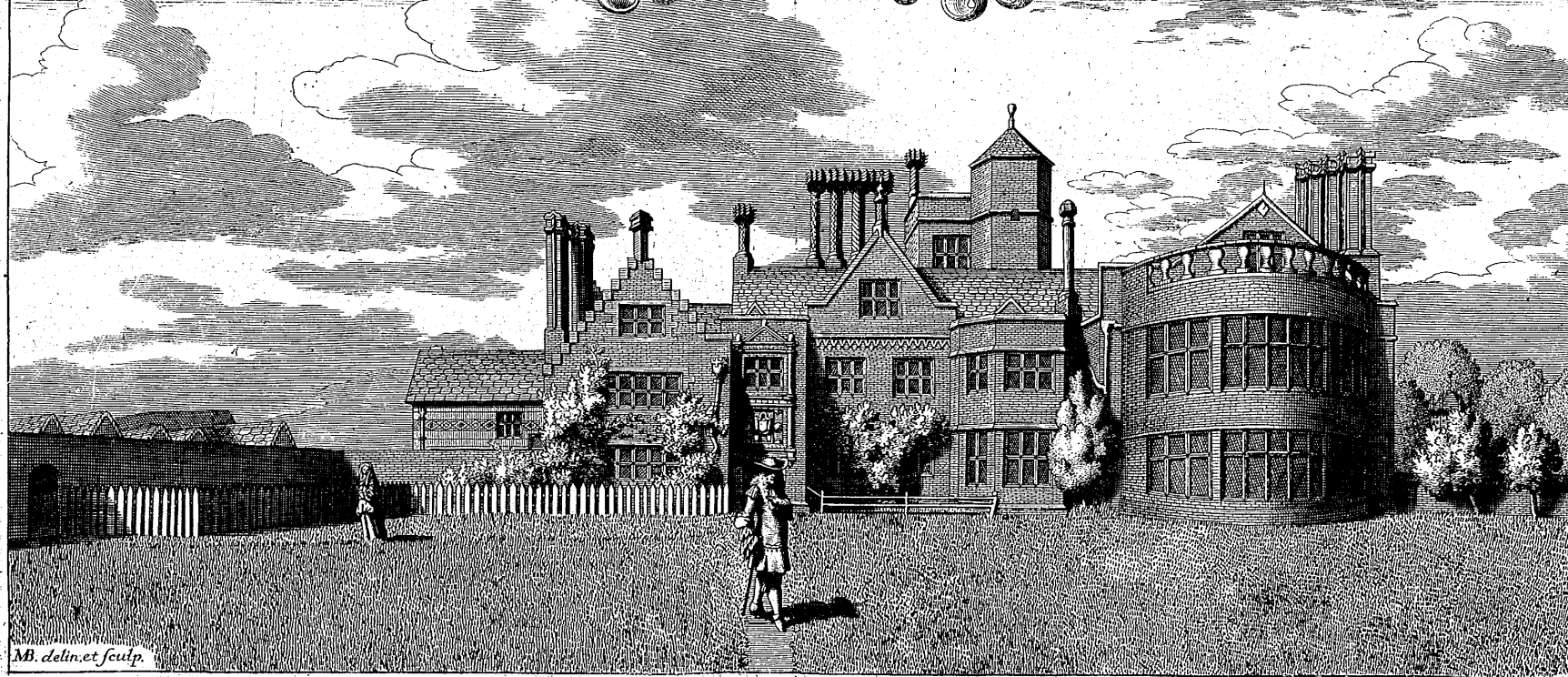
23. As for *trees* not noted to be of *English* growth by the learned *Mr. Ray*, the *Sorbus pyriformis* is not the only one I met with here, which grows wild in the *Moorelands* at many places, and is sometimes transplanted into their gardens: it is described by *L. Obelius*, *Mathiolus* and *Baubin*, who unanimously place it in *France*, *Italy* and *Germany*: but the first that ever found (at least noted,) it to be a *Native* of *England* that ever I heard of, was the skillfull *Botanist* *Mr. Edmund Pitt* Alderman of *Worcester*, who met with it in a *Forrest* of that *County* and sent this description of it to the *Royal Society*. It resembles (says he,) the *Ornus* or *Quicken-tree*, only the *Ornus* bears the flowers and fruit at the end, this on the sides of the branch: next the Sun the fruit hath a dark red blush, and is about the bigness of a small *Jeneting pear*; in September of so harsh an astringent taste, that it almost strangles one, but being then gather'd and kept till October it eats as well as a *Medlar*. Which description being agreeable, and very sufficient, I forbear any other.

24. This I say is not the only tree not observed by *Mr. Ray* to

* *Philosop. Transact. Numb. 139.*

TAB. XV.

ad pag. 209.



Chap. VI. Of STAFFORD-SHIRE. 209

be of *Engliſh* growth, that I met with in this *Country*, for though he mention the *Firrs* that grow near *Worton* in the *Eſtate* of the right *Worſhipfull Sr. Charles Skrymſber* of *Norbury*, yet he makes them to be the *Abies conis deorſum ſpectantibus*, which is our common *firr* or *Picea Dodonæi alba ſ. femina C. Baubini*, whoſe leaves are round, all over green, and thick ſet on all ſides of the branches: whereas indeed theſe are the *Abies conis ſuſum ſpectantibus* of *J. Baubin*, the *Abies legitima vel mas Bellonii*, or the *Abies* of *Parkinſon*, whoſe cones or apples always ſtand upright, the leaves flat, of a freſh green on the upper ſide, and white underneath, thick ſet on the branches only on two ſides, ſo that they appear flat, and ſhew (as *Parkinſon* will have it,) like the teeth of a comb. Adding withall that they grow every where in *Muſcovy*, *Poland*, *Denmark*, and *Germany*, in ſome parts of *Italy* and *Greece*, and as ſome ſay in *Scotland*; but not in *Ireland* or *England*, ſaving where planted: giving up the *Queſtion*, whether there were ever any growing naturally in *England* at any time heretofore?

25. In all which I fear (through the inadvertency of the Age, and his own ill luck in not lighting upon theſe,) he will appear miſtaken: for beſide that there is no doubt that theſe *firrs* (which are 26 in number, for I told them often,) ſtood in the hedges and fields where they now grow, when he wrote; in all probability they are natives of the place too; which I gather, not only from their diſorderly natural ſituation, and exceſſive natural height, to which planted trees ſeldom arrive; but chiefly from the ſtooles or ſtumps of many trees, which I ſuſpect to have been *firrs* found near them, in their natural poſition, in the bottoms of moſes and pooles (particularly of *Shebben poole*;) ſome of the bodies whereof are daily dug up at *Laynton*, and in the old *pewet poole* in the ſame *Parish* where theſe now grow: ſo that I am apt to believe, that theſe are only ſome remaines of the old naturall ſtock that grew here anciently, of which more hereafter.

26. As for the accidents attending trees we find none more remarkable than the exceſſes of them, and particularly in their growth, where they happen to be planted in an agreeable ſoil; a *Specimen* whereof we have in the walks befor *Fiſherwick* houſe, whoſe front is here engraven *Tab. 15.* it being the feat of the right *Honorable John Lord Viſcount Maſſereen*, *Baron of Lough-Neagh*, &c. one of the nobleſt *Patrons* of this work: where the trees planted but few years ſince (I think not much above 20,) are grown to a magnitude (for ſo many together,) almoſt

^b *Parkinſon's Theatrum Botanicum, Trib. 16. Chap. 96.*

beyond belief. Yet if we descend to single instances, I was told of two (I think,) that exceed these: one growing of an acorn set in a hedg-row between Colton and Blihbefeld by one Ralph Bate, which he lived to see a stout Oak bearing 2 foot square at the butt-end, whereof the first ten foot which was sawed into boards (it being lately cut down for building,) contained near a Tun. The other was an Ash that grew in Elford Church-yard about ten years since, which though planted within the memory of man, about 80 years before, had a body 7 or 8 foot in diameter, i. e. 7 or 8 yards in the girth, the timber of it being valued at thirty pound.

27. But if we step higher to trees sans date, scarce any County e're produced such Monsters as this; to which the great Oak at Norbury that grows twixt the Mannor and the Windmill, that is six yards in the girth; and the fair-Oake now standing in Cankwood, which is nine and 1/2; are but dwarfs in comparison: whereof there lyes one (the trunk of an Oak cut off at the bole,) near the Lodg-House in Ellenball park, of so vast a bulk, that my Man upon a horse of 15 hands high, standing on one side of it, and I also on horsback on the other, could see no part of each other: nay so far were we from it, that we judged the two tallest men in the County upon horses of 15 hands could scarce have don it. What this tree might be in girth we could not measure, the under part of it being buryed in the ground, but I judg it may be just such another Oak (only the trunk of that grew as it were triangular,) as was fell'd about 20 years since in Wrottesley park, which as the worthy Sr. Walter Wrottesley (a man far either from vanity or imposition,) seriously told me, was 15 yards in the girth, and lay so high when fell'd that two men on Horsback on each side the tree could not see one another.

28. Bobuslaus Balbinus tells us he measured the body of an Oak in the parish of Chodow in Bohemia just of the same bigness, viz. 45 foot in compass: how many Tunns these trees might contain is not related, but I scarce think either of them held so many, as the prodigious Witch-Elm that grew at Field in this County, and was fell'd within memory by Sr. Harvey Bagot, which according to an original paper put into my hands by the right Worshipfull Sr. Walter Bagot Baronet the present Proprietor, and as I had it from the mouth of Walter Dixon yet living, who was surveyor of the work, was so very great and tall,

That two able workmen were 5 days in stocking or felling it down.

* Bobusl. Balbini Miscell. Hist. Regni Bohemia.

That

That it fell 120 foot or 40 yards in length.
That the Stool was 5 yards 2 foot diameter, i. e.
That the tree at the butt-end was 17 yards in circumference.
That it was 8 yards and 18 inches, i. e. 25 foot 1/2 about by girth measure in the middle.
That 14 loads of Fire-wood, each as much as 6 Oxen could draw to the house at Field, being not above 300 yards distant, broke off in the fall.
That there was 47 loads more of Fire-wood (as large as the former,) cut from the top.
That they were forced to piece 2 Saws together, and put 3 men to each end, to cut the body of it in funder.
That there was cut out of it 80 pair of Nates for Wheels, and 8000 foot of sawn timber in boards, and planks, after six score per Cent. Which at 3s per Cent. came to 12 pounds.
All which is attested (as a thing, I suppose, they foresaw in a little time would otherwise become incredible,) under the hands of

Sr. Harvey Bagot.	Lawrence Grews	} Cutters.
William Cowper Steward	Humphry Chetton	
Roger Shaw Baylif	Francis Marshall	} Stockers.
Walter Dixon Surveyor	Thomas March	

29. And as to the number of Tunns according to the scantlings first above mentioned, they computed it to contain (after their gross Country way of measure,) 96 Tunns of timber; a vast quantity indeed for one tree, and well requiring ample testimony to render it credible: but whoever will take the pains to cast it nicely and more artificially, according to the above mentioned scantlings, will find that it must contain a 100 Tunns at least of neat Timber, a fifth part (which is sufficient in such large batts,) being allow'd for the wast of rind, chipps, &c. For supposing that this tree did taper regularly from such a base, to such a length; multiplying the area of the base, by a third part of the length, a 100 Tunns will be found a very modest account, all allowances for wast being granted that can reasonably be desired.

30. How much less in bigness and number of Tunns the Oak might be that grew in the new-park at Dudley, and made the table now lying in the old Hall in Dudley Castle is not remembred, much less can it now be computed, but certainly it must be a tree of prodigious height and magnitude, out of which a table, all of one plank, could be cut 25 yards 3 inches long, and wanting but two inches of a yard in bredth for the whole length; from which they were forced (it being so much too long for the Hall at Dudley,)

to cut off 7 yards 9 inches, which is the table in the *ball* at *Corbins-hall* hard by, the ancient seat of the *Corbins*, of which family my worthy Friend *Tbo. Corbin* Esq; is the present Survivor. What this might want in *bigness* (I say,) of the former tree, is hard now to determine, but sure it could not want much in *height*; for the tree that could bear near a yard *diameter* at 75 foot high, may well be presumed to run up at least forty foot higher.

31. But whether this equal'd it or no, the *Firr-trees* above mention'd now standing in that part of *Warton* which is in the parish of *Norbury*, 'tis likely may; severall of them being presumed to be about 40 yards high; but one there is amongst them, which though but 6 yards about, above the spurs; yet runs up to 47 yards, at least 7 yards higher than the aforesaid *Witch-Elm*, as was agreed upon by the admeasurement of it by three severall persons at distinct times: out of which perhaps as wonderfull a piece of *timber* might be cut, as was out of the *Larch-tree* mentioned by *Pliny*, brought to *Rome* with other *timber* for rebuilding the bridg *Nau-machiaria* in *Tiberius* *Cæsars* time, that contained in length 40 yards or 120 foot, and carryed in thickness every way two foot from one end to the other; which the *Emperor* would not use, but commanded it to be laid in a *publick place* in open view as a singular and miraculous Monument to all posterity, where it remained intire, till the *Emperor Nero* built his stately *Amphitheater*. And yet neither of these seem to equal the *Firrs* that *Chabræus* mentions were growing in his time in the wood call'd *Thannen-wald* in the Territory of *Bern*, whereof some were 230 foot, i. e. above 76 yards high, exceeding the tallest of these in *Stafford-shire* by near 100 foot, or full 33 yards.

32. Beside the excesses of the *Witch-Elm* and other trees in the growth of their *Trunks*, the excess of their force also in that growth, is not altogether unworthy our consideration; it not being the privilege of the *Palm* alone, *crescere sub pondere*: whereof we have a very eminent instance, in an old *Witch-Elm* growing on *Powk-Hill* near *Bentley-Hall*, that has embraced and lifted up from the ground with the growth of its root a great Stone of at least 200 weight. But we need not so much wonder at this, since we have all seen the *roots* of trees undermine buildings, (particularly those of the tender *Ivy*;) which could otherwise have withstood not only the *batteries* of *time*, but also of the greatest *attillery*, with small or no damage: so great is the force of *insensible motion*, in *vegetation*, as well as *Art*. *Pliny* tells us of *Stones* thus embraced and inclosed within *Trees*; and that carryed about

C. Plinii 2^{da} Nat. Hist. Lib. 16. cap. 40. Dominici Chabræi Stirp. Schiagraph. in Appendice ad Classen 8^{am}. p. 608.

women with *Child*, they prevent *abortions*, and help them to goe out their full time; which I thought fit to note, that if any body in this *Country* have faith enough to believe it, they might know whither, upon occasion, to apply themselves for a remedy.

33. Many other *accidents* there are beside the aforementioned that have befallen the *Trunks* of *trees* in their *growth*; such as that trees of different *species* should grow so united, as to seem to be the same, at least to grow from the same root: whereof we have a very remarkable *Specimen* in the *broad-Lesow* near *Chartley*, of an *Oak* and an *Asb* that thus grow together; and in *Sr. Walter Bagots* park there are many *bollies* that grow thus conjoyned at the root with *Oaks*. Other trees there are again that though they grow from *different roots*, are more strangely conjoyned some height above ground; and these both of the same, and different *Species*'s: such are the two *Asbes* in the way betwixt *Gnosal* and *Walton-grange*, which though they issue out of the ground about 8 foot asunder, yet are joyned by a *cross piece* passing between them about 4 foot from the ground; much after the same manner, and caused I suppose by the same means, as the *Gallow-tree* mentioned in the *History of Oxford-shire*. Thus there is also an *Asb* and an *Elm* near *great-Sugnall*, though of different *species*'s, and issuing from *different roots*, yet joyned together about a foot above ground; and at *Drayton Bassett*, in the walk before the *Manor*, the seat of the right Honorable *Thomas* Viscount *Weymouth*, there grows an *Oak* that so intimately clasps a *Thorn*, that the *Thorn* seems to pass through it at several places. The *Oak* is certainly a very old tree, yet the *thorn* must be older, for that having the lesser body by much, it could never pass through the greater, but must rather be inclosed by it, whence we may conclude (though we know little of the *Age* of *trees*;) that a *thorn* will stand as long, if not longer than an *Oak*. But these are not so remarkable as the former, because their roots not so far distant.

34. Other *trees* there are that grow so conjoyned, that they seem (after the manner of some sort of *Animals*;) to prey upon one another: whereof I was shewn a very remarkable instance by the ingenious *William Chetwynd* of *Rugeley* Esq; in a pasture ground in the parish of *Longdon*, but by the way side leading from *Hansacre* to *Brereton*, where there grows a very fair *holly* on the *bole* of an *Oak*; and so there does much such another in the way betwixt *Womborn* and *Himly* near *beggers bush*; and in *Womborn* town near the *brook* side, there grows a *Yew* thus on the top of an *Asb*. But the most signal *example* of this kind, is the large

C. Plinii 2^{da} Nat. Hist. Lib. 16. cap. 39. Nat. Hist. of Oxfordsh. Chap. 5. §. 78.

fair birch, about the bigness of ones thigh, that grows on the bole of Oak, in the Lane leading South from Adbaston Church, which has sent down its roots in six branches perpendicularly through the whole length of its trunk, and fastened them in the ground, which might be seen at a hole cut in the bottom of the Oak; having eaten out the bowells of the old tree (as all the rest will doe,) that first gave it life, and then support. All which are occasion'd no doubt by the seeds of those trees dropt by birds in the mould on the boles of the others, that lyes commonly there, and is made of the annual rottings of their own leaves.

35. But of all the accidents that ever befell the trunks of trees, there is none more unaccountable than their being found in divers Countries buried underground; as in many of the maritim parts of Holland, Zealand, Friesland, and Groningland*: so on the coasts of England, in Suffolk near Dunwich^y; in the fenns of Lincolnshire and Yorkshire, particularly in the Isle of Axholm^z; and on the coast of Pembroke-shire in Wales^a. And not only on the Sea shores, but also in divers inland, and sometimes up-land Countries too, as near Bruges in Flanders; where, as Boetius de Boot relates it, they find at ten or twenty ells deep, whole woods of trees, with their trunks, boughs and leaves so distinctly appearing, that one may plainly discern the several kinds of them, and the series of leaves which have fallen yearly*. Much after the same manner as Scoockius^b informes us they find them in the territory of Peiland near Bois leDuc in the province of Brabant^b. And as Wormius acquaints us, in the highest and most craggy mountains of Iceland, where no body dares venture to them, but such as have been trained up to climb precipices from their youth, where too they must digg some ells deep, before they come to them^c.

35. In England we have them too in many places far enough from the Sea, as in Chatmoss in Lancashire, several parts of Yorkshire and Cheshire, and here in many parts of Staffordshire: viz. at Laynton above mentioned, and the old Pewit pool in the parish of Norbury; in Shebben-pool in the parish of High Offley; in the mosses near Eardley: in the parish of Audley; and near the town of Betley: and all these in the high Country of the Moorelands. They are found too in the lower more Southerly parts (but these still further from the Sea) in Cranmoor near Wrottesley; in rotten-Meddown under Wednesbury-hall; on Doreley Common in the parish of Gnosall; in a place call'd Peatmoore in the lands of my worthy Friend Mr. Rowland

* Mart. Scoockii Traët. de Turffis cap. 12. ^y Mr Ray's Observat. Topograph &c. p. 7. ^z Sr W. Dugdale's Hist. of Inbanking and drayning the Fenns chap. 27. ^a Camdens Britannia in Pemb. * Boetii de Boot de Lapid. & Gemm. Lib. 2. cap. 158. ^b Mart. Scoockii Traët. de Turffis, cap. 12. ^c Musæi Wormiani Lib. 2. cap. 16.

Fritb

Fritb of Thorns; and in the Moores of Handsworth: and all these in an in-land County, the nearest part whereof is at least thirty, and some of the places above mentioned, above fifty miles from the Sea.

37. Now what sort of trees these are, whether mineral or vegetable? and if vegetable, of what Species of trees? and if of this or that species, by what means thus buried? are great difficulties that have disturb'd many mens thoughts, and are the points I shall endeavour to make as clear as I can. That there is a mineral substance call'd lignum fossile found in the earth representing the stumps, and parts of the trunks of Trees which never grew above ground like other vegetables is very certain; whereof Agricola mentions some found in the Bisshoprick of Hildesheim^a; and Pet. Gassendus in the life of Peireskijus tells us of more found at AquaSpartana in Italy An. 1637^b: which are those I suppose Franciscus Stellatus Lynceus has written a whole treatise of; AquaSpartana being in Umbria in Italy, where his was found, of some parts whereof he has given us figures in sculpture; and Scoockius is of opinion that many of the stumps and trunks of trees found in Holland, Zealand, and Friesland, are of this mineral sort of wood; for which He brings divers reasons, the cheif whereof are, that most of them are found without roots or knots; without the marks of any boughs cut off; and that if ever these subterraneous trees had grown in woods (as is presumed by their numbers) their would have been some others found beside Firrs and the Picea, especially in the Low-Countries, where neither of these trees were ever known to grow^c.

38. For which very reasons, but cheifly for the last, He would have us to believe that the trees we find here (which indeed are most like Firrs) in the mosses of England, are also nothing else but mineral trees: and the rather here in England than Holland it self, because Casar (says He) in his Commentaries expressly tells us, that there was no firr in Britan. But by Scoockius's favour these arguments of his, much less any of the rest alleged in the same place, are not sufficient to bring us over to his opinion: for beside that we find several of these trees with their roots joynd to them, and the stumps of their branches issuing from them; the timber of them swims in water, which lignum fossile will not doe, and is still as lyable to the Axe, Chisel, Saw, or Plane, as any wood whatever: so far are these trees found in our mosses here from being mineral substances, and so well satisfi'd are we that they were once vegetables. Much less still doth the second argument drawn from Casars Commentaries prevail upon us; for were that

^a Geo. Agricola de natura Fossilium Lib. 7. ^b Petr. Gassendi vitæ Peireskij Lib. 5. ad An. 1637. ^c Martini Scoockii Traët. de Turffis cap. 12.

conclusive,

conclusive, by a parity of reason we should have no *beech* in *England*: for in the very same place *Cæsar* also tells us, speaking of *Britan*, that there was there, *Materia cujusq generis, ut in Gallia, præter abietem et fagum* ^s, than which last, there is no other wood more plentifull; so little heed is there to be given to that *testimony* of *Cæsar*.

39. Yet so far has this, with the present unlikelyhood that *firrs* were ever *natives* of *England*, prevail'd upon some; that being fully satisfy'd that these *subterranean trees* were once *vegetables*, and the most likely of any sort to be the *trunks* of *firrs*; they have rather fancy'd (than that ever they grew here) that they were brought hither from *forraign parts* by some vast *deluge*, and particularly that of *Noah*, and laine here ever since in these *low mosses*, whence the water went off last, when *God stopped the windows of heaven, and the fountains of the deep, and caused a wind to pass over the earth, that the waters were asswaged* ^b. Nor seems it very impossible they should lye so long, since the plenty of *bitumen* wherewith these *mosses* abound, may well be presumed to have preserv'd them as well, as it has the dead carcases of the *Egyptians* for thousands of years. But that which renders it unlikely, that I say not impossible, they should be brought from *forraign parts* by *Noah's flood* is, that we should then have found them indifferently in all *vales* alike, in the *South* as well as *North* of *England*, than which nothing less: for who ever heard of them in the *vales* of *Evesham* or *Aylesbury*? in the *vales* of *white* or *red horse*? though as fit for their reception as any of the *mosses* aforementioned.

40. Beside such of these *trees* as are met with without their roots, appear either to have been *burnt* afunder near the ground, or are found with the *marks* of the *Axe* still remaining upon them whereby they were sever'd from their *stooles*, which are also found now standing in the same posture of *growth* as when the *trees* stood upon them, as may plainly be seen in *Shebben pool* in a dry *Summer* when the waters be low, where are the *stumps* of several, which upon examination I found to be the same wood with that of the *trees* found at *Laynton* and the old *Pewit pool* above mention'd. And Mr *Skrymsber* of *Aqualat* also told me he had of these *stooles* in the *black Lake* near *Aqualat meer* in the same posture; and so they are found in the *Isle* of *Axbolm*; which are no flight arguments that these *trees* were not farr fetch't, of whatsoever kind they may be, nor required such a *flood* as that of *Noah* to bring them hither.

^s *Jul. Cæsar. Commentar. de bello Gal. Lib. 5. sub initium.* ^b *Gen. chap. 8. v. 1.* ^c *Philosoph. Transact. Numb. 67.*

41. Which

41. Which has driven others, who are better satisfy'd that this *moss-wood* (as some call it) grew not farr from where found, than they are that 'tis *Firr*, to think it must rather be the timber of *Birches* or *Alders*, trees that delight to grow in such moist places, which being soak't so many years in a *bituminous* turf, may become at length so well impregnated, as to imitate *Firr* both in the smell and burning; which too are more agreeable to the sizes of these *subterranean trees* than *Firrs* are, there being few of them found above a foot *diameter* at the butt-end, whereas *Firrs* sometimes grow here in *England* (as may be seen at *Norbury*) to be two yards in *diameter*. To which it may be answer'd, that one reason why these *subterranean trees* are found so small, may be, that all what we now find, is only the *heart* of the tree, which was much bigger before the *sapp* was consumed; which too may be the reason that though they are commonly found small, yet they are very long, several having been taken up in the *Isle* of *Axbolm* in *Lincolnshire* 30 yards long; and one not many years since by *Robert Brown* of *Haxey* 36 yards in length beside the top, lying very near its root which stood as it grew, from which it was burnt afunder and not cut from it ^k, as many in this *County* seem also to have been.

42. The very *length* of which trees seems conclusive enough (whatever may be thought of ours in *Staffordshire*) that they never were the *trunks* of *Birches* or *Alders*: though I have an argument too perhaps altogether as cogent, that some of ours in *Staffordshire* must also have been *Firrs* as well as they, there having been one of them taken up in *Peatmoore* by Mr *Brown* of *Footerley* and sent to Captain *Lane* (who also well remembers the thing) that had its branches issuing from it in a *circular* form at *annual* distances, as all *Firrs* have, but *birches* and *alders* never. Not to mention again that in *Staffordshire* *firrs* yet seem to grow naturally (as was shewn §. the 25 of this *Chapter*) not far from *Laynton* and the old *Pewit poole*, where they are found underground; which perhaps might be young trees not worth notice, when the others were cut down, and have remained since untouched to this very day.

43. It being plain then that these *trees* thus found underground, are neither *lignum fossile*, *Birches*, or *Alders*; and that 'tis unlikely they should be left in the places they now are, by *Noah's*, or any other flood whatever: it remains only that we shew the most probable cause of their being thus buried in divers parts of the *Nation*. Which that I may doe with all brevity and clear-

^k *Philosoph. Transact. Numb. 67. and Sr William Dugdale's Hist. of Inbanking and draining the Fens Chap. 27.*

E e

ness,

ness, I must distinguish between those found near the *Sea coasts*, and those in the *inland Countries*; the former no doubt being overthrown and covered, either by the violent encroachments of the *Sea* if near the *shoar*, as those on the coast of *Pembrok-shire*¹; and the wood that ancient writings mention was a mile and $\frac{1}{2}$ to the *East of Dunwich*, which is now so farr in the *Sea*, and may possibly some time or other be discover'd again in succeeding ages by some *raking storm*^m as those in *Pembrok-shire* were, in the time of *Hen. 2.* Or else if further within land in a flat *Country* such as the *fenns* of *Lincoln-shire*, such effects may follow from the stoppage of the mouths of *Rivers* (as the learned *Sr. William Dugdale* conjectures) by vast quantities of *Mudd* and *Sand* brought into them by *Tides*, so that the waters recoyling and overwhelming such flat *Countries*, may easily soloosen the roots of the trees by overmuch moisture, that the next wind must needs overthrow them, and bury them at length in the *filth* which the *Rivers* and *Sea* have joyntly contributed ever since and mix'd with the stagnant water, to make such *Fenns*^a. And thus I suppose the woods of *Holland* and *Brabant* might be cover'd anciently by the choaking of the *Rhine* near the *Arx Britannica*, and so in some of the *Mosses* and *Fenns* of *England*.

44. But where they are found in *inland Countryes* fenced from the *Sea* with *hills*; or in Mountainous parts, such as those of *Iceland*; the case must needs be different: whether *Firrs* are found alone, as tis commonly in *Stafford-shire*; or mixt with other *timber*, as in some parts of *Tork-shire*; whether burnt, or cut off at the *Kerf*, as in both places, the stumps still remaining in the same posture they grew in the firm Earth below the *moores*. That *Firrs* should be found any where alone, seems indeed somewhat odd, there being other *timber* enough near all the places I have yet seen, where they are so found: but if a relation be true that I met with in my travells, which as I was told had foundation too in some *ancient writings* in the hands of the right Honorable the Lord *Visc. Gormanston* first *Viscount* of *Ireland*, the case is not difficult; only admitting that these *Firrs* were never Natives of *England*, but planted here (as the story informes us) by the *Danes* and *Norwegians*. Who when they had gotten good footing in the Land, as they had for many years; like other *Conquerors* endeavoured to make *this* as like their own *Country* as they could, and planted these *Firrs*. Which after they had grown for about 200. years, either upon the total destruction of

¹ Camden in *Pembr.* ^m Mr. Ray's *Observat. Topograph. &c.* p. 7. ^a Sr. William Dugdale's *Hist. of Inbanking and drayning the Fenns.* Chap. 37.

them

them throughout *England* in a day, in the time of King *Ethelred*^o; or their final los of all dominion here, after the death of *Harde-Canute*; that no *memorial* whatever might remain of them, the *trees* they had planed were also cut down, and as many of them as grew in low moist lands (lying inconvenient for portage,) neglected, and so thus cover'd in procefs of time by *atterration*; those cut down upon the hills and higher grounds (lying readier at hand,) having been spent in divers uses, many ages agoe.

45. For the better understanding of which new doctrine, let the *Reader* take notice, that the low grounds where these trees are now found, when they stood and flourish'd, in all probability were tolerably dry land; for the trees whilst growing (notwithstanding the moisture shot into the valleys then, as now,) continually spent it in their nourishment, and their as constant exhalations; which when cut down, there being no expence for it, the *valleys* at length grew into *pooles*; the waters whereof being thicken'd with perpetuall *deterrations*, or Earth brought from the *hills* and *higher grounds* by showers in wet, and winds in dry weather, they came at last to be *Mosses* or *Fenns* thus covering the trees as we now find them: which I take to be the first original of many of our *Mosses*, though afterwards they increase by new grafs and sedg annually growing upon the rottings of the old of the former year, and so onward.

46. Other *Mosses* there are too made upon the stoppage of *springs* by the like *deterrations*, or falls of Earth, and the annual rottings of the grafs, sedg, &c. growing upon it. Now that there are such *deterrations* or perpetual diminutions of all *hills* (except the rocky,) by every shower and wind, so that they all grow lower, and the *valleys* higher; we have a remarkable instance (beside those above mention'd Chap. 3. §§. 11, 12,) near the *City of Gloucester*, where there was a *hill* that within memory interposed it self to that height 'twixt it and *Churcham*; that People were wont to goe up into the upper roomes of *Churcham* Manor house to see the pinnacles of the *Cathedral* of *Gloucester*; whereas after some few years they could see them on the ground: and as I was inform'd by the Reverend *Dr. Gregory*, *Rector* there, and *Prebend* of *Gloucester*, whereas about 12 years since they could see out of the *Church-yard* at *Churcham* but down to the top of the *upper windows* of the *Steeple*, they can now An. 1684. plainly see the *leads* of the *Isles* of the *Church*; with most other *Churches*, and some *houses* in the *Town*. So great have been the *deterrations* from this *hill* in a few years, and no question are so

^{*} Job. Speed's *Hist. of great Britan.* Book 7. Chap. 44.

from

from all others, in proportion to the *qualities* of their respective *soiles*.

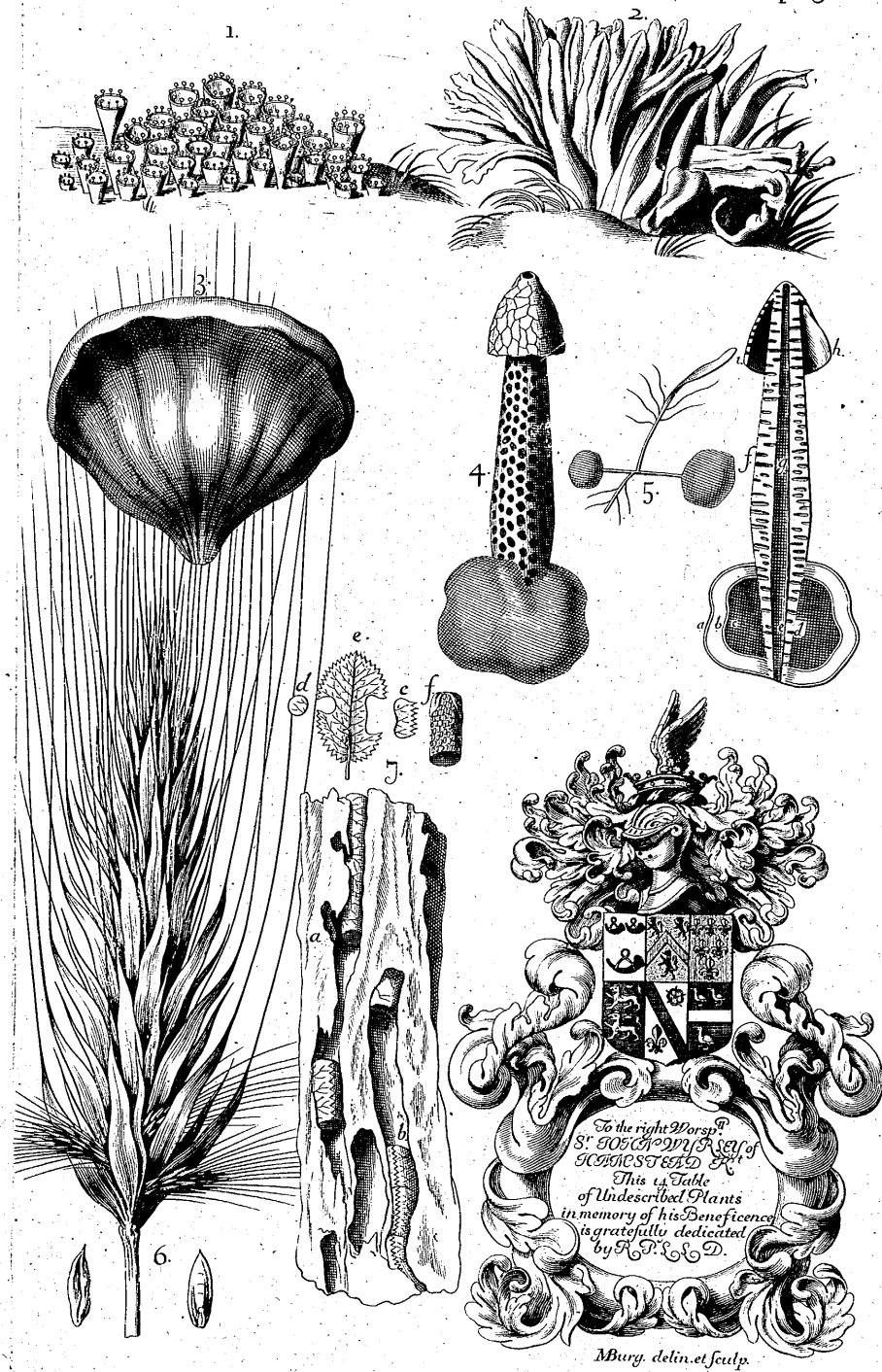
47. Whether the *History* above mention'd (it supposing *firrs* no natives of *England*;) or the method dame *Nature* seems to use in making *Mosses* and burying timber, gain belief of the *Reader*, shall not concern me much, for if they serve only for his *diversion* I am abundantly satisfyed: there being many other causes assignable of such *wast* of *timber*, and the *sepulture* of it; such as making room for *Agriculture*, which was done in the inland parts of *Kent* no longer agoe then our *Grandfathers* days, where they cut it downe and made trenches by the side of each tree, and so tumbled it in, its sale not being worth the portage even there, so few years agoe^r. So they cut and burn it down (for the greater expedition,) at this day in *Muscovy* for the very same reason, as I guess some of this might be, several of the trees still appearing to have been *burnt*, though they have lain so long in these *Mosses*; or else if cut down for uses, *warrs* might come on (which were anciently very frequent,) and prevent what 'twas design'd for, either by the death of a single person, or ruin of a *Family*; so the timber still lying where 'twas first fell'd, might quickly be overgrown, and at length forgotten.

48. Which how soon it will be done, and how fast these *Mosses* grow, we have a clear evidence in a parcell of *timber* cut down near *Bishops-Castle* in the *County* of *Salop* by Sr. *Robert Howard* in the late civil Warr, which as the Reverend and learned Mr. *Obadiab Walker* Master of *University College* told me, being neglected by reason of the *warr*, in six years time was half overgrown by such a *moss* where it lay: though by the way it must be noted, that such weighty bodys as *timber*, sink much more in proportion the first years, than ever they doe after: for it is probable from another *instance*, communicated by the same worthy person, that these *mosses* doe not rise much above an inch in a year, from a lump of *Coynes* of *Edward* the fourth of *England* (supposed to be lost in a purse or cloth now rotted away,) taken up in such a *moss* in *Yorkshire* 18 foot deep, which being about 200 years since, whoever pleases to compute it, will find that this *moss* grew but about one foot in eleven years, i. e. But one inch *per annum* and $\frac{1}{11}$ *proxime*.

49. Hitherto having consider'd trunks of trees in the whole and externally only; let us next look into them, and there we shall find perhaps as odd *Phænomena* as any attending the former: witness a rotten *Crab-Tree* (which I shall not reckon amongst fruit trees, it growing wild,) cleft asunder by a servant of *Francis*

^r Nat. Hist. of Oxfordsh. Chap. 6. §. 56.

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To the right Worshipful
 Sr. JOHN BERNHARD, Bart. of
 Northampton-shire &c.
 This is a Table
 of Undescrib'd Plants
 in memory of his Beneficency
 is gratefully dedicated
 by R. P. S. D.

M. Burg. delin. et sculp.

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Wolferstan Esq; somewhere in the grounds near Statfold, a part whereof he sent me hither to Oxford, wherein there are several cylindraceous cavities generally running parallel with the grain of the wood, except where they communicate with one another, and where the entrance is into them; and these for the most part fill'd with pellets or Cartrages of the same forme, of an inch, and sometimes of an inch and $\frac{1}{2}$ long; made not of the leaves of the same tree wound up close together, as Mr. Wolferstan thought, but plainly of the Rose; (though they are so little scrupulous in the choise of their leaves, that they will sometimes make use of exotic plants;) the side leaves always being of an oblong figure, and those of the ends round, but bent to a convexity at one end, and a concavity at the other, the number of both uncertain: all which if the Reader please to look back to Tab. 14 Fig. 7. He may see represented in Sculpture: where a shews the piece of rotten Crabb-tree. b, a single Cartrage. c, one of the side leaves. and d. one of the end leaves, both as eaten out of the Rose-leaf at e, which how performed; by what Animal; and for what purpose; remains next to be considered.

50. Wherein I shall be short, the main having been discovered already by Dr. Edmund King (who had such Cartrages sent him in a piece of old Willow by Sr. John Bernhard of Northampton-shire,) and Francis Willoughby Esq; who had them shewn him by one Mr. Snell near Astrop in the same County, also in old willow; who unfolding the leaves and examining the inside of the Cartrages, found in the concave end of some of them, white maggots, in others great numbers of mites, &c. By which maggots, being kept till Summer, they found the whole operation to have been performed by bees, to secure their eggs, and such provifion as is necessary for the Nymphæ (i. e. when they become maggots,) in winter; which in Summer all turned to bees, eat their way forth, and so took their flight. Of the corruption of which bee-maggots or Nymphæ, when they happen to miscarry, are bred (says Mr. Willoughby) 1. Little hexapodes; 2. Maggots which produce flies; 3. mites, which produce perhaps millipedes, Xyloptori or vermes arboræi, or Scolopendræ, such as were indeed found in this rotten Crabb-tree by Mr Wolferstan, and thought to be the operators of these Cartrages; but had he kept any to their due time, he would have found some of the Nymphæ turned to bees, and some of them corrupted into mites, &c. As I after did, as in the Cartrage at f. These having all stings like other bees Dr. King thought no other then the common bee; but Mr. Willoughby more nicely considering their shape

^a Philosoph. Transact. Numb. 166. ^b Philosoph. Transact. Numb. 65. ^c Ibid.

and *forcipes*, would not allow them to be the common *bony-bee*, yet does not assigne of what *species* it is, which I wonder at, since upon an ordinary search he might have quickly found it to be the *Musca apiformis*, which indeed is of a larger size than the common *bee*, has a sort of *sting*, but a very imperfect one, less virulent by much than those of *bony-bees*: which being all I have to add (above the necessary description,) more than what has been discovered by Dr. King, Dr. Lister, and Mr. Willoughby in the *Philosophical Transactions*[†], and the *Journal des Scavans*[‡], I refer the Reader thither for further intelligence.

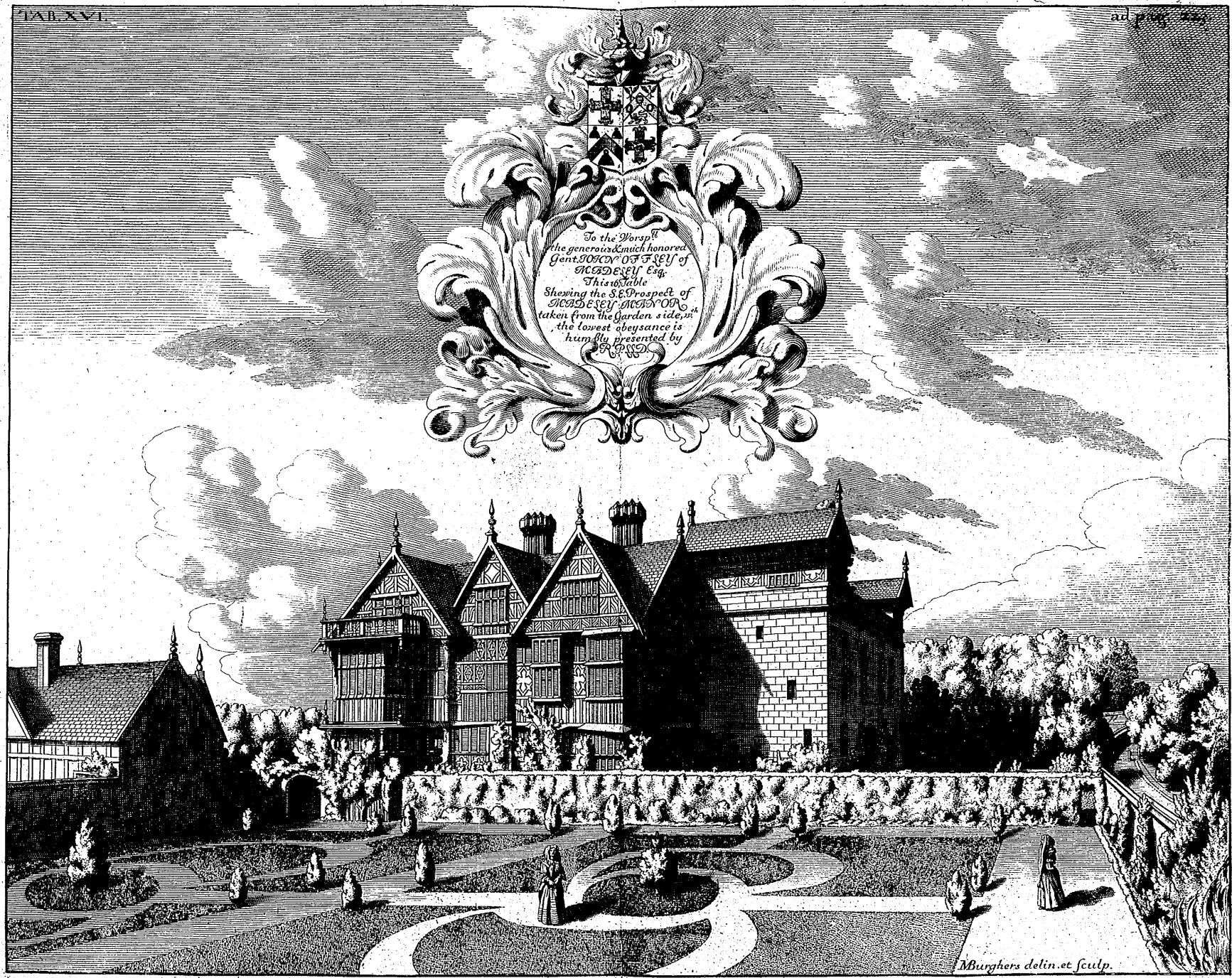
51. Yet more strangely than these have other *Animals* been found in the *body* of a *tree* somewhere near *Biddulph*, where two *workmen* sawing the *body* of a *solid Oak*, one of them at length perceived *blood* to follow the *Saw*, which though it startled them not a little, yet resolving to goe on and see the issue, when they had cut on to the end of the *batt*, they split it asunder, and found the *Saw* had past through the *body* of a *Hardisbrow* or *Nursrow* (as they here call them,) i. e. a *field-mouse*, two others that lay by it, escaping away alive as soon as the *tree* was split, which being examin'd and found in all parts found, the case remains an inexplicable *riddle* to all thereabout to this very day. But me-thinks to any one that considers the superstitious *Custom* they have in this *Country* of making *Nursrow-trees* for the cure of unaccountable *swellings* in their *Cattle*, the thing should not seem strange. For to make any tree, whether *Oak*, *Ash*, or *Elm* (it being indifferent which) a *Nursrow-tree*, they catch one or more of these *mice* (which they fancy bite their *Cattle*, and make them swell,) and having bored a hole to the *center* in the *body* of the *tree*, they put the *mice* in, and then drive a *pegg* in after them of the same *wood*, where they starving at last, communicat forsooth such a *virtue* to the *tree*, that *Cattle* thus swoln being whipt with the boughs of it, presently recover: of which *trees* they have not so many neither (though so easily made, but that at some *places* they goe 8 or 10 miles to procure this remedy.

52. Now though it may be improbable enough that the *swellings* of their *Cattle* arises from the *bites* of these *mice*, but rather from the *Sting* of the *Buprestis* or *Burst-cow*; the *Pityocampe* of *Dioscorides*[‡]; the *staphylinus* of *Aristotle*[§]; or those red *Phalangious spiders* like *Cantbarides* mention'd by *Moufet*[¶]; all which have been observed to be pernicious to *Cattle*: yet what hinders (since 'tis apprehended that these *mice* do it,) but one may well

[†] *Philosoph. Transact. Num. 65. 74. 160.* [‡] *Journal des Scavans June 22. 1682.*
[§] *Dioscorid. de Material. Medicina. Lib. 6. cap. 8.* [¶] *Aristot. de Hist. Animal. Lib. 8. cap. 24.* [¶] *Tho. Moufesi Insect. Theatri Lib. 2. cap. 12.*

imagine;

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imagin, that some person not farr distant might according to the superstitious custom of the Country make this *Oak* (unknown either to the owner or workmen) a *Nursrow-tree* but a little before it came to be cut down and sawn asunder, by *pegging* in these mice: Just as the *Irish* serve the *Connough-worm* (a sort of *Catterpillar*) which they think *poysons* their *Cattle*, though it have no *poyson* in't, which they shut up in a hole thus bored in a tree, where when the *worm* is dead, the *bark & leaves* of that *tree* bruised and steeped in water, and given to the *Cattle* they apprehend thus *poysoned*, ever after gives them an *infallible cure*. To which let me add the *superstitious veneration* that some People give in this Country, especially in the *Moorelands* amongst the *ancienter* sort, and sometimes those of pretty good fashion too, to the *Fraxinus sylvestris* or *Quicken-tree*, which they firmly believe will certainly preserve them from all *fascinations*, and *evill spirits*; upon which account many are very carefull to have a *walking staff* of it, and will stick the *boughs* of it about their *bedds*. But of these *trifles*, I fear, more than enough.

53. Which is all concerning *whole trees* and their *trunks*, but that in generall the *timber* of this Country (though much of it has been destroyed of late years) is as *large* and *good* perhaps as in any part of *England*; witness the very great quantity of very good *timber* in the *park* of the right *Worshipfull Sr. Walter Bagot*, amongst which the *Queche-Oaks* are very remarkable: But the *timber* that surpasses all in the *County*, both for quantity, greatness, and goodness, is that in the *park* at *Madeley-Manor*, the seat of that courteous and generous Gentleman *John Offley Esq*; which in memory of his many and signal favours, is here engraven *Tab. 16.* where in the first place, there is so much, that as it has been computed by indifferent judges, the whole has been thought worth 20000 pounds sterling; out of which might be culled 1000 trees, worth 8000 pounds; and out of these again 100; that scarce would be sold for 1500 pounds; Not to mention the great quantities of excellent *timber*, to be seen in many other *parks* all over the *County*.

54. Beside the unusual accidents of *whole trees* and their *trunks*, there are some also which have happen'd to their *branches*, *fruits*, and *leaves*; amongst which I cannot but reckon a great parcell of *Matrices* or *Insect-busks* of the *purple-Kermes* kind, adhering not only to the underside as usually, but set quite round a branch of *Thorn*, found (and given me by the *Worshipfull Capt. Tho. Lane of Bentley Esq.*) at great *Sarden*: which are not the *excrescencies*, much less the *fruit* or *berries* of any

^r *Philosof. Transact. Numb. 168.*

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tree, as the *Scarlet-Kermes* has been too long beleived to be of the *Ilex*, but artificial things contiguous to the plants, made there by *Insects* to preserve their *Eggs* and nourish their *young*, as has been clearly demonstrated by the learned Dr. *Lister*, a man wonderfully happy both in natural discoveries, and imposing suitable names, as he has done to these of *Patellæ Kermi-formes*, from their form, and manner of sticking to the *branches* of many sorts of *Vegetables*, just as *patellæ* do to *rocks*; and their giving a *purple* or *murrey* tincture; which they performe best when the *Insect* is *in vermiculo*: for when the *Insect* comes to maturity, the *Husk* grows dry, and the dye seems to be spent, as it was in these of *Sarden* before I had them, so that I could neither tell what *colour* they yeilded, nor what *Insect* they might be made by; if by the *bee-kind*, it must be a wonderfull small one. the *patellæ* of ours being much smaller, than any of those described by Dr. *Lister*.

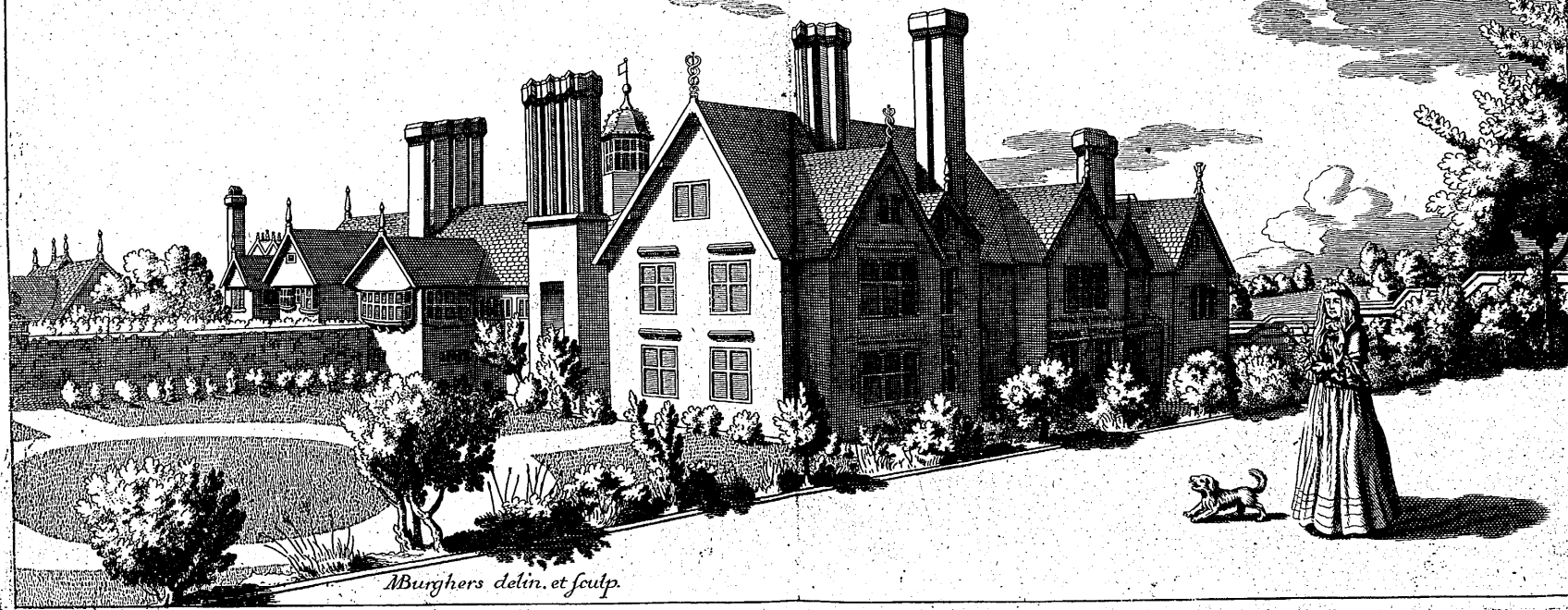
55. Yet the same Dr. *Lister* as fortunate as he has been in the above mention'd discovery; as himself confesses, could never discern (whatever diligence he used) any *Eggs* in the center of that *by-fruit* that grows on the leaves of the *Oak*, which we call *Galls*, or *Oak-balls*; but a *worm* constantly, even at their very first appearance; not doubting however but that diligence would some time or other discover the *Eggs* themselves: which was indeed happily done An. 1680 by that curious Observer *Walter Chetwynd* Esq; now *high-Sheriff* of the *County* and his ingenious Chaplain Mr. *Charles King* Student of *Ch. Ch.* who by the help of a *Microscope* observed several minute *Eggs* in a small *Oak-ball*, taken from the ribbe on the back side of an *Oak-leaf* gather'd in the field below *Ingestre* house; whence it plainly appears that though it be true that these *by-fruits* doe grow up together with their respective *worms* in them, from small beginings till they arrive at their perfection; and that these *worms* are furnished with food in, and from them: yet that neither the *plants* on which they grow, nor their *excrecences*, doe any way contribute to the generation of these *insects*, as *Redi* imagin'd; but that they have their *origin* from a *parent-Insect* which first fix'd its *Egg*, where the *Gall* rose and included it.

56. As the *accidents* attending the leaves of *herbs* and *shrubs*, were chiefly in their variation from the ordinary colour, so it is in *trees*; and I suppose may be met with, one where or other, in almost all kinds of them. Near *Hammerwich* in the high-way growing over a pond, I found a *Holly-shrub* bearing leaves prettily edg'd with yellow; and was told of others near *little-Aston* tri-

^a Philosoph. Transact. Num. 71, 72, 73: ^b Philosoph. Transact. Num. 75: ^c Franc. Redi de generat. Insectorum pag. 234.

TAB. XVII

ad pag. 125



A Burghers delin. et sculp.

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ped with the same colour, whereof we have plenty here at the *Physick-garden* at *Oxon*; and in the fine gardens at *Ingestre*, the *lesser Maple* grows thus curiously striped. Nor doe these *stripings* only affect the *inferior* sorts of *trees*, but *timber trees* also, as may be seen in a large *Ash* that grows in the hedg-row (by the high-way side) of the same close where the great *witch-Elm* abovemention'd formerly grew; near *Field-hall*, whose *leaves* are some of them all *white*, (whence it enjoys the name of the *white-Ash*) others striped both *white* and *green*. And in the *Park* of the right Worshipfull Sr. *Walter Bagot* Baronet, one of the noblest promoters of this *designe*, whose ancient and well situated house at *Blithfield* is here annex'd *Tab. 17.* there grows an *Oak* near the *Hill-stile* with just such leaves as his *Ash* at *Field*, part of them all *white*, and part *white* and *green*: which how it comes to pass that plants thus vary in the *colours* of their *leaves*, has been so often taught already that it would be nauseous to repeat it, therefore no more of it here.

57. After the *Timber*, I proceed next to the *Fruit-trees* of this *County* that have any thing extraordinary either in their *growth*, *flowers*, or *fruit*; for the first whereof, there is an *apple-tree* within the moat of the *Parsonage* house at *Leigh*, that spreads from boughs end to boughs end 17 or 18 yards, in circumference supposing them to spread uniformly, 54 yards; shading in dry weather, and dropping in wet, upon 244 square yards of ground; under which, allowing 3 square yards for a horse to stand on (3 yards long, and one broad, seeming a competent proportion) and 4 square feet for a Man; above eighty Horsemen, or 549 Footmen may be sheltered from the injuries either of *Sun* or *rain*: a vast number for an *Apple-tree*; yet the quantity of *fruit* it sometimes bears, seems equally to demonstrate the excess of its greatness, it having born some years no less then 50 strike of *apples*. To which let me add the odd growth of an old *pear-tree* in that part of *Warton* which is in the *Parish* of *Forton* in the *Wortyard* of *Edward Low* of that *village*, which though fallen flat on the ground, has 6 or 7 young trees sprung perpendicularly out of the body of it, in right angles, as it lyes in *plano Horizontis*; each one with another a foot in *diameter*, and most of them 40 foot high.

58. As for *trees* that have any thing remarkable in their *flowering*, the *Pear-tree* at *Colborne* at the house of the heirs of *Mr. Thomas Hawe*, seems to be very extraordinary, which (like *Gloucestonbury-thorn*) though in frost and snow, puts forth *blossoms* at *Christmas*: and soe does a *pear-tree* in the gardens belonging to

^a Nat. Hist. of Oxfordsh. Chap. 6. §. 38. and Chap. 7. §§. 13, 14, 15.

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the *Castle* here at *Oxford*: now what should occasion the early *flowering* of this *tree*, so long before other *trees* of its kind, is hard to determine, this overforwardness seeming rather to argue an *excess* of *vigor*, than an effect of *weakness*; though it be worthy notice that all *striped trees*, which are sick and diseased, doe put forth their *leaves* and *blossoms* sooner, than others of their kind: but should we rather grant it to be an *excess* of *strength*, it may nevertheless (as all *extremes* are) be a *vice* in the *tree*, it being commonly found in many other *trees*, that are over early and luxuriant in their production of *flowers*, that they bear little *fruit*, as I have ground to suspect neither of these doe.

59. Quite contrary to a *pear tree* I saw at one *Jane Arnolds* at *Hamstall Ridware*, that *blossoms* and also bears twice in a year; When I saw it in *June* An. 1680. it had large *pears* on it, and the *blossoms* at the same time for the second *Crop*, which they told me would not be ripe till about *Michaelmas*, and thus it does every year, like those mentioned in *Oxfordshire*: which how it should come to pass, I can no way divine, unless it should arise from a strange unaccountable *mixture* which may sometimes happen betwixt the woods of the *graft* and the *stock*; when either an *early fruit* is grafted upon a *late stock*; or a *late fruit* upon an *early stock*; the woods whereof growing up joyntly together, yet so as not to mix *Sapwells*; may both produce *fruit* in their respective *seasons*: as I have seen the same tree doe *Oranges*, and *Limmons* together, and not only upon the same *branch*, but in the same *individual fruit*, part of it being an *Orange* and part a *Limmon*: wherein I am the more confirm'd, the first and second crop of such *trees* as these, seeming most commonly of different *species*'s, at least are of quite different sizes, the last *Crop* being always less than the first.

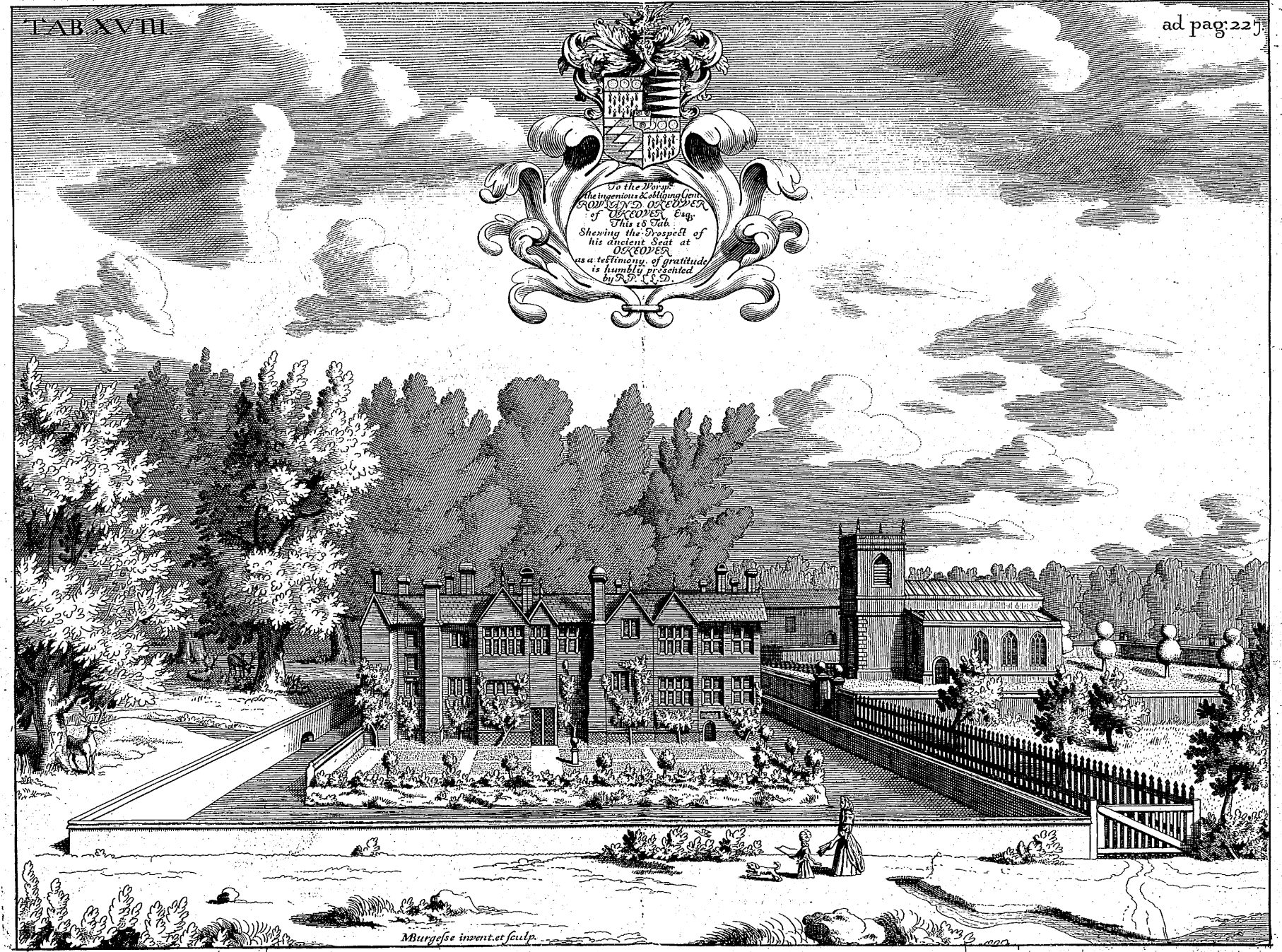
60. And this had been all concerning *fruit-trees*, but that I think it worthy notice that all sorts of *fruits* both in *Hortyards* and *Gardens* are cultivated here of late years, much more than anciently they were, and at some places to that height, that they seem to endeavour to equal the best planted *Countries*. For *Apples* I shall instance in the parish of *Arley*, where all the grounds and hedges are planted, much after the manner of *Worcester-shire* (into which indeed it runs with a long nook) there being scarce a *Cottage* that has not some proportionable plantation belonging to it, having all sorts of *Pippins* of the best, and so of other fruit; the *Red-streak* indeed thrives not over well with them, but the *Jennet Moyle* exceedingly, infomuch that 'tis thought that were not their fruit sold abroad, they could make in this parish at least 200

* Nat. Hist. of Oxfordshire Chap. 6. §. 86. Hogsheds

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TAB XVIII

ad pag. 225



M. Burgese invent. et sculp.

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Hogheads of Cider per Annum, whereof I drank some that was excellent in its kind, at the right Worshipfull Sr. Henry Lytleton's Baronet, a worthy Patron of this work.

61. And for Cherries, the plantations at Packington upon the estate of the Worshipfull — Gage Esq; are so very extraordinary, that they seem even to vie with Kent it self; the Trees being all planted in the Quincunx order, thriving well, and producing fair and well tasted fruit; and this not for a little spot or two, but in as large gardens as I have seen any where, there being one wholly of Cherries, of 23 Acres. And for fruits of the Parterre or House-Gardens, there are as choise at Ingestre, as in most gardens of the South; though I think the greatest variety of all kinds is to be found in the Gardens of the Worshipfull Rowland Okeover of Okeover Esq; one of the noblest Encouragers of this work, whose ancient Seat is here represented Tab. 18. where there are now growing 60 different sorts of Apples; 20 sorts of Pears; 16 sorts of Cherries; 35 sorts of Apricots, and other plumms; and 7 sorts of Nectrons and Peaches; of all which I have Catalogues by me: but having already (I fear) tired the Reader with too tedious a travell through the vegetable Kingdom, I forbear their recitall, and proceed with all speed to the Animal-one.

C H A P. VII.

Of Brutes.

1. **U**nder the title of *Brutes* I comprehend (as in *Oxfordshire*) all *Animals* whatever that have *sense* and *locomotion*, except the *rational*; whether they are the inhabitants of the *Air*, *Water*, or *Earth*; such as *Birds*, *Insects*, *Fishes*, *Reptiles*, and *Quadrupeds*: in the handling whereof as in the *Chapter* of *formed Stones*, I shall pursue the *Method* of the whole *work*, and treat first of such as have their abode in the *Air*; then descend to the *Inhabitants* of the *Waters*; and lastly conclude with the *terrestrial Animals*; and in each of these *species* (as in the former *Chapter*) I shall consider only such, as are

- 1. either wholly undescribed, by any *Author* I have yet met with; or
- 2. have not been noted by the learned *Mr. Willughby* or *Mr. Ray* to be *indigenæ* of this *County*; or
- 3. have had very extraordinary *accidents* attending them.

Which if sufficient for a *Chapter* in the small *County* of *Oxford*, there is no great danger but they may be so in this, without addition of what relates to *rational Animals*, which I shall therefore reserve for the succeeding *Chapter*. And first of the *Birds* of this *County*.

2. Which have been so nicely inquired into, by the learned and indefatigable *Mr. Willughby* and *Mr. Ray*, that I have met with but two that I can safely say are wholly *undescribed*; which are 1. a sort of *Swan* they have upon the *Trent* near *Rugeley*, whose legs are never *black*, or rather of that *leaden colour* which other *Swans* are; but of a *blushy red* like those of a tame *Goose*, whence I think I may take the boldness to give it the *Epithet* of *Cygnus Anseroides*. These at first indeed I thought might be *Hoopers* or *wild-Swans* whose feet are not *black*, but of a dusky yellow; but when I understood that they were as *large* and *white* as the tame *Swan*, which the *wild-Swan* is not; and as the ingenious *Mr. Chetwynd* of *Rugeley* told me, that the *Cygnets* of some

some of these were as *white* as the *old ones*; I could not then but conclude, but it must be a different kind from any yet described in any *Author* I can find. To which perhaps I might add another *whole-footed water fowle* that they have about *Amerton*, which they call *French geese*, and no question they are of the *Goose* kind, differing in nothing from the common, but in the *bill* which is *black*, and in the noise it makes, which is like that of a *Bittern*: But in all probability it is the *Anser Cygnoides Guineensis*^a, so call'd I suppose from the blackness of its bill, though I do not find in *Authors* it has the voice of a *Bittern*.

3. Much more sure am I that a *cloven-footed water-fowle*, a sort of *Loone* or *Doucker* shewn me by my worthy Friend *Francis Wolferstan Esq*; in his Parlour at *Statfold*, but killd at *Comberford*, is an *undescribed bird*: for though it agree with other *Loons*, in having a narrow straight sharp-pointed *bill*, no *tail*, small short *wings* disproportionable to the body, and the *leggs* set on so near the rump, and so far from the *center* of gravity in the bird, that it can neither fly, nor conveniently walk; but seems wholly contrived for quick swimming and easy diving; which is also further evident from its broad *flat* legs and *finned* toes, which though not webb'd together, yet have lateral *membrans* all along both sides of them, and broad *claws* like *human nails*: though I say in all these it agree with the *cloven-footed, fin-toed Douckers* that want *tailes* (for there are some that have them) yet it differs in the head from all others I ever saw, or could meet in the *books*; it not being only *crested*, and *horned*, with two long tufts of feathers, set on about the crown of the head; but adorned also underneath the *throat* with two as remarkable *tufts* hanging down like an old-fashion'd divided beard as in *Tab. 22 Fig. 1.* whence it may justly claim the name of *Colymbus cristatus cornutus barbatus*, it being quite different, if we may believe the *Cut*, from the *crested Loon* of *Aldrovand*^b; and the horned one of *Mr. Willughby*^c, which has longer *wings*; and *leggs* not set on so near the *rump*, as this has.

4. But of unusual *Birds* not noted by *Mr. Willughby* to be *indigenæ* of this *County*, there are several that have, and are daily met with, whereof some of the *rapturous*, or greater rapacious diurnal kind, witness the *Eagle* in *Beaufort Hall* kill'd in the *park*; some of the lesser rapacious kinds, have been also found here; such as the *Lanius* or *Collurio*, suspected to be the *Tyrannus* of *Aristotle*, the *Butcher-bird* or *Wierangel*, here called the *Sbriek* or *French-Pye*, whereof there was one killd at *Sierfcot* in the parish

^a *Mr. Willughby's Ornithology, Book. 3. Sect. 6. Memb. 1. Chap. 2. §. 5.* ^b *Ulyss. Aldrovand. Ornithol. lib. 19. cap. 52.* ^c *Willughby's Ornithology Tab. 61.*
F 1 3 of

of *Tamworth*, in the estate of the right Honorable the Lord *Visc. Massereen*. There is of them also in *Needwood*, and in *Bramshall* park, they are of the colour and bigness of a *Thrush*, and most commonly feed upon *Insects*; yet often they prey not only upon *small birds*, but even *Thrushes* themselves, upon which account they have sometimes been *reclaymed* by *Falconers* to fly at *small game*. And for *birds* with *streighter*, or *less hooked bills*, of the *poultry kind*, that feed on *leaves and berries*; the *Urogallus minor*, the *Heath-cock*, *Grouse*, or *black-game*, is frequent here amongst the *mountains in the Moorlands*; and so is the *Lagopus altera Plinii*, in some places call'd the *Gorcock*, here the *red-game*, which lye on the very tops of the *mountains*, but are not quite so common, whence more esteemed than the former: said only to be found here, in the *Peak of Darby*, and *mountains of Wales*; but Mr. *Willughby* says they have them too, in *Westmorland* and *Yorkshire*.

5. Of unusual *small birds* here are also several, both of the *soft and slender*, and the *short hard beak'd* kinds; such as the *Hirundo apus* or *black Martin*, here call'd the *Martlet*, which I believe indeed is the *bird* intended by that name in *Heraldry*, and not the *Hirundo agrestis sive rustica Plinii*, it having so very *long wings*, and so *short leggs and small feet*, that it cannot easily rise from the ground unless it be very plain, and free from *grass*; wherefore it either always *flies*, or *sits upon the tops of Churches, Towers*, or else hangs on other *ancient buildings* by its sharp *claws*, from which it falls and so takes flight: of these I saw at *Share shall*, near *Hilton*, and *Beaufesart*; where too in a *Quarry* near the house, I saw the *Hirundo riparia* or *ground Martin*, of a *dark-dun* or *Mouse-colour*, which is the least of all the *Swallow kind*, and makes holes into the sides of *banks and cliffs* about a yard forward in *plano Horizontis*, where it builds its nest. To which add the *Fringilla montana sive Montifringilla*, the *Oesopion* of *Aristotle*, the *Brambling* or *mountain Chaffinch*, of the *short hard beak'd* kind; found plentifully about *Venice*, and described by Mr. *Willughby*; but rarely in *England*; this I have, was kill'd and given me by the ingenious Mr. *Miller* Vicar of *Wednesbury* near the *Vicaridge* house. Nor must the *Coccyzinae* or *Grofs-beak* be forgotten, a bird says Mr. *Willughby* rare in *England*, yet found and kill'd somewhere about *Madeley-Manor*; and now in the possession of the virtuous *Madam Offley*, a *Lady* that has an excellent *artifice* in preserving birds.

6. And of unusual birds frequenting the water, here are also

^a Ornithology Book. 2. Sect. 1. chap. 12. §. 7. ^b Ibid. Book. 2. Sect. 2. memb. 2. Chap. 6. §. 2. ^c Ibid. Book. 2. Sect. 2. Memb. 2. Chap. 1. §. 1.

divers

divers kinds, some of them *cloven footed* and *piscivorous*, though they build their nests on the tops of trees; as the *Ardea cinerea* or common *Heron* or *Heronshaw*, whereof I saw divers sitting on the tops of the highest trees in *Norbury* park. *Bellonius* indeed denies that they breed in *England*, but there are many other instances whereby he may be confuted beside this, in divers parts of the *Nation*, though this I think is the best in this *County*. The *Colymbus major* the great *Loon* or *Arsfoot* is also found in this *County*, whereof I had one given me by the Honorable Lady *Jane Leveson Gower*, kill'd somewhere near *Trentham*, in all parts corresponding with the *cloven-footed fin-toed Loones* without *tailes*, described as above §. 3. of this Chapter. Of *whole footed water fowle* the *Avosetta Italorum* or *Recurvirostra*, is also found here, as well as in the Eastern parts of *Norfolk* and *Suffolk*, there having been of them kill'd at the *black-Lakes* near *Aqualat*, eight of them being seen first in the morning, and but six at night when they shot; which needs no other description, but that its bill is *reflext* upward, which is peculiar to this bird, ending in a thin slender weak point, somewhat of the consistence and strength of a *Whale-bone* of the same size.

7. But the strangest *whole-footed water fowle* that frequents this *County* is the *Larus cinereus Ornithologi*, the *Larus cinereus tertius Aldrovandi*, and the *Cepphus* of *Gesner* and *Turner*; in some *Counties* call'd the *black-Cap*, in others the *Sea* or *Mire-Crow*, here the *Pewit*; which being of the *migratory* kind, come annually to certain *pooles* in the Estate of the right *Worshipfull Sr. Charles Skrymsber* Knight to build and breed, and to no other Estate in, or near the *County*, but of this *Family*, to which they have belong'd *ultra hominum memoriam*, and never moved from it, though they have changed their *station* often. They anciently came to the old *Pewit* *poole* above mention'd, about a mile S. W. of *Norbury* Church, but it being their *strange quality* (as the whole *Family* will tell you, to whom I refer the *Reader* for the following *relation*) to be disturb'd and remove upon the death of the head of it, as they did within memory, upon the death of *James Skrymsber* Esq; to *Offley-Moss* near *Woods-Eves*, which *Moss* though containing two *Gentlemans* land, yet (which is very remarkable) the *Pewits* did discern betwixt the one and the other, and build only on the *Land* of the next heir *John Skrymsber* Esq; so wholly are they addicted to this *family*.

8. At which *Moss* they continued about three years, and then removed to the old *pewit* *poole* again, where they continued to the

^a Conr. Gesneri de Avibus Lib. 3. ^b Vid. supra Chap. 6. §§. 36. 40. 42.

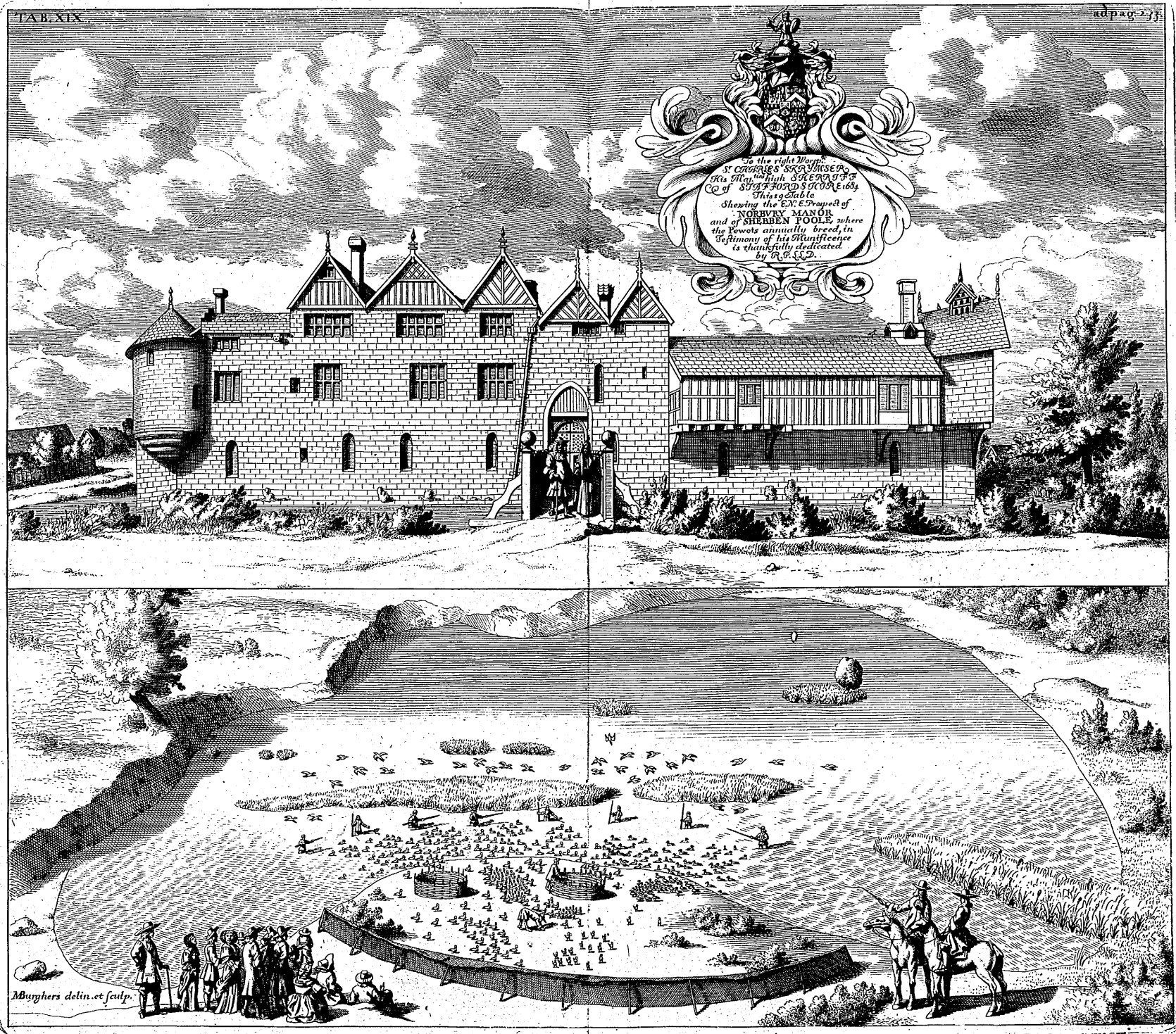
death

death of the said *John Skrymsber* Esq; which happening on the *Eve* to our *Lady-day*, the very time when they are laying their *Eggs*, yet so concern'd were they at this *Gentlemans* death, that notwithstanding this tye of the *Law of Nature*, which has ever been held to be universal and perpetual, they left their *nest* and *Eggs*; and though they made some attempts of laying again at *Offley-Moss*, yet they were still so disturb'd that they bred not at all that year. The next year after they went to *Aqualat*, to another *Gentlemans* Estate of the same family (where though tempted to stay with all the care imaginable) yet continued there but two years, and then returned again to another *poole* of the next heir of *John Skrymsber* deceased, call'd *Sebben poole* in the parish of *higb Offley* where they continue to this day, and seem to be the propriety, as I may say (though a wild-fowle) of the right Worshipfull Sr. *Charles Skrymsber* Knight, their present Lord and master.

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9. But being of the *migratory* kind, their first appearance is not till about the latter end of *February*, and then in number scarce above six, which come (as it were) as *barbingers* to the rest, to see whether the *Hafis* or *Islands* in the *pooles* (upon which they build their nests) be prepared for them; but these never so much as lighten, but fly over the *poole* scarce staying an hour: about the sixth of *March* following; there comes a pretty considerable flight, of a hundred or more, and then they alight on the *hafis*, and stay all day, but are gon again at night. About our *Lady-Day*, or sooner in a forward *Spring*, they come to stay for good, otherwise not till the beginning of *April*, when they build their *nests*, which they make not of sticks, but heath and rushes, making them but shallow, and laying generally but 4 eggs, 3 and 5 more rarely, which are about the bignes of a small Hen-egg. The *Hafis* or *Islands* are prepared for them between *Michaelmas* and *Christmas*, by cutting down the *reeds* and *rushes*, and putting them aside in the nooks and corners of the *hafis*, and in the valleys to make them level; for should they be permitted to rot on the *Islands*, the *Rewits* would not endure them.

10. After three weeks sitting the young ones are hatch't, and about a month after are almost ready to flye, which usually happens on the third of *June*, when the *Proprietor* of the *poole* orders them to be driven and catch'd, the *Gentry* coming in from all parts to see the sport; the manner thus. They pitch a *Rabbit-net* on the bank side, in the most convenient place over against the *hafis*, the *Net* in the middle being about ten yards from the side, but close at the ends in the manner of a *bow*; then six or seven Men wade into the *poole* beyond the *Rewits*, over against



TAB. XIX.

ad pag. 273.

To the right Worth
 St. GEORGE'S SOCIETY
 His Majesty's SECRETARY
 CO. of ST. GEORGE'S SOCIETY
 This is to be
 Showing the E. & S. Prospect of
 NORWICH MANOR
 and of SHEBEN FOLEY where
 the Pewees annually breed, in
 Testimony of his Majesty's
 is humbly dedicated
 by J. G. G.

M. B. G. delin. et sculp.

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against the *Net*, with long staves, and drive them from the *bafts*, whence they all swim to the bank side, and landing run like *Lap-wings* into the *Net*, where people standing ready, take them up, and put them into two *penns* made within the *bow* of the *Net*, which are built round, about 3 yards *Diameter*, and a yard high or somewhat better, with small stakes driven into the ground in a circle, and interwoven with broom and other raddles, as in *Tab. 19.* at the bottom whereof is represented in *Sculpture*, the poole, and whole method of taking these *Pewits*; and *Norbury Manor* at the top, the seat of the *Proprietor*, a most generous *Encourager* of this work.

11. In which manner there have been taken of them in one morning 50 dosen at a driving, which at 5^s per dosen (the ancient price of them) comes to twelve pounds ten shillings: but at several *drifts* that have been anciently made in the same morning, there have been as many taken as have been sold for thirty pounds, so that some years the profit of them has amounted to fifty or threescore pounds, beside what the generous *Proprietor* usually presents his *Relations*, and the *Nobility* and *Gentry* of the *County* withall, which he constantly does in a plentiful manner, sending them to their houses in *Crates* alive, so that feeding them with *livers*, & other *entrals* of beasts, they may kill them at what distance of time they please, according as occasions present themselves, they being accounted a good dish at the most plentiful *Tables*.

12. But they commonly appoint 3 days of driving them, within fourteen days or thereabout, of the second or third of *June*; which while they are doing, some have observed a certain old one that seems to be somewhat more concern'd than the rest, being clamorous, and striking down upon the very heads of the *Men*; which has given ground of suspicion that they have some *Government* amongst them, and that this is their *Prince*, that is so much concern'd for its *Subjects*. And 'tis further observed that when there is great plenty of them, the *Lent-Corn* of the *Country* is so much the better, and so the *Cow-pastures* too, by reason they pick up all the *worms*, and the *Fern-flies*, which though bred in the *Fern*, yet nip and feed on the young corn and grass, and hinder their growth.

13. Other birds there are here that are more commonly seen, and doe not only breed, but remain constantly in the *Country*, and are therefore call'd *perennial*; which yet many of them have had something extraordinary either in their *colours*, *limbs*, *eggs* or *time of production*, that has render'd them remarkable. At *bill-Ridware* I was told of a white *Poppinjay*; and at *Apedale* near the

house of one *John Middleton*, for three or four years together, there were white *Crows* hatch't in the same nest with *black* ones, whereof some they sold as rarities for *half crowns* a piece: which in all probability must come to pass, by a *hen-crow* of an ordinary colour, being trod by a *cock* of the *Royston-breed*, or from *Norway*, or *Greenland* where they are commonly white, or *vice versa*; as we see it often falls out in *doggs* and other *Animals*. Which is further confirm'd to me by a white *Sparrow* kill'd at *Aldrich*, which built about Mr. *Jourdans* house there, and produced young ones, some white, some gray, and others speckled with white and the usual colour, of other *Sparrows*.

14. And in their *beaks* and *leggs*, I met with so many *deformities*, and unusual *excesses*, that it would be endless to recount them: the chief are these. In the *Hall* at *Bentley* there is a *Ravens* head whose *bill* is crook't both ways, the *Mandibles* crossing one another, like those of the *Shell-Apple* or *Cross-bill*, the lower chap turning upwards, and the upper downwards. And in the *Coffee-house* at *Lichfield*, I was shewn another *Ravens* head, whose upper *mandible* turned downward, and crossed the lower; but the under one straight, only much longer than the upper as in *Tab. 22. Fig. 2.* At great *Bridgford* there was a *Pidgeon* produced with two heads; and there was a *Pewit* catch't at *Norbury* with 4 *leggs*. Not to mention a *Goose*, I was told, was hatch't at *Shelfield* with three *leggs*, the third issuing from about the rump, and hanging loose, being of no use to the *Animal*, as indeed few of these *excesses* of nature are: which perhaps may arise, as *Fabricius* thinks, either from *Ova Gemellifica*, that is, *Eggs* with two *Yolks*, two *Whites*, two *Chalazæ* or *treddles*, two *Cicatriculæ* &c. i. e. that have every thing double; or as *Harvey* rather thinks, when two *Yolks* are included within one *white*; and are so joyn'd, that the *Cicatriculæ* expanded, make but one *colliquamentum*: which latter indeed seem much the likelier of the two.

15. Which brings me next to consider the *Eggs* of birds, and their time of *batching*, wherein I also met with divers *Anomalies* of Nature: the ingenious Mr. *Miller* vicar of *Wednesbury* amongst his *titbe-Eggs*, met with one whose *Yolk* was as perfectly *white*, as that we usually call soe, the separation betwixt them remaining as distinct as in ordinary *Eggs* i. e. He met with an *Egg* with two *whites* including one another, such as *Aristotle* calles imperfect, *improlific Eggs*, which will never produce *Chicken*, and *Hieronymus Fabricius*, *Ova centenina*; they being a sort of *Eggs* (as he

¹ Hieron. Fabricii ab Aquapendente de formatione Ovi & pulli. p. 19. ² Gul. Harvey de Generat. Animalium Exercit. 23. de Ovis gemellificis. ³ Hieron. Fabr. ab Aquapend. de format. Ovi & pulli. p. 10.

would

would have us believe) which hens lay at last, after they have excluded a hundred before; or the last they lay, after they have made an end of laying for that year; which whether true, or no, depends upon the credit of the *Author*: But that such *Eggs* as these (as *Aristotle* says) must be imperfect and barren, is certain enough; the *Yolk* in an *Egg* being equally necessary for the production and maintenance of a *chick* as the *white*, & *vice versa*: for which reason too, the *Eggs* mentioned by *Aristotle*, that were all *Yolk* (which the *Augurs* look't upon as very wonderfull) must also be number'd amongst the *imperfect Eggs*.

16. As to the frequency of *Hen's* laying their *Eggs*, Dr *Harvey* tells us that some there be in *England* that will lay an *Egg* every day, yet that these are not the most *fruitfull*; which for the most part lay an *Egg* for two days together (in the morning of the first day, and toward evening the second) and rest the third. But as I was inform'd by the ingenious *Tho. Broughton* of *Broughton* Esq; there was a *Hen* then belonging to *Ann Biddulph* of *Edgiäll*, when I was travelling this *County*, that would ordinarily lay 3 *Eggs* in a natural day, or 24 hours; and that the same thing in a manner had been found in *Ducks*, at Mr. *Noble's* of *Charley*, where eight *Ducks* being shut up all night; sometimes layd 9, sometimes 10, and once no less than 12 *Eggs* in a night; which was look't on by the *good-housewives* as very extraordinary: and yet little less than this we find was observ'd as long agoe as *Aristotle*, who not only tells that the *Hadriatic hens* lay'd every day, but that there were some *tame Hens* lay'd twice *per diem*; but then that the former ordinarily broke their *Eggs*, and so destroy'd their young; and the latter themselves, by their over much fruitfullness; which whether either of ours have been lyable too, I neither enquired, nor heard.

17. The time of *batching* their *Eggs*, by some sort of fowle, has also been noted here in some places, to be very extraordinary: Thus the worthy Mr. *Chetwynd* in his park at *Ingestre* observed young *Ravens* to goe to bough on *Newyears day*, which therefore must be hatch't in the winter near *Christmas*; as some also were in *Ashmers Park* near *Wolverhampton*, An. 1665, by a *Raven* that constantly built there for many years. Thus as *Cardan* acquaints us, in the 16 year of the reign of *David* King of *Scots*, which was An. 1347. the sheep in that *Country* brought forth no young; nor the *Crows* and *Daws* in the Summer; but all in the Winter, which he observes that year was a very *warm* one, and fit to promote fruit-

^m Gul. Harvey de Generat. Animalium Exercit. 35. ⁿ Aristot. de Hist. Animal. Lib. 6. cap. 2. ^o Gul. Harvey de Generat. Animal. Exercit. 12. ^p Aristot. de Hist. Animalium Lib. 6. cap. 1. & Gul. Harvey de Generat. Animal. Exercit. 12. ^q Hieron. Cardan. de Varietate Rev. Lib. 2. cap. 13.

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fullness

fullness in oviparous *Animals*, as (he says) has been long since noted by the best *housewives*, who if they would have *Hens* lay plentifully in Winter, always shut them up in a warm room. Which 'tis probable might be the occasion that the *Ducks* at *Charley* laid so many *Eggs* more than usual, being shut up all night in a warm house, which had they been left abroad perhaps they might not have done.

18. But before we take leave of the Inhabitants of the *air*, let us next consider what *flying Insects* there be, worthy our notice, which I put after *birds*, because they fly ordinarily lower, contenting themselves for the most part with the *air* most immediately circumambient of the terraqueous globe: amongst which, that which justly claims the first place, both for rarity & strangeness, is the *Lampyrus* or *πυλαμπύρις*; otherwise from its shining in the night *νυκτιλαμπύρις*; and because the light arises from two small specks on the under side of the *taile*, near the end, *κυσταλαμπύρις* or *πυρολαμπύρις*; in *Latin* *Cicindela*, from *cis* and *candeo*; in opposition to the *κεφαλαλαμπύρις*, the *Cucujus* or *Indian Glow-fly* of *Moufet*; and *Pyragonus* of *Aristotle*; in *English* the *flying Glow-worm*, or *Lanthorn-fly*, because it can shew or cover its light at pleasure, having as it were the command of a natural *dark-Lanthorn*. Of which there have been several seen near *Bradwall* in this *County* by the learned and ingenious *Ralph Sneyd Esq*; about the year 1678; but first noted to be in *England* from the testimony of an Eye-witness by *Mr. John Ray*; since that met with again about *Midsummer* in the years 1680 and 1684 at *Northaw* in *Hertfordshire* by the ingenious *Richard Waller Esq*; fellow of the *Royal Society*, who has given us an accurate Cut, and I think the best account we have had of it yet.

19. For I find him to have determined two or three *controversies* amongst *Authors*, concerning this *Insect*; as first that there are *femal flying-glow-worms* as well as *males*, which he asserts also to have been known to *Julius Scaliger*, but I do not find it in my edition of his *Exercitationes*, the expression there being; *Primum scito, Cicindelam à me cum suo mari deprehensam in coitu*, without the *Epithet, volantem*; it suffices however that he himself catch't both *male* and *female* coupled, betwixt which he could perceive no difference but in the *Size* (the female being a little the larger) both having *wings* alike: whereas it was always supposed before by *Moufet*, *Tho. Bartholin*, and *Mr. Ray*, that these winged

q Hieron. Cardani de Varietate Rer. Lib. 2. cap. 13. r Mr. Ray's Observations Topograph. &c. p. 409. 410. t Philosoph. Transact. Num. 167. u Jul. Ces. Scaligeri Exercitat. Lib. 15. Exercit. 191. v Th. Moufet. de Insectis cap. 15. w Tho. Bartholini de Luce Animalium Lib. 2. cap. 12. x J. Ray's Observat. Topograph. p. 409. 410.

Glow-worms were nothing else, but the *males* of the common creeping unwinged ones, we see so commonly shining in the bottoms of hedges. Nor does the testimony of *Fabius Columna*, brought by *Mr. Ray* (which I cannot find neither in my edition) viz. that *Carolus Vintimiglia of Palermo* saw a flying *Glow-worm couple* with many unwinged ones, one by one, after the manner of *Silk-worms*; hinder but there may be also winged females: for how often do we see, different species of more perfect animals than these, couple together; and yet we do not hence conclude, that one of these Species must therefore needs be the female to the other, and that they have none beside.

20. He asserts too, that the *male* as well as *female*, he saw coupled, both shined alike, and that when the *tailes* of one of them was cut off, it continued to shine but a very little while (no longer he supposed than *life* remained in that part) but sensibly decayed till at last it went out: whereas *Mr. Ray* upon the credit of an *Eye-Witness* asserts, that the *males* do but rarely, if at all shine with us. And *Scaliger* brings in *Cardan* asserting (though I cannot find it in him) *Marem alatum hic quoque esse, sed non lucere*, i. e. that the winged *Cicindela* does not shine. And as for their shining after death *Fabius Columna* is express, that the *tailes* of his *Cicindela* continued to shine after they were cut off, as long as they had any *moisture* in them; and *Dr. Stubb's* is as positive, that the *fire-flies* of *Jamaica* do continue their light some days after they are dead; *Sr. Tho. Brown* also grants that a *glow-worm* will give a faint light for near a days time after 'tis conceived to be dead: but then he answers himself, and the former *Authors* too, by suspecting that this is by a mistake in the computation of death, for that the parts of *Insects* (as *Mr. Waller* also observes) do live a long time after they are separated, though they shew not any visible evidences of life; so that as long as the *luminous moisture* in these *Insects* has the least motion given it from any *life* left in them (though insensible to us) we may afford them to exert their shining quality, but not after.

21. Amongst the winged *Insects* it is also worth notice, that at *Throwley*, the Seat of the right Honorable the Countess of *Ardflass*, I was shewn by the most ingenious *Charles Cotton Esq*; the *forficula* or *Ear-wigg* of a milk white colour, which are ordinarily of a *Chesnut*. And it is very considerable that another curious *Observer* of this *County*, opening a small flye de genere *κολεοπτεράν sive vaginipen-*

y Ibid. z Jul. Ces. Scaligeri Exercitat. Lib. 15. Exercit. 194. a Fab. Columna; Aquatil. & Terrest. Observat. cap. 17. b Philosoph. Transact. Numb. 36. c D. Thomæ Brown Pseudodoxia Epidemica Lib. 3. cap. 27.

nium, by the help of a *Microscope*, saw two living *Insects* come out from within it, both alive, exactly alike, and very nimble, which in this state most resembled *Cheese-mites* of any thing he knew; only they were something bigger and had longer *hornes*, but wanted *bristles* and were of a reddish colour, which by a strong reflection of light from their backs, and the variety of colours caused thereby, he could perceive they were of the *crusty* or *sheath-winged* kind, which yet had been observed before by the learned *Dr. Lister*, tho' not publish't till in *June 84*.^d So that this observation seems as well to be this *Gentlemans*, as *Dr. Listers*, who are altogether unknown to one another.

22. The same worthy person opening another *Insect* next dore to flying (it being called a *flea*, as some would have it, *a verbo* to flye, *quia adeo celeriter saltat, ut volare videatur*) found in those of them of a reddish colour, not only *Eggs* of an *ellyptical* form, but in one that he open'd (by the help of a *Microscope*) a young flea compleatly formed in all its parts, of a *whitish* colour, wherein it seems they not only agree with the *Moore's* in being *viviparous Animals*, but also in that they produce their young *white*, though they become *black* after, which too hang to the old ones for some time after they are excluded, whence 'tis so frequent to catch an old *flea* and a young at the same time. From which two instances, *Jacobæus* may be instructed, that the *Scorpion* is not the only insect that brings forth its young *alive* and *perfect*, without laying *eggs*; the *Flea* laying none: for who ever saw any *nits* of a *flea*, any where excluded, as those of a *louse* are, upon hair, cloth, &c?

23. There are another sort of *insects* too *de genere araneorum*, which in some sence also may be allowed to *fly*, such are all *Spiders* (except those long-legged ones we call *Shepherds*, which never spin any *thred*) which in *October* chiefly, will turn up their *tailes* and project one or more *threds* with that violence, that they shall reach *cross rooms*, over *rivers*, and be fastened betwixt *trees*, in *plano Horizontis*, at several *fathoms* distance; and sometimes will dart them into the *Air* to such a *length*, that the *Spiders* leaping up after them, will be carryed into the *air*, and there *saile* at the end of these *threds* to a great height and distance: by which means it is that the *trees*, *hedges*, *stubble*, and the *air* it self, is so fill'd with these *threds*, some single and some complicated, as we frequently see they are at that time of year. The *discovery* whereof seems to have been made much about the same time both by *Dr. Lister* and *Dr. Hulse* as plainly appears in the *Philosophical*

^d *Philosoph. Transact.* Numb. 160. ^e *Tho. Bartholini Act. Med. & Philosoph. Hafs.* vol. 5.

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Transactions.^f Since which, the same thing has also been observed by divers others, particularly in this *County* by the ingenious *Mr. King*, Chaplain to *Mr. Chetwynd*, from whose notes I shall only add such matter, as was not so fully observed by the aforementioned *Authors*.

24. As first, that in their projecting a *thred* cross a roome in *plano Horizontis* (which they doe for their easier and more direct passage) they raise themselves on their leggs as high as they can, setting them very straight and stiff, and turning their hinder parts up higher than usual, they will shoot out a *thred* to a great distance, which when fastened where they would have it, with their fore leggs they will winde up the *thred* shorter till it is very straight, as the *Funambuli* strain their roaps, and then like them too, will get upon it, and run from one end to the other. And as to their *sailing* at the ends of these *threds*, he further observed, not only that they *sailed* much swifter, than any *wind* then stirring could carry them, but that at the same time they constantly *sailed* all the same way, which was not directly with, but as he once noted at 8 points distance, as it were with a *side-winde*; which plainly shews that they doe not only *row*, but *steer* too, with the motion of their feet, according as directed by some secret instinct they have in them.

25. Having done both with the *Insects* that really *flye*, and that doe so only in a larger sence, I proceed next to such as live in the *waters*; whereof my worthy friend *Francis Wolferstan* Esq; sent me one, out of many, he found swimming about in filthy water, that stood a yard deep, in the bottom of a large hollow *Elme*; which I cannot find after long search, but is wholly undescribed: the bodies of them being better than an inch long, and $\frac{1}{2}$ of an inch *diameter*; full, white, and round; and the outer Skin upon back and belly made up from head to taile of *protuberant Ridges*, those under the *belly* at a not shooting right against those on the *back* or *sides*, but against the *furrows* between them, which counterchanging of the *ridges* make the *indentures* on the *sides*; the *head* striated, with *antennæ* issuing from a flat roundish face; the body fill'd with so thin a white matter, that they are in a manner transparent, in so much that a sort of *peristaltick* motion may sometimes be perceived in them; having 14 short feet (7 on each side) much like those of a *Maggot* two being placed in the ends of every other semicircle of the belly; & a joynted tapering taile four or five inches long as in *Tab. 22. Fig. 3.* which they can contract to an inch, and extend it again at pleasure to its full length. Whence 'tis plain that it is a sort of *Eruca*, but such

^f *Philosoph. Transact.* Numb. 50. and 65.

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an one as I find not described, which perhaps may not unfitly be stiled *eruca glabra caudata aquatico-arborea*, but I tye not up the Reader from his better choise, of a more agreeable name, if hereafter from further knowledg of the nature of the Animal, he can impose a better on it.

26. Thus being come to the waters, and having done with the *Insects*; nature directs me next to proceed to the *Fishes*, the most frequent Inhabitants of that element: which, here in this inland Country, being only fresh, such as is contain'd in Rivers, Lakes, and Pooles, nothing must be expected concerning fish here, but such only as are either ποταμιοι usually living in Rivers; λιμναίοι commonly found in Lakes; or πλωμαίοι that are kept in ponds or Stews; or in one, more, or all of these. Of which kinds there are so many in this County, that some have fancy'd no less than thirty sorts in the River Trent, as if a corrupt name by contraction from *triginta*; but this I take but for the imagination of some fond Etymologist: however I think there may be as many here of all these kinds, as in any other such inland County, where there can be none of the θαλάσσιοι ποταμιοι, that for certain intervalls of time live both at Sea, and in rivers: and yet I could hear of but one amongst them all, that I think undescribed, and that one of the smooth sort, without Scales, and for its solitary way of living, of the αποειδινοι, there having not above four of them been catch't, that I could hear of, within memory, and these all single without any company, no not so much as of their own kind.

27. Whereof this represented here in Sculpture Tab. 22. Fig. 4. was taken in the river Tame in the damm near Fafely bridg, by Goodyer Holt Free-Mason, as he was repairing it Aug. 11. 1654. who presented it to Colonell Comberford of Comberford, who caus'd it to be drawn to the life, and placed it in his Hall, where it still hangs, and whence this draught was taken in a less proportion: its length in the picture being 20 inches long, from the fore fin on the back to the belly 4 inches, of a greenish-ash-colour, powdered all over with small round yellowish spots; the Iris of the Eye of a blewish colour; having two small Cirri or wattles issuing out of the nose near the mouth, and one larger one out of the jaw; and four finns near the gills, the two smaller placed foremost, and the larger hindmost; with a straight line running from the upper part of the gills to the setting on of the taile; having also under the belly, a fin reaching from the exit of the excrement, almost to the taile, with another on the back somewhat longer, and a fore-fin preceding it, the taile roundish, not at all forked; in all which particulars it agrees pretty well with

with the *Mustella vulgaris* of Rondelet^u; but not in the broadness of the head; largeness and roundness of the finns at the gills; nor smoothness of those both on the back and belly; which in Rondelet's *Mustella*, are prickly like those of a Perch, and which is more than all, the *Mustella* a Sea, and this a fresh-water Fish.

28. Nor yet must we call it the *Mustella fluviatilis*, or *Lota* of Rondelet^h, which though found in rivers and lakes, having most of the things common with ours, that the *Mustella vulgaris* has; yet remarkably differs, in that its head is not near so broad; being a squamous fish; having but one barb or wattle under the lower jaw, none in the upper; the tail sharp; and as thick powdered with black spots, all over the body, as ours is with yellow. The most like it of any that I have met with in Authors is the *Mustela fluviatilis* of the Lake of Constance, by Gesner call'd the Gwell-fish, which is of the smooth kind, and in the general shape of body and head answers ours well enough; only like the *Lota* it has no wattles coming out of the Nose; the two smaller fins at the gills being also divided, whereas ours are round; and as thick marked all over with black spots as ours is with yellowⁱ. So that either this is not the same fish, or else so ill described by Gesner, that there was need enough of a new one. However we may allow it to be a *Mustela fluviatilis*, though in Staffordshire by some, it is call'd a Burbot or bird-bolt, perhaps from that sort of Arrow rounded at head, somewhat like this fishes; by others, from the oddness of the shape, and rarity of meeting them, the *Nonfuch*; there having never but four (that I could hear of) been found within memory; this at Fafely-bridg; another at Willeford near Fishberwick; a third near Colton Mill; and a fourth near Alrewas: which either were not at all, or never till now at least well described, and so will be found by any, that can give themselves leasure to consult the ancient *Ichthyographers*.

29. But though I heard only of this single fish that I think undescribed (for that there are a sort of *Crevice*s in the stream that passes by Overend and Longdon, that will not boile red, is only accidental, as was shewn before in Oxfordshire^k) yet I was inform'd of divers very unusual observations, concerning scaled, as well as smooth fish, relating either to their breeding, habitation, feeding, or magnitude; perhaps worthy knowledg: such as their breeding and living in Coal-works, whereof there is an indisputable instance, in the drowned Coal-pit-open-works S. W. of Wednesbury, into which Pike, Carp, Tench, Perch, &c. being put for breed,

^u Gul. Rondeletii de Piscibus marinis. Lib. 9. cap. 15. ^h Gul. Rondeletii Lib. de piscibus lacustribus cap. 19. ⁱ Com. Gesneri de Aquatilibus Lib. 4. cap. de Mustela. ^k Nat. Hist. of Oxfordsh. Chap. 7. §. 31.

they not only lived, but grew and thrived to as large a magnitude, as perhaps they would have done any where else, and were to the *palate* as gratefull: so that though the *canker'd waters* that are long stagnant in the hollows of the *old works*, will destroy fish, as was hinted in the end of the second *Chapter* of this *Book*¹, yet it is not so in waters that fill up the *open works*, which constantly enjoy the ventilations of the Air, and the sweet influences of the *heavens* both night and day.

30. There are other fish too, both of the *scaled* and *shell'd* kinds, that will live and breed in places very uncommon to their *species*: thus *Gudgeons* and *Crevice*s live well and breed in the *pooles* at *Bentley*, and thrive to a just magnitude, but then these ponds are always fedd with *Springs*. Others there are again, that though they will live in unfuitable places, yet will never *spawn* there; and such were the *Carps* the right Honorable the Lord *Ferrers* took forth the poole at *Drineton*, whose *spawn* still lying in their bodies and increasing yearly, distended their bellys into such various ill shapes, that they appear'd monstrous, the *spawn* when boyled being of the colour and consistence of *red wax*; and yet the fish as good meat as others of the kind. Other *waters* again are so very disagreeable, that though fish may live in them, yet they will not thrive, but rather pine away, as Mr. *Chetwynd* found it in a parcell of *roaches* he put into a pond in his park at *Ingestre*, whence after some time being taken forth again, they were all grown slenderer than when first put in, and become almost of the shape of *herrings*.

31. But for *breeding*, and *living*, there is no fish so wonderfull amongst all the *scaly* or *shelly* kinds, as there is one amongst the *smooth* ones, viz. the common *Eele*; which is not only *viviparous*, as may be easily found in the *Month* of *May*, as has been observ'd by the ingenious *Walter Chetwynd Esq*; by cutting open the red and swell'd fundaments of the *females*, whence the young *Eeles* will then issue forth: but will live, and sometimes take journeys in *arido*, passing over land from *Lakes* and *Pooles* they doe not like, to others they like better: by this means many times *stocking* waters of themselves, which were not so before. Thus 'tis said the *waters* of the *Coal-pit-open-works* S. W. of *Wednesbury* were stockt with *Eeles*; and so I was told was the poole at *Bescot* the seat of the ancient family of *Mountfort*; never any *Eeles* having been put into either of them, for breed, or otherwise. Inasmuch that some have imagined upon such accounts as these (never so much as dreaming they could be *night walkers*) that *Eeles* are many times produced of a peculiar *dew* (no melt

¹ Chap. 2. §. 129.

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or *spawn* being ever found in them) falling in *May* and *June* upon the blades of the grass, whereof *turfs* being cut, and the grassy sides clapt together, and then laid on the warmest side of a well-promising poole, thence by the *Suns* heat in a few hours will spring a competent number of young *Eeles* by *Equivocal* generation. In which Experiment *Abrab. Myllius*^m, and *G. Marbofus*ⁿ, seem so well satisfied, that they give the process of this affair, as practised by the *Dutch*, who use this Method with success, to stock their *fish-ponds* with *Eels*.

32. Now though I dare not pronounce either that *Lakes* or *pooles*, are impossible to be stockt after this *Belgic* manner; yet I think it much more probable of the two, that it may be done the *travelling* way: for most certain it is that *Eeles* are such *night-walkers*, as was suggested above, having been actually catch't in the very fact near *Bilston*, creeping over the *Meddows* like so many *Snakes* from one ditch to another, by Mr. *Moseley* of *Moseley*, who seriously told me they not only did it for bettering their *station*, but as he apprehended, also for catching of *Snails* in *April* and *May*, the best time of year for them. Which yet I could have hardly believed (though the *Gent.* gave me licence to quote him for it) but that I have since met with so many *Authorities* both ancient and modern, that seem to render the thing probable, if not almost certain. Inasmuch that *Seneca* amongst the rest, makes it a pleasant wonder, that any body should doubt it: *Quid est autem* (says he) *quare pisces in terram non transeant, cum nos maria transimus*? Now there are indeed so very many *fishes* that will doe this, that *M. Aurel. Severinus* has writ a whole *Treatise* of them, which he styles, *de Piscibus in sicco viventibus*, being a *Commentary* upon *Theophrastus Eresius*, on the same subject^p: where the *Reader* amongst the rest will find the *Eele*, which as *Pliny* notes will live for *six days* out of the water; well therefore may they bear travelling over a few *Meddows*, for a nights time or so.

33. That they will make them *holes* in the *banks* of *Rivers*, which the people in *Somersetshire* ordinarily discover by the *hoar frosts* not lying over them, as elsewhere, and so dig them out in heaps; as they also doe the *fossile fish* in *Lancashire*; and the *Prides* in *Oxfordshire*; seems not reach our business: but that which fully answers, and amply confirms it, is that of *Albertus* as quoted by *Gesner*, who expressly says that *An.* 1125, it being a

^m *Abrab. Myllii de origine Animalium Lib. 10.* ⁿ *D. G. Marbofii de Metallorum transmutatione p. 38. 39.* ^o *L. An. Senecae Nat. Quaest. Lib. 3. cap. 17.* ^p *Impres. Neapoli. 1655.* ^q *C. Plumii 2^{da}. Hist. Nat. Lib. 9. cap. 21.* ^r *Philosoph. Transact. Numb. 129.* ^s *Camden in Lancashire.* ^t *Nat. Hist. of Oxfordshire Chap. 7. §§. 27. 28.*

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very cold winter, a parcell of *Eeles* got out of the water into a *Meddow* upon the dry land, and there went into a *Hay-stack*, where they were found bedded in *arido*, to preserve themselves from cold^u: now if for one convenience they can doe this, why not for another? such as bettering their *habitation*; and for necessary *aliment*; both which equally tend to *self-preservation*, with their provision for themselves, against the violence of a *frost*. Thus as *Rondelet* acquaints us, the *Ozæna* or *polypus* is frequently found at land embracing the *Olive* with its long winding claws, and sometimes the *Figg-trees* that grow near the *Sea*, and eating the *fruit*^w: nay they have been known to leave the *Sea*, and to pass over land to robb the *Fish-mongers* stews of fish, whereof *Pliny* tells us a most remarkable story^x. The *Exocætus* will lye and bask it self in the *Sun*, and sleep a shoar, whence it has its name^y. And *Aristotle* discovered that the *Cerean* and *Papblagonian fishes*, wander'd up and down on the *dry sands*, and foran back to *Sea* again^z. As *Geo. Piætorius* asserts certain fishes of *Cherati* a River of *India* also usually doe^{*}. All which, both *Eeles*, and those other *fish*, perform (as *Rondelet* thinks) by the benefit of the narrowness of the *rima* of their *gills*; all *fishes* living a longer or shorter space out of the water, according as their *gills* are more narrow or patulous: the *fishes* that have wide and open *gills* being too much oppress'd with the free and sudder appulses of the *Air*^a, and so dying presently.

34. There are very many *fishes* too that take a great latitude in the variety of their *feeding*, as well as *habitation*; which too amongst some of them is very unusual and surprising. Mr. *Fisher Dilk An.* 1679 laying a *Dace-bait* for a *Pike* near *Salters bridg* in the river *Tame*, catch't a large *Barbel* with it; and the same Mr. *Dilk* found a good *trout* in *Stafford Castle* parish choak't with a *Crevice*; which it seems they will not *Perch*, for Mr. *Morse* Vicar of the *Collegiat Church* of *Stafford*, catch't several of these in *July* with *Crevices* in their bellies; the same Mr. *Morse* once catch't a *Trout* in *Dunsmoore* river, with *Neuts*, *Efts*, or *Askers* in its belly; and the Worshipfull *Walter Chetwynd* of *Ingestre Esq*; in a pit near the high way in *Heywood* field, catch't large *Chubbs*, with *Toads* in their gorges. The ravenous *Pike* too, will not only swallow venomous *toads* and *frogs* without being harmed by them, but will devour things sometimes bigger and longer than his gorge will receive, swallowing one part, and letting the other remain

^u *Conr. Gesneri de Aquatilib. Lib. 4. cap. de Anguilla.* ^w *Gul. Rondeletii de piscibus marinis Lib. 17. cap. 7.* ^x *C. Plinii 2^{di} Nat. Hist. Lib. 9. cap. 30.* ^y *Gul. Rondeletii de piscibus Marin. Lib. 6. cap. 15.* ^z *Aristot. in Lib. de mirabil. Auscult.* ^{*} *Geo. Piætorius de fluminibus miraculosis.* ^a *Gul. Rondeletii de Piscibus. Lib. 4. cap. 9.*

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in his *mouth* till the former is digested, and then taking in more, and so putting it over by degrees^b.

35. Nor doth this *fresh-water Wolf* only seize *Frogs* and *fish*, but upon *fowle*, and other *Animals* not of that Element. Thus in the moat at *Himley*, the *Jacks* are so bold with the young *Ducks*, that as the Reverend Mr *Paston Rector* of the place seriously inform'd me, a whole brood of young *ducks* had been destroyed there by them in a *days* time; and this the larger *Jacks* will doe, even when these *ducks* are grown near as bigg as the old ones: whereof one was catch't (having taken in such a *duck* the wrong way) that could not gorge it so farr, but that the *Ducks* head hung out of his *mouth*; in which posture both *Jack* and *Duck*, were hung up in the *Hall* of *Himley* house, to be admired, as long as the stench would permit. Which very well agrees with what *Gesner* affirms (though it come not quite up to it) that a *Polish Gentleman* of *Cracow* did faithfull assure Him, that He had seen two young *Geeje* at one time in the belly of a *Jack*^c. Nay of so bold and greedy a devouring disposition is this *Tyrant* of the *Rivers*, when He is in the height of his hunger, that as Mr *Walton* acquaints us, there have been instances of it, that a large *Pike* has bit at, and devoured a *dogg*, that ha's been swimming in the water^d.

36. Neither yet need we wonder much at this, if we consider what *Gesner* further adds concerning the excessive *boldness* of this *fish*, who tells us of a Man going to water his *Mule* in the River *Rhodanus*, that had one fastned so boldly on the lips of the *Mule*, where He hung so close, that the *Mule* could not otherwise but draw Him out of the water, by which means his *Master* got the *Pike*^e. To which the same *Gesner* yet further subjoynes, that a maid in *Poland* had her foot bit by a *Jack* as she was washing cloaths in a fish-pond^f. And Mr *Walton*, tells us he heard, that the same once happend to a woman in a pond near *Killingworth* in *Warwickshire*^g. Which though wonderfull *Examples* of the ravenous disposition of this *Animal*, yet 'tis plain that many times they doe not so much as kill the prey they swallow, with their teeth by the way; whereof I met with two signal instances that fell out lately in this *County*.

37. One at the *Black-Lake* near *Aqualat*, where Mr. *Skrymsber* having catch't a *Jack*, that his *Cofin Skrymsber* of *Norbury*, who was present at the *fishing*, suspected might have a *Carp* in his belly, upon opening his *mouth* found he had gotten one so

^b *If. Walton's compleat Angler. chap. 8.* ^c *Conr. Gesneri de Aquatilib. Lib. 4. cap. de Lucio.* ^d *If. Walton's compleat Angler. Chap. 8.* ^e *Conr. Gesneri de Aquatilib. Lib. 4. cap. de Lucio.* ^f *Ibid.* ^g *If. Walton's compleat Angler. Chap. 8.*

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large, and so very lately, that they could visibly perceive the tail of it stir, which Mr Skrymsber of Aqualat by stroaking him on the belly, quickly made Him disgorge, there remaining so much life in him (the digestion having only a little touch't his Eyes) that being put into the water, after some time, it swam away leafurably as if not at all disturbed. And the other at Rugeley, where Mr Chetwynd of Ingestre being fishing with his Cousin Chetwynd of the same town, amongst many other fishes they catch't a Jack with somewhat a bigg belly, which being open'd, they found divers fishes had been swallowed by it, and amongst the rest a Roach so intire (the end of its nose being only a little touch't with the concoction) that being put into a Cistern, it shewed quickly so much life, that after a while being put into the River it swamm briskly away.

38. Lastly, as for the unusual magnitude of fishes, those which have exceeded most of any I heard of; are, 1. a large sort of Gudgeons in the black-brook; whereof some have been taken in the Lordship of Hynts, belonging to the courteous Mr. Matthew Floyer, from the tip of the nose to the fork of the tail 7 inches long, and 4 inches about. 2^y. Carps; of which kind there are vast ones in the Meer at Aqualat, but two there were taken (as I was punctually informed by the learned and ingenious Proprietor of the place Edwyn Skrymsber Esq; a most generous promoter of this History, whose pleasant seat is here represented Tab. 20.) more remarkably great: One, a Melter 33 inches long and 19 $\frac{1}{2}$ inches about, weighing 15 pounds. And the other a Spawner, which though not above two foot 6 inches long or thereabout, yet was 20 $\frac{1}{2}$ inches round, weighing 14 pounds, and sold for 14 shillings; the Scales of each being near as broad, as one of our mill'd half Crownes. And 3^y. Jacks; whereof there hangs a picture of one in Cumberford hall taken in the River Tame, Dec. 16, 1673, an Ell and 2 inches long when first taken, but as drawn there in the picture but a yard and $\frac{1}{2}$ and $\frac{1}{2}$ an inch from the tip of the nose, to the fork of the tail; and there are of them in the moat at Himley a yard and half long. And yet even these would be found but of an inconsiderable magnitude, if compared with the Pikes of the Lake of Geneva, where they sometimes catch them of 80 pounds weight, reckoning too (according to the account of Geneva) 18 ounces to the pound^h.

39. Which is all I met worthy notice relating to fishes; and yet I have not done neither with the inhabitants of the waters; for though I come next to treat of the *Quadrupeda πολυδαλυα*, digi-

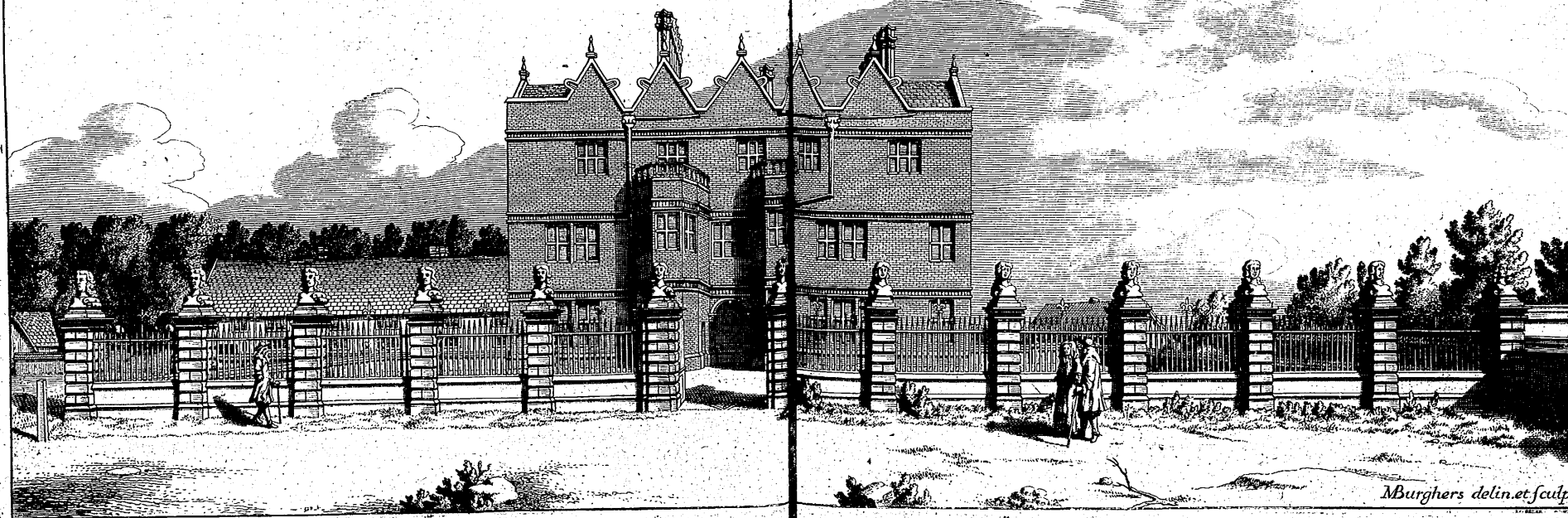
^h Philosoph. Transact. Numb. 86.

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TAB. XX.

ad pag. 246.



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tated *Quadrupeds*, there being some of them *oviparous*, as almost all fishes are; and sometimes at least frequenting the same *Element*; I must in all reason first dipatch what I have remarkable concerning such *Animals*, before I proceed to others that are purely *terrestrial*. Amongst which the *Toad* must be reckon'd as one; which though living both at *land*, and in the *water*, is sometimes most wonderfully excluded from *both*, having been frequently found close imprison'd within the middle of solid blocks of *Stone*, without any perceivable *rift* or *cleft*, either whereby they were first admitted, or were supplied with *Air*, during their abode there; a thing so frequent in this *County*, that I met with instances of it in divers places: and first at *Horton*, at the house of Mr. *Edg*, where in his barn wall, he shewed me a hollow *Stone* which being clove by the *Mason* had a *live Toad* included in it; this he told me he saw himself, and that it dyed quickly, after it was taken forth.

40. The same happen'd again at *Knyperley* near by, at the right Worshipfull Sr. *John Bomys* Baronet; at *Ingestre* at Mr. *Chetwynds*; and as I was told by Mr. *Lauder*, at the Village of *Brocton*; the learned Dr. *Pierce* Physician at *Bath*, in a Letter to the ingenious Mr. *William Musgrave* Secretary of the *Philosophical Society* of *Oxford*, sent us lately an account also of such a *Toad* found in the Center of a hard *lime-stone*, laid as a step-stone for passengers in the middle of a *Cartway* between two *rills* that ran of each side it; where a *croaking* noise being a long time heard, and the parts near search't and nothing found, this stone at length was resolv'd should be broke, where in a cavity near the middle, a large *Toad* was found as *bigg* as a mans fist, which hop't about as briskly, as if it had been bread in a larger room; but for how long time he does not say. But the *Toad* that was found in the most astonishing manner, certainly that ever was heard of, was that at *Statfold*, if the tradition they have of it there be true, where as the story goes, the *Steeple* being to be taken down to prevent falling, the top-stone of the *Spire* or *Pinnacle* being taken off, was thrown down whole into the *Church-yard*, but breaking in the fall, there appear'd a *living Toad* in the Center of it, which (as most of the rest are said to doe) dyed quickly after it was expos'd to the *Air*.

41. Nor has this sort of *imprisonment* of *Toads* in solid *Stones*, been only observed of late years, but in many ages backward; for *Gulielmus Neubrigensis* relates, that a *Toad* was found thus included in a stone in his time, which was near 500 years

¹ Letter Book of the Philosoph. Society of Oxon, Mar. 17. 1683. and Apr. 11. 1685. agoe;

ago; and the publisher of that Edition of him, printed at Heidelberg An. 1587. upon that place notes, that in the *Coal-mines* near *Leigh*, there are oftentimes found hard round smooth *flints*, with *living toads* in them, without any visible cleft or passage for *Air*^k. In the same manner *Johnston* assures us, they are found at *Tbolouse* in a reddish sort of *freestone*; also that a *Stone-cutter* of *Antwerp* met with one thus inclosed in hard *marble*; and *Agricola* writes (as quoted by *Johnston*) that they are sometimes found in the *Quarries* of *Mill-stone*^l. *Certum est* (says *Fortunius Licetus*) *inter viva saxa contineri quandoque bufones*^m; and of later days, my Lord *Verulam* pronounces it for certain, that *Toads* have been found in the middle of *Freestone*ⁿ. And not only within *Stones*, but

42. They are also sometimes met with in this *County* as closely included in the bodies of *firm trees*: thus out of a great *Oak* that grew at *Lapley* of about 6 Tunns of timber, brought to *Elmburst*, by the right *Worshipfull Sr. Theophilus Biddulph* Baronet for the new building the house, represented above in *Tab. 2.* there was a great *Toad* sawn forth of the middle of the tree, in a place which when growing, was 12 or 14 foot from the ground; the *tree* being found and intire in all parts quit round, saving just where the *Toad* lay, it was black and corrupted, and crumbled away like *Saw-dust*. Also at *Bently* there was another sawn out of a solid tree, in that part of it, that when growing, might be about a yard from the ground; the tree found underneath next the root, and in all other parts, only where the *toad* lay, there was a hollow about the bigness of the crown of ones hat, which (as those inclosed in *Stone*) also presently dyed, as soon as exposed to the *Air*. Now how these *Animals* should come at all to be thus included, in the middle of such *intire* and *solid* substances? and when inclosed, how maintained either with *breath*, or *aliment*? and how long they may have been presumed, to have continued there? seem *questions* indeed worthy the consideration of the most profound *Philosopher*; whome that I may honestly provoke to give a better, I shall here offer the *Reader* some account of my *owne*, which though a slender one enough, yet may serve his turne, till he can get a better, and in some measure to evince the probability of the thing.

43. To come then close to the business, upon presumption that the *matter of fact* is indisputable; 'tis easy to apprehend how *Toads* creep into the clefts and hollows of *rocks* and *trees* (which

^k Gul. Neubrigenſis Rerum Angl. Lib. 1. cap. 28. ^l Job. Johnſtoni Hiſt. Nat. de Quadruped. Lib. 4. cap. 1. Art. 2. punct. 1. in fine. ^m Fort. Liceti Lithoſphor. cap. 54. ⁿ Nat. Hiſt. Geni. 6, Experim. 570.

they

they always doe in *August*, when they are in a declining condition) to preserve themselves ith *winter*: where during their rest for about eight months, they grow somewhat bigger, and the clefts or holes of the *rocks* or *trees*, as much less; so that at the return of the *year* (like the *Fox* in the *Fable*) they cannot get out, where they came in, and so are forced to remain where they are, in that solitary condition, as long as they live; the clefts and holes of the *rocks* and *trees* in the mean time growing quite up, and inclosing them in an *intire* and *solid* case. And thus I suppose these *animals* may come to be inclosed in the *rocks* and *trees*, upon or near the surface of the earth. But how that *Toad* in the *tree* at *Lapley*, should come to be thus imprisoned 12 or 14 foot high? is a difficulty yet harder, and that requires yet nicer considerations.

44. For the *Solution* whereof, we must either suppose that the *Toad* was produced in a *hole* at that height when the *tree* was young, of an agreeable *dust*, brought thither by the *wind* and a sort of *rain* as well disposed for the same purpose; like the *worms* and *maggots* bred of *dust*, and the *rains* that accompany the *Tornado blasts*, and fall in the *Maggoti Savanna* in *Jamaica*, by equivocal generation, as was shewn in *Chap. 1. §§. 48, 49.* of this *book*: or else according to the opinion of *Cardan*, generated of the seed of a *Toad* blown from the top of some *Mountain*; or drawn up by the *Sun* into the *Clouds*, and so discharged thence in a shower, and lodg'd in the *bole* of this *tree* whilst young: whence fearing to leap in the *Summer*, and creeping down low in the *dust*, usually lodg'd in the *boles* of all *trees*, in the *Winter*, and there keeping its Station for a long Season; the wood of the *tree* in a little time might thus grow over it, so that the *tree* being trimm'd up, and a taller body given it, the *Toad* at length thus appear'd to be inclosed in the *body* of the *tree* at that height.

45. Nor is it at all improbable that the Spawne of *Toades*, or indeed that *Toades* themselves, should be thus drawn up by the *Suns* heat, since we see what vast quantities of water it supports in those wonderfull *exhalations* they call *Spouts* at *Sea*, in which there are such mighty weights of water, that they overwhelm the best *Shipp*s, if any thing near them, and disturb the whole *Sea* for a good distance, with the violence of their fall: in these *Spouts* together with the water, the *fish* many times in the *Sea* thereabout are also lifted up, which sometimes being carryed by the *winds* over *land* before their fall, has often occasion'd the wonderfull raining of *fish*, as it did *Whitings*, at *Stansted* in the parish of *Wrotham* in the *County* of *Kent* Anno. 1666; and

• Letter Book of the Philosophical Society of Oxon, Mar. 27, 1685.

herrings in the South of Scotland, Anno 1684. as his most Sacred Majesty King JAMES the Second most Judiciously determined the Problem there. Now most certainly the force that could elevate these, may very well be allowed to attract the Spawne of Toads, or large Toads themselves, which being carried by the wind (that bloweth where it listeth) to any place whatever, may also be let fall as well in any the like indeterminate place, and so possibly upon the bole of a tree as well as any where else.

46. Thus having shewn the most probable means whereby these Animals are thus inclosed in solid Stones and trees, both near the surface of the Earth, and at some height above it; it remains that I proceed to the second difficulty; how, when thus imprisoned in so narrow a Cell, they are supplied with the necessaries of Air and Aliment. To which I answer, that these Animals require very little of either, to support them: not of Air, as is plain from their long continuance under water without it, nor of other Sustainance from ones living in a Glass above a Month without any at all, it being the property of Animals that have but a weak heat included in cold viscous juices, and doe not perspire, to retain the Spirits of life a long time without any foraigne maintenance; for where the heat is too weak to master the tough juices, there can be no rarefaction or separations of parts, and consequently no transpiration or consumption. Thus the Tortois, Porcupine, and some sorts of birds that are *ἐξ ἀμυβότοι*, live at least half a year without meat; and thus (as de Laet will have it) live a sort of Solenes (which the Venetians call *Cape longe*, and the English *Pivot*) all their time, they being a kind of Shell-fish deep bedded in a solid rock, in which are no clefts, holes, or moisture to be found, but what is in the fish itself; nor can they have any nourishment conveyed to them, except the dews of Heaven, which as de Laet thinks, the rocks imbibe, and transmit to the fish.

47. Which if all they have, and that sufficient to support them; our Toads included in Stones and trees, may pretend to the same, and perhaps somewhat more; for I doe not conceive them wholly deprived (tho' to close prisoners) either of Air or Aliment: for the cavities they are lodg'd in, are generally somewhat bigger than themselves, and they have the Salts of the Stones, and juices of the trees, to suck and lick, which together with the transcolation of such fine dews, may very well support an Animal of so slender a dyet; that no way spends it self in perspiration; and is

† D. Abercromby's discourse of Wit. §. 5. P Journal des Sçavans Jul. 24. 1681.
 † Job. de Laet de Gemmis & Lapidibus Lib. 2. cap. 7.

absolutely shut up from all other expence of its juices or Spirits, in swimming, travelling, generation, or otherwise. And by the same means no question lived the two Animals somewhat like *Equets* or *Nemts*, but as big as *Ratts*, being a span long, of a very yellow colour, whereof we had an account from the same Dr. Pience of Bath above mention'd, which were found embracing one another head to head, and belly to belly, in the hollow of a solid Free-stone, somewhat bigger than themselves, dug up 2 foot and $\frac{1}{2}$, or 3 foot under ground, which being enlarged crawled about, and were kept alive some time. But of these no more, because I am unwilling to prevent the ingenious Mr. Beaumont, now most laudably designing the Natural History of Somersetshire, wherein I heartily wish him all imaginable encouragement.

48. Also by this means these Animals seem not only to be precluded from all injuries they might otherwise receive from foraigne Enemies, and from the changes of the seasons of the year, they remaining always as it were in an equal state, without any change either of Air or dyet, things no doubt on't that conduce not a little, to the prolongation of life; but to what period of time, in Animals thus imprison'd, and secluded from observation, is not easy to conceive, much less to determine; though I believe one may venture in general to pronounce it a pretty long one: for upon supposition that the Toad in the tree at Lapley was dropt on the bole of it when young, or otherwise generated in some hole or cleft it might then have; it must necessarily have continued there a long time, the tree when fell'd carrying a full yard square where the Toad lay, which it could not arrive to, in a few years. And if the story of the Toad in the top Stone of the Steeple at Statfold, may be allowed to be true, we must then perhaps afford them some hundreds of years, to have continued in this State (the Steeple being grown so old, that they took it down to prevent falling) which too in all probability would have been prolong'd to a much greater period, had it never been found and exposed to the Air.

49. After the oviparous digitated quadrupeds that sometimes frequent the waters; I come next to consider the others, that are also oviparous and digitated, but wholly terrestrial; whereof I had one sent me by my worthy friend Francis Wolferstan Esq; plowed up in his grounds at Statfold, where too they are sometimes seen in frosty weather on the Sunny-side of old hedges, in the bot-

* Letter Book of the Philosoph. Society of Oxford. Mar. 17. 1683 and Apr. 11. 1685.

toms whereof they have their *boles*, which they recover so nimble, that 'tis a hard matter to surprize them. In the length, and general make of their body, they most of any thing resemble a *Newt*: but in some things are so different from that and all others of the *Lizard*-kind that I can find in *Authors*, that either it must be wholly or but imperfectly described, though we allow it a place under the *Genus* of *Lizards*. For beside that it differs in colour from all the *Newts* or *Ascars* that ever I saw, being of a dirty yellow on the *back* and *taile*, and blue under the *throat*, and most part of the *belly*; it has a *round* tail, skipping like a *Squirrel* and strongly raising up its head when it runs: whereas the *tailes* of *Newts*, *Everts*, or *Ascars*, are always *flat*, lying still when discovered or crawling but little.

50. And whereas the *back* of the *Evert* or *Newt* is covered with a tough *membran*, these both *back* and *tail* are *Scaled* all over; the *Scales*, especially those on the *tail*, lying in oblong squares like the *tiles* or *shingles* of a house, only they have wider *joynts* at some certain *distances* than else where, as in *Tab. 22. Fig. 5.* in which it pretty well agrees with the green *Lizard* or *Liguro* of *Bononia*^s, only in the colour, and magnitude, it is quite different; so that the fittest description I can think of for it, is, the *Lacerta terrestris lutea squamosa Anglica*, which whether agreeable to the land *Ascar* (as *Dr. Lister* thinks it may) or not agreeable, is indifferent to me, even *that* being only named, and not described, in any *Author* that I can find.

51. Amongst the *viviparous digitated Quadrupeds* though I met none undescribed, yet some there were attended with so very unusual *accidents*, that they must not be past by; and such was the *Rabbit* taken in *Salt* warren, that had two teeth growing out of the lower *jaw*, that turned round over the *nose* above the upper *jaw*, with that length and compass, that they almost touch't the *forehead* in the return, as in *Tab. 22. Fig. 6.* which surely must so incommode the *animal* in feeding, that I see not which way it could performe to it self, that most necessary good office, unless by licking in its food on each side the mouth: but this inconvenience it seems was not so great, as what it met with at last upon account of these *teeth*, by which it was taken, and kill'd, being hang'd by them in a hedge; so that though they did not occasion it's *death* by starveing, it did it as effectually another way. And yet for a *Rabbit* to have such *teeth* as these, is not so very extraordinary, but there have been others seen like it at other places, particularly as I was told by the *Lady Offley*, at S.

^s *Job. Jonstoni Nat. Hist. de Quadruped. Tab. 76.*

John

John Crew's at *Vtkinton* in *Cheshire*, tho' not thus suffering *death* by the misfortune of them.

52. Another as uncommon an *Accident*, as perhaps ever befell any of the *viviparous digitated Quadrupeds*, or that one shall hear of in an *Age*; was found in a *Hare*, about the year of our *Lord 1667* by *Sr. Willoughby Aston*, *John* and *Tho. Offley Esq's*; *Mr. Clayton* of *Onneley* and divers others, who goeing a *coursing* for an *Easter Hare*, kill'd one on *Birch-hill* 'twixt *Madeley Manor*, and *Onneley*, which being opened and her *entralls* taken out was hung upon a beating pole at one of their *Servants* backs; where as she was carryed, *Sr. Willoughby Aston* espied a protuberance in her flank, which he haveing a curiosity to open, there was found in it a *young Hare*, with the furr on, that could see, which was taken out by *Mr. Tho. Offley's* man, and kept a live nine days after with milk; the most remarkable circumstance being this, that it was out of due place, and no rupture that could be perceived offerd, either in the killing, or opening the *old Hare*: it is rememberd also that it had a *ductus* to its *navel*, but where it terminated in the *old Hare*, they were too incurious to observe.

53. Which how it should come to pass is hard to conceive, otherwise than either by the stoppage of the *Cornua Uteri* by the corruption of the *Fetus* of some former impregnation; or a too long stay of the *Egg* in the *Ovarium*, where it acquired a growth too great before it fell, to pass the *Tube* into the *Womb*: in both which cases the *Embryo* must necessarily continue and be formed in the *Testicle*, whence by the extension in its growth, it must also as necessarily force its way through it, into some part of the *Abdomen*. As it was in the case of a *hound Bitch* of the right *Honorable James Earl of Abbingdon*, which being with whelp, by an unfortunate blow, had her *Fetus* dyed in her, whereof she discharged a great part in putrid matter and flesh by the *Pudendum*, and was afterward able to run again in the *pack*: but the bones, firmer muscles, and thicker *Skins* of the *Embryos* yet remaining within her, so stufft up the horns of her *Womb*, that the *Eggs* upon a second impregnation, finding no passage there, were forced back into divers parts of the *Abdomen*, whereby (her belly being distended into very ill shapes) she after some time dyed. Being dead, his *Lordship* being very curious, and knowing her to have been twice with *Puppy* and never to have whelp't, he sent her over to his skillfull *Chirurgion* *Mr. Pointer* of *Oxford*, who opening her carefully in the presence of divers *Physicians*, found the *Cornua Uteri* so stufft as above mention'd, and several whelps in

divers parts of the *Abdomen*: whereof the *Reader* may see a more full account in the *Philosophical Transactions*.

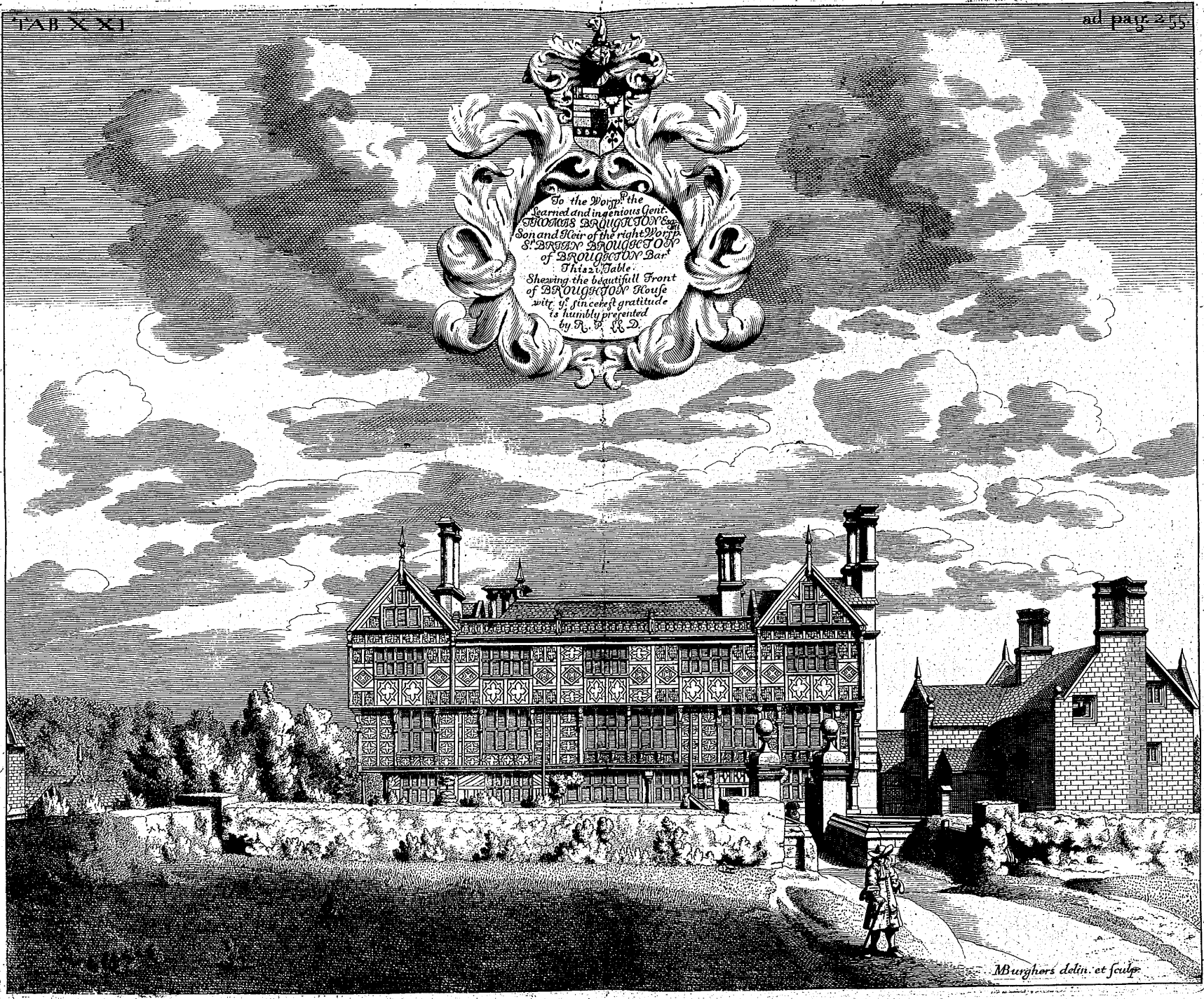
54. As he also may of the other case where the *Egg* stayed so long in the *Ovarium*, and grew there so great before it fell, that it could not pass the *Fallopian Tube*: this happen'd in a human *Fetus* of *Madam de St. Mere* a *French Lady*, which staying in this manner, as was supposed, so long in the *Testicle* (for in this case neither the *Womb* or *Tube* were stop't with the remains of any dead *Embryo*) at length extended it self to that greatness in its growth, that it broke the *Ovarium* long-ways and in the middle of the side (as was found by *Monsieur de S. Maurice M. D.* her *Physician* who was present at the opening her body after she was dead) and forced its way into the *right flank*, whence it was taken forth so perfectly formed, that they could manifestly discover in it the *Sex* of a *Boy*. And this last was most likely the case of the *Hare*, though it be very strange it should be taken forth alive, after such a *course*, and *death* of its *damm*; or that it had not kill'd her long before, which certainly it must have done in a little time, it being very unlikely that the *damm* could have any way *litter'd* it, so as either to have preserved her young one, or self.

55. Which is all I met worthy notice concerning *viviparous digitated Quadrupeds*, but two *doggs* (which are also reckon'd amongst these) indeed so curious and strange, that I thought not amiss even to represent them in *Sculpture. Tab. 22. Fig. 7. and 8.* the former whereof, begotten I suppose between a *Guinea Dog* and an *English Spaniel*, was *English* in his foreparts, and *Guinea* in his hinder, so that he always naturally appear'd as if newly *trimm'd*, with single *tuffts* left on his *back* and the end of his *tail*, as is usually done to *trimmed Spaniels*. This former belong'd to *Mr. Chetwynd* of *Ingestre* and was call'd *Guiney*, not I think so much for the sake of the *Countrey* whence he had a moyety of himself, as for the *price* he cost his *Master*; and the latter to *Mr. Pargiter* of *Mavesyn Ridware*, which descended I suppose from the same *stock* with the former, though not so equally divided betwixt the two *Countries*, this being curiously spotted, and for the most part naked, his head only adorned with an *English Peruque*, and his *tail* with a single *tufft* at the end.

56. Next the *viviparous digitated*, the *Quadrupeda sexpeda* the *cloven-footed Quadrupeds*, fall under consideration; whereof some, neither *chew the Cudd*, nor are *horned*; others, doe *chew the Cudd*, but have no *horns*; and others again, *both*. Of the first

^c *Philosoph. Transact. Numb. 147.* [▪] *Philosoph. Transact. Numb. 150.* kind

0351



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kind of these, are reckon'd only *Swine*; and the *Hippopotamus* no where found in these parts of the *world*; but of the former they have a *race* in some places in this *County*, much larger than ordinary: of which I saw, and measured a *Bore*, at the right Worshipfull S^r. *Brian Broughton's* of *Broughton* Baronet (whose beautifull Seat is here annext *Tab. 21.*) 4 foot and one inch, i. e. 'twixt 12 and 13 *hands* high, the *bristles* prest down on his back; from the tip of the *nose* to the setting on of the *tail*, 7 foot 2 inches; and the *tail* it self 15 inches long: a *stature* not much short, if not fully equalling the great Hogg of *upper-Tadmerton* in the *County* of *Oxon*^w. They have of these large sized Hoggs also about *Stafford* in this *County*, one of the *teeth* whereof (if one may guess by the bigness) was sent me by Mr. *Wolferstan*, which has another little one growing out of it, much like the smaller *Ears* of *Triticum multiplex* out of the great one, as in *Tab. 22. Fig. 9.* And Mr. *Inge* of *Thorp-Constantine* sent me at the same time, an irregular *bone* taken out of the *Omentum* or *Caul* of a female *Swine* of one of his *Tenants* which they call a *Gilt*, which grew just against the place where she had been *spay'd*, the form whereof is exactly represented *Tab. 22. Fig. 10.* which being *single Enormities* of *Nature*, are hardly to be accounted for.

57. Of *Animals* that *chew the Cudd*, but have no *horns*, there are none in this *County*, this *Species* being so narrow, that only *Dromedaries*, *Camels*, and *Camelopardi*, are found of it; unless we should reckon the *Ews* and *Weathers*, that indeed *Chew the Cudd*, & have no *horns*, under this *Species*: but the *Ews* of some places being *horned* like the *Ramms*, and seeing the *Weathers* all would be so, if not prevented in some by *cutting*, they are reasonably enough all counted *cornigerous*. Where by the way perhaps it may not be altogether unworthy the enquiry, or the *Readers* knowledge; how it comes to pass, that there is so great a connexion between the *Testicles* and the *horns* of some *Quadrupeds*, *ut se mutuo ponant & tollant*; as it is in some *Sheep*, and all red and fallow *deer*, whose *doucets* if taken away, whilst *calves* or *fawns*, before they come to be *Knibbers* or *Prickets*, i. e. before they have *horns*, will never have any at all: whereas in *Oxen* it is quite contrary, whose *horns* are much larger than they would have been, had they remained *Bulls*, or never been *castrated*. A *Question* scarce started before, that ever I could hear of, much less consider'd or stated, amongst the *Philosophers*, or *Georgical* writers.

58, Which that I may doe in some tolerable manner, rather to

^w *Nat. Hist. of Oxfordsh. Chap. 7. §. 37.*

incite *others* to doe it better, than out of any hopes I have to determine the thing: let it be noted, first that all *Animals* (as well as *plants*) doe always throw off some *επιρροια* or *superfluous juices*, and that out of these [in *Animals*] spring, *horns, nails, hoofs, hair, wool, scales, feathers, &c.* as *Leaves, moss, fungus's, &c.* doe out of *Trees*. Secondly, that *horns, hair, wooll, &c.* (though in respect of the body on which they grow, they may in some sense be said to be *excrementitious*) yet having once acquired *vegetation*, and growing out of the *Skin* as out of their proper earth, not by apposition, but extending themselves *organically*, in their cavities, length, bredth, and thickness, and in all these proportionably; they cannot I think but (without a *Metaphor*) be refer'd *suo modo* to the family of *plants*; as has been most fully made out by the learned Dr. *Glisson**. And thirdly, that *horns, hair, and wool*, though they seem so different, yet as *trees* in some measure partake of the *Soile* in which they grow, so all these seem to be constituted of the same common matter with the *Skin* it self, and to be of the same *lineage* or *family*, and so all the *membrans, nerves, and nervous fibres*, wheresoever in the body: which most evidently appears in their being exposed to the *fire*; all *shrivelling* up after the same irregular manner, breathing the same *fetid odour*, and being of the same *Medical use: qualities* that never are found in things of different *Species's*.

59. Thus *horns, wool, or hair*, exposed to the *flames*, are furl'd up, and send forth the same *nauseous sent*; so that *hair, and wool*, seem to be nothing else but *imperfect borne*, or the *fibres* of *horn* seperated, and not *fasciated* together as they are in intire *horns and hoofs*, and as the *stalks* of some *plants* are, when there is an *exuberancy* of matter: *haire, wool, or weak hornes* being then produced, when the *Juices* whence they spring, are some way *depauperated*; and *strong hornes*, when they abound and are vigorous. Whence it is that *Bulls* whole blood and feminal juices, are *spirituous, hot, and plentiful*; have thick, short, and strong *horns*, in proportion to the hair of *Men* of robust Constitutions, which is commonly short, course, and curled: whereas *Oxen*, whose blood and juices by *castration* is in great measure enervated, produce but a thin, weak, and long horn, in proportion to the hair of *women*, which is generally longer, finer, and less curled, than that of *Men*. But in some *Sheep*, and all *deer*, whose blood and feminal juices are much less vigorous than that of *Bulls*, the *superfluous juices* that give both birth and augmentation to *horns*, are so diminished and weaken'd in them by *castration*, that they can afford

* Fran. Glissonii Tractat. de partibus continentibus, cap. 6. § §. 2, 3, 4, 5, & 6.

no supply for the production of them at all, but only of *wool* or *hair* which as I said before are an imperfect sort of *horn*; whence it comes to pass that *Weathers* (these *superfluous juices* being now wholly spent in the production of *wool*) are said to have greater *fleeces* than other *sheep*; and that *Staggs* and *Bucks* if gelt, never mew their *heads* like other *deer*, there being now no new matter to cause a new *horn* to put up, and thrust off the old one.

60. Yet in some sort of *Sheep* these *superfluous juices* are so very plentiful and strange, that they produce 4 or 6, and sometimes eight *horns* upon the head of the same *Sheep*; whereof there are plenty with *four* in this *County*, at *Gnosfall, Knightley, Blore, and Ingestre* parks; and as I was told there were of them formerly in the park at *Loxley*; *Johnston* gives us a *Cutt* of one of them, calling it *Hircus Cotildardicus* with six horns^v; and *Dietericus Brinckius*, tells us there are of them in the *Isle of Loufouden* on the coast of *Norway*, with eight^z. Dr. *Grew* in his Catalogue of the Rarities in the *Museum* of the *Royal Society* at *Gresham College*, calls these *Moscovy* Ramms, and perhaps not amiss, the description of which *Animals*, or their *hornes*, he says he could meet no where^a: But had he consulted the *Natural History* of *Oxfordshire* printed 7 years before his *Edition* of that *Catalogue*, he might have found some account, and *Cutts* of them too: there having been of them living many years before my travelling that *County* in the right Honorable the Earl of *Abbingtons* park at *Ricot*, and in divers other parts both of *England* and *Wales*^b. Now whether castration of these, whose *juices* are so strong, will wholly take away, or any way diminish the number or magnitude of their *hornes*, as in some other *Sheep*; or augment them as in *Oxen*? perhaps may be another *Question* yet undecided, and worthy the observation and communication of the *Naturalist*.

61. *Sheep* then being reckon'd amongst the *cornigerous Quadrupeds*, as seldom being otherwise but upon accident only; let us return again after this long, but I hope not impertinent digression, to such uncommon *accidents* as have been found to attend them in this *County*. For I account it but accidental, that they have in the *Moorelands* a peculiar sort of them, that have all *black noses*, which thrive well enough on the barrenest *Soile*, and produce pretty good *wool*, yet too long for the use of the *Felt-makers* of *New-Castle*, unless for *childrens hatts*, which they attribute wholly to the *Limestone rocks* on which it is bred; the best being produced upon dry *Sandy Soils*, such as *Beech, Sryn-*

^v Job. Johnstoni Nat. Hist. de Quadruped. Tab. 27. ^z Dieter. Brinckii Prodrum. & Norwegia cap. 8. ^a Neb. Grew. Musæi Reg. Societ. part. 1. Chap. 2. ^b Nat. Hist. of Oxfordsh. Chap. 7. §. 39. Tab. 10. Fig. 10, 11.

nerton, Mare, Chedleton, and Drayton, of which (being pretty short and fine) they make some use; but chiefly of the wools of Shropshire, and Lemster: most of the shortest and finest wools of this County being ordinarily sold into Warwick and Gloucestershires, and their longest, which are bred in the moister Soiles, which they otherwise call broad-wools, into York-shire and Lancashire, where they make courser clothes.

62. It being ordinary for Sheep to breed but once in a year, it may perhaps be remarkable, what was told me by the worthy Mr Bott of Dunstall, viz. that he had a Sheep about 12 years agoe, that brought him one Lamb at Christmase, and another at St. James tide after; and another Ewe that had two Lambs about three weeks before Christmase, a third about a week after Midsummer, and a fourth upon twelfth day following; so that within thirteen months she brought 4 Lambs at three yeainings: the latter whereof were both superfetations, occasioned no question by going to Ramm at so many distant times. Whence tis plain that such Animals as these will admit of coition after impregnation as well as Mares and Women; in the former whereof though Aristotle allows no superfetations to have ever happen'd, yet in the latter he affords us several Examples: more particularly of an Adulteress, who was delivered of one child like her husband; and of another after, like the Adulterer; and of two others that had two children at a birth, and a third five months after. And of later years Dr. Harvey tells us of a Servant Maid gotten with child by her Master, that was sent to London in September to hide her shame, where being brought to bed well, and returning home, had another unexpectedly in December, whereby her own and Masters faults (before successfully concealed) were unhappily discovered. And this is all I heard of extraordinary relating to Sheep, but that An. 1679, a Lamb was yeaned at Bentley green with the two hind leggs wreath't together, so that it went per saltum, with the thighs on the ground, drawing the double Leg after it.

63. It is also very remarkable in the breeding of Deer (which are also reckon'd amongst the horned Animals that chew the Cudd though the females never have any) that they sometimes cast Fawnes with their lower jaws so short, that they cannot suck, and so consequently all dye; and it is no less observable, that these short jawed Fawnes are all white ones, as if this were a colour of imperfection in Animals, as well as in Plants. Of these the worthy Mr. Chetwynd had several cast in his Park at Ingestre An.

^c Aristotelis Hist. Animal. Lib. 7. cap. 4. ^d Plinii Nat. Hist. Lib. 7. cap. 11. ^e Gul. Harveii Tract. de Partu. p. 261. ^f Nat. Hist. of Oxfordshire Char. G. §. 38. and Chap. 7. § §. 13, 14, 15.

1680; and so had the right Honorable Robert Lord Ferrers at Stanton in Leicestershire; the same I also met with long since at Warlington-park, belonging to the Worshipsfull Thomas Stonor Esq; in my travells thro' Oxfordshire, but looking upon it then as a single accident, I took no notice of it in that History. In the breeding of Deer, it has also been observed at Chartley†, and elsewhere in this County, that upon killing of them, there has been sometimes found the bones of young Fawnes in the matrix's of the Does, which doubtless have dyed in them upon some unfortunate blow or other accident, as in the case of the bitch above-mention'd §. 53. of this Chapter.

64. The same I have heard has likewise happen'd to a Doe in Woodstock park in the County of Oxon. And at some other places: and in the parke at Ingestre a Hare was kill'd some time since, that had all the bones and furr of a young Hare in her, complicated up together into a round ball: which accidents are so far from always proving mortal to these Animals, that they may possibly be impregnated after them, and produce other Fawnes, or Hares; these bones of the former dead Fetus's still remaining within them: for I know not why a Doe or Hare should not be capable of this, as well as a Cow or Woman: there haveing been a Cow kill'd at Hopton in this County that had an intire perfect calf, and the bones of another found in her; and Katherine Parry of the parish of Kintbury in Barksbire haveing been deliver'd of a child An. 1668 after she had had a human Fetus dyed in her: as appeared from a great quantity of corruption, with several pieces of flesh and skin, that came from her two or three days after her delivery, and from divers bones that she voided with her monthly evacuations, with several parts of a Skull, and some of the larger bones of the body of a Fetus, that work't their way through her flesh above the Os Pubis five years after: within which time she conceived again 3 several times, and had 3 children more at 3 following births, after the last of which only these bones came away: as the bones of a former child did, from a Citizens wife of Wenden in Livonia, a year after she had been deliver'd of a perfect living child, as was testified by a publick instrument under the common Seal of the City*.

65. Beside these unusual accidents in the breeding of Deer, there are many others worth notice that have happen'd to some of them, since their being cast, in relation to their heads: many of the redd deer in Chartley park having no heads at all, others

† In Novemb. An. 1679. ^f Journal. Book of the Philosophical Society of Oxon. Session of Octob. 7. in An. 1684. * Tho. Bartholini Histor. Anatom. Cent. 4. Hist. 14

being Unicorns, and those that have but one horn, that but a dwarf one neither, and commonly very irregular; the deer notwithstanding being as well grown in their bodies, and as warrantable in their season, as in any of the neighbouring Forrests or Parks, where they put up as fair heads, as in any parts of England. Which abatement therefore of their heads, must needs proceed, either from some defect in the Park; or some accidental alteration of the soil; as it happen'd at Cornbury in Oxfordshire, where the stocking the park with Conys only, made all the deer thus abate of their heads, upon what account see the History of Oxfordshire. . . . But the reason there given having no place here, I can assigne no other so probable as the want of brouse in this park, the underwoods being but inconsiderable in respect of its extent, and the trees most of them dead, as represented in the Map, the leaves and young Cions of plants supplying it seems fitter matter for the heads of deer, than grass or other forrage. But whether this will hold at Wyse-wood in Gloucestershire, where I hear there are also Staggs, some with no horns, others with very short ones; I have yet had no opportunity of learning.

66. Other irregular Bucks-heads I met with at Ingestre and Dudley, and some other places: that in the Hall at Ingestre being a large head of a full grown Buck, which put up all the time from the burrs only two smooth beams, having indeed brow-Antlers, but no back ones, palm, or spellers, as in Tab. 22. Fig. 11. Such another head as this I met with at Tortworth in Gloucestershire, in the Hall of the right Honorable the Lady Viscountess Downe; so that I cannot look upon this as a single accident, but one that happens sometimes, though not frequently. The other at Dudley, is of a living white-Buck, kept within the Castle by the right Honorable the Lord Ward, which puts up annually from the burrs only two beams, without either brow or back-Antlers, palm, or spellers, ascending pretty straight, and adorned at the top with balls or knobbs, as in Tab. 22. Fig. 12.

67. Olearius in his Itinerary tells us of whole herds of such, call'd Abu deer, he saw in the Province of Mogan in Persia, whose heads had no brow-Antlers, but were smooth to the top like ours, only that they bent backwards like the horns of a Goat^h; which (beside the unlikelyhood that this should be brought thence) is enough to shew that it cannot be referr'd to that species of deer: though no body knows whence this came, it being taken alive by the Colliers in an old Coal-work, and brought to the Castle bound in a Wheel-barrow. Contrary to these I met with some other

^h Nat. Hist. of Oxfordsh. Chap. 7. §. 45. ^h Voyages of Adam Olearius Book 5.

heads

heads spread into three branches, having all their Antlers, palms, and spellers whereof there is one at Chartley, and another (I think) in the house at Sandon: and I was told by the Worshipfull Collonel Edward Vernon deputy Lieutenant of that Forrest of Needwood, that there was a buck now living in the Forrest, that had a head spread into 4 branches; which as the former were defects, are excesses of Nature; and proceed no question from the exuberancy of Matter that supplies these parts. And so much for Deer.

68. Let us next proceed to Cows, Oxen, and Horses, and so conclude this seventh Chapter: of the former of which, my worthy friend M^r. Bott of Dunstall had one so prolific near 30 years agoe, that she brought him 2 Calves at a time, 3 times together; and the fourth time three; so that she had 9 Calves in 3 years time. One Thomas Lawrence of Wombourn also had a Heifer, that at two years old brought him 3 Calves, then two, then two more, and at last 3 again; having ten Calves within the same time. Nor hath the fecundity of this Animal been more conspicuous, in the multitude and frequency of its Off-spring, than in the earliness of it; there having been a Cow-calf at Cannal in this County, the Seat of the right Worshipfull S^r. Francis Lawley, that (like M^r. Dunches at Newington in Oxfordshireⁱ) had another presently after she was eleven Months old, viz. 3 weeks and some odd days, before she was a Twelve-monthing. I have it also from very good hands, that Tho. Bratt jun. of Wolverhampton Butcher, bought a Cow at Tole-end in the parish of Tipton, with a calf by her side, which promising well, he forbore to kill, letting it goe with the Damm till it weaned it self, by reason (as 'tis thought) the Damm was so far gone with another calf, that it liked not the milk; or else because gone as far it self with calf, at the same time; they both calving within a week of each other, the Heifer wanting a fortnight of being 12 Monthes old.

69. Which sort of Cattle goeing nine Months, we must either admitt that these calves took bull at about two Months old; or that their Damms cast them at first pregnant with others, like the Hungarian Cow mentioned by David Spilinbergerus, which brought forth a Calf with a great belly, wherein was found another with all its limbs perfect^k; and as it was in a Lamb of Thomas Grove of Rowley Regis in this County, which he sold to a Butcher, who killing it, found another Lamb in its belly. As it hath also hapened in a human Fetus, and in some other Animals^l. Now

ⁱ Nat. Hist. of Oxfordsh. Chap. 7. §. 41. ^k Miscellan. curios. Med. Phys. German. An. 1. observ. 36. ^l Nat. Hist. of Oxfordsh. Cap. 7. §. 42.

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how such wonderfull productions should come to pass is hard to determine: I am sure *Bartholin's* conjecture; [that *Nature* in these at first intended only *Twins*, and that by some casualty, one of each of these *Fetus's* might be thrust into the belly of the other, over which a Skin might be easily superinduced^m] seems very improbable: for why should one *Fetus* tarry in the Womb twice as long as another? when supposed to be begotten at the same time. Therefore much rather shall I allow in our two *cases*, that these *calves* took *bull* at about the age of two months, since the *Goat* is said to begin to use coition at 7 days oldⁿ, upon which account the *Emblematists* usually exprest *fecundity* by that *Animal*.

70. At *Frodley* in this County, *Elizabeth Scofield* widdow, had a *cow* that cast a *calf* of a monstrous shape, having a horn, the elder, and two leggs of another coming out of its back; which lived a long time, and as it fill'd it self with sucking or otherwise, so did the *calf* on its back: so that *Nature* indeed in this case seemed to have designed two *calves*, which possibly might be some way thrust into one another, according to the sentiment of *Bartholin*, as 'tis like it might also happen in the instance he mentions of *Lazarus Colloredo* and his brother *Baptist*^o. But this will not reach the case of the *Hungarian Cow*; or the *Sheep* of *M^r. Grove* of *Rowley* abovemention'd; the *Spanish Mare* of *Nieremberg*^{ius}; or of *Joan* the wife of *Nicholas Peter* of *Uleslovia* in *Fionia*; each of which brought forth *Animals* of their own kind, impregnated with others, duly placed in the Womb^p. The *Calves* that were cast near *Shredicot*, and at *Rewle*, in the same parish of *Bradeley*, each with 5 leggs, must also be reckon'd amongst the *monsters* of this *Species*; and so must that cast at *Roycroft* in the parish of *Rusball*, which was a yard and an inch high at 2 days old, and had horns on its head an inch long, and (being a *Cow-calf*) milk in its elder; the former whereof perhaps might be occasion'd, as the supernumerary leggs of birds, from *ova gemellifica*^q; and the latter by the *Cows* going beyond her time. It must also be remembred before I have done with the *accidents* relating to *Calves*, that there was a *Cow* at *Thorpe Constantine* about 12 years since, that being observed not to cast her *calf* in due time, was fatted up, and kill'd; in whose *Matrix* (when open'd) there was found the *Skeleton* of a *calf*, all the bones hanging intirely together as in *Tab. 22. Fig. 13.* lying in a red-dish weighty substance somewhat like *red-lead* or *bole Armeniac*

^m *Tho. Bartholini Anatom. Med. rar. Hist. 66.* ⁿ *Sr. Th. Brown's Enquiries into vulgar Errors Book. 5. Chap. 20* ^o *Ibid.* ^p *Nat Hist. of Oxfordsh. Chap. 7. §. 42.* ^q *Gul. Harvei, de Generat. Animal. exercit. 23.*

the

the fleshy parts being either wasted by *corruption*, or dried up by the heat of the *Womb*, like the *Calf* of *John Huswig* Minister of *Fredericks-burg* mention'd by *Bartholin*⁺. Which no question had been kill'd by some unfortunate accident, as the *Fetus's* of the *Hare*, *Doe*, and *cow* above mentioned, the *bones* still remaining thus within their bodies, though not perhaps in so good order as these.

71. It is a pretty common thing amongst this sort of *cattle*, to have *balls* of *hair* found in their *Stomachs* cover'd over with a smooth shining *coat* or *shell*, occasion'd I suppose by their *licking* themselves (which they doe most whilst in proof) and *swallowing* the hair that then comes off them in plentiful manner; of which, elaborated in the *œlia*, or *reticulum*, the *first* or *second ventricle* (where they are most times found^r) these *balls* of *hair* are often formed, and compacted together much after the manner that the *wool* of a *Hat* is, by the hand of the *workman*; which lying in the *Stomack* some considerable time, has ordinarily a pretty thick and tough coat superinduced over it, by the plenty of *slime* it there meets with: if it lye there long, it is usually of a *chefnut*; if a lesser time, of an *ash-colour*; of the former of which I met with a large fair pattern at *M^r. Fowk's* of little *Worley* in the parish of *Norton*; and of the latter had one sent me from *M^r. Jackson* of *Stansop* in the parish of *Alstonfield*. But if taken out of the *Stomack* quickly after 'tis elaborated, as it is sometimes in young *calves* that are kill'd, the *hair* is not found cover'd with any *coat* at all, nor complicated like the former, the outer parts of the hair of them standing up loose, but lying parallel and winding, like the hair on the crown of a *Mans* head, which not being so common I have caused to be engraven *Tab. 22. Fig. 14.* which was given me by the *Worshipfull Jonas Grosvenor* of *Wolverhampton* Esq; and taken (as he told me) out of the *Ventricle* of a young *calf*, not of age I suppose either to spare phlegme from its aliment, or afford time, for the superinducing of such a smooth shining *coat* or *shell*, wherein these *balls* are commonly found included.

72. Which *Pliny* would have only to be met with in the *reticulum*, or *second ventricle*, calling them *tophos nigricantes*^r; and *Ferrante Imperato*, *Topho di Giovenca*^s; whom *Wormius* follows and styles *tophos Invenci*^t; but they doe not always stay either in the *first* or *second stomach*, but sometimes pass on even into the *intestines*, as *Baubinus* also ownes^u, and are cast forth by *Seige*:

⁺ *Tho. Bartholini Historiar. Anatom. Cent. 2. Hist. 2.* ^r *Geo. Hieron. Velschii dissert. Med. Philosoph. de Agagropilis p. 8.* ^s *C. Plini 2^o. Nat. Hist. Lib. 11. cap. 37.* ^t *Dell' Hist. Naturale Lib. vigesimo ottavo. cap. 1. in fine.* ^u *Musæi Wormiani: Lib. 1. §. 2. cap. 8.* ^v *Casp. Bauhini de lapide Bezaar. cap. 12.*

whereof

whereof I have one by me found in the dung of a Cow at Statfold in this County and given me by the Worshipfull Francis Wolferstan Esq; of a cineritious colour, not shining, and an oval figure, made so perhaps by the compression in its exit. Which is also confirmed by Wierus who tells us of one drawn out of the Colon of a heifer at the City of Pisa*. Nor are they only found in the intestines of cows, but of horses too; the same M^r. Wolferstan having met with another of them amongst the dung of a Horse at the same place; light, exactly sphericall, of a dun colour; but not so bigg as that cut out of the Horse of Crenkus a Lippa An. 1562 which was as bigg as a goose egg, and two pounds in weight, preserved amongst the rarities of Rudolphus King of Hungary^y. Scalliger also informes us out of the Commentaries of Moses Kimbi, of a horse that voided many of these *tophi* by Seige, whereof he had one in his possession^z. And Chilianus Hattomanus of Breslaw in Silesia had a horse that excluded many of them, being at last kill'd by one of an extraordinary Sife, of which we have an account both in Baubin^a; and Schwenckfeld^b, which they call *Hippolithos*, and from its supposed virtues *Bezoar equinum*.

73. There are such balls too found in the Stomacks of horses made up of the slender stalks of *Spartum minimum Anglicum* or small English *mattweed*, first discover'd to me by the ingenious M^r. Cole Surveyor of his Majesties Customs at Bristol and by him call'd *Spart balls* or *pila mansæ*; which I found also true in one that I had by me that was taken out of the Maw of a Sheep, and given me by a Country man (whose name I have lost) of Stanley in this County; there is also a fibrous ball taken out of the Stomack of a Sheep in the Repository of the R. Society at Gresham College London^c; both much such other things I guess, and perhaps of as much virtue as the balls thus made out of the roots and fibers of plants, that are so commonly found in the Stomacks of the Shamois in the Alpine Countrys, by Baubin and others call'd the German *Bezoar*, having a gratefull Aromatic smell even before they are opened^d: which is not so much to be wondered at, being made up of the small roots and leaves of the most odoriferous Alpin plants number'd up by Velschius in his treatise de *Ægagropilis* (which he thinks the most proper name for these balls) and not so much of the roots of *Doronicum*, as Baubin would have them; the *Samois* frequenting many parts of the Alps where no *Doronicum* growes, the roots too of these balls being generally smaller

* De præstigiis Dæmonum Lib. 3. cap. 5. ^y Casp. Bauhini de lapide Bezoar. cap. 14.
^z Ful. Scalig. Lib. 15. de subtilitate. Exercit. 125. ^a Ibidem. ^b In Theriotropio Silesiæ, titulo Equus. ^c Musæum Reg. Societat. Part 1. cap. 2. in appendice. ^d Casp. Bauhini de lapide Bezoar. cap. 13. ^e Geo. Hieron. Velschii dissert. de Ægagropilis pag. 35, 36, 37, 38.

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than those of *Doronicum*; yet for Baubin's sake he does not wholly reject them.

74. That such balls should be found in the Stomacks of Animals, is indeed a little odd; but it would be strange if any such heterogeneous body should be naturally fast lodged in any of the vital parts: and yet even this has been met with at Caldmore in this County, at the house of one M^r. William Hawe; where about Christmasts An. 1679 there was a large bone (considering the place) taken out of the heart of a Beeve, of the form and bigness as described in the *Cutt, Tab. 22. Fig. 15.* just two inches long, and pretty thick at one end; but there it has holes in it as represented in the figure, which shew it to be hollow and thin, yet it is very hard and solid. Such bones as these are commonly found in the hearts of Staggs, and are thought to be a help for the stronger and more steady motion of the muscles of them^f; to be a good cordial in *Physick*; and very usefull in preventing abortions^g; for all which such a bone as ours out of the heart of an Ox, may perhaps be as well substituted, and as soon trusted.

75. Nor is it less strange what happened at Wafall in this County, relating to one of these Cattle; where one Richard Nichols a butcher of the Towne killing a bull bred at Rugely, not at all diseased, or any way differing from others of its kind that could sensibly be perceived, its tallow was found to shine so vividly in the dark, that they could see any part of the room by it; held to the Chimney, they could so plainly see all the joynts of the bricks, that they could number them; the hand laid upon it might be seen in all its parts; and others for experiment counted Money by the light of it; held up to the ceiling it shon so strongly against it, that it made a circle of light upon it; continuing thus to shine for about 10 days, notwithstanding much prejudiced by peoples frequent handling it, that came in multitudes dayly to see it. That the flesh of this species both young and old, will sometimes shine in the dark, M^r. Boyle and D^r. Beal have both afforded us ample proof, in two necks of Veal, and a piece of beef; it hath also been observed by the same worthy persons in a pullet and in hoggs-flesh; and in all these whilst fresh and good, before putrefaction^h: but I have no where found that either the fat, suet, or tallow of any Animal, was ever lyable to this quality, though I see no reason but that they might become luminous upon the same principals that flesh, and many other things sometimes are so, the niter of the Air exciting the oily sulphurs in them, which because

^f Musæum Reg. Societ. part. 1. Chap. 2. ^g Job. Seroderi Pharmacop. Med. Chym. Lib. 5. clas. 1. ^h Philosoph. Transact. Numb. 89. and 125.

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266 The Natural History Chap. VII. discoursed of elsewhere in this work, I forbear mentioning them here.

76. And proceed to the most memorable accidents I heard of in this County to have at any time befallen the Solipedous Animals: whereof there was a Mare at a place call'd Broadbeath betwixt Sigbford and Ranton, that cast a monstrous colt with two hind leggs only. There was also a Mare at Bagnal in this County, in which dame Nature err'd in excess, as in defect in the colt, she having five feet though but four leggs; the fifth coming forth about the fetlock of one of the leggs, and hanging loose and useles (as most monstrosities of excess doe) which yet they were forced to shooe as well as the other four, it coming to ground, and therefore requiring the same preservation, the rest did. We may also reckon it an excess in a Mare, to cast two Colts at a time, it being very rare that this sort of Animal produces above one: yet that they sometimes doe we have ample testimony, from the Mare of M^r. Caldwell Minister of Millwich that foled two at a time, which lived and thrived well; in the rearing whereof this was only observable, that the natural affection of the Mare toward them was so impartial, that she never admitted them to suck but together. To which add a Mare of M^r. Thomas Offleys, that had all its limbs perfect and proportionable, without excess or defect, and was five years old; yet was but one yard, and three inches high: a stature so inconsiderable, that many who bestrid it, reach't the ground with their feet, so that they seem'd to ride and walk at the same time. Nor must it be forgotten that at Fborp. Constantine in the Lordship of M^r. Inge, there was a Mare bred that had a bony substance grew out of the hollow of her Ear, somewhat like to one of the Molar teeth of a Man at the upper end, but no branches or fangs at the bottom, having only a cartilagineous substance there, obtuse at the end, as in Tab. 22. Fig. 16.

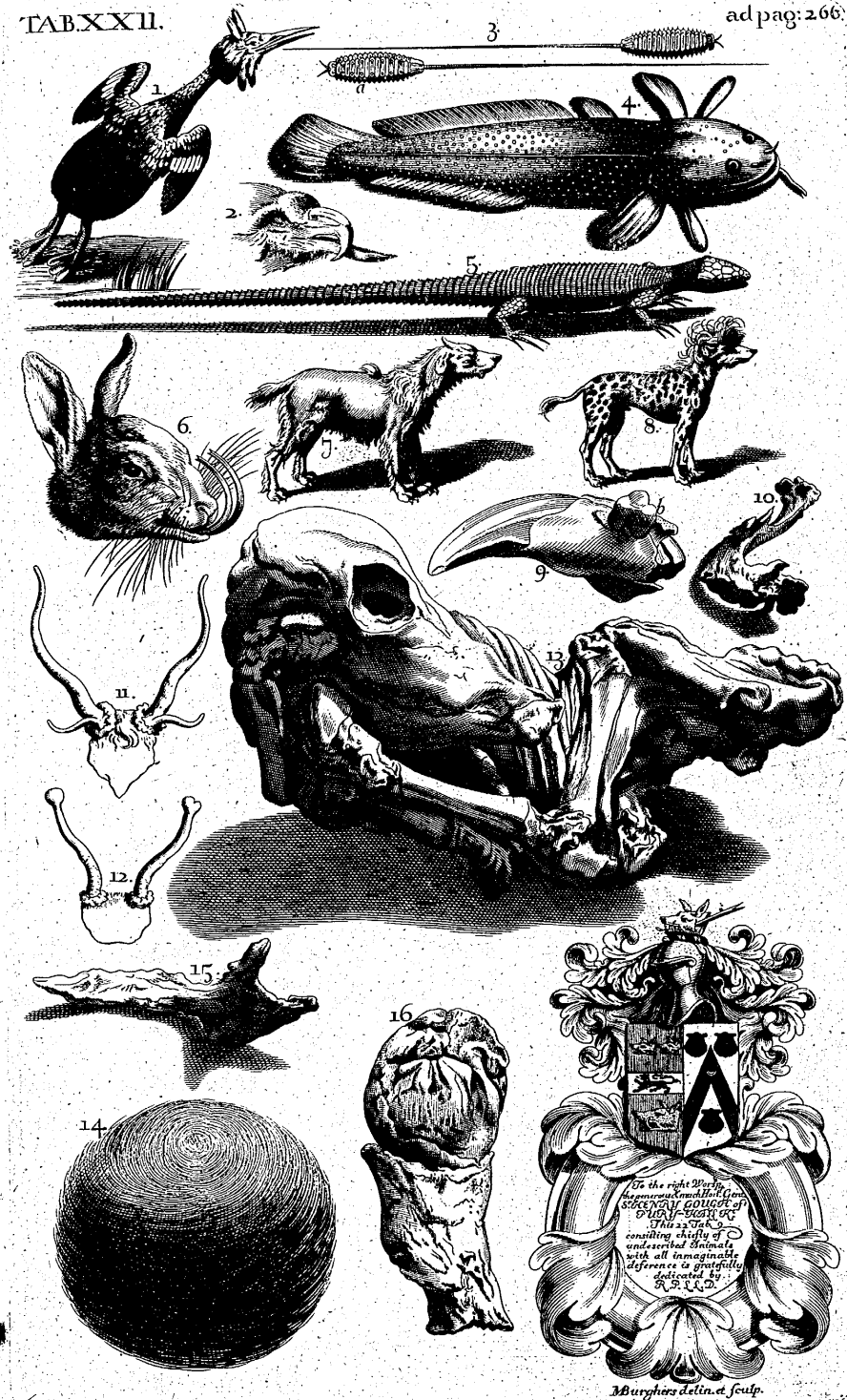
77. And thus I had done with Horses, but that I was presented with a rarity relating to them by the Worshipfull Francis Wolferstane of Statfold Esq; which I cannot but mention in confirmation of a truth much doubted by many: it being a true Hippomanes, or Languet of flesh of a dark purple colour near four inches long; that dropt from the forehead of a Colt newly foled in his grounds at Statfold, and brought him by one of his Servants; which he was satisfy'd was true, finding it agreeable upon application with it's impression yet remaining upon the foles forehead when he went to visit it. Such as which (they say) adhere to the foreheads of all Colts, and unless prevented, presently eaten by the

Chap. 3. S. 19.

Mares

TAB. XXII.

ad pag: 266.



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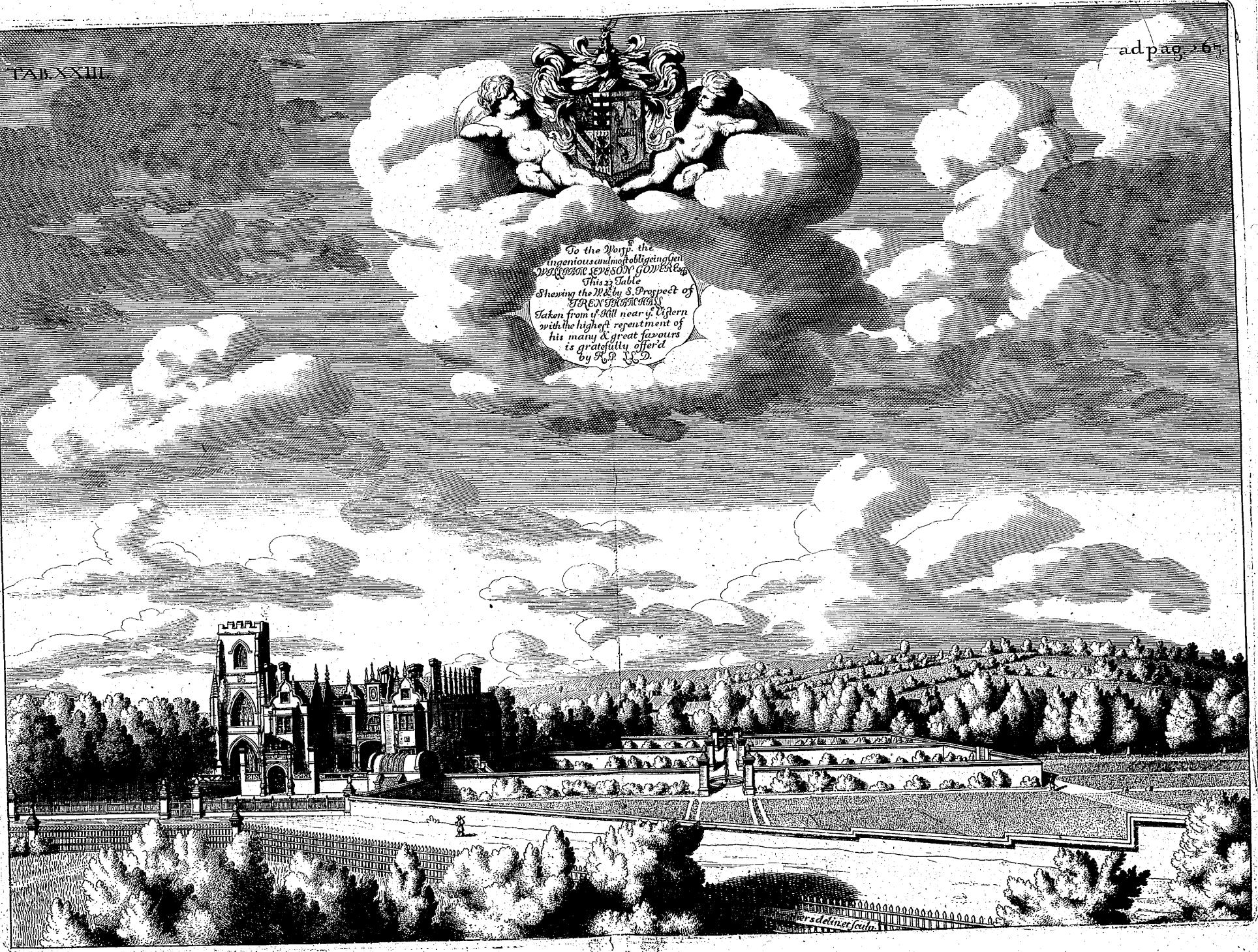


TAB. XXIII.

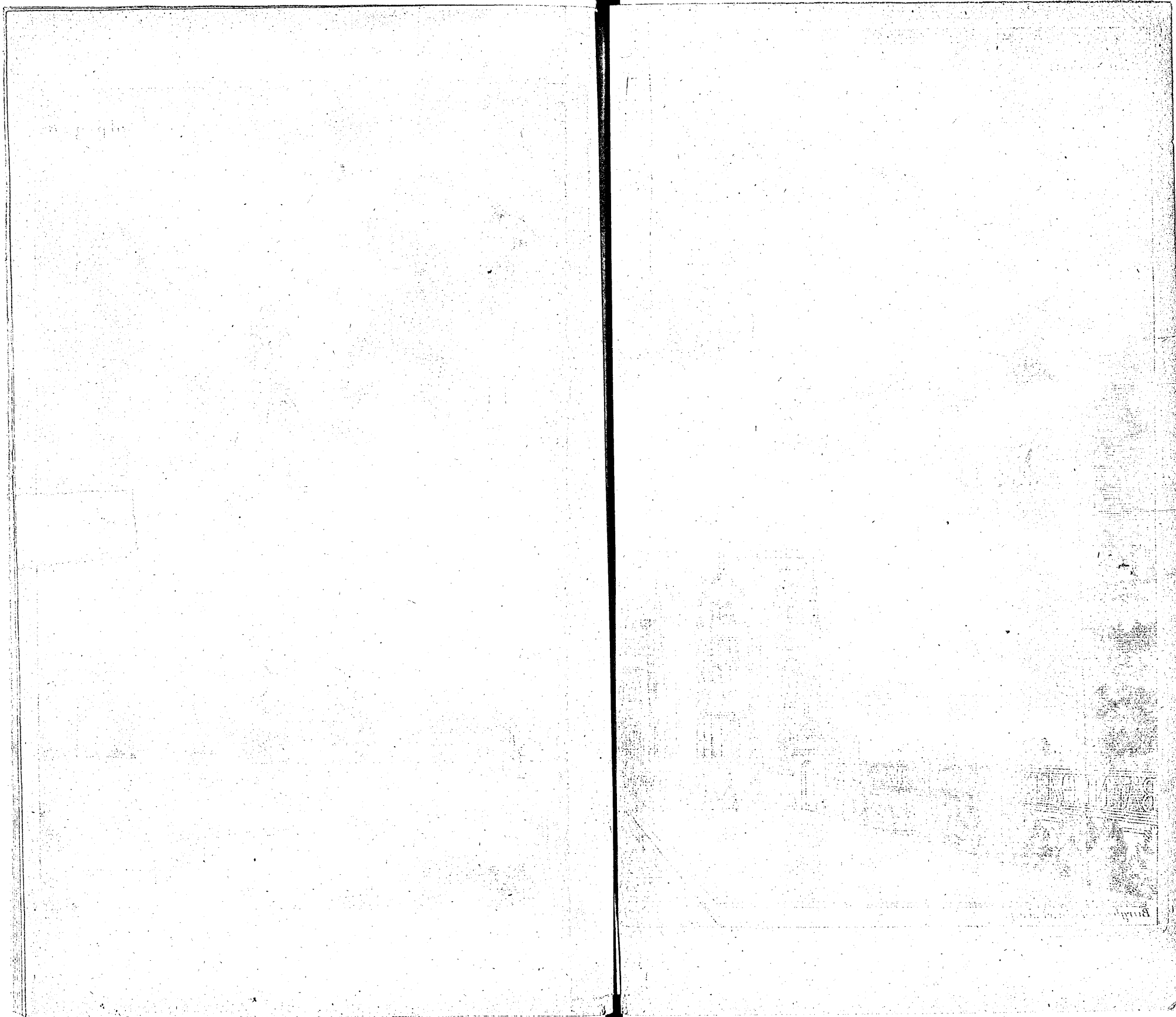
ad pag. 267.



To the Most, the
ingenious and most obliging
WILLIAM SEVERUS, D.D. Cap.
This Table
Shewing the N. E. by S. Prospect of
TRINITY COLLEGE
taken from a Hill near y^e Tower
with the highest respectment of
his many & great favours
is gratefully offered
by W. S.

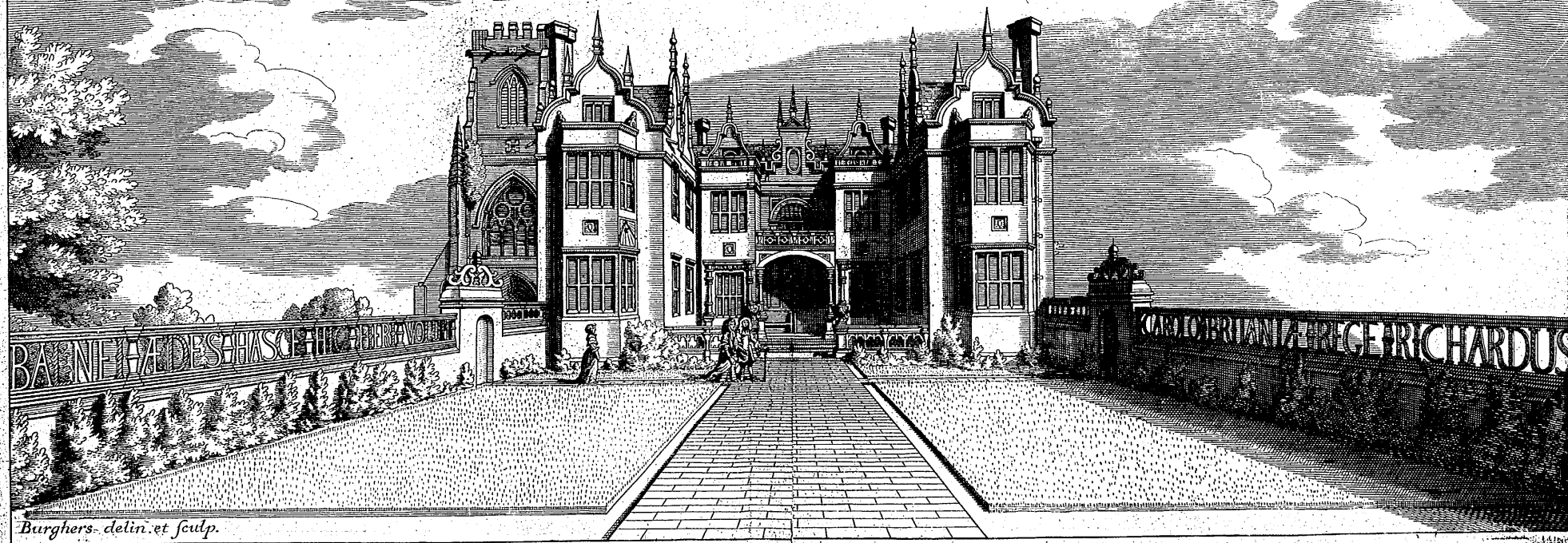


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TAB XXIII

ad pag. 267



Chap. VII. OF STAFFORD-SHIRE. 267

Mares; but if taken from them, they never shew *love* to those *colts* more, nor will admit them to suck: whence it has always been esteemed so prevalent in procuring of *love*, that dryed powder'd and mixt with the blood of the *Lover*, and drank by the *Mistris*, it drives her to such an unbridled height of lust, as equals the madness of a *Mare* when she desires the *Horse*, and upon this account has gain'd the name of *Hippomanes*: which is no new thing, it being mention'd by *Virgil*, *Ovid*, *Juvenal*, *Tibullus*, *Propertius*; and *Aristotle*, *Pliny*, *Solinus*, and *Columella*; and most of the other old *Poets* and *Naturalists*, as a thing of this *virtue*; and used as an ingredient among the other odd materials of *Witches* and *Conjurers*. Which whether true or false; or of any such virtue to deserve the name it enjoys; I doe not, nor care not to understand; it being sufficient to me (tho' *Aristotle* explodes it^k) that there is such a thing.

78. And thus I had done too with all the *μονόπους* or *Solipedous Quadrupeds*, but that I was presented with the lower jaw of some *Animal* with large teeth in it, dugg up in a *marle-pit* somewhere in the grounds of the Worshipfull *William Leveson Gower* of *Trenton* Esq; who hath been so noble a *Mæcenas* in promoting this *Work*, that I could doe no less than present the *Reader* with a double *Prospect* of his magnificent *Seat*, *Tab. 23.* and *24.* Which jaw upon comparison I find so agreeable with the *Elephants* Skulls in *M^r. Ashmoles Museum* in the Univerfity of *Oxford*, that I dare not pronounce it any thing else but the jaw of a young *Animal* of that *Species*; and therefore rightly placed here, the *Elephant* being one of the *whole-footed Quadrupeds*. All the difficulty is, how it should come hither, this *Animal* being a rarity even at this day in *England*: to which we must answer, that it must be the jaw of a young *Elephant*, either kept for the state or pleasure of some great person hereabout; or brought hither for *Shew*, which dyed and was here buried; as the *Dromedary* brought into this *County* within memory for the same purpose, dyed by the negligence of his *Keeper* and was buried (where he dyed) in *Tixall* field: whose bones hereafter if ever found, may create as much wonder as this has done.

^k *Aristot. de Hist. Animal. Lib. 8. cap. 24.*

C H A P. VIII.

Of Men and Women.

1. **M**AN, the Subject matter of the following Chapter, being but a single Species of the Animal Kingdom, and that too which the Logicians call *specialissima*, whereof there is no variety of inferior Species's that can be hoped to be found, into which it may be subdivided, so as to advance any matter; one would have thought at first sight should have been so narrow a Theme, that it might well have been consider'd in the former Chapter among the other Animals without danger of prolixity: but Man being appointed by his Creator the Lord of all below, having the ordering and disposing of all things here both in relation to Himself and the inferior Animals; and not living so much within bounds as he should; but debauching his constitution with too many sensual delights of all kinds; has rendred Himself lyable in the manage of all these policies, to so many unufual accidents and distempers in the courfe of his life; that I guess I may find the relation of them, together with those of his birth and death that have happen'd but within the narrow verge of this County, sufficient to supply matter for another Chapter. Which I shall treat of (as I ought at least in a Natural History) according to the order of Nature: beginning first with such uncommon accidents as have befallen Mankind at or before his birth, then in his courfe of life, and lastly at his death.

2. But before I enter upon the births of Men and Women, it may be worth notice perhaps that I met with one at Millwich of a 11 years old, the child of one Philips, that seemed to be neither; the Sex not being to be distinguish't by the usual marks, nothing appearing in the place but an unufual aperture of a raw membrane; which I guess might be nothing else but the neck of the bladder, the child's *urin* constantly distilling thence: upon which account of the uncertainty of its Species, being in all other parts perfect and well proportion'd, it was Christened Franc. this being a name in common speech indifferent to both Sexes. But I think they needed not have been so nice in this matter, had they well considered; for though 'tis plain Nature was disappointed in perfecting this child, yet she has done enough to shew what she in-

intended; the child seeming to have somewhat of a Scrotum below the aperture, though none of the other essentials of Manhood,

3. All unufual marriages must also be precedent to the births of children; and so must the unseasonable times of their Parents getting them; a Man 'tis true may marry at what age he pleases, but he seldom does after eighty years of age; much less can he get children after that time: wherefore Pliny mentions it as an extraordinary thing that Cato Censorius, and Volusius Saturninus, begat Sons after they were past that age; and that King Massinissa begat his Son Mathimathnus at eighty six years old; and for Women he says in general they are past child-bearing at fifty^a; which seem to be the ultimate limits of time, after which neither Men or Women marry, or can get children. Yet both these fall short of what I met with in this County (and which is more extraordinary) in the same married couple: one John Best of the parish of Horton a man of a 104 years of age, having not many years agoe marryed a woman of 56. Upon whome he got a Son so very like himself (as I was told by Mr. Smith of the same parish who was Godfather to the child) that no body doubted but he was the true father of it. Which is more than what Levinus Lemnius relates from the Testimony of a Master of a Ship worthy of credit, that being at Stockholm in Sweden, he was called by the King himself to be present at the marriage of a Man 100 years old, who taking a wife of 30, had many children by her^b.

4. Before the birth of Children, so powerfull is the Pica or Longing of a Woman, that in case she be not presently supplied with the object of her unreasonable extravagant appetite, she frequently marks her child with some resemblance of it: whereof we daily see so many examples, that it would be impertinent here to instance in any. But the marks she sometimes gives her child upon a fright, are so very observable, that they must not be pass't over; these being many times more than Skin deep: as I noted it in a Gentlewoman I once saw at London that had the figure of a Mouse on her cheek standing fourth protuberant in mezzo rilievo with the furr on, given her by her mother upon a fright she received from that Animal, whilst she went with child of her. Nay so strong impressions doe such frights sometimes make upon women; that they will break the very Skins of the Fetus in the Womb, as we read in the Transactions of a Souldiers wife that had seen some body fore wounded and disfigured, produced a child wounded after the same manner, pieces of flesh in the shape of Pistol-bullets hanging to its body, &c. as it is there represented Fig. 13^c.

^a C. Plinii 2^{da}. Nat. Hist. Lib. 7. cap. 14. ^b Levinii Lemnii de occult. Nat. mirac. Lib. 4. cap. 24. ^c Philosoph. Transact. Numb. 160.

5. But I never met with an instance in all my Travells where any of these impressions were so very strong that they dismember'd the *Fetus* in the same part the object was, which gave the fright, till I came to *Leek*, where *Elizabeth* the wife of *Jeremiah Tomkinson* having heard that one *John Heath* a *Black-Smith* who lived in her house, upon reading that of *S. Matthew Chap. 5. v. 30.* [if they right hand offend thee, cut it off] had repaired to his brothers house a *Wood-man* of *Cunfall*, and taken opportunity with one of his brothers instruments to cut off his right hand; was so affected with it, being then about the time of her conception (though she saw not the fact, nor heard of it till next day after it was done) that she brought forth a man child (whom I saw myself *An. 1681*) without a right hand, coup'd at the wrist much about the place where *John Heath* had cut his hand off. Which I take to be almost as strange an instance of the kind, as any of those mention'd by *Bapt. Van Helmont*: who tells us of a *Taylor* wife of *Mechlin* who seeing a *Souldier* loose his hand in a conflict before her doore, was so terrified with it, that she presently was deliver'd of a daughter with one hand, the other being cut off, and the child bleeding to death of it. And that the wife of *Mark de Vogeler* a Merchant of *Antwerp*, in the year 1602 seeing a *Souldier* begging, who had his right Arm shot off by a bullet at the Seige of *Ostend*, which he carry'd about with him bloody, I suppose to move pitty; was presently brought to bed of a daughter also without a right Arm, who was after marry'd to one *Hoochcamer* a Merchant of *Amsterdam*, and was living in *An. 1638*†.

6. Also before the birth of Children, so many and so apparent are the usual Symptoms commonly known by Women, about the time of conception; during their going with child; and when near their travel; that one would think a woman truly with child, could never be so mistaken, as I was told the wife of *Samuel Ward* of *Mearton* in this County really was: who after she had been marry'd two years, was brought to bed of a daughter, both her self and husband, so little knowing, or so much as thinking she was ever with child, that growing ill near the time of her labour, they sent for a Physician instead of a Midwife. For one to have all these signes, and yet no child at last, is pretty common amongst women; nay so farr is it from a miracle that they are sometimes incident to ancient women past the age of child bearing, whereof *M^r. Bromwich* of the parish of *Newland* in the *Forrest* of *Dean* in *Glocestershire*, who had all the Symptoms of a pregnant

† *Job. Bapt. Van. Helmont cap. de injectis materialibus pag. 383. Edit. Venetiis An. 1651.*

woman

woman at near 80 years of age, is a most remarkable instance: but to have a child in this manner, and none of the concomitant signes, is so very rare, that I have not yet met with a parallel History in all my reading.

7. Amongst the unusual accidents in the birth of Man we must reckon the surprizing production of Monsters, whether in excess or defect; to the former of which the ancient Historians have usually referr'd such as are born with teeth, it having been always look't upon very extraordinary to be so born, children seldom breeding them till the seventh month after their birth. Yet *Sarah Wood* of *Brineton* in the parish of *Blymbill* *An. 1670.* was thus born with two teeth, which was anciently accounted very unfortunate both to Men and Women, as in the instances of *Valeria*, and our *Richard* the third King of *England*, who were both thus born, and one of them the cause of the ruin of *Suessa Pometia* a most flourishing City, and the other of a no less flourishing Family. But such observations as these I take to be more beholding to superstition than truth; for we find that *M. Curius* (upon this account surnamed *Dentatus*) and *Cn. Papyrius Carbo* to be both born with teeth, yet came to be very great men, and right honorable personages.

8. More deservedly by much are the Monsters of defect, I have met with in this County, referr'd hither; such as that of *Elizabeth* the wife of *John Bird* of *Whittington* near *Lichfield*, who *An. 1679.* was brought to bed of a child without upper lip, nose, or eyes; the hands turned upon the armes, and the feet upon the leggs, one of the heels extravagantly large, and a hole in the back without any backbone; it could not suck, but took milk and beer freely enough, whereby it lived 3 days, and then dyed. Which 'tis true was a birth imperfect and deformed enough, yet not near so much as that of the wife of one *Taylor* of *great-Heywood*, who in *January 1684.* as I received it in a Letter from my very good Friend *M^r. Sampson Birch* Alderman of *Stafford*, beside a perfect still-born child, was deliver'd of another monstrous body, made up of a large Cystis or bagg about the thicknes of a Mans *Scrotum*, smooth on the out side, and somewhat reddish, fill'd with a liquid slimy matter, but not fetid: in the upper part whereof was a round protuberant bone 3 inches and in compass coverd with a thick fleshy Skin beset with short hairs, in which were placed 8 dentes molares in a circular form, having a small hole in the middle which led not farr: below these in another bone were placed 5 other teeth, also of the molar kind, four of

Philosoph. Transact. Numb. 172. C. Plinii 2^a. Nat. Hist. Lib. 7. cap. 16.

Ibidem.

them

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them almost in a straight line, and the fifth a little below the two uppermost, which in shape, whiteness, &c. all so well resembled teeth, that they could not be thought to be any thing else.

9. Out of the Skin of the *Cystis* a little below the uppermost bone, in which the eight teeth are set, grew a large lock of hair of a bright brown colour, whose end was intricate and intangled in a larger quantity fastened in the other end of the *Cystis* opposite to the eight teeth of a more yellowish colour: all which may be conceived well enough by the figure of it *Tab.* 25. where it is exactly graven in its just magnitude. Now for a just account of this *Embryo* or *preternatural body* though it cannot be expected, yet I think I may pronounce without any great diffidence, 1. that it must come from an *Egg* that descended from the *Ovarium* through the *Tube* to the *womb*, as well as that of the perfect child; 2. that *Nature* in this birth at first intended *Twinns*; and 3 that the *bony* and *fleshy* parts, out of which grew the *hair*, and the two sets of *teeth*, were some rudiments design'd to form a *head*: but how dame *Nature* came thus to miscarry in her *plastics*, whether from some external violence which might break the *Egg* after it came into the *womb*? or whether the *Egg* it self at first was imperfect or subventaneous, out of which *Nature* being unable to form a perfect *Fetus*, made the best of what the matter could afford? as the learned *D. Tyson* more probably thinks, who has written more at large of it; I shall not determine, but leave the *Reader* freely to use his own judgment.

10. Nor has it been usual only amongst the *Natural Historians* to transmit to posterity such imperfect births as these; but the most perfect ones too, when they have proved extraordinary: whence it is that the birth-places of *Princes*, and *Men* any way famous, either for *Arts*, or *Arms*; for *Piety*, or *Munificence*; have been constantly noted: and if by chance so neglected, that they have become dubious; what contention has there been between *Cities* and *Countries* for the honor of the birth of a famous *Man*? Thus no less than seven *Cities* strove for the birth of *Homer*; and thus *Middlesex* and *Oxfordshire* contest the birth of *Chaucer* our famous English *Poet*; and here in *Oxfordshire* *Ewelme* and *Woodstock* both pretend to him. To prevent such altercations, *Cardinal Poole* Arch-Bishop of *Canterbury*; and *William Giffard* (of the family of *Chillington*) Arch-Bishop of *Rhemes*; *William Dudley* Bishop of *Durham*; *Edmund Stafford* Bishop of *Exeter*, a great Benefactor to *Exeter Colledge Oxon*; *Edmund Audley* Bishop of *Rochester*, *Hereford*, and *Salesbury*; who built the *Chore* of *S.*

^a *Philosoph. Transact.* Numb. 150. ^b See the *Life of Chaucer* by *John Speght*.

Mary's

TAB. XXXV.



ad pag. 272.
To the right Hon^{ble} Sir JOHN FOWER, K^t & D^y of P^{er}th & Ross
This 25. Tab.
Representing an Extraordinary Birth that happened in this County with all due respect is humbly offered by R. P. S. D.

J. Sculp.

Chap. VIII. Of STAFFORD-SHIRE. 273

Mary's Church in Oxford; all Nobly born and great Prelates: are already recorded to have been born in this Countyⁱ.

11. To whom let me add the most Reverend Father in God D^r Gilbert Sheldon late Lord Arch-Bishop of Canterbury, the most munificent Founder of the Theater in Oxford, who was born at Stanton in this County, where going to visit the house of his Nativity, in the very room where he was said to have drawn his first breath, I found these *Jambicks*.

Sheldonus ille præfulum primus Pater,
Hos inter ortus aspicit lucem Lares,
O ter beatam Stantonis villa casam!
Cui cuncta possunt invidere Marmora.

Which it seems were left there by the right Reverend Father in God D^r John Hacket L^d. B^p. of Coventry and Lichfield, who out of his extraordinary devotion to this great Prelat, had purposely made a journey thither not many years before, to visit the place of his birth, where after he had given God thanks for the great blessings he had afforded the world in that place, he sat him down and wrot those verses.

12. Nor has it only furnish'd the Church with Prelates, but the Court with Lawyers; the famous Thomas Littleton Author of the Tenures; and Edmund Dudley father to John Duke of Northumberland, one of the Judges of his time, being both presumed to be born in this County^k: as William de Sharesbull Lord cheif Baron, and cheif Justice of the Common pleas, temp. E. 3; S^r. Tho. Bromley Lord cheif Justice and Lord Chancellor of England temp. Eliz. and S^r. Gilbert Gerard Master of the Rolls more certainly were. The Camp too has been supplied out of this County with many eminent Souldiers; such as Ralph E. of Stafford, and S^r. James Audley; two of the first Knights Companions of the most Noble Order of the Garter, who in all probability were born in this County: as S^r. Hugh Wrottesley another of the first Knights of the same Order most certainly was^l. We may well too presume that Hugh Kilpeck Lord of the goodly Manor of Norbury as M^r. Erdeswick calls it, and upon account of his tenure of some other lands, the Kings Champion at the Coronation (from whom it descended to the Marmions and Dymocks) was a good Soldier, and born in this County^m.

13. John Bromley Esq; lineally descended from S^r. Walter

ⁱ See Godwin de præfulibus in their respective Diocesses. ^k See Fullers Worthies in Staffordsh. ^l The Institutions Laws and Ceremonies of the most noble Order of the Garter by E. Ashmole Seit. 3. chap. 26. ^m Erdeswicks view of Staffordshire M S in Norbury.

Bromley of Bromley (the now seat of the Lord Gerard) in Com. Stafford K. temp. R. Johan. who retook the Standard of Guyen 4. Hen. 5. lost to the French in a fierce charge on that wing which Hugh Stafford Lord Bourcbier (his near Kinsman) then commanded, for which eminent service he had not only the dignity of Knight-hood conferr'd on him, but many lands and offices in those parts, and the said Standard of Guyen given him for the Crest of his Armes: which is born to this day by his lineal Descendant William Bromley of Baginton in Com. Warw. Esq; true-ly heir of the worth, as well as Estate of his Ancestors. This va- liant S. John Bromley was certainly (I say) born in this Coun- ty. And so 'tis like too was John Duke of Northumberland who may be reckon'd a good Captain having frequently given proof of his abilities this way, and with good success in all, saving his last Enterprize for the Crown, after the untimely death of King Edward the sixth.

14. To these Mr. Erdeswick adds Ralph and Nicholas sons of John Bagnall born at New Castle under Lyme in this County, who raised again their sunk ancient Family (once seated at the vil- lage of their own name in this County) by their valour only, for which they were both graced with the Order of Knight-hood, one at Mussleborough in Scotland; the other in Ireland. To whom give me leave to subjoyn Coll. John Lane of Bentley Esq; (of whom at large hereafter) and Collonel William Carlis, born at Bromball in this County, who for his approved valour under his late Majesty at Worcester, and fidelity to him in his distress after, upon whose lap he rested in the Royal Oke; had his name changed to Carlos (which is Charles in Spanish) and a most suitable and honorable coat of Armes granted him by Let- ters Patents under the great Seal of England, in perpetuam rei memoriam. viz. in a field Or on an Oke proper a Fess Gu. char- ged with 3 regal Crowns of the second, by the name of Carlos. And for his Crest, a Civic Crown or Oken garland, with a Sword and Scepter crossed through it Saltir-wise. And for Sea-Captains (though an inland County) it has produced some very eminent; witness S. Richard Leveson Vice-Admiral of England; and S. Edward Spragg one of the Rere-Admirals in our days, who as I am credibly inform'd, was born in this County. The Family of the Minors's of Hollingbury-Hall in the parish of Uttoxater seems also to have been peculiarly addicted to the Sea; whereof one William Minors is said to have failed to the East-Indies eleven times: whither he has been followed by Captain Richard Minors

ⁿ Dugdale's Antiquities of Warwicksh. illustrated p. 153. ° Mr. Sampson Erdeswick's view of Staffordsh. M. S. in Bagenhall.

the

the present Proprietor of that Seat: who has not only signalized himself in our Engagements at Sea against the Dutch, but at land too, against the Rebels (more particularly at Colchester) in the late Civil Warrs.

15. It has also obliged the World with as many learned Writers (for a County so little provided for it's Universities as this is) as can reasonably be expected: whereof the ancientest, are John Stafford a Franciscan Friar, both a Philosopher and Divine, but chiefly a Historian, which he shewed in writing a Latin History, de illustrium Virorum rebus gestis, to the time wherein he flourisht, which was about the year 1380. Thomas Asheburn also born in Stafford, and bred in the University of Oxford, where he was D. of the chair: a great opposer of Wicliff's doctrine, against which he not only preached and wrot many books, but caused a Convocation to be call'd at London An. 1382. wherein it was solemnly condemned*. Which yet was maintained notwith- standing by his contemporary and Country-man Peter Patesbull born I suppose at the Town of his own name in this County, but bred also at Oxford, where he proceeded D. and was sometimes Professor of Divinity; a man of a sharp wit, an acute disputant, and an eloquent preacher. He wrot many things against the Monks and Friars of his time, particularly the Augustins, by whom he was persecuted accordingly: yet was made Chaplin at the same time (if we may beleive Bale) to Pope Urban the 6. by the procurement of Walter Dys an English Carmelite, his Legat here†. William de Lichfield D. of Divinity, Rector of Allhallows the great in London, wrot many books in his own faculty both in prose and verse, whereof Pitseus has given us a Catalogue‡, and was so great a Preacher that as Mr. Stow says, he left be- hind him when he dyed An. 1447 no less than 3083 Sermons of his own writing, which would have been accounted a prodigious number in this preaching age, but was much more so in that.

16. Robert Whittington also born at Lichfield, was a great Grammarian, Poet laureat of Oxford, and Protovates Angliæ, as he styles himself in the title-page of his Grammar printed at Lon- don by Wynkyn de Worde An. 1517. He wrot many other books of Schole-Learning the Titles whereof may be seen in Pit- seus. Henry Stafford Son of Edward Duke of Buckingham at- tainted and beheaded 12. Hen. 8. 1521. was likewise born in this County, Vir in melioribus quibusque disciplinis insigniter eru- ditus, says Pitseus of him, who to avoid the fate of his Ancestors,

^v Job. Pitseus de Illustrib. Angl. Script. in Anno citato. * Ibidem in Anno citato. † Job. Balei de Scriptoribus Britannia Cent. Sept. 9. Job. Pitsei Illust. Angl. Script. Append. Cent. 2. ‡ Stow's Survey of London in Downgate ward. § Job. Pitsei Illust. Angl. Script. in An. 1530. ¶ Ibidem in An. 1558.

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was contented with the Barony of Stafford only, and leaving all thoughts of State-affaires, applyed himself to his studies, and wrot many things in Latin politely enough both in verse and prose. John Robyns, first Fellow of All-Soules Coll. after Canon of Ch. Ch. Oxon and Prebend of Windsor, the greatest Mathematician of his time, also had his Nativity here; he wrot a book de portentosis Cometis, and being much addicted to the study of Astrology, left many books on that subject, whereof there are several MSS. in the Bodleyan Library in the University of Oxford. The famous Thomas Allen of Gloucester Hall, a great Antiquary, Philosopher, and Mathematician, was likewise born at Bucknall in this County, being descended of one Alanus de Buckenball temp. Edw. 2. according to the opinion of M^r. Sampson Erdeswick. Who was also born at Sandon in this County, veneranda Antiquitatis cultor maximus, says M^r. Camden of him, which he has fully made good in the MS. view of this County, by him written.

17. Of later years, Robert Waring M. A. and Student of Christ-Church, was born at Lea house near Wolverhampton, a great Poet, Orator, and Historian, of the latter whereof he was publick Professor at Oxon. He publish't several tracts, of which there is an account in the History and Antiquities of the University. Robert Burton also of Ch. Ch. Oxon, commonly otherwise call'd Democritus junior, the learned Author of the Anatomy of Melancholy, is also generally believed by the Inhabitants thereabout, to be born at Fald in this County, where I was shewn the very house (as they said) of his Nativity. And William Burton in the selvedg of his Picture before his description of Leicestershire, owns himself of Fald in this County. Though M^r. Anth. a Wood in the Antiquities of the University says they were both born at Lindly in the County of Leicesters. Edward Chetwynd D^r. of Divinity of Exeter Coll. of the ancient Family of Ingestre in this County, is likewise placed here, he was Chaplin to Queen Ann, and Dean of Bristol, a great preacher, and publish't many Sermons beside other Tracts. To these add, S^r. Charles Wolfely Baronet now living, a cordial Encourager of this work, who though a lay-Man, has written many things in Divinity. And the learned and ingenious Charles Cotton of Beresford Esq; who beside several Translations, has publish't divers other curious pieces, so well known to all ingenious persons, that they need not be named.

18. Lastly, the Worshipfull Elias Ashmole Esq; of Brasen-Nose Coll. Oxon, was born at Lichfield in this County, who for his

^a Anth. a Wood Hist. & Antiq. Univers. Oxon. Lib. 2. in Coll. Omn. Anim. ^w Joh. Pitsei illustr. Angl. Script. Append. Cent. 3. ^x MS. Fol. inter Cod. Digby. numb. 143. ^y Mr. Sampson Erdeswick's view of Staffordsh. in Bucknall. ^z Mr. Camden in Com. Staff. ^a Anth. a Wood Hist. & Antiq. Univers. Oxon. Lib. 2. in Coll. Ch. Ch. ^b Ibid. ^c Ibid in Coll. Exon.

general

general skill in all the politer sorts of Learning, such as Heraldry, Antiquities, Chymistry, Astrology, Natural Philosophy, &c. was made first Windsor Herald, and had the supervising and ordering the Kings Cabinet of Coynes, and made Catalogues of those in the University of Oxon. Which University upon account of his extraordinary merit, sent him a Diploma for his D^rs degree in the Faculty of Physick, ex mero motu without his knowledg or seeking. He was also honoured in the Inns of Court with the title and degree of Barrister at Law. Lastly our late dread Sovereign K. Charles the Second being conscious of his great knowledg, industry, and fidelity, made him Controller of all the Excise in England and Wales. He hath obliged the learned world with many curious books, and lately the University of Oxford with the best History of Nature, Arts, and Antiquities, to be seen any where in the world; not in print, or Sculpture, but in a generous donation of the real things themselves; wherewith they have furnish't the new Museum lately there erected, and gratefully stiled it (as a perpetual memorial of so noble a benefaction) the Museum Ashmoleanum.

19. And as the Naturalists took care to transmit to Posterity the birth-places of Men eminent for any sort of Virtue, so likewise they did too of all numerous Off-springs; such as that of one Dilk the foot-post of Lichfield, whose wife was so prolific that she brought him 5 children within the year, and these not at one, but two regular births, without any such superfetations as those mention'd above in the former Chapter; or by Pliny in his Examples of numerous births. Raro nostro seculo Trimelli perfecti sunt aut Vitales, says Thomas Bartholin. i. e. that it seldom falls out that three children are born together either perfect or living; and yet this happen'd too at Barton in this County, there being one Taylor that lived in a little Cottage near the place where the Chappel now stands that had three Sons at a birth, which being presented as a rarity to King Hen. the 7th as he came that way (perhaps to hunt in Needwood) he order'd that care should be taken of them, so as to be put to Schole, &c. who all lived to be men; and as the tradition goes all came to be Doctors, and to good perferment: which 'tis like is true enough of the youngest, but 'tis certain the eldest did, as appears by several inscriptions both within and without the Chappel, which he gratefully founded there, in the place of their Nativity; of which more hereafter.

20. There are also in this County some remarkable customs relating to births, that must not be omitted: whereof that of Borow-

^a Vid. Chap. 7. §. 62. ^c C. Plinii 2^{da}. Nat. Hist. Libi. 7. cap. 11. ^{*} Tho. Bartholin. Hist. Cent. 4. Hist. 83.

English at *Lapely* and *Alrewas* may pass for one, which is a customary descent of *Lands* to the *youngest* Son or Brother, before the *elder*; and this in some places is indefinite, but here at *Alrewas* of the *Copy-hold-lands* only, not the *Fee-Simple*. That the *younger* Son or Brother should thus inherit *Lands* of any sort, before the *elder*, may seem indeed to some not a little *unnatural*, but the famous *Littleton* renders us this reason why in some places they enjoy this *privilege*, for that in *Law* they are presumed the least able to shift for themselves. Upon which account in *Kent* where the *youngest* sometimes enjoys the benefit of *Gavelkind*, though not the whole inheritance; they have the privilege of the *Astre*, or herth for fire, in the *Mansion* house, in their *division*; because the *youngest* being the tenderest have the greatest reason to be kept warm at home^f.

21. Which are *reasons* that appear plausible enough, but I guess the more substantial *cause* of this *custom* may rather be, that the places where now *Borow-English* obtains, were anciently liable to the same ungodly *custom* granted to the *Lords* of *Manors* in *Scotland* by King *Evenus* or *Eugenius*, whereby they had the *privilege* of enjoying the first nights lodging with their *Tenants* brides, so that the *eldest* Son being presumed to be the *Lords*, they usually settled their *lands* (and not without reason) upon the *youngest* Son whom they thought their own; which being practised a long time, grew at length to a *custom*. Now that this *custom* obtained as well in *England* as *Scotland*, we may rationally conclude from the *Marcheta mulierum* (which King *Malcolm* ordered the *Tenants* to give their *Lords* in lieu of it when he took it away^h) that was anciently paid here as well as there: for which we have the express testimony of *Braeton*. *Tranavit* (says he) *totam Angliam Marcheti hujus pecuniarii consuetudo in mancipiorum filiabus maritandis*. . . i. e. that this *custom* was spread all over the *Nation*, &c.

22. Whereof I have seen a particular *Record* of one *Maynard* of *Berkshire*, who held his *lands* by this *tenure* of the *Abbot* of *Abington*, in these words. *Willielmus Maynard qui tenuit terras in Heurft, cognoscit se esse Villanum Abbatis de Abbendon; & tenere de eo in Villenagio; & per villanas consuetudines, viz, per servitium 18^s. per annum, & dandi Maritagium & Marchetum pro filia & sorore sua ad voluntatem ipsius Abbatis, &c^k*. Nor did it only prevail in *England* and *Scotland*, but as I have heard in the *Isle* of *Guernsey*; and in the *Kingdom* of *Ireland* too; where, as I am told by the *Worshipfull* Colonel *Edward Vernon*

^f Le *Astre* demorra al pune, on al pune. *Lambard's Usages and Customs of Kent*. p. 574. ^g *Heft. Boerii Hist. Scot. Lib. 3. cap. 12.* ^h *Geo. Buchanani Rev. Scot. Hist. Lib. 7. fol. 64.* ⁱ *Braeton de Legib. & Consuetud. Angl. Lib. 2. tit. 1. cap. 8. num. 2.* ^k *Placita de Banco in die Pasce. 34. Hen. 3. Rot. 20. Berk.*

(deputy

(deputy high *Steward* of the *Honor* of *Tutbury*, and deputy *Lieutenant* of the *Forrest* of *Needwood*) it is call'd *Lobempey*.

23. At *Terley Castle* in this *County*, the *Lordship* whereof belongs to the right *Honorable* the *Lord Gerard* of *Bromley*, *S. Charles Skrymsber* K. and *Richard Church* Esq; the *Lords* enjoy another odd *custom*, or *privilege* of *Lotberwits* or *Lyerwits* at this day; that is, the liberty of taking a *compensation* or *amercement* for *bastards* got or born within the *Lordship*, so called from the *Saxon* *Leger* or *Logher* a bed, and *wit* a penalty; whence *Fleta* expounds the word *Lierwit* to import as much as *mulcta Adulteriorum*¹. Which anciently as the *books* unanimously inform us, extended only to such as did defile a *bond-woman* within the *Manor* without licence. But the *Charter* of this *Manor* it seems extends further, for here the *delinquent*, oath being made that the *bastard* was begot within the *Manor*, and paying ten shillings to the *Lords*, not only avoids the cognizance of the *Bishop* and all *Ecclesiasticall Courts*, and *discovery* of the *Father*: but also if a *bastard child* be brought hither from without the *Lordship*, paying 1^{lb}—19^s—11^d.—ob. to the *Lords*, they shall have no cognizance of it neither. Nay so great a *privilege* had a certain *Oak* in *Knoll-wood*, 3 miles South of the *Castle* but within the *Lordsh.* in this respect, as *S. Charles Skrymsber* told me, to whom the wood belongs, that in case oath were made that the *bastard* was begot within the *umbrage* or reach of its boughs, neither the *Bishop*, or *Lords* of the *Manor* themselves could take any cognizance of it.

24. After the *births* of *Men* and *Women*, their *Christenings* usually follow; wherein it is remarkable that about *New-Castle* and in the *Moorelands*, the mens names are most commonly *Ralph* or *Randal*; and about *Stafford* and the more *Southerly* parts, the name of *Walter* is as common; these two names prevailing much in number above any other thereabout: occasion'd (I suppose) by the great *Estates* and *Authority* of the *Earls* of *Chester* and *Essex*, each in their respective *Quarters*: *Ranulph* Earl of *Chester's* name still prevailing in the *North*; and *Walter* Earl of *Essex's* (who lived after him at *Chartley*) having since carryed it in the *South*. It is also worthy notice that here are some *Families* that have constantly christened their *eldest Sons* of the same *Name* for many generations; thus the *Parkers* of *Audley* have been all *Richards* for many descents; and the *Family* of *Littleton* of *Pillaton* are so nice in this point, that unless the *eldest Son* be named *Edward* they think it cannot live to enjoy the *Estate*: up-

¹ *Fleta. Lib. 1. cap. 47.*

on

on which account they have been all S. Edwards ever since Hen. 6th. time, the present survivor being the ninth of that name. Which custom of christening the Son constantly of the Fathers name, yet Mr. Erdeswick does not approve, upon consideration that if a controversy should arise, wherein a man should be forced to prove his descent, this Identity of Name will so perplex it, that it will be very difficult to distinguish the Donor from the Donee, &c. whereas when the Names are often, or but alternately changed (as 'tis common in some familys) the descent thereby is so obvious, that no man need fear any hazard in pleading it^m.

25. Thus having done with the births of infants, &c. I proceed next to the most remarkable passages that have happen'd in childhood or youth; amongst which the imposture of William the Son of Thomas Perry of Bilson or Bilston Yeoman, a boy not above 13 years of age (but far exceeding it in wit and subtilty) must not be forgotten: who in An. 1620. 18. Jac. being unwilling to goe to Schole, and instructed by an old Man call'd Thomas that carried a cradle of glasses at his back, in a close where none could see them, but six times; yet proved so towardly in these few tryals, that he learned presently to groan, pant, and mourn; next to roll and cast up his eyes, that nothing but the whites should appear; to wrest and turn his neck and head both towards his back, and then to gape hideously with his mouth, to grind his teeth, &c. and after that to convey crooked pins, raggs, &c. into his mouth so that he might seem to vomit them up; he was instructed also that though people should put him to pain by pricking, pinching or whipping, yet that he must indure all patiently; lastly the old man taught him to say he was bewitched, and advised him to accuse some body (whom he had heard to be accounted a witch) to have bewitched him; and that whenever he heard the 1. verse of the 1. Chap. of S. Johns Gospel repeated, he should fall into these fits: all which he was contented to doe; and undergoe, to avoid going to Schole, and to move compassion in the beholders who brought him many good things out of pity when they resorted to himⁿ. To which he added of his own, as occasion required, a willfull abstinence; a trick of rolling up his tongue, and so placing it in his throat, that it appear'd hard and swollen; and mixing Ink with his Urin, to make people beleive it came so immediatly from him^o.

26. In the practise of which instructions of the old Man, and contrivances of his own, he grew in a little time so cunning and

^m Mr. Sampf. Erdeswick's M. S. view of Staffordshire. in Burwellton. ⁿ Boy of Bilson, or a true discovery, &c. printed at Lond. for Will. Barret. 1622. ^o Wilsons Hist. of the life and Reign of K. James the first in An. 1617.

expert,

expert, that most people (his own Parents not excepted, who were honest folks of sufficient ability, and altogether ignorant of the practises of their child) beleived him indeed bewitched: for in his fits he appear'd both deaf and blind, writhing his mouth aside, continually panting and groaning, and although often pinched, prick't with needles, and once whiped with a rod, beside other like extremities; yet could not be perceived either by shrinking or shreiking to bewray the left passion of feeling. Out of his fits he took (as was thought) no sustenance he could digest, but together with it did void and cast out of his mouth raggs, thred, straw, crooked pins, &c. His belly by his continual and willfull abstinence, was almost as flat as his back; his throat was swollen and hard, his tongue stiff and rolled up toward the roof of his mouth, so that he seemed always dumb, saving that he would speak once in a fortnight or 3 weeks, and that in but very few words. Of all which he accused one Joan Cock or Coxe a poore old neighboring woman that he said had bewitched, or caused him thus to be possessed; whom he would cunningly discern, and then fall into a fit, whenever she was brought near the place where he was, though never so secretly, as was once tryed before the Bishops Chancellor at Lichfield^p; again before the Grand Jury^q; and a third time before the whole Bench, at the Assizes at Stafford^r.

27. Where Aug. the 10. An. 1620. She was tryed for a Witch, before the right Worshipfull S. Peter Warburton, and S. John Davis Knights, then his Majesties Justices of Assize for this County, before whom were brought some slender circumstances vulgarly esteemed strong proofs of Witchcraft, but these appearing to the Judges but fantastical delusions, the woman was freed by the Inquest, and the care, and (if it might be) the cure of the boy committed by the Judges to the right Reverend Father in God D. Thomas Morton Lord Bishop of the Diocess then and there present. Who after a Months observation of his Actions and temper at Eccleshall Castle, not only suspected, from the easy and equal beating of his pulse in his strongest fits; his quiet rest and sleep commonly the whole night; his clear complexion, and spitting forth from him as naturally as any body in perfect health, which could not possibly be done with a tongue turned upwards as was pretended, &c. that he did but counterfiet: but evidently proved it from his falling into fits upon repetition of the 1. verse of the 1. Chap. of S. Johns Gospel [in the beginning was the word; &c.] in the presence of his Father, and an Aunt that came to see him in Octob. following^s.

^p Ibidem. ^q Boy of Bilson, &c. ^r Wilson's Hist. of the life and reign of K. James the first. ^s Boy of Bilson, or a true discovery, &c.

N n 28. When,

28. When, being out of his *Fit*, the *Bishop* calling for a *Greek* Testament, said to him; *Boy*, it is either thou or the *Diavel* that abhorrest those words of the *Gospel*: and if it be the *Diavel*, he (being almost 6000 years standing) knoweth and understandeth all *languages* in the world, so that he cannot but know when I receit the same *sentence* out of the *Greek*: But if it be thy self, then art thou a most execrable *wretch* who playest the *Divels* part, in loathing that portion of the *Gospel* of *Christ*, which (above all other *Scriptures*) doth express the admirable union of the *God-head* and *Manhood* in one *Christ* and *Saviour*, which *union* is the cheif pillar of *mans* Salvation. Wherefore look to thy self, for now thou art to be put to thy *tryal*, and mark diligently whether it be the same *Scripture* which shall be read unto thee, at which thou dost seem to be so much troubled and tormented. Then was read unto him the 12 *verse* of the said 1. *Chap.* of *S. Johns* Gospel [*Ὅσοι δὲ ἔλαβον αὐτὸν, ἔδωκεν, &c.*] which he supposing to be the *first verse*, did accordingly as he was wont fall into one of his *Agony's*. Which being quickly over, next was read unto him in the same *language* the *first verse* being indeed the aforefaid *Text* [*Ἐν ἀρχῇ ἦν ὁ λόγος, &c.*] yet he suspecting it not the same *Text*, was not troubled at it.

29. By this means was his *fraud* so far discover'd, that he was not a little confounded; however staring still with his *Eyes*, and casting his *head* on both sides the *bed* whereon he lay, that he might cover his *disimulation* the better, he told the *company* he was troubled at the sight of two *Mice*: and that he might be freed from further *tryal* and sent home to his *Father*, he complained of extreme *Sickness*, and by writing, as well as he could, did signify that he had a great pain in his *belly*, and the morning following making *water* in a *Urinal*, it was found as *black* as *Ink*, for there was some that *wrot* very legibly with it. Two days after he seemed to make *water* of the same *colour* again, which that he might the more craftily *dissemble*, he vehemently *groaned* at the making of it, whereupon one coming into the *room* to him, the *boy* shewed him his manner of making *water*, whereof a little remain came then from him of the same *tincture*, which he had purposely reserved within his *præputium*, to make it seem as if it came so immediatly from him.

30. To find out this too, the *Bishop* ordered a trusty *Servant* to watch him through a *hole* that opened into the *chamber* towards the *bed*, which the *boy* knew not of; by whose diligent *observation*, the third day following he was espied to take out an *Ink-horn*

^a *Ibidem.* ^b *Ibidem.*

which

which he had hid in the *straw* or *Mat* of his *bed*, and to make *water* in the *Urinal* through a piece of the *Cotton* in his *hand*, nimbly conveying the *Ink-horn* into the same place again: whereof as as soon as the *Man* had acquainted the *Bishop*, he came to him presently and askt him how he did? who according to his usuall manner pointed to his *water* looking ghastly at it; then the *Bishop* who now meant to deal roundly with him, told him plainly that he knew he had *Ink* in his *bed-straw*, with which he used to *black* his *water*, and calling in his *Man* took the *Ink-horn* out of the place where he had hid it, the *Man* justifying at the same time that he saw him make *water* through the *Cotton*. Which (with the *Bishops* threatening to send him to the house of *Correction*) struck him with such a terroure that he rose from his *bed*, fell upon his knees, and burst out into plentiful tears, *confessing* all to his own *shame* and *Gods* glory, not only what the *old Man* had taught him, but also what he had contrived of himself.

31. Amongst other things being askt, why he accused the poor *old woman* of *Witchcraft*? he answered that the *old Man* told him he must lay the cause of his being possessed, upon some *old woman*, and she being known unto him, and of a *scolding humor*, he fixt it on her; and confest that he was once minded to have made his *picture* in *clay*, and to have conveyed it into her *house*, for the better proof of her *bewitching* him. Then the *Bishop* asking him how he came to be so sensible of the *womans* being near him, before she appeared in the *room* both at her *examination* and *arraignment*, his back being toward her? for the first at *Lichfield*, he said, he heard some about him whisper [*she is here*] which made him cry out, *she comes, she comes*: and for the other at *Stafford*, he said he heard the people *remove*, and her chains *clink* as she came, which gave him the *signe*. Lastly being askt how he made his *throat* swell? he shewed it was by thrusting his *tongue* (which was very long) down his *throat*. After which sincere *confession* and *acknowledgment*, he continued at *Eccleshall Castle*, till he was recover'd of his *weakness*, and was finally brought again to the following *Summer Assize* held at *Stafford Jul. 26. An. 1621.* before *S. Peter Warburton* and *S. Humphry Winch* Knights, his *Majesties Justices* of *Assize*, and the face of the whole *Country* there assembled: where he first craved pardon of *almighty God*; then desired the *poore woman* there also present to forgive him; and lastly requested the whole *Country*, whom he had so notoriously and wickedly scandalized, to admit of that

^a *Wilson's Hist. of the life and reign of K. James the first, &c.* ^b *Boy of Bilson, &c.*
^c *Wilson's Hist. of K. James the first, &c.*

his so hearty confession, for some measure of satisfaction". After which as M. Wilson says he was bound Apprentice by the Bishop, and proved a very honest Man.

32. The strange facility and readiness wherewith this boy of Bilson in a little time could personate all the gestures of one bewitch't or possess, puts me in mind with what impulses or peculiarities of temper some are inclined (especially in their youth) to imitate motions and sounds: for which Doterel-quality, I remember a young Scholar of Magd. Coll. Oxon. so very excellent, that he would personate a Changeling; counterfeit the barking of a Dogg; the grunting and squeeking of a Sow and piggs; and divers other gestures and noises so very indistinguishably, that a Stranger, or any other person not privy to it, could not but think them the very same. So in Darby-shire I was shewn a Youth that could most exactly imitate a Hunters horn with his voice only. And I saw one William Creswell an Apprentice to Anthony Bannister of Rugeley in this County, who could whistle so artificially, that scarce any body out of sight, could distinguish his notes from those of a Flagelet. Which imitations being voluntary, at the pleasure of the Agent, perhaps may arise only from the frequent representations of the gestures and sounds their Parents or Nurses accustomed them to, during their infancy, which may possibly have so much influence (at these years) in molding the texture of the Brain and Spirits, as to dispose them to the imitation, of such motions and notes, rather than others.

33. But when this imitating quality is so very strong, that it becomes involuntary, as it is in Donald Monro of Scrabbogie in Scotland, who pulls of his hat, and puts it on; wipes his nose; wrings his hands; stretches forth his armes; and imitates all other actions he sees any man doe, though much against his will, with so much exactness and such a natural and unaffected an Air, that no man can suspect he does it with designe; and yet with so strong an impulse (as the Reverend and learned D. Garden informs us) that if his hands be held, he cannot forbear pressing to get himself free to doe the same thing. Nay so contrary to his mind does he Ape these motions, that to hide his infirmity, he casts down his Eyes when he walks the streets, and turns them away when in company, wherein too 'tis hard to make him stay, once he finds himself observed. When I say this imitating quality is thus so very strong, that it becomes involuntary, the impressions given by parents or nurses seem not sufficient to ac-

^a Boy of Bilson, &c. a Wilson's Hist. of K. James the first, &c. ^b Philosoph. Transact. Numb. 129.

count

count for it, it being more probably grounded in some peculiar crafts in the Spirits, or distemper in the imagination, nothing less being adequat to such effects.

34. After those of Children and youths, Method directs me next to consider the uncommon accidents that have at any time attended more adult persons; and first of such as have befallen the female Sex, which according to the custom of England has always the place: amongst which I take it to be very extraordinary that I met with at little-Worley in the parish of Cannock, where I saw one Mary Eagle who could draw two quarts of milk from her breasts per diem, beside what her child suckt, whereof she could have made (had there been vent for it) two pounds of butter per week, ever since she was brought to bed, which was about five Months past, when I was there. She gave me some of the butter, which was made up fresh, without Salt, it needing none (as she told me) to preserve it, which she sold to some Apothecaries hereabout at a good rate, it being usefull (as she said) in all sorts of swellings, Aches of the head, sore Eyes, &c. but I believe it was so made only at their directions, for I found that she gave me, to grow rancid in a while, and to stink at last. Borellus in his observations tells us of much such another woman, one Mary Caron a Taylors wife of Boulogne, who could afford milk enough every day for the nursing two children, and to make butter beside; which she also did, at the earnest request of a certain Apothecary, who used it, not against swellings, &c. as here in Staffords-hire, but as a great nostrum or secret against Consumptions, for which he thought it the best remedy of any whatever.

35. Amongst such accidents as these, we may also reckon what befell one Mary Foster of Admaston, now the wife of John Stone of Burton upon Trent, who casually falling into a well was so frightened with it, that for about a fortnight she rested but little, but at length fell into so sound a sleep that she wakened not again in 14 days and nights. About two years after she went to live at Uttoxater, where she slept again (as I was inform'd) three days and nights more: but she her self told me it was but two nights and a day. Now though it may seem a little odd that such dreadful impressions which one would think at first sight should rather keep one waking, should cast a person into so profound a sleep; yet upon further consideration that nothing disorders and tires the Spirits more than sudden frights and anxieties of mind, me thinks it should not seem any great wonder, if to recruit themselves again, they incline to rest, and dispose the person to

^c Petr. Borelli Hist. & Observ. Medico-Phys. Cent. 3. Obs. 82.

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sleep

sleep a longer or shorter time, in proportion to the expence and disturbance they have had.

36. Which in all probability was also the case of a little girle about 8 years old mention'd by Dan. Ludovicus, who being first beaten by a fever stepmother, and then sent hungry with a bever to her Father in the field who was a poor herdsman, and not forbearing to eat part of it; when she saw it half gone, fearing more stripes, went no further on her way but turned aside into the next grove or wood, where full of tears and sobbs, she layd her self down covering her face on all sides with leaves and mos, and at last fell into so deep a sleep, that she waked not again in seven days: nor is it likely she had then, had she not been found by some boys, that went thither to set snares for birds, who discovered her to her parents, by whom being carryed to the next house as dead (without any symptoms of life beside the softness of her flesh, and flexibility of her joynts) where Ludovicus by chance was in company with a friend: having first wash't from her face a glutinous flegme mixt with the mos and leaves that had cover'd it, with hot water; and cleared her mouth and nostrills from a viscid substance that had stop't them; he then gave her a spoonfull of Spirit of Wine, which seeming to pass, upon giving her another she began to groan, and after a third she open'd her Eyes, and so came at length to her self by degrees^d.

47. Yet these Slept not so long, but there are others in this County that have fasted as wonderfully; one William Francis of Fisherwick being Melancholy-mad, having once willfully fasted 14 days together, notwithstanding all means used to force him to eat. Which yet was nothing to what was also willfully done by one John Scot a Scotchman, who being cast in a suit of Law, and knowing himself insolvent, took Sanctuary in the Abbey of Halirudhouse, where out of a deep discontent, he abstained from all meat and drink 30 or 40 days together. Publick rumor bringing this abroad, the King himself resolv'd to have it put to tryal, whereupon he was shut up in a private room in the Castle of Edinburgh, whereunto no man had access, and had a little bread and water set by him, which he was found not to have tasted, in 32 days. This proof of his abstinence being given, he was set at liberty, and went to Rome, where he gave the like proof of it to Pope Clement the seventh; at Venice; and in his return, at London; where inveighing against Hen. 8. for his divorcing Q. Catharin, and his defection from the See of Rome, he was thrust into prison, where he continued also fasting for 50 days together.

^d Vid. Miscellanea Curios. Medico-Phys. German An. 8. Observ. 68. ^e Job. Spotswood's Hist. of the Church of Scotland. Book 2. in An. 1539.

38. Nor comes the femal Sex much behind in such extraordinary fasting, for I find in the Records of the Tower of London, that in the 31. of Edw. 3, there is a pardon of execution of Judgment granted to one Cicely de Ryge way, though indicted and condemned for killing her husband, for that she had fasted for forty days together in arcta prisona without meat or drink, which because a very remarkable instance, I care not if I gratify the Reader, with a Copy of the Record.

Ex Rotul. Paten. de Anno regni Regis Edwardi tertii 31. parte 1. Membr. 11.

R E X omnibus Ballivis & fidelibus suis ad quos, &c. Salutem. Sciatis quod cum Cecilia quæ fuit uxor Johannis de Ryge way nuper indictata de morte ipsius Johannis viri sui, & de morte illa coram dilect. & fidelibus nostris Henrico Grove & Sociis suis Justic. nostris ad Gaolam nostram Notyngh. deliberand. assign. allocuta, pro eo quod se tenuit mutam ad penam suam extitit adjudicata ut dicitur, in qua sine cibo & potu in arcta prisona per quadraginta dies vitam sustinuit via miraculi, & quasi contra naturam humanam sicut ex testimonio accepimus fide digno. Nos ea de causa pietate moti ad laudem Dei & gloriosæ virginis Mariæ matris suæ unde dictum miraculum processit ut creditur, de gratia nostra speciali pardonavimus eidem Cecilie executionem judicii prædicti; volentes quod eadem Cecilia à prisona prædicta deliberetur & de corpore suo ulterius non sit impetita occasione judicii supradicti. In cujus, &c. T. R. apud Westm. XXV. die Aprilis.

per Bre. de privato Sigillo.

Convenit cum Record.
Laur. Halsted deput.
Algeru. May mil.

39. These 'tis true are as eminent Instances in their kind, and the truth of them back't with as good Authorities, as one could expect or desire: and yet neither of them much exceed the perpetuall fast (as I may call it) of one Mary Vaughon of Wigginton in this County, who from her cradle to this day has lived with so small a quantity both of meats and drinks, that all people admire how nature is thus sustained without any sensible exhaustion; she not eating in a day a piece above the size of half a Crown in bread and butter; or if meat, not above the quantity of a pidgeons legg at most: she drinks neither wine, ale, or beer; but only water, or milk, or both mixt; and of either of these scarce a spoonfull

spoonfull in a day. And yet she is a maiden of a fresh complexion, and healthy enough, very piously disposed, of the Church of England, and therefore the less likely to put a *trick* upon the world; beside 'tis very well known to many worthy persons with whom she has lived, that any greater quantities, or different liquors, have always made her sick.

40 Now to give a satisfactory reason of the long *abstinence* of these persons, who have lived thus with little, or no food at all; or to pronounce how it comes to pass that *death*, or at least a signal *Marasmus* or destructive consumption has not ensued; though I dare not pretend: yet I cannot forbear so far to gratify the Reader, as to let him know, that I think the case to be no otherwise with these, than 'tis with *Leeches*, *Lizards*, *Snails*, and the *Tortoises*, *Porcupines*, and *Toads*, abovementioned^f: in all which the *natural heat* and *moisture* is either so justly counterpoised; or else their *viscid juices* do so overbalance and restrain the *activity* of their *heat*, that it is unable to rarify, or separate the parts of their *moisture*; whence there cannot follow any *perspiration* or *consumption*; and so no need of *reparation* by *meats* or *drinks*: upon which account some of them have lived divers months, and others half a year together without any visible supply. Now what frequently is seen in so many *Species*'s, may sometimes fall out too in *Individuals*, of other *Species*'s, in which 'tis not so usually met with; when they happen to be qualified with the like *constitution*, as I suppose these persons were; who by a peculiarity of temper, without imposture or miracle, might fast as above mention'd.

41. But I have more wonderfull passages relating to *Women*, than any of these yet to declare, whereof the first and strangest is of one *Mary Woodward* of *Hardwick* in the parish of *Sandon*, who loosing her hearing at about 6 years of age, by her extraordinary ingenuity and strickt observation of the peoples *lipps* that convers't with her, could perfectly understand what any person said, though they spake so low that the *by-standers* could not hear it: as has been frequently experimented by the right Honorable the *Lady Gerard*, and divers others of her *neighbours* now living, with whom she would goe to *Church*, and bring away as much of the *Sermon* as the most attentive *bearer* there: all which she did, not with difficulty, but so much ease and satisfaction, that if one turned aside and spake, that she could not see his *lipps*, she thought her self much disobligh'd. Nay so very well skill'd was she in this *Art* (which we may call *Labiomancy*) as 'tis generally beleived (though I could get no personall testimony of it, some persons be-

^f Chap. 7. §. 46.

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ing dead, and others removed into *Ireland* who sometimes lay with her) that in the night time when in *bed*, if she might lay but her hand on their *lipps* so as to feel the motions of them, she could perfectly understand what her *bedfellows* said, though it were never so dark.

42. For confirmation of the possibility and truth whereof, there are many parallel *Histories* sent us from abroad, of persons that have done the same in all particulars: of which *Borellus* affords us one, of a certain Sea-man of *Xantoigne* who lost his hearing at 5 years old, by the violence of a distemper, that was supplied by nature with so admirable a *Sagacity*, that he could apprehend what was spoken with the lowest voice, by the motion of the *lipps* only, though no *sound* were made, and give an answer accordingly: tryal whereof was made by *Isaac Tho. de Riolet* a learned *Physitian* of that *Country* who held discourse with him at 25 foot distance, with a voice so low, that he could not hear himself speak. Of which Dialogue *Borellus* has given us the particulars in his historical Observations^g. As *Job a Meekren* also has, of the like discourse between *Gulielmus Pifo* and another *deaf man*, who understood in like manner all questions put to him by the motion of the *lipps*, as appear'd by the answers, though spoke with so low a voice, that they mov'd the least imaginable; till at last *Pifo* speaking *Latin*, the *deaf man* then only answer'd, that he spake a language he did not understand: which certainly was as satisfactory, as a direct answer could have been. Nor did he only answer single questions, but like *Mary Woodward* could understand *Sermons*^h, as *Petrus a Castro* informs us one *John Irunde* a Cabinet maker of *Salsborn* in *Silesia* can also doe by the motion of the *lipps* only, understanding better such as *whisper* to him, than those which speak *loud*ⁱ.

43. *Tulpius* likewise tells us of one *Simon Didericus* a *Hollander* who was made *deaf* by a fall from a *Tower*, that could repeat *Sermons* he had seen or learn't at *Church*, by the motion of the *Preachers lipps*, which he apprehended ratably better or worse according as the speakers *lipps* were smooth or hairy, lean or fat^k. Upon which account he could talk with *women*, with much greater freedom than he could with *men*. The like whereof has been seen here in *England* as the reverend *D. Meric. Casaubon* acquaints us, if we may credit the relations of two grave *divines*; one, telling him of a *Man*; the other of a *Woman*; both, deaf and dumb: who nevertheless at a certain distance by diligent

^g Pet. Borelli. Hist. & observ. Medico-Phys. Cent. 4. Obs. 23. ^h Jobi a Meekren Observ. Medico-Chirurg. cap. 21. ⁱ Miscellanea Medico-Phys. German. An. 1: Observ. 35. ^k Nic. Tulpii Observat. Medic. Lib. 4. cap. 18.

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observation

observation of the motion of the mouth and face, could readily tell what was spoken unto them, but the *Woman* not unless the party speaking was close shaved, or beardless; which is probable enough, the muscles of the mouth having peculiar *motions*, according to the variety of the *formations* of words¹. And Mr. *Carew* tells us of one *Grisling* of *Saltafb* in the *County of Cornwall*, who was also deaf and dumb, that if one spoke deliberately could doe the same*.

44. Nor is it much less a wonder that I am now about to relate of Madam *Skrymsher* of *Aqualat*, a Lady of much honor and virtue, who having felt for some time a *pricking* in her *Arm*, upon her frequent complaint to her tender husband, who pertook of the grief, and was officious to remove it, upon squeezing her *Arm* he forced thence from about the *Basilical* vein, first a *pins* point, then a good part of it appearing, he firmly took hold of it with a pair of *Cissors*, and immediatly drew it forth all but the *head*, which came off, and remaining behind in the skin, was there sensible to the touch for some time after. Now beside that the *Lady* does not remember that ever she swallowed a *pin*, or if she had, or did otherwise at unawares take it in with her meat, how it should pass the *Lacteals*, or with the *blood* through the other small *capillaries*, though it were never so little, is altogether as unintelligible, as that it should be gotten in any other way without knowledg.

45. Wherefore I much rather beleive that it was some way or other swallowed insensibly, and that it pierced by degrees the *coats* of the *stomack*, and so pass through the flesh by unknown ways to the place where it came forth, as the *Needle* did, that was swallowed by *Henricus Alvarus* at six years old, which as *Scultetus* informs us came forth again out of one of his thighs when he was twenty four: eighteen years after^m. Or as the *brass* *Bodkin* mention'd by *Benivenius*, which being swallowed by a *Woman* lay in her *stomack* a whole year without trouble, after that begining to boare the *coats* of the *Ventricle*, it put her to great pain, in which after she had continued (without help from *Physitians*) for about ten years, out dropt the *bodkin* through a small hole it had made for it self through the *stomack*, and the outward skin over against itⁿ.

46. Amongst the *unusual accidents* that have attended the female Sex in the course of their lives, I think I may also reckon the narrow *escapes* they have made from *death*. Whereof I met

¹ *M. Casaubon's Treatise of Entusiasme* Chap. 4. in initio. * *Carew's Survey of Cornwall Book. 2. p. 113.* ^m *Job. Sculteti Trichiasis admirandæ* pag. 19. ⁿ *Antonii Benivenii de abditis Morbor. & Sanat. causis. cap. 20.*

with

with one mention'd with admiration by every body at *Leek*, that happen'd not far off at the *black Meer* of *Morridg*, which though famous for nothing for which it is commonly reputed so, as that it is bottomless; no Cattle will drink of it; or birds fly over or settle upon it (all which I found false) yet is so, for the signal deliverance of a poor woman, inticed hither in a dismal stormy night by a bloody *Ruffin*, who had first gotten her with child, and intended in this remote inhospitable place, to have dispatch't her by drowning. The same night (*Providence* so ordering it) there were several persons of inferior rank drinking in an *Ale-house* at *Leek*, whereof one having been out, and observing the darkness and other ill circumstances of the weather, coming in again said to the rest of his *Companions*, that he were a stout man indeed that would venture to goe to the *black Meer* of *Morridg* in such a night as that; to which one of them replying, that for a *Crown* or some such Summe he would undertake it; the rest joyning their purses said he should have his demand. The bargain being struck, away he went on his journey with a stick in his hand, which he was to leave there as a testimony of his performance; at length comeing near the *Meer*, he heard the lamentable cries of this distressed *woman*, begging for mercy; which at first put him to a stand; but being a man of great resolution and some policy, he went boldly on however, counterfeiting the presence of divers other persons, calling *Jack*, *Dick*, and *Thom*, and crying *here are the rogues we lookt for, &c.* which being heard by the *Murderer* he left the *Woman* and fled, whom the other man found by the *Meer* side almost stript of her cloaths, and brought her with him to *Leek*, as an ample testimony of his having been at the *Meer*, and of Gods providence too.

47. Yet much greater was the deliverance of one *Margery Mousole* of *Arley* in this *County*, who being convicted of killing her *bastard* child, was, much more justly than *Ann Green* at *Oxford*, accordingly condemned and executed at *Stafford* for it, where she was hanged by the neck the usual time that other *Malefactors* are, yet like *Ann Green* and *Elizabeth* the Servant of one Mr. *Cope* of *Oxford*, she came to life again, as it has been much more common for *women* to doe in this case, than it has been for *men*: I suppose for the same reason that some *Animals* will live longer without *Air*, than others will, as was shoven above; the juices of *Women* being more cold and viscid, and so more tenacious of the sensitive soul than those of *men* are. Which appear'd most

^o *Nat. Hist. of Oxfordsh. Chap. 8. §§. 12. 20.* ^p *Chap. 7. §. 46. and Chap. 8. §. 40.*

O o 2 wonderfully

wonderfully in the case of *Judith de Balsbam*, temp. Hen. 3. who being convicted of receiving and concealing *theeves*, was condemned and hanged from 9 by the clock on *Munday* morning, till Sun-rising on *Tuesday* following, and yet escaped with life as appears by her pardon, which for its rarity I shall here receite *verbatim*.

Ex Rotulo Paten. de Anno Regni Regis Henrici tertii 48. membr. 5.

REX omnibus, &c. Salutem. Quia Inetta de Balsbam pro receptamento latronum ei imposto nuper per considerationem Curie nostre suspendio adjudicata & ab hora nona diei Lune usque post ortum Solis diei Martis sequen. suspensa, viva evasit, sicut ex testimonio fide dignorum accepimus. Nos divine charitatis intuitu pardonavimus eidem Inette sectam pacis nostre que ad nos pertinet pro receptamento predicto & firmam pacem nostram ei inde concedimus. In cujus, &c. Teste Rege apud Cantuar. X V I. die Augusti.

Covenit cum Recordo Laur. Halsted Deput. Aljern. May mil.

How unwillingly the cold viscid juices part with the sensitive soule, appear'd, I say, most strangely in this case: unless we shall rather say she could not be hanged, upon account that the *Larynx* or upper part of her *Wind-pipe* was turned to *bone*, as *Fallopian* tells us he has sometimes found it^a, which possibly might be so strong, that the weight of her body could not compress it, as it happened in the case of a *Swiss*, who as I am told by the Reverend M^r. *Obadiak Walker* Master of *University College*, was attempted to be hanged no less than 13 times, yet lived notwithstanding, by the benefit of his *Wind-pipe*, that after his death was found to be turned to a *bone*: which yet is still wonderfull, since the *circulation* of the *blood* must be stopt however, unless his *veins* and *arteries* were likewise turned to *bone*, or the *rope* not slipt close.

48. Thus having done with the *Women* solitarily considered, I shall next treat of the *Men* and the accidents that have attended them during the course of their lives in the like manner. And first of the extraordinary *perfections* of *Men* whether of body or

^a Gab. Fallopi oper Tom. 1. Observ. Anatom. Tract. 6.

mind,

mind, and then of their *defects*. As for the *perfections* of the *body*, I take that of *strength* to be one of the cheifest; wherein I met with some that excell'd so much, that unless I had seen the things done my self, I should have thought them incredible: particularly that of one *Godfrey Witrings* a butcher of *New-Castle*, whome I saw take a forme, at *Robert Launder's* in the Lane, 6 foot 10 inches long, and 56 pounds weight, by one end in his *teeth* (holding his hands behind him, and bearing the leggs of that end next him against his brest) and lift the other end the whole height of the parlour, striking it 3 times against the boards of the room above. Now supposing the leggs to stand about 10 inches from the end of the *form*, towards the middle, or *center* of *gravity*, which is near, of the distance betwixt the end and the *Center*; by computation he lifted thus with his *teeth* about 168 pounds weight. Which is not so much as what was done by a *Juglar Cardan* tells us of, who took up the *mast* of a small boat with his *teeth*, and threw it first upon one shoulder, whence he removed it to the other, without touching it with his hands*.

49. Nor so much as was performed by one *Nicholas Cooper* of *Aeton-Trussel*, who was also a man of so extraordinary strength in those parts, that he could lift a sack of *wheat* of 4 strike with his *teeth*; which accounting but 50 pounds to the *strike* (than which scarce any weighs less) amounts to 200 pounds weight, but reckoning at 60 pounds *per bushell* (as some *wheat* weighs) he lifted 240. But this was not the utmost he could doe neither, for once upon a *wager*, he took up a man, by a cord tyed round him, of 300 weight, and set him on a *Table*. Nor was he strong in his *teeth* only but in the whole frame of his body, having taken up at a time 3 sizeable men, one under each *Arm*, and a third in his *teeth*. Which is not much less than that mention'd by *Cardan*, who saw a man dance with two under his armes, as many upon his shoulders, and one hanging about his neck. And formerly being desired to give a *specimen* of his strength, he set his back under the *Axle-tree* of a *Cart* laden with 3 horseload and $\frac{1}{2}$ of *coals*, and not only lifted it *wheels* and all, but turned it quite round. The same person having a *Lesow* quite overrun with well grown *broom*, near a mans height; whereas others are forced to stock or root up such broom with *Matocks* and other *instruments*; he pluck't up all *his* by the *roots* with his hands, though the ground was 4 *Acres*. To whom let me add that one *Thomas Wall* of *Wolverhampton* was once so strong in his *teeth*, that he could readily bend a large *nail* or *tenterhook*, and set it straight

* Hieron. Cardani. de Subtilitate Lib. 11. Ibidem.

003

again

again with them: for the better performance whereof I was told his *teeth* were *molares* before, instead of *incisores*; but upon examination I found them not so, only indeed his *incisores* were of an unusual thicknets.

50. Not at all inferior to any of these in matters of *strength*, was one *Walter Parsons* of *West-Bromwich* in this *County*, though *his* was not so much to be admired as *theirs*, who were Men but of a middling ordinary size, whereas *Parsons* had a stature proportionable to his strength; being so very tall when he was a young *apprentice*, that they were forced to digg a hole in the ground for him to stand in up to his knees, when he struck at the *Anvil* (for he was first a *Black-Smith*) or sawed wood with another, that he might be at a *Level* with his *fellow-workman*. At length he became *Porter* to King *James* the first, where he behaved himself so generously, that though he had valour equal to his strength, yet he scorned to take advantage to injure any person by it; upon which account we have but few *experiments* left us of his great *strength*, but such as were sportive: as that being affronted by a man of ordinary stature, as he walkt *London* streets, he only took him up by the waistband of his breeches, and hung him upon one of the hooks in the *shambles*, to be ridicul'd by the people, and so went his way: and that sometimes by way of merriment, he would take two of the tallest *Yeomen* of the *Guard* (like the *Gizard* and *Liver*) under his *Arms*, and carry them as he pleased (in spite of all resistance) about the *Guard Chamber*: where (if I am not misinformed) *that* is his *picture* which hangs at the end next the stairs, leading down into the Court toward *White-Hall Gate*.

51. There is another *picture* of him, as I have been told also by some, in the great room at the *Popes-head Tavern*, in *Popes-head Alley*: but whether they are the true *pictures* of him or noe, it being uncertain that they were drawn in the just proportion, I took not the pains to have them measur'd; chusing rather to collect what his height might be, from a true measure of his hand yet remaining upon a piece of *Wainscot* at *Bentley-Hall*: by which it appears that from the *Carpus* to the end of the *middle finger*, it was eleven inches long, and the *palm* 6 inches broad: which (abate-ments being made interchangeably) is much about the size of the hand of *Edmund Malloon* a youth of 19 years old, born at *Port-Leicester* in *Ireland*, for his extraordinary stature shewn publickly here in *Oxford* in 1684, which though from the *Carpus* to the end of the *middle finger* it were 12 inches long, yet the *palm* was no more than five inches broad. i. e. it fell as much short of *Parsons's* hand in the bredth, as it exceeded it in length.

52. Now

52. Now the proportion of the stature of *Edmund Malloon* to this hand, being as 7 and $\frac{1}{2}$ to 1. that is being 7 foot 6 inches high, thence we may rationally conclude that *Parsons* must also be thereabout; both much about the height of *John Tates* born at *Schoonhoven* in *Holland*, the length of whose *Cubit* (as *M. Ray* tells us) was 25 inches and $\frac{1}{2}$. the length of his *hand* to the wrist 11 inches, and his *middle finger* 7 inches*. All short of the stature of *Martin Wierwski* a *Polander* who at the age of 42 years being presented to the Emperor *Maximilian* the second as a rarity of nature, was found full eight foot high†. And so was one of the *Someris*; Baron (and Founder of the Priory) of *Dudley*; if we may believe either his *Statue*, or *hollow* of the stone chest in which his body lay, both which as *M. Erdeswick* testifies measured 8 foot, than which had the body been any thing shorter, it could not with conveniency have been laid there‡, considering how they anciently cut their stone coffins. Who yet were neither of them so tall as *John Middleton*, commonly call'd the *child* of *Hale* in the *County* of *Lanc*: whose hand from the *Carpus* to the end of his *middle finger* was 17 inches long, his *palm* 8 inches and $\frac{1}{2}$ broad, and his whole height 9 foot 3 inches, wanting but six inches of the height of *Goliath*, if that in *Brasen-Nose College Library* (drawn at length, as 'tis said, in his just proportion) be a true piece of him.

53. As for the *perfections* of the *mind*, chiefly shewn by good works, though so much in our own choise, they are as rarely acquired to any great *eminence*, as those of the *body* are given; yet some evidences there have been too of such as these, as well here as elsewhere: in the relation whereof, I shall decline the foundations of *Religious houses*, *Hospitals*, and *Scholes*, these having been the *subjects* of other pens; and apply my self only to such as have been omitted by others, viz. the founding or rebuilding of *Churches* and *Chappels*, which have been so seldom done by private hands, that the contrary to it has grown to a *Proverb*. There have been some notwithstanding in all ages (not excepting our owne) whome God hath raised up for these purposes, whereof the first that I find any memorial of, is one *David Kenric* born at *Ashley* in this *County*, a *Souldier* under *Edward* the black-Prince who notwithstanding the little piety that attends the *Camp*, was the Founder or builder of this *Church*, where there remains to this day a *Statue* of him to the shoulders, and against the wall within such a *border* as are commonly put

* *Mr. Ray's Observations Topograph, &c. p. 6.* † *Dr. Browne's Travels through Germany. p. 3.* ‡ *Mr. Sampson Erdeswick's view of Staffordshire in Dudley Castle.*

about

about the Sentences in Churches, this inscription in perpetuum rei memoriam.

Manubias Deo.

David Kenricus (Pietas ejus memoriæ)
Hoc virtutis præmiolum dicavit.

Mira cano, Pietas sævis reperitur in Armis;
Ædificat bellum sternere quod soleat.
Hanc sacram struxit miles memorabilis Ædem,
Principe sub nigro, quem meruisse ferunt.
David Kenricus, Davide beator illo,
Templum cui superis adificare nefas.

54. In the year of our Lord 1515. one Thomas Rolleston founded or rebuilt the Tower at least of the Church of Mathfield in this County, as appears by this Inscription over the West doore of the same steeple. Hoc Opus inceptum per Thomam Rolleston An. Dom. 1515. and another over the West window of it. viz. Ainsy et mievix peult estre. i. e. Thus it is, and may be better. Thomas Rolleston petit Orationes. By which it is evident, that this Thomas Rolleston was of the ancient family of the Rollestons of Rollstone, under whose Arms in the Church there I found the same Motto, though the French not so old. Quickly after in Anno 1517. John Taylor D^r. of Laws, Arch-Deacon of Darby and Buckingham, and Master of the Rolls temp. Hen. 8. one of the Trimelli mentioned §. 19. of this Chapter, built the Chappel of Barton upon or near the place where the Cottage stood wherein he was born, as is plain from the Inscriptions in Saxon Characters in relieve work over every other Pillar of the North and South sides of the Navis of the said Chappel.

I. T. horum trium Gemellorum* natu maximus. being over the first pillar,
Decretorum Doctor, & sacrorum Canonum Professor. over the third,
Archidiaconus, Derbiæ & Bukkyngham, nec non &. over the fifth, and
Magister Rotulorum illustrissimi Regis H. VIII. An. Reg. sui 20. over the seventh.

these Armes, viz. Sa. on a Chev. Arg. 3 violets slipped, the flowers of the second, the stalks and leaves Or. between 3 childrens heads

* Trimellorum, it should have been.

couped

couped at the shoulders also of the second, haired and vested of the third in a cheif of the same, a text T Az. between two Roses gu. seeded of the cheif, being placed interchangeably over the 2. 4. 6. and 8th. pillars, there being but eight pillars in all, viz. 4 on each side the Chappel, which is a neat piece of work, somewhat of the form of Hen. the seventh's at Westminster, perhaps so built in honor and imitation of his great Patron, who gave him his Education and perferment afterwards.

55. The ancient Family of Okeover of Okeover have also built them such a beautifull Oratory or house of prayer adjoining to their Seat; whereof if the Reader please to look back to Tab. 18. he may have a prospect: which Chappel they have endowed with maintenance for a Chaplin: but exempted it from all ordinary Jurisdiction (as all Royal Chapples are) I suppose by Charter from the King: for as the King can create or found a Donative exempt from the visitation of the ordinary; so he may by his Charter licence any Subject to found such a Church or Chappel, and to ordain that it shall be a donative and not presentable; and to be visited and regulated by the Founder, and not by the Ordinary. Upon which account the Founder or Lord of this Manor presently upon election of his Chaplin, takes bond of him for the safe keeping the Seales of his Church, that he might not leale out the tithes to his prejudice. Also the worthy Thomas Broughton of Broughton Esq; built such another Oratory or Chappel, near their Seat, for the use of that family, at his own charge, only 100lb. was left by his Uncle Peter Broughton Esq; in order to it, who also endowed it with 20lb. per Annum, towards the maintenance of a Chaplin. And the generous D^r. Pye Anno 1606 coming to visit some Relations at Darlaston near Wednesbury, upon occasion that some of his Servants going to ring in the old Steeple which was of wood and weak, had been in danger of their lives; prefer'd the Town, that in case they would be at the charge of bringing stone, he would find Workmanship, and build them a Tower, which accordingly he did: in memroy of whose charity, in allusion to his name, they put this inscription on the outside of it.

Pietati & Pius
Vive pius, & moriere pius

56. But he that has exceeded all in a publick benefaction of this nature, is the worthy Walter Chetwynd of Ingestre Esq; who being Patron of the place, and considering that the Church stood very incommodiously, and was so ruinous, that it must be better

* Lord Cook's Institutes of the Laws of England. Part 1. Lib. 3. Sect. 648.

to rebuild, than repair it: in *An.* 1672 most generously petition'd the most Reverend Father in God *Gilbert* by divine Providence Lord *Arch-Bishop* of *Canterbury* that he might accordingly rebuild it at a more commodious place. In order whereunto the said *Arch-Bishop* of *Cant.* by an instrument bearing date May the second 1672 did Commission *Sr. Edward Bagot* of *Blitbefeld* Baron. *William Chetwynd* of *Rugeley* Esq; *Richard Harrison* B. D. and Canon of *Lichfield*, and *William Jennings* Clerk Rector of *Church Eyrton*, all of the *County* of *Stafford*; in his stead to enquire into the state and condition of the said *Church*; to judg what might be most expedient in this matter; and to transmit the same to him under their hands and seals. The 19th. of *July* following the *Commissioners* above mention'd upon view of the said *Church*, within and without, did find it so ruinous, that they judg'd it rather fit to be pull'd down and wholly demolish'd, than repaired; and that the place designed by the said *Walter Chetwynd* Esq; was a much more fit and congruous place; which they accordingly signified under their hands and Seales the 22 of *July* following.

57. Whereupon the said *Arch-Bishop* consenting to the religious desire of the said *Walter Chetwynd*, by an Instrument bearing date at *Lambeth* *Apr.* 12. 1673 did grant a *faculty* to the said *Walter Chetwynd* to build his designed new *Church*, and convert the materials of the old one to that use. The foundation accordingly was lay'd the same year; mill'd shillings, half pence, and farthings, coyn'd that year, being put into hollow places cut fit for that purpose, in the large corner stones of the *Steeple*, by *Mr. Chetwynd* himself and other *Gentlemen*. And in *Anno* 1676 it was wholly finish'd, being built in the form of a *parish-Church*, not great, but uniform and elegant; the out walls being all of squared free-stone, with a well proportion'd *Tower* at the west end, of the same; adorn'd round the top with *rail* and *ballister*, and *flowerpots* at each corner. The *Chancell* within paved throughout with black and white marble; the *Windows* illustrated with the *Armes* and *matches* of the *Chetwynds* in *painted glass*; and the *Ceilings* with the same in *Fretwork*; the *side-walls* beautified with *funeral Monuments* of the *Family*, curiously carved in white marble; and the whole vaulted underneath for a dormitory for it, whither all the bodies belonging to it were removed out of the old *Church*, and decently deposited.

58. The *Navis* or body of the *Church* separated from the *Chan-*

^u Ex *Chartularia Familie de Chetwynd. M. S. penes eundem Walterum Chetwynd Armig.*

cell with an elegant *skreen* of *Flanders Oak*, garnish't with the *Kings Armes*, and great variety of other curious *carvings*; at the *South* corner whereof stands the *Pulpit*, made of the same wood, adorned in like manner with *carved work*, and the *Iron-work* about it curiously *painted* and *gilt*. The *Seats* are also made of the same *Oak*, all of an equal height and goodness through the whole *Church*; the *Lord* himself not fitting in a finer *Seat* (only somewhat larger) than the meanest of his *Tenants*; so humble is this truly Wise man, in the midst of all this *magnificence*. Near the entrance within on the left hand, stands a curious *Font* all of white marble, the whole *Church* too being *Ceiled* with the finest *plaster*, garnish't also with deep and noble *Fretwork*. And over the Entrance without, which is under the *Tower*, on a small *Table* of white marble, only this modest *Inscription* in laid black.

Deo Opt. Max.
Templum Hoc
à fundamentis constructum
WALTERUS. CHETWYND
(Walt. fil. Walt. Equ. Aur. nepos)
L. M.
D. D. D.
Anno Æræ Christianæ
1676.

59. The *Church* being thus finish'd at the sole Charge of the said *Walter Chetwynd*, in *August* *An.* 1677 it was solemnly consecrated by the right Reverend Father in God *Thomas* Lord *Bishop* of *Coventry* and *Lichfield*; the *Dean* of *Lichfield* preaching the *Sermon*; and some others of the most eminent *Clergy*, reading prayers; baptizing a *Child*; Churching a woman; joyning a couple in *Matrimony*; and burying another; all which *offices* were also there performed the same day: the pious and generous *Founder* and *Patron* offering upon the *Altar* the tithes of *Hopton* a *Village* hard by, to the value of fifty pounds *per Annum*, as an addition to the *Rectory* for ever; presenting the *Bishop* and *Dean* at the same time, each with a piece of plate double gilt, as a gratefull acknowledgment of their *Service*; and entertaining the *Nobility*, *Clergy*, and *Gentry*, both Men and Women, of the whole *County* in a manner, which came in that day to see the solemnity performed, with a most splendid dinner at his *house* near adjoyning, which together with the new *Church* are both here represented, *Tab.* 26. Where all things were carried with a *Sobriety*

and gravity suitable to the occasion, concluding the day with hearty prayers for the prosperity of the Church; and a universal applause of the piety and generosity of the noble Founder; and the whole manage of the work, from the foundation to the end. A work indeed worthy of his name and Family, and more to be esteemed than all his Gentility and Learning, though both be great: which I seriously wish for the Readers sake and His, may some way or other hereafter be made known to Posterity by a better Pen: by such a Pen (I mean) as can make his praise as immortal as his merits, and give the unborn world a compleat pattern of generosity and piety for their perpetual imitation.

60. After the perfections of the bodies and minds of men, Logic directs me next to treat of the imperfections of both: and first amongst those of the body, I think none more deplorable than the want of sight; which yet by the wonderful sagacity of some that want it, is so strangely supplied; that as some above-mentioned have learned to hear with their Eyes, so others in like manner by their exquisite touch, and nice hearing, have taught themselves to see with their hands and ears. By which means it is that Edward Ingram of Heath-hill in the parish of Sherriff-Hales, though he has been blind from the fourth or fifth year of his age, can yet goe to Church by himself, and all about the Country; he can also mend shoes; and glaze windows; make his own shirts; and most sorts of Joiners work; lays floors, &c. and does almost any kind of handy-Work; and all only by the help of his Ears and hands.

61. Thus as I am credibly inform'd by the ingenious Joseph Brown of Woodchester in Gloucestershire, (the excellent Graver of the Map of this County) one Richard Clutterbuck of Rodborough a neighbour of his, though perfectly blind, hath so very curious an Ear, and hand; that he can hear the fine Sand of an hour-glass fall, by which means he can make a most accurat judgment of many actions and things: and so exquisite is his feeling, that (like Martin Catelyn mention'd by Guicciardini†) he performs almost any sort of curious work: makes excellent beads for staves or Canes; and all sorts of string-musical instruments; which he plays on too by notes, cut in their usual form, and set upon protuberant lines on a board; he takes a Watch to pieces, and sets it together again; and so an Organ or Virginals; and puts them in tune; and has contrived so many pretty Mechanical devices for divers uses, that it would be tedious to recount them. And yet neither of these come near Van Eyck the Organist of Utrecht, who

† Lud. Guicciardini Comm. de rebus Memorab. maxime in Belgio.

though

though he has been blind from two years old, does every thing as nimbly, as if he carry'd his Eyes in his hands; plays on all sorts of Instruments; and can tell you in a croud of Virgins and young women, which is the fairest. More yet is performed by Peter of Mastricht, who as Job Meek'ren informs us, though perfectly blind, plays at dice and cards; and distinguishes the colours of cloth by the touch.

62. To the imperfections of the body, the unusual distempers and diseases of it, must also be refer'd; and such no doubt on't I may reckon a strange Boulimy or rather Pica, that seized one Brian Carewell of the parish of Forton, who would know and eat both Linnen and Woollen: nay to that height of a habit (or what else I may call it) was he brought at length in this matter, that he would eat ropes, and the very blankets of the bed whereon he lay; and this not only waking, but the sheets, and his shirt from his back as he slept. That a woman should have long'd to have done such things as these, had not been so extraordinary, it being usual for them in that condition to desire unreasonable things; such as to suck the wind out of bellows; to hear the crackling of Cinders under their feet; and (as Borellus tells us one did) to eat human Excrements dried and powder'd; but that a man should thus long after such uninviting things, I think is rarely heard of. However this alone will serve to shew us, that these distempers doe not always (as some have thought) arise from malignant vapors of the Uterus only, which thus mislead the fancy; but sometimes also from a depravation of the menstruum of the Stomack, which may infect the brain as well, and occasion the like inordinat appetite.

63. It may also be reckon'd amongst the uncommon distempers, that one George Holden a butcher of Walsall was long sick of a periodical Asthma, which constantly came upon him once in 14 or 20 days at most; of which at last dyeing, and his body being open'd, yet all his Viscera (the Lungs especially) were found well and sound, there being no signes left either of Phlegme or viscid humor that had ever affected them; or of any stagnation of the blood in the veins; nor was there any thing met with unusual in him (as the learned D. Needham inform'd D. Willis) but that many stones were found in his Gall-Bladder. Not that these learned Men did think the dyspnœa or disease of the person, was to be ascribed to these stones, but to a convulsion of Nerves

^w Jobi a Meek'ren Observ. Medico-Chirurg. cap. 20. ^x Philosoph. Transact. Numb. 29. ^y Petr. Borelli Hist. & Observ. rar. Medico-Phys. Cent. 4. Observ. 2. ^z Tho. Willisii de morbis convulsivis cap. 12.

P p 3

about

about the *Lungs*, or amongst the *Muscles* subservient to *breathing*, which possibly might arise either from severe *vellications* in the *Intestines* by sharp humors; ill separation of the *nervous juice* in the *brain*; or obstruction of them in the *nerves* themselves; either of which might cause such a convulsive cough, without any affection of the *lungs* at all.

64. It may also not unreasonably be accounted a *distemper* (provided it be not an effect of *temperance*) that some men have not the usual quantity of *spittle*, that others have; it being so necessary a concurrent at least, for the performance of *concoction*: which how it is performed in those that have *none*, perhaps may not be unworthy our consideration. Now that there are such, I can instance in one *James Plimmer*, well known at *Roucester*, who though a great *Tobacconist*, never *spits* in the smoking of ten pipes together, nay some people told me that he never did spit though he smok't never so many, and I spake with a *Nephew* of his, that lives in the same house with him, who told me he never saw him spit in his life. I am also credibly informed of one *Ricarby* of *Cokermouth* in the *County* of *Cumberland* a great smoker, &c. that never spit in his life. And *Borellus* tells us of a certain *Physician* his familiar acquaintance, though fat and phlegmatic, that never either spit or vented *mucus* at the nose, yet enjoyed notwithstanding perfect health; nor was he ever very *thirsty*, which made *Borellus* conjecture, that these *excrements* being obstructed in the *nose*, &c. were swallowed down the *throat*, and so bedewed the *Larynx*, that there was little or no need of any other *beverage*.

65. Which I believe in great measure may also be true, of most, if not all of those that don't spit: for though it be certain what *Hippocrates* asserts, viz. *μῦξα δὲ σίλα*, &c. i. e. that *mucus* and *Saliva* be *repletionis indices*^b; & *qui parce edunt & parce bibunt nunquam humoralibus tentantur morbis*^c; which I know to be true of a person of *Honor* of my own acquaintance, that only upon account of his strict *temperance* does not spit perhaps once in a *Month*; upon which account too we may well presume that *Antonia* the wife of *Drusus* mention'd by *Pliny* never spit^d; and so perhaps those people he mentions in *Æthiopia*, who though five Cubits high yet did never spit^e. Though (I say) there may be many that do not spit, upon account of their *temperance*, yet I do not believe there are any men so wholly free from *spitting*; but they

^a *Petr. Borelli Histor. & Observ. rar. Medico-Phys. Cent. 2. Observ. 68.* ^b *Hippocrat. Coi de Vi&at. rar. Lib. 3. §. 4.* ^c *Idem, de intern. affection. §. 5.* ^d *C. Plinii 2^{da}. Hist. Nat. Lib. 7. cap. 19.* ^e *Ibidem cap. 2.*

have

have enough to suffice for moistening the *Larynx*; for mixing with their *food*; and assisting *digestion*; though they have no *superfluity* to throw off in *spittle*, as those who live plentifully commonly do.

66. Next the imperfections of the *body*, follow those of the *mind*; which are so much greater as the *Soule* is more noble than the *body*: those who are void of *understanding* being more helpless and miserable; than such as are either *lame*, *deaf*, or *blind*. Yet even these sometimes have such natural *assistances*, that they can performe things scarce attainable by the quickest parts or most solid understandings. Whereof *D. Willis* gives us a most remarkable *instance*, of a certain *Foole* who having been long used to repeat the *strokes* of a *Clock* near which he lived with a loud voice; & coming after to live where there was none, yet retained so strong *impressions* of it, that he could exactly distinguish the *horary distances*, and would personate so many *strokes* of the *Clock* with a loud voice as oft as an hour past, successively increasing the number of each hour, according as the time required; from which he could not be diverted, by any sort of business they could set him about: being become in a manner a natural *living Clock*, so strongly had *Custom* wrought this upon him.

67. Which *impressions* as the learned *D.* imagins, were chiefly made upon his *Animal Spirits*; which having been accustom'd to be excited at such *stated* times, were brought at length by long *imitation*, to distinguish those *periods* of their own accord: by the same means as most people naturally know the usual times of *dinner* and *supper*; and *sleep*, and *wake* in the morn about the same time they have usually done, without the help of a *Clock*. But I was told of a meer *Natural*, one *Richard Morse*, kept generally by the Families of *Draycot* and *Fowler*, at *Paynsley* and *S. Thomas* whose strange sagacity in distinguishing times much exceeded that *instance*, and cannot be solved by any such *customary motions* of the *Animal Spirits*. For he would not only tell you the *changes* of the *Moon*; the times of *Eclipses*; and at what time *Easter* and *Whitsuntide* fell; or any other *moveable feast* whatever; but at what time any of them had, or should fall, at any *distance* of *years*, past or to come. Which is so great a wonder, that had I not received it from very *sober hands*, and of the best *quality*; I could no more have believed it, than I am now able to resolve the *Reader*, by what *natural meanes* it could possibly be done: only that in general it could not be performed by any thing that relies upon the *force* of *Custom*; these *Feasts* being movable: and

^f *The. Willisii de Anima. Brutorum Part. 1. cap. 16.*

that

that therefore it must be referr'd, to some other more remote unknown impressions (unless he had been taught some easy rule for it) intimately and purely seated in the soule it self.

68. Many of the Vices of Men may also be reckon'd, imperfections purely of the soule it self, whereof there have been some as extraordinary here, as any of the Virtues above mentioned, were they as fit to be related. I shall only instance in one; which because lately done, and most wonderfully punish't, may possibly be beneficial in deterring others from committing the like wickedness, which brought down so dreadfull a Judgment upon one John Duncalf a strong lusty young man of about 22 years of age, born at Codsal in this County, but bound apprentice to Tho. Gibbons wheelwright of Kings-Swinford; who though he could write and read, yet for a long time having wholly neglected all manner of service and worship of God, and given himself up to Idleness, Stealing, Lyeing, Cursing, Swearing, drunkeness, &c. amongst many other villanies, he at length stole a Bible, at the house of Humphry Babb of the Grangemill, whilst his wife drew him some small drink that he begged of her; which he soule to a maid living near the Heathforge, not fare from the place where he had lately stole it: by which means Goodwif Babb quickly heard of her bible, and by whome it was stole. This being noised about the Country and coming to his ears, he not only denyed it with great fierceness, but execrated and cursed himself, wishing his hands might rot off, if the thing were true.

69. After this he went and wrought with one Thomas Osborn a Joyner of Dudley about a fortnight, but his flesh beginning to grow black at the wrists, within few days after he made the execration, and his whole body weak and feeble, he endeavour'd to return toward his acquaintance again: but finding himself in the way not able to goe further, he laid himself down in the barn at Purton, the seat of the right Worshipfull S. Walter Wrottesly, where being found after two days and nights or thereabout, he was kept at the charge of the parish of Tettenhall, til the next monthley meeting of the Justices of Peace, when it being found upon examination that the parish of Kings-Swinford was the last place of his aboad he was carryed thither, and committed to the care of one John Bennet of Wall-Heath-side. By this time his hands and leggs, being both deprived of all sense and motion, look't blackish and dyeing; a Circle as it were like a Ligature (as was observed by an ingenious neighbouring Gentleman) compassing each wrist and knee at the joynt; dividing the sound from the dying parts, and

* Mr. Illingworth's Narrative of this sad Judgment.

prohi-

prohibiting any nourishment to pass those bounds; so that the blood and spirits being wonderfully stopt in their circulation, it necessarily followed, that the parts thus deprived of their wonted supply, must wither and dye as as a leafe in Autumn: which sad progress they made till both hands and leggs, from the wrists and knees, became dead and dried, black and hard like Mummy, before they fell off at the joynts, which at length they did insensibly to the poor man^h, who perceived it not, till his keeper told him, and shewed them him, holding them up in his hands.

70. Above the forementioned Circles the flesh at first both at his wrists and knees rose in great tumors or knots, which after a while began to break and run; the nourishing juice (designed by nature to have fed the lower parts) emptying it self by those corrupted fores in a quittance or Sanies, so insupportably stinking that few of his visitants (though they were many thousands) could endure the room without some strong odoriferous defensative. Shortly after the flesh began to shrink from the bones at those places where the putrid matter came forth, many little wormes issuing from the rotten flesh: but when the dead limbs were dropt off, the joynts and flesh above look't pretty well and healthy, seeming free of the former mortification; the flesh indeed still being raw, but sweet; and so quick and sensible, that he complained grievously upon the left touch: infomuch that many were induced to believe, that an easy cure might have been made of it; for the stinking ichorous humor was once quite gone; whereof the poore man himself was also perswaded; saying, that now the execration wherewith he had cursed himself was fully come to pass (in that his hands were rotted off) he was perswaded now it would goe no further. But the poor creature wanting all assistances both of Art & good Medicines, save what the application of the leaves of Mullein afforded, which were used by his Keeper to defend the raw parts; after some weeks there issued again the like thin stinking humor as before, so that his flesh began to waite and his spirits to fail, which soon put a period to his miserable life.

71. The wonderfull escapes of death that some men have made in this County must also be reckon'd amongst the remarkable accidents that have attended them in the course of their lives. Amongst which it was a very fortunate one, that happen'd to John Dave of Lapley in this County, who as I was told upon the place, being a Souldier in the Garrison there for the King in the late Civil warr, and commanded out upon a Salley, or as a Scout, found a

^h Observations of an ingenious Neighbouring Gentleman. ⁱ Mr. Ja. Illingworth and Mr. Jonath. Newey's Narratives of this deplorable Case.

Q q

borshooe

borshooe by the way which he stuck in his girdle so wonderfull happily, that in a *skermish* he fell into not long after, he received a shot just upon the *borshooe*, which had it not been there, in all probability he had lost his life: whereby he as evidently made good the Proverb, *that a little Armour well placed is as good as a whole suit*, as the *Gentleman* did in the unhappy expedition into the *Ile of Ree*, who having but one *Jacobus* in his pocket, which luckily lay flat-ways against his belly, received a *shot* likewise just upon it, that bent it quite round, yet prevented any entrance into his body, and so saved his life^k.

72. Men have also been strangely preserved in the *Coal-pits* of this *County*, whereof at *Wednesbury* I was told of two remarkable instances; one, of a *Man* of *Castle-Bromwich* who coming to *Wednesbury* coal pits very early in the morning, two hours before day, having mist his way, and guiding his *fore-horse* by the head, unluckily fell *horse* and all (the geers or harness breaking off) down into a *Coal-pit* 20 yards deep: yet had so little harme, that both *horse* and *man* were drawn out again so well, that the *horse* drew his part of the *load*, and the *man* (after 3 houres rest in a bed, whereby he recovered that little distraction the fall had given him) waited on his *team* home the same night. The other instance is of one *Dashfield* a *Coalier* of *Wednesbury*, who being searching for *coal* in some old hollows, and wanting *Air*, repaired to an old *shaft* that had been fill'd up some years before, where loosening some earth at the bottom, in hopes it would crack to the top, and give him *Air*; it so suddenly coped or colted down upon him, that being on every side environ'd with it, he could not return, insomuch that all people concluded him smotherd. But he (whilst they debated how to get him out) by the help of his *Maundrill*, by degrees so wrought away the earth over head, and getting it under his feet so raised himself still higher and higher, that at length he came out above ground safe and sound, having work't thus upwards at least 9 yards in an houres time: which even the people thereabout who understand these *works*, look upon to this day as so strange performance, that the *Man* (now living) is still call'd *Witch Dashfield*.

73. But of all the *preservations* of the life of *Man* that ever happen'd in this *County*, or perhaps any where else, wherein the providence of *God* appear'd most miraculously, was that of his sacred *Majesty* of ever blessed memory King *Charles* the second, and of many of his *followers* that came along with him from the battle of *Worcester*: who though he first allighted about break of day at

^k *Ja. Howell's familiar historical Letters.*

White-Ladies in *Shropshire*, whither he was conducted by M^r. *Charles Giffard* a *Gent.* of the ancient family of *Chillington* in this *County*, yet as soon as he was disrobed of his *Princely* Ornaments, and had otherwise disguised himself by a *Country* habit of one of the *Penderells*; cutting off his hair: and rubbing his *hands* against the back of the *Chimney*, and with them his *face*; he was conducted first by *Richard Penderel* out at a back door, into the obscurest part of *Rinsbaw* wood or spring Coppice in this *County*, where he was shelter'd from the rain (the Heavens weeping bitterly at these calamities) sitting upon a blanket borrowed of *Francis Yates*, under one of the thickest *trees* in the wood, which not being well noted has lost the honor, that was after given the *Oak* near *Boscobel* house; whither (after an unfortunate journey to *Madeley* in order to pass the *Severn*, and so into *Wales*) his *Majesty* removed two days after, and sat in the *Oak*; which though in the *County* of *Salop* yet even there he rested in the Lap of a *Staffordshire* *Gent.* *Collonel William Carlis* of this Neighborhood, who having constantly followed his *Majesties* fortunes, with much difficulty had also made his escape from *Worcester*.

74. Having rested at *Boscobel* two days, one in the *Oak*; the night in a *privacy* behind the *Chimney* in one of the Chambers; and the other in the house and garden; the night following he removed to *Moseley* to the house of the loyal M^r. *Thomas Whitgreave* of this *County*, where he was better accomodated with Linnen, and attended by M^r. *Whitgreave* M^r. *Huddleston* and my Lord *Wilmot* who met him there: the several passages during his stay here were many of them remarkable, whereof I received an account from M^r. *Whitgreave* himself, which being punctually the same with those in the book call'd *Boscobel*, or *Clastrum Regale referatum*: I remit the *Reader* thither^m. Hence after two days stay he was removed to *Bentley* by the most loyal and faithfull *Collonel John Lane*, pursuant to a resolution taken up, that it was most expedient his *Majesty* should move *Westward* (the *Rebells* most probably purtueing him *Northward*) which they had contrived should be done, under protection of a *pass*, accidentally procur'd before by the *Collonels* Sister M^{rs}. *Jane Lane*, for her self and a man to goe beyond *Bristol*, to see M^r. *Norton* her special friend, then near her time of lyeing in.

75. Being now come to *Bentley*, whither my Lord *Wilmot* had removed before, and was now ready to receive him; after his *Majesty* had eaten, and conferr'd with my Lord and the *Collonel* about his intended journey toward *Bristol* next morning; he went

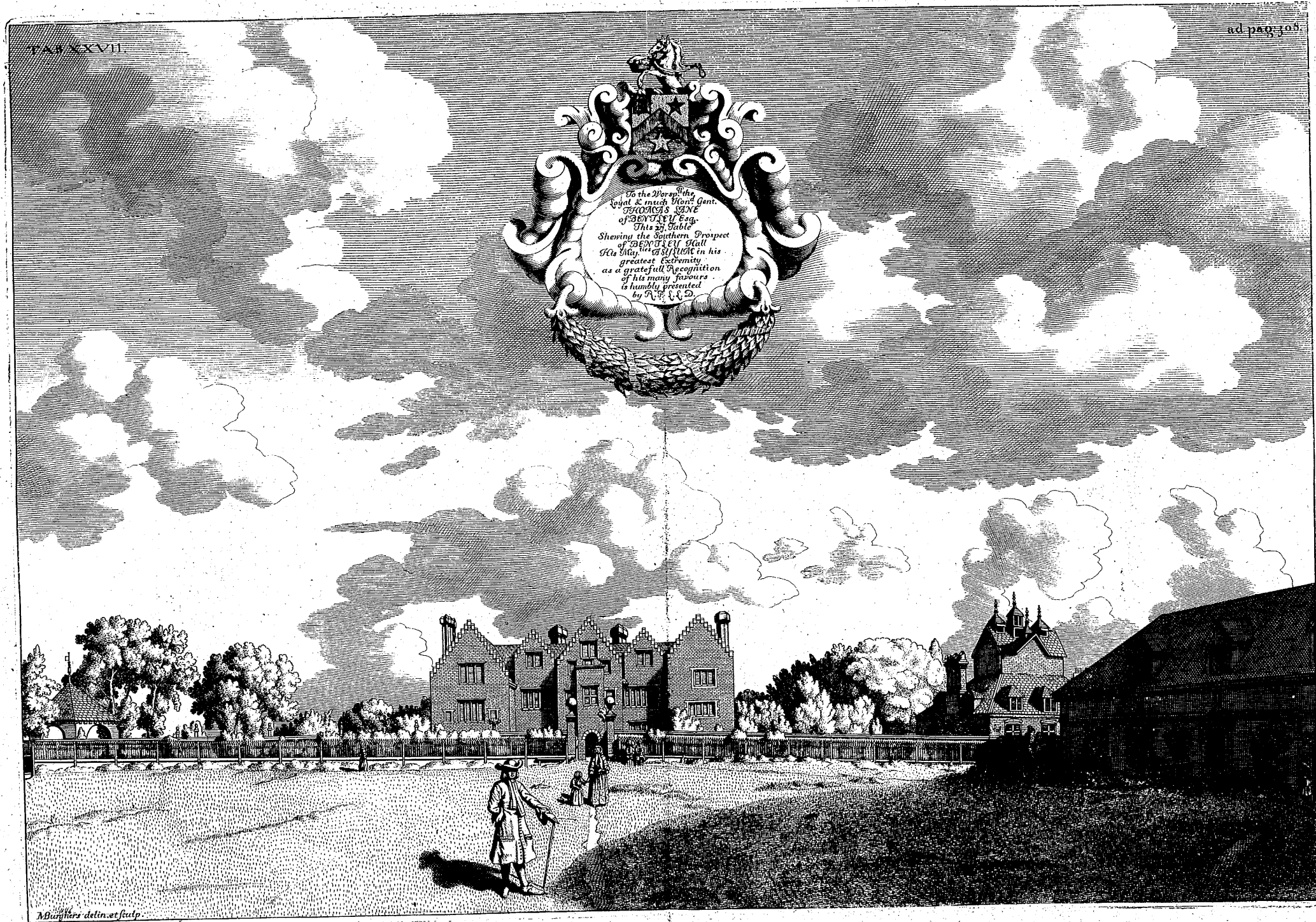
^m *Boscobel, or Clastrum Regale referat. part. 1.*

to bed; where he rested not long being call'd up by the *Coll.* by break of day, who taking away his leather doublet and patch't green breeches, now cloathed him with a Suit and Cloak of *Country* grey cloath like a *farmers* son, putting 20 pounds in his pocket to bear the charges of the journey^m. Being thus accoutred, after he had refresht himself and taken leave of the Lord *Wilmot*, he was conducted by the *Coll.* a back way into the *stable*, where after a few instructions how to act the part of a *Tenants* son (which they thought a quality more convenient for their intention, than that of a direct *servant*) he brought the horse to the gate with his hat under his arme, having assumed the name of *William Jackson*, and took up M^r. *Jane Lane* behind him; and so in company with M^r. *Henry Lassels* and M^r. *Peter* and his wife the *Collenels* Sister, who were then accidentally at his house and were now going homewards, they took their journey toward *Stratford* upon *Avon*, taking leave of *Bentley*; which having been the Royal *Asylum* of so great a *Prince* in his extremest distress, and now the Seat of the Worshipfull *Tho. Lane*, Esq; (one of the noblest *Patrons* of this work) son of that great example of fidelity and loyalty *Coll. John Lane*, is here represented *Tab. 27.* in a *copper* Cut, that the memory of it might be made as lasting as the *brass*.

76. For which signal services his *Majestie* upon his wonderfull restoration to his Kingdoms in *An. 1660.* did not only remunerat all persons concern'd in his miraculous preservation with Royal pensions, payable out of the *Exchequer*, proportionable to each mans quality and service: but honored this *Gent.* more especially (as he did *Coll. Carlos*) even after his death with a *Royal badg* or acknowledgment, of his loyalty and fidelity, by adding to his coat Armour a *Canton* of *England*, to be set up and used in memory of them by his *Posterity* for ever; and out of his singular gratitude to him, would have had his body buried amongst the *Kings* at *Westminster*, had not this *Heroe* before his death most modestly refused it. All which appears from the *Letters Patents* and warrants of the *King*; *Earl Marshal*; *Kings* and *Heralds* at *Armes*; and the *Epitaph* upon his stately *Tomb* at *Wolverhampton*, set up by the Worshipfull *Tho. Lane* Esq; son and heir of his *virtues* as well as *Estate*: which for the singularity and further notoriety of the thing are here annexed.

TO all and singular to whom these presents shall come. We the *Kings*, *Heralds*, and *Pursuivants* of *Armes*, send greeting. Whereas the right Honorable *Henry Earl* of *Peterborough*, Deputy with his *Majesties* approbation to the right Honorable *Henry Earl*

^m Ex Chartularia familiae de Lane MS. penes Tho. Lane Armig.



TAF XXVII

ad pag 308

M. B. delin. et sculp.

Chap. VIII. Of STAFFORD-SHIRE. 309

of Norwich Earle Marshall of England, hath under his hand and Seale of the Earle Marshalls office, signified unto us his Majesties royal will and pleasure touching an Augmentation to the paternal Armes of John Lane of Bentley in the County of Stafford Esq; lawfully issued, in these words.

W Hereas the Kings most excellent Majesty hath under his Signet and Signe Manual, signified unto me Henry Earle of Peterborow, Deputy (with his Majesties approbation) to the right Honorable Henry Earle of Norwich Earle Marshall of England his Royal pleasure touching an Augmentation to the paternal Coat of the descendants lawfully issued from the body of John Lane of Bentley in the County of Stafford Esq; in these words;

CHARLES R. To our right trusty and right well beloved Cousin and Councillor Henry Earle of Peterborow, Deputy to our right trusty and right well beloved Cousin Henry Earle of Norwich Earle Marshall of England, greeting. We calling to mind the great and signal service performed to us by John Lane of Bentley in the County of Stafford deceased: in his ready concurring to the preservation of our Royal person after the battle of Worcester, at which time contemning the threatnings published by the murderers of our Royal Father against any who should conceal or assist us, and disdainning the rewards proposed to such as should be instrumental in the discovery and destruction of our Person, and not valuing any hazard his Family might run: with the duty of an unspotted Allegiance, did by his great prudence and fidelity so conduct us, that we were able at length to retire to places of safety beyond the Seas; have therefore of our own free will and proper motion given and granted unto the descendants lawfully issued from the body of the said John Lane this Honorable remuneration as a notable mark or badge of his constant fidelity: that is to say, henceforth they shall bear in augmentation to their paternal Armes, three Lyons passant guardant Or in a Canton Gu. and our will and pleasure is that you doe require and command our Servants the Kings and Officers of Armes to marshall and set up in all proper places, and upon all occasions the paternal Armes of the said John Lane with the Augmentation aforesaid; and that you also direct and require the Register of our College of Armes to cause this our Concession to be duly enter'd upon Record in our said College. Given under our Royal Signet and signe Manual this 12 day of July An. 1677. and in the 29 year of our Reigne.

By his Majesties Command.

J. WILLIAMSON.
Q 9 3 These

These are therefore according to his Majesties Royal will and pleasure, signified to me by his said received Grant, to will & require you the Kings and other Officers of Armes and every of you, to doe and perform from time to time as occasion shall require all and every the duties and services, which by his Majestie in and by his said grant are signified and appointed to be done by you or any of you, for or on the behalf of the descendants lawfully issued from the body of the said John Lane: and for your so doing these shall be to you and every of you a sufficient warrant. Dated under my hand and the Seal of the Earle Marshalls Office, this 18th. day of July 1677. and in 29 of his Majesties reign.

PETERBOROW.

Now ye therefore that in pursuance thereof, we have caused the same to be Registered in the Records of our Colledg, and have Marshallled the said Augmentation with the paternal Armes of their Family viz. party per Fess Or and Azure a Cheveron Gu. betwixt 3 Mulletts counterchanged of the field. Given under the common Seal of the Colledge of Armes this 21 day of July in the 29 year of the reign of our Sovereign Lord Charles the Second, Annoque Domini 1677.

Which Armes are set up, together with the Augmentation, upon a noble Monument erected in his memory in the North Ile of the Collegiat Church of Wolverhampton amongst others of the Family, with the following Epitaph.

Mortales Exuvia
Prævalidi Johannis Lane Armigeri
Feliciter reanimari expectantes
hic repositæ.
Vir supra Titulos, vel cujus meritis
Tituli defunt.
In turbis nuperis intestinis sub Rege Car. 1
Et deinde in bello Batavo sub Rege Car. 2.
Tribuni militum dignissime officio fungebatur.
Regis & Patriæ Liberator.
Nempe cum Car. 2. e præliis Vlgornii
Ægerrime elapsus & undique insectatum
Summa pietate, summa fide, summa virtute,
ultimo denique Capitis periculo,
Iniquis Tyranni usurpantis, & suorum insidiis
Fortiter eripuit.

Factum

Factum inter præclarissima
præclarissimum;
Ut ipse Monarcha etiam non tacite agnovit
Cum Augmentatione Regali ex insigniis Regiis
Ad insignia antiqua nobilis L A N. Familie
Filius THO. LANE (digni Patris dign. Hær.)
In loco defuncti decoravit & retribuit.
Cujus ossa insuper Rex gratus & pius
In Mausoleis Basilicis Westmonast.
Amoris ergo munifice condi voluit
Ni ipse Heros moriens istis honoribus
Modeste obstetisset.
Natus est VIII Kal. April. A. MDCIX.
Et prid. Kal. Sept. A. MDCLXVII.
Mortem obiit comploratum.

77. Many of his Majesties followers were also wonderfully preserved by the great prudence and fidelity of some of the Inhabitants of this part of the County: particularly the Lord Wilmot narrowly escaped at Brewood Forge, and Coven brook, by the care and conduct of John Penderel and William Walker, and was after faithfully conceal'd at Brinsford at Mr. Hunibach's house; and so at Mr. Whitgreaves at Moseley, and lastly at Bentley where he parted with the King when he went Westward. The Duke of Buckingham, Lord Leviston, Collonel Blague, Mr. Marmaduke Darcy, and Mr. Hugh May, likewise found great fidelity in Blore-park whither they betooke themselves by a by-way after they had quitted their Horses, and received refreshment at an obscure house of Mr. Geo. Barlow's, the Duke changing habit with an honest workman he met in an adjoining wood, in which disguise by the assistance of Mr. Barlow and his wife, after some days he was conveyed by one Nicholas Matthews a Carpenter, into Nottinghamshire. At the same time the Lord Leviston, Coll. Blague, Mr. Darcy, and Mr. May, also disguised themselves and severally shifted away; only Coll. Blague remained at Mr. Barlow's house at Blore-pipe, where with Mr. Barlow's privacy and advice he hid his Majesties George under a heap of dust and chips, whence it was conveyed through the trusty hands of Mr. Robert Milward of Stafford to Mr. Isaac Walton, who conveyed it to London to Coll. Blague then in the Tower; whence escaping not long after, he carryed it with him beyond Seas, and restored it to his Majesties own hands.

78. Having done with Men solitarily considered, come we next to

to treat of such unusuall things as concern more than one of them; *Pliny* in his *Natural History* has a large chapter, of examples of *Men* extreemly alike, where he instances in many that strangely resembled one another, though no way related in consanguinity or affinity^a: but I have long observed that it falls out most commonly in *brothers* and *sisters*, and then most indistinguishably when they happen to be *Twynns*, such as *Matthew* and *Thomas Seal* of *Edingale* in this *County*, whom (if cloathed alike) as I am credibly informed, it is hard to distinguish. Yet scarce so difficult neither, as the Reverend *Henry Fairfax* D.D. and fellow of *Magdalen College Oxon.* and his *Twynn* brother, who as he told me himself were so very like one another, that their nearest *relations*, nay not their *Parents* themselves, even when grown *Men*, could any way distinguish them: insomuch that he has received considerable gifts from some of them, intended for his *brother*; and a dispute would have been raised (had an *elder brother* to them both, dyed without issue) which should have succeeded in the *Estate*; the *Midwife*, *Nurses*, &c. having not well observed which was born first.

79. What concerns *Men* and *Women* joyntly together also belongs to this place, upon which account their marriages purely considered may be referr'd hither: amongst which perhaps it may not be unworthy our notice, nor much beside our purpose, that *William Overton* Bishop of this Diocess married two wives, which lye buried with him under the same *Tomb* in *Eccleshal Church*: which how agreeable to the 1. *Tim.* 3. 2. let the *divines* determin. All I shall say concerning it is, that the *Apostle* seeming here to intimate that a *Bishop* should be chaste in a higher degree than other *Christians*, it cannot well be understood that a *Bishop* here is only forbid to marry another wife after divorce from a former, which our *Saviour* forbids all *Christians* whatever under the penalty of *Adultery*: but that it was not expedient at least, he should marry a *second* wife after the death of the *first*, though allowable in others. Which being consonant to the 17 and 18. *Apostolical Canons*^o; and the third *Canon in Trullo*^r; seems to be the sense of the *Church* too in this matter. *Theodore*'tis true did ordain *Irenæus* Bishop of *Tyre* though a *Digamist* in this sense, which action he defended in an Epistle to *Domnus* Patriarch of *Antioch*, where he names one *Diogenes*, and *Domnius* Bishop of *Cæsarea*, that had been thus ordained though under the same circumstances¹. *Tertullian* also ownes that the *Canons* concern-

^a C. Plinii 2^o. Nat. Hist. Lib. 7. cap. 12. ^o Vid. Canones Sanct. Apost. Canon. 17. 18. ^r Vid. Canones Concilii Sexti in Trullo. Canon. 3. ¹ B. Theodoretii Operum Tom. 3. Epist. 110.

ing *Digamy* were not always observed, mentioning a Bishop of *Uthina* at that time, that was a *Digamist*¹. which possibly Bishop *Overton* thought were instances sufficient to justify *Him*. Yet it was not even then the *Judgement* of the *Church*, the Emperor *Theodosius* causing the same *Irenæus* to be deposed for suspicion of *Nestorianisme*, and *Bigamy*, as having been ordained against the *Canons* of the *Church*². And *Tertullian* at the same time he owned that the *Canons* in this point had not been observed, confessing it seem'd contrary to the doctrine of the *Apostle*. Quot enim & Digami præfident apud vos, insultantes utique Apostolo; certe non erubescetes, &c.³ being his very words.

80. Hither also must be referr'd what concerns whole *families*; whereof I was told that at *Wheaten-Aston* there were ten or twelve, all of a name [all *Sawyers*] hard to be distinguish'd at *Lapley Court*, of which many of them hold; and at *Blymbill* there are many of the name of *Blackmoore* and *Turner*, who either upon account of *consanguinity*, or interchangeable *marriages*, are most of them some way or other akin. I am also informed by the reverend and learned D. *John Wallis*, Professor of *Geometry* and *President* of the *Philosophical Society* of *Oxford*, that at *Thingdon* in *Northamptonshire* (whence he is originally descended) there were not long since no less than 13 *families* of his owne name; who by *marriages* or otherwise, are all thus related. Yet I find not that these are so strict in their *marriages*, that they care not to marry out of their own kinred, as I have heard of a place in *Spain* where all the inhabitants are thus related, that by no means will marry out of their own *Town*; and I am certainly informed by M^r. *John Hough* fellow of *Magd. Coll. Oxon.* and *Chaplin* to his Grace the Duke of *Ormond*, that in the Barony of *Forth* in the *County* of *Wexford* in *Ireland*, the inhabitants (who are English and have resided there, ever since the conquest of *Ireland* by *Hen. 2.* still retaining their now unintelligible *Englissh*) are so strict in this point, that they will not marry out of their own *district*, for the greatest advantage.

81. *Townes* being made out of *families*, and the whole *County* out of *Townes*, all unusual matters relating to either, as odd *Customs*, &c. most naturally follow: such as that of the parish of *Gnosfall*, where the *Minister* and *Church-wardens*, annually chuse a *Jury* of 12 Men or more, who not only joyn with them and the *side-men* in making the *presentments* to the *Officiall* (it being a *peculiar*) but are impannell'd, and bring in their *Verdict* in all

¹ 2. Sept. Flor. Tertulliani de Monogomia cap. 12. vel. 13. ² Cæs. Baronii Annalium Eccles. Tom. 5. in An. 431. ³ Vide supra loco citato.

Ecclesiasticall causes that fall out amongst them for the year following. Which is the only instance where a *Civil-Law* Judg determines according to the *Verdict* of a *Jury*, that ever I heard of; except in the case of *Pyracy* or robbing by *Sea*, it being provided by *act* of *Parliament*, chiefly because *Mariners* and *Shippmen* (which were commonly the only *witnesses* in these cases) by reason of their frequent *voyages* doe not stay long on shore, and so could not easily be had, to the great damage of the *Prosecutors*; that in all *Treasons*, *Felonies*, *robberies*, &c. committed upon the *Sea*, or any *Creek* or place within the *Admiralls* Jurisdiction, shall be tryed and judged in such *shires* and places of the *Realm*, as shall be limited by the *Kings* Commission directed to the *Admiral* or his deputy, and 3 or 4 other substantial persons to be appointed by the *Lord Chancellor*, who shall enquire and determine of such offence or offences, by the oaths of 12 good and lawfull inhabitants of the *Shire* limited in the *Commission*, in such like manner and form, as if such offences had been committed on the *land*, in the same *shire*.

82. At *Walsball* in this *County*, they have also at this day, an unusual ('tis true) but a very good *custom*, of distributing annually a certain *dole* of one peny and no more on *Twelfth Eve* to all persons then residing within the *Town* or *Burg* of *Walsball*; and in all the *Villages* and *Hamlets* belonging thereunto; viz. *Walsball-wood*, *Sbellfield*, great and little *Bloxwich*, *Harding*, *Goscot*, *Woodend*, *Caldmoore*, *Bescot*, the *Pleck*, and *Burch-hills*, which they call the *forraigne*: and not only to the *constant* inhabitants of these places, but to all *Strangers* too then found in this *Town*, or within any of the aforesaid *Villages* within the *Liberties* of it; whether young or old, rich or poor, Men women or children, of what quality or condition soever they be. This *dole-penny* is also given to all *persons* then residing in the parish of *Rusball* under the same circumstances, which upon this account is thought to have been formerly part of the *forraigne* of *Walsball*. Which general benevolence they call *Moseley's dole*, being given by one *Thomas Moseley* an Inhabitant of this *Town* (who lived, as is supposed, at a house now one *Mr. Sheppards*, where they will shew you the heads of *Moseley* and his wife) as *tradition* goes upon this account, viz. That the said *Tho. Moseley* walking the streets of this *Town* on the *Eve* of *Epiphany*, heard a *child* crying for *bread* which raised his charity to such a strain, that he presently vowed that no person hereafter of what condition soever, should ever want *bread* in that *Town* or *Liberties* on that day again:

* Ferd. Pulton's Collect. of Statutes 28. Hen. 8. chap. 15.

where-

whereupon he immediatly settled his *Manor* of *Bascot* in *Warwickshire* upon the *Corporation* for ever, for the use abovemention'd.

83. But the truth of the matter seems rather to be, that this settlement (which he made by deed of *seoffment* dated on *S. Nicholas* day 30 of *Hen. 6.* granting it to *William Lyle* and *Thomas Magot* for the use of the *Town**) was for maintenance, in part at least, of an *obit* for his soule and the soule of his wife *Margaret*, to be celebrated in the *Parish-Church* here, and in the *Abbey* of *Hales-Owen*: it appearing by the accounts of *Tho. Nowell* 30 *Hen. 8.* one of the *Masters* of the *Guild* of *S. John Baptist* (whereof there were three) who received the *Rents* and kept the *Courts* at *Bascot*, but made their accounts to the *Major*; that he claymed an allowance of 13^s. 4^d. upon his account for that *Dole*, paid to *S. John Dudley* possessor of the *Ecclesiasticall* rights of the *Monastery* of *Hales-Owen* to procure an *Anniversary* to be performed by the religious men of that house, for the soules of *Thomas Moseley* and *Margaret* his wife; and that he claimed allowance of 15^s. 4^d. for the like *Anniversary* in the *parish Church* of *Walsfall*, which seems to have been all was paid out of it, though another *paper* also mentions *nine marks* paid annually to the *Abbey* of *Hales-Owen**, the rest of the *Income* wholly accrewing to the benefit of the *Town*, which they since converted to the maintenance of this yearly *benevolence*, there being no such *dole* given or instituted by *Moseley* either by *will* or *Seoffment*, nor any mention made of it till the 30 of *Hen. 8.* when 7^{lb}. 10^s. 9^d. discharged it all.

84. However the *Corporation* by way of *Gratitude*, he having indeed given the *Estate* which maintain'd it, call'd it *Moseleys Dole*, sending the *Bell-man* about the *Town* that day, to excite the people to repair to *Church* to pray for the soules of *Thomas Moseley* and *Margaret* his wife, upon which account it was quickly after seized by the *Crown*, as all other lands were, esteemed any way to be put to superstitious uses; where it continued to the 28 of *Q. Elizabeth* (yet was still rented by the *Town* for the use of the *dole*) when it was given by the *Queen* to *S. Jacob Crofts* Controller of her household, who sold it to one *Shaw* and *Headock* Esq; and they again to the *Mayor* and *Commualty* of *Walsball*, who possess it to this day, and put as much of it to the same use, as the number of persons both in the *Burg* and *Foraigne*, and parish of *Rusball*, require, which commonly now amounts to about two or three and twenty pounds, the whole *manor* yeilding them a hundred pounds *per Annum*, or thereabout.

* Sr. William Dugdales Antiquities of Warwickshire illustrated in Bascot. * Ex ipsi Autog. penes Majorem & Burgenf. de Walsball. y Ibidem.

85. To these add the *Customs* relating to the *County*, whereof they have one, of admitting Men into the *Society* of *Free-masons*, that in the *moorelands* of this *County* seems to be of greater request, than any where else, though I find the *Custom* spread more or less all over the *Nation*; for here I found persons of the most eminent quality, that did not disdain to be of this *Fellowship*. Nor indeed need they, were it of that *Antiquity* and *honor*, that is pretended in a large *parchment volum* they have amongst them, containing the *History* and *Rules* of the craft of *masonry*. Which is there deduced not only from *sacred writ*, but *profane story*, particularly that it was brought into *England* by *S. Amphibal*, and first communicated to *S. Alban*, who set down the *Charges* of *masonry*, and was made paymaster and Governor of the *Kings* works, and gave them *charges* and *manners* as *S. Amphibal* had taught him. Which were after confirmed by King *Athelstan*, whose youngest son *Edwyn* loved well *masonry*, took upon him the *charges* and learned the *manners*, and obtained for them of his Father a *free-Charter*. Whereupon he caused them to assemble at *York*, and to bring all the old *Books* of their craft, and out of them ordained such *charges* and *manners*, as they then thought fit: which *charges* in the said *Schrole* or *Parchment volum*, are in part declared: and thus was the craft of *masonry* grounded and confirmed in *England*. It is also there declared that these *charges* and *manners* were after perused and approved by King *Hen. 6.* and his *council*, both as to *Masters* and *Fellows* of this right *Worshipfull craft*².

86. Into which *Society* when any are admitted, they call a *meeting* (or *Lodg* as they term it in some places) which must consist at least of 5 or 6 of the *Ancients* of the *Order*, whom the *candidates* present with *gloves*, and so likewise to their *wives*, and entertain with a *collation* according to the Custom of the place: This ended, they proceed to the *admission* of them, which chiefly consists in the communication of certain *secret signes*, whereby they are known to one another all over the *Nation*, by which means they have maintenance whither ever they travel: for if any man appear though altogether unknown that can shew any of these *signes* to a *Fellow* of the *Society*, whom they otherwise call an *accepted mason*, he is obliged presently to come to him, from what company or place soever he be in, nay tho' from the top of a *Steeple*, (what hazard or inconvenience soever he run) to know his pleasure, and assist him; viz. if he want *work* he is bound to find him some; or if he cannot doe that, to give him *mony*, or o-

² Ex Rotulo. membranaceo penes Camentariorum Societatem.

therwise

therwise support him till *work* can be had; which is one of their *Articles*; and it is another, that they advise the *Masters* they work for, according to the best of their *skill*, acquainting them with the goodness or badness of their *materials*; and if they be any way out in the *contrivance* of their *buildings* modestly to rectify them in it; that *masonry* be not dishonored: and many such like that are commonly known: but some others they have (to which they are *sworn* after their fashion) that none know but themselves, which I have reason to suspect are much worse than these, perhaps as bad as this *History* of the craft it self; than which there is nothing I ever met with, more false or incoherent.

87. For not to mention that *S. Amphibalus* by judicious persons, is thought rather to be the *cloak*, than *master* of *S. Alban*; or how unlikely it is that *S. Alban* himself in such a barbarous Age, and in times of persecution, should be *supervisor* of any *works*; it is plain that King *Athelstan* was never married, or ever had so much as any natural issue; (unless we give way to the fabulous *History* of *Guy* Earl of *Warwick*, whose eldest son *Reynburn* is said indeed to have been married to *Leoneat* the supposed daughter of *Athelstan*, which will not serve the turn neither) much less ever had he a lawfull son *Edwyn*, of whom I find not the least umbrage in *History*. He had indeed a *Brother* of that name, of whom he was so jealous though very young when he came to the crown, that he sent him to *Sea* in a *pinnace* without *tackle* or *oar*, only in company with a *page*; that his death might be imputed to the *waves* and not *him*; whence the *Young Prince* (not able to master his passions) cast himself headlong into the *Sea* and there dyed. Who how unlikely to learn their *manners*; to get them a *Charter*; or call them together at *York*; let the *Reader* judg.

88. Yet more improbable is it still, that *Hen. The 6.* and his *Council*, should ever peruse or approve their *charges* and *manners*, and so confirm these right *Worshipfull Masters* and *Fellows* as they are call'd in the *Schrole*: for in the third of his reign (when he could not be 4 years old) I find an *act* of *Parliament* quite abolishing this *Society*. It being therein ordained, that no *Congregations* and *Confederacies* should be made by *masons*, in their general *Chapters* and *Assemblies*, whereby the good course and effect of the *Statutes* of *Labourers*, were violated and broken in subversion of *Law*: and that those who caused such *Chapters* or *Congregations* to be holden, should be adjudged *Felons*; and those *masons* that came to them should be punish'd by *imprison-*

² Job. Ross's Hist. of Guy E. of Warw.

R r 3

ment,

ment, and make *fine* and *ransom* at the *Kings* will^b. So very much out was the *Compiler* of this *History* of the *craft* of *masonry*, and so little skill had he in our *Chronicles* and *Laws*. Which *Statute* though repealed by a subsequent *act* in the 5 of *Eliz*^c. whereby *Servants* and *Labourers* are compellable to serve, and their *wages* limited; and all *masters* made punishable for giving more wages than what is taxed by the *Justices*, and the *servants* if they take it &c.^d. Yet this *act* too being but little observed, 'tis still to be feared these *Chapters* of *Free-masons* do as much mischief as before, which if one may estimate by the penalty, was anciently so great, that perhaps it might be usefull to examine them now.

89. They have also a *Custom* in this *County* which I observed on *holy-Thursday* at *Brewood* and *Bilbrook*, of adorning their *wells* with *boughs* and *flowers*: this it seems they doe too at all *Gospell-places*, whether *wells*, *trees*, or *bills*: which being now observed only for decency and custom sake, is innocent enough. Heretofore too it was usual to pay this *respect* to such *wells* as were eminent for cureing *distempers*, on the *Saints* day whose name the *well* bore, diverting themselves with *cakes* and *ale*, and a little *musick* and *danceing*; which, whilst within these bounds, was also an innocent recreation. But whenever they began to place *Sanctity* in them, to bring *alms* and *offerings*, or make *vows* at them, as the ancient *Germans*^e and *Britans*^f did, and the *Saxons* and *English* were too much inclined to, for which *S. Edmunds* well without *S. Clements* near *Oxford*, and *S. Laurence's* at *Peterborough* were famous heretofore: I doe not find but they were forbid in those times, as well as now, this superstitious devotion being call'd *wiseopungia* which *Somner* rightly translates *well-worship*^h, and was strictly prohibited by our *Anglican* *Councils* as long agoe as King *Edgar*ⁱ; and in the reign of *Canutus*^k; not long after again in a *Council* at *London* under *S. Anselm* Arch-Bishop of *Cant.* An. 1102^l. as it was also particularly at those two *wells* near *Oxford*, and at *Peterborough* by *Oliver Sutton* Bishop of *Lincoln*^m.

90. Thus having run through the many and most uncommon passages that I could find to have attended Mankind in this

^b Ferd. Pulton's Collect. of Statutes. 3. Hen. 6. Chap. 1. ^c Lord Cooks Institutes of the Laws of Engl. part. 3. chap. 35. ^d Ferd. Pulton's Collect. of Statutes. 5. Eliz. chap. 4. ^e Phil. Cluverii Germania Antiq. Lib. 1. cap. 34. ^f Joh. Seldeni Atarmora Arundel. in notis ad Auctoritoli V. ^g In Registro Sutton, in Officio Registrarii Ecclesie Lincoln. fol. 8. ^h Gul. Somneri Dictionarium Saxonico-Angl in verbo. ⁱ Αρξατοροια. Lambardi in Canonibus sub. Edgari. Canon 16. ^k Hen. Spelmani Conciliorum Tom. 1. inter Leges Eccles. Cantu Regis part. 2. cap. 5. ^l Phil. Labbei Conciliorum Tom. 10. ad An. Chr. 1002. ^m Vide locum supra citatum.

County, at or before his *birth*; and during the *course* of his *life*; both separatly, and in consort: I should immediatly in the next place have proceeded to those of *death* and the *grave*, but that I must not forget a certain forerunner of them, *Extreme old age*: which whether not much abated now in the wane of the world, has been a *Question* much controverted in these latter ages. In the stating whereof, I think I may fairly exclude the *Antidiluvian Patriarchs*, and those after the flood, till about *Jacobs* time, whose lives no question God did protract to a much greater length than ours are now, for the first *peopleing* of the *world*, and *replenishing* it again after its *destruction*: which being done, the common age of Man seems to have been limited to the standard, of *threescore years and ten*, or thereabout; and if by reason of strength [some] came to *four-score years*, yet their strength [then] was but *labour and sorrow*; as it continues to this day. Some indeed there were then that exceeded that *period*, and so there have been still in all *times* and *Nations* down even to this last age, that have outrun it as much as ever the ancients did, since *Jacobs* days, as will be found by the agreement of the *Histories* of our *forefathers*, whether sacred or profane, with what I have met with relating to this *subject* in our days; though I confine my self within the narrow bounds, chiefly of this, and two or three other *English Counties*.

91. In the collation of which instances, I shall give the civility of precedence as heretofore to the *Women*, notwithstanding the holy *Penmen* seem to have neglected their ages, not so constantly setting them down, as those of Men. *Sarah* 'tis true is recorded to have been 127 years of ageⁿ, but she was the *Grand-mother* of *Jacob*, and so not within the time since when we affirm, there has been no abbreviation of the *Longevity* of Man: however I think we shall be able to bring a parallel even to her within memory. *Anna* the *Prophetess*, as may be collected from *S. Luke*, seems to have arrived to a hundred and six years of age, or thereabout^o. And in profane History we find it noted that *Helena* the mother of *Constantine* the great, was fourscore years old^p; and that *Pliny* thought it worthy remark, that *Livia* the wife of *Rutilius* lived to 97; and *Statilia* a noble Roman Lady to 99 years of age^q; which yet both are exceeded by one *M^{rs}*. *Swynbourn* of *Toxall* in this *County*, who was living when I was there, and upwards of an hundred; as they were also by a long Catalogue of *Italian Women* (as well as men) reckoned up by

ⁿ Psal. 90. v. 10. ^o Gen. 23. v. 1. ^p Luke 2. v. 36. 37. ^q Lord Bacons Hist. of life and death p. 17. ^r C. Plinii 2^a. Nat. Hist. Lib. 7. cap. 48.

Pblegon, who all reach't an hundred'. So much were they out, who fixt the great Climacterical 63 (or Androclan of the Egyptians) as the ultimate term of human life'; and so were Plato, who thought it consummated in 81 being the square of 9'; and Staseas in 84", which Herodotus also calls ζώνης περιόμοια"; to whom add Hesiod*, and after him Ausonius who advanced it to 96, which period of years they thought none could surpass'.

92. Nor were the Egyptians of Alexandria", or Gaius the Civilian", who thought no person could exceed 100 years, less deceived than the former: for beside that Pblegon has collected so many (whereof part are women) who survived that date, that their very names fill a whole Chapter"; there was one M^r. Hill of Kidlington in Oxfordshire, that was born and lived there above 100 years"; Ann Scot of Ashley in this County was above 100 when I was there, and D^r. Lister acquaints us that one Frances Woodworth of Charlton in Yorkshire, dyed in 1662 of the age of 102, and some odd months"; not wanting much of the age of Terentia the wife of Cicero who was 103; or of Galeria Copiola an actress on the stage in the days of Pompey, who was 104"; who yet both fell short of one Elizabeth Payne of Gnosall in this County, who was 105 and living when I was there in 1680, and perhaps by this time may have arrived to near the age of Anna the Prophetess; who was not so old as Mary Allenson of Thorley in the parish of Skipton in Yorkshire, who dyed as the same D^r. Lister informs us in 1668 aged about 108"; to which very year one Demetrius in Plutarch, that he might include the longevity of such persons as these, yet enlarged the limits of human life; appointing 54 for the increase of strength, and as many for its declension, founding his notion upon this, that each 54 was compounded, ex unitate, primis duobus planis, duobus quadratis, & duobus cubis", which possibly might be 1, 4, 6, 4, 8, 27, these making up the number, though some of them may not be so properly assigned.

93. But this seems altogether as insufficient a boundary as any of the rest: for I was told of one Goodwife Nip that lived near Gentle-Shaw in this County that was 109; and I know one Good-

* Phlegontis Tralliani Lib. de Longævis cap. 1. f Censorini Lib. de die Natali. cap. 14. Ibidem. u Ibidem. Herodoti Historiar. Lib. 3. x C. Plinii 2^a. Nat. Hist. Lib. 7. cap. 48. y Dec. Ausonii Idyllio 10. vel. 18. z Censorini Lib. de die Natali cap. 17. & Plinii 2^a. Nat. Hist. Lib. 11. cap. 37. a ff. de usufructu. Leg. Ususfructus. sive D. Lib. 7. Tit. 1. Leg. 56. b Phleg. Trall. Lib. de Longævis. cap. 2. c Nat. Hist. of Oxfordsh. Chap. 2. § 3. d Philosoph. Transact. Numb. 160. e C. Plinii 2^a. Nat. Hist. Lib. 7. cap. 48. f Philos. Transf. loco. supra citat. g Apud Plutarchum ἐπιπένη κληταί ποτῶν Χρησιμότης.

wife

wife George of the City of Oxon now living, who is of the same age; but one year younger than Munantia Procula, and Polla Donata of Bononia noted by Pblegon", or Samula mentioned by Pliny out of Asconius Pædianus that all lived to 110. Who also acquaints us, that Clodia the wife of Ofilius arrived to 115', in which very year of her age Katharin Millard abovemention'd", unfortunately dyed in the Thrushhouse near Peakstones in this County, where she might otherwise in all probability have lived somewhat longer. To take in such Macrobian as these, Berosus yet advanced the term of mans life to 117', but to as little purpose as the former: for Pblegon mentions one Julia Modestina living in his time at Bressello in the Dukedom of Modena 120 years old"; of which very age I saw one Ann Harvey at Okeymoor (but born at Ellaston) in this County; and I was told of one Goodwife Estwick of one of the Oultons, who had not been dead above 2 years before I came there, that was of the same age.

94. Upon account of such instances as these, certain Mathematicians mention'd by Trebellius Pollio enlarged the period to 120. Doctissimi Mathematicorum (says he) centum viginti annos homini ad vivendum datos judicant, neque amplius cuiquam concessum dicunt". With whom agreed the Oracle of Sybilla Eytbræa according to Pblegon, in whose tract de Longævis I find these verses.

Viginti & centum revolutis proinus annis
Quæ sunt humanæ longissima tempora vitæ°.

both whom I find yet were also deceived as well as the rest: for I heard of a maid that lived at Stafford-green, whose diet was chiefly scraped cheese, fugar, and brown bread, that lived to the age of 122. the very year to which Epigenes the Astrologer affirm'd (as Pliny tells us) it was not possible for any body to live". Wherefore Pétosiris and Neseptos, grounding their calculation upon their Tetartemorion or Quadrant, more wisely determin'd that human life might be protracted to 126 years, but not further": which yet we see confuted in the life of Sarah, who was 127'; and of Marfli Stent of LLanslin in Denbysire, who as I am credibly informed dyed lately about 1680. aged 132. And Pliny himself tells us of a woman of Faventia who lived to 132; and of another named Tertulla who was known (he says) to be 137 years of Age°.

95. Wiser yet was Asclepiades and his Sect of Astologers, who

h Phlegontis Trall. Lib. de Longævis cap. 2. i Loco supra citato. k Chap. 4. § 40. l C. Plinii 2^a. Nat. Hist. Lib. 7. cap. 49. m Lib. de Longævis cap. 3. n Treb. Pollio in vita Divi Claudii ad Constantium. o Lib. de Longævis. cap. 4. p C. Plinii 2^a. Nat. Hist. Lib. 7. cap. 49. q Ibidem. r Gen. 23. v. 1. s Loco supra citato.

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tho they affirmed the length of human life did depend on the influence of the stars, yet touching the utmost term thereof would set down nothing definitively; lest it should be exceeded some time or other, by some rare example of human Longevity: as all hitherto mention'd have been, by the old Countess of Desmond, who as S. Walter Raleigh says (who knew her well) was married in Edward the fourths time, and lived to the year 1589, and many years after; and was reputed (as my Lord S. Alban's further acquaints us) 140 years old. How old Mary Cooper was of Kings Bromley in this County, not long since dead, I could not certainly learn, but sure she must be a very old woman, for she lived to be a Beldam, that is to see the sixt generation, and could say the same I have heard reported of another viz. Rise up daughter, and goe to thy daughter, for thy daughters daughter hath a daughter: whose eldest daughter Elizabeth now living is like to doe the same, there being a female of the fift generation near marriageable, when I was there. Which is much the same that Zuingerus reports, of a Noble Matron of the family of the Dalburges, descended of the Camerarii or Chamberlains of Worms, in the Arch-Bishoprick of Ments, who could thus speak to her daughter, as the same Zuingerus gives it us in a Latin distich.

1 Mater ait 2 natæ, dic 3 natæ filia, 4 natam Ut moneat, 5 natæ plangere 6 filiulam.

that is, the Mother said to her daughter, daughter bid thy daughter tell her daughter, that her daughters daughter crys.

96. Nor have these limits of human life been less transgressed by Men, in all times and nations, than they have by women; which will easily be made appear also, by a short comparison of the ages of men taken out of the sacred and profane Histories since Jacobs days, with those of our own time. For first, if we look into the Scriptures beginning as low as Solomon, and running up as high as Jacob, which takes in about 700 years; we shall find that Solomon, tho' his age cannot be certainly determined by holy writ, yet those that assigne him the greatest number of years, think that he pass't not above 50 or 60 at most: yet it is said of him when he was old, that his wives turned away his heart after other Gods. And as Dr. Hake-

^a Ibidem. ^u S. Walter Raleighs Hist. of the World, Book I. part. 1. Chap. 5. §. 5. ^w Lord Viscount S. Albans Nat. Hist. Cent. 8. Experim. 755. ^x Ric. Verstegan's restitution of decayed Antiquities Chap. 10. p. 253. ^y Theodorici Zuingeri Theatri humane vitæ vol. 3. pag. 1057. ^z 1. Kings. 11. 4.

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will notes, of all the Kings of Judah and Jerusalem who succeeded him, the greatest part came not to 50, very few to 60, none full home to 70. King David indeed was threescore and ten when he dyed^b, upon which account he was stiled old (as men are now at that age) striken in years^c, and full of days^d, inso much that when they cover'd him with cloathes he gat no heat. And his good Subject Barzillai, whom the Scriptures term a very aged man, yet even he, by his own confession, was but fourscore years old. Josuab, and Joseph each lived 110^e, and Moses and Aaron each 120^f, Levi brother to Joseph^g, and Amram father to Moses and Aaron were both 137ⁱ. And Jacob himself was but 147 years old^k.

97. Which ages if compared with those above 1000 years after, and those of the present times, we shall find matters standing then and now (as to this particular) in much the same posture: the days of our years (as Moses says) being still threescore and ten, which when any by reason of strength have exceeded, they have always been noted (just as Barzillai) for very old men. Thus it hath been recorded as remarkable, that Solon the Law giver; Anacreon the Poet, and the Emperor Gordian the elder; arrived to 80 years; Plato the Athenian to 81; Valerian, and Anicius Justinian the Emperors to 83; S. Luke the Evangelist to 84; Anastatius Dicorus to 88; Protagoras of Abdera, old Simeon in the time of our Saviour, S. Hierom and Dionysius Areopogita, to 90; and S. John the beloved disciple of our Lord, to 93. Which are ages so common even now, that as my Lord Bacon affirms, there is scarce a village in England, that is tolerably populous, but it affords a man or woman of 80, or upwards^l; and Mr. Carew in his survey of the County of Cornwall assures us upon his own knowledg that fourscore, and fourescore and ten years of age, is ordinary there almost in every place^m. Wherefore I have not cited my Authors for the ages above mention'd, the present ages of men rendering them so credible, that it seems altogether needless.

98. To proceed therefore to men of yet greater Longevity, Zeno of Citium, Isocrates the Athenianⁿ, and Marcus Perpennæ according to Pliny, lived 98 years; and Marcus Valerius Corvinus 100 complete^o; and so did a great number of others, Italians only, reckond up by Phlegon^p. Pliny further adding that in

^a Dr. Hakevill's Apologie, Lib. 3. Sect. 4. ^b 2. Sam. 5.4. ^c 1. Kings 1. 1. ^d 1. Chron. 29. 28. ^e 2. Sam. 19. v. 32. 35. ^f Judges. 24. 29. and Gen. 50. 26. ^g Deutr. 34. 7. ^h Exod. 6. 16. ⁱ Exod. 6. 20. ^k Gen. 47. 28. ^l Lord Bacon's Hist. of life and death. p. 20. ^m Carew's survey of Cornwall, Book. 1. p. 63. ⁿ Lord Bacon's Hist. of life and death, p. 16. ^o C. Plinii 2^{da}. Nat. Hist. Lib. 7. cap. 48. ^p Phlegon Trall. Lib. de Longæv. cap. 1.

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the last taxation, numbering, or review of the *Provinces*, taken under the *Cæsars Vespasians* Father and Son, both Emperors and Censors, there were six men all of the town of *Velleiacium*, that brought in certificats. that they had lived 100 years apiece; and that in the review taken of the eighth region of *Italy* only, there were found no less than 54 persons 100 years of age¹. In my travels through *Oxfordshire* I met with one *Geo. Green* of *Woodstock*, and *William Carter* of *Curbridg* in the parish of *Witney* just of that age², with many others near it; and in *Staffordshire* so many that I thought them not worth noting. *Polycarpus* Bishop of *Smyrna*, and *Appollonius Tyaneus* both exceeded a hundred³; and *Thuanus* has recorded it; that one *Robert Constantine* born at *Caen* in *Normandy* lived to 103⁴; of which very age one *Brian Stephens* dyed lately at *Woodstock*⁵. *Garius Aretinus* great grandfather to *Petrarch*⁶, and *Hippocrates Cous* the famous *Physician* lived each of them to 104⁷. In which year of his age *John Best* of *Horton*, as was said above § 3, found himself so strong, that he marryed a wife and got her with child tho' a woman of 56. *S. Anthony* the first founder or restorer of *Monks* lived to 105⁸; and so did an old man I heard of at *Rushton Spencer* in this *County*; at which years *Cardinal Bellarmin* also tells us he himself knew an old man so lusty and strong, that he was likely to live many years longer*. *M. Carew* acquaints us that in the *County of Cornwall*, one *Beuchamp* arrived to 106⁹; to which very year, *William Cox*, and *William Ketley* of *Womborn* in this *County*, both attain'd before they dyed; and the Reverend *D. Hakewill* says he was credibly informed, that *William Pawlet* Marquess of *Winchester*, and Lord high Treasurer of *England*, who was born in the last year of *Hen. 6*, and dyed in the 10th. of *Q. Eliza.* having lived in 9 *Kings* and *Queens* raignes, was near a hundred and seven¹⁰.

99. To advance yet higher, *Gorgias* a Rhetorician lived to 108¹¹; and so did *Thomas Wiggen* of *Carlton* in *Yorkshire*, as *D. Lister* tells us, and some months over¹²; wanting but little of *Democritus* of *Abdera* who reached 109¹³. There lived one *Parke* in *Cornwall* as *M. Carew* informs us, that was 110¹⁴; and in the

¹ C. Plinii 2^{di}. Nat. Hist. Lib. 7. cap. 49. ² Nat. Hist. of Oxfordsh. Chap. 2. §. 3. and Chap. 8. §. 54. ³ Lord Bacon's Hist. of life and death p. 18. 19. ⁴ Jac. Aug. Thuanus Historiarum Tom. 5. Lib. 134. ad An. 1605. ⁵ Nat. Hist. of Oxfordsh. Chap. 2. §. 3. ⁶ Dr. Hakewill's Apologie Lib. 3. Sect. 7. ⁷ Lord Bacon's Hist. of life and death. p. 19. ⁸ Ibid. p. 18. ⁹ Disputationum Roberti Bellarmini Tom. 1. Lib. 1. de verbo dei. cap. 7. sub finem. ¹⁰ Carew's Survey of Cornw. loco supra citato. ¹¹ Loco supra citato. ¹² Lord Bacon's Hist. of life and death. p. 15. ¹³ Philosoph. Transact. Numb. 160. ¹⁴ Lord Bacon's Hist. of life and death. p. 16. Carew's Survey of Cornw. Book 2. p. 131.

review

review of the eighth region of *Italy* above mentioned, they found no less than 57 that had arrived to the same¹, in which year of their ages *Joseph* and *Joshua* dyed. *T. Purennius Tutus*, as *Pblegon* informs us, was 111²; and *Josias Pierce* late of *Witney* in *Oxfordshire*; and *J. Sagar* of *Burnley* of *Lancashire*, lived to 112; yet both fell short of *L. Antistichus Soterichus* who was 113, and of *L. Petrus Corneliensis*, and *Richard Clifford* of *Bolscot* in the *County of Oxon*, who reach't 114. *Johannes Temporarius* in his Chronological demonstrations speaks of a poore man he knew, that got his living by his labour, of 116³, which was older than *Paul* the Hermit who advanced but to 115⁴; but not so old as *William Postell* a Frenchman who held out almost to 120⁵. At the taxation aforementioned under the *Vespasians*, there were three found at *Parma* that had compleated that age⁶, and so did *Siameon* the son of *Cleophas* Bishop of *Jerusalem*⁷: *Arganthinus* King of *Cadiz*⁸, *Romuald* of *Ravenna* a famous Hermit⁹, and *Brawn* the beggar of *Cornwall*¹⁰, who were all as old as *Moses* and *Aron*, 120 apiece.

100. Which was an age thought so attainable *An. 1553*, that one *Thomas* of *Ravenna* writ a book printed at *Venice*, which he dedicated to *Julius* the third then Pope of *Rome*: *de vita hominis ultra 120 annos protrahenda*, prefixing this title to his 5 Chapter. *Qui ævo nostro præfenti ultra annos 120 supervixere*. Where he numbers up several that had then exceeded it. In the review abovemention'd of the eighth region of *Italy*, there were 2 persons found of 125¹¹; and one at *Bressello* at the taxation of the *Vespasians*; and another at *Placentia* that was elder by a year, i. e. 126¹². *Felix Platerus* late Professor at *Basil* also reports that his Grandfather was 126¹³; and *D. Lister* says he spoke with one *Robert Montgomery* living at *Skipton* in *Yorkshire*, but born in *Scotland*, of the same age¹⁴; who yet were both exceeded by *Ralph Lees* of *Totmonslow* a shepard of this *County* who numbered 127 years; yet could give no account beside the providence of God, of what might conduce to his Longevity (as he told my worthy Friend *D. Richard Morton* who saw and discourst him) but that he never took *Tobacco*, nor *Physick* in his life, nor drank between meals, always alleviating his thirst by

¹ C. Plinii 2^{di}. Nat. Hist. Lib. 7. cap. 49. ² Pbleg. Trall. de Longæv. cap. 3. ³ Joh. Temporarii Chronolog. demonstr. Lib. 1. cap. 4. sub finem. ⁴ Disputationum Rob. Bellarmini Tom. 1. Lib. 1. cap. 7. sub finem. ⁵ Dr. Hakewill's Apologie Lib. 3. Sect. 7. ⁶ C. Plinii 2^{di}. Nat. Hist. Lib. 7. cap. 49. ⁷ Lord Bacon's Hist. of life and death p. 18. ⁸ C. Plinii 2^{di}. Nat. Hist. Lib. 7. cap. 48. ⁹ Fran. Petrarchæ Epist. Rerum Senilium, Lib. 16. Ep. 2. ¹⁰ Carew's Survey of Cornw. Book. 1. p. 63. ¹¹ C. Plinii 2^{di}. Nat. Hist. Lib. 7. cap. 49. ¹² Ibidem. ¹³ Felix Plateri Quæstion. Medicarum paradox. & eudox. Quæst. 74. ¹⁴ Philosoph. Transact. Numb. 160.

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rolling pebbles in his mouth: which what satisfaction these reasons could give, let the Reader judge, he being an old man before ever Tobacco came into common use; and never so sick in his life as to want Physick; nor sure could the last conduce much, there being many that thus never drank between meals, that scarce arrived to the moyety of this mans age.

101. Who yet was not so old as one Polzew of Cornwall, who as M^r. Carew tell us extended his age to 130⁺; and so did the old man of Eversden in Bedfordshire mention'd by D^r. Willet, who dyed in An. 1600 yet could remember Bosworth field at the coming in of King Hen. 7. being then as he said about 15 years old⁺; of which very age, in the aforesaid review of the eighth region of Italy they found no less than four, as they did also that had arrived to 135⁺. L. Tertius of Bononia as Pblegon reports was likewise of that age; and he says he saw one Faustus a servant to Caesar who was 136⁺. In the same review just now mention'd, there were also found four of 137⁺; in which year of their age Levi the brother of Joseph, and Amram the father of Moses and Aaron, both dyed; falling short of James Sands of Harbourn in this County who dyed Dec. 6. 1588⁺, having attained to the age of 140, and outlived 5 Leases of 21 years each, made him after his marriage; and D^r. Lister tells us of an old man summon'd as a Witness in a cause out of Dent in Craven to the Assize at York An. 1664, that wanted not half a year of the same age, yet could make fish-hooks as small as would take a trout with a single hair^{*}. Which yet is not so much as is told us by Buchanan of a certain Scotchman, qui centesimum quadragesimum annum agens, sevisimo mari in sua navicula piscatum prodibat^b. who at seven score years of age was able to goe out a fishing in tempestuous weather in his own little boat: tho' he wanted not much of Jacob himself who was but 147.

102. L. Terentius of Bononia, and M. Apponius of Ariminum, as appear'd by the taxation of the Caesars Vespasians both reckon'd 150 years; to which age many of the inhabitants of the mountain Tmolus, anciently call'd Tempis (as Mutianus testifies) ordinarily lived; at which age also Titus Fullonius, of Bononia, likewise entr'd his name into the subsidie book, at the time that Cl. Caesar held the general tax^c; Argantbonius King of the Tartessians according to Pblegon was also 150^d; and Franciscus Alvares saith he saw Albuna Marc cheif Bishop of Ethiopia,

^a Loco supra citato. ^w Dr. Andrew Willet's Hexapla in Gen. Chap. 5. v. 5. x C. Plinii 2^o. Nat Hist. Lib. 7. cap. 49. ^y Pbleg. Trall. Lib. de Longev. cap. 4. ^z Loco supra citato. ^a Ex Registro Ecclesiae de Harbourn. ^{*} Philosop. Transact. Numb. 160. ^b Geo. Buchanni Rerum Scotic. Hist. Lib. 1. in ipso fine. ^c C. Plinii 2^o. Nat. Hist. Lib. 7. cap. 48, 49. ^d Pbleg. Trall. Lib. de Longev. cap. 4.

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who was of the same age^e. Who yet all were exceeded by our famous Thomas Parr who was 151, being born at Winnington in Shropshire, Anno 1483 the last of Edward 4, and living to 1634 the 9th. of Charles the first, 10 Kings and Queens reigns; and Epimenides the Gnosian, as Theopompus affirms lived to 157^f. Which is probable enough, since Roger Bacon tells us, pluries experti sumus nostris temporibus, quod homines rurales sine consilio Medicorum vixerunt centum sexaginta annos^g; i. e. that they had frequent examples in his days of Country Swains that without the help of Physicians reach't 160. But so have Princes too, for as Pliny tells us Cynaras King of the Cyprians was of the same Age^{*}. Which I suppose may be enough sufficiently to demonstrat, that for above 3000 years downward, the length of mans age is nothing abated; not to mention the fabulous improbable longevities, of Johannes Buttadeus the wandering Jew^h; Artesius the Philosopher; or the German mention'd by Roger Bacon, who by the help of Art (as appear'd by the Papal credentials) had prolong'd his life to 500 yearsⁱ; in comparison of whom, the Paracoussy of Florida; Xequipeer of Bengala; and the other old Man mention'd by Ferdinand Lopes of Castegned; though all about 300, were but young men^k.

103. Beside the remarkable Longevity of Men and Women solitarily considered, we find it sometimes attending them joyntly and in comfort, both Man and Wife being met with now and then of extraordinary ages. Thus as Thuanus informs us, one Demerrius and his wife in the Low-Countries, one being 103 and the other 99 years of age, having been married threescore and fifteen years, dyed within 3 hours space of one another, and were both buryed at the same time at Delft in Holland^l; just like one William May and his wife Joyce of Longdon in this County, who dyed so near together that they were both buryed in a day, being brought to Church on the same Bier and lay'd in the same grave, he being 108, and she 98 years old: not forgetting that the wife of James Sands of Harbourn above mention'd (who was 140) lived also to 120 years of age; which is more than what is reported of Aquila and Priscilla, who lived together in such a happy wedlock, but till they were a 100 each^m.

104. Nor has extraordinary Longevity only attended marry-

^e Rich. Verstegan's restitution of decayed Antiq. cap. 10. p. 253. ^f C. Plinii 2^o. Nat. Hist. Lib. 7. cap. 48. ^g Rog. Bacon de mirab. Potest. Art. & Nat. p. 511. 512. edit. Basil. 1593. ^{*} Loco supra citato. ^h De Quo vid. Guidon. Bonati Astronomia part. 1. Tract. 5. Consid. 141. ⁱ Loco supra citato. ^k Dr. Hakewill's Appologie Lib. 3. Sect. 7. ^l Jac. Aug. Thuanus Historiar. Tom. 5. Lib. 134. ad An. 1605. ^m Lord Bacon's Hist. of life and death. p. 18.

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ed Couples: but sometimes too (tho' perhaps a little more rarely) whole *Families* together, whereof several *Generations* have been living at a time: thus as *Thomas Ravenna* informs us, there was a *Seaman* in his time in the *Venetian* fleet, who tho' three-score years of age, yet had his *Father*, *Grand-father*, and *great Grand-father* still living, the eldest whereof was not 120^a. To which tho' it be hard to bring a parallel instance, yet I met with one of the kind that is somewhat remarkable, in the person of one M^r. *Doody* of *Hanchurch* in this *County*, who was a *Grand-father* and a *Grand-child* at the same time, i. e. he became a *Grand-father* himself before his own *Grand-father* dyed, there being five generations living together. Which is much the same thing that happen'd in the family of the right illustrious Princess the Lady *Letice* Countess of *Leicester*, *Eue*, and *Essex*, Viscountess of *Hereford*, Baroness of *Denbigh*, and *Ferrars* of *Chartley*; Sister to *William* Lord *Knolles* of *Greys*, Viscount *Wallingford* and Earl of *Banbury* K^t. of the *Garter*, who had the happiness to see living the *Grand-children* of her *Grand-children*; as is declared in her *Stemm* at the Manor of *Drayton*^o.

105. Now that there should be five generations living at a time, as in the present examples; or six, as in the instance of *Mary Cooper* above mentioned, is not indeed so wonderfull; since if People marry young enough, it may well be so: as in the case of my Lady *Child* in the *County* of *Salop*, who as I was credibly informed being marry'd at 12, had a Child in the 13th. year of her age; which Child being marry'd as young, had another also at 13, so that this Lady was a *Grand-mother* at 27, and might possibly have been a *great Grand-mother* at 40, a *great-great-Grand-mother* at 53, and a *Beldam* at 66: but the marriages in our instances being not so early, the cases are the more remarkable. However this case of my Lady *Child*, compared with that of the *Venetian* Soldier mention'd by *Ravenna* will serve to shew how many generations 'tis possible may be existent at the same time: for if there may be six generations whereof the eldest need not be above 66, and that 4 generations have been living at a time, whereof the youngest has been 60, and the eldest not 120, (which how much longer they continued we have no account) it is plainly possible, that 9 generations may be existent together, as will plainly also appear by dividing 120 by 13. Or in case a man should live to 160,

^a *Tho. Rav. de vitâ hominis ultra 120. annos protrahenda Cap. 5. ° Ex Chartulariâ honoratissimi Dⁿⁱ. Thomæ Vicecomitis de Weymouth Dⁿⁱ. Manerii de Drayton.*

as *Roger Bacon* says 'twas common for Country men to doe in his time^p: by the same rule 'tis evident, provided such a Mans off-spring all marry so young, that 'tis possible 12 generations of men may be all contemporaries.

106. Nor have many generations of the same family been only living at the same time dispersedly here and there, but some times several of them in the same house: thus at *Horton-bay* in this *County*, at one Goodman *Stantons*, there were 4 generations all living together, just like the matchless family of the *Fairfaxes* of *Barford* within two miles of *Warwick*, whereof there were also 4 generations, and 3 of them double, that for divers years dwelt in the same house together, and eat at the same table, the particulars whereof are put into *Latin* verse by *Tho. Dugard* Rector of the place. And not only *Familys*, but some *Villages* and *parishes* have also been remarkable for Longevity, there having been 4 buried at *Horton* not many years since that made up *sixteenscore*, and 7 or 8 at *Ashley* all above fourscore. The Worshipfull *William Leveson Gower* Esq; (as was mention'd above) having 4 Tenants all living at *Cocknage* when I was there, that one with another made up 360; nor is it long since that M^r. *Biddulph* of *Biddulph* had 12 Tenants all living at a time in the adjoining parishes of *Biddulph* and *Horton*, whose ages put together made 1000 years. Which comes pretty near the *Morris-dance* of *Herefordshire* mentioned by my Lord *Bacon* performed by 8 men, *temp. Jac. 1.* whose ages computed together made 800 years; or that other *temp. Car. 1.* performed in the same *County* by 5 Men and 5 Women, whose ages joyntly together amounted to 1000; what some of them wanted of 100, in both instances, being supplied by others that exceeded it as much.

107. Beside extreme old age, we must not forget to reckon amongst the forerunners of death, those signal warnings that some families have, before the approaches of it, such as the knocking before the death of any of the family of Captain *Basil Wood* mention'd in *Oxfordshire*, which has not only been further confirmed since my writing that *History*, by the like signal given before the death of the said Captain *Wood* himself: but from its attendance in like manner upon the family of *Cumberford* of *Cumberford* in this *County*; three knocks being always heard at *Cumberford-Hall*, before the decease of any of that fa-

^p *Loco supra citato. ° See England described by Edu. Leigh in the Preface. Chap. 2. §. 25. † Lord Bacon's Hist. of life and death p. 26. ‡ Nat. Hist. of Oxfordshire Chap. 8. §§. 33, 34, 35, 36.*

mily, tho' the party dyeing be at never so great a distance: Thus I was told also at *Ammington* by the Worshipfull *Sebright Repington* Esq; that a noise somewhat like a *Drum* was heard about 8 or 9 a Clock at night, for 6 or 8 weeks together in a stack of *Chimneys* of his house at the death of his first *Lady*, which they say is always heard upon departure of any of the family of *Burdet*, whence that *Lady* came. And thus as I was informed concerning another *family* in this *County*, there is also a noise of *bees* heard in one of the *farmes* belonging to it, before the death of any of them, of which 'tis common for the *Tenants* to give them notice when perhaps there is none of the *family* ill, yet in a little time some of them certainly dye; as those of the *family* of *Oxenham* in the *County* of *Devon* likewise infallibly doe, upon the appearance of a *bird* with a *white breast* fluttering about their bedds^u.

108. In the very *article* of *death* I have met with nothing observable, nor indeed any thing in the *grave* itself, but certain *bones* of an extraordinary make and size: at *Tamworth* in the *Charnel* house, I was shewn a great collection of *Skulls*, amongst which there were many, that had a *Suture* that came downe from the *Coronalis* through the middle of the forehead to the top of the nose: these as the *Clerk* told me were all *Womens* skulls, and that this was a certain *Characteristick* whereby one might know a *Womans* skull from a *Mans*: but by his favour I guess they might as well be *Mens* as theirs, provided they dyed young: for I find this *frontal suture* is but a continuation of the *Sagittalis*, which in all children till two or three years old, and in some till eight or ten (more rarely in adult persons) is thus continued (cutting the *Coronalis*) down to the very ridge of the nose; seldom any footsteps of it appearing after those ages^w: tho' *Diemerbroeck* acquaints us that he had a *skull* by him of a person that dyed at 50, wherein this *frontal suture* was very perfectly to be seen, but then the *Coronalis* and *Hypsiloides* were both grown up^x.

109. In the digging open a *Low* on *Eaton hill* near *Warflow* in this *County*, there were found mens bones as I was told of an extraordinary Size, which were preserved for some time by one *M^r. Hamilton* Vicar of *Alstonfield*; and I was inform'd of the like dugg up at *Mare* in the foundation of the *Tower*; but these being buried again, or otherwise disposed of before I came there, I can say little to them. Yet that sometimes men are produced of *unusual statures* as well in excess as defect, I received a

^u *Epist. Hoeliana*, Vol. 1. Sect. 6. *Epist.* 9. ^w *Ibr.* *Diemerbroeck Anatom. Corporum human.* Lib. 9. cap. 4. ^x *Ibidem.*

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certain proof from *M^r. William Feak* Alderman of *Stafford*, who gave me the *jaw bone* of a *Man* or *Woman*, with a *tooth* yet remaining in it, near double the magnitude of those men ordinarily have, which was found in the South *Chancel* of the *Collegiat* Church of *S^t. Marie* in *Stafford*, where now lyes the grave-stone of *Ann* the wife of *Humphry Perry*; which is enough to shew that Mankind is no more abated in stature than it is in age, the world still affording us a *Goliath* now and then, as well as of old; as was more fully proved above^y.

110. And thus I had finish'd the eighth *Chapter*, but that I must begg leave first to acquaint the *Reader* that since the printing the 12 §. of it, I have found that one *S^t. Robert de Broc* who was Marshal of *England* and Forester of *Cannoc* temp. *Ric.* 1. might well have been numbered amongst the men of Valour of this *County*^z especially if this were the man (as some think) who was so hardy in those days, as in disgrace of *Thomas Becket* Arch-Bishop of *Cant.* to cut of his horses taile as he past through *Stroud* near *Rochester* in *Kent* according to *Polydore Virgil*, or at *Canterbury* it self as the *Quadriloge* of his life: for which he amongst others was publickly excommunicated on *Christmas* day by the Arch-Bishop himself, and all the *Off-springs* of his *Abettors* curst with *tailes* to posterity*. Whence some think it hath come to pass that all the Inhabitants of *Kent*, and all *English-men* abroad, by way of Mockery are call *Sileni* or *long-tailes* to this day. And that it should have been remembered amongst the Lawyers, that *John Taylor* D^r. of Laws abovemention'd §. 54. born at *Barton* in this *County*, was M^r. of the Rolls temp. *Hen.* 8. that *S^t. Peter Warburton* father to *M^r. Warburton* of *Abbots-Bromley*, was one of the Justices of the *Kings bench* temp. *Eliz.* & *Jac.* And that *Richard Weston* Esq; grandfather to the present *M^r. Weston* of *Rugeley* was one of the Barons of the Exchequer temp. *Car.* 1.

^y §§. 50, 51, 52. ^z *S^t. William Dugdal's Antiquities of Warwicksh.* Illust. p. 374.

* *Kanulfi de Dicero Imagines Historiarum in An.* 1171. See also *Mr. Lambards Perambulation of Kent, in Stroud.*

CHAP. IX.

Of Arts.

1. **B**Efore I enter upon considering any particular *Art*, it may not perhaps be unnecessary to acquaint the *Reader*, that *Arts* are not treated of here as a *πάρρησις*, *appendix*, or accession to the *Work*, but as properly falling under a *Natural History*; *Art* being nothing else but *Nature* restrained, forced, or fashioned, in her *matter* or *motions*: things of *Art* (as my Lord *Bacon* well observes) not differing from those of *Nature* in forme or essence, but in the efficient only. In the handling whereof I shall still pursue my foremention'd *Method*, and treat first of such *Arts* as relate to the *Heavens* and *Air*; then of *fire* and *water-works*, and thirdly such as tend to the improvement or better management of *Earths*, *Stones*, or *Plants*; and lastly of such as any way respect *Men* or *Women*; under which I comprehend the new invention or advancement of any *Mechanick* or other *Art*; which I doubt not may suffice for the following *Chapter*.

2. And first in relation to the *Heavens* and *Air*, I have met with nothing new here, either concerning a further discovery of the *Magnitudes*, or determination of the *Motions* of any of the *heavenly bodies*; unless a new sort of *Dyal* (such an one at least as was so to me) that I met with at the house of the Worshipfull *Alexander Harcourt Esq;* of *Ranton* in this *County*; made of three boards representing a *book* open'd, six inches deep; with some of the *middle leaves* standing up between the *Covers* and some other *leaves* at six inches distance on each hand, all facing the South, and so *elevated* as to stand parallel with the *Axis* of the *World*. Upon the *East* side of which *middle leaves*, the hour lines of 4 5 6 and 7 were drawn at their due distance to one another, the *leaves* and *cover* of the *East* side of the *book* being the *Gnomon*, to them; and on the *West* *leaves* and *covers*, the hour lines of 8, 9, 10, 11. the *middle leaves* of the *book*, elevated as above being their *Gnomon*; till the *Sun* coming to the *Meridian* and striking them at right angles, casts no shade at all, which gives the hour of 12 as in other *dyalls*. Thence the *Sun* now having cut the *Meridian* (these *middle leaves* becoming

De Augm. Scient. Lib. 2. cap. 2.

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the *Gnomon* again) throws the shade upon the *Eastern leaves* of the *book*; and there describes the hours 1, 2, 3, 4. and thence on the *West* side of the *middle leaves* 5, 6, 7, 8. the *Western covers* being the *Gnomon* to them. Which sort of *dyall* being easy and pretty, and I think new (at least not commonly known) I thought worthy the mentioning.

3. As I should also have done a most compendious, *instrument* first invented and made by the Worshipfull *Francis Wolverstan* of *Statfold* Esq; which he most properly calls a *dyall Quadrant*; whereby he not only obtains with speed, ease and exactness, the *declination* of all *planes*, with their *verticals* whether *inclining*, *reclining*, or *declining*, without giving himself the usual trouble of observing the obliquity or irregularity of them: but with great facility and accuracy also marks out the *Center* and *substile* of the designed *dyall*, with the several hourlines, and parts of hours, that the *plane* will admit. In short by this instrument he performs all sorts of *dyalling* with much less trouble than was anciently used. Which I should (I say) more particularly have described, but that it hath been printed already though surreptitiously in *An.* 1668 by one *A. M.* under his own name, without either the acquaintance or consent of the first *Contriver*; and that the like has since also been published by divers other *Authors*. Which is all concerning the *Heavens* and *Air*: but that my worthy friend *Mr. Walter Jennings* Rector of *Church-Eyton* shewed me a very easy and cogent *Experiment*, proving the force of the rarefaction of the *latter*, by the *Sand* of an *Hour-glass*, which running very freely, was stopt by holding a *coal* to the lower part of the *glass*; which as soon as withdrawn, the *Sand* ran again freely, and so *toties quoties*.

4. It being very improbable, that there is any other *fire* but such as that we call *Culinary* (that in the *Concave* of the *Moon* being a meer fancy of the *Ancients*) the *Arts* relating to the *fire*, must follow those of the *Air*. Amongst which it is not of the least consequence, that they improve their land here much by the help of *fire*, burning their *turf* first to ashes, either in their houses, or after the manner as described *Chap. 3. §. 14*, which they call *Efs*, and then laying them on their *Meddow*; *Rye*, or *Barley* grounds, which as some are of opinion bring more profit to the *husbandman*, than any other *dung* or *soil* whatever: the *steril* juices according to *Virgil* being destroyed in these,

Omne per ignem
Excoquitur vitium, atque exsudat inutilis humor

Georgic. Lib. 1. v. 87, 88.

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pally

pally to the production of *Seed*, whereas the *ding* of beasts and most other *Soils*, tend more to the sending up a rank straw or *baum*, and breeding of *weeds*. Upon which account says the same *Virgil*.

*Sæpe etiam steriles incendere profuit agros;
Atque levem stipulam crepitantibus urere flammis* ^c.

and *Palladius* in his Chapter *de Sterquilinio*, numbering up the several *composts*, concludes at last, *porcinum pessimum, Cineres optimi* ^d.

5. Upon these *ashes*, especially in windy weather, to prevent their blowing away, 'tis a common thing to cast *parings* of the *earth* near by, upon the most flaming parts, then *turf* or *stubble* again, then *earth*, and so *stratum super stratum*, and this they call *burn-beating*, and in some places *Densbiring* their land. Which I guess was also in use anciently, *Virgil* also asserting that they did in his time,

Effatos cinerem immundum jactare per agros ^e.

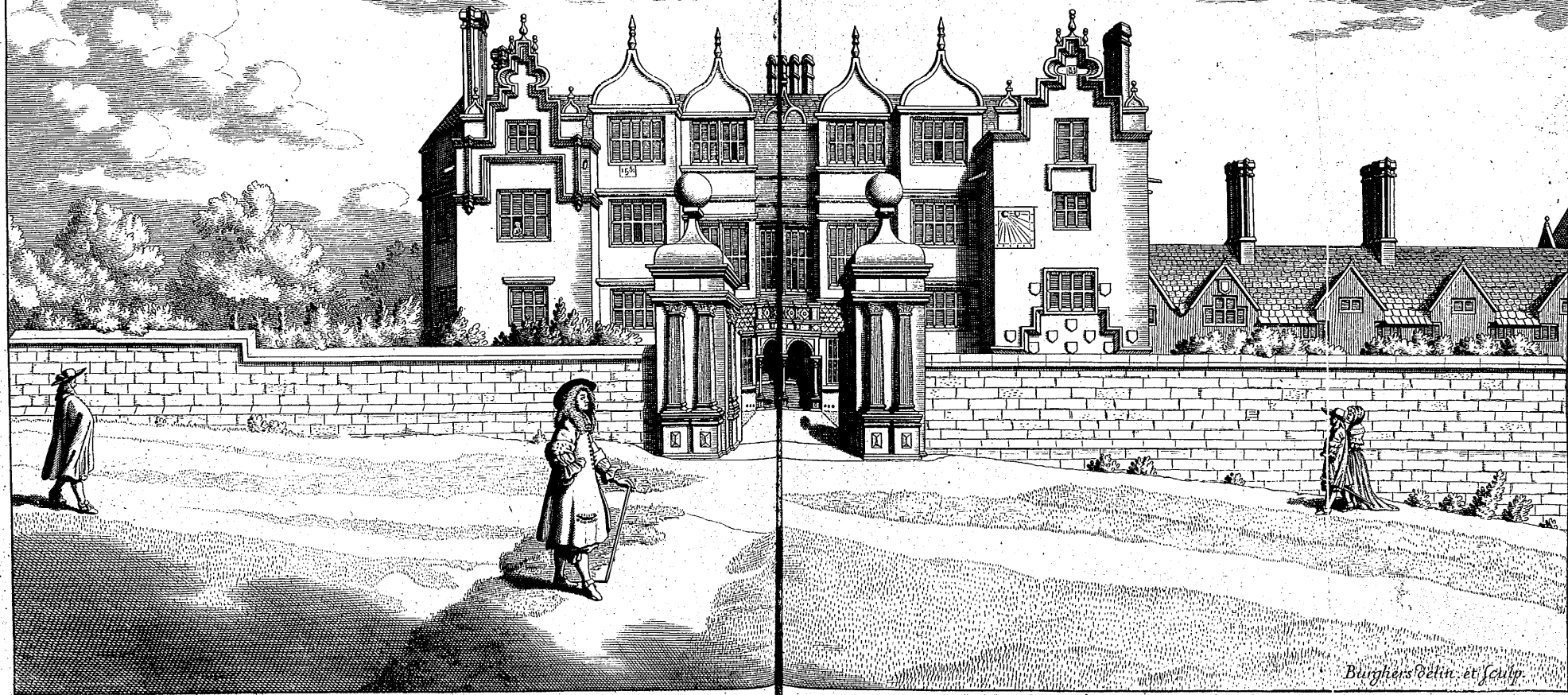
And in a close about *bigb-On*, I saw them add to their *ashes* and *earth*, all the *bushes*, *furse*, *broom*, *fern* and other *rubbish*, they could find about the ground, which burnt together, so calcined the *earth* above and below, carrying away the cold *steril juices*, and substituting in its room such *fertil Salts*, that it yielded thereupon an increase far exceeding the charge and labour bestowed on it, and so I was told it would continue to doe, if layd upon *dry* land for 7 years together: but if upon *moist* *washy* land not above two. They also mix their *ashes* sometimes with *Lime*, which also belongs to this place being prepared by *fire*, which is so good a *compost* for their poor *heathy* land, that they often think it worth while to carry it twenty miles for this purpose: but of this no more, because of the manner of preparing it, its qualities, &c. at large elsewhere ^f.

6. Nor doe they only burn their *turf*, *earth*, *bushes*, and *fern*, to improve their land, but the latter of these in *June* when *green*, for another use: which that they may perform the better, they most commonly doe it on the side of a hill: (as I saw them near *Marbrook*) lying to a fresh gale of wind. I was told they burnt it *green*, that the *ashes* might not fly away during the operation, which they certainly would doe, if the *fern* were suffer'd first to wither before it is burnt: but I guess the true reason may rather be, that whilst it is *green*, it hath an *oilyness* in it which doth not quite consume, but remaining mixt with its *ashes*, makes them the fitter for the use they are ordinarily put to; these

^c *Ibid.* v. 84, 85. ^d *Pallad. Rutilii de re Rustica Lib. 1. Tit. 33.* ^e *Georgic. Lib. 1. v. 81.* ^f *Chap. 4. §§. 5, 6, 7, 8.*

TAB. XXVIII.

ad. pa. 335



Burghers delin. et sculp.

Chap. IX. Of STAFFORD-SHIRE. 335

made up into *balls* of about 3 inches *diameter* by the poorer sort of people with warm water, being sold at 5 or 6 a penny to wash their *buckings* with, all the year about; wood ashes not being easy to be had, in a *Country* where their fuel is so generally coal, as it is in this.

7. The *Art* of making *Fryingpans* may also be refer'd hither, the Secret in great measure consisting in the regulating the *heat*, that is given the *plates* whereof they are made, before they are brought to the *Anvil*. Which together with other matters relating to the *trade* being found so difficult, that a *Novice* many times is little the better though he serve a double *Apprenticeship* to it; and so ingenious and indeed wonderfull, that I thought it incredible, what I heard related of it, I shall not scruple to give the *Reader* the full process thereof. First then in order to them, there are flat round plates hammer'd out of bars at a *forge* for that purpose at the parish of *Keel* in this *County*, not far from the fair Mansion of the Worshipfull and judicious *William Sneyd Esq;* a worthy Benefactor to this work, which is here represented *Tab. 28.* the *forge* little differing from those of other *Iron-works* carrying a *hammer* of about 500 weight. In hammering of this *flat-work* they beat the *plates* first one by one, then two, three, or four together as they grow broader and thinner, which stick not together, having not a *heat* given them sufficient for that: yet such an one they have, as will continue longer (the *plates* being forged many of them together) than if each *plate* had been forged single with a much higher heat, by which means the work is done not only with greater expedition, but profit too; the *plates* in this manner not only mutually preserving their *heat*, but keeping each other also from *scaling*, or being beaten too much away into Cinders or waste.

8. When the *flat-work* is thus finish'd at the *Forge* at *Keel*, they are then brought to another *forge* at *New-Castle* under *Lyme*, where *John Holland*, who is Master of both *forges*, works them into *shape*, nine *fryingpan-plates* being commonly laid upon one another, and clapt together by turning up 4 *Labells* which are ordinarily fixt to the lower plate, and so turned one within another like a *nest* of *Crucibles* or *Boxes*, the lowermost being always the biggest, and the uppermost the least; the whole nine, being turned nine times sooner than one single *Pan*: for the nine together mutually preserve their heat so long, that they are all turned during one *beat*; whereas one single *pan* will coole so fast, that it will require at least nine *beats*, before it can be forged, nor will it then be a good *fryingpan* neither: for it will so *Scale* away in the heating and forging, that it will at last

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be but a thin infirm Pan. Now that which renders this Art of making fryingpans so difficult, is not only the bringing them to a just heat, which shall hold a sufficient time and yet not make them lyable to stick in the hammering; but the number of hammers used in this work, which are not less than twenty of several sorts: which so few know how to manage, or are capable of learning; that there are but two Master Frying-pan makers (as I am credibly inform'd) in the whole Kingdom: one, here at New-Castle, and another at Wansworth in Surrey. They make also Dripping-Pans at these Forges, the plates being workt at the former, and the pans turned at the latter: but these being forged singly, and not in nests like the frying-pans, there is not the same difficulty, and consequently not the same ingenuity required, in the fabricating of them.

9. Also at New-Castle under Lyme, the Tiles burnt in a Kill the usual way being found not to last: one M. Thomas Wood of the same Towne first contrived to burn them (which we may look upon as an Art relating to fire) in a Potters Oven: wherein he made them so good and lasting, that notwithstanding they have been put to the hardship of dividing the parts of Garden-knots, to endure not only the perpetual moisture of the earth, but frost, snow, and all sorts of weather: yet they few of them decay, scarce 5 Tiles in 500 having failed in 20 years time; so that now he has been followed by all the Country thereabout. It may also be lookt upon as an Art not altogether forraigne to fire, that Prince Rupert shewed at Stafford in the time of the Civil-warr temp. Car. 1. where standing in Captain Richard Sneyd's garden at the high-house there, at about 60 yards distance, he made a shot at the weather-cock upon the Steeple of the Collegiat Church of S. Mary with a screw'd Horfmans pistol, and single bullet, which pierced its taile, the hole plainly appearing to all that were below: which the King then present judging as a Casualty only, the Prince presently proved the contrary by a second shoot to the same effect: the two holes through the weather-cocks taile (as an ample testimony of the thing) remaining there to this day.

10. To the fire-works succeed the Arts relating to waters; whereof some are for profit only, others for pleasure: amongst the former of these, the way of making a firme substantial Mill-damm is not of the least consideration: which they doe here especially if they meet with a quick running sand by laying the foundation with unslaked Lime, which upon slaking amongst such sand turns as hard as stone, and so gives a sure foundation. But such as will not be at this charge, lay it first with water clay,

clay, and then a stratum of Moss, then clay again, and then Moss, and so S. S. S. yet ramming them together so close that they become as it were a mixture. The superstructure next the water they face with turf, which again they face with a thatch of beath or ling, that enduring the water the best of any thing; then they lay gravel next, except near the Floodgate, where it must be clay. In the middle they lay a Key of clay, and gravel again toward the back of the damm, and then face it there too with turf, but not with ling, because the water beats not on it there, though sometimes they mend a breach also behind with it. Which is all relating to Mills; but that at Hamsted Hall there is a Corn-mill that pumps water up into a lofty house near it, whence all the Offices of the Hall are served, the Pump working as the Mill-wheele goes to grind the Corn; much after the same manner as at the Water-house near the bridg at London. And that at Mr. Parker's of Park-hall in the parish of Caverswall, I was shewed an Oat-Mill, that husk't the Oats and winnow'd them, and then ground them to meal: the last Mill that ground them, being not turned immediatly by the water, but by two wheels, whereof one was fastened to the runner of the first Mill, and the second to the runner of the grinding-Mill, a great rope interceding.

11. This, I say had been all relating to Mills, except we may add, (as I think we may) that at the Honorable Harry Gray's at Enfield Hall, the Spits in the Kitchen are turned with a Mill, the water being let through a Cock of above an inch bore into a little wheel of wood, made with Ladles to receive it exactly after the manner of an overshoot Mill, which being placed without at the back of the Kitchen Chimney, turns a spindle of Iron that passes through the brick-wall, at the end whereof is a round wooden box which receives a Jack-line, that goes also through another box which turns a second spindle above in the Chimney, that also carries a box at the other end, next the Mantle-tree, in which goe the lines that turne the Spits: all which the Reader may readily apprehend by Tab. 32. Fig. 1. where

- a. represents the Cock whence the water runs.
- b. b. the Mill-wheel that receives it.
- c. c. the Spindle that passes through the Chimney, and turnes the first box at the end of it.
- d. the lines that pass between the boxes of the first and second Spindle.
- e. e. the lines that pass between the boxes of the second Spindle, and those of the Spits.

12. But before we leave the Arts belonging to the waters,

we must also remember they have an *Art* in this *County* of making good *Ale*: which being a liquid, and nothing else but boyl'd *water* impregnated with *mault*, must be referr'd hither. In the management whereof they have a knack of fineing it in three days time to that degree, that it shall not only be potable, but as clear and palatable as one would desire any drink of this kind to be: which though they are unwilling to owne it, I guess they doe by putting *Alum* or *Vinegar* ia to it whil'st it is working, which, as *D. Willis* asserts, will both stop the *fermentation* and precipitate the *Lee*, so as to render it as potable, as when it has stood a competent time to ripen^s. The former whereof, as I am also informed by my ingenious friend *M. William Elward* Rector of *Bignor* [anciently *Bykenore*] in *Kent*, is made use of at *Frinsted* in that *County*, to fine their *water*, where they have little but that of ponds, which is ordinarily muddy: and that it is a most effectual remedy for curing *Cider* of a flying *Lee* which sometimes attends it, and cannot be removed by ordinary means; as he has found by experience, having cured such *Cider* so successfully thereby, that it has been drank with good credit amongst competent judges.

13. As for the *Water-works* of pleasure, there are none very extraordinary in this *County*. In the Court of my Lord *Ferrers's* house at *Chartley* there is a fair ancient fountain, whereof the the *Reader* may have a view if he please to look back to *Tab. 5*. And in the curious garden South of *Trentbam Hall* there is another that sends up a large *Column* of *water* falling into a *basin* of 10 yards *diameter*, which from the *parlour* (the folding doores opening just against it) yeilds a pleasant prospect: but much better would it be, were it made to tols a *golden ball* (as easily it might) and the designed *Vista* were cut through the adjoining wood; which lying upon a rising ground, and taking up a mile in length must necessarily give it a great advantage. But the best *Water-works* here, and the greatest variety of them, are at *S. Richard Ashleys* at *Patesbull* in this *County*, where within a large *Rotundo* fenced about with a high wall of brick, opening with fair *Gates* of *Iron-work* against the *Front* of the house, there is a curious large fountain that throws up a *column* of *water* near an inch *diameter* much higher than the former, which falls into a *basin* underneath, also proportionably larger, yeilding a most gratefull prospect not only toward the house, but to the *walks* above it. And in a garden on the left hand of the passage to the house is a

^s *Tho. Willisii Diatrib. de Febrilibus cap. 3.*

Cock

Cock to which belongs another *Instrument*, to be put on or taken off at pleasure, that turns after the manner that the *pipe* does in our common *water Engines*, which will cast water any way according to the discretion of him that governs it. In the garden *North* of the *house* the *water* passes through a *barrell* into the *Cistern* in the *Bird-cage*, into which were there put as occasion should serve, now and then a piece of *Turnsole*; it would prettily represent a vessel of *Claret* always runing. And *Eastward* of the house is a long fair *Canale*, walled about with squared stone, at the *South* end whereof is a delicat *Grotto* design'd, which when finish't will add much to the perfection of this *Seat*, of which more hereafter.

14. Next the *waterworks*, follow the *Arts* belonging to *Earths*, which chiefly respect the *tillage*, or *formation* of them; matters according to some scarce worth consideration: but I must crave leave to informe them, that *Agriculture* was ever of high esteem, having exercised the pens of many learned Men; and challenges our attention not only in point of *profit*, but *difficulty* too: the products of the *earth* being the most universally beneficial, and its true *culture* requiring as nice and critical a judgment, as any *Art* whatever: which made *Columella* declare, *illud procul vero quod plerique crediderint, facillimam esse ac nullis acuminis Rusticationem*, that it was a great mistake that there was no difficulty or cunning in *Agriculture*^b: the true manner of preparing the several *sorts* of *land*; fitting them with their proper *manures* and *Seeds*; and curing them of their *diseases*; *quid recuset collis, quid compestris positio, quid Sylvester ager, quid humidus & graminosus, quid siccus & spurcus*; asking so long an uninterrupted a study, that the same *Columella* tells us he feared, *ne supremus ante Se dies occupet, quam universam disciplinam ruris possit cognoscere*^c. That his whole life would not suffice to acquire it.

15. 'Tis true indeed that in his time, as well as now, this rural learning *turpi consensu* (as he is pleas'd to phrase it) was in a manner neglected: the good man complaining, and not without reason, that in all other Enterprises, every body did *consultissimum Rectorem adhibere*, take advice of the most skillfull in the matter in hand. *Sola res rustica, quæ sine dubitatione proxima, & quasi consanguinea sapientiæ est; tam discentibus egeat, quam magistris*. And a little after, *Agricultationis neque Doctores qui se profiterentur, neque discipulos cognovi*^k. i. e. that he neither knew any *Professors* of *Agriculture*, nor *Scholars* that learn't it.

^b *Jun. Moder. Columellæ de re Rusticâ in præfat. ad. Silvianum. in fine.* ^c *In eadem præfatione non longe a fine.* ^k *Idem in eadem præfat. sub. initium.*

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Which yet was the fault of those times, as well as of these: for no question, we might as well and perhaps more reasonably give a Guinea or more according to the length of the journey, to a Land-Doctor to instruct us how to manage or cure the diseases of a piece of ground; as to a Physitian to direct the health of our bodies; or to a Lawyer for his advice in our complaints or defences. I say more reasonably, for that such Doctors as these (as the same Author argues) seem the more usefull and necessary to a Common-Walth: *Nam sine Medicis, atque etiam sine Causidicis olim satis felices fuere, futuraeque sunt urbes: At sine Agricultoribus nec consistere mortales, nec ali posse manifestum est.* For that Citys have flourish't well enough either without Physitians or Lawyers; but that they cannot subsist without good Husbandmen is plain and evident.

16. It being clear then that the best methods of Cultivating, appropriating Seeds and manures, and cureing the diseases of land, are of consideration; it remains that we give a particular account how each of these are managed here, whether the lands are Clay, Marly, Sandy, Gravelly, light mould; or Heathy, Broomy, Gorsy, Gouty, Boggy, or Cold black-land. And first of Clay ground: which if it lye in common field as generally it does in this County, they have it always in tillage, sowing it two years, and letting it lye fallow the third; they lay it in ridges, or otherwise according to the temper of the land, and make their fallows about the latter end of March or beginning of April. After this a little before the second tilth or plowing, which is commonly about the middle of June, they give it its manure, which is generally Cow or Horse-dung, unless when folded with Sheep, and then immediatly spread it, and cast it under furrow with the plow, lest the rain and Sun should weaken it. About the latter end of August they plow it again to kill the weeds, and turn up the manure, that so they may return it again to their seed at the last plowing when they sow, which is usually the week before or after Michaelmas.

17. The land being thus prepared, they sow it with wheat, which is its most proper grain, and if a strong stiff clay, or cold land, with red Lammas, or bearded wheat; otherwise, with white Lammas; and sometimes with both mixt, it yeilding (as some think) the best that way; allowing of either two strike to an Acre, whereof if they have twenty strike per Acre again, they think it a good increase. The next grain they sow in their common fields after a crop of wheat, if the land be in good heart, are usually

¹ Ibidem.

usually Beans, the French white and red, or horse-beans; according to that of Cato, *Fabam in locis validis non calamitosissimam serito.* i. e. that beans ought to be sown in the strongest healthiest land^m. But if otherwise Peas, either white or gray; or peas and beans mixt; for these they plow at Candle-mass, and sow in the decrease of the Moon, having found (as they say) by long experience that they Codd much better, and are not so apt to run into straw: for seed they allow four strike of peas, and five of beans to a statute Acre, whereof if they have again 20 strike of the former, and 30 of the latter per Acre; they reckon they have had a competent Crop. And this is the manner of tillage that is also given light or basel mould as well as Clay, wherever it is found and lay'd in common field: both also lyeing fallow the third year, for wheat again.

18. But if either Clay, or light-mould, lye out of the common-field, so that they may be till'd at the pleasure of any single Proprietor, they are also both capable of improvement by marle, especially by the dice or flat-marle; which with rain runs like lime, and never bindes the stiffest Clay; but rather loosens it so, that after it has afforded eight or nine crops, it will yeild very good grass: whereas clay-marle layd on the same, so bindes the surface of them; that though they will not fail indeed of giving seven or eight crops of Corn, yet they are renderd hereby ill disposed at last for grass: unless the ground after all be well muck't, or manured with muck and lime mixt together, which some lay upon a fallow, others when they plow for corn; either of which ways it will yeild 2 or 3 crops more, and so mollifie the binding quality of this marle, that the land will yeild as good grass as if otherwise improved. If it be a mixt sort of land, either of Clay and Gravel, or Clay and Sand, which is not often very rich, they give it also much the same tillage they doe their Clay and light-mould, by marleing it, &c: only they sow it with Muncorn or Miscellane in the place of wheat: and this is that sort of land they call in the Moorelands their Main-land, which is indeed the best they have, there being little wheat sown there, becaule no clay-land, such as at Heywood, Hixon, Marchington, Rolleston, Wheaton-Aston, &c.

19. And as for pure Sandy gravelly ground, such as about Swinerton, Hatton, and Beech; which will naturally bear nothing but Rye, French-wheat, or Oats, nor these neither unless well muck't, and then not above three years together, but it must rest again; by the help of these marles (used as above)

^m M. Catonis Lib. de re Rustica tit. 35.

lime, and good muck, they are made as good for all sorts of corne, bearing as many crops, as any land whatever: which marles they lay on either upon the green turfe, or upon fallows, which at some places at lest they make in December and January, but they account it the best of the two, to lay it on the turfe, quite contrary to Pliny, who says that all ground must be plowed first, before any sort of marle be laid on it, that it may be the sooner impregnated: which they say here is of so ill consequence (it being the nature of marle to work downward) that if you have not a skillfull plow-man, you may loose all your marle in two crops whereas if you lay it on the green sword, it incorporates with your land but gradually, and is so much better preserved. Nor is it any objection, that by this way of manage they loose their grass that year; for if they spread their marle as soon as lay'd on, the grass immediatly springs through it: but admitting they loose a little grass the first year, yet upon account they will have double the quantity the next, and much the better, this way is still the more preferable.

20. But whether soever way of these they chuse to marle their land, they make their fallow (as I sayd) in order to sowing in December or January: and in the latter end of June or beginning of July they stirr their fallows, and then (if new-broken ground) they cagel it with barrows to break the turf, and then plow it again to lay it in order against September, when they sow it with wheat, which they doe in the beginning of the Month, if their land be cold, with red-Lammas, or Pollard-wheat, that enduring cold best: but if it be warm sound land, they let it alone to the latter end of the Month, and then sowe it with white-Lammas or Poland-wheat, sowing them both under furrow, and allowing of each two strike to an Acre, as in the common-fields. After their wheat is off the land, they plow in the stubble in December, and if the weather proves frosty to mellow it, they seldom plow again till April, when they sow it next with barley, and amongst the several sorts of that grain, if the land be any thing rank, with sprat barley; but if otherwise, with the long-ear'd or common barley; whereof the former is esteemed the bolder grain, and makes better mault: but the latter yeildeth a better increase: though some think they yeild best when sown mixt. For Seed, they allow three strike to an Acre, which generally yeilds them about thirty again.

21. The next grain they sowe on their marled lands after Barley, are usually peas, for which they plow but once, viz,

^a C. Plinii 2^{da}. Nat. Hist. Lib. 17 cap. 8.

in

in the begining of February, and sowe then too: allowing for seed three strike to the Acre. And next after peas (if they intend for six cropps) they sowe wheat again, upon the brass (as they call it) i. e. upon the peas stubble; sowing their wheat first, and then plowing it in under furrow, which many times proves as good a crop, as the first. The fift year they sowe barley husbanded as before: and then for the last Croop, red Oats: and so lay it down again. Not but that they could, and doe many times, take two or three cropps more, intermixing cropps of beans, and sometimes Vetches according as discretion directs them; but that they think it better to leave their land in some tolerable heart, which will then bear such grass after it is laid down, as will feed beef and mutton to a good mercatable fatness.

22. For the beathy-land of this County, it is seldom inclosed; but when they intend it for tillage, which is never for above five years neither, and then it is throwne open to the Commons again. But when they doe inclose any part of it for this purpose, they generally proceed in the manner following. First they stock up the beath with mattocks, &c. and then fallow it in Winter, and in the Summer ensuing give it its proper manure, which is Lime prepared as before described Chap. 4. allowing four loads to each Statute Acre, each load containing four quarters of Lime: which when flaked or quenched, is spread on the ground with shovels, and plowed in under furrow about the middle of September; and in the latter end of it, or beginning of October, the land being thus prepared, sowed with Rye, allowing for seed two strike to the Acre, which if it yeild them twenty five strike again, as commonly it does, they reckon they receive a competent increase.

23. After Rye, they sowe Barley upon this beathy sort of Land; in order to which they make their fallows about Candlemas, and give it another plowing in April and then sowe it, affording for seed three strike to an Acre, which generally yeilds them thirty again. And next Barley, white peas; for which they plow but once, and that is in March; and then sowe them, allowing three strike to an Acre. Fourthly after peas, they sowe Oates on this land, either red, or white, if it be in good heart; but if poor and week, black-oats; for either of which one plowing is sufficient (which generally is in March) and so are 4 strike of Corn for seed. Lastly, they sowe oats again (for their common beathy grounds will seldom afford above one Crop of barley) and then their inclosures are thrown open to the commons again.

24. In

24. In the *Moorelands* they sometimes *Lime* this *heathy* sort of land three or four years before they plow it, I suppose for the same reason that some lay their *marle* on the *green-sword*, *Lime* also working downward: others plow in the *beath* it selfe under furrow, only harrowing the surface of the *reverse* of the turfe, then sowing, and then harrowing it again: and the year following harrowing and sowing as before: letting the *beath* in the mean time still remain under, to be fully kill'd and rotted, and enjoying two *cropps* from one plowing, which has been often done at *Ipslon* in this *County*. But the best way in most mens opinions hereabout to manage this land, is to digg the *turf* and burn it upon the place in *May*, and to blend the *Efs* with *Lime* before *Michaëlmass*, and then plowe it, and sowe the *spring* following: for this way their land will last 4 years, and give them 4 *cropps* in this order; first a crop of *Barley*, then *Oats*, then *Rye*, and then *Oats* again; and then lay'd down as long, may be plowed again, which they doe but once for any grain whatever all over the *Moorelands*.

25. Their *broomy*, *gorfy* or *furfy*, hot *Sandy* land, they first clear of those incumbrances, either by stocking them up with the *Mattock*, or drawing them up by the roots by a certain *instrument* (which is much the quicker way) that I saw at the *Red-Lyen* at *Brereton* in this *County*, made like a strong *Lever*, armed at about 18 inches or two foot from the greater end, with an iron hook or *demi-pheon* ingrail'd within, as they are commonly in *Heraldry*; having on the other side, but not diametrically opposite, also another *hook* fixt, like our barbarous *figure* of 7, as in *Tab. 32. Fig. 2.* with which, putting the greater *hook* under the branches of *broom*, *furfes*, or *bushes*, and if stronger than ordinary, returning them under the second *hook* to prevent slipping, and then setting their shoulder under the further end (the instrument being about 3 yards long) they easily prize up *bushes*, *furfes*, or *broom* by the very roots. This being done they then *manure* it with *marle*, which doth not only so fertilize it, as that it shall yeild the *husbandman* 7 or 8 *cropps*, but as some conceive frees it from the *annoyance* of these *plants* for ever after: tho' for my part I beleive it is rather the *long tillage* that usually follows this *manure*, than the *marle* that does it: for let such land be till'd but for 4 or 5 *cropps*, and then be laid downe, this *trumpery* will certainly return again (especially the *gorse*) tho' not so full as before.

26. The *manure* being laid on, they plow and sow *this* as the *heathy* lands are, only in some places the *broomy hot sandy land*,

land, they first sowe with *French* or *Buck* wheat, for which they make their *fallows* in *winter*, and *stirr* them *May* ensuing, allowing one strike to the *Acre*, which generally affords them *sixty* again, and so brings their land in order for *Rye*, that they sowe it upon it after once *plowing*, allowing the same quantity of *seed* as above, and expecting the same return. Their *gouty*, *moorish*, *peaty*, *cold black land*, they husband also much after the same manner they doe the *heathy* lands in the *Moorelands*, only they burne the earth to a greater depth; yet these will bear little else but *Oats*; *white Oats* upon the *gouty*; and *black*, upon the *moorish* and *cold black lands*; these being the *terra cariosa*, the moist spongy lands that *Cato* warns all people to be well aware of. *Terram cave cariosam tractes*.

27. Having done with the *methods* of ordering their *lands*, let us next consider their *manures* and *seeds* a little more particularly in their *quantities* and *choise*. As to the former whereof, I find they use a great latitude, especially in their *Cow*, *horse*, or *mixen* dung; which Men many times lay on not so much according to their judgment, as according to the stock they have of it. Nor is the *condition* of the *soile* altogether to be unreguarded: for I find (for Example in *marling* their lands) that upon their found grounds whether *Clay* or *Gravelly*, they seldom lay above eight or nine score, or two hundred loads on an *Acre*: whereas if it be *cold black land*; *loose* and *sandy*, or *loose wormey ground*; they will commonly lay on *three*, nay I was told of some that laid on *four* hundred loads: and indeed for such land as *that*, it cannot be *over-marled*. Where by the way let it be noted, that tho' I say they lay on 400 loads, yet I intend no more than on the *Statute Acre*, and not the *customary Acre* they have in some places amongst their *Copy-hold* lands, which is of no certain quantity; it containing sometimes at least 7 *Statute Acres*, and at other places again perhaps not above *one*.

28. But tho' there is little danger of *overmarling* such sorts of lands, yet of some others there may: and therefore in some places they always observe the *thickness* of their mold above the *Catbrain* (as they call it) i. e. a sort of barren *clay* and *stone* mixt; which if they find but *thin*, they *marle* that land proportionably *less*; but if *thick*, they also *marle* it accordingly: for to lay a great deal of *marle* upon *thin* land, will produce but a mean, if any *cropp* at all. In short, this sort of *improvement* howsoever variously used, stands recommended to us,

* M. Catonis. Lib. de re Rustica, tit. 34.

not only from its long and continual use here amongst us, ever since the days of *Pliny*, who expressly says, that the *Britans* used it in his time; but from its keeping the ground in heart beyond all other *composts*; *Pliny* asserting that it will hold for 50 years together. We find indeed now that it doth not last to any great effect above 8 or 9 cropps; yet I beleive the land may be the better for it for so long time: for this always in some measure keeps up the heart of the soil, and does not eat it out after the manner of *Lime*. They generally marle their lands in *May* and *June*, but for no other reason, but that they have most leasure then, it being betwixt seed-time, and barvest.

29. Beside the manures above mentioned, there are several others I met with in the Country that must not be past by: such as dung, lime, and mould, rotted together, which laid upon arable land makes a good improvement. At another place I was told by an experienced Farmer, that he caused all the Chamber lye made in his house to be thrown on his dunghill, which he profest he found to be very beneficial. Another told me he had laid drift-Sand taken out of the roads on his low black land to very good effect. But the oddest sort of manure that ever I met with, was at Harbourn in this County, where they sometimes sow Vetches upon their poorest land, with no designe to reap them, but to plow them in under furrow before they are kidded, meerely as a manure, where rotting away they so fertilize the land, that it certainly brings a good cropp the next year. This at first I must confess I thought a strange piece of husbandry, but upon consultation found it to be no new thing; *Varro* and *Palladius* both acquainting us of old, that they did not only *Viciam pabularem*, but also *Lupinum*, cum necdum siliculam cepit, ac nonnunquam fabalia, si ager macrior est, pro stercore inarare. i. e. that they did not only plow in Vetches to fertilize their land, (as I found it here at Harbourn) but also Lupins, and sometimes beans, for the same purpose. At other places in like manner, on their poore light shallow land, that will neither bear hard-corn nor barley, they sowe a small white pea, which when ripe they never reap, but turn in as many hoggs as they think the piece will fatten, and there let them lye day and night; whose dung will so enrich it, that it will bring a good sword, which being continually stockt, and grafed afterward, will remain so many years.

30. As to the quantities of Corn sown on the Statute Acre,

^p C. Plinii 2^{di}. Nat. Hist. Lib. 17. cap. 7. ^q M. Terent. Varronis de re Rusticâ Lib. 1. cap. 24. & Palladii Rustici de re Rusticâ Lib. 1. tit. 5.

and

and the increase they ordinarily yeild, having spoken above: it remains only that we recount the varieties of each kind sown here; and by what rules they are guided in the choise of their seed: there being as many sorts used here, and perhaps more, than in some richer Counties. For beside the white-flaxen, and bright red-wheat (which are the ordinary grains of the Country) they now and then sow the *Triticum Multiplex* or double-eared wheat; *Triticum Polonicum* or Poland wheat; and *Tragopyrum*, Buck or French-wheat; all described above Chap. 6. And for barleys; beside the common long-eared, and sprat-barley, which are most used; they sow sometimes the *Tritico-spetium* or naked barley, of which also above Chap. 6. And amongst the Oats: beside the white, black, and red Oats; at Burton upon Trent I found they also sowed the *Avena nuda* or naked Oat; described, *Ibidem*.

31. About Swinerton, Tarnfield, and Shelton under Harley, beside the little white and gray peas; they sowe the white Rouncival, the bigg-brended pea, and the early ripe pea. And beside the Summer and Winter Vetches; the *Vicia Sylvestris*, si-ve Cracca, the wild Vetch or Tarr-grass is sown in some places, but these only in Meddows. Contrary to that of *Cato*, *Viciam & fenum Græcum quamminime herbosis locis serito*; that one ought not to sowe Vetches or Fenu-Greek in grass grounds. About Weeford they also sowe dills or Lentills on their poorest land, which serve to feed sheep and other cattle in winter; they sow hemp, and flax too, in some places, in small proportions; and for mixed grains, beside their Muncorn, or wheat and Rye mixt; they sow white and red wheat, common and sprat barley, both mixt, as was hinted above; and upon their poorer lands, barley and French wheat mixt, as I saw it at Heyley Castle; and barley and red Oats mixt, as at Swinerton and elsewhere.

32. In the choise of their seed (here as in Oxfordshire) they have a double respect; first, to the grain it self; and secondly, to the land it grew on. As to the former of these, they take little care, especially in their seed-wheat, how small or shrank it be, so it be even corn, and free from smut and seeds: for as strong and fair seed may sometimes degenerate and produce that which is small and lean; so vice versa, that which is thin and shrank (as they call it) will more ordinarily produce that which is fair and full breasted: contrary to that of *Columella*, quod vero protinus exile natum sit, nunquam robur

^r M. Catonis Lib. de re Rusticâ tit. 35.

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*accipere manifestum est*¹. that lean feed, can never produce a fair full Corn. Little more regard have they of their *seed-wheat*, in respect of the *soil*; for they matter not how poore or hungry the land be their *seed* comes off, tho' to be sown on their strongest rankest *soile*: in general they chuse corn for *seed* that grew on land of a quite different temper, from that it is to be sown upon; thus they almost constantly chuse their *seed-barley* that is to be sown on their *clay-lands*, from the *sandy*; and their *seed-barley* that is to be sown on the *sandy-lands*, from the *Clay*.

33. And upon this account it is, that in the *Southern* parts of the *County*, they sometimes send for their *seed-wheat* out of the *Moorelands* (the corn that grew *Northerly*, thriving naturally better in a *warmer Clime*) and so doe the *Moorelanders* out of the *South*: not only for that the *corn* that is fetch't afarr off, sucks a somewhat different juice, and so is a better *seed* than that possibly can be that grew there before: but also because if they should sow *seed* that grew in the *Moorelands*, it would degenerate in few years, in that wet moorish *Country*, into corn little worth: and therefore here they always supply themselves with the fairest fullest corn they can get from the *South*. Which is very agreeable to the advice of *Palladius*, who after he has told us that all seeds doe *locis humidis citius quam siccis degenerare*, immediatly adds, *quare subinde succurrat electio*², that they must therefore often help themselves by a new choise. For should they still goe on to sowe the degenerate seed of their own *Country*, it would certainly come at last to be very bad corne; not to say that it would turn into another *species*: which tho' a *point* one would not easily be brought to yeild to, yet there being so many *Examples* of such transmutations of *wheat* into *Rye* upon such accounts as these, alledged by so many good *Authors*, I cannot but recommend the *Experiment* of it, to the Worshipfull Rowland Okeover, Charles Cotton, and Thomas Rudyerd Esq^r; their habitations lying most convenient of any for this purpose.

34. For whose encouragement herein, I take leave to acquaint them, that one *grain* will sometimes bring forth *others* of a quite different *species*; as is testified not only by our own *Country-man* the famous M. Goodyer, who in *An. 1632* found three or four perfect *grains* of *Oats*, in the middle of an ear of *white-wheat*³: but also by *Olaus Wormius* who had an ear of *barley*, found and given him by the Rev^d. Michael Biturp Rector

¹ Jun. Moder. Columella de re. Rustic. Lib. 2. cap. 2. ² Pallad. Rutilii de re. Rustic. Lib. 1. Tit. 6. ³ Gerard's History of Plan. enlarged by Johnson Lib. 1. chap. 46. of

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of the *Churches* of *Gressue* and *Kildebrend*, that contained in it a moyety of *Rye*; the whole ear being made up of 4 rowes of corne, whereof one was of *barley*, and the other of *Rye*, alternatly⁴. Nor have we only instances of such partial transmutations, but also in *tota specie*; which tho' very strange, yet there being so many saith *Theophrastus* that have found it true by wofull experience, it can hardly be denied: πολλὰ δὲ ὡς φάσι, ἀσπίροντες πυρῆς ἢ κελῶς, ἐθέουσι ἄλευς. Many as they say having sowne wheat and barley, and yet reapt nothing but darnel⁵: with whom *Virgil* in his *Eclog*s seems fully to agree,

*Grandia sæpe quibus mandavimus bordea fulcis,
Infelix Lolium, & steriles dominantur avenæ*⁶.

intimating hereby, that *barley* did not only degenerate into *Rye* or *darnel*, but sometimes into *Oats* too.

35. Which transmutations as *Theophrastus* acquaints us, most frequently happen amongst such sorts of plants as are pretty near akin. τὰ δὲ εἰς τὸ συγγενὲς μάλιστα μεταβάλλει, κελῶσιν ἢ ζῆλα πῶς ἢ βροχῶσιν, as it has also fallen out (says he) in *Spelt* and *Oats*⁷: but most commonly of all betwixt *Wheat* and *Rye*: *wheat* not only degenerating in moist spungy land into *Rye*: but *Rye* also in strong and good fertile land, being improved into *wheat*. Whereof *Pet. Laurebergius* from the testimony of one *Manlius* gives us two pregnant *Examples* that happen'd at *Witteberg*, and in *Thuringia*; at the first of which places, and at *Leipsick*, if you dig (says he) a *pit*, and return the same *earth* again into it, that was taken thence, it will not fill it; a certain signe of a light lean *soile*: on the contrary in *Thuringia* if you dig a *ditch*, and fill it again with its own *earth*, there will always remain an *overplus*; as certain an argument of a strong and close *soile*: in the former whereof *wheat* being sown, in three years time it degenerated into *Rye*; and *Rye* sown in *Thuringia* in the same space of time, improved it self into *wheat*⁸. Now whether any where in the *Moorelands* there can be found such an *Earth* so hollow and spungy, as not to fill its own pit, as at *Witteberg* and *Lipsick*, I also recommend to the tryal of the same worthy persons.

36. That *wheat* will thus degenerate and turn into *Rye*, I find also confirmed by *Columella* and *Palladius*, *Authors* of unquestionable credit in these *Georgical* matters, both unani-

⁴ Olai Wormii Musæi Lib. 2. cap. 7. ⁵ Theophrasti. Eresii de Causis Plant. Lib. 4. cap. 6. ⁶ Pub. Virg. Eclog. 5. v. 36, 37. ⁷ Theophrasti Eresii de Causis Plant. Lib. 4. cap. 6. ⁸ Pet. Laurebergii Horticulturæ. Lib. 1. cap. 2. §. 3. & Lib. 1. cap. 13. §. 1.

mouſſy aſſerting, *Omne triticum ſolo uliginoſo poſt tertiam ſationem converti in ſiliginem*^b. But that *Rye* on the contrary ſhould be improved into *wheat*, I can only allege the Authority of *Manlius* for it: though that moſt ſkillfull *Botaniſt* *M. Bobart* of *Oxford*, gives us an inſtance that comes pretty near up to it, from his own experience; having improved the ſeed of *primula veris* or common wild primroſe to that height, that it has produced the *primula polyanthos* or *Oxlip*, which falls out not much ſhort of the former inſtance. Theſe ſtrange *transmutations* of one *ſpecies* into another, *Theophraſtus* aſcribes only to the great diverſities of *Airs* and *Soiles*: But *Varro* will needs add (and perhaps as truly) that the ſame will come to paſs upon *deſects* in the *ſeeds*, particularly inſtancing in the *ſeeds* of *Coleworts*, which tis reported ſays he, if ſown older than they ſhould be, will change the *ſpecies*, and produce *rapes* or *turneps*, and ſo *vice verſa* will *rape-ſeed* *coleworts*^d. which if true are inſtances more remote, and conſequently more wonderfull than any of the former: tho' their union in the *Coli-rape* ſeems to argue a probability.

37. If their Lands be ſubject to *blaſting*, *ſmutting*, *Meldews*, or *birds*, they endeavour to prevent them either in the preparing, or choiſe of their *ſeed* before ſowing; or after their corn is come to *ſeed* again. To avoid *blaſting*, and *ſmutting*, they ſteep their grain in *brine* before they ſowe it, which they eſteem a very probable, if not a certain *remedy* for this *disease* of corn: it having been found by *experience*, that part of a field of *wheat*, the *ſeed* whereof was *brined*, has been clear of *blaſt* and *ſmutt*; whereas the other part where the *ſeed* was ſown without *brineing*; has ſuffered much by both. To prevent *Meldewing*, the moſt pernicious of all the *annoyances*, that *incloſures* and *rich lands* are lyable to, *Thomas Cartwright* pariſh *Clerk* of *Womburn* in this *County*, either mixes his corn with *ſoot* before he ſowes it, or ſowes *ſoot* upon it after the *wheat's* in the ground: by which means he has preſerv'd the corn from being *Meldewed*, in *lands* always obſerved to have been lyable to it, and this not for one or two, but for ten years together: the more *ſoot* he has mixt or ſown, proving ſo much the better, tho' of the two, he finds *mixing* to ſucceed the beſt. Which being matter of fact, and the *cure* conſiderable, becauſe the *disease* is ſo; it may be worth while perhaps to look into the *cauſes* of this

^b *Jun. Mod. Columella de re Ruſticâ Lib. 2. tit. 9. & Pallad. Rutilii de re Ruſtic. Lib. 1. tit. 6.* ^c *Theophraſti Ereſti de Cauſis Plant. Lib. 4. cap. 6.* ^d *M. Terent. Varro de re Ruſtic. Lib. 1. cap. 39.*

annoyance,

annoyance, and how it comes to paſs that *this* proves a *Medicin* for it.

38. Firſt then, as to the *cauſes* of *Meldews*, ſome have thought them much occaſioned, by an unſeaſonable time of ſowing; and therefore have ſown very early, as judging *corn* moſt ſubject to this *disease* when ſown late: but this cauſe is certainly but ill grounded, ſome land *meldewing* at what time ſoever they are ſown. Others again have placed the *origin* of *meldewing* in making *ſmall incloſures*, *corn* not being ſo lyable to this *evil* in the common open fields: which tho' it muſt be confeſt in part, yet this can be but an *accidental cauſe* at moſt; for let the *incloſures* be never ſo *ſmall*, ſo the land be *poore*, the *corn* that it bears ſhall rarely be *meldew'd*. It remains therefore that the *adequat original cauſe* of this *malady*, muſt be in the *richneſs* of the *ſoile*, eſpecially if not naturally; but made ſuch by *dung*, which fattening it, and ſending up a moiſt *viſcous ſteam*, that upon *congelation* in the *Air* falls down upon the *corn* again in a *dew* of the ſweetneſs and conſiſtence of *hony*, and there ſticking to the *ſtraw*; and further harden'd by the *Sun*, ſo binds up the *pores* of it, that the *nouriſhing juice* in great measure is prevented thereby, aſcending to the *ear*: whence the *grain* becoms *ſtrank*, as we commonly ſee it in all *corn* affected with this *diſtemper*. And this I take to be the true *origin*, and *proceſs* of *Meldewing*.

39. Now if this *ſteam* when aſcended, be any way hindered, being diſperſed by the *wind*, or ſhaken off the *ſtalks* of the *corn*, when fallen on them, by the *height* or *narrowneſs* of *incloſures*, it muſt be owned that they are thus far an *accidental ſocial cauſe* of *Meldews*: but for their true *original* I believe it to be nothing elſe but that *viſcous ſteam* rais'd by the heat of the *Sun* out of the fattneſs of the *dung*, which if ſuck't up, or kept down by any dry aduſt matter, that it cannot aſcend at all, as I ſuppoſe it is by the *ſoot*, the *annoyance* thereby is fully prevented: and any other ſuch *matter* what ever elſe it be that may hereafter be found out that will doe this, may alſo very well be thought a proper *remedy* for this *diſtemper*. If it be objected that this *medicin* is too narrow for the *disease*, there not being quantities of *ſoot* to be had in proportion to the *lands* that are lyable to *meldews*: I anſwer that this hinders not but that it is a true *antidote* as far as it will goe; and that where this cannot be had plentifully enough, other *remedies* muſt be uſed, ſuch as *ſowing bearded wheat*, whoſe *ails* catching the *dew*, do prevent in great measure its falling on the *ſtraw*, and doing the *miſcheif* abovemention'd.

40. But

40. But if there be any such land that lyes so untowardly (as perhaps there may some) that neither of these can be conveniently had or used; my advice is then, that the order of sowing it be wholly inverted; that is, that they do not immediately sow wheat after the dunging such land, but first barley, then peas, and wheat last: because by this means the stock of matter in the dung that occasions these Mildews, will be spent in the time of the barley and peas that are not, before the corn comes to be sown that is, lyable to them. To prevent any grain's being destroyed by birds, presently as soon as sown, both limeing, and mixing it with soot as above, have been found effectual: but when come to feed again (I mean whilst in the ear) I met with no device here that would secure it from them, only in a hemp plat in the way betwixt Whitmore and Asbley I found empty egg-shells hung upon most of the stalks of the seed-Hemp, which they told me was a contrivance to preserve them from the birds, which being a very odd one, I could not without injury to the Readers diversion, but take notice of it.

41. Thus having given some account of the tillage of this County, their several manures, the quantities and choice of seeds, and the methods of preventing the annoyances of corn: I proceed to the Instruments they use in their tillage. And first of the ploughs, which are generally the same here, with those of other Counties, nor met I with any thing uncommon relating to them, any where but at Frodswell, where one M^r. Ferrybough shewed me an instrument of Iron of his own invention set through the plow-beam behind the Coulter, and through the plow-head, steeled with an edg forward, of excellent use in plowing new stockt grounds, it cutting roots asunder as bigg as ones arm without prejudice to the plough; which were it not for the strength that is also given it by this Irons going through the plow-beam and head, must needs quickly be torn in pieces with such work as that. Yet now I remember M^r. Ashmore of Tamworth also sent me an account of much such a plow with two sharp wings of iron made fast to the plow-share, and following the Coulter on each side, that he had likewise contrived for the same purpose. They also draw their ploughs here both with Oxen and Horses; but at many places rather with the former than latter, because of their turning to a more certain profit, and having less of hazard in them: Oxen always increasing in price with their fatness; and if sick, or coming to any mischance, yet may be kill'd to some profit, which a Horse cannot be. They generally plough with their Oxen in pairs; but with their Horses in a string, to prevent pocking the land: and so they doe in some places with their Oxen

Oxen too, in very wet seasons, being furnish't with half yeaks for that very purpose.

42. After their Corn is sown they cover it with Harrows, not much differing from those of other Countries; only in the Moorelands I observed they were somewhat less than ordinary, but very strong ones. But in the Moorelands they never roll their barley, I suppose because they mow none, and therefore have no such instrument as a Roll among them. When their Corn is come up (especially their Oats and Barley) if sown on a binding land, and it prove a dry time; at and about Church-Eyton they sometimes harrow them again, to break the clodds and loosen the earth, which will make them flourish much the better: for tho' it may pluck some up, yet it making more spring by half than it destroyes, they account it advantagious. After the Corn is in the blade, if it grow too ranck, as at some places they eat it off with Sheep: at Alrewas in this County they mow off the topps of it before it spindles, which they doe with a reaping-hook, not a Sithe. And before their Corn is ripe, about the latter end of May or beginning of June, they weed their Wheat, Rye, and Barley, and sometimes Oats, with an Iron digger, and another instrument like a pair of Smiths tonges jagged like a Rasp on the inner sides to take the firmer hold; with which they pluck up the weeds by the roots, which being perennial plants, springing annually anew, I look upon as much a better instrument, than the books of other Countries, which only cut them off above ground, so that if weeded early, they grow up again before the Corn's ripe, at lest the next year, from the same root.

43. When time of harvest is come, they reap their wheat and bind it after the manner of other Counties, and so they doe their Rye; when bound they gather nine sheaves together, and set them upon their butt-ends, and cover them with three, and so let them stand ten or twelve days, according as the weather proves, before they carry them; the Corn thrashing the better, the longer it stands. Their barley they mow with the Sithe and Cadar in the South parts of the County, and in some places where the land was never roll'd, especially where light and easily clodded; but in the Moorelands as they roll not, so they never mow their barley, but reap it with books, the land being generally so grassy there, that they would loose half their Corn should they goe about to mow it, especially should there happen a wet season, for that it could hardly then be ever got dry again. In the Southern parts if clean and free from weeds, they bind and cock it as they doe Wheat and Rye: but if grassy or have weeds in it; they

let it lye to wither two or three days, then *rake* it together and *cock* it as in the *Moorelands*, letting it stand five or six days before they carry it. Their *Oats* they *harvest* much after the same manner they doe their barley. But their *beans* and *peas* they seldom *mow*, but *reap* them with *hooks*, letting them lye in *reaps* 12 or 14 days, and never turning them but once, *viz.* the day before they carry them.

44. For *Waynes*, *Carts*, and *Waggon*s, they use the very same for carriage of their *Corn*, and other matters, that they doe in other *Counties*; only some of them I met with that had certain *peculiarities* that I never saw elsewhere; particularly betwixt *Normacot* and *Weston Coyney* I met with a *Cart* that had its *floats* supported, with *standards* erected upon the ends of the *Axles* without the *nathes* of the *wheels*; which seeming much firmer than the usual ones resting on the out *timbers* of the *bedd* of the *Cart*, I thought them worth mentioning. And at *Pillaton-Hall* the Seat of the Worshipfull *Edward Littleton* Esq; I was shewn a sort of carriage indifferently serving for a *Cart* or a *Tumbrel*; the *Cart-ladder* or *thripple* both before and behind being to be taken off at pleasure, and the *Tumbrel* to be made fast to, or loosed from the *Thilles*; like the *Whiplade* of *Oxfordshire*^e. But the oddest carriage of all I saw at *Dimsdale* near *Wolstanton* (used cheifly I suppose for the portage of *Hay*) made only of two strong pieces of *timber* dragging on the ground, and a *thripple* behind, with which they could carry a pretty parcel of *Hay*, or any such like commodity.

45. When they have carry'd their *Corn*, tho' they lodg it in a *barn*, it is yet subject to the dammage of *mice* and *ratts*; to free themselves of which *Vermin* many have been the contrivances of ingenious men: but none that I know of so clear of *inconveniencies*, as what was reported to me by M^r. *Alsager* of *Standon*, who seriously told me there was nothing would more infallibly drive these mischeivous *Animals* (especially the *Ratts*) from a *house* or *barn*, than laying *bird-lime* in their *haunts*: for tho' they are nasty enough in other respects, yet being very curious of their *furr*, if but dawb'd with this stuff, it is so troublesome to them, that they will even scratch their skins from their own *backs* to get it off, and tho' he thinks not they ever destroy themselves upon this account, yet they will never abide the place where they have suffer'd in this manner. If they have not room to *imbarn* their *Corn*, they commonly set it up in *ricks* upon *staddles* as they doe in *Oxfordshire*, and thatch it with

^e Nat. Hist. of Oxfordsh. Chap. 9. §. 195.

broom

broom or *beath* to preserve it from *rain*, laying at the bottom next the *timbers* that lye on the *staddles*, a range of *furse-fagots*, which perhaps prevent the ascent of *mice* and *ratts* better than the *staddles* themselves. Which is all concerning *Corn* whilst in the *blade* or *straw*, but that at some places they still thrash it, after the ancient manner *sub dio*, as I saw them upon the *pavement* in the open streets at *Burton upon Trent*. And that they drye their *Oats* in great measure with their own *bushes*, which thrown upon *turf* set archwise as in *Tab 32. Fig. 3.* burnt freely enough.

46. As for *Meddow* and *grass*-grounds, the *County* being so well water'd as has been shewn above *Chap. 2. §§. 20, 21.* as they must be numerous, so they are most of them very fertile, being not only made so by the *land-floods*, but (as on *Dove-bank*, and many other places) by the *sheeps* dung wash'd down from the hills adjacent to them, which of all *cattle* next that of *Asses* is esteemed the best. So that as such lands as these want no other *improvement*, the *Reader* must not expect any *Methods* or *Rules* whereby they receive any: nor of the cure of any *diseases* incident to them, such as *Mosses*, *Rushes*, *Sedges*, &c. for that I found upon enquiry, they were little subject to them. But such *grounds* they have too as well as other places, their *boggy*, *peaty*, and *cold-black-lands* producing all these, which they cure by *draining*, and *manuring* with *ashes*: Thus M^r. *Jobber* of *Aeton Trussel* having a piece of wet ground overrun with *Moss*, by cutting of *trenches*, and spreading it all over with the *ashes* of *Pit-cole* destroyed all the *Moss* the first year, wherein he agrees with *Columella*, who in his Chapter, *quemadmodum prata colantur* prescribes the same *Method*, *quorum neutrum tantum prodest, quantum si cinerem sepius ingeras, ea res muscum enecat.* i. e. that nothing is so good to lay upon *Meddows* as *ashes*, for that they kill the *Moss*s. Which I guess they doe upon the same principle, that *soot* prevents *Meldews*, imbibing the *steril juices* that produce such *trumpery*, and substituting good wholefom *clover* in the room; which not only the *ashes* of *coal*, but of *wood*, and *fern* too, are all observed to doe; whereof about 30 *strike* serve an *Acre*, which they chuse to lay on in the *Spring*, rather than *Winter*, for that the *rains* wash them away and destroy their virtue.

47. But tho' such *trenching* and *ashes* will perform this cure, yet if it be but barely *trenched*, there is danger of a *relaps*, because such *trenches* as these in a little time will swell, and fill

^e Palladii Rustici de re rustica. Lib. 1. tit. 33. & Jun. Mod. Columellæ de re Rustica Lib. 2. cap. 15. § Jun. Mod. Columellæ de re Rustica. Lib. 2. cap. 18.

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up

up of themselves, and then the cold *steril juices* will return again, destroy the *Medicin*, & quickly produce the same *disease*. To prevent which inconveniency, M^r. *Astley* of *Tamborn* drains such Grounds much after the manner as described in *Oxfordshire*^h, digging his *trenches* deep, and laying *pebbles* or other stones in the bottoms of them, and over them *Heath-faggots* to prevent the *earths* falling in twixt the *intersices* of the *stones*; and then covering all with *earth*, the whole remains an everlasting *Sough*: the *beath* enduring the *wet*, and supporting the *earth*, till such time as 'tis settled again into firm land. And this way of *trenching* one would think were sufficient to all intents and purposes; yet M^r. *Sylvester* of *Weeford* seems further to have improved it, by the invention of an *instrument* to make such a *Sough* without breaking the ground, but at some certain distances; being much like a *shovel* about 4 foot long, with which he first diggs a hole deep and large enough to receive a *Man*, together with his *instrument*; then he excavates the *hollow-black-earth* as far as his *instrument* will reach both ways, i. e. eight foot beside the *diameter* of the hole, leaving the upper turf a yard thick above it; then at the same distances on a *line*, from eight foot to eight foot, he makes other *holes*, and so still on as the work requires: and then putting in *Alders* (whereof they have commonly great plenty in all moorish grounds) or other fit materialls, as *brush-wood*, &c. to keep the earth from falling in and choaking the *Sough*, it will drain the ground to that rate, that many times it will sink a *yard* or more: which he after improves with all sorts of *Asbes* laid on dry as above; which kills the *Moss*, &c. produces the *Meddow-trefoile*, and brings it at last to be good *Meddow-ground*.

48. Nor are such *boggy*, *peaty*, and *cold-black-lands*, that bear little else but *rushes*, &c. only improved by draining and laying them dry by *Soughs*: but where there is conveniency also, by being artificially *water'd* or *overflown*. The best instance whereof that I met with in this *County*, was at *Drayton park*, belonging to the right Honorable the Lord *Visc. Weymouth*, a most noble *Patron* of this work; where his Lordship having the advantage of the *black-brook* passing through it, tho' esteemed but a *lean hard* water, yet by cutting a *fleme* or main *carriage* 18 foot broad and scarce a yard deep, on the upper side of about 35 *Acres* (at one place) of such *land*; and smaller *carriages* or *trenches* 40 or 50 yards asunder, not above 4 foot wide, all issuing from the said main *fleme*; each of these smaller *carriages* having a yet smaller *drain* of a foot wide, to carry off the water again at

^h Nat. Hist. of Oxfordsh. Chap. 9. §. 82.

discretion,

discretion, as it was brought on by the greater: his Lordship by this means has so improved this *land*, tho' the water but bad, (yet much better it seems than that *steril juice* that it had before, which is hereby drawn off) that in 2 years time, whereas it was thought to be dear of *three*, it became worth at least 30 *shillings* an *Acre*. The 35 *Acres* in *An. 1682* bearing 40 loads of good *Hay*, the grass after being worth 10 or 12 pounds beside. Another improvement of this sort of *Land*, if it be full of *Mossy*, *Sedgy*, *Heathy Hillocks*, as many times it is; is by levelling them by a short strong *Sithe* about 2 foot long, fitted with a strong *Snead*, with which a man at three blowes, can cut up a *Hillock* a yard and $\frac{1}{2}$ or 2 yards wide; and will doe as much in a day as 4 Men can of the same work, in the same time, with their *shovels*.

49. And thus having shewn the several *Methods* of preserving both *arable* and *pasture grounds* from their inbred *Enemies*, let us see what other uncommon *Arts* have been used to secure them from those without, such as spoile by *cattle*, *Hunters*, &c. that is, what extraordinary sorts of *fencing* have been found out here, for preserving of their *grounds* unusual elsewhere. Amongst which for a *living-fence*, I met with none so artificial and serviceal as those, made by the *planching* of *Quicksets* i. e. cutting them half through, and laying them cross the ditch upon the adverse bank, and laying some *earth* upon them to keep them down, first *hacking* each branch to make them sprout, by which means there may be made as many *hedges*; one within another as shall be thought fitting, all still proceeding from the first roots. And for a *dead-fence*, none certainly better (where the *grounds* afford them) than those *beathy-turf walls* made by M^r. *Ashmore* on *Packington* heath, which he orders thus: the *turf* being quickly cut by a strong *plow*, the *Workmen* then have little more to doe in order to them, but to cut the plowed *turf* into suitable pieces of two foot long; which, laying the rough side outmost, and filling up every course close, with such mould or sand as the place affords, will make *walls* so firm (notwithstanding they will shrink near a quarter part, which must be allow'd for in the making) that with little repairs 'tis believ'd may stand at least 20 years, if well made at first, especially if betwixt *Michalemas* and *Christmas*; for then a great part of the *turf* will grow for several years, so that these are not absolutely *dead-fences* neither: however they are found of singular use, especially for sheltering *Sheep* from cold storms and blasts, which they doe to that effect, that *Sheep* will now abide that *beath* and feed upon *Ling* all the hardest winter, which they

they could never be made to do, before this *contrivance*.

50. Having done with the *tillage* and *productions* of the *Earth*, I should have come next to the *Arts* of *forming* them into divers shapes for their respective uses: but having treated already of the whole *Art* of *Pottery*, I have little to add, but that *Charles Riggs* of *New-Castle*, has a sort of *Engin*. I never saw elsewhere, with which he punches the *bolles* of his *Tobacco-pipes* much quicker and truer than others of his *trade*, unacquainted with this *instrument*; which being invented as he told me in the Kingdom of *Ireland*, in justice to the *Country* I forbear more of it here. And proceed to a sort of *arched-Bricks* they make about *Wednesbury*, bent round to fit the *Eyes* of their *Cole-pits*, which are generally about 2 yards in *diameter*, by which they are secured from colting in, much better than by *timbers*, as I saw some pits near that *Town*, thus wall'd up with them for two yards deep, there being no necessity of doing it lower there; the *clay* being after *stiff* enough to uphold it self. To which we may add that their *Quadrells* of *peat*, are made into that fashion by the *spade* that cutts them, which is nothing else but a thin iron plate bent to a right angle with equilateral sides, so that it makes the half of an oblong right-angled *parallelepiped* cut *diagonally*. being somewhat like the composing stick of a *Printer*, which at two cuts brings out one of these *Quadrells*, which they set to dry, as described in *Oxfordshire*. *

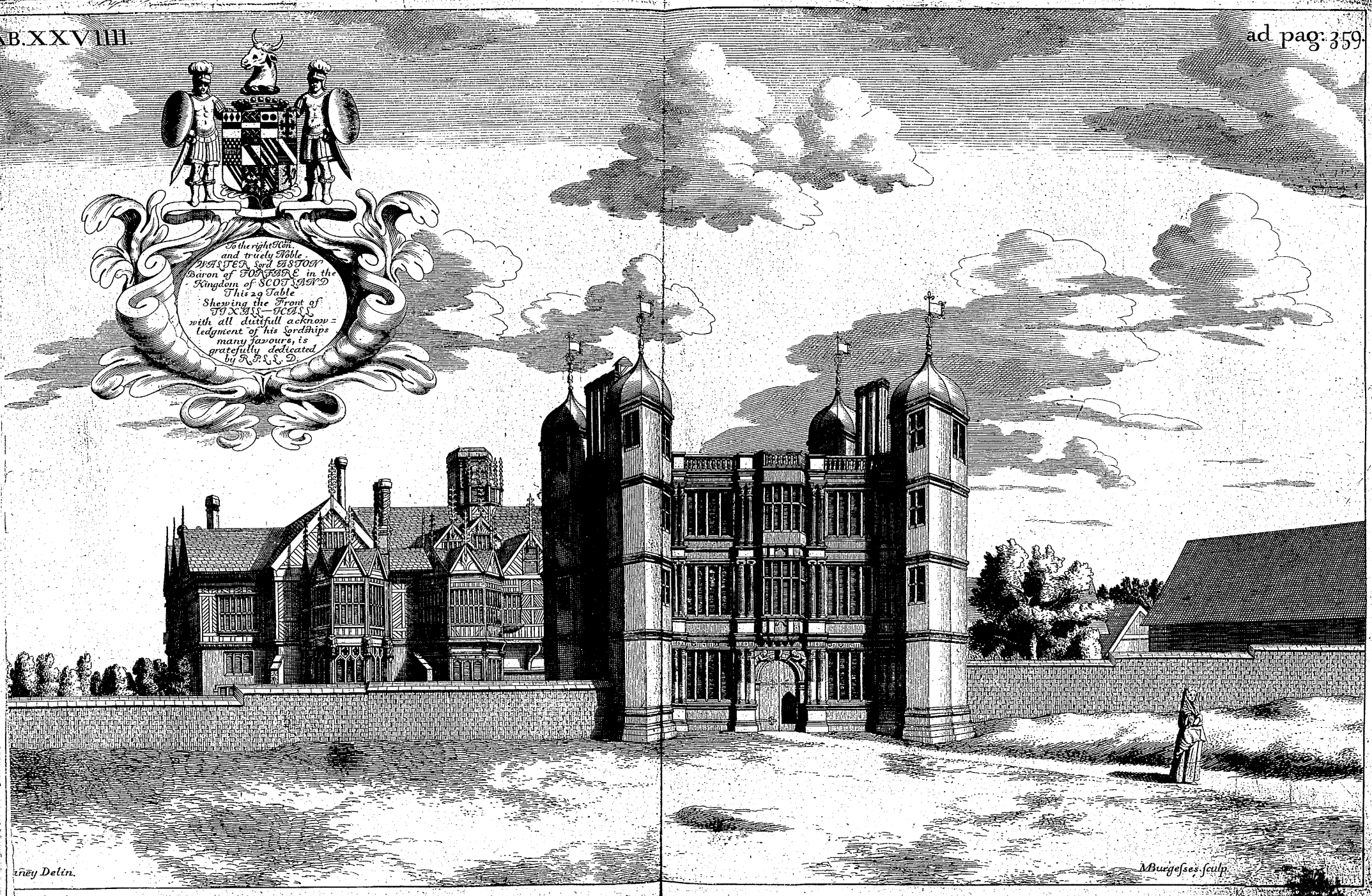
51. Next these, follow the *Arts* relating to *Stones*, whereof having already given an account at large of the *Ores* of *Metalls* (which are generally *Stones*) the ways of *smelting* and *refining* them, *hammering*, *slitting*, &c. I have little more to account for of this kind, but what relates to *Architecture*, the buildings of this *County* being for the most part *Stone*. One house indeed I pass by twixt *Chedle* and *Okeymoore*, built only of *turf* in a *Conical* manner, much like the houses of the *Indians* near the *Straights* of *Magellan*: but for the *buildings* of any note, they are either of *brick* or *squared stone*, whereof some are *privat*, others *publick*; and the latter, either *civil* or *Ecclesiastical*; and may all be considered either in the whole, or *parts*. Of the *private structures*, the most eminent in the *County*, are those whose *prospects*, the *Reader* has or will find engraven in this *Work*, wherefore I shall forbear so much as naming them here. Yet it must not be deny'd but there are as *fine buildings* not represented in *Sculp-*

* Chap. 2. from §. 25. to §. 28. inclusive. * Nat. Hist. of Oxfordsh. Chap. 3. §. 41. See Sr. John Norbury's Map. of the said Straights.

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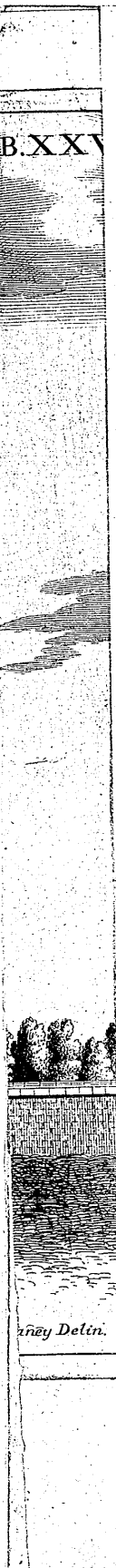
AB. XXVIII.

ad pag: 359



Wray Delin.

M. Burgesses sculp.



Chap. IX. Of STAFFORD-SHIRE. 359

ture, as any that are; such as the *Seat* of the right Worshipfull *S. Thomas Wilbrabain* at *Weston* under *Lyzard*, the *Front* whereof I could have gladly engraven, but that forbidden by the *Proprietor*, (though a generous contributor to this work) whether out of modesty, or any other privat respects, I pretend not to know.

52. The *Seat* of the right Worshidfull *S. Richard Astley* at *Pateshull* built all of squared *Stone*, which if taken altogether with the *Gardens* and *Waterworks*, the *Vista's* and *Walks*, set with double rows of trees for number length and bredth exceeding all in the *County*; not forgetting the many stately *gates* of iron-work curiously painted and gilt, leading into them; with the *Mounts* and places of *Repose* at the ends: which, I say, if taken all together, is certainly the most aecomplish't and delicious *Mansion* in the whole *County*, should also have been exhibited in *tail-douce*. And so indeed it was intended, but that the *Designe* of the *Graver* fell so very much short of the real thing it self (the many *trees*, *gates*, and *buildings* hiding each other) that it had been an abatement or disparagement to its true worth to have given the *Prospect* of it. The *Seats* of the right Worshipfull *S. Walter Wrottesley*, at *Wrottesley* and *Purton*; of *S. Henry Littleton* of oyer *Arley* *Baronet*; of *S. John Pershall* of great *Sugnall* *Baron*; of *S. Francis Lawley* of *Cannal* *Baron*; of *S. Henry Gough* of *Pury-Hall* *K.* of *S. Thomas Whitgreave* of great *Bridgford* *K.* of *Ralph Sneyd* of *Bradwall* *Esq.* of *Thomas Kinnerley* of *Loxley* and *Vitoxater* *Esq.* and divers others; doe all likewise shew a great deal of present, or past magnificence: and yet in all these eminent private *Gentlemens* *Seats*, could I find little or nothing extraordinary in the whole.

53. But in the *parts* of several of them there are divers things observable: particularly the *Gate-House* of *Tixall-Hall*, the *Seat* of the right Honorable *Walter Lord Aston* an eminent Encourager of this designe, is a curious piece of *Stone-work*, well worthy notice; and is here presented together with the house, to the *Readers* view, *Tab. 29.* it is remarkable also that the *windows* of the house, tho' very numerous, are scarce two alike; and so 'tis at *Chillington*, the *Seat* of the ancient family of the *Giffards*. It is observable likewise that the *tunnells* of the *Chimneys* in both these houses are very numerous, the *Hall Chimney* at *Chillington* having no less than 8 *tunnells* to one *hearth*; the *fretwork* of the *tunnels* also in both these *Seats* being so very various, that scarce two agree: whence 'tis easy to collect that the beauty of a *structure* in those days (which seemes to be *temp. Hen. 8.*) did

did not consist, as now, in *uniformity*; but in the greatest variety the *Artist* could possibly shew.

54. The *Stone-rail* upon the wall built about the *Green-court* before *Trentbam* house, is a pretty piece of work, it being supported with *Roman Capital Letters* instead of *ballisters*, containing an *Inscription* not only setting forth the name of the ancient *Proprietor* and *builder* of this *Seat*, but the *time* when it was done: the *Numeral Letters* put together making up the *year* of our *Lord*, when it was finish'd *viz. An. 1633*, which will appear by the *Numerals*, set in *Roman Capitals*, in the *Inscription* here annex'd: the other *Capitals* being all set in *Italick*.

CAROLO BRITANIÆ REGE RICARDVS LEVESON
EQVES BALNEI AEDESHASCE HIC FIERI VOLVIT.

there being two DD; four CCCC; four LLLL; five VVVV; and eight IIIIII; which make up that *Date*. And the conveyance away of the *water* which commonly comes in under outer doores of houses that lye open to the weather, which I saw in the *Summer-house* of the *Garden* at *Aqualat* was effectually done by a *groove* cut in the *Stone-Threshold* just under the doore, and a hole from it through the body of the *Stone* to let out the water, is a usefull *contrivance*. Which is all I met with remarkable in *Stone-work*, unless it be worth notice, that they sometimes make their *Ovens* in the *Moorelands* of this *County* (which are often of *Stone* as well as *brick*) at a *distance* from their houses; whereof I saw one near *Madely* park-pale, the remotest of any, but for what conveniency so placed, there being no body at home, I could not learn.

55. Of *publick* buildings whether *Ecclesiastical* or *Civil*, the most eminent in the *County* is certainly that of the Cathedral of *Lichfield*, it challenging a due *observance* at a great distance by three such lofty *Spires*, *procul veluti salutantes advenas*, as no Church in *England* can boast the like; and reverence near at hand, being finely adorned with *Studds* and *carved* work: *ut juxta intuentibus* (as *Erasmus* says of the Church of *Canterbury*) *religionem incutiat*. The *tracery* in the *Stone-work* of the *West-window*, as well as the *glazing*, the gift of his present most Sacred Majesty King *JAMES* the second, is a curious piece of *Art*, and commands due attention: and so doth the *Imagery* at the *West* end of the *Church*, which falls little short of that of *Wells* in the number, tho' the *Stone* not so good. In short, the *Architecture* of this *Church* if taken all together, tho' most

Desid. Erasmus Rot. Colloq. de peregrinatione Religionis ergo.

highly

highly commendable; yet there is one thing in it, that seems not so *artificial*, it not being placed due *East*, and *West*, as other *Churches* are, but declining no less than 27 degrees from the true points; as I casually found by my *Compass* when I was upon the battlements of the middle *Steeple*, to take the manner of its *bearing* to other places in order to my *Mapp*: the *East* end declining so much to the *North*, and the *West* end to the *South*. Which as it shews how ignorant they were in those times, as to matter of accuracy, even in the meanest parts of *Mathematics*; so it seems to instruct us on the other hand at what *time* of the *year* the *Church* was founded.

56. For whether the *Compass* were first brought in use in this *Western* part of the *World*, by *Paulus Venetus*, who as some beleive learned the *secrets* of it in *China*, and brought it into *Europe* *An. 1260*; Or was first invented by *John Goia* a Citizen of *Malsi* in the Kingdom of *Naples* *An. 1300*; yet both these being long after the *foundation* of this *Church*, they could have no help from this *Instrument* to guide them in the placing it. So that it is very probable all the direction they had in those elder times, was from the *Sun* it self; which rising in the *Summer* more or less to the *Northward*, and in *Winter* proportionably to the *Southward*, of the *Equinoctial-East*; in all likelihood might occasion so many *Churches* not to respect the due *East*, and *West* points, but to decline from them more or less, according to the early or late *season* of the *year*, wherein they were founded. Which if granted (as I cannot see why it should not) this *Church* must be begun either on the 27 of *April*, the *Sun* then possessing the 17 degree of δ , in its access to the *Summer Solstice*; or on the 30 of *July* the *Sun* then being in the 17 of δ in its recess from it; the *Sun* in the respective degrees of both those *Signes* being exactly removed 27 degrees from the *Equinoctial East, Northward*.

57. For which very reason also the *Church* of *Alveton* in this *County*, which declines in like manner from the true *East* 32 degrees *Northward*, seems to have been founded either on the 3^d of *May*, the *Sun* being then in the 22 of δ , in its access to the *Tropic* of ∞ ; or on the 23^d of *July*, the *Sun* being then in the 10 of δ , in its recess from it; the *Sun* in the mentioned degrees of both those *Signes*, being distant from the *Equator* (*Northward*) just 32 degrees. And so vice versa, may the *foundations* of the *Churches* that decline *Southward*, be computed according to the *distance* of their respective *recesses*. If it be objected

Gul. Gilberti de Magnete Lib. 1. cap. 1. ° Ibidem.

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that

that the foundation of the Church of Lichfield is faithfully Recorded, and that it agrees not at all with the above mentioned Conjecture; the Cronicle of Lichfield expressly acquainting us, that it was founded on the 2 of the Calends of January, An. 700 p. It must be answer'd that the Church mention'd in the Chronicle, is not the Church now standing, there having been two before this; one, built by Formannus the immediat predecessor of S. Ceadda An. 666 a. and the second by Hedda, Bishop of Lichfield and Legecestre, who translated the body of S. Ceadda into it, which is the Church that was founded the second of the Calends of January as above alleged: this now standing being built by Roger de Clinton who was made Bishop of this See, An. 1128. temp. Hen. 1. Qui Ecelesiam Lichfeldiæ erexit tam in fabrica, quam in honore. which, as I guess by the standing of it, he began about one of the times above specified.

58. Now whether the declination of Churches from the Equinoctial East, ought to be esteemed any diminution to them, or noe? depends wholly upon the reasonableness of the usual preference of that quarter of the World, in this respect, before the rest; which remains to be considered. In the examination whereof I find it plain, from the ancientest Records of time whatever, that the Deity was ever thought to have a more special presence in the Eastern parts, as well amongst heathens, as the Worshippers of the true God. Το δεξιόν κεινόν (says the great Philosopher) ἀνάκειν ἢ δὲ ἐν μέσῳ, ἢ ἐν ἀριστερῇ. i. e. that the first Mover must necessarily be either in the Center, or Circumference, ἀλλὰ τὰ χεῖρα κινεῖ τὰ ἐξώτερα, ἢ κινουμένων but motions are most rapid near the first impressiō, Ἐκὼ δὲ ἐξ τῶ κινῶν. therefore the Mover must be there. Now we all know by the motions of the Starrs, that the Heavens move swiftest in the very Equator, therefore the first Movers place must be in that Line. Nor did the Philosopher think neither, that he was present alike to all parts of that line, πᾶσα δὲ κίνησις, ὅση καὶ τὸ πῶς, but that all motion was more especially accommodated to that part ὅθεν ἡ ἀρχὴ κινήσεως, whence the motion did begin: which to such as imagin'd the Earth to be a rotundum planum terminated by the Horizontal Segment of the visible Heavens, could not appear any other than the Eastern part, where the Sun arose. Upon which account Aben Rus'd or Averroes also bears us witness, quasdam Leges adorasse Deum versus Orientem. And Porphyrius acquaints

p Ex Vet. Codice MS. Chronicon Lichfeldense. nuncupat. in Bibliotheca Cottoniana. q Fran. Gohvini de Presulibus Angl. inter Coventr. & Lichfeldenses. r Ex eodem vet. Codice MS. supra citat. s Aristot. Physicorum Lib. 8. cap. 15. text. 24. t Aristot. de Cælo. Lib. 1. cap. 2. text 5. u Averrois Cordub. in Phys. Aristot. Lib. 2. text. 3. us

us Οἰοῖς μὲν τὰ ἀνατολικὰ οἰκίαι, that the habitations of the Gods were in the Eastern parts. Which is the reason given by Cinnius Capito, as quoted by Mr. Gregory (who it seems spake like an Astronomer looking Southward) why the left, or Eastern Omens, were always esteem'd more prosperous than the South.

59. Also the Jews (God having planted Paradise Eastward in Eden, and the tree of life in the East part of that Garden, as appears by the Cherubims, and flaming sword, placed there to keep the way of it) always shewed the greatest reverence to this quarter of the World, and worshiped that way; as the Hebrews deliver Adam himself did, nor is their tradition unreasonable: for it cannot be imagined upon what other account it was, that when he gave names to things by divine institution, he should call the East, Kedem, which is before the face; and the West, Achor, i. e. the back part; and consequently the North, Smol, that is the left; and the South, Teman, or the right hand. Nor did God only shew a particular regard to this quarter, presently after the Creation; but took occasion all along, in after ages, in the times of the Prophets, to shew it to be the place of his more special presence. Thus in the Visions of the Temple, we read, that the glory of the God of Israel came from the way of the East, and entred the Temple through the Eastern gate; wherefore this gate was shut up, that no man might enter by it, because the Lord God of Israel had entered in by it. Nor indeed could it be otherwise, since it seems plain enough that the throne of God is placed in this part of the heavens; David in his exhortation to praise God for his wondrous works, expressly bidding us, to Sing unto him that rideth upon the heavens of heavens Eastward, as the LXX rightly read it, the same word Kedem being used here as in Gen. 2 v. 8. where God is said to have planted Paradise in Eden, Eastward, not [which was of old] as tis render'd in our common English Bible, which would have been very incongruous. To which add that when Lucifer exalted himself above the starrs of heaven, he said in his heart, He would sit in the sides of the North that is says Magius in the left side of the North or Eastern part of heaven, where the throne of God is thought to be.

60. Upon which account not only Adam, but the whole world beside, till about Abrahams time, for the space of 3328 years, worshiped toward the East, as the learned M. Gregory

w Porphyrii Philosophi de Antro Nympharum Lib. 13. p. 182. Edit. Rom. 1630. x J. Gregory's Observat. upon some passages of Scripture Chap. 18. y Ibidem z Ezekiel 43. v. 2. a Ezekiel 44. v. 2. b Psalm. 68. v. 32, 33. c Isaiab 14. v. 13. d Hieronimi Magii de Mundi exustione Lib. 5. cap. 9. Z z 2 tells

tells us from the testimony of Rabbi Maimon, the great S. Ephrem and others, in the Arabic Catena: which original principal, and (as it ought to have been) everlasting Ceremony, by an error of the Persian and Caldean Worshippers degenerating into an Idolatry of the Sun; Abraham (saith the same Rabbi Maimon) by the instinct of God, appointed out the West for the Hebrew worship after: and that therefore the Temple and Tabernacle were placed that way, and that all their sacrifices were offered up Westward; as all the ordinary services and devotions of the Temple were in Aarons time, except that solemn Anniversary of Lev. 16. v. 34. in performance whereof, he placed himself notwithstanding, as the same Rabbins say, on the wrong or backside of the Ark, and sprinkled (as he was commanded) the blood of the Bullock, and Goat upon the mercy seat Eastward, to make an attonement for the sins of himself and people: whereby he prefigured him, who by his owne blood entered in once into the holy place, and obtained eternal redemption, whose name God the Father was pleased to admit should be called the East: so peculiarly appropriated was this part of the world to the divine presence.

61. Nay God vouchsafed himself to call his beloved Son by that Name. Adducam Ego (says he by the Prophet Zacharie) Servum meum Orientem. Behold I will bring forth my Servant the East, as it should be render'd. Again says the same Prophet, Ecce Vir, behold the man whose name is צמח Tsemach, that is, the East: which I am not ignorant M. Poole and other learned men, render Germen, a branch, and so our English version now in use: but as Scaliger and M. Gregory both well observe, not so rightly, the Prophecie being to be read, as translated by the LXX. Ἰδὲ ἄνθρωπος ἀνατολήν ὀνομαζόμενος. behold the Man whose name is the East. Which being the very ἀνατολή that is referred to by S. Luke, where he says that our Saviour is ἀνατολή ἡ ἡλίου, it cannot well be rendered Germen, it immediately following, to give light to them that sit in darkness. And thus as it is plain that God vouchsafed our Saviour should be called by the name of the East, so it seems as evident, that this was the place from whence he was to come: and therefore says Baruch ἀεὶ βλέψον ἄς ἀνατολῆς Ἱερουσαλήμ, ἕ ἴδε τὴν εὐφροσύνην, &c. Look about thee O Jerufalem toward the East, and behold the joy that cometh unto thee from God: ἀεὶ βλέψον πρὸς ἀνα-

Mr. Gregory's Observations upon some passages of Scripture. Chap. 18. f Ibidem. Leviticus 16. v. 14, 15. Hebrews 9. v. 12. i Zach. 6. v. 12. k Zach. 3. v. 8. l Zach. 6. v. 12. m Vid. Mart. Polii Synopsis Criticorum, in Luca. n Luke. 1. v. 78. 79. o Mr. Gregory's Observat. upon some passages of Scripture Chap. 18. p Baruch. 4. v. 36.

ἰολὰς, i. e. says Severus and Olympiodorus, as quoted by M. Gregory ἀπὸ τῆς ἡλίου ἀνατολῆς ἡλίου, ἢ κέλευον ἡμῶν Ἰησοῦν Χριστόν. toward our Lord Jesus Christ the Sun of righteousness, who was to come down from heaven and be made Man. Who is also the righteous man the Prophet Isaiab prophetically says, God raised, that is, would raise, from the East to rule over Kings; and was to be the ravenous bird, God said he would call from the East; to execute his counsell upon the unrighteous, yet should rise with healing in his wings unto such as feared his Name; and the righteous East of Jeremias, that God promised he would raise unto David, to reigne, and execute judgment and justice in the Earth.

62. Nor is it less remarkable, that at the time of his birth, his Starr appeared in the East, and brought the Wise Men thence too; neither must it be omitted that the Angels sent from God with the Gospel of this Nativity, came also from the East, as M. Gregory informes us, from the Nubian Geographer; it is observable likewise that he was born in the Eastern parts of the world; and as our Country-man Venerable Bede acquaints us out of Adamannus, in quodam naturali semiantro in Orientali angulo Civitatis Bethleem, in a kind of natural Cave in the Eastern part of Bethlehem. Also at the time of his death as Durandus testifies, Dominus crucifixus ad Orientem respiciebat, he was crucified with his face toward the East; and after his death at his resurrection according to the most ancient traditions of the Church, he ascended again from whence he came, into the eastern part of heaven, ἀναστὰς ἐκ τῆς ἀνατολῆς ἀνεβήκετο saith Damascen, when he was received into heaven he was carried up Eastward; with whom agrees Origen, in Caelum post resurrectionem ad Orientem ascendit, that at his resurrection he ascended into heaven toward the East. As he was seen after by John the Divine, having the Seal of the living God, the Angel that ascended from the East (or rising of the Sun) being pronounced by some of the best of the ancients, to be Christ himself. Under which name it was, as Tacitus informs us (tho' altogether unacquainted with the meaning of the thing) that, not many years after his resurrection, he triumphed over the Jews in the destruction of Jerufalem; expressly saying that many were perswaded antiquis Sacerdotum literis contineri, that it was found at that time a-

Mr. Gregory, loco supra citato. i Isaiab 41. v. 2. f Ezech. 46. v. 11. g Malachi 4. v. 2. h Jeremias 23. v. 5. i Matthew. 2. v. 2. and 9. k Matthew. 2. v. 1. l Mr. Gregory's Observations, loco supra citato. m Bede Presbyteri Ecclesiast. Hist. Lib. 5. cap. 17. n Gul. Durandi Rational. Divin. Officior. Lib. 5. cap. 2. o Joan. Damasceni Orthodoxa fidei Lib. 4. cap. 13. p Revelat. 7. v. 2.

mongst the ancient Records kept by their Priests, eo ipso tempore ut invalesceret Oriens, that about that time the East should prevail.

63. And if he ascended toward the Eastern part of heaven, we need not much doubt but he will return the same way, at his second coming: which is not only made good faith Paulus de Palacio (as quoted by M. Gregory) by the common consent of all Christians, Credentium quod in Oriente humanitas Christi sedeat, ab eo ergo loco veniet ubi nunc est, beleving that our Saviour as to his human nature sitteth in the East, and that thence therefore he shall come; and more particularly by Damascen, who not only asserts that he ascended Eastward, & ἔτις αὐτῶ ὁ Ἀπόστολοι προσκυνοῦντες, & ἔτις ἐλεύσε, ὅτι τρεῖς ἡμέρας αὐτῶν παραβύθιον εἰς τὸ ἕρανδον, but that the Apostles also pray'd to him the same way, and that he should return in like manner, as they had seen him goe into heaven; but seems most amply confirmed by the Scriptures themselves, he himself having said, that as the Lightning cometh out of the East, and shineth in the West, so should his coming be; and the Galatians being admonish't, that he should come in like manner, as they had seen him goe into heaven: which texts compared together, prove as well that he ascended, as that he shall come again Eastward: from the place where the thrones of the living God: and the Lamb are; from the heavenly Paradise or place of abode of the Soules of just men made perfect; which as Irenæus tells us, he received it, ab Apostolorum discipulis, was in the Eastern part of the third heaven, whither S. Paul was catch't up, and heard unspeakable things. Which glorious place the scholiast Pletbo most aptly calls τὸ ἀμφοτέρωθεν ψυχῶν χάρον, the all enlightened recess of Souls; and Psellus yet more agreeably, ἡ εἰς τὸ πάτερ χάρον τῶν θεῶν δυνάμεων, a Choir of divine powers encircling the Father; where he seems to reside in a more special manner, together with the Son, from whence he shall come to judg both the quick and the dead: for tho' it be true that God is in all places, and in some respects in all places alike; yet it is certain he is otherwise in heaven, than hell: and so in all likelihood, in one part of heaven, than another; and tho' it be said of the hour of the day of Judgment no man knoweth, yet it is not so of the place from whence he shall come to it.

C. Corn. Taciti Historiar. Lib. 5: d Mr. Gregorius Observat. loco supra citat. e Joann Damasceni, loco supra citat. f Matthew 24. v. 27. g Acts. 1. v. 11. h D. Irenæi Lugdunens. Episc. adversus Gnostic. Hæres. Lib. 5. cap. 5. i Vid. Pletbonis Scholia in Oracula Magic. Zoroastri. in princip. k Vid. Pselli Scholia in Oracula Zoroastri Caldaica. p. 87. edit. Paris An. 1599. Matthew 24. v. 36. 42. and Mark. 13. v. 32.

64. All which being considered, the Christians as well as Jews, seem to have had very good reason to make their addresses that way, they were so well assured the divine Majesty had his cheif abode: as indeed they were appointed to doe by the Apostolical Constitutions, & μετὰ τὸ αὐθιγῶς ἀπαυτες ἑκείνων, καὶ ἐπὶ ἀνατολῆς κατανόησες, προσευξάμεθα τῷ Θεῷ τῷ ὁρατῶν ἕρανδον ἕρανδον καὶ ἀνατολῆς. Then rising up unanimously, and turning toward the East, let them pray unto God which sitteth upon the heaven of heavens in the Eastern part: whence it is plain that the more special presence of the Deity, that was anciently belevied to be in that part of the world, was the true Original of this Christian custom; notwithstanding what is alleged by Durandus, that Pope Vigilius instituted this practise, to distinguish the Christians, from other Sects; the Mabometans worshipping toward the South, and the Jews toward the West. Nor did the Christians only pray toward the East, but upon this account also built their Churches; and placed their Altars, suitable to this purpose: which Beletius thought of so great concern, that he judg'd it absolutely necessary, & omnino quoque necessarium est ut edificaretur versus Orientem, hoc est, versus solis ortum Æquinoctialem, nec vero contra æstivale solstitium, ut nonnulli & volunt & faciunt, i. e. that it was altogether necessary that a Church should be built to the Equinoctial East, and not toward the Summer Solstice, as some say and doe. And thus we find Patiens Bishop of Lyons, as Sidonius acquaints us, built his new Church.

Ædes celsa nitet, nec in sinistrum,
Aut dextrum trahitur, sed arce Frontis
Ortum prospicit Æquinoctialem.

65. Which having been the practise of the ancient Church, and by how much no question the more accurately done, by so much always esteemed the better, I cannot but allow, that this great declination of the Church of Lichfield from the Equinoctial East (especially if examined by the ancient rule) must be some blemish to it: unless it may be thought, that its pious founder Roger de Clinton, upon reading the 14 and 13 of Isaiah, with Hieronymus Magius, did rightly expound the sides of the North, not to be due East, but some distance from it Northward, and that the throne of God might be placed there, and for this cause

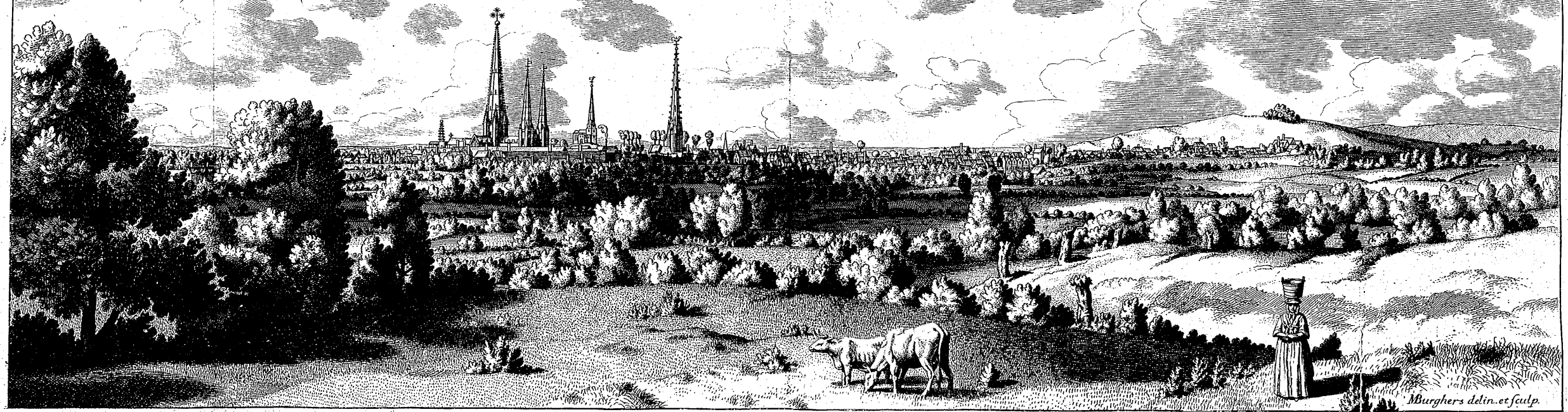
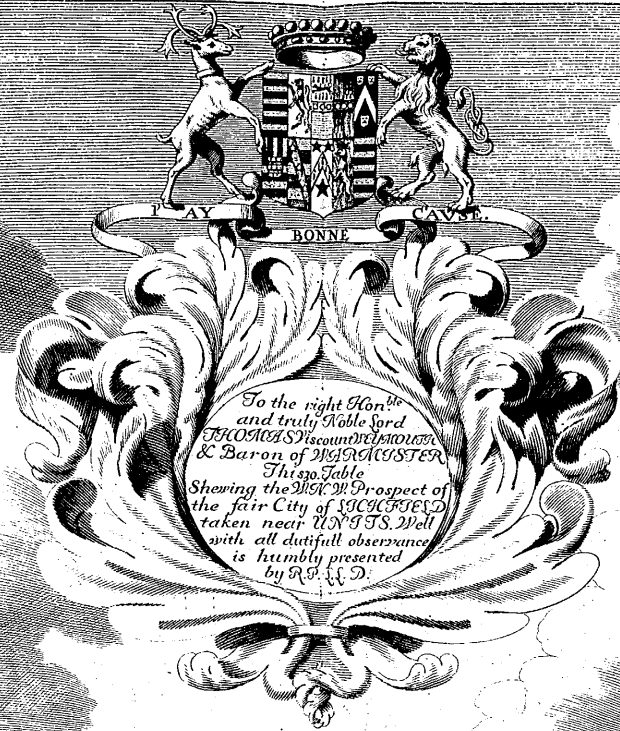
m Διαπαρά τῶν ἁγίων Ἀποστόλων Βίβ. β. Διάπρω. v. 12. n Gul. Durandi Rational divin. offic. Lib. 5. cap. 2. o D. Job. Beletii divin. offic. Explicat. cap. 2. in fine. p Apollin. S. Iuliani. Epistol. Lib. 2. Ep. 10. q Vid. Hieron. Magium de mundi exustione, Lib. 5. cap. 9.

set his *Church* industriously so. However it were, I am sure his Successor *Walter Langton*, who founded our *Lady's Chappel* beyond the *Choir*, 150 years after, thought it ill placed, having rectified the mistake of his predecessor, and built it pointing more *Eastward*, whence it is that the walls of the *Chappel* stand quite bevil to those of the *Church*, as may easily be perceived even by an incurious Eye. The *Church* notwithstanding deserves its due *praise*, and should have been here represented in *Sculpture*, but that it has been done already in two other *Histories*, once by *D. Fuller* at the charge of *M. Ashmole*, and again by *S. William Dugdale* in his *Monasticon Angl.* Wherefore I have chose rather to give the prospect of it, together with that of the loyal City of *Lichfield*, which the *Reader* may here view, *Tab. 30.*

66. To which let me add in mitigation of the dishonour of this *Churches* declination from the *Equinoctial East*, that the *Ancients* did not think that praying that way, much less setting their *Churches* or *Altars*, *Eastward* (tho' they usually did both) so essential to their devotion, but that upon valuable considerations, one, or both might be alter'd: for we find that *Pope Leo* the first of that name, to distinguish the *Christians*, from the *Manichees* who adored the *Sun*, forbid them to worship toward the *East*, reproving all such, *qui priusquam ad Basilicam beati Petri perveniant, superatis gradibus quibus ad suggestum aræ superioris ascenditur, converso corpore ad nascentem Solem se convertant, & curvatis cervicibus in honorem splendoris Orbis inclinent*, which he spares not to call *spiritum paganitatis, & damnandam perversitatem*; that upon the steps before they came to *S. Peters Church* turned themselves about to the rising *Sun*, and bowed their necks in honour of it, which he spares not to call the *Spirit of Paganisme*, and a most damnable perversness.

67. Which prohibition continued till after 1300, above eight hundred years, about which time *Cardinal Stephanesco* Nephew to *Boniface 8.* (as *Casalius* notes) hired *Giotto* the famous painter to make that *S. Peters ship* which was after removed into the *Palace* by *Urban 8.* of *Mosaic work*, and to set it in such a place, as when they worship't toward the *East* their adoration might be towards it. Since which time the *Church* seems to have been more indifferent, both in direct-

Dr. Fuller's Church History of Britan, Lib. 4. §. 2. Cent. 15. s. D. Guilielmi Dugdale. Monastici Angl. Vol. 3. pag. 216. s. Sti. Leonis mag. Serm. 26. seu. in Nativo. Dom. Serm. 7. cap. 4. s. Job. Bapt. Casalii de Vet. Sacri. Christianor. ritib. cap. 3.



Chap. IX. Of STAFFORD-SHIRE. 369

ing their worship toward the *Equinoctial East*, and in setting their Churches or altars that way, some of them being placed so as to point toward *Jerusalem* (in honour of our Saviour's having suffered there) and upon that account (here in our Northern part of the world) not set parallel to the *Equator*, but declining from it *Southward*, as (if I mistake not) the Metropolitan Church of *Canterbury* does. Others not placed toward the *East* at all, as *Paulinus* testifies: *Prospetus vero Basilicæ, non ut ustior mos est ad Orientem spectat.* i. e. that the Church he there speaks of did not, as usually, point to the *East*. Others again being set directly *West*, and having their Altars placed there, as I am told both *S. Clements* and *S. Marins*, the two oldest Churches in *Rome*, and *S. Peters* it self, the seat of the *Papacy*, all of them doe. Nor seem our Chappells Royal at *Westminster*, at all to regard the *Equinoctial East*: so that, whatever it might be formerly, the *declination* of a Church from that point, seems no dishonour now.

68. The body of the Church of *Patebull* lately rebuilt at the sole charge of its munificent Patron the right Worshipfull *S. Richard Astley K.* and Baron, whose exemplary *Piety* should have been commemorated above Chap. 8. is a good piece of *Stone-work*; and for other parts of Ecclesiastical buildings, the tower of the Church of *Dilborn* (anciently *Dulvern**) is somewhat remarkable, it being built *eight square*; and so is the tower of the Collegiat Church of *S. Marys* in *Stafford*, which was once adorned with a lofty *Spire* thought to be one of the highest in *England*, which being blown down at twice (part I suppose at one time, and part at another) *An. 1593*, beat down the Church likewise on every side, which yet was repair'd again at great charge *An. 1594*. as appears by the date engraven in a stone, on the *N. W.* side of the battlements of the steeple, just under the spout. But the most unusual piece of *Stone-work*, and the most extraordinary of any piece of Ecclesiastical building, that I have any where met with, is the *Stair-case* in the *S. W.* corner of the steeple of the Collegiat Church of *Tamworth*; being made of a double *Coclea* within the same *Cylinder*, both winding about the same pillar or *Newel*, over one another, so that the floor of one is the roof to the other, having two entrances, one within the Church, the other in the Church-yard, and two exits at the top; by which two Men may ascend or descend together, and never see one another all the way; or one may ascend

* *S. Paulini Episc. Nolan. Epistolar. Lib. 2. Ep. 4.* * *Ex munificentis Copwoodi Holms Gens.* † *Ex 1775. Autogr. penes Majorem & Burgens. de Stafford.*

and another descend at the same time, and never meet.

69. For the better understanding of which curious piece of Architecture, the courteous Reader may be pleased to consult Tab. 32. Fig. 4. where the said double Cochlea is represented in a diagram, divested of the exterior Cylindrical wall within which it is built, as contrived and given me by the Reverend Mr Langley Minister of the place: wherein *aa* shew the small pillar or Newel, about which both the Cochlea wind; *b*, the entrance within the Church; *c*, that in the Church-yard; *d* at the bottom; and *io* *u* at the top, the widness of the cylinder within the walls, which is 6 foot; so that the widness of each Cochlea from the newel to the out walls, is 3 foot or a yard. Now if a Person enter within the Church at *b*, he ascends first (winding about the pillar or newel, *aa*) to *d*; thence (which must be conceived on the backside this plane where the prick't lines are) to *e*; thence to *f*; thence to *g*; thence to *h*; thence to *i*; thence to *k*; thence to *l*; thence to *m*; and thence out at *n*, at the top. Another person entering at *c*, winding about in like manner the same Newel, first to the figure 1; thence to 2; thence to 3; thence to 4, &c. coming out at *io* at the top; the Cochlea's being floores and roofes to each other interchangeably all the way up: the floor 1. 2 being the roof to *b d*; and the floor *e f* to the roof 1. 2; and so 3. 4 to *e f*; and *g h* to 3. 4; & sic vicissim to the top. The use whereof I guess might be, that the Decani, Copiata, or Νεσοφύλατοι, that took the care of ringing the bells and burying the dead, the οἱ τοῦ σήματος ἀεὶ ἑτάμοι-τες τῶν κοινωπέδων, as Epiphanius calles them², in English the Sextons; and the Diaconi or Sacristæ, the Deacons or Sacrists, that made the responses, and took care of the Vestments and Utenfills of the Church; might doe their duties apart; each having by this means the power of the steeple, without disturbing the other. Or else that the Clock-keeper might execute his office, without troubling either of them. Which conveniencies 'tis possible might be the occasion of building this stair-case thus.

70. Nor could I perceive any inconveniency it it, but that the staires were somewhat deeper, and the ascent somewhat more steep, than ordinary, as indeed the nature of the thing requires: for it being necessary that the floores and roofes should be distant at least a mans height, one must needs ascend in a single revolution of the Cochlea or spiral, as much as between *d* and *f*, i. e. twice the height of a man; whereas had there been but a single pair of staires, the ascent need not have been but from *d* to *z*, a

² S^ci. Epiphanius contra Hæres. Lib. 3.

single

single mans height, and so in each revolution. Whence 'tis easy to conclude that tho' there may be made as many of these helical staires, winding round the same Newel, as the Architect pleases; yet more than these, by reason of the necessary steepness that must follow, would scarce be tolerable. Nay I have not yet heard of another Example of such a double Cochlea, built within the same Cylinder, any where in England; perhaps beyond Seas, there may be others of the kind, there being a Model of much such a stair-case as this, in the Repository of the Royal Society of London, the entrances whereof are opposite to each other, and the Cochlea making a paralel ascent within the same Cylinder, agreeing with ours in all things but the Newel, which in this is hollow and built with long apertures, to convey light from candles placed at the bottom, and in the sides of the Newel, into both Cafes: whereas ours at Tamworth, is enlightened from without, by apertures made in the Cylindrical case. Yet I am told this Model was sent hither from Hamborough as a new Invention, and so not unlikely it might be to them, this not being the first time, that the same thing has been reinvented: I am sure it cannot be very new with us, for tho' I find not certainly how old this Church is, yet it being made Collegiat by one of the Marmons Lords of the Castle here^b, the last whereof dyed temp. Edw. 1^c. it must be so old at least.

71. Which I think is all I met with worthy of remarke relating to Churches, but that the Church-yard of St Michaels in the City of Lichfield, is the largest of the kind that ever I saw, it containing within its limits as near as I could guess at least 6 or 7 Acres of good pasture ground. And that in the Church of Wolverhampton are seven bells rung together in peal, which how immusical it must needs be; the Reader may easily judg: for whether he considers them as the first seven, or the last of Eight; the sound they make can never be gratefull: for if the former, they must needs end in a flat third; or if the latter (which if I mistake not they seem to be) they must then begin with four whole notes together; either of which is very inharmonious: beside that their number excludes them, from ever being brought, either into common or treble-time, which also must needs be unagreeable. And as for civil publick buildings, the most beautifull that I know of any where in the County, is the Town-hall of Stafford built all of Squared Stone, the whole being supported

^a Musæi Regalis Societat. part. 4. §. 2. ^b John Speed's Hist. of great Britan. Book 9. chap. 21. ^c See Sr William Dugdales Antiquities of Warwicksh. illustrated, in Tamworth Castle.

A a a 2

with

with a curious *Portico* of archwork, which gives not only shelter from the *Rain* and *Sun* at the *Assizes*, *Sessions*, and *Market days*; but to the *Towns* people at all times: the front whereof is here deservedly offered to the *Readers* view *Tab. 31.*

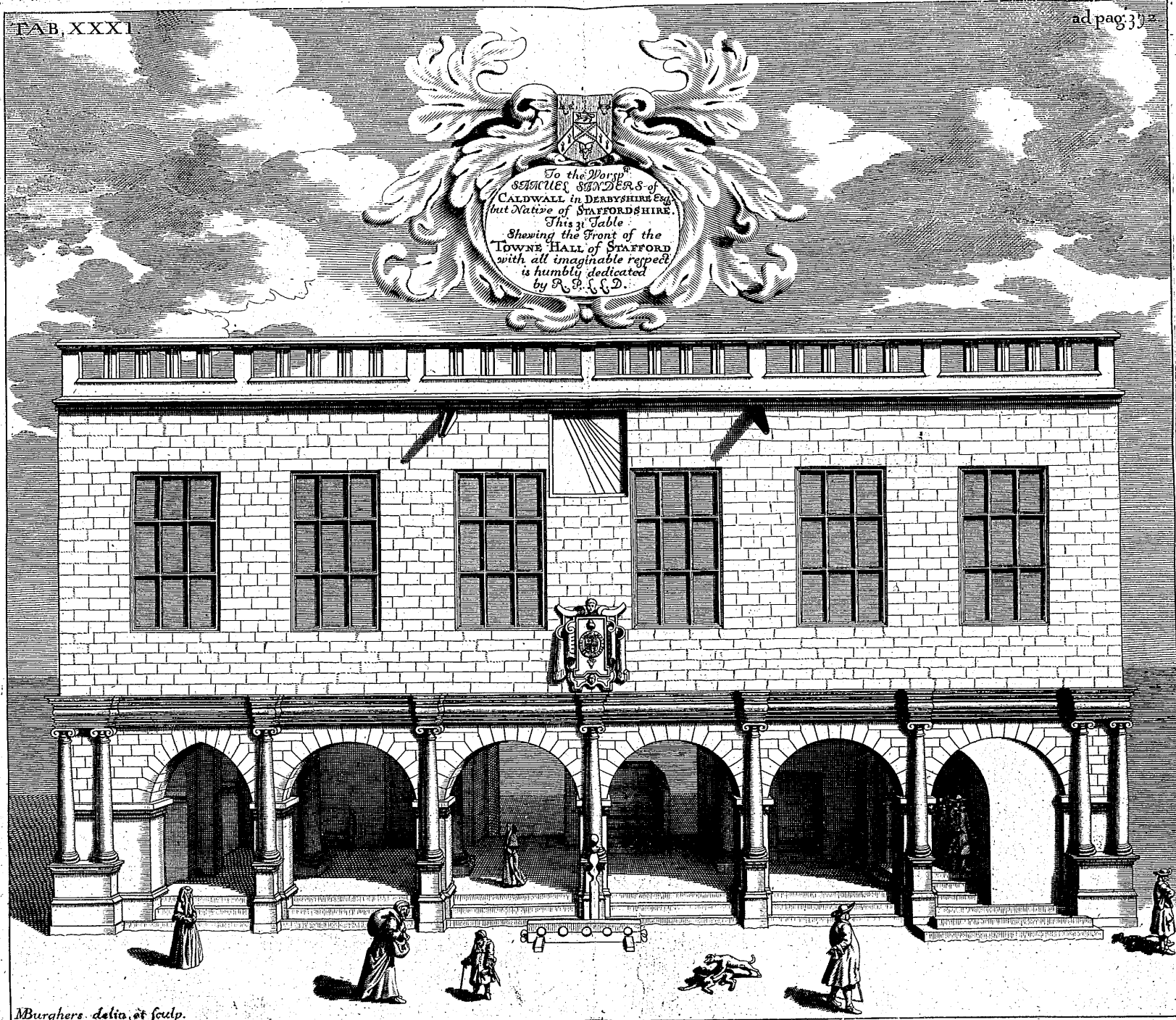
72. But the most notorious piece of work of a *civil publick building*, in this *County*, or any where (of the kind) perhaps in *England*, is the great bridg at *Burton* upon *Trent*, built in the time of *Bernard* Abbot of *Burton* (as *M^r Erdeswick* proves at large^a, who dyed in *An. 1175*: the 21. of *Hen. 2^d*) all of squared free-stone, strong and lofty, and containing in length as I found it by measure, near about 515 yards as the *Cart* goes, i. e. a quarter of a mile and better than $\frac{1}{3}$ of a furlong more, the *River Trent*, over which it stands, dividing it self there into three *Channels*, as may be seen in the *Map*, and passing under it through 34 *arches* whereof 33 had water running under them when I were there: that betwixt *Shutböröw* and *great-Heywood* not being near so long though it have more *arches*, these (it being but a *horse-bridg*) being but small in comparison. Which tho' tis likely may be longer than any bridg in *England*, yet is very inconsiderable if put in competition with the bridg of *stone* built by the *Emperour Adrian* over the *Danube* described by *Dion*, which was near 7 furlongs or $\frac{1}{4}$ of a mile in length: and yet more inconsiderable still if compared with that of *wood* at *Mursa* or *Eßec*, built partly over the *Drave*, and partly over the *Fenns*, which as *D^r Brown* tells us, is at least five miles long^f.

73. Nor is this all yet belonging to *stones*: for the *Ores* of *Metalls* being generally such, the *Arts* relating to them, at least after they are *refined*, also belong to this place, those only of *smelting* and *refining* them, having been treated of already in the *Chapter* of *Stones*: and these will chiefly regard the making up of some of the *Metalls* into *wares*, in order to their *retail*. Amongst which I shall first consider the *Arts*, either unusual or curious, that some way respect the working of *Iron*; which for some of their finest work, they commonly *harden* in order to their receiving a better *polish*, according as the subject matter in hand requires: and this they performed anciently with the *hooves*, and *horns* of *Cattle*, *Sand*, and *Salt*, whereof *Sea-Salt*, (or *Bay-Salt*) has been always preferr'd, which they formerly used to put into a *Coffin* made of *Clay*, fitted to the *Iron* intended to be *hardened*, and so committed to the fire. But

^a *Mr Samp^s. Erdeswick's view of Staffordsh. in Burton.* ^c *D. Gulielmi Dugdali Monastici Angl. vol. 12. in Abbatia de Burton.* ^f *Dr. Brown's Travells thro' Hungary, &c. p. 52.*

TAB. XXXI

ad pag. 39



M. Burghers. delin. et sculp.

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of late they have used divers other *materials* for this purpose, and after a different manner; it being done at *Wolverhampton*, with burnt *hoofs*, and *hornes*, *fountain* and *bay-salt*, *sublimat*, *Urin*, old burnt *leather*, and *Tartar*, all mix't together, and reduced into powder, in which rolling their *Iron* first made red hot, it will stick to it, and is thus returned into the fire again to receive its *hardening*, which it does not quite through the whole body of the *Iron*, but only on the outside for about the thickness of a shilling at most, which is highly sufficient to receive a polish.

74. But out of these, and some few other *materials*, they have observed that two sorts of *hardening* arise, viz. *tough-hardening*, and *brittle-hardening*; the former whereof they perform with *old-shoos burnt*, *Urin*, and *Wood-foot*, with which when any *Iron* is hardened it will not *scale* in the least; and the latter, with *old shoos*, *tupps horns*, *bay-salt*, and *Argal* or *Tartar*; which harden *Iron* to the height, and give the brightest *polish*, tho' they render it *brittle*: but I was told by others that the *toughest-hardening* was made, by the juice of *nettles*, *Mans urin*, and *Linseed-oyle*; and the *bighest*, by quenching red hot *Iron* in the juice of *Moufeare*; which processes are understood by most *Smiths* in the *County*: and so they were most of them anciently, as may plainly be seen in *Baptista Porta, de re ferraria* &c. Yet the matter of *fact* in these *operations* being not known to so many, but the *reason* of it is unknown to more: it remains that I render some *Philosophical* account of it, which I conjecture may be *this*: viz. that all these being *Alkali's*, doe kill and destroy the *acid-Vitriolic salt* of the *Iron* that kept its pores open, and so condensing its parts, makes it more compact. If it be objected that *fountain* and *bay-salt*, *sublimate*, &c. are themselves *acids*, and therefore unlikely to destroy the *Vitriol* of *Mars* in the pores of the *Iron*: it must be answered, that tho' the aforementioned *Salts* are indeed *acids*, and are always so reckon'd, if considered simply; yet if compared with *Vitriol* may be esteemed *alkali's*, the points of these being much grosser than those of *Vitriol*, and so consequently will break and destroy them, as we see they doe in divers *Chymical preparations*, such as the *white precipitate*, and the *precipitation* of *Lead* dissolved in *Vinegar*, &c. wherein the *common-salt* acting the part of an *alkali*, destroys the *Crystals* of *Niter* and *Vinegar*, which before had dissolved the *Mercury* and *Saturn*, in order to these *preparations*.

75. Beside the aforesaid *hardenings*, which are only *superfi-*

⁸ *Joh. Bapt. Porta Magia. Nat. Lib. 13. cap. 4, 5, 6.*

cial; at the Tile-house at Bromley in the parish of Kings-Swinford, one John Heydon hardens whole barrs of Iron quite through, i. e. makes them into *Steel*, which he does not out of *English*, but *Spanish* or *Swedish* barrs, here called *bullet-Iron*; the manner thus. He has a round *Oven* built of brick, not unlike those used by *Bakers* at the top, having a grate in the bottom near the middle, about a foot and $\frac{1}{2}$ or 2 foot wide, where he lays the *coal*; on each side whereof, and at the end beyond it, he lays his *Iron* inclosed in *Coffins* made of *Amblecot-clay* to keep it from melting; the *Coffins* being proportioned to the *barrs* of *Iron*, which are broken into *lengths*, of between 3 and 4, or 4 and 5 foot long; the longest being placed at the end of the *Oven*, and the shortest on each side; each *Coffin* containing about half a *Tun* of *Iron*. When the fire is put to it, it is constantly tended day and night till the operation is performed, which according to the goodness or badness of the *coal* is done in a longer or shorter time, sometimes in 3 days and 3 nights, other times in 4, and sometimes not under a weeks time, the *critical-minute* in which the operation is finisht being the great secret of the *Art* of making *Iron* into *steel*. Which when done, they cut it into narrower barrs about half an inch over, & then break it into short pieces of an inch, or two inches long, call'd *Gadds*, whereby the buyers may see whether it be good or bad (for there may be both in the same *barr*) otherwise they care not to buy it.

76. And this is the *Method* they proceed in here to make *steel*, which seems somewhat agreeable to the practise in *Aristotles* time, it being then performed by frequent ignition^h, as it is now by a long one; whereby the *Vitriolic-Salt* of the *Iron* being thus strongly press'd by the Violence of the fire for so long a time, is forced out of the *pores* of it, wherein it was lodg'd; and rises in *vapours* as in the distillation of the acid spirit of *Vitriol*, and flies quite away, leaving the *Iron* wholly void of all *Salt* to the center, and diminishing its *bulk*, in proportion to the *parts* that are thus carried off. Whereas in the former operations, the *Vitriol* of *Mars* was only superficially destroyed, either by the superinduction of an *opposit-Salt*, or dipping it red hot (whilst the parts are open) in some peculiar *juices*, which also superficially dissolve the *Salts*, and so take them away, as *common-water* it self will likewise doe, tho' perhaps not so well as some of the *juices* there mention'd; those being certainly the best, that are highest impregnated with some *alcalizate Salt*: as I have reason to suspect the waters of *Bilbao* and *Taracona* in *Spain*, *Sulmo* and *Como* in

^h *Aristot. Meteorolog. Lib. 4. cap. 6.*

Italy

Italy, are; which places tho' they yeild no *Iron-Ores* of their own, yet have always been esteemed (upon account of their *waters*) famous for this *Metall*. Which additions of so many various *materials* beside *beating* the *Iron* for superficial hardening, makes me suspect that there must be some other *applications* for the central hardening or making of *steel*, beside what *John Heydon* was willing to impart, it being evident that *beating* of *Iron* only, and letting it coole in the fire, does rather soften then harden it, as we plainly see in the annealing of *Wyer*, and other *Irons*; which often heated, and suffered to coole in the fire as it goes out of it self (provided it be not hammer'd) will thereby be much softened*.

77. For which *knack* of softening, they have also frequent occasion, in order to their *Iron works*, as well as for hardening; which they doe too with *oyl*, *wax*, *suet*, *butter*, *Asa-fetida*, *sulphur*, and indeed with any *fat unctuous* body; it seeming to amount almost to an *Aphorisme*, in *re ferraria*, *durum pinguibus remollescere*: the *Iron* being daubed over with any of these, and then heated red hot, and suffer'd after to coole in the fire by degrees, as it goes out of it self. Thus I find in the *Journal* of the *Philosophical Society* of the University of *Oxford*, that an ingenious *Smith* of that *City* usually softens his *Iron*, first heating it moderately, then daubing it all over with *tallow*, and after heating it red hot, and letting it coole in the fire as it gradually goes out^k. The *Iron* thus prepared, is used both by the *White* and *Black-Smiths* of this *County*, according as the condition of their *wares* require; it being forged by the former, into *Sithes*, *Reaping-hooks*, *Axes*, *Hatchets*, *Bills*, &c. (for each whereof they give their *Iron* a different *beat* and *temper*) which being ground at the *blade-mills* to a *bright* edg (whereof there is one at *Himley*, another near *Swindon*, and others on all the *little-waters* thereabout) they have given this sort of *Artisans* that make them, the name of *White-Smiths*. And by the latter, it is wrought into *plow*, *cart*, and *fire irons*, into *horse-locks* and *shoes*, *bolts*, and *hinges* for doors, *barrs* for windows, *squares* for *trunks* and *coffins*, *staff-heads*, *buckles*, and *nailes*; for making the last of which there are so prodigious numbers here, that in the parish of *Sedgley* alone, there are thought to be no less than 2000 of the *trade*, reckoning *boys* as well as *men*.

78. But the greatest excellency of the *Black-Smiths* profession, that I could hear of in this *County*, lyes in their making *locks* for

ⁱ *C. Plinii 2^{da}. Nat. Hist. Lib. 34. cap. 14.* ^{*} *Joh. Bapt. Porta. Magia. Nat. Lib. 13. cap. 2.* ^k *Journal Book of the Philosophical Society of Oxon. Sess. of Octob. 26. 1683.*

doores,

doores, wherein the *Artisans* of *Wolverhampton* seem to be preferred to all others, where they make them in *Sutes*, six, eight, or more in a *sute*, according as the *Chapman* bespeaks them; whereof the *Keys* shall neither of them open each others lock, yet one *Master-key* shall open them all: so that these *locks* being set upon the doores of a house, and the *inferior Keys* kept by distinct *servants*, tho' neither of them can come at each others charge, yet the *Master* can come at them all. Beside the *Master* turning his key in any of the *Servants* locks but once extraordinary, the *Servants* themselves cannot come at their charge, neither shall the *Servant* spoil his key or the lock in endeavouring it; for his, after the *Master-key* has given the lock a second turn, will only run round in it backward and forward, without either stopping at, or prejudicing it any thing. Nay so curious are they in *Lockwork* (indeed beyond all preference) that they can contrive a *Lock*, so that the *Master* or *Mistress* of a family sending a *Servant* into their *Closets*, either with the *Master Key*, or (if they permit an *inferiour-Key*) with their own, can certainly tell by the *Lock* how many times that *Servant* has been in, at any distance of time; or how many times the *Lock* has been shot for a whole year together: some of them being made to shew it 300, 500, or 1000 times; nay one of the chief *Workman* of the *Town* told me (might he have *Workmans* wages) he could make one should shew it to 10000 times. Farther yet, I was told of a very fine *Lock* made in this *Town*, sold for 20 pounds, that had a set of *Chimes* in it, that would goe at any hour the *Owner* should think fit. And these *Locks* they make either with *brass* or *iron* boxes so curiously polish'd, and the *keys* so finely wrought, that 'tis not reasonable to think they were ever exceeded, unless by *Tubal-Cain* the inspired *Artificer* in *Brass* and *Iron*.

79. Nor are they less curious in their *Iron works* as the *Town* of *Walsall*, which chiefly relate to somewhat of *Horsemanship*, such as *Spurrs*, *Bridles*, *Stirrups*, &c. in the two former whereof they are so very nice, that neither of them are perfected without the joynt concurrence of several *Artisans*: as in the making of a *Spurr*, there is first the *Head* or *Spurr-maker* that makes the *body* of the *Spurr*, which he makes either *plain*, *joynted*, *broad*, *narrow*, *wyer*, &c. and these with *swan-necks*, *feather-necks*, *rough-necks*; or *long*, *short*, or *middle-necks*; and all these again either *white*, *sanguine*, or *inlaid* with some *Metall*. Secondly the *Hook* or *Button-maker*. Thirdly the *Spurr-Buckle maker*, who makes the *buckle*, the *chape*, *tongue*, and *roll*. And lastly the

Gen. 4. v. 22.

Rowell maker, who makes the 5, 6, 7, 8, or 10 pointed *rowells*, of iron or steel, which he cuts in a *mould* at one stroke, making a great many of them in a little time; and then *files* them, They make also great variety of *bridles*, both *Snaffles* and *Bitts*: such as the *wheel* and *joynted Snaffle*, the *neck-Snaffle*, *wreath-Snaffle*, *prick-Snaffle*, &c. to the *ends* or *sides* whereof belong these fashions, viz. the *Rippon*, *acorn*, *spoon*, *trumpet*, *bobbing*, and *knob'd end*. They make likewise *Colt-snaffles* and *trenches*, *Cabinsons* and *Musrolls*; which are all commonly made too by different *persons*, tho' sometimes the same makes them all himself. And of *Bitts*, they make the *Canon* or *port bitt*, the *Million Mouth'd-bitt*, the *snaffle mouth'd bitt*, the *half check't bit*, the *Coach bit*, and *watering bit*, which are made by one *workman*; and the *Harnes*s to them, viz. the *curbb*, *watering-chain*, *bolts*, and *rings*, by another.

80. Of *Stirrups* they also make these several sorts, the *swivel*, *barr'd*, *Rippon*, and *plain stirrop*, and these either with *broad* or *narrow bottoms*. They make also all the *Iron work* belonging to a *Saddle*, viz. *svels*, *barrs*, *plates*, the two former being made by one *workman*, the latter by another: also the great variety of *buckles* that belong to the *pack* and *hackney-Saddles*, such as *setts*, *black* or *oyl'd buckles*, *sanguine buckles*, *crupper buckles*, *breast-plate buckles*, and *suffingle buckles*: and all sorts of *shooe*, and *garter buckles*, whether *round*, *square*, *oval*, or *cut buckles*, which too are all or most of them made by different *Tradesmen*. There are divers other *buckles* also made promiscuously amongst these, such as the *Hester buckle*, *plain* and *knob'd*, for the *white bridle*; and the *open* and *plain crown buckles*, for the *black*; and so the *Poland buckle*, the *pease buckle*, *chased buckles*, *Dutch* and *Irish buckles*, which are *brass*, and made by the *Coppersmith*. Who also makes *bosses* of all sorts, *pendants*, *starrs*, and *Labells*, *coach nailes*, *studds*, &c. Also they cast in this *Town*, *Iron*, *Copper*, and *brass potts* of all fizes; in perfecting of which *wares*, as also of their *spurs*, *bridles*, *stirrups*, &c. they use a great deal of *Tin* which they superinduce over them, to give a better *luster*, and preserve some of them from *rusting*; and prevent others from giving a *tast* of the *Metalls* to things boyled in them.

81. For the performance whereof they use such *Methods* and *materials*, as each *Metall* requires; viz. for *Iron* they proceed in this manner: they melt in a *pan* a parcel of *Tin* proportionable to their *work*, and a ratable quantity of *yellow Rosin* mixt, which will swim above the *Tin* to the thickness of a *Crown* piece; into which, the *wares* being first soaked in old sharp clarified

clarified *Whey* to cleanse them from all filth, and duely *beated*, and then dip't into this *mixture* and shaken about, by mediation of the *Rosin* they become *Tin'd* all over. And for *tinning* other smaller *brass* commodities, they observe this *method*; they put them all together in an *earthen pot*, and heat them over the fire to a due proportion, then they put in a suitable quantity of *Tin*, to which when melted, they cast in as much as will suffice for the purpose of *Sal Ammoniac* or *Armeniac* (by the mediation whereof the *brass* admits the *Tin*) which when shaken together the work is finish't, only they cast them immediately into a pan of *cold water* to wash off the *faces* of the *Sal Ammoniac*, and to *cool* them quickly to preserve their colour, which they will not keep, if long in *cooling*. But in *tinning* greater *brass* *Vessels* such as *potts*, *kettles*, &c. first they give the *vessel* its due heat, then they sprinkle the *Sal Ammoniac* in dust all over it, and then they apply a rod of *Tin* cold to it (the *vessel* being *hot* enough to melt it down) which when done in a proportionable quantity to the *vessel*, they then brush it all over it with *burds* or combings of hemp (which licks not up the *Tin* as any thing else will) and the work is finish't.

82. In *tinning* of *Copper* whether small or great *vessels*, they use the *Methods* as above, only instead of *Sal Ammoniac* they apply *black-Rosin* (which I am told is nothing else but the *yellow* *resin'd*) to unite the *Metalls*, with which they rub the *vessel* all over first, and then apply the *tin*, and so proceed *ut supra*. The matter of *fact* of which *operations*, viz. that the matters are so, all the *Workmen* know; but why these *materials* rather than any other, should performe these feats? is a *Question* perhaps that has scarce yet been propos'd, much less determin'd: nor shall I pretend it. But if the *Reader* please to accept of a *conjecture*, till such time as he can meet with a more satisfactory account; let him take notice first, that *Iron*, *Copper*, and *Brass*, all hold *Vitriols* of their respective kinds, and that *Tin* is a very open porous body and of a rough *superficies*: now as for *Sal Ammoniac* every body knows it to be an *Alkali*, and to seize upon *acids* where ever it finds them, and so likewise upon *Tin*, as is plain by the sublimation of *Jupiter* by it^m; whence it seems very probable that the *Sal Ammoniac* unites the *tin* and *brass*, by seizing and destroying the *Vitriol* of *Venus*, and so inserting one end of its *Crystals* into the pores of the *Brass* where the *Vitriol* was, and the other into the open void pores of the *Tin*. In like manner as the glutinous *Rosins* doe, which are nothing else but the sediments of Clarify'd *Turpentine* that also carry an *Alcalizat Salt*

^m Nich. Lemery's course of Chymistry. part. 1. Chap. 3.

with

with them, whose points destroying the *Vitriols* both of *Mars* and *Venus* in the *Iron* and *Copper*, easily lodg themselves in the place, and so in the patent pores of the *Tin*, and thus with assistance of the concomitant *Viscosity*, unites them so strictly as we see they usually are.

83. And these are all the *Arts* that I found remarkable here, attending the *Earths* and *Metalls*: only that for preserving some of their finish't *Iron-works* from rust, such as *Sword-bills*, *Sboo-buckles*, *Armour*, &c. they use *Litharge* pounded and searced fine, mixt with *oyle* of *Spike*, and so layd on with a *feather*: or if they have occasion to lay by any of these *curious wares* for a considerable time, such as their curious thorough work't *Keys*, *buckles*, &c. they commonly bury them in *Lime* powder'd, which being a strong *Alkali*, repells the relenting of the *Vitriol* of *Mars*, which seems to be the only thing that occasions this *Metal* to contract rust. Next these, I proceed to treat of such *Arts* as belong to *plants*, or the dependants on them, whereof the first that present themselves are those that concern the *herbaceous* kind. Of which sort we may reckon two ingenious *contrivances* and profitable ones also, that I met with in this *County* relating to *hemp* and *rusbes*, whereof they make *ropes*; which I found about *Tamworth* (especially those they had for their *Wells*) were not made of *Hemp* alone, but mixt with *hair*: the advantage whereof above those of *hemp* only, they told me was this, that the ends of the *hair* sticking roughly out beyond the *hempen* strands, did so cast off the *water*, that these *ropes* were preserved from rotting, and lasted much longer, than any others did; which seems probable enough. And at *Parke-hall* in the parish of *Caverswall* I was shewn a *rope*, that pass between the runners of the *Oat-mill* above mention'd §. 10. made only of the *pillings* or rinds pull'd off the *pith* of the *juncus levis panicula sparsa major*, or *juncus levis vulgaris**, both which it seems are *Candle-rusbes*, which they told me would not only last a year, i. e. longer than one of *hemp*, but that it would not *stretch* as *hempen* ones doe, which it seems is a great convenience in the working of such a *Mill*. Which are all the *Arts* that any way concern *herbs*, but that about *Shenston*, as I was inform'd by the worthy M^r *Fritch* of *Thorns*, they frequently used the *Erica vulgaris*, *heath* or *ling* instead of *hopps* to preserve their *beer*, which as he also told me gave it no ill *tast*. And that they sometimes here make mault of *Oats*, which mixt with that of *barley*, is call'd *Dredg-mault*, of which they make an excellent fresh quick sort of *Drink*.

* Vid. Job. Raii Catalog. Plantar. Angliæ & Job. Parkins. Theat. Botan. Trib. 13. cap. 30.

84. Having done with the *herbs*, the *Arts* relating to the *Shrubs* and *Subfrutices* naturally follow, whereof I was told of one, by the right Worshipfull S^r Walter Bago^t of *Blitbefield* Baronet, of very good use, viz. that *Acorns* are best sown for the propagation of *timber* with the *genista spinosa*, i. e. *gorfs* or *furs*, amongst which they will grow securely out of all danger, wanting no other *fence*, and when they come to top them, will quickly shade, and so kill them. At the Worshipfull *Thomas Kinnerley's* of *Uttoxater* Esq; I saw an attempt for a *hedg* of the same plant, how it has succeeded since, I have not been informed; but it being so hardy a plant, I suppose there need be no great doubt made, either of its growing, or admitting of *formation* by the *Gardiners* sheers. Hither also must be refer'd what concerns the *Vine*, which has been improved by the right Worshipfull S^r Henry Lyttleton to that advantage at *Over-Arley*, which is situate low and warm, being surrounded with hills, that he has made *wine* so good there, that it has been altogether undistinguishable from the best *French wines* by the most judicious palates: but this I suppose was done only in some favourable over hot *Summer*, tho' if the *Vines* were placed very advantageously 'tis possible it might be done in an indifferent year, the Reverend and Learned D^r Ralph Bathurst, President of *Trinity College* and Dean of *Wells*, having made as good *Claret* here at *Oxon*. An. 1685, which was a very mean year for that purpose, as one would wish to drink. Which is so farr from wonder that we are informed they planted *vin-yards*, and made *wines* anciently all over the *Kingdom*; for tho' *Tacitus* says it bore all sorts of fruits, *præter oleam & Vitem*^a, yet we find in *Vopiscus* that the Emperor *Probus* for some good service done, permitted the *Britans* to plant them *vin-yards*, which had been no great favour, could they not have made *wines*.

85. As to the *Arts* used here in the ordering of *trees*, they may be distinguisht first either into such as concern *Timber*, or *Fruit trees*; and the former again either into such as are applyed to them during their *vegetation*, or when *fell'd*, and disposed of for uses, as *timber*; Under the first of which conditions, the *Planter* and *Gardiner* make them into pleasant *walks* and *Topiary* works; for the latter whereof *Laurembergius* notes that the *English* are as expert as most *Nations*, quoting *Hampton-Court* as remarkable for them^b: and so is *Brewood-Hall* the Seat of M^r *Ferrers Fowl* of this *County*, where in the *whitethorn*

^a Corn. Taciti. de vita Julii Agricola Cap. 12. ^b Flav. Vopiscus Syracus. in vita Probi. ^c Petri Laurembergii Horticultura. Lib. 1. cap. 29. & 37.

hedg

hedg between the *Garden* and *Court* before the house, there are several *Animals*, *Castles*, &c. formed *arte Topiaria*, not unlike thole engraven by *Laurembergius*^a. The *Wrens-nest* in the *Hort-yard* is a neat piece of work, cut in that *form* likewise out of a *whitethorn*, and capacious enough to receive a man to sit on a seat made within it for that purpose. And in the *Garden* there is a *Yew tree* that from divers branches issuing out of it about a yard from the ground, formes a fair spacious *Arbour* of a square figure, each side without measuring about 5 yards, but within not exceeding above ten foot; cut on the top with *loop* and *crest*, like the battlements of a *Tower*; adorn'd at each corner with a *pinnacle*, over which is wrought a *Canopy* out of the middle branches about 2 yards *diameter*, which is carryed up again first to a lesser gradation, and then terminates at the top in a small *pinnacle*. There is also near the *pale* inclosing the *Hortyard* a fine *Yew-tree* cut up gradually from greater to lesser rounds to the number of twenty; in which sort of *Ornament* the people of this *County* seem to take great delight, there being others of them at *Mear*, *Aspley*, *Moreton*, and *Willbrihton*, of 21, 22, 23 stories high.

86. In the *Garden* of the worthy M^r *Scot* of great *Barr*, there is a *Yew-tree* cut conically like the *Spire* of a *Steeple*, 8 or 9 yards high. And for plantations of *Trees* and *Walks* there are very fair ones at the right Honorable the Lord Viscount *Maffereens* at *Fisherwick*; and at the right Worshipfull S^r *Francis Lawleys* at *Cannal*; there are also fine young ones of the *Silver Fir* at M^r *Chetwynds* at *Ingestre*; but of all I met with in the *County* there are none that are comparable either for *breadth* or *length* to those above mention'd at S^r *Richard Astley's* at *Pateshall*, some of them being 11 and 14 yards broad, and 148 or 150 yards long, curiously planted on each side with double rows of *Elmes*. In many of their *parks* and *woods* in this *County*, they much affect cutting *vista's* or pleasant *Lawns* here and there through them, whereof the most eminent are those in *Littewood*, which may be seen about the *Country* at a great distance, and afford pleasure to the traveller a farr off, as well as near; and there are very fine ones designed, East of *Pateshall* house. The manage of the *Woods* in this *County* also belongs to this place, which if *Underwood*, in the *Moorelands* they order thus; the *brush* they use for *brewing*, and heating the *Oven* where they have it; and where there are *Rivers* (if needfull) they preserve the *banks* with it: but if of bigger growth,

^a Locis supra citatis ^b See §. 52. of this Chap.

B b b 3

they

they generally *charr* it for the *Iron Mills*, in the manner as described by the learned M^r *Evelyn*^s.

87. And so they doe the *loppings* of their timber trees, which they extend even to *Oakes*, not sparing to lop them when young, at some distance from the tree, which in process of time will be cover'd again with the *bark*, in which they think they give advantage to the *Underwood* in its growth (as doubtless they doe) and hurt not the *timber* at all: tho' they are of opinion, if they should, that the *Underwood* will pay them better for its growth, than their *Timber* ever would: which yet they let grow to as vast a bigness here, as was shewn above, as in any part of *England*. In the *falling* whereof they have this very good custome, that they flaw it standing about the beginning or middle of *May*, which I first observed in some *fences* near *Norton* in the *moores*, *Milton*, *Badiley*, &c. where there were several *Oakes* stood naked, divested of their *bark*, which they told me would not be fell'd till *Michaelmas* following at soonest, or perhaps not till mid *Winter*, or the ensuing *Spring*. which I take to be a way of so valuable a consideration, that perhaps it may deserve the debate of a *Parliament*, whether it might not be worth while to inforce this *custome* to be strictly observed all over the *Nation*? for tho' by a reserve in the *Act* for due *falling Oaken timber*, it may be done at any time for building or repairing *Houses*, *Ships*, and *Mills*; yet for any other *uses* none may fell it (in consideration of the *tan*) where *bark* is worth but two shillings *per load*, over and above the charges of *barking* and *pulling*, but between the first of *April* and last of *June*, when the sap is up, and the bark will run; which causes the out side of the *timber* to rott away quickly, and to grow worm-eaten: whereas these being fell'd in or near the *winter*, and having stood naked all the *Summer* drying in the *Sun*, become in a manner as hard and sound without as within, being as it were all *heart*, and not so subject to *worms*: by which means there would be a great deal of good timber saved, and no other could be used; nor would the use of the *bark* be lost to the *Tanner*, as I suppose is presumed in the present *Act* it would, should it have admitted *falling Oakes* in the *Winter* season, when the *bark* will not run.

88. Their *Timber* when fell'd they dispose of for divers uses, as in other places, some being cleft into *pales* which they make use of here, not only for *fencing*, but to lay their *thatch*

^s Job. Evelyn's discourse of Forrest trees Chap. 31. ^t See Chap. 6. §§. 27. 30. and 53. ^u Jos. Keeble's Statutes at large. An. 1^o. Jac. 1. Chap. 22. §. 20.

on,

on, instead of *laths*, as I observed about *Hansford* and great *Fenton*, which I take to be a strong and very good way. It may be reckon'd amongst the *Arts* too relating to *Timber*, that there have been very long *structures* made in this County out of short pieces of *Timber*: I shall not compare them with the *floores*, *roofs*, &c. made of the like in *Oxfordshire*^w, having not seen the thing it self I am about to mention: but it is certainly true that there was a large *bridg* standing within memory over the *Castle ditch at Tutbury* (for I spake with one there that remember'd it pull'd down) that was made of *pieces* of *Timber* whereof none were much above a *yard* in length, and yet was not supported underneath either with *pillars* or *archwork*, or any other *prop* whatsoever. Which yet is not so curious a piece of *Art*, but that it seems to have been known as long agoe as *Fryar Bacon*, who amongst other stupendous *artifices*, seems to mention such an one: *Infinita alia*, says he, *possunt fieri, ut Pontes ultra flumina sine columna, aut aliquo sustentaculo, & Machinae & ingenia inaudita*^x, i. e. that *Bridges* were made over *Rivers* unsupported either by *pillars* or any other *prop*, with many other such *Machines*, and unheard of *Curiosities*. It is remarkable also that in the *Hall* at *Chartley* the *Shuffle-board table* tho' ten yards, 1 foot, and an inch long, is made up of about 260 *pieces*, which are generally about 18 inches long, some few only excepted, that are scarce a foot; which being laid on longer boards for support underneath, are so accuratly joynted, and glewed together, that no *shuffle-board* whatever is freer from *rubbs*, or *casting*.

89. There is a *joynt* also in the *Shuffleboard* at *Madeley Manor* exquisitely well done. But of all the *Foyners* work I met with in this *County*, there is none comparable to that of the new dining room at *S^r Charles Wolseley's* at *Wolseley*, the *carved work* whereof is also very good, both done by one *Pierce*; and the *Prebends Stalls* at *Lichfield* (which perhaps may be the best of their kind in *England*) are no mean piece of work, being lately rebuilt most of them at the charge of the *Gentry* of the *County*, each *Stall* bearing the *Armes* of the *Benefactor* that gave it: but the most difficult piece of *wood work*, that was shewn me here, was a *Book-desk* at the *Worshipfull Walter Chetwynd's* Esq; said to be the *original* of the *kind* now dispersed over the *nation*, made by M^r *John Ensor* of *Tamworth* out of a solid piece of wood with a turning joynt to raise it higher or lower as conveniency shall require, which *joynt* yet is cut so even and close, that it moves

^w Nat. Hist. of Oxfordsh. Chap. 9. §. 148. ^x Rog. Bacon de mirabilib. Artibus & Naturae Epist. 4.

not

not without a strong screaming pressure of the parts, the thinnest *groat* not being to be thrust betwixt the *Commissures* of it. And for *Turners* work, I have seen nothing equal to *that* of the same person, who hath contrived an *Engine* to turne *wreath work* such as that represented *Tab. 32. Fig. 5.* which he sent me as one of the meanest *pieces* of his *Art*, in comparison of what he can doe of this kind; being able to make such not only of *two*, but of *3* or *4* *twists*, or more if he pleaseth; and that in so little time, that he can *turn* 20 of these, whilst one is *cut* or *rasht*, the only ways they could make such at *London* and *Oxford*, that I could by any means hear of. He also cuts *wreath'd pillars* with the same *Engine* (that are not *through-work*) which plainly demonstrate that he does *turn* the other, the *furrows* whereof are so very *deep* and *narrow*, that it is impossible they should be cut by any other toole, but by some *Engine* for *turning*, whereof there is a *Specimen* in the leggs of the *Altar* in *University College Chappel*, in the *University of Oxford*.

90. Of the *Arts* they use here in ordering their *Fruit-trees*, some concern them whilst *young* and *tender*; others when grown *old*: as to the former of these, I observed at *Purton* in a new plantation of *S^r Walter Wrottesleys*, where there was earth cast up about each tree in forme of a *bason* to receive the benefit of the *rains* and *dews*, that he had also planted *beans* upon the same raised earth round every one of them: which he told me did not only prevent other *grasses* or *weeds* which would else grow there; but also preserve the *root* of the *tree* from the parching heat of the *Sun* in a due moisture: which no question may be a way very advantageous to *young plantations* in great and lasting *droughts*. And betwixt *Wrottesley* and *Patingebam* not farr from *Nurton*, whereabout they are arrived to that height of *planting*, that I found some of their *bedges* set with *fruit trees*, and divers *stocks* new grafted: I observed the *feathers* of *Crows* and other *fowle* stuck in the *clay* which was put round the *graffs*, to prevent all sorts of *birds* from lighting on them, especially those of any great bulk, which many times break them with their weight: a device not to be contemnd, tho' perhaps some may imagine it an over nice *provison*. For enlivening *old trees*, the experienced *S^r Simon Degg* in a paper he sent me concerning *improvements*, &c. seems to favour the laying *Lime* to their *roots* when *old*, which indeed in all likelihood may be agreeable enough; it having this influence upon *Cherry-trees* as *Pliny* asserts, that it hastens the ripening their fruit, *Cerasos præcoces facit, cogitque maturefcere, calx admota*

admota radicibus^y, which I suppose ought to be done in a moderate quantity.

91. And it being an ordinary distemper especially of *old trees* to be over-run with *Moss*, which sucks away some of the best of the *Sap*, and so weakens the *tree* that it bears little or nothing; they cure it here as elsewhere, by *emuscation*, which they doe not with the *Marra* of *Laurebergius*^z, the wooden instrument, or hair-cloath of *M^r Evelyn*, after a fobbing rain^a: but as they think at least a much better way, *viz.* as I was told by that prudent *Gent. M^r Swynfen* of *Swynfen*, by setting *fire* to it with a wisp of straw at divers places, which will quickly run all over the *tree*, and so quite free it of that *annoyance*. And this they generally chuse to doe about *Christ-mass* time, if it prove a dry season, and more particularly at *Twelstide* to make a shew about the *Country*, that being also the time they make *fires* upon the *hills* in many places in memory of our deliverance from the *Danish* Yoke, which yet *Henry* of *Huntington* expressly says was celebrated elsewhere on the feast of *S^t Brice*, i. e. the 13th of *November*^b. This setting *fire* to the trees they call a *blase*, and possibly might be the time of keeping the feast of *S^t Blase* in this *Country*, tho' in other places it was observed on the 3^d of *February*^c: for I find that many of these *memorials* were celebrated at different times *pro more loci*, as the deliverance from the *Danes* above mentioned was; and so the feast of *Hock-tide*, as is amply made appear in the *History* of *Oxfordshire*^d.

92. Next the *Vegetables*, the *Arts* relating to *Brutes* fall under consideration, amongst which, first of such as concern the *winged Kingdom*, under which head I reckon all *flying Insects*, as well as *feather'd fowle*, and therefore must account for a sort of *Beehives* they have in this *County*, quite different from any used in the *South* of *England*, which they make of *Osier-twiggs* interwoven like a *basket*, and then plaister'd over with a mixture of *Clay* and *Cow-dung*, or as I saw some at *M^r Rudyards* at the *Abbey* of *Dieu le Cresse*, dawb'd over with a composition of *Cow-dung* and *turf-Ess*, and over that again with *Lime*. Which seem only to be the *hives* of ancient times, still retained here, *Virgil*, *Columella*, and *Palladius* all testifying that they were made of such *twiggs* in their days, *Alvearia vimine tex-*

^y C. Plinii 2^{di}. Nat. Hist. Lib. 17. cap. 27. ^z Pet. Laurebergii Horticulturæ Lib. 1. cap. 3. ^a Job. Evelyn's discourse of Forrest trees. Chap. 27. §. 8. ^b Hen. Huntingdoni Historiar. Lib. 6. sub. initium. ^c Minsheu's ηγεμων εστι τῆς γῆρας in verbo Hock-tida. ^d Nat. Hist. of Oxfordsh. Chap. 8. §§. 26, 27.

ta, and not only of *Osfers*, but of the *ferula*, *witby*, &c^c. and as M^r *Butler* affirms of *privet* and *basle*^e; which *Pliny* too advises should be coated over with *Cow-dung*, *circumlini Alveos fimo bubulo utilissimum*^g, being his very words; to which M^r *Butler*, in the forecited *Chapter*, adds *lime* and *asses*. Over all this they put a *straw hood*, as in the *Southern Counties*, to keep the *wax* and *bony* from melting in the *Summer*, and to cast of the *rain* and keep the *bees* warm in *winter*.

— nam frigore mella
Cogit hiems, eademque calor liquefacta remittit,
Utraque vis apibus pariter metuenda *—

over which they peg a square piece of *wood* at the top, as I saw some in the garden of the Reverend M^r *Rhodes* Rector of *Blithfield*, which cast of the *rain* upon the more spreading part of the *hood*, which must needs otherwise enter in some measure in at the top of it, where the hollow ends of the *straw* are open to the weather.

93. And such as these for the most part they use all over the *Country*, but at the Worshipfull *John Whitehall's* of *Pipe-Ridware* Esq; who is a most intelligent *Bee-Master*, I was shewn great variety of *hives* most of his own contrivance: some being made square, others round, both placed over one another, with drawers of *wood* between, like the *Colony hives* described in *Oxfordshire*^h: others he had made out of *hollow-trees*, which were sawn asunder at due distances, which no doubt on't are as agreeable as any kind whatever, these being the first *natural hives* for bees, before they were brought under an artificial regimen; and therefore it was no doubt, that both *Columella* and *Palladius* commend them for this purpose, *ligno cavata Arboris fabricentur*, let their hives be made of hollow trees, say both those grave *Authors*, in their *Chapters* of *Bee-houses*ⁱ. And *Virgil* tells us they delighted to live, *exeseque arboris antro*[†]. But the *hives* he prefer'd before all the rest, he made of *brick*, there being several *stalls* or *gallerys* of them divided into squares of *brick*, on three sides, with *windows* behind and before to see their *working*; the fore-*South* windows in *Summer*, being cover'd with *Matt* to preserve the *bony*. Within these squares of *brick* he sets his *frames* of *wood*, for the *bees* to work on, which

^c Pub. *Virgil. Georgic. Lib. 4. v. 34.* ^d *Fun. Moder. Columelle de re Rustic. Lib. 9. Cap. 6.* ^e *Pallad. Rutilii de re Rustic. Lib. 1. tit. 38.* ^f *Char. Butlers History of Bees Chap. 3.* ^g *C. Plinii 2^{da}. Nat. Hist. Lib. 21. cap. 14.* ^h *Pub. Virgilii Georgic. Lib. 4. v. 35, 36, 37.* ⁱ *Nat. Hist. of Oxfordsh. Chap. 9. §. 128.* [†] *Locis supra citatis.* [‡] *Pub. Virgilii Georgic. Lib. 4. v. 44.*

he

he can take away as they *work* downward. He makes use notwithstanding both of *straw* and *wicker* hives cover'd with *Cow-dung* and *Lime*, but neither of them made after the ordinary manner, viz. not *conical* at top, but *cylindrical*, and open at top and bottom, which he places first on the top of the *brick-work*, and underneath again to receive the *bees* at last; so as to be convey'd again to the top of the *brick-work* as at first. Of which *brick-hives* he has some single, others many together: but the single he counts best, because the most manageable.

94. But the nicest piece of *Art* that ever I saw, any way relating to the *feather'd Kingdom*, and indeed the most curious, was an *instrument* shewn me by the right Worshipfull S^r *Richard Astley* of *Pate-shull* Baronet, of his own Invention, only to match *game-Cocks*, discovering their *sizes* both as to length and girth, to so great an accuracy, that there cannot be easily any the least mistake: for the better apprehension of which *Instrument* I have here annex't it *Tab. 32. Fig. 6.* with a *Cock* put in it at full stretch; where the Letter *a*, shews the *Collistrigium* or *pillory*, standing upon a *pedestall* fixt to the plate of *brass* below, 24 inches long, which opens by the handles at *b*, and shuts close of it self by the help of *springs* fastn'd within the *ring*; *c*, a hollow plate placed also upon a *pedestall*, but moveable in a groove twixt *d* and *e*, when drawn by the *coard* *f*, wound about the wheel *g*; *h h*, shew the *Pedica* or *stocks* set also upon a movable *pedestall* opening and shutting as the *pillory*, which drawn out as farr as the length of the *Cock* will permit, by the *coard* *i*, that is wound round the wheel *k*, by a *key* or *winder* apply'd to the *Axis* *l*, (as the wheel *g* also is) both being stop't by the *springs* *m m*, which fall into the *teeth* of the *wheels* at *n o*, give an exact measure of the length of the *Cock* to the eighth part of an *inch*, according to the *divisions* upon the latter part of the *plate*. Then for the *Size* of its *body*, it is measured by the *girth*, either by the *brass ring* described *Fig. 7.* which may be taken in, or let out, likewise to the eighth part of an *inch*, according to the *divisions* on the *plate*; or else by a *Girdle* and *buckle*, as may be seen upon the *cock*: all which have been approved by the best *Masters*.

95. Relating to *four-footed beasts*, they have a pretty *device* here, which I first espied at *Over-Bradnup*, and near *Ashenburst* house (formerly the seat of an ancient family of the same name) to prevent their *hogs* from rooting; which they doe hereabout (and as I found after in most parts of the *County*) not with *rings* as elsewhere, but with a *forked Iron* armed at each end with a *fin*, or *half-barb* of an *arrow*, which being thrust through the

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the *Selvedg* of a *bog's nose*, can by no means return, the bottom or square part of the *fork* that lyes upon the *nose* being also coated with a hollow cylindraceous moveable *ring* as in *Fig. 8.* so that he cannot take hold enough to turn up the *earth.* I also met in this *Country* with another usefull *experiment* relating to this sort of *Animals* at *great-Heywood*, where I was shewn by *M^r Whitby* the virtuous wife of my worthy friend *M^r Thomas Whitby* (whose assistance in this work I must ever acknowledg) the *Runnet* of *Ranton* (so call'd as they told me because thence they first had it) made of the innermost *membran* of a *Calves Stomack* or *Mawe*, which being wash't clean from all filth, salted, and hung up in brown papers, when they have occasion to use it, they only wash off the *Salt*, and steep a bit about the bredth of a shilling in 4 or 5 spoonfulls of fair water all night, and this water put to *milk*; will turn it to *curds*, which being so usefull a thing in *houswifry*, I could not but mention it.

96. Another odd sort of *Art* I was told of in this *County*, which must not be omitted, of curing the disease in *Cattle* they here call the *Foule*, that proceeds as 'tis thought from their excessive *fatness*, which sometimes falling into their *leggs* and *feet*, causes such *impostumes* or *cores* of putrified matter, that they cannot goe farr: upon which account tho' the *beef* of them be never the worse for the *shambles*, yet being rendered hereby uncapable of being brought to a profitable *Market*, their owners are therefore forced to have recourse to some *remedy*, which is commonly *this*. They stricktly observe the *turf*, where the *Oxe*, *Cow*, or *Heifer* that is thus distemper'd, sets his *sick foot* when he first rises in the morning, upon which they usually find some of the *Sanies* or matter of the *impostume* prest out by his weight; this very *turf* with the *impreffion* upon it, they cut up and hang upon a *tree* or *bedg* toward the *North* wind, which blowing upon it the *beast* becomes cured in three or four days: and this I was told about *Tammworth* was frequently practised there with good success to this day. Which as *S^r Kenelm Digby* thinks seems indeed to be done, by a *Sympathetic* return of the *Spirits* of this impostumated matter, now mixt with the cold and dry *Atoms* of the *North* wind, to their first *source* in the ulcerated foot of the *Animal*; the *malady* indeed requiring no other help, than to be well dried and refresh't, which is effectually done by the cold nitrous particles of the *Air* coming from that *quarter**. And these are all the *Arts* relating to *quadrupeds* worthy notice here, but that at *Pateshall* in the *stables*, I observed the *Mangers* were

* *Sr Kenelm Digbys discourse of Sympathetick powder, sub finem.*

some-

somewhat extraordinary, being so placed that the *range* of them headed the end of the *barn*, whence the *Oats* might be put into them through *tunnels* in the partition, without bringing them round out of the *barn* into the *Stable*.

97. Lastly we come to the *Arts* that respect *Mankind*, amongst which as elsewhere the civility of precedence must be allowed to the *women*, and that as well in punishments as favours. For the former whereof, they have such a peculiar *artifice* at *New-Castle* and *Walsall*, for correcting of *Scolds*, which it does too so effectually, and so very safely, that I look upon it as much to be preferred to the *Cucking-Stoole*, which not only endangers the *health* of the *party*, but also gives the *tongue* liberty twixt every dipp; to neither of which this is at all lyable: it being such a *Bridle* for the *tongue*, as not only quite deprives them of *speech*, but brings shame for the transgression, and humility thereupon, before 'tis taken off. Which being an *instrument* scarce hard of, much less seen, I have here presented it to the *Readers* view *Tab. 32. Fig. 9.* as it was taken from the original one, made of *Iron*, at *New-Castle* under *Lyme*. Wherein the Letter *a*, shews the joynted *collar* that comes round the *neck*; *b, c*, the *loops* and *staples*, to let it out and in, according to the bigness and slenderness of the *neck*; *d*, the joynted semicircle that comes over the *head*, made forked at one end to let through the *nose*; and *e*, the *plate* of *Iron* that is put into the *mouth*, and keeps down the *tongue*. Which being put upon the *offender* by order of the *Magistrate*, and fastned with a *padlock* behind, she is lead round the *Towne* by an *Officer* to her shame, nor is it taken off, till after the *party* begins to shew all external signes imaginable of humiliation and amendment. And as for any other *Arts* that concern this *Sex*, in one of the lodging rooms at *Trentbam Hall* I was shewn a most delicate linnen suit of *bangings*, which being made by *Nunns*, and most artificially done, belong to this place, and must not be omitted; tho' I must confess my inability to describe them to that advantage they really deserve, the whole consisting all of *square panes*; some great, others little, yet preserving uniformity; the one half plain, the other wrought in *cheque* with a *topiary* sort of *Needlework* of so great variety, that it is hard (if at all) to find two alike; tho' they are in number great and small, as well as I could tell them, 3317 *Squares*.

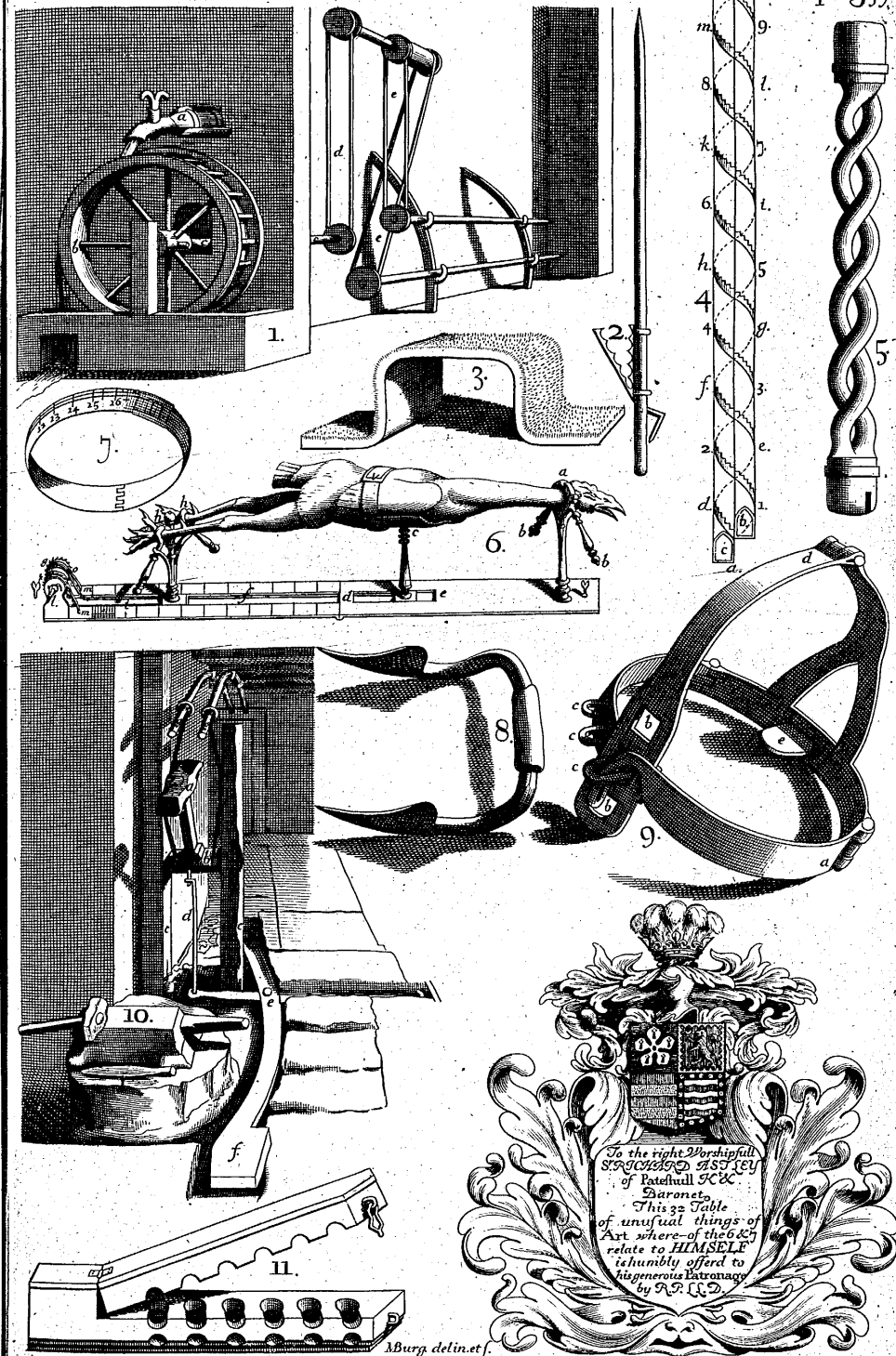
98. As for the *Arts* relating to *Men*, it must not be expected that any great *improvements*, much less any new *Inventions* should have been made here in those we call *Liberal*: but amongst the *Mechanics*, I met with several usefull and curious things: particularly at a *Smiths* shop a little *South* of *Mole-Copp*, I found an *Engine* that

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that managed a large Sledg to so great advantage, that it frequently supplied the defect of a man ordinarily had, elsewhere for that purpose, the Sledg being set in an Axis of wood, from whence goes a rodd of Iron fastned to a pallet, that reaches out a little beyond the Anvil, which being drawn down by the foot of the Smith, who keeps time to it with his Hand-Hammer, is returned again by three springs of holly, that clasp the Axis the contrary way. The same I also found at Betley, Caverswall, and elsewhere, but somewhat different from that near Mole-Copp, the Sledg being return'd by two poles above it, like the pole of a turning-lathe, whereas the springs of the former were fastned below it. For the better understanding whereof, and because altogether unknown in the Southern parts, I have caused its figure to be exhibited. Tab. 32. Fig. 10. In which the Letter a shews the Sledg fix't in the Axis b, hanging between two jambs or standards c c, d the rodd of Iron that comes down to the pallet e coming out beyond the Anvil, f the placé where the Smith sets his foot when he draws down the Sledg, g g the poles above that return it. With which Engine I saw a Smith make a Horse-shoe, as they can also any other smaller sorts of wares, almost as quick as if another had struck the Sledg to him.

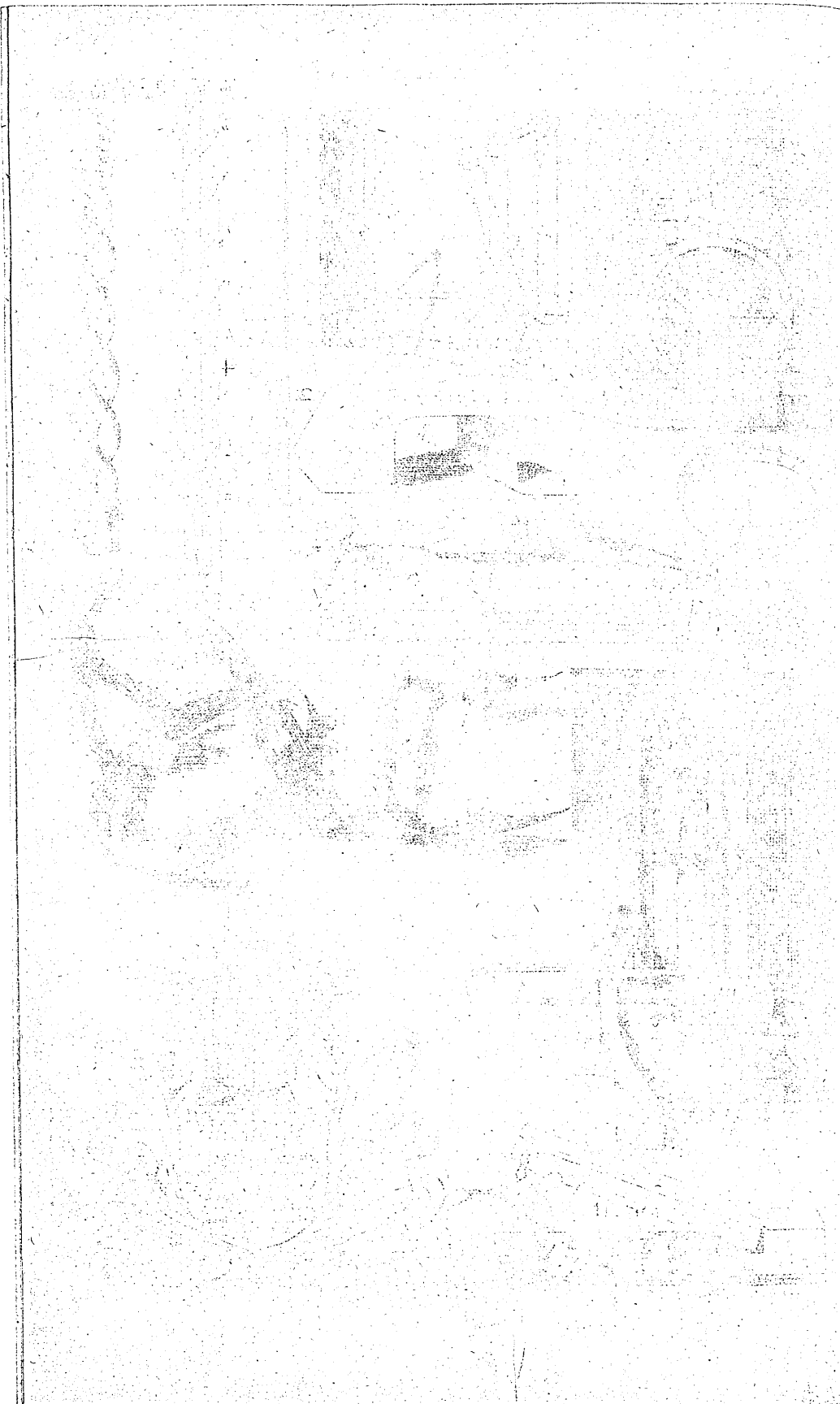
99. In the Coopers trade at the right Honorable the Lord Wards at Dudley Castle. I was shewn barrells in the Cellar having boles bored in the top of the head just under the rim of them, opposite to the tap holes, to let forth the working of the drink, which seems much better than that at the bung, the Spirits of the drink which naturally fly upward, being hereby preserved; scarce any of them passing with the froth through this hole; which when the drink has done working, is closed up with clay, as the bung usually is. And in Cookery at the Worshipsfull Walter Chetwynds of Ingestre Esq; I tasted potted Otter so artificially order'd by his excellent Cook, that it required a very nice and judicious palat to distinguish it from Venison. And now I am fallen in amongst the meats and drinks (which are no where better, or more plentiful, than in this County) I cannot forget a piece of Art, that I found in the Hall of the right Honorable William Lord Paget at Beaufort, made for punishment of the disorders, that sometimes attend feasting in Christmase time, &c. call'd the finger-Stocks; into which the Lord of misrule, used formerly to put the fingers of all such persons as committed misdemeanors, or broke such rules, as by consent were agreed on for the time of keeping Christmase, amongst the Servants and others of promiscuous quality: these being divided in like manner as the stocks for the leggs, and having several holes of different Sizes fit for the scantlings of all fingers, as represented in the Table Fig, 11. 100. And

TAB. XXXII.



ad pag 390

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Chap. IX. Of STAFFORD-SHIRE. 391

100. And these are all the *Arts* that concern *Mankind*, unless it be also worth notice that at the right Honorable the Lord *Gerards* at *Gerards Bromley*, there are the pictures of *Henry* the great of *France* and his *Queen*, both upon the same *indented board*, which if beheld *directly*, you only perceive a confused piece of work; but if *obliquely*, of one side you see the *Kings*, and on the other the *Queens* picture, which I am told (and not unlikely) were made thus. The *board* being *indented* according to the magnitude of the *Pictures*, the *prints* or *paintings* were cut into *parallel pieces*, equal to the depth and number of the *Indentures* on the board; which being nicely done, the *parallel pieces* of the *Kings* picture, were pasted on the *flatts* that strike the Eye beholding it *obliquely*, on one side of the *board*; and those of the *Queens* on the other; so that the edges of the *parallel pieces* of the prints or paintings exactly joining on the *edges* of the *Indentures*, the work was done. To which let me add (it being a *Curiosity* much of the same *kind*) that M^{rs} *Rebeckah Normansell* of *Wolverhampton*, has so excellent a hand in the management of her *Cifers*, that she has curiously cut out the *Tomb* abovementioned¹ of that eminently Loyal *Gent.* *Coll. John Lane* with all the *Trophies, Inscriptions, &c.* in paper: to which I never saw any thing equal; but some few such pieces in the *Museum* at *Oxford*^m, and part of a *Greek Chapter* I once saw at *London* cut out of *white paper*, which laid upon *black*, was as legible as the same in any printed *Greek-Testament*.

¹ See Chap. 8. §. 76. ^m Vid: *Scrinium Liferianum in Museo Ashmoleano.*

CHAP. X.

Of Antiquities.

1. FOR Satisfaction of the Reader, upon what terms I add this Chapter of Antiquities to my Natural History, it seeming to some altogether forraigne to the purpose: I take leave to acquaint him, before I advance any further, that I intend not to meddle with the pedigrees or descents either of families or lands, knowing a much abler pen now employed about it*; nor of the antiquities or foundations of Religious houses, or any other pious or Civil performances: it being indeed my designe in this Chapter, to omit, as much as may be, both persons and actions, and chiefly apply my self to things; and amongst these too, only of such as are very remote from the present Age, whether found under ground, or whereof there yet remain any footsteps above it; such as ancient Medalls, Ways, Lows, Pavements, Urns, Monuments of Stone, Fortifications, &c. whether of the ancient Britans, Romans, Saxons, Danes, or Normans. Which being all made and fashioned out of Natural things, may as well be brought under a Natural History as any thing of Art: so that this seems little else but a continuation of the former Chapter; the subject of that, being the Novel Arts exercised here in this present age; and of this, the ancient ones; whereof in the same order as in the History of Oxfordshire.

2. And yet the first thing that offers it self to my consideration, is the original people that inhabited this Country before the coming of the Romans: I know both Ptolomy and M^r Camden joyntly agree, that they were the Cornavii that were spread over this, and Warwick, Worcester, Salop, and Cheshires: but Tacitus mentioning a British people hereabout that were call'd Icenii, who took distast at the Proprator Ostorius Scapula's blocking up their Country-men between the Rivers Antona and Sabrina^b, I cannot but suspect they belong'd in part to this place: for that the Simeni of Norfolk, &c. whom M^r Camden would have to be the only Icenii, they seem to be too remote to be concerned at such an action; and so does the River Nen to be the Antona of Tacitus, as both S^r Hen. Savil^c, and M^r Camden

* Walter Chetwynd of Ingestre Esq; Nat. Hist. of Oxfordsh. Chap. 10. §. 1. ^b Corn. Taciti Annalium Lib. 12. cap. 31. ^c Sr Hen. Savil's Translat. of the 12. Book of Tacitus s. Annals. §. 8.

would

would have it^d, which perhaps may be a corruption through frequent transcribing for one of the Avona's, betwixt which and Severn they might easily be coped up; but not so betwixt it and the River Nen, which is so far from joyning with it, that it holds a quite contrary course. Beside it seems pretty probable that these Icenii, were neighbours to the Congi or Cangii, against whom the Roman Army was presently lead after the defeat of the Icenii, whose Territories reached, as Tacitus himself also confesses, almost to the Irish Sea^e, wherein in a manner he comes up to Ptolomy, who places the Καλιγανίων ἄλιον or Promontorium Ganganorum at Ormeshead-point or Libeyn Gogarth in Caernarvonshire^f: the Cangii in all likelihood also held all Denbighshire, and a piece of Cheshire, where the old Condate now Congleton, and Conghull, seem to preserve the Memory of them.

3. But that which moves me most to think there was such a people as the Icenii both in Worcestershire and Staffordshire, is the Roman Consular way which remains to this hour, and passes through both those Counties by the name of Ickenild-street, which how it should come by, but from the people whose Territories it was made through, I cannot imagine. If it be objected that the Icenii, which Tacitus there mentions, must needs be the same with those of Norfolk, &c. for that at the same place he speaks of a Colony of veteran Soldiers posted at Camalodunum, a City of the Trinobantes next neighbours to the Icenii of Norfolk, &c. to represent the rebell Britans upon all occasions, which were drawn out at that time against the Silures^g. I answer that if we may believe Ptolomy there were two Camalodunums, one in the County of the Trinobantes, and another in the Territories of the Cornavii or Cangii, about the South parts of Cheshire, whence he might much more probably draw out these Veteran Soldiers, being much nearer to the Silures, than from the Camalodunum of the Trinobantes: not to mention that Ptolomy calls that of the Trinobantes Καμωδολανον Camudolanum, and not Camalodunum as he does that of the Cangii, which is more agreeable to Tacitus^h.

4. It being thus made at least probable, that the original Inhabitants of this County might also be Icenii, as well as those of Norfolk, &c. who though they at first carryed themselves fair to the Romans, yet seeing them use their neighbours in that manner as they did, thus stoutly interposed: let us next take a view of what markes there yet remain, of their places of ha-

^d Camden in Northamptonshire. ^e Corn. Taciti Annalium. Lib. 12. cap. 32. ^f Claud. Ptolomæi Geograph. Lib. 2. cap. 3. Edit. Bertii. ^g Corn. Taciti Annalium. Lib. 12. cap. 32. ^h Claud. Ptolomæi Geog. loco supra citato.

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bitation, defence, &c. to one or both of which I think I cannot but refer that noble antiquity near *Wrottesley* in this County, where there yet remains, either the foundation of some ancient *British* City, or other fortification, of great extent; it including above a moyety of *Wrottesley*, and part of *Patesbull*, *Pepperhill*, and *Bonningal* parks; also some parcell of the two Commons of *Kingswood* and *West-bach*, the whole containing in circuit about 3 or 4 miles, lyeing part in *Staffordshire* and part in *Shropshire*, as mark't out by the shaded line in the Map. Within the limits whereof there are several partitions yet visible, running divers ways like the sides of streets, tho' hard to be fully traced, because interrupted both by the mattock and plow, the foundations being dayly dugg up by the former, to mend high-ways, make inclosures, and pavements; and then all levell'd by the latter: which together with the large hinges for doores, an antique dagger, that have been found here, and some of the stones squared; make me rather think it some ruined City, than a fortification only: otherwise I could have been content to have thought it some such *British* vallum, or encampment, as *Tacitus* acquaints us *Caractacus* made upon a hill in *Shropshire*, upon the banks of the River *Clun*, with great stones rudely heap't upon one another, to defend him from the impressions of the Roman Army; the remains whereof, saith *Camden*, are to be seen at this day.

Such a Rempire as this, I say, I could have easily believed it, there having been just such great stones found hereabout, as we read *Caractacus*, and other *British* Princes, were used to fortify withal: whereof I was told of one, that contained 100 loads; another so great, that after 10 loads of stone were hewed off it, required 36 yokes of Oxen to draw it, and made the great Cistern in the Mault-house at *Wrottesley*, which though left very thick both at bottom and sides, is yet so capacious, that it will wet 37 strike of barley at a time. Or at least I could have thought it some Camp of the Danes, who as *Simeon Dunelmensis*¹, *John Brompton*^m, and *Florentius Wigorniensis*ⁿ all testify, were overthrow'n at *Totenbale*, *Teotenbale*, or *Theotfanbele*, now *Tettenhall* not farr off; the whole, or greatest part of it, being I think in that parish at this very day; but that the parallel partitions within the out wall, whose foundations are still visible, and represent streets running different

¹ *Corn. Taciti Annalium Lib. 12. cap. 33, 34, 35.* ² *Camden's Britannia in Shropshire.* ³ *Sim. Dunelmensis Hist. de gestis Reg. Angl. in An. 911.* ⁴ *Chron. Joh. Brompton Abb. Journ. in vita Edwardi Sen.* ⁵ *Florent. Wigorn Chron. ex Chron. in An. 911.* ⁶ *Vid. §. 36. infra.*

ways,

ways, put it I think out of doubt, that it must have been a City, and that of the Britans, for that I could hear of no name it ever had, nor have the Inhabitants hereabout any tradition concerning it, of any sort whatsoever, somewhat whereof would have certainly been preserved, had it either been Roman; or so late as either the Saxon, or Danish conquests of this nation.

6. And this is the only Antiquity that seems to have any pretence of ever having been a *British* habitation, unless the tradition concerning *Willbrighton* in this County, viz. that the Romans, when they came against it, termed it *Villam Britonum* (which name it still keeps with little alteration) may pass for one: but there being no footsteps remaining of its ever being tenible, tho' it lyes high, I much question whether this tradition, have not been broached of late years, by some fond Etymologist. Tho' it cannot be deny'd that the Romans had indeed some action hereabout, there being a raised work here at *Morton* not farr off, which seems to be of their fashion; and no question the large Meere that lyes just below it, had its name of *Aqualat* [quasi aqua lata] from them; and the banks on the N. N. E. side of it, the name of *Anc's-hills*, from some Roman Captain that lay upon them, whose name or at least *praenomen* perhaps might be *Ancus*. Not to mention that all these are in or near the parish of *Forton*, and that there is a village, not farr off also call'd *Warton*, which are both thought to derive their names from some such actions, as are presumed by the story, to have happen'd hereabout. But I doe by no means prescribe to my Reader in this matter, desiring him to beleive no more than he thinks these grounds will fairly admitt of; every body being left in this, and all other matters whatever in this History to his own creed.

7. But though I could certainly meet with no other places of habitation of the Britans, either fortify'd with great stones, or otherwise fenced; yet there are several fortifications made of earth, cast up into high banks, with entrenchments round them, in such manner and form as the places would best admit of, that may be presum'd to be theirs. For that the Britans did fortifie after this manner too, as well as with stones, we have also the testimony of *Tacitus*, who tells us that the *Iceni* above-mention'd did chuse a place for fight, *septum agresti aggere, aditu angusto, ne pervius equiti foret*, fenced with a bank of earth, having a narrow entrance, to keep off the horse: such as that

⁷ *Corn. Taciti Annalium Lib. 12. cap. 31.*

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about a quarter of a mile to the Westward of over Stonall, where there is an old fortification situate upon a hill, call'd in ancient writings, relating to the lands hereabout, as I was told by M^r Brown of Footerley hard by, Castle-old-ford, which perhaps should be rather written Castle-old-fort, like the Blastium of Antonine, in British, Castle-bean, or Castrum vetus^r; being encompassed with a double trench, in diameter between the entrances (that seem to have been on the SE and NW sides) 160 paces. Which I am willing to think to be a British Rampire because of the ancient name, and that I cannot account for any action hereabout of later date: tho' I must confess the spear-heads, and other warlike instruments plow'd up within it, all of Iron, seem to argue it of less standing.

8. For tho' Cæsar acquaints us that the Britans had Iron, yet they finding it then by the Sea side only, and in such small quantities, that they made their Money of it^r; we have reason to beleive that for the most part at lest they sharpen'd their warlike instruments rather with stones than metall, especial in the more Northberly and inland Countries, where they sometimes meet with flints in shape of arrow-heads, whereof I had one sent me by the learned and ingenious Charles Cotton Esq; found not far from his pleasant Mansion at Beresford, exactly in the form of a bearded arrow, jagg'd at each side, with a larger stem in the middle, whereby I suppose it was fix't to the wood, as in Tab. 33. Fig. 1. These they find in Scotland in much greater plenty, especially in the presētury of Aberdeen, which as the learned S^r Robert Sibbald informs us, they there call Elf-Arrows, Lamiarum Sagittas, imagining they drop from the clouds, not being to be found upon a diligent search, but now and then by chance in the high beaten roads (like the transparent Ombria, or hexangular Chrystals of Italy above mention'd^r) upon which account it is too, that the noble Veronese Ludovicus Moscardus, calls them Pierre Ceraunie, whereof he has given us several Sculptures, not unlike to ours, as represent- ed above^r.

9. Nor did the Britans only head their arrows with flint, but also their mataræ or British darts, which were thrown by those that fought in Eßedis^u, whereof I guess this is one I had given me, found near Leek, by my worthy friend M^r Thomas Gent, curiously jagg'd at the edges with such like teeth as a Sickle,

^r Camden's Britannia in Herefordshire. C. Jul. Cæsaris Commentarior. de bello Gallico Lib. 5. ^u D. Roberti Sibbaldi Prodrom. Nat. Hist. Scotiæ. part. 2. Lib. 4. cap. 7. ^o Chap. 5. §§. 5, 6. ^r Musæi Ludovici Moscardi Lib. 2. cap. 50. ^u C. Jul. Cæsaris Commentarior. de bello Gallico Lib. 4.

and

and otherwise wrought upon the flat, as in Tab. 33. Fig. 2. by which we may conclude, not only that these arrow and Spear-heads, are all artificial, whatever is pretended; but also that they had anciently some way of working of flints by the toole, which may be seen by the marks, as well as they had of the Egyptian Porphyry: which as the aforefaid worthy Gent. S^r Robert Sibbald thinks they learned of the Romans^w; who as Aldrovandus assures us anciently used such weapons made of stones^x. However still it not being hence deducible, but they may be British, they are not ill placed here, whatever original they have had from either Nation. Either the Britans, Romans, or both, also made them Axes of Stone, whereof there was one found on the Wever-hills made of a speckled flint ground to an edge, in the form as described Tab. 33. Fig. 3. and I heard of such another that was met with on the Morridg; which how they might be fastned to a helve, may be seen in the Musæum Ashmoleanum, where there are several Indian ones of the like kind, fitted up in the same order as when formerly used.

10. Near Seafdon in this County upon the edge of Shropshire, at a place now call'd Abbots or rather Ape-wood Castle, without all doubt there was a very ancient, and no less considerable fortification; it standing very lofty on a round Promontory, and having a vast prospect to the South-West into Shropshire, at which very place tho' the entrenchment be but small, yet the whole steep ridg of the bending bank all along 'twixt it and Chasphill, for a mile together, having hollows cut in the ground, over which 'tis thought anciently they set their Tents, the whole seems but one continued fortification, the two hills at each end being the principal bastions: which I am also inclin- ed to beleive to have been a British work, for the reasons be- fore alleged in the case of Castle-old-fort: and that the Lows on Womborn heath not farr distant, may have been raised over some eminent Roman Commanders, lost in the conflicts they might have with the Britans hereabout. And for other British antiquities that are any way probably such, I met with none, unless the great stone in a field South of Cannock Church; and that other of a square figure a little tapering towards the top, 2 yards and an inch high, and near 4 yards about, having two chops in the top of it, so that at a distance it appears a triceps, standing in a leafow near the two Comptons in the pa- rish of Kinfare, by some called Baston, by others Bolt-stone,

^w Cl. D. Rob. Sibbaldi Prodromi loco supra citato. ^x Ulysi. Aldrovandi Musæi Me- talli Lib. 4. cap. 17.

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there being a story that a Gyant threw it from *Aston* (a place under *Kinfare* edg) hither; may be accounted such.

11. Which perhaps they may, and not without reason; whether we esteem them as *British Dieties*, as the *Devil's bolts* in *Yorkshire*, and *Devils coits* in *Oxfordshire*, have been proved to be at large; or some memorials of battles fought thereabout; that at *Kinfare* being also called by the more knowing sort of people, by the name of the *battle-stone*: the *Britans* usually erecting such monuments as these, upon a civil, as well as a religious account. Witness *Kits-Coty-house* in *Kent*; *Roll-wright* in *Oxfordshire*; and *Stonebenge* in *Wiltshire*; the two former I think being certainly set up in memory of battles; and the latter most probably as some *British Forum* or *Temple*, and not of any *Roman pagan Diety*, as *Inego Jones* would have it; the *Romans* at that time being skillfull in *Architecture*, and most other *Arts*, and therefore no question had they built it, would have made a much more artificial structure, than this appears to have ever been; nor should it have wanted an *inscription*; or being some way or other transmitted in their writings down to all posterity. Not is it less unlikely, that it should ever be erected for a *Danish forum* for inauguration of their Kings as *D. Charleton* would persuade us; for then certainly all the Kings of the *Danish* race had been crowned either there, or else at *Rollwright*; or some other such like *Cirque* of stone elsewhere; whereas we find *Canutus* crowned at *London*, *Harold Harefoot* at *Oxford*, and *Hardi-canute* likewise at *London*. Not to mention that the *Danish* transactions here in *England* are of so late a date, that our *Historians* have given us a tolerable account of them from their very first entrance; and would not certainly have been silent of so considerable a structure, had they been the *Authors* of it, either as a *Forum*, or upon any other account.

12. Nor have I more to add of *British antiquities* but that a ground call'd *Christiansfield* near *Stitchbrook* in this *County*, is said to be the place where *S. Amphibalus* taught the *British Christians* converted by the Martyrdom of *S. Alban*, who flying from the bloody persecution of *Maximian*, raised, in *Britain An. 286*, followed him hither 84 miles, as *Ross* affirms it, from the place of their conversion; where the Ro-

¹ Nat. Hist. of Oxfordsh. Chap. 10. from §. 101. to §. 106. ² Will. Lambar's perambulation of Kent in Aylesford. and Nat. Hist. of Oxfordsh. Chap. 10. § §. 95. 96. ³ Inigo Jones's Stonebenge restored. and Job. Webb's vindication of Stonebenge restored. ⁴ Walt. Charleton's Chorea Gigantum, or Stonebenge restored to the Danes. ⁵ Sr Richard Baker's Chronicle of the Kings of England in their respective reignes. ⁶ Ex libro Johannis Rufi MS. de Episcopis Wigorn.

mans

mans that were sent after them (some say from *Verulam*, others from *Etocetum* now *Wall* as the tradition goes here) finding them in the exercise of their Religion, tooke them and carryed them to the place where *Lichfield* now is, and martyred 1000 of them there, leaving their bodies unburyed to be devoured by birds and beasts, whence the place yet retains the name of *Lichfield* or *Cadaverum campus*, the field of dead bodies to this very day, the *City* bearing for their *Device*, rather than *Armes*, an *Escoccheon* of *Landskip* with many *Martyrs* in it, in severall manners massacred: amongst which yet we must not reckon *S. Amphibalus*, whom they carryed away with them to *Verulam*, and martyr'd him at *Redburn* a place between that and *Annable* which took its name from him, as *Lichfield* from his *Disciples*. And this I take to be the utmost antiquity of that *City*, which yet seems older than *Stafford*, tho' it give denomination to the whole *County*, whereof we hear nothing till about 200 years after in the time of *Merlin* the *British* Prophet who flourish'd about the year 480, and wrot that two Kings should *dubium praelium committere propter Leenam* in *Vado Baculis*, which I know not how to expound, unless he meant they should contend for a *Mistress* there. Of the later *Antiquities* of which two places, the *Reader* may expect more hereafter.

13. Of the *Roman Antiquities* yet remaining in this *County*, the most considerable of any are their *publick ways*, there being two of the four eminent *Basilical strata*, otherwise call'd *Prætorian*, and sometimes *Consular* or *Military* ways, viz. *Watlingstreet* and *Ickenildstreet*, yet remaining high and lofty, being but little decay'd, or any way interrupted either by time or the plow: the privileges whereof, and manner of making them, being discours'd of in *Oxfordshire*, I shall wave them here, only noting by the way, that they seem not here to have used the same *Method* prescribed by *Statius*, i. e. first digging a deep trench till they come to a good bottom, and then raising a high ridge upon a firm foundation of other materials than what they found upon the place: these seeming only to be made of gravel dugg all along by the sides of each way, as may be seen upon the *Watlingstreet*, as you pass betwen *Wall* and *Frog-Homer*, *Occamsley pits* near *Knaves-Castle* seeming to have been made upon this account only; and more plainly upon the *Ickenildstreet* near *little-Aston*: the former entering the *County* at *Faseley* bridge and running from *ESE* to *WNW*

¹ Ibidem. ² Vid. Jacob. Uferium de Britannicar. Ecclesiarum primordiis. ³ Inter collect. Job. Lelandi MS. in Bib. Bod. NE. F. 11. 18. ⁴ Nat. Hist. of Oxfordsh. Chap. 10. § §. 19, 20, 21. ⁵ Papii. Statii Silvar. Lib. 4. in viâ. Domitian.

as farr as 4 *Crosses*, where it turns a little, and bears somewhat nearer the *West*, about *W* and by *N*, and so goes into *Shropshire* at *Crackley-bank*; and the latter entring *Staffordshire* a little to the *Westward* of *S^r Charles Holt's* park, and running from *S SW* to *NNE* to a little beyond *Shenston*, where it crosses the *Watlingstreet*, and then bears away *NE* and by *N*, and so enters *Darbyshire* over the *Dove* at *Monks-bridg*: both lyeing within the *County* in manner and form, and bearing to the *Villages* placed on each hand, as described in the *Mapp* prefix to this *Essay* by two shaded lines.

14. Now that the former of these is the true *Watlingstreet*, tho' *Holinshed* mentions another that passes through *Yorkshire*^k, I think so very evident that there needs no debate: but whether the latter be the true *Ickenildstreet*, or that mention'd in *Oxfordshire*^l deserves consideration; both retaining the same name to this very day, and perhaps for the same reason, as either leading to, or passing through the *Countrys* of the *Iceni*, there seeming to have been two *Colonies* of *British* people that enjoy'd the same name: those mention'd by *Tacitus*, who took distast at *Ostorius's* blocking up the *Britans* between *Antonia* and *Sabrina*, being more likely the inhabitants of *this County* and *Worcestershire*, than of *Norfolk*, &c. as was shewn above. So that the *Ickenildstreet* of *Oxfordshire* seems to have been so call'd, for that it tends toward the *Iceni* of *Norfolk*, *Suffolk*, *Huntington*, and *Cambridgshires*; and *this*, for that it was made through the *Country* of the other *Iceni*, both being rightly so call'd; only I look upon this of *Staffordshire*, as the more remarkable of the two, and so to be that *Ickenildstreet* which is usually reckoned one of the four *basilical* or *great ways* of *England*, and not that of *Oxfordshire*: this being raised all along, paved at some places^m, and very signal almost wherever it goes; whereas that of *Oxfordshire* is not so *there*, whatever it may be in other *Counties*; which also seems to hint that the *Iceni* of these *Counties* were a more considerable people too, than those of *Norfolk*, &c.

15. Upon these *Consular*, *Prætorian*, or *military ways*, the *Romans* established their *Itineraries*, *Stations*, or *Mansions* at certain distances, which seem to have been the extent of the daily *marches* of their *Soldiers*; the length whereof as they were seldom under ten, so they as rarely exceeded thirty *Italian* miles. Of which *Stations* or *Mansions* I find but two certain, within the limits of this *County*, and these both upon

^k *Raphael Holinshed's Hist. descript. of Britan. Vol. 1. Chap. 19.* ^l *Nat. Hist. of Oxfordsh. Chap. 10. §§. 22. 23.* ^m Upon *Burton Adoore*.

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the *Watlingstreet*, viz. *Etocetum* and *Pennocrucium*, the former whereof *M^r Camden* computes, and that rightly, to be the village of *Wall*, about a mile and $\frac{1}{2}$ to the *SSW* of *Lichfield*ⁿ, where just at the same distance that *Antonine* sets betwixt it and *Manuessedum* or *Mancester* in *Warwickshire*, there remains in the *Lane* upon the north side of the *street-way* some small fragments of a wall, which 'tis supposed gave the present name to the *village*, and in the corn-field now call'd the *butts* between the *village* and some small *cottages* on the *brook* below, I was shewn two *pavements* one above another at least 4 foot, the uppermost (which lay within 18 inches of the surface) being made for the most part of *Lime* and *rubble-stone*; and the lowermost, of *pebbles* and *gravel* knit together with a very hard cement about 4 inches thick, laid upon a foundation of *Roman brick*; and under them *boulder-stone* of a foot thick more. Above the uppermost of these they often meet with *Roman mony*, whereof I was shewn 3 pieces, one of *Nero*, another of *Domitian*, and a third so eaten with rust, that it could not be distinguisht. On the other side the way in a ground belonging to *Chesterfield*, there are also *antiquities* found in digging, amongst which they lately met with the pedestal of an antique broken *pillar* very well wrought, which lay pretty deep just on the brink of the way, and now remains at the widdow *Smiths* in *Chesterfield*, where I took the draught of it, in order to be engraven, as in *Tab. 33. Fig. 4.*

16. But tho' *M^r Camden* be right in the situation of the old *Etocetum*, yet I think him not so, in his placing *Pennocrucium* at *Penkridg* in this *County*: for tho' the name be more agreeable, than of any other place, yet it not lying upon the *Watlingstreet*, but two miles off it, nor at the distance assigned in the *Itinerary* of *Antonine*, I cannot but rather think it to have been at *Stretton*, so call'd by the *Saxons* (*quasi* the *Town* upon the *street*) after it came into their possession, which lyes just upon the way, and answers the distance very exactly, for tho' it measure but eleven *Staffordshire* miles, yet they may very well be esteemed 12 *Italian* ones, which is the just distance assigned by *Antonine* twixt those two *Stations*. Nor lyes there any objection against this conjecture, but that no *Roman* coynes or other *antiquities* are found thereabout; to which I have this to reply, that neither are there at *Penkridg*, either where it now stands, or where it stood anciently, on the other side the *River*, further off the *street way*. Upon the *Ickenild*

ⁿ *Camden's Britannia in Staffordsh.* ^o *Antonini Itinerar. Britan. Secundum Ald. Manutium. Jos. Simlerum. Jerom. Suriam.*

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street

street there are none of these *military stations* mention'd by *Antonine*, yet doubtless there were such, tho' not mention'd in the *Tables*, these ways being rais'd for avoiding the trouble and danger of *marching* in strange *Countries*, and the *Mansions* settled on them at convenient distances, for the safe repose of their *Armies* at night: whereof 'tis like *Streethy* near *Lichfield* was one: and *Streeton* near *Burton* another; these two being near as farr distant on the *Ickenild*, as *Wall* and *Streeton* on the *Watlingstreet*.

17. I know that the Reverend D^r *Fulk* of *Cambridg* makes the tenth journey of *Antonine*, à *Glamoventa Mediolano*, to pass through this *County*, as may plainly be seen in the second Edition of the said *Itinerary* by *William Harrison*, which he makes run *Northwestward* from *Coventry*, which he says is the old *Alo-ne*, to *Galacum* which he makes *Lichfield*, and thence to *Bremetonacis* which he says was *Trentham*, and so to *Coccium* or *Congleton* in *Cheshire*: but there appearing no footsteps (that I can remember) of *this*, he must pardon me if I doe not subscribe to his opinion, till better informed. Beside these *Basilical* or *Consular* ways there were others of like erection, tho' less extent, call'd *Vicinales*, quod in *vicos ducebant*; whereof I scarce met with any in this *County*: unless I may take leave to account the high paved way at *Wootton* near *Eccleshall* a part of one of these, which seems not to have been made by reason of any wet or dirty way, it being rais'd between two other deep ways, which lye dry enough too. Also at *Edingal* in this *County*, about a mile *E NE* of the *Towne*, there remains a part of such a rais'd way, pointing toward *Lullington* in *Darbyshire*, but whether it should tend after, I cannot imagin, unless to the old town of *Repandune* now *Repton*, so famous for the burial of the *Mercian Kings*.

18. Near this way at *Edingal* there also yet remains a *barrow* or *Low*, such as were usually cast up over the bodies of eminent *Captains*, or other *Commanders* in the wars, and commonly plac'd by the *Romans* by their *military ways*, for the reasons alleg'd in the *History* of *Oxfordshire*, whither I refer the *Reader* for the general account of them^a; in particular I take this to be a *Roman barrow*, because thus plac'd near a *street way*; and so perhaps the great *tumulus* on the *Watlingstreet* near *Hynis*, tho' now a *Rock* of *stone*, it being possible that a heap of *earth* as bigg as that, may in process of time be turned into *stone*, as

^a See *Burtons Commentary on Antonines Itinerary*, in the 2 Edition of that *Itinerary* by *Will. Harrison*. ^b *Nat. Hist. of Oxfordsh. Chap. 10. from §. 40. to §. 48.*

shall

shall be shewen hereafter^{*}; so the barrow call'd *Catts-hill*; also near the *Watlingstreet*, about mid-way betwixt the *Shire-Oaks* and *Frog-hall*; and so the two *Lows* on *Calves-beath*, near the road side that leads from *Sommerford* to 4 *Crosses*; to which add another in some inclosed grounds *East* of great *Sarden*. But the most eminent of any upon this way, is that near *Swinfen* call'd *Offlow*, which tho' plac'd very near it, yet for the name sake, I dare not reckon amongst the *Roman lows*, it being no question the burial place of some eminent *Saxon*, of whom more anon. Neither must the *tumulus* upon the *Ickenildstreet* near *Queisset* in this *County*, call'd *Kingsstanding*, be number'd amongst these, neither of them owning their rise to the *Romans*, as shall be shewn hereafter.

19. But their being plac'd on *Streetways*, is not the only signe of *Roman tumuli*: for where we find *Roman mony*, or any of their *instruments* of warr within or near them, we have also reason to judg them cast up by the *Romans*, tho' remote from any of their *Consular ways*: for which reason I shall reckon the *Low* near *Bushbury* of *Roman* erection, a brass head of the *bolt* of a *Catapulta* having been found in a wood of that *parish* call'd the *burchen Lesow*; another of this kind was also found near *Fetherstone*, but in the parish of *Brewood* by M^r *John Huntbach* in a ground call'd the *Laches*, and by him presented to S^r *William Dugdale*; a third in the biggest of the three *Lows* of *Morridg*; and a fourth at *Handsworth*, all of *brass*, and well enough represented by that one draught, *Tab. 33. Fig. 5.* Which having the shape of a small *Axe*, without any *Eye* for a *belve* to pass through it, made all people wonder what use it could be off: little imagining it could be any thing of the nature of a *bolt*: the exact figure whereof I find engraven in the *Museum Moscardi*, the wooden stemm being to be fitted into the *hollows* of each side it, the edg being plac'd foremost for *execution*, and there declared to have been for that use. Upon which account I say I cannot but determin that at *Bushbury*, and those *three* upon the *Morridg*, to be *Roman Lows*; it being plain by these *instruments* that all those places, as well where *Lows*, as not, were sometime visited by the *Roman militia*, and places of some action.

20. And so for the same reason the parish of *Ilam*, where was found near the spring call'd S^r *Bertram's well*, an instrument of *brass*, somewhat like (only larger than) a *Lath-hammer* at the edg end, but not so on the other, the forme whereof is

^{*} *Vid. §. 34. infra. Musaei Lud. Moscardi. Lib. 3. cap. 174.*

E e 2

her

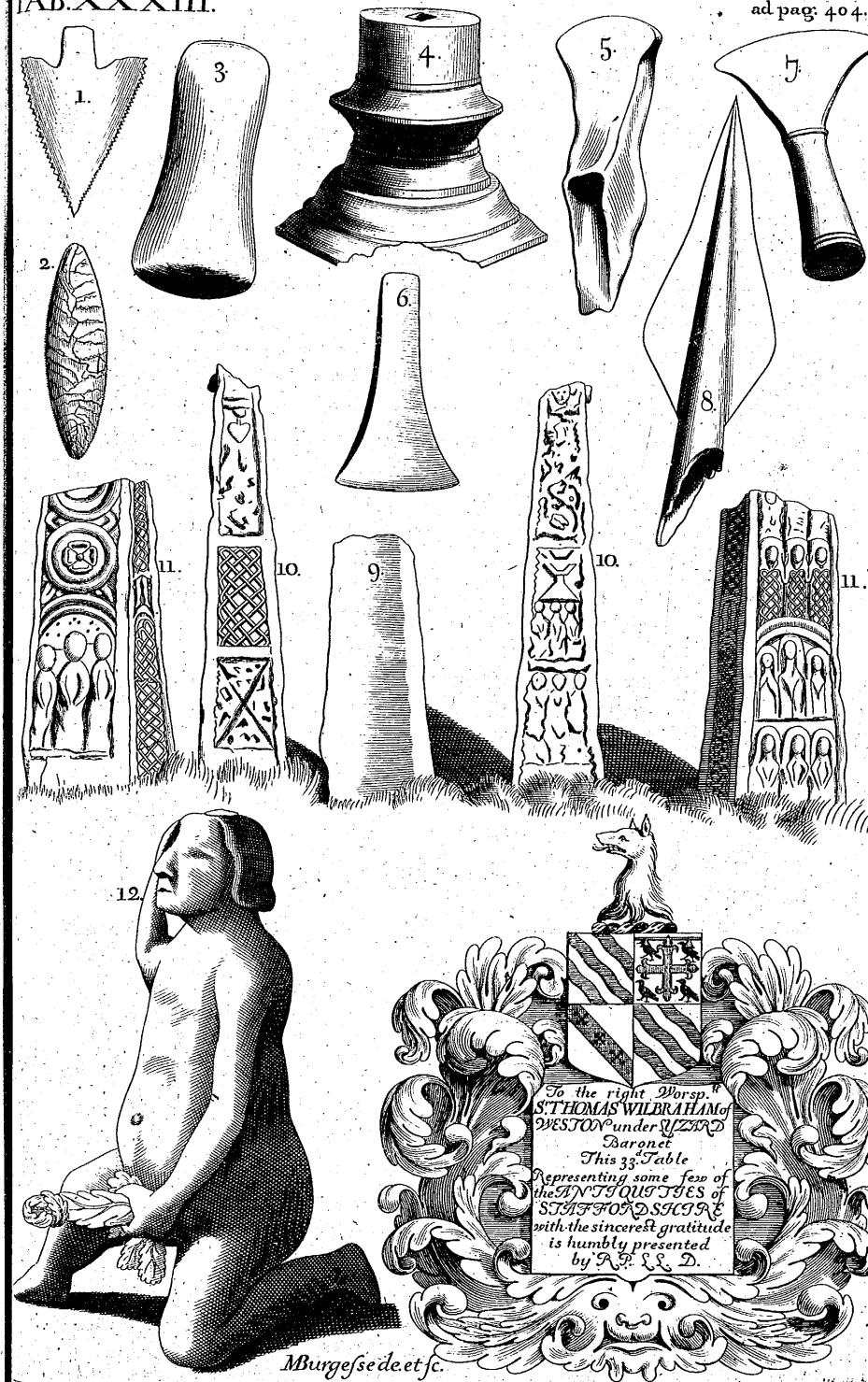
here expresst *Tab. 33. Fig. 6.* which I take to have been the head of a Roman *Securis* with which the *Popæ* flew their *Sacrifices*; notwithstanding it have no *Eye* for the *manubrium* to pass through, the *Securis* it self being sometimes only stuck through it, as may be seen at many places amongst the *Roman antiquities* of *Bartolus* and *Bellorius**. The small brass instrument sent me by the Worshipfull *Charles Cotton* Esq; found somewhere near him, here represented *Fig. 7.* argues also that the *Roman* armes were advanced even into the *Northern* parts; it seeming to have been the head of a *Roman rest*, used to support the *Lituus*, not that crooked staff used by the *Augurs* in their *divinations*, to point out the quarters of the heavens; but the *Trombe-rorte*, crooked Trumpet or horn-pipe used in the *Roman* armies, as may be seen in *Choul's* discourse of the *Castrametation* of the *Romans*†. And from the brass head of the *Roman Venabulum* or hunting spear, found somewhere betwixt *Tarlet* and the foot of *Pyrehill*; which is here likewise engraven *Fig. 8.* one may probably conclude that the *Romans* had at last some residence here, with leasure to follow such sports, as the *Country* would afford.

21. Whence it may reasonably be concluded, as also from some *Roman* mōny that has been sometimes found in *Dale-close* twixt *Okeover* and *Mathfield*, and a *Roman* Urn dugg about 10 years agoe out of a bank in *Church-towne* field in upper *Mathfield*, &c. that the *Lows* hereabout, may for the most part at least be esteemed *Roman*: particularly *Harlow-greave* a little mile *NW* of *Mathfield*; and that other in a field near the left hand the way, as you pass between *Mathfield* and *Ellaston* near *Colwich-common*, without name; and another larger over against it, at the other end of the *common*, which they call *Rowlow*, perhaps the *Sepulcher* of some petty *King*, *Rowlow* importing as much as *Regale Sepulchrum*. To these add the *Low* in *Arbour-close*, 2 or 3 bows shoot *North-westerly* from *Okeover* Chapel; the 3 *Lows* upon the *Weever-hills*; and 3 others they call *Queen-Low*, *Gallows knoll*, and *Castlow-crofs*; together with the *Lows* on *Ribden*, *Reeden*, and *Cauldon* hills; and so *Cocklow* and the rest near the town of *Leek*; those on the hills near *Warflow*; on *Eton* hill; and another on a hill that is a *Cow-pasture* betwixt *that* and *Oncot*: most of which upon examination, as well as those on the *Morridg*, have been found made of *stones*, and not *gravel* or *earth*, as usually elsewhere; which

* Vid. admiranda Romanar. Antiquitatum vestigia, per Job. Petr. Bellorium & Petr. Santl. Bartolum. † Discorso sopra la Castra metatione di Romani per il S. Guglielmo Choul.

TAB. XXXIII.

ad pag. 404.



To the right Worsh.
S. THOMAS WILBRAHAM
WESTON under LIZARD
Baronet
This 33. Table
Representing some few of
the ANTIQUITIES of
S. THOMAS WILBRAHAM
with the sincerest gratitude
is humbly presented
by R. S. D.

M. Burges del. et sc.

Chap. X. Of STAFFORD-SHIRE. 405

yet must not be wonder'd at, because we find they were made also in other *Countries* of such *materials* as the places best afforded, particularly *ex lapidibus in saxosis locis**, such as these are.

22. The *Lows* near *Elford* and *Wiginton* in this *County*, must also be reckoned amongst the *Roman tumuli*: for the former of these being opened at my instance *Octob. 7* and *8. An. Dom. 1680.* at the charge of the generous *Madam Bows* of *Elford*, there was found in it level with the surface of the ground about it, a moist *blackish* sort of *earth* without any mixture of gravel or stones, about 2 yards *diameter*, and a foot and half deep in the middle, lying much in the same form with the *tumulus* it self, on the edge whereof, were *Asbes* and *Charcoal* in their true colours, and several pieces of *bones* in the middle of it, so friable that they would crumble betwixt the fingers: the *Low* it self which coverd these *Asbes* and *black earth*, being made of gravel mixt with pebbles, as the soil it self thereabout is, and so it was also under the said *black earth*. Whence it could not but be concluded that this *tumulus* must needs be *Roman* (tho' there were no *coynes*, pieces of *Urns*, or *Armour* found in it) the bodies buried under it having been certainly *burnt*, which I do not find either the *Saxons* or *Danes* ever did after their arrival here, whatever they might before. Otherwise I should have thought they might have been cast up, about the year 755, when *Ethelbald* King of *Mercia* being invaded by *Cuthred* King of the *West Saxons*; met and fought him at *Segefwald*^u, *Saccbenda*^w, or *Secandune*^x, now *Sekindon* in *Warwicksh.* yet hard by; where the proud King *Ethelbald*, *in arto positus* as *Brompton* tells us^y (which perhaps should be *in arcto*) disdainig to fly was slain by *Beornred* one of his own *Commanders* (as we are inform'd by *Malmesbury*^z) and his whole *Army* broken: for tho' the *King* did not (who was buried at *Repton*) some of the *Nobles* notwithstanding might perhaps have sought to save themselves by a swift flight, yet have been slain in the pursuit, and buried under these *Lows* here at *Elford* and *Wiginton*.

23. Now the reason why such *Lows*, and *warlike instruments*, certainly *Roman*, are so often found remote from their *military ways*, was I suppose that the *Natives* drew them frequently off, and skirmish'd with them any where, as occasion presented:

* *Ol. Wormii Monument. Danicorum. Lib. 1. cap. 7.* ^u *Florent. Wigorn. Chron. ex Chron. in An. 755.* ^w *Matth. Westmonast. Flor. Historiar. in eodem An.* ^x *Joh. Brompton Abb. Jernal. in vita Ethelbaldi.* ^y *Ibidem.* ^z *Will. Malmesburiensis de gestis Regum Angl. Lib. 1. cap. 4.*

upon which account too we find the *Romans*, to have pitch't their *tents* in places farr distant from their *ways*, as one may plainly perceive by the *Valla* that went round them, which, as *Polybius* and *Vegetius* both teach us, being often made *square*^a, especially, says *Stewechius*, when they would have their armies appear great^b; I have reason to suspect that *entrenchment* near the bridge upon *Ashwood* heath, in the parish of *Kings-Swinsford*, commonly known by the name of *Wolverhampton* Church-yard, which measures about 140 paces over, has been one of these *Roman Castrametations*. And so I am willing to beleive those remains of a *fortification* at the *East* end of *Longdon* Church, which 'tis plain were also square, the *East* and *South* sides being still apparent; not being able after a long and diligent search, to give a better account of either of them. Tho' it must not be denied that the *Saxons* also *fortified* in a *square* form, as may be seen at *Tamworth* and divers other places, of which in due time, so that I must desire the *Reader* to take special notice, that I am not so positive, but I can yeild it possible they may be *Saxon* notwithstanding, cast up upon the frequent incurfions of *Canutus*, or the neighbouring *Saxons* into the *Mercian* Kingdom, of which more anon: only I think that had they been made so late, we should have had some account of them, whereof because none, I have chose rather to place them in *remoter* times. However they give me a fair transition.

24. To the *Saxon antiquities*, amongst which first of such as relate to the *Heptarchy*, in treating whereof I shall observe as near as may be the order of time, and therefore must begin with the History of *Berry-bank* (as they call it) near the village of *Darlaston* in the parish of *Stone*, where on the top of a hill there yet remain the ruins of a large *Castle* fortified with a double *vallum* and *entrenchments* about 250 yards *diameter*, the *gate* seeming to have been on the *west* part of it, where the side banks on each hand yet plainly appear: others fancy there was a second *gate* on the *East* side too, tho' I could not perceive any probability for it: but on the *South* side there is a round conical hill, much like a *tumulus*, cast up higher than all the rest of the *work*. Which according to the tradition of the *Country* thereabout, was the Seat of *Wlferus* King of *Mercia*, who murdered his two *Sons* for embracing *Christianity*, one at *Stone* hard by, and the other at *Burston* but a little fur-

^a Polybii Historiarum Lib. 6. de Castrametatione. & Flav. Vegetii de re militari Lib. 1. cap. 23. ^b Godesc. Stewechii Comment. in Lib. 1. cap. 23. Flav. Vegetii de re militar.

ther off: but I doe not so much depend upon that, as on what M^r *Sampson Erdeswic* asserts, viz. that he had seen an old *writing* relating to the foundation of the *Priory* of *Stone* that affirms as much: which perhaps may be that of *R. de Suggenbill* and *Petronil* his wife, whereby they gave to the Church of *S^t Mary* and *S^t Wlfade* of *Stone*, *Messuagium juxta montem qui dicitur Wlferecester in territorio de Darlaston*^a, which indeed proves fully that this was the royal mansion of the said *Wlferus*, who governd *Mercia* from the year of *Christ* 657 to 676, the *Low* adjoining in all probability being the place of his *sepulture*.

25. Within the limits of whole raigne fall the dates of the foundations as well of *Lichfield* as *Stone*: for tho' the place where *Lichfield* now is, were enobled with the *martyrdoms* of a 1000 *Christians*, near 400 years before, yet we hear nothing more of it till *Oswy* King of *Northumberland*, having beaten and kill'd *Penda* King of the *Mercians*, converted the *Country* to *Christianity*, and after a while made this place (perhaps in memory of these *Martyrs*) a *Bishops* seat, building a Church and nominating one *Duina* a *Scotchman* the first *Bishop* of it: which yet 'tis like might be a place but of small account (many of the *Bishops* seats in ancient times being small villages) till after the time of *S^t Ceadda*, who as *Rossus Warwicensis* plainly tells us, came at first hither as into a private place, *in secretum locum Staffordiensis provinciae* (tho' now a *Bishops* seat) where he lived (as the *Legend* says) only upon the milk of a *Doe*, which being hunted by *Wlfade* son of *Wlfere* King of *Mercia* brought him to the Cell of *S^t Ceadda*, who first converted him to the *Christian* faith, and his brother *Ruffine* after^t, whilst he lived as it were a *Hermitical* life, by a *Spring* side yet remaining by the Church of *Stow*, near the City of *Lichfield*: which being too remote from *Wlferecester* the Seat of their Father, they intreated the holy man to remove a little nearer them, for the easier waiting on him to receive further instruction, and performing their devotions together with him^s.

26. To which request of the young *Princes* I find the holy *S^t Ceadda* readily complied, and came to another *Secret place* not farr off them, whither under pretence of *hunting*, to avoid their fathers anger who was yet a *Pagan*, they constantly came to him and were instructed accordingly: but being observed by

^a Erdeswic's view of Staffordsh. in Darlaston. ^d D. Gul. Dugdali Monast. Anglican. vol. 2. p. 129. ^e Matth. Westmonasteriens. Flor. Historiarum in An. 655, 656, 657. ^f Ex Libro Johannis Ruffi. M. S. de Episc. Wigorn. ^g D. Gul. Dugdali Monast. Angl. Vol. 2. p. 122.

one *Werebod* one of their fathers evill *Councillors*, they were quickly found out and accused of *Christianity* to him, who came from *Wlfercester* above mention'd, and finding them at their devotions in this new *Oratory*, in the midst of his wrath flew them both; one, at *Stone*, where a Church being erected over the place of his *Martyrdom*, gave both name and original to that town; and the other at *Burston* where there was erected a Chappel which as *M^r Erdeswic* asserts was but lately standing. In this conjuncture *S^t Ceadda* fled away from the fury of the bloody minded King, and returned to his *Cell* near *Lichfield* again, where he had not retired long, but King *Wlfer* was grievously struck with remorse, and being fore afflicted for the fact he had done, according to the council of his *Queen Ermenilda*, repaired to *S^t Ceadda*, by whom he was converted, and forthwith banished all idolatrous worship out of his *dominions*; and upon the death of *Jarumannus* which happened quickly after *An. 667*, made the holy *S^t Ceadda* Bishop of *Lichfield*, from whom it receiv'd so great honour, that it increased quickly after to a considerable *Town*, and was not long before advanced to a *Metropolitcal* See, by the great King *Offa*, who out of spight to *Lambert* ArchBishop of *Canterbury*, got it exempt from his jurisdiction, obtaining a *pall* for it of *Pope Adrian* the first: the *Sees* of *Worcester*, *Chester*, *Sidnacester*, *Hereford*, *Helmham* and *Dorchester*, being made subject to it: in which state it continued from the year 766 to 797, in all 31 years, in which time there sate three Arch-Bishops of *Lichfield*, *Ealdulfus*, *Humbertus*, and lastly *Higbertus*, in whose time the See of *Canterbury* was restored again to its pristin dignity by *Kinulf* or *Kenwolf* also King of the *Mercians*.

27. The next *Antiquities*, that follow in order of time, of *Saxon* original, are *Dudley Castle* built upon a lofty hill, and so named by one *Dudo* an English *Saxon* about the year of our Salvation 700*. the present prospect whereof was represented above *Tab. 3. ad pag. 39.* and an old fortification in the parish of *Mear* or *Mere*, that they call the *Bruff* (which perhaps may be only a corruption of *Burgh*) fenced at some places with a double *trench* and *rampire*, the *agger* above the *trench* seeming at some places to have been made up with *stone*, the whole being of a very irregular form, according as the figure of the hill would admitt: over against this, on the heath, there is a place they call *Camp-hills*, where it is supposed there was an-

* *Ibidem* pag. 122. 123. ¹ *Erdeswic's* view of *Staffordsh.* in *Burweston.* ² *D. Gul. Dugdall's* *Monast. Angl.* loc^o supra citat. ³ *Math. Westmonast. Flor. Historiar.* in *As.* 766. 794. 795. 797. * *Camden's* *Britannia* in *Staffordsh.*

ciently

ciently likewise a *Camp*, tho' no signes of it now; only there are two round hills which may pass for *barrows*, and many other longish hillocks like *graves*, in which form I find these *Sepulchral* monuments were also sometimes made^m: betwixt which and the *Bruff* there is likewise a large round conical hill that they call *Coplow*, which no doubt was the *Sepulchre* of some considerable *Commander* slain here about, when these rampires were made and used. Which tho' at first sight they appear'd difficult to account for, *who?* & *when?* being very hard *questions* at this distance of time: yet I think I may safely, and with some confidence answer, that this fortification was here made in the days of the wicked *Osfid* King of *Northumberland*, about the year of *Christ 705*, who as *Henry Huntingdon* testifies was slain at *Mere*; *Osfid vero Rex belli infortunio juxta Mere pugnans interfectus est*, being his very wordsⁿ: tho' he tells us not by what enemy, nor upon what occasion, yet I suppose it must be *Kenred* King of *Mercia*, whom he seems to have invaded, and not his *Cofin Kenred* who succeeded him, as *S^t Cressy* would have it^o, there being no foundation that I can find in *History*, for such an imagination: *Cop-low* being the *tumulus* in all probability under which the unfortunate *Osfid* was buried, and those other *lows* and *hillocks* upon *Camp-hills* of his inferiour officers: and the *Bruff* the *Castle* or strong hold, that *Kenred* had rais'd against him.

28. About this time the place or *Island* where the *Town* of *Stafford* now stands, anciently call'd *Bethnei* (what was said of it before being only prophesy) began first to be inhabited, by *S^t Bertelline* the son of a King of this Country, and Scholar to *S^t Guthlac*, with whom he carryed till his death: after which, tho' now unknown to his Father, he begg'd this *Island* of him, where he led a *Hermit's* life for divers years, till disturbed by some that envyed his happiness, when he removed into some desert mountainous places, where he ended his life^p; leaving *Bethnei* to others, who afterwards built it, and called it *Stafford*, there being a shallow place in the River hereabout, that could easily be pass'd with the help of a *Staff* only^q. Now whereabouts this desert place should be, that *S^t Bertelline* went to, tho' *Histories* are silent, yet I have some grounds to think that it might be about *Throwley*, *Ilam*, and *Dovedale*: and that this was the *S^t Bertram* who has a *well*, an *Asb*, and a *Tomb* at *Ilam*: for if as *Capgrave* says, the *Town* of *Bertamly* in *Cheshire* took its name from a

^m *Ol. Wormii Monument. Danicor. Lib. 1. cap. 7.* ⁿ *Hen. Huntingdoniensis Historiar. Lib. 4. cap. 4.* ^o *S. Cressy's* *Church. Hist. of Britan. Book. 21. chap. 26.* ^p *Jo. Capgravius* *novus Legend. Angl. in vita S. Bertellini* ^q *Gul. Somneri Dictionar. Sax. Lat. Angl. in verbo,*

F f f

miracle

miracle that S^r Bertelline did there, I know not why the people about Ilam, Throwley, &c. might not corrupt his name as much as they in Chesbire, and call him S^r Bertram instead of S^r Bertelline. If it be objected that the Tomb here is of too late a date for his time, it seeming by no means above 300 years old; I must own the thing: but then it must be allowed that such great mens Tombs were often rebuilt, especially if any great occasion were administer'd, as there was by this Saint about that time viz. An. 1386. when there was a wonderfull miracle wrought at his Altar in Stafford, if we may beleive Capgrave; which might possibly give occasion for the rebuilding of it by the people of Stafford in the form it now stands.

29. Near Alveton in this County upon a lofty situation, in the lands of the right Honorable Charles Earl of Shrewsbury, a most noble encourager of this work, there still remains, near the Lodg, just such another fortrefs, as that near Mear, only much larger, which they call Bunbury, of no regular figure, encompassed with a double and sometimes treble trench, according as the natural situation of the place, seems to have required, on the North, NW, and NE sides, all the rest being naturally inaccessible, the whole including about an hundred acres: which I doubt not to have been made by Ceolred King of Mercia, the successor of Kenred abovementioned, when he was invaded (in like manner as Kenred by Ofrid) in the seventh year of his raigne, by the potent Ina King of the West-Saxons, in the year of Christ 716. Cujus anno septimo Ina Rex West-Saxiæ, magno Exercitu congregato contra Eum apud Bonebury strenue præliavit. i. e. that in the seventh year of Ceolreds raigne, Ina King of the West-Saxons having rais'd a great Army fought him stoutly at Bonebury says the Abbot of Fourvall: where yet Ceolred (by the advantage of this his strong fortification) so warmly received him, that he was glad to withdraw upon equal termes, neither having much reason to bragg of a victory.

30. Of what antiquity the Town of Tamworth may be, does not plainly appear, but it must certainly have been a place of some repute of very ancient times, tho' we hear nothing of it till An. Dom. 781. when the great King Offa granting lands in Sapie to the Monks of Worcester concludes thus — Hanc autem præscriptam vicissitudinem terrarum & meæ donationis pro domino libertatem, ego Offa Rex sedens in Regali palatio in Tamoworthige secundo die nativitatís Domini, concedens donavi An. 781. And after him Ceonulf whose Charter ends thus — Acta est hæc

Novæ legenda Angliæ loco supra citat. • Ibidem in fins. • Joh. Brompton Abb. Forthens. in Regno Merciorum. donatio

donatio An. 816. in vico celeberrimo qui vocatur Tomoworthig, &c. Now if the Mercian Kings had their Palaces here so very early, it must needs have been a Town of some repute long before, and perhaps a fortify'd place; there still remaining a square trench call'd Kings-ditch of large extent, that in a manner encompasses the whole town, beginning on the bank of the River Tame west of the Lady-bridg, and running up thence in a straight line till it comes NW of the Church, where there seems to have been a mount or a bastion somewhat higher than the rest of the work, in the angle where it joyns to the following line; which runs straight all along N of the Church till it comes NE of it, where another mount also in the angle; whence it runs again in a straight line to the banks of the Anker; inclosing the town on the West, North, and East; the Rivers securing it Southward: but whether these were made, before, after, or in the days of King Offa, is not easy to determine.

31. Next Tamworth the most ancient place of any in the County, whereof there are any footsteps yet remaining, perhaps may be a large old fortification near the village of Billington in the parish of Bradeley, 300 yards diameter doubly entrenched, as may be seen at divers places, tho' the outmost indeed be fill'd up in some: which I could willingly believe to have been the place of battle, between Duke Wada and the rest of the murtherers of King Ethelred, and King Eardulf his successor; which Matthew of Westminster, Roger Hoveden, and Simeon Dunelmensis all agree, was at a place call'd Billingabo or Billingaboth juxta Wallalega An. Dom. 798. the old Etocetum, by the Saxons call'd Wall, not being farr off: but that it is hard to think that a King of Northumberland or any Conspirators against him, should bring a warr so farr out of their own Country; or that the valiant Kenulf then King of the Mercians would admitt of it, unless it were done in his absence, when he went into Kent against Eadbert Pren, whom he overthrew, and brought away captive. Wherefore I shall take leave anon to make another conjecture, concerning the original of this fortification: and in the mean time proceed to the life, martyrdom, and buryal, of the young S^r Kenelm King of the Mercians, the Scene whereof seems to have layn in this County, of which in their order. Yet I shall relate no more than what is absolutely necessary, to understand the remains that I find of them here.

Sr William Dugdale's antiquities of Warwicksh. illustrated. p. 816, 817. * Matth. Westmonasteriens. Flor. Historiar. in An. 798. * Rog. de Hoveden. Annalium parte prior. p. 233. * Sim. Dunelmensis. Hist. de gestis Reg. Ang. in An. 798. * Mat. Westmonast. loco supra citat. F f f 2 32. Let

32. Let it therefore suffice that upon the death of *King Kenulf* *An. Dom.* 819. the Kingdom of the *Mercians* fell to his only Son *Kenelm* a child of 7 years old, whose elder Sister *Quendred* desirous of rule, practised with the young Kings guardian, one *Aschebert*, to make him away, as in the Histories of his life written by *Matthew of Westminster*^a, *John Brompton*^b, and *Capgrave*^c, where the Reader if he please may see the particulars: which that he might doe the more secretly, he had the young King into *Clent wood* in this Country, under the fair pretense of taking pleasure in hunting, and when he had gotten him into a suitable place, he cut off his head, and buried him where no man knew but himself, till discovered by a certain Cow of a widdow woman, that would feed no where but beside *S^t Kenelms* grave; and a *Scrole* dropt by a white *Dove* upon the altar of *S^t Peter* at *Rome*, as *Pope Leo minor* or *Leo the third* was celebrating *Mass*, containing these words: *In Clent kau bathe Kenelin kine-bearn lieth under thorn headed by reaved*: which none of the *Romans* understanding, it was shewed to the people of the several nations, amongst which an *English-man* there present, rendered it into *Latin*, which the *Poets* of after ages put into this *distick*.

*In Clenc sub spina, jacet in convalle bovina,
Vertice privatus, Kenelmus rege creatus*^d.

Englished thus

*In Clent in Cow-bach under a Thorn
Lyes King Kenelm his head off sborne*^e.

by which means it being understood at *Rome* (as some say before it was in *Britan*) how he was murdered and where buried, order was presently sent by the *Pope* to *Wolfrid* then *Arch-Bishop* of *Canterbury*, and the rest of the *English Bishops* to search and take up his body, which was accordingly done and carryed in great state to the *Abby* of *Winchelcomb* in *Glocestershire* of his *Fathers* foundation, and there honorably buried.

33. Now the *antiquities* that I find yet remaining upon the place relating to this *History*, are first, *Cowbach* otherwise *Cowdale* as *Brompton* calls it^f, so named from the *Cow* that attended his grave, which remains a *pasture-ground* to this very day, being situate in a *valley*, under *Warton* hill, about half a mile *NE* of *Clent Church*, as most of the ancient men of the town agreed; there being now no *thorn*, nor had there been

^a Idem in *An.* 821. ^b *Job. Brompton Abb. Jorn. in Regno Merciorum.* ^c *Job. Capgrave* *novi Legendæ Angl. in vita S^t. Kenelmi.* ^d *Matth. Westmonast. Flor. Historiar. loco supra citat.* ^e *Erdeswicke's view of Staffordsh. in Clent.* ^f *Loco supra citato.*

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any that I could learn, within memory; so that the exact place where he was buried is now unknown: nor is there any Spring here, which as the *Legend* says immediatly gush't out where the body had layne, as soon as 'twas taken forth; *S^t Kenelm's* well being $\frac{1}{2}$ a mile off, near the *Chapell* yet standing dedicated to him, in the parish of *Hales-Owen* and *County* of *Salop*; and not in the parish of *Clent* or *County* of *Stafford*; so that whether this be the true *Cowbach* or noe, the *Legend* must be false: unless we shall say that the precincts of *Clent* are contracted since; and that the true *Cowbach* was, where the spring now is, in the *County* of *Salop*: which if so, I have said to much of it already, it being without the *pale* of this *History*. However half a mile *NNE* of *Clent Church* or there about, there is a *list* of *grass* greener than ordinary, call'd *S^t Kenelms-furrow* running up to the *Knoll-hill* a great length, that still remains both in the *parish* and *County*, the *grass* whereof indeed is somewhat more verdant and luxuriant than at other places, which they intend for the *furrow* made by the *Oxen*, which run away with the womans plow, and were never again heard of, who in contempt of the feast of *S^t Kenelm* would make them work on that day, loosing her Eyes into the bargain, as the *Legend* says^h, but enough of this. I found also 3 *Lows* on *Clent-beath*, but these relate nothing to our former history, being rais'd as I guess on some *conflict* hereabout, when the *fortifications* were made on *Whicbury-hill*, not farr off them, but in the parish of *Pedmoore* and *County* of *Worcester*, which being *extra oleas*, I am not concern'd either when, or by whom they were made.

34. Beside these, there are other *Antiquities* here that may be presumed to be *Saxon*, tho' there can be no particular account given of them, as there has of the former. Such as the old fortification on *Kinsare* edge of an oblong square figure, about 300 yards long, and 200 over, having an artificial *bank* cast up round it, fenced with a deep *ditch* on the *NNE* and *SSW* sides; the *edg* or *hill* on the other two sides being naturally inaccessible. Concerning which the tradition of the *town* is, that it was a *Danish* fortification: but the name seeming rather to make it a *Saxon* one, where some *King* was kill'd from *cyne Regium* and *span nutare*, *swacillare* or *obire*ⁱ, importing as much as a *royal failure* or place where a *King* had fail'd or dyed, I have rather chosen to place it among the *Saxon antiquities*. Upon this account too I am inclin'd to beleive, the *Lows* on the *beath* underneath betwixt it and the *Comptons* are also *Sa-*

^h *Locis supra citatis.* ⁱ *Job. Capgrave's nova Legendæ Angl. in vita S^t. Kenelmi.* *Vid. Gul. Somneri Dictionar. Saxonico-Lat. Angl. in verbis.*

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xon; and so that at the end of *Kinfare* heath, near the Lane leading to *Enfield*; there seems also to be another under *Meg a fox-hole*; which tho' now all stone, may possibly have been formerly *earth*, now turn'd into *stone* by subterranean heats; especially if that be true which is asserted from experiment by *Gabriel Plat*, viz. that if you half fill a *Retort* with *brimstone*, *Sea-coale*, and other *bituminous* substances, and the remainder of the *neck* also half way with *pure earth*, and set it to distill with a temperate open fire, the *earth* will be *petrified* or turned to *stone*; as it is also by *nature*, where *bituminous* substances kindled in the bowells of the earth, send up such *vapours*, as perhaps they may have done also at *Barrow-hill* in the parish of *Kings-Swinford*, where there are two uniforme *barrows* all *rock*; and so at the *rocky* round hill on the *Watlingstreet* near *Hynis*.

35. There are many other *Lows* too, not placed upon any of the *military ways* or old *fortifications*, whereof no such particular account can be given, as there was of the former, which yet seem to have been of *Saxon* erection, but these upon a *civil*, not *military* score: for they oft raised such *Lows* over considerable men that dyed in *peace*, as well as in *warr*; but then they placed them in *Campo plano juxta defuncti pradium sito*,¹ somewhere in a plain beside the *Mansion* of the deceased. And of this kind I judg that at *Stramshall* in this *County*; and that other in a place call'd *Low-field* about a quarter of a mile *West* from *Combridg*; amongst these we may also reckon that at *Tatenhill wood-Lane*, about half a mile *westward* of *Callingswood* hall, supposed to be *Rudlow*, of which more anon; and so *Totmonslow* tho' now not extant; as well as *Offlow*, which also gives name to the *hundred* in which it is situate; which tho' not the *Sepulchre* of King *Offa*, who as *Florilegus* tells us was buried in *Bedfordshire* upon the bank of the river *Ouse*,² yet it must certainly be the *monument* of some great person of the same name; either buried here alone, or else in company with divers others perhaps slain with him, this seeming indeed erected, not like the former upon a *civil*, but a *military* account; and yet of *Saxon* original, as the name testifies, tho' placed near the *Watlingstreet*: which sort of large *tumuli* cast up over many slain together, the *Danes* call'd *Volcafter* as *Wormius* informs us.³ But herein I am not positive.

36. Having hitherto considered such *antiquities* only, as I think have been occasion'd by the conflicts of the *Saxons* amongst themselves:

¹ Gabr. Plat's discovery of subterranean treasure Chap. 1. ² Olai Wormii Monument. Danicor. Lib. 1. cap. 7. ³ Matth. Westmonasterien. Flor. Histor. in An. 797. ⁴ Olai Wormii Loco supra citat.

themselves: I come next to treat of such as are the deplorable remains of the bloody warrs twixt the *Saxons* and *Danes*: amongst which the first in order of time, are the *ruins* above-mentioned in *Wrottesley park* § §. 4^o and 5^o of this *Chapter*, which upon second considerations I am inclined to beleive, if *Theotenball* doe import the *habitation* of *heathens* as *Camden* informs us¹, are no *Roman antiquity*, but the true remains of the old *Theotenball* of the *Danes*, who I suppose having resided there for some time, built them this *City* or place of habitation, which in the year of our Lord 907 as *Roger Hoveden*², but not till An. 911 as *Simeon Dunelmensis*, *John Brompton*, and *Florentius Wigorn*, in all probability was finally rased by *Edward Senior* in that signal victory he there obtained over them, whereof we have an account in all those *Historians*: but a more particular one in *Hen. Huntindon*, who makes this battle so terrible, that he spares not to cry out, *Quis autem cuneorum horrendos aggressus, ignitas collisiones, formidabiles tinnitus, feras irruptiones, miserabiles occasus, clamores horrifonos, scriptis exequetur?* i. e. so very terrible, that he thought it could not be fully described by the most exquisite pen.

37. To revenge whose quarrel, another *Army* of them that possest *Northumberland*, breaking a league they had formerly made with King *Edward*, invaded *Mercia* in the very same year, pillageing the *Country* wherever they came: against whom king *Edward* bringing a powerfull *Army* both of *West Saxons* and *Mercians*, overtook them in their return at the village of *Wednesfield*, not farr from *Theotenball*, and overthrew them again in another bloody battle, wherein he kill'd *Eowills* and *Halfden* or *Hildein* two of their *Kings*, and *Obier* and *Scurfa* two of their *Earles*, and 9 other *Noblemen*, to whom *Ethelwerdus* adds *Juvar* or *Hinguar* another of their *Kings*.³ Of which great slaughter yet there are no more remains but a *Low* in a ground call'd *South Low field*, which has lately had a *windmill* set upon it, the *Low* being there before as within memory. There is another ground here too call'd *North-Low field*, which no question heretofore has had also a *Low* in it, tho' now it be gone. Which doubtless were cast up over some of those kings, or *Danish* or *Saxon* nobles, then slain here; and so 'tis like was *Stowman's hill* on the road betwixt *Wolverhampton* and *Walsall*, half a mile *SW* of the village of *Neebels*.

¹ Camden's Britannia in Staffordsh. sub. initium. ² Rogeri de Hoveden Annalium parte priori. ³ In An. 911. ⁴ Hen. Huntindoniens. Historiar. Lib. 5. cap. 5. ⁵ Florent. Wigorn. Chron. ex Chron. in An. 911. ⁶ Matth. West. in eodem Anno. ⁷ Chronico. Ethelwerdi Lib. 4. cap. 4.

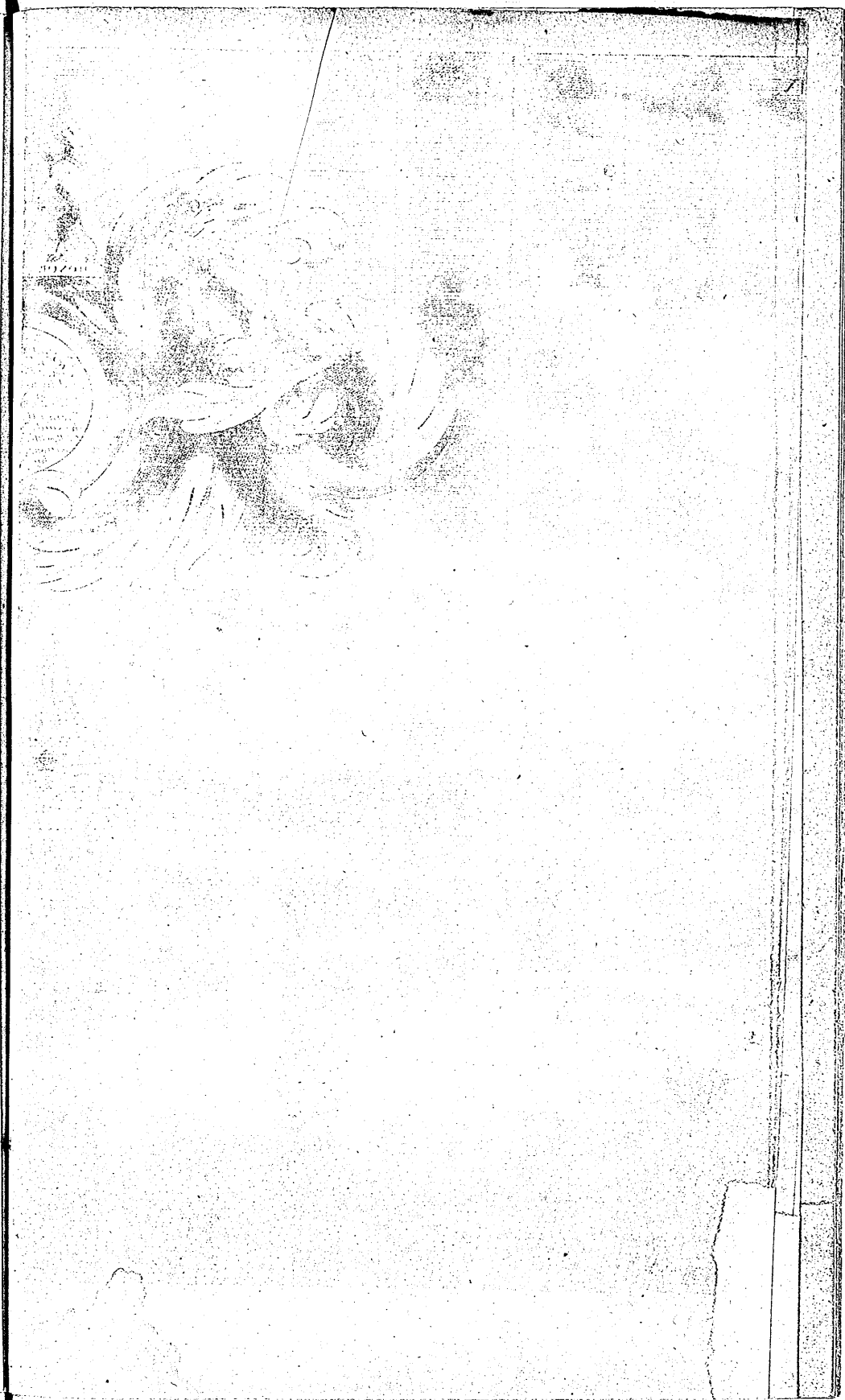
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38. In the year following 912 dyed the noble Duke *Ethelred* Vice-Roy of *Mercia*; after whom his most renowned Lady *Ægelfleda* alias *Elfreda* daughter of King *Alfred*, governed the kingdom of *Mercia* with so great conduct, so much to the advantage and increase of her own dominions, and terror of her enemies: *ut non solum Domina vel Regina, verum etiam Rex ad laudem & excellentiam à pluribus vocaretur*, i. e. that she was not only call'd *Lady* and *Queen*, but also *King* by way of praise and extreme excellence, as the Abbots *Ethelred* and *Brompton* affirm*. And indeed all things considered she deserved no less; for she not only subdued the *Britans* and *Danes*, and all that opposed her; but took *Darby* and *Leicester* and added them to her *Kingdom*: building and repairing so many *Castles* and *Townes*, that it would be endless to recount them. Wherefore I shall content my self only in relating what she did in this *County*, remitting the Reader for the rest to the ancient *Historians*: particularly about the year 916 she fortified *Weadbirig* now *Wednesbury* in this *County*†; and rebuilt *Tamworth* destroyed by the *Danes*, where she after dyed in the year 919‡; She also built a *Castle* at the Town of *Stafford*; on the North side of the River *Sow*§, whereof I could not hear of any footsteps remaining; that upon the *hill* above the *Town*, at near a miles distance, the *Prospects* whereof are both here annext *Tab. 34.* being built long after by *Ranulf* or *Ralph* the first Earl of *Stafford*: tho' *M^r Erdeswick* tells us he had a certain deed dated *apud Castrum juxta Stafford* long before the days of the said Earl *Ralph*, whence he concludes that he did but reedify the *Castle*, and not new *build* it*, which perhaps may be true: but for my part I conjecture that the first *Stafford-Castle* mention'd in that deed, might rather stand within the *Entrenchment* at *Billington*, which perhaps may be only the *remains* of this *Castle*, and not of the battle between King *Eardulf* and Duke *Wada*, as was thought above §. 31. in which opinion I am not a little confirmed, the *lands* wherein these *entrenchments* are, being not far distant, and still remaining a part of the *demesne* land of the *Barony* of *Stafford*.

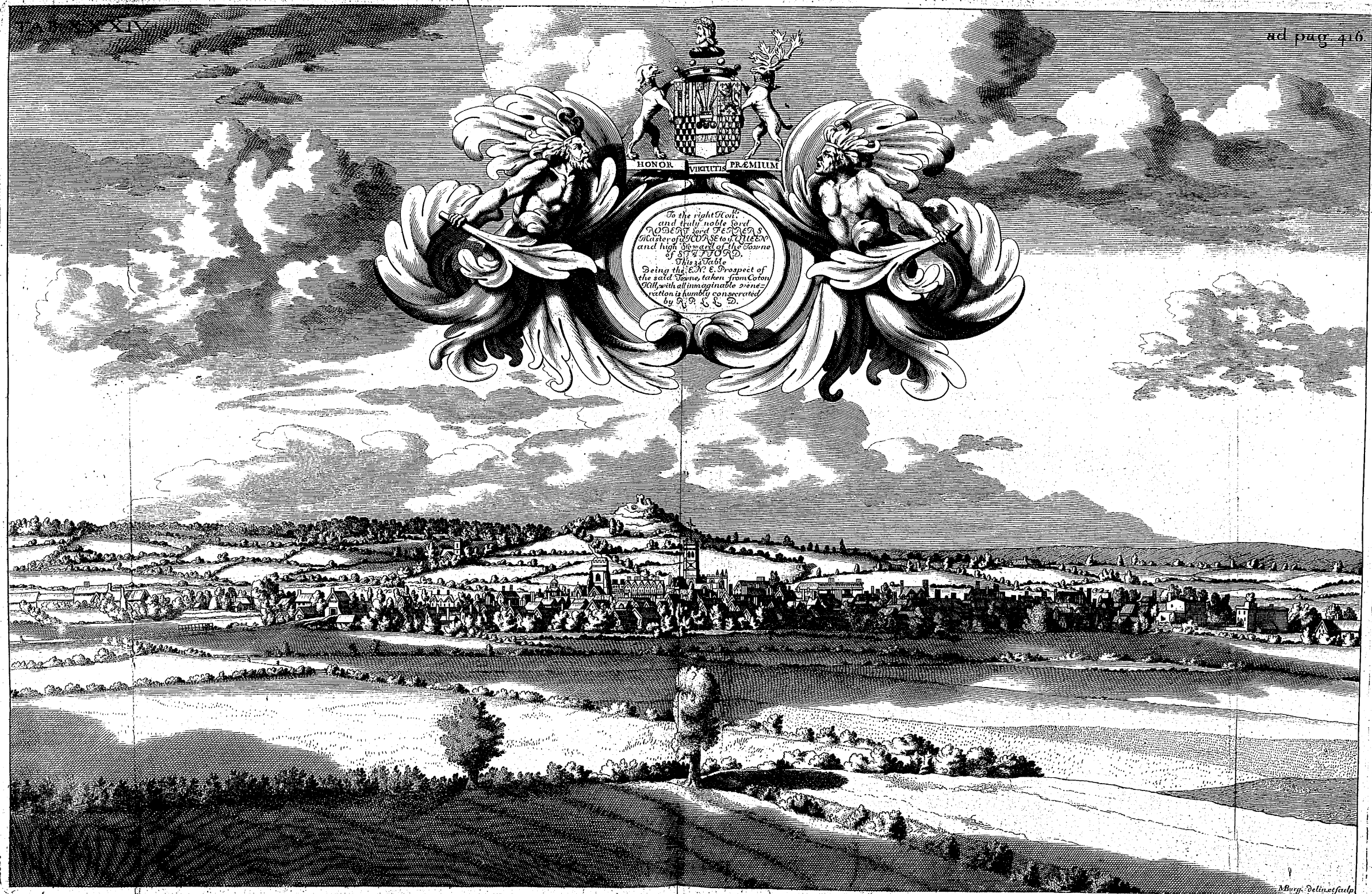
39. Of what antiquity the Town of *Hampton* may be is very uncertain, it not being mention'd in any *record* that I could either meet or hear of, till the pious *Wulfruna* the relict of *Althelm* Duke of *Northampton*, in the days of King *Ethelred*

* *Ethelredi Abbatis Rievall. Genealog. Regum Angl. & Joh. Brompton Abbat. Fornal. in vita regis Edward. Sen.* † *Florent. Wigorn Chron. ex Chron in An. 916.* ‡ *Matth. Westmonast. Flor. Historiar. in An. 919.* § *Florent. Wigorn in An. 914.* * *Sampf. Erdeswick's view of Staffords. in Stafford.*

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(and not of King *Edgar* as M^r *Erdeswick* thought^a) in the year 996 built and endowed the *Church* or *Monastery* there^b, in regard of which pious action of hers, it was ever after call'd *Wulfrunes-Hampton*, since by corruption of speech *Wolverhampton*. In which new foundation she placed a *Dean* and *Prebends*, or secular *Canons*, as M^r *Erdeswick* calls them^c, with other suitable Officers, for the increase of *Religion*: wherein yet it seems she mist of her aime for some time at least, for before it had stood near 200 years, these *Prebends* grew so enormous in their lives, as *Petrus Blefensis* (who was their *Dean*) testifies, *ut cantabantur eorum turpitudines in triviis*, that their wickedness was made known by *Songs* in the streets; which of what kind it was he afterwards tells us, *ipsi vero publice & aperte fornicantes predicabant peccata sua*; i. e. that they were not ashamed of public fornication; of which when he admonish't them, tho' he did it he says *toto charitatis affectu*, with all imaginable mildness, yet being as deaf as adders they despised his reproof^d.

40. Whereupon complaining to the *King* and *Arch-Bishop* of *Canterbury*, he obtained terrible threatening *Letters* to them, importing that they would endeavour to perswade the *Pope* utterly to dissolve them, but still all to little purpose; for they grew hereupon but the more contumacious. Nay he further tells us that they were advanced at last to that height of wickedness, that having married interchangeably one anothers *daughters* and *nieces*, if upon the death of a *Canon* he put in an honest man (for the donation and institution of these *Prebends* then belong'd to the *Dean*) the *Son* or *Nephew* of the deceased would challenge notwithstanding the *Patrimony*, as they call'd it, and flying into the woods would joyn with *thieves* and *robbers*, and invade the right of the new *Canon*. From which evill practises the good *Dean* being unable to reclaim them, he humbly besought the *King* and *Arch-Bishop*, to turn out these *Prebends*, and place *Cistercians* in their room; in order whereunto, being tired out with their *incorrigibility*, he resigned his *Deanry* into the hands of the *Arch-Bishop*, circa *An. Dom.* 1200; and wrot a *Letter* to *Pope Innocent* the *third*, beseeching him that he would further and confirm whatever the *Arch-Bishop* had done in this matter, who it seems in the mean time had admitted some of the said *Order*. But I suppose either the *Pope* interposed in this designe, or some other inconvenience not then foreseen, prevented its execution: for there yet remains some umbrage of a *Dean* and *Prebends* here to this very day.

^a *Idem* in *Wolverhampton*. ^b *D. Gul. Dugdal. Monast. Angl. Vol. 1. p. 688.* ^c *Loco supra citat.* ^d *Pet. Blefensis Epistol. Lib. Ep. 152. ad Innocent 3.* ^e *Ibidem.*

41. About this time, the Danes under Swain and his Son Canutus, had got good footing in England, the latter of which, after divers vicissitudes, or fortune of the wars in the reigns of King Ethelred and Edmund Ironside, obtained the whole Kingdom: during which altercations he made several inroads into Mercia, especially in the years 1013 and 1016^e. and amongst other places possess'd himself of that Forrest or Chase in this County called still by his name *Canc* or *Cannock-wood*, quasi *Canuti Sylva*: upon the edge whereof, in the Park at *Beaufesart*, *W S W* of the house, at about half a miles distance, there still remains a large fortification call'd the *Castle-hill*, encompass't with a double *agger* and *trench*, which are in a manner circular, except on the *SE* side. Which runs pretty straight, so that it seems to hold the figure of a *Theater* of about 270 paces diameter: and this for name sake only, because within the verge of *Canutus's* wood, I take leave to presume might be cast up by him, when he made his incursions into this Country, and those horrible devastations mention'd by the *Historians* in the years above mention'd^e, unless one should rather think it might be cast up by the *Mercians*, in defence of their Country. The little hill upon *Ickenildstreet* way must likewise be cast up in all probability about this time, the *Danish* Kings usually speaking to their Armies from such elevated places, which they most times made of stone, but sometimes of earth, as appears by the little hill without the *Forum* of stone at *Leir* in *Seland*^h, and another such like hillock call'd *Trollebarolboy* near *Lundie* in *Scania*ⁱ, it being indifferent whether the King ascended a *stone*, or mount of *earth*, so thence he might be seen and heard by the people, either of which they call'd the *Kongstoten*, i. e. the *Kings-stool*, or as here the *Kings-standing*.

42. Not long after this in the year 1017, King *Edmund Ironside* dying at *London* according to *Florentius Wigorniensis*, at *Oxford* according to *Matthew of Westminster*^k; *Canutus* took possession of the whole kingdom, and reigned sole King of *England* for 20 years: during which time and the reigns of his two successors also *Danish* Kings of *England*, many of their *Customs* and *Utensills*, no doubt on't, obtain'd here, amongst which I guess I may reckon an ancient sort of *Almanacks* they call *Cloggs*, made upon square *sticks*, still in use here amongst the meaner sort of people, which I cannot but think must be some remains of the *Danish* government, finding the same with little difference

^e *Matth. Westmonast. Flor. Historiar. in dictis Annis. & Florent. Wigorn. Chron. ex Chron. in isdem.* ^h *Ibidem.* ⁱ *Olai. Wormii Monum. Dan. Lib. 1. cap. 5.* ^k *Idem. Lib. 1. cap. 12.* ^l *Mat. West. & Florent. Wigorniens. in dictis An.*

to have been used also formerly, both in *Sweden* and *Denmarke*, as plainly appears from *Olaus Magnus*¹ and *Olaus Wormiius*^m: which being a sort of Antiquity so little known, that it hath scarce been yet heard of in the Southern parts of *England*, and understood now but by few of the Gentry in the Northern, I shall be the more particular in my account of them. And shall consider 1. the divers names of them; 2. the variety of materials out of which they have been made; 3. the kinds of them; 4. the figures that are inscribed in them; and 5. the divers uses of those inscriptions: of all which in their order.

43. And first as to the divers names of them, they are here call'd *Cloggs*, for what reason I could not learn, nor indeed imagin, unless from the *English Logg* (a term we usually give to any piece of wood) or from the likeness of some of the greater sorts of them to the *Cloggs*, wherewith we usually restrain the wild, extravagant, mischeivous motions of some of our *doggs*. Secondly from their use they are more properly call'd *Almanacks*, quasi *Al-mon-aght*, that is to say *Al-mon-beed*, viz. the regard or observation of all the *Moones*: because by these squared sticks, says *Verstegan*, they could, certainly tell, when the *new-moons*, *full moons*, and other changes should happen, and consequently *Easter*, and the other moveable feastsⁿ: which doubtless is as significant an *Etymology* of the word, as any can be thought of, tho' perhaps not so true as those of *Salmasius*^o and *Skinner*^p, deduced from the *Persian* and *Arabick* tongues. Thirdly by the Danes they are call'd *Rimstocks*, not only because the *Dominical Letters* were anciently express't on them in *Runick* Characters; but also for that the word *Rimur* anciently signify'd a *Calendar*^q, whence the word *Rimstock* (denoting likewise the matter of which they were commonly made) importes no more than a *wooden-Almanack*, such as ours are.

44. Fourthly, by the *Norwegians* (with whom they are still in use) they are call'd *Primstaves*, and that for good reason too, the principal and most usefull thing inscribed on them, being the *Prime* or *golden number*, whence the changes of the *Moones* are understood, which because usually done amongst them upon the *staves* they walk with (whereof there are good *Patterns* in the *Museum* at *Oxon*) they most properly, from both the uses they had of them, call'd them *Primstaves*. And

¹ *Olai Magni. de ritu Gent. Sept. Lib. 1. cap. 34. & Lib. 16. cap. 20.* ^m *Olai Wormii Fast. Danic. Lib. 2. cap. 2, 3, 4, 5.* ⁿ *Rich. Verstegan's restitution of decay'd Antiq. chap. 3.* ^o *Claud. Salmasii de An. Clivætericis & antiq. Astrolog. p. 605, 606. Edit. Lugd. Bat. 1648.* ^p *Steph. Skinneri Etymolog. in verbo.* ^q *Olai. Wormii Fast. Danic. Lib. 1. cap. 2.* ^r *Ibidem.*

lastly by the Swedes, as *Olaus Magnus* delivers (who also made them of this form) they are as significantly termed *Baculi annales*, with which the *Laics* being sustained in their long journeys to *Church*, at their weekly congress did usually debate and conclude from them, the *Lunar conjunctions* and *oppositions*, and thence the moveable feasts'. Tho' they sometimes likewise made them *ex asseribus oblongis*, of little oblong boards, as *Wormius* testifies (whereof we have also a Pattern in the *Museum*) upon which account he reprehends *Olaus Magnus*, for giving them the name abovemention'd, as too narrow an appellation': but I think with little reason, it being as proper a name for the kind he there speaks of, as the *Primstaf* of the *Norwegians*, which he does not find fault with. And so much for the names.

45. As to the matter of those of them I met with in this *County*, there are some few of *brass*, whereof I had one sent me by the most ingenious *Charles Cotton* of *Beresford* Esq; but the most of them of *wood*, and these chiefly of *box*, others there are of *Firr*, and some of *Oak*, but these not so frequent. *Wormius* tells us that in *Denmark* there are some of them made *ex ossibus oblongis tessellatim sectis & colligatis**, and others inscribed in a *hollow-bone*†; He acquaints us also with some ancient ones, made of *horn*‡; but I met with none of these in this *County*, tho' all people, no question, made them of such materials, as they thought fittest for their purpose. And thirdly as to the kinds of them; some are perfect, containing the *Dominical Letters*, as well as the *Prime* and marks for the *feasts*, engraven upon them, and such are our *Primestaves* in the *Museum* at *Oxford*. Others imperfect, having only the *Prime* and the *immoveable feasts* on them, and such are all those I met with in *Staffordshire*; which yet are of two kinds also, some *publick*, of a larger size, which hang commonly here at one end of the *Mantletree* of their *Chimneys*, for the use of the whole family, as *Wormius* likewise acquaints us they usually doe in *Denmark*§; and others *privat*, of a smaller size, which they carry in their *pockets*; as we have them now since the invention of printing: some *Almanacks* being fitted to hang up in our houses, and others for *privat* use, which we carry about us.

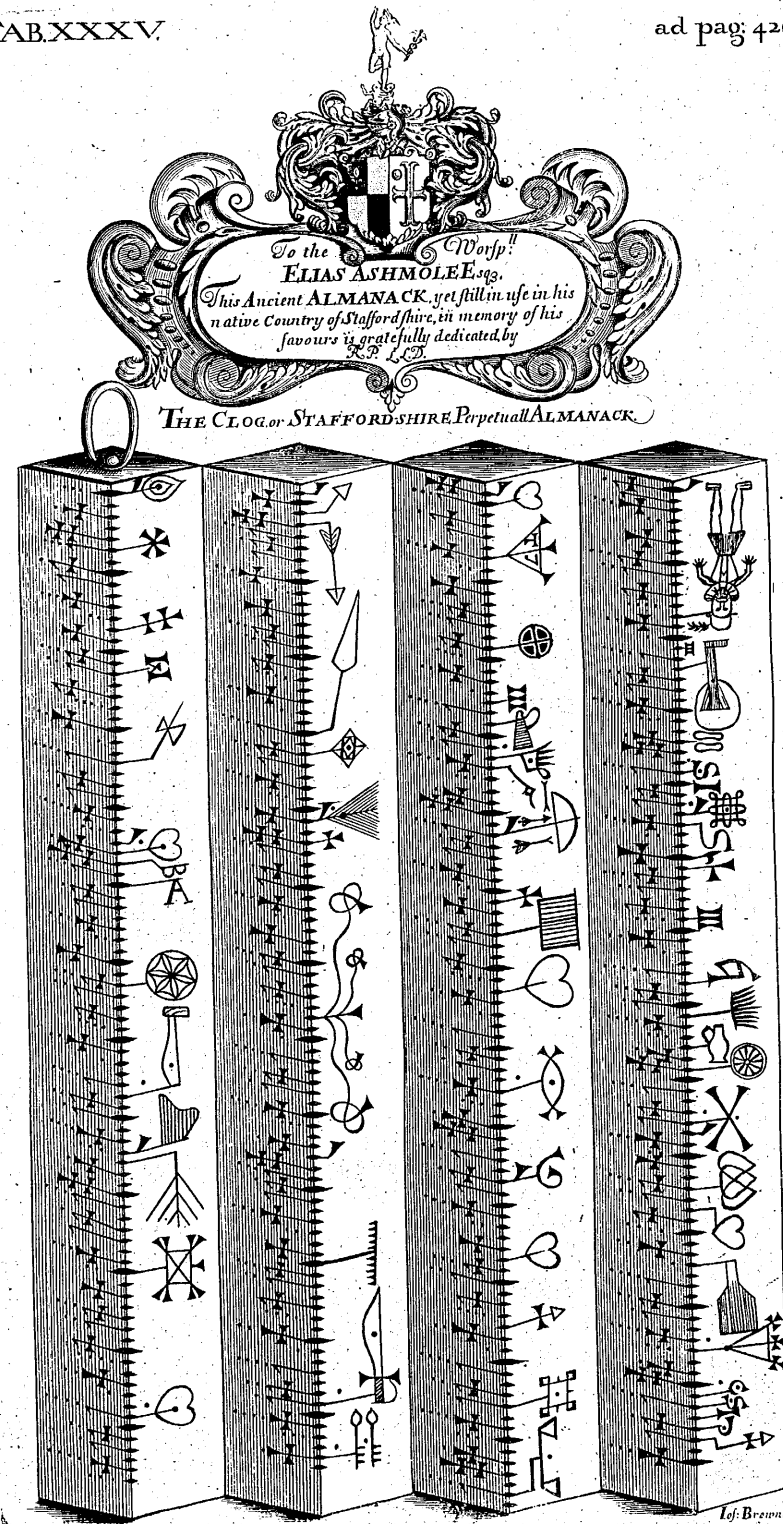
46. Fourthly for the better understanding of the figures inscribed upon these *Cloggs*, I have caused one of them (which is a family *Clogg*) to be represented *in plano* Tab. 35. each

* *Olai Magni de ritu Gent. Sept. Lib. 16. cap. 20. & 24.* † *Olai Wormii Fast. Danic. Lib. 1. cap. 3.* ‡ *Idem Lib. 1. cap. 4. & Lib. 3. in proam.* § *Idem Lib. 2. cap. 3.* ¶ *Idem Lib. 1. cap. 17.* † *Olai Wormii Fast. Danic. Lib. 1. cap. 4.*

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TAB. XXXV.

ad pag. 420.



Joh. Browne scul.

Chap. X. Of STAFFORD-SHIRE. 421

angle of the *square stick*, with the moiety of each of the *flat sides* belonging to it, being express't apart; which I took to be the most usefull and most clear method, it could possibly be done in. But to descend to *particulars*, it being first premis'd that all these *Almanacks* follow the *Julian* form, let it first be noted that there are 3 *Months* contained upon every of the 4 *edges*, and that the *number* of the *days* in them are represented by the *notches*, that which begins each month having a *patulous* stroke turned up from it, every *seventh notch* being also of a larger Size, which stands for *Sunday*, or perhaps for *A*, or any other *Letters*, as they may come in their turn to be either *Dominical* or *week day* Letters, which shews, that the *Dominical Letter* or *Cycle* of the *Sun*, is not so much regarded in this *Almanack*, but committed to memory, the *Sundays* and other *Days* here being fixt; whereas the *Dominical* and other *Letters* vary every year in a *retrograd* order, for one Letter at first, and sometimes two, upon account that every common *Julian* year contains 52 week and one day over, and every *Bissextil* the same number of weeks, and two days over: whence it comes to pass that every *year* ending upon the same *day* of the *week* it began, the next always begins on the following day, altering the *Dominical* one *Letter* backward (and consequently all the *Letters* of the working days too) in the common year, and two *Letters* on the *Leap-year*: the first *Letter* serving from the 1 of *Jan.* to the 24. of *March*, and the latter ever after to the end of the year.

47. Which *Dominical* and other *Letters* are all engraven in *Ulfila's* later *Gothick Characters*, upon all the *Danish Rimstoks* of *Wormius*^a, and the aforesaid *Swedish* or *Norwegian Primstaves* (which I therefore said were of the perfect kind) in *Olaus Magnus*^a, and the *Ashmolean Museum*; their *Dominicals* and *week-day* Letters being, *v* *frey*, *n* *ur*, *t* *bor*, *a* *os*, *r* *reid*, *v* *kaun*, *** *hagl*^b, the first seven of their *alphabet*, as ours are; but not answering the *powers* of our first seven, but of *f*, *u*, *tzh*, *o*, *r*, *k*, *b*. Which constantly altering, as I said before, upon account that the following *year* never began on the same *day* of the *week* with the former *year*, but with the following day, & so altering the *Dominical* and other *Letters*: Our *ancestors* I suppose did not think it worth while, to inscribe such *moveable Characters* at all, upon their *Cloggs* or *Almanacks* (the knowledg of the *Cycle* of the *Sun* too, being but of little use to them) but rather to commit such an

^a *Idem. Lib. 2. cap. 2.* ^a *Olai Magni de ritu Gent. Sept. Lib. 1. cap. 34.* ^b *Olai Verelii Runographia Scandinavica Cap. 7.*

easy observation, as the removal of *Sunday* or any other day one or two days backward, to the care of their *memories*: these larger *notches* being sufficient to intimate, that a *seventh* part of time must always be allotted (however it fall out) for *divine services*.

48. Over against many of the *notches*, whether great or small, that stand in the *Clogg* for the *days* of each *Month*, there are placed on the left hand several marks or *Symbols* denoting the *golden number* or *cycle* of the *Moon*, which number if under 5, is represented by so many *points*, and that perhaps as naturally as by so many *stroaks*; but if 5, a line is drawn from the *notch* or day to which it belongs, with a *hook* return'd back against the course of the line, that, if cut off at due distance, may be taken for a *V*, which being the *first* vowel, antiquity perhaps has been pleas'd to make use of, to represent the number 5, as *X* for ten, which is nothing else but a composition of two *V*'s turned tail to tail, as the learned *D' Wallis* has very well noted: but to proceed, if the *golden number* be above 5, and under 10; it is then markt out to us by the *hooked line*, which is five, and with one *point*, which makes 6; or two, which makes 7; or 3, for 8; and 4, for 9; the said line being cross't with a *stroak* patulous at each end, which represents an *X*, when the *golden number* for the *day*, over against which it is put, is ten; *points* being added (as above over the *hook* for *five*) till the number arises to 15, when a *hook* is placed again at the end of the *line* above the *X*, to shew us that number.

49. Above these, the *points* are added again till the *number* amounts to 19, where the *line* issuing from the *day* is cross't with two *patulous stroaks* (as if it were 20) as may be seen on the *Clogg Jan. 5.* and so against every day of each month, whose *golden number* is 19: in which *number* of *years*, the *Moon* returning again to be in *conjunction* with the *Sun*, on the very same *day* (tho' not *hour*) it was before, as was first observed by *Meton the Athenian* 431 years before the birth of *Christ**, there needs no more *numbers* than 19, to express the absolution of its whole *Cycle*, and therefore we find no more on the *Clogg*, which why it should be represented by the *Symbol* of *twenty*, when it might have been as easily done by its *own*, I cannot imagin, unless it may pass for a reason, that our *ancestors* thought, that an even *round* number did more gracefully set forth, or denote the completion of the *Moones cycle*, than an *odd* number could. However hence it appears, that these *Symbols* are

* *Joh. Wallisii Arithmetica* cap. 8. * *Christoph. Clavii Calendar. Gregor.* cap. 8. §. 3.

no such *Hieroglyphical Characters* confusedly placed, as they seem at first sight, but have a more rational orderly texture than the *Runæ* upon the *Danish Rimestocks*, or the *Swedish* or *Norwegian Primstaves*, where the sixteen simple *Runæ*, & the three compound ones in their *alphabetical* order, stand as well for the *golden number* of 19, as the *seven* first did, for so many *Dominical Letters*: *Frey* being put for 1. *Ur* for 2. *Tbor* for 3. *Os* for 4. *Reid* for 5. *Kaun* for 6. *Hagl* for 7. *Naud* for 8. *Is* for 9. *Ar* for 10. *Sun* for 11. *Tyr* for 12. *Biark* for 13. *Laugur* for 14. *Madur* for 15. *Aur* for 16. *Aurlaugr* for 17. *Twimadur* for 18. *Belgtzbor* for 19. Which three last are compound *Characters*, and rather *Syllables* than *letters*: than which (I say) the *Symbols* set on our *Cloggs* have a more rational texture, these being put to signify numbers *ad placitum*, whereas ours are as orderly made off from one another, and with as much dependance, as any of our *numbers*, express't either by the *Arabic* or *barbarous figures*, or *numeral Letters*, now in use.

50. Nor are these *numbers* set so confusedly against the *days* of each *Month*; as they appear at first sight, for they are placed in *method*, whether we consider them, as they immediatly precede and follow one another, or the *distances interceding* each figure of the same *value* or *denomination*. For proof whereof, let it be observed first, that every *following* number is made by adding 8 to the *preceding*, and every *preceding* number by adding 11 to the *following* one, and casting away 19, when the *addition* shall exceed it: for Example, if to 3 set against the first of *Jan.* you add 8, it makes 11 set against the 3^d. of the same *Month*, to which add 8 again, and it makes 19, whence 8 it self comes to be the *following* figure, and 16 the next. On the contrary if to 16 you add 11, it makes 27, from which if you deduct 19 there remains 8 the number above it, and so onwards; and this I find a *rule* without *exception* through the whole distribution of these *golden numbers*. And for the *distances* of the numbers of the same *denomination*, it may also be noted that they stand either 30 or 29 days asunder, and this not at *pleasure*, but for the most part *interchangeably*: for Example, after 3 which is set over against the first of *Jan.* at 30 days stance you will find 3 again on the last of the same *Month*; and at 29 days distance on the 1 of *March* 3 again; so on the last of *March* at 30 days distance 3 again, and so of all the rest *interchangeably*, except where an *Embolisinal Month* is in-

* *Olai Verelii Runographia Scandinavica* Cap. 7. * *Christoph. Clavii Calendar. Gregor.* cap. 9. inserted,

serted, whereof immediatly in the account I am about to give of the reason of these things.

51. Which that I may doe with all imaginable perspicuity, let it be noted first, that the Sun finishing its course, i. e. returning to the same point in the Zodiac in 365 days, and 6 hours proxime; and the Moone in 29 days and 12 hours proxime, the Moone must finish her course or pass through the Zodiac 12 several times in every common Julian solar year; 29 days and 1/2, or 354 days, being so many times to be found in 365 days; and 11 days over. Now because it was not easy to determine in the Calendar the half days of the Moons, there being as I said 29 days 1/2 from one New-Moone to another, it was thought convenient (to ballance the matter) to make the distances betwixt the New-Moons to be interchangeably 29 and 30 days, and to place the golden numbers accordingly, the Months having 30 days being termed *Menses pleni*, and those but 29, *Cavi*; the *Pleni*, or *Lunar Months* of an even number of days, being ordinarily found in the Solar months that have odd days; and the *Cavi* or *Lunar months* of odd days, in the Solar months of even days; according to the old verse.

Impar Luna pari, par fiet in impare Mense.

January, March, May, July, September, and November, being the *menses pleni*; February, April, June, August, October, and December, the *Cavi*; upon account of which alternate reckoning of the Lunar months, it comes to pass that all the figures on the Clogg (as I noted above) doe for the most part interchangeably stand at the distance of 30, and 29 days a-funder.

52. It being thus fully agreed on, the Lunar months should consist of 29 and 30 days apiece, *alternatim*: that the times of the new-moones might be for ever stated, the Christians of Alexandria, as Dr Newton tells us, An. 323, two years before the Council of Nice, observing that the new-moon next the Vernal Equinox was upon the 27th day of the Egyptian month *Phamoth*, answering to the 23^d of our *March*, placed against that day (it being the first year of their observation of this Cycle) the golden Number 1, and so again at 29 days distance, the same number, against the 26 day of *Pharmuthi*, answering to our 21 of *April*, that being the *mensis cavus*; and at 30 days distance, the same again opposit to the 26 of the month *Phacon*, answering to our 21 of *May*; and so onward through the whole year. Upon which ground by the like progession, are

† Newton's Cosmograph. Part. 2. Chap. 2.

all

all the golden numbers set also in the margins of the Roman Calendars: the golden number 1. being placed, as I said, against *March* the 23^d, *April* 21, *May* 21, *June* 19, *July* 19, *Aug.* 17, *Sept.* 16, *Oct.* 15, *Nov.* 14, *Dec.* 13, as they are found upon the Clogg. But then because in the following year the golden number was to be 2, reckoning 30 days from the 13 of *Decemb.* (that being ordinarily *mensis cavus*, and *Jan. plenus*) the golden number 2 was therefore set to *Jan.* 12, *Febr.* 10, *March* 12, *Apr.* 10, *May* 10, *June* 8, *July* 8, *Aug.* 6, *Sept.* 5, *Octob.* 4, *Nov.* 3, and *Dec.* 2. From whence reckoning 30 days as before, the golden number 3 comes in course in the third year to be placed against the first of *January*.

53. In which year the Fathers of the Nicene Council, being about to settle the time for the Christian observation of *Easter*, and that (as the learned Dr Wallis notes) as near as they could to the time of the Jewish *Pasover*, which was always celebrated on the 14 day of the first month at *Even*, i. e. according to their computation (who began their day at *Sun set*) at the beginning of the 15 day, the day of full moone: they were necessitated for this purpose to settle the golden number or cycle of the Moone, which having been rightly used two years before by the Christians of Alexandria, they thought not fit to alter it, but to goe on from the time of their first having used it, as the Church of England has ever since observed, whence it came to pass that the number 3 is placed against the 1 of *Jan.* and not the number 1, which, had the Fathers pleated then to have begun the Cycle, might have as well been done: but not thinking fit (as I said before) so to doe, they continued the number 3 in the margins of their Calendars (as we see it also in the Clogg) against the 1 of *Jan.* which number by reckoning 30 and 29 days to each Luration interchangeably, falls also upon *Jan.* 31, *Mar.* 1, and 31, *Apr.* 29, *May* 29, *June* 27, *July* 27, *Aug.* 25, *Sept.* 24, *Oct.* 23, *Nov.* 22, *Dec.* 21. Whence going on as before, and counting 4 for the golden number of the next year, it will be likewise found on *Jan.* 20, *Febr.* 18, *Mar.* 20, *Apr.* 18, *May* 18, *June* 16, *July* 16, *Aug.* 14, *Sept.* 13, *Octob.* 12, *Nov.* 11, *Dec.* 10. And thus, had the Lunar and Solar years been equal, the Rule had held on through the whole Decennovennial Cycle, without exception.

54. But the Lunar falling short of the Solar year full 11

‡ Dr Wallis's Treatise concerning the Paschal Tables in the book of Common Prayer. MS. presented to the R. Society.

H h h

days,

days, it must needs follow, that going on as above, and taking 5 for the golden number in the third year from the settlement by the Council of Nice, that the Moone must have fallen short thrice 11, or 33 days, so that the Lunar months being run so far backwards as to be almost out of the Solar months, to which they were reputed to belong; an Embolisme of 30 days or a full Month must needs be made somewhere this year, to bring matters in a tolerable posture again: and for this reason the number 5 is set before Jan. 9, Febr. 7, Mar. 9, Apr. 7, May 7, June 5, July 5, Aug. 3, Sept. 2, and also before the 2 of Octob. and not the first, that so there may be two Lunations together of 30 days, the same number 5 being set notwithstanding to the 31 of the same Octob. to make the Lunation to consist again of 29 days, and to the 30 of Novemb. instead of the 29, that so a Lunation of 30 may again succeed as it ought. In like manner in the 6 year (the golden number being 8) having gone through the 4th and 5th as common years, the golden number is set opposit to the 5 of Apr. which should have been upon the 4; and in the 9th year, the golden number 11 is set to the 2 of Febr. which should have been upon the first; and so as often as 30 days will arise out of the 11 supernumerary days in the whole Cycle of the 19 years.

55. Now because these 11 days doe in 19 years amount to 209 days, there must needs be 7 Embolismal months, which by a kind of injection or interposition must be somewhere reckon'd within the 19 years; whereof 6 may contain 30 days apiece (as will be found upon the division) and one 29 days; the years in which they are intercalated being stiled Embolismal years, to distinguish them from the common years, which always contain 354 days, whereas 6 of these Embolismal years doe each of them take up 384 days; and the 7th (in which the 29 days are reckon'd) 383 days. Which Embolismal years, had the Nicene Fathers began the Cycle at the time they settled it, and prefixt the golden number 1. to the first of Jan. had been properly these seven 3. 6. 9. 11. 14. 17. 19th. But because they thought convenient (as was shewn above) to continue what was before begun by the Christians of Alexandria, and to commence their settlement on the 3^d. year of the Moones cycle, therefore the Embolismal years in this Cycle are 5. 8. 11. 13. 16. 19. 2. which according to Robert Grosstest Bishop of Linc. Johannes de Sacro Bosco, and most of

^b In Newton's Cosmograph. Part. 2. Chap. 2.

the

the ancient Computists (as quoted by Dr Wallis¹) were expressly declared to be thus inserted.

Beginning	Ending	Golden Numb.
I. Sept. 2.	Octob. 1.	5.
II. Mar. 6.	April. 4.	8.
III. Jan. 3.	Febr. 1.	11.
IV. Nov. 2.	Dec. 1.	13.
V. Aug. 2.	Aug. 31.	16.
VI. Mar. 5.	Apr. 3.	19.
VII. Dec. 2.	Dec. 31.	2.

Which yet in effect are the same (as the Reverend Dr Newton makes it plainly appear²) as if they had been inserted according as they should, if the Nicene Fathers had begun the Moons Cycle in the year they settled it, and placed the golden number 1. before the first of January.

56. And this is all worthy notice relating to the distribution of the golden numbers, Embolismal months, &c. but that there is a peculiar regard in ordering these matters to be had in placing the golden numbers from the 8 of March. to the 5 of Apr. within which compass none of the Lunations must exceed 29 days, because no Paschal Lunation may consist of more; whence it is that from the 8 of March to the 6 of Apr. (to both which days the golden number 16 is prefixt) there are but 29 days; and from the 9th. of March to the 7. of April. (to both which days the golden number is 5) are also but 29 days; and so of the rest, till you come to the first of April, all the Paschal Lunations and golden numbers falling out, and being express't, between those two days. Nor must it be forgot that the 7th and last Embolismal month, which never can consist of above 29 days (19 times 11 being but 209, whereas 210 are requisite for 7 times 30) is intercalated notwithstanding as a month of 30, from Mar. the 5 to Apr. 4. where are two months together of 30 days, in the year when the golden number is 19, as well as in any of the rest, which could not be unless the intercalation were there: in compensation whereof the Moone for July, which should have been of 30 days, they make this year but of 29, counting from July 1. to July 30; the golden number 19 being put to July the 30, which should have been set before the 31: so that here are 3 months together of 29 days, the tricesima Luna, that should have been in July, being skipt over, which they call Saltus Lunæ; which twas absolutely necessary must be somewhere, by reason the intercalatory months were all of 30 days.

¹ Dr Wallis's treatise concerning the Paschal Tables in the Book of Common Prayer. M S.
² Joh. Newton's Cosmog. Part. 2. chap. 2.

57. Thus having shewn the reason of the distribution of the golden number in general, it remains that I give a more particular account how it comes to pass, that the following golden number should be made by adding 8 to the preceding; and the preceding by adding 11 to the following: for the first whereof, I take the reason to be, that in 8 Solar years, allowing to each 365 days and 6 h. which are 2922 days, there happen to be 99 Lunations wanting one day, 12 h. 41'. 15". 9^m; upon which account after 8 years the Lunations doe not begin upon the same day they did 8 years before, but one day and $\frac{1}{2}$ later, proxime; wherefore after every golden number through the whole Calendar, another is written next it which exceeds it by eight, to shew that after 8 years the New Moons will not fall upon those days, upon which the antecedent golden numbers are written, but upon those to which the numbers are prefixt, that are made off them by eight. And because in twice 8 years, the twice 12 hours and odd minutes make another day and better, therefore the golden numbers are not always immediatly put after each other upon all days of the months, but every third day, for the most part, is left vacant for these twice 12 hours; so that every two golden numbers have ordinarily 3 days allowed them, otherwise the Lunations in each 16 years time, would be always anticipated one day at least.

58. And the reason why every preceding golden number is formed of the subsequent by adding 11 is, because in 11 Solar years, in which are 417 days, there are 136 Lunations and one day, 14 h. 8'. 47". 4^m. for that in 136 Lunations there are required only 4016 days 3 h. 51'. 12". 56^m. and therefore the New Moones after 11 years, fall not on the same days they did the said 11 years before, but one day and almost half another sooner: upon which account before every golden number, is set another golden number that exceeds it by 11, to shew that after 11 years, the New Moons will not fall upon those days they did 11 years before, but sooner, viz. upon those to which the numbers are prefixt, that are made off them by the addition of 11. Whence Clavius concludes that Campanus and many others of the ancient Computists, did not rightly set two golden numbers before Decemb 21. for that after 11 years the New Moons that fell upon that day (the golden numbers being 13 or 2) will necessarily happen one day and near $\frac{1}{2}$ sooner, as was shewn above; for evidence whereof, if these were rightly set, there must also be two other golden numbers put the day preceding, viz. 5

¹ Christoph. Clavii Calendar. Gregor. cap. 9. §. 8.

and

and 13. and so two more again for them, and so quite through the Calendar: so that every day that has any, must have two golden numbers as well as this, and two New Moones falling on it within the cycle; whereas no other day but this even by these Computists is allowed above one; and these sufficient too, to take up all the New-Moons. Upon which account I rather close with Clavius, and place the number 13 upon the first of Decemb. and 2 alone upon the second, as I find them upon several of these Cloggs, tho' not in that represented above, 13 in that being put down to the second, and 2 to the third, in which point I therefore count it defective, nor can I see any inconvenience that will follow hence; but that the Embolismal month (the golden number being 13) must then be reckon'd from Dec. 1. to the 31. as Clavius does^m, which perhaps may be none: but I forbear to lanch further into this controversy, having already I fear tired the Readers patience.

59. And proceed next to the Inscriptions, issuing from the notches, to the right hand of them, some peculiar notches having figures set against them on this hand too, but all of different kinds, and not repeated like the former: which though they are marks or symbols of the festival days, express after the Egyptian Hieroglyphical manner, non literis; aut syllabarum compositione as Diodorus tells usⁿ, sed imaginum forma, not with Letters or Syllables, yet they are not set at random, but all carry with them a rational importance, some of them pointing out the offices or endowments of the Saints, before whose festivals they are put; others the manner of their Martyrdoms; and others only some eminent action or other matter some way relating to the Saint, or else the work, or Sport, in fashion about the time when the feast is kept. Thus from the Notch which represents the 13 of Jan. or the feast of S^t Hilary, there issues a Cross or badg of a Bishop such as S^t Hilary was; from the first of March a harp, shewing the feast of S^t David, who used to praise God on that instrument; against June the 29 the Keys for S^t Peter, reputed the Janitor of heaven; and a pair of shoes against the 25 of Octob. the feast of S^t Crispin the Patron of the Shoemakers. Of the second kind, are the Axe set against the 25 of January or feast of S^t Paul, who was beheaded with an Axe; and a Sword against the 24 of June for S^t John Baptist's day, who perhaps was beheaded in the prison with such a weapon; So a Gridiron upon the 10 of August or feast of S^t Laurence, who suffer'd martyrdom upon one; and a wheel on the 25,

^m Item Calendar. Gregor cap. 17. ⁿ Diodori Siculi de Aegyptiacis Lib. 4.

H h h 3 with

with a decussated cross on the last of Novemb. for S^t Catharine and S^t Andrew, who are said also to have suffered upon such instruments of death.

60. And of the last kind, are the marks against the first of January, somewhat resembling the cutting off of the prepuce, for the Circumcision; the Starr on the 6 of the same Month to denote the Epiphany; a true Lovers knot against the 14 of Febr. for Valentines day, importing the time of marriage or coupling of birds; a bough against the 2 of March for S^t Ceadda, who lived a Hermits life in the woods near Lichfield; also a bough on the first of May, such as they usually set up about that time with great solemnity; and a rake on the 11 of June being S^t Barnabies day, importing that then it is hay-harvest. So a pot against the 23 of Novemb. for the feast of S^t Clement, from the ancient custom of going about that night, to begg drink to make merry with; and for the Purification, Annuntiation, and all other feasts of our Lady, always the figure of a heart, which what it should import relating to Mary, unless because upon the Shepherds relation of their Vision, Mary is said to have kept all these things, and ponder'd them in her heart^o, I cannot imagin; lastly for Dec. 25. or Christmasts day, a Horn; the ancient vessel in which the Danes use to Wasayle, or drink healths; signifying to us that this is the time we ought to rejoyce and make merry, cornua exhaurienda notans, as Wormius will have it^p. Many such Symbols there are too, for other festivals, which not being so constantly the same as these are, but varying almost upon every Clogg, I forbear any further exposition of them; only adding that the marks for the greater feasts solemnly observed in the Church have a large point set in the middle of them, and another over against the preceding day, if vigills or fasts were observed before them.

61. Thus having done with the Inscriptions on both sides the notches, it remains only that I shew what were the uses of each: for the former whereof (I mean the prime or golden number) its only use anciently before the birth of Christ, was to shew the times the New-Moons would happen: but after his death it was applyed by the Church to an Ecclesiastical use, viz. to shew the true time of celebrating Easter, which it does to this day: that being to be esteemed the Paschal Moone, whose 14th day doth fall upon or after the Vernal Equinox, which in the days of the Nicene Fathers (as they were informed by the Astronomers of those times) was upon the 21 of March; or which comes to

^o Luke 2. v. 19. ^p Olai Wormii Fastor. Danicor. Lib. 1. cap. 18.

the

the same purpose: that was to be reputed the Paschal Moone, whose Full fell not on, but next after the Vernal Equinox or 21 of March, on which day if Sunday, or else the next Sunday following, Easter was always to be observed. So that the years of the Moons Cycle being lettled as above, no body had then, nor has now more to doe, to find the time of Easter, but to consult in their Calendars the golden number for the year within that compass, which shews the time of the Paschal New-Moone, and to count 14 from it; or to find out the next Full-Moone after the Ecclesiastical Equinox; upon which day if Sunday (as I said before) or the next Sunday after, Easter is to be kept. Whence it is that these numbers are sometimes call'd the Prime, because they doe indicare primas Lunas, and not only near Easter, but through the whole year; which was esteemed by our ancestors a thing of so excellent use, that they scrupled not to set them in the margins of their Calendars in characters of gold, whence they are filed to this day, also the golden number.

62. But you will object perhaps and say, that upon observing of the New Moones, you find them not now to fall on those days the Prime does direct, but ordinarily four, and sometimes five days before; which is so great a truth, that in the Breviaries and Missals corrected by Pius quintus, the primes are removed 5 days upwards^q, and so we find them in the Scotch Common Prayer Book printed at Edinborough An. 1637, which I suppose was done, that the primes might agree with the New-Moons, as they fell at those times, which by reason the Cycle of the Moone is 1h. 27'. 31". 55". shorter then 19 Julian years, had then gone back since the Council of Nice, near 5 days, this ἀεσχρησις σεληνιακή or anticipation, amounting to a day, in 312 years and $\frac{1}{2}$, as Clavius computes it^r. Which remedy of Pius quintus, and the Church of Scotland, had been agreeable enough, had the use of the prime been only to find the Astronomical New Moones. But our Church of England having not yet thought fit, to alter the observation of Easter from the time appointed by the Nicene Council, the primes cannot be so alter'd without great confusion, as the learned D^r Wallis has shewed at large^s, but must be still continued where they were then, and still remain on the Clogg: which now rather serve indeed, only for the ready finding of the Ecclesiastical New-Moones, than the Astronomical; tho' they may be computed too, only by reckoning them to fall about 4 days before; the Cycle of the Moone having so much anticipated the course of the Sun since the time of that Council.

^q Christoph. Clavii Calendar. Gregorian. cap. 9. §. 12. ^r Ibidem. cap. 8. §. 4. ^s Dr. Wallis's Treatise concerning the Paschal Tables in the Books of Common Prayer M.S.

Which

Which I take to be all the use that the *primes* are put to; but that by the following numbers being made by adding 8 to the preceding, and the preceding by adding 11 to the following; they also understand that every following prime will be in use 8 years after the preceding; and every preceding 11 years after the following. And as for the Symbols on the right hand the notches, their only use is for finding the *immoveable feasts* (as the *primes* were chiefly for the *moveable*) as was hinted above.

63. Nor did the *Danish* government only bring in these *Cloggs*, but their manner of *buryal*, which was to erect over the graves of all persons of quality tall *pyramidal* stones, such as those in the Church yards of *Leek*, *Draycot*, and *Chebsfey*, which I took indeed at first to be only the *Epistylia* of so many *Crosses*, till coming to *Ilam* and finding two in the same Church-yard, and three close together at *Checkley*, I then began to think they must have some other original, and that most probably they might be funeral monuments of the dead; with which agrees the tradition of theirs at *Checkley*, the Inhabitants reporting them the memorials of 3 *Bishops* slain in a battle fought here about $\frac{1}{2}$ of a mile *E NE* from the Church, in a place still call'd *Naked Fields*, for that the bodies lay there naked and unburied for some time after the fight: what ground there may be for this tradition I cannot find, but that they were funeral monuments, and of *Danish* original, I am fully confirmed, not only from the like still remaining in *Denmark*, but here in *England* too; the Reverend and Learned *William Nicolson* Archdeacon of *Carlisle*, having lately given us an account of much such another as most of ours are, at *Beaucaastle* in *Cumberland*, with *Runic* characters still remaining upon it, inclining in figure to a square *pyramid* or *obelisk*, with many pictures of *Saints* in *Sacerdotal* habits, and a great deal of *Chequer-work* engraven upon it, which he styles a notable emblem of the *tumuli* of the *Ancients*.

64. All which (but the *Runic* characters) are also found upon some of ours, as may plainly be seen upon those of *Checkley*, if the Reader please to look back to *Tab. 33.* where they are purposely represented for his satisfaction *Fig. 9, 10, 11.* which are the three stones mention'd by *M^r Camden*, whereof the two that stand furthest from the Church, are finely carved into *fret-work* and *imagery*, but the next it, plaine; the tallest (now not above 6 foot) is that in the middle, the biggest being that most remote from the Church, but they all seem to have been formerly higher; I am sure the biggest has, for I could perceive the

¹ *Olai Wormii Monument. Danicor. Lib. 5. & 6. inter Ripensia & Norvagia. Philoſoph. Transact. Numb. 178.* ² *Camden in Stafford.*

feet

feet of an image on the top of it, whose head was higher on the stone when whole. That at *Leek* is much taller than these, and has also much *fretwork* and some *imagery* upon it, but I do not remember any upon the rest. Which are all the *Antiquities* I found here remarkable that are certainly *Danish*, unless it be worthy notice, that it is very probable that *Leofric* Earl of *Mercia*, husband to the famous *Godeva*, who rodd through *Coventry* naked, and obtain'd thereby many large privileges of her husband for them, dyed at his village of *Bromleyg*, or *Bromleage* as *Dunelmensis* calls it, in this County, though buried at *Coventry*.

65. Yet there are many old *Customs* in use within memory, of whose originals I could find no tolerable account, that possibly might commence as high as these times; such as the service due from the Lord of *Essington* in this County to the Lord of *Hilton*, about a mile distant, viz. that the Lord of the Manor of *Essington* (now one *S^r Johns* Esq; late *S^r Gilbert Wakering*) shall bring a *goose* every *New-years* day, and drive it round the fire in the *Hall* at *Hilton*, at least 3 times (which he is bound to doe as mean Lord) whilst *Jack* of *Hilton* is blowing the fire. Now *Jack* of *Hilton*, is a little hollow Image of brass of about 12 Inches high, kneeling upon his left knee, and holding his right hand upon his head, and his left upon *Pego* or his *veretrum* erected, as in *Tab. 33. Fig. 12.* above mention'd; having a little hole in the place of the mouth, about the bigness of a great pins head, and another in the back about $\frac{1}{2}$ of an inch diameter, at which last hole it is fill'd with water, it holding about 4 pints and $\frac{1}{2}$, which, when set to a strong fire, evaporates after the same manner as in an *Aeolipile*, and vents it self at the smaller hole at the mouth in a constant blast, blowing the fire so strongly that it is very audible, and makes a sensible impression in that part of the fire where the blast lights, as I found by experience *May the 26. 1680.* After the Lord of *Essington*, or his Deputy or *Bayliff*, has driven the goose round the fire (at least 3 times) whilst this Image blows it, he carries it into the *Kitchen* of *Hilton-Hall*, and delivers it to the *Cook*, who having dressed it, the Lord of *Essington* or his *Bayliff*, by way of further service, brings it to the Table of the Lord paramount of *Hilton* and *Essington*, and receives a dish of meat, from the said Lord of *Hiltons* table, for his own Mefs. Which service was performed about 50 years since, by *James Wilkinson* then *Bayliff* of *S^r Gilbert Wakering*, the *Lady Townsend* being *Lady*

³ *Henr. de Knyghton Canon of Lyncester. de Eventibus Angl. Lib. 1. cap. 12.* ⁴ *Simon. Dunelmensis Hist. de gestis Regum Angl. in An. 1057.*

of

of the Manor of *Hilton*, *Tbo. a Stokes* and *John. a Stokes* brothers, both living *An. 1680.* then being present.

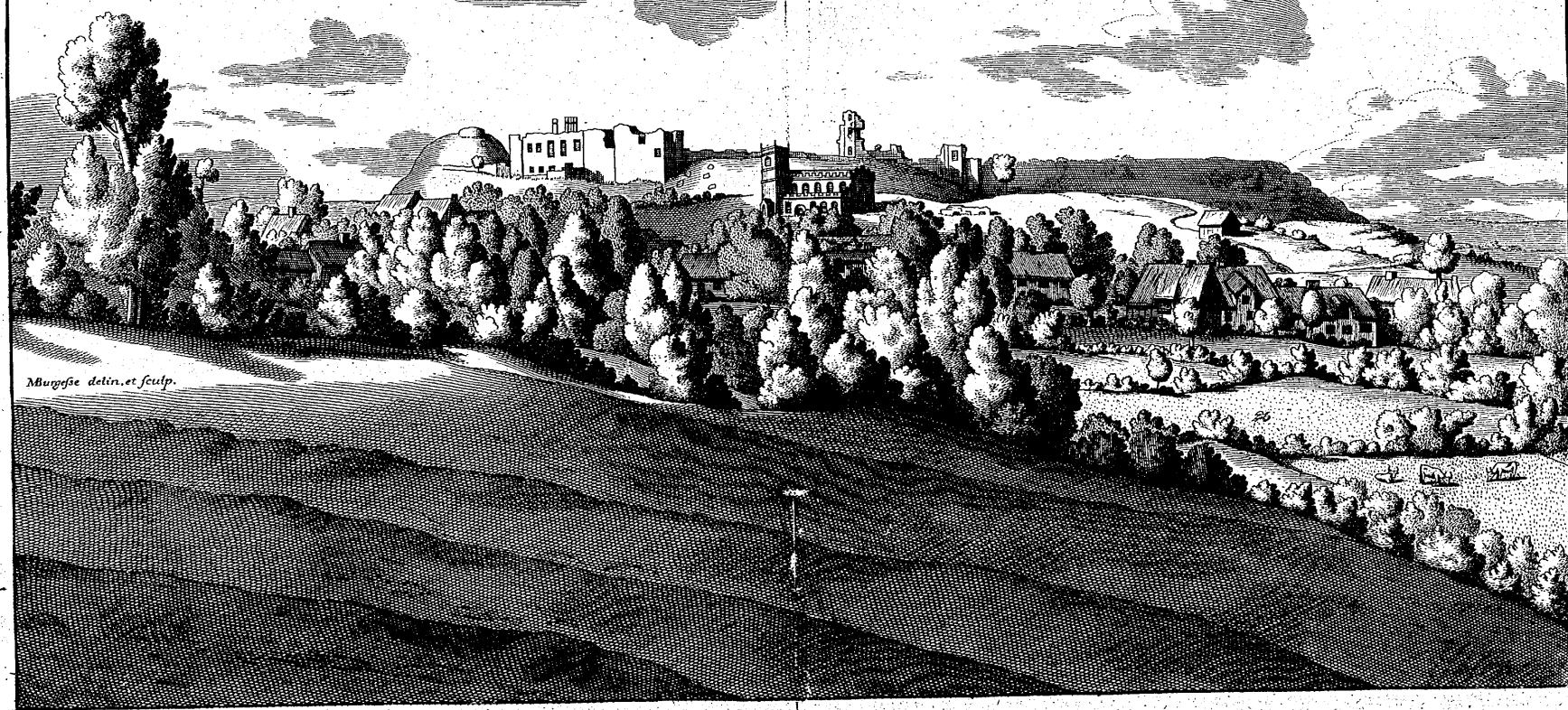
66. At *Abbots*, or now rather *Pagets Bromley*, they had also within memory, a sort of sport, which they celebrated at *Christmas* (on *New-year*, and *Twelft-day*) call'd the *Hobby-horse dance*, from a person that carry'd the image of a *horse* between his leggs, made of thin boards, and in his hand a *bow* and *arrow*, which passing through a *hole* in the *bow*, and stopping upon a *sholder* it had in it, he made a *snapping* noise as he drew it to and fro, keeping time with the *Musick*: with this *Man* danced 6 others, carrying on their shoulders as many *Rain deers heads*; 3 of them painted *white*, and 3 *red*, with the *Armes* of the cheif families (viz. of *Paget*, *Bagot*, and *Wells*) to whom the renews of the *Town* cheifly belonged, depicted on the *palms* of them, with which they danced the *Hays*, and other *Country dances*. To this *Hobby-horse dance* there also belong'd a *por*, which was kept by turnes, by 4 or 5 of the *cheif* of the *Town*, whom they call'd *Reeves*, who provided *Cakes* and *Ale* to put in this *por*; all people who had any kindness for the good intent of the Institution of the *sport*, giving pence a piece for themselves and families; and so *forraigners* too, that came to see it: with which *Mony* (the charge of the *Cakes* and *Ale* being defrayed) they not only repaired their *Church* but kept their *poore* too: which *charges* are not now perhaps so cheerfully boarn.

67. It seems too, to be pretty certain that the *Town* or *Castle* of *Chesterton under Lyme*, as *M^r Camden* calls it, given by King *John* to the last *Randall E. of Chester*, must be a place of note before the *Conquest*, it goeing to decay as long agoe as the Reigne of King *Hen. 3.* when the Earle of *Lancaster* built another near by, in the midst of a great poole, which he call'd the *New-Castle*, that gave original (no doubt) to the *Towne* of that *Name* close by it: whereof yet there is now almost as little remaining as of the *Walls* of *Chesterton*, which were so firmly built, that as *M^r Camden*², and *M^r Erdeswick* both owne, there remain'd so much of the rubbish of them in their days, that it might be perceived thereby, that they were of a marvellous thicknes²: but all was gone before I came there, nothing now being to be seen but some faint footsteps of them, in the place where the *mark* is set in the *Map*. Nor is there much more of the *New-Castle* in the poole, tho' the *Town* near by be grown considerably large, being govern'd by a *Mayor* and sending *Burgeses* to

² *Camdens Britannia in Staffordsh.* ² *Mr Sampson Erdeswick's view of Staffordshire, in Chesterton.*

TAB. XXXVI

ad pag. 435



Marysse delin. et sculp.

Chap. X. Of STAFFORD-SHIRE. 435

Parliament, and flourishing reasonably well to this very day; yet had certainly its *original* from this decayed *Castle*, there being no account of any such *Town*, as M^r *Erdeswick* acquaints us, in *Doomsday book*^b, or any other writings relating to this *County*, before the building of that *new-Castle*.

68. Quickly after the Conquest; *Henry de Ferrars* a noble man of *Normandy* (as M^r *Camden* styles him^c) who came in with Duke *William*, and had large possessions allotted him in this *County*, built *Tutbury Castle*, upon that hill of *Alabaster* where it now stands, which continued in his family till *Robert de Ferrars* Earl of *Darby* (after pardon obtain'd for a former rebellion) revolted a second time and joyned with *Simon Montford* against King *Henry* the *third*, by whom being taken prisoner he was fined for his offence 50000*l*. *Sterling* (a vast Summ in those days) to be paid *simul & semel in uno die*, sc. *in quindena Job. Bap.* which fine the King gave to his son *Edmund* Earl of *Lancaster*; Earle *Robert* obliging himself upon *non* payment, to forfeit all his lands except *Chartley* in *Staffordshire*, and *Holbroc* in *Darbyshire*, to the said *Edmund*^d: which (because such a Summ could then by no means be raised) was accordingly done; and so *Tutbury* came to the family of *Lancaster*, and at length to be the head seat of the *Dutchy*, in which it flourish't till the rebellion of *Thomas* Earle of *Lancaster*, *An. 1322. temp. Edw. 2.* who fortified it against the King, but could not hold it; when, as M^r *Erdeswick* thinks, this first *Castle* was brought to decay, and not reedified till it came into the possession of *John* of *Gaunt*, who built the present *Castle*, walling it on all sides but one, where the hill is so steep that it needed no such fence^e: from whose time it continued in some tolerable condition till the late *civil warr*, *temp. Car. 1.* when it was taken and for the most part demolish't by the *Rebells*, as may be seen by the ruins *Tab. 36.* it remaining much in the same condition they left it, to this very day.

69. During the time of which ancient Earls and Dukes of *Lancaster*, who were ever of the blood *Royal*, great men in their times, had their abode, and kept a liberal *hospitality* here, at their *Honor* of *Tutbury*, there could not but be a general concourse of people from all parts hither; for whose diversion all sorts of *Musicians* were permitted likewise to come, to pay their *services*: amongst whom (being numerous) some quarrels and disorders now and then arising, it was found necessary after a while they should be brought under rules, divers *Laws* being made

^b *Ibidem* in *Newcastle*. ^c *Camden's Britannia* in *Staffordsh.* ^d *Erdeswick's view* of *Staffordsh.* in *Tutbury*. ^e *Ibidem*.

for the better regulating of them, and a Governour appointed them by the name of a King, who had several Officers under him to see to the execution of those Laws, full power being granted them to apprehend and arrest any such Minstrells appertaining to the said Honor, as should refuse to doe their services in due manner, and to constrain them to doe them: as appears by the Charter granted to the said King of the Minstrells, by John of Gaunt King of Castile and Leon, and Duke of Lancaster, bearing date the 22 of August in the 4 year of the raigne of King Richard the second, entituled, Carta le Roy de Ministralx, which being written in old French^f, I have here translated, and annex it to this discourse, for the more universal notoriety of the thing, and for satisfaction how the power of the King of the Minstrells and his Officers is founded: which take as follows.

JOHN By the Grace of God King of Castile and Leon, Duke of Lancaster, to all them who shall see or hear these our Letters greeting. Know ye we have ordained constituted and assigned to our well beloved the King of the Minstrells in our Honor of Tutbury, who is, or for the time shall be, to apprehend and arrest all the Minstrells in our said Honor and Franchise, that refuse to doe the Services and Minstrelly as appertain to them to doe from ancient times at Tutbury aforesaid, yearly on the days of the Assumption of our Lady: giving and granting to the said King of the Minstrells for the time being, full power and commandement to make them reasonably to justify, and to constrain them to doe their Services, and Minstrelies, in manner as belongeth to them, and as it hath been there, and of ancient times accustomed. In witness of which thing, we have caused these our Letters to be made Patents. Given under our privy Seal at our Castle of Tutbury the 22 day of Aug. in the 4th. year of the raigne of the most sweet King Richard the second.

70. Upon this, in procefs of time the defaulters being many, and the ameracements by the Officers perhaps not sometimes over reasonable; concerning which, and other matters, controversies frequently arising: it was at last found necessary, that a Court should be erected to hear plaints, and determine Controversies, between party and party, before the Steward of the Honor, which is held there to this day on the morrow after the Assumption being the 16th. of Aug. on which day they now also doe all the services mentioned in the above said grant; and have the Bull due to them, anciently from the Prior of Tutbury, now from the Earle of Devon; whereas they had it formerly on the

^f D. Gulielmi Dugdale Monast. Angl. vol. 2. p. 355.

assumption

assumption of our Lady, as appears by an *Inspeximus* of King Henry the sixt, relating to the Customs of Tutbury, where amongst others, this of the Bull is mention'd in these words. *Item est ibidem quedam consuetudo quod Histrones venientes ad matutinas in festo assumptionis beatae Mariae, habebunt unum Taurum de Priore de Tuttebury, si ipsum capere possunt citra aquam Dove propinquiore* Tuttebury; *vel Prior dabit eis xl^d. pro qua quidem consuetudine dabuntur domino ad dictum festum. annuatim xx^d. i. e.* that there is a certain custom belonging to the Honor of Tutbury, that the Minstrells who come to Matins there on the feast of the Assumption of the blessed Virgin, shall have a Bull given them by the Prior of Tutbury, if they can take him on this side the River Dove which is next Tutbury; or else the Prior shall give them xl^d. for the enjoyment of which custom they shall give to the Lord at the said feast, yearly xx^dg.

71. Thus I say the services of the Minstrells were performed, and Bull enjoyed, anciently on the feast of the Assumption; but now they are done, and had, in the manner following, on the Court day or morrow of the assumption being the 16 of August, what time all the Minstrels within the Honor come first to the Bayliffs house of the Manor of Tutbury (who is now the Earl of Devonshire) where the Steward for the Court to be holden for the King, as Duke of Lancaster (who is now the Duke of Ormond) or his deputy meeting them, they all goe from thence to the parish Church of Tutbury, two and two together, Musick playing before them, the King of the Minstrells for the year past walking between the Steward and Bayliff, or their deputies; the four Stewards or under Officers of the said King of the Minstrells, each with a white wand in their hands, immediately following them; and then the rest of the company in order. Being come to the Church, the Vicar reads them divine service, chusing Psalms and Lesons suitable to the occasion: the Psalms when I was there An. 1680. being the 98. 149. 150; the first Lesson 2. Chron. 5. and the second, the 5. chap. of the Epistle to the Ephesians, to the 22 verse. For which service every Minstrel offered one penny, as a due always paid to the Vicar of the Church of Tutbury, upon this Solemnity.

72. Service being ended, they proceed in like manner as before, from the Church to the Castle-hall or Court, where the Steward or his deputy taketh his place, assisted by the Bayliff or his deputy, the King of the Minstrells sitting between them; who is to oversee that every Minstrell dwelling within the Ho-

^f Ibidem.

nor and making default, shall be presented and amerced: which that he may the better doe, an *O yes* is then made by one of the *Officers* being a *Minstrel*, 3 times, giving notice by direction from the *Steward* to all manner of *Minstrells* dwelling within the *Honor of Tutbury*, viz. within the *Counties* of *Stafford*, *Darby*, *Nottingham*, *Leicester* and *Warwick*, owing suit and service to his *Majesties Court of Musick* here holden as this day, that every man draw near and give his attendance upon pain and peril that may otherwise ensue, and that if any man will be assign'd of *suit* or *plea*, he or they should come in, and they should be heard. Then all the *Musicians* being call'd over by a *Courtroll*, two *Juries* are impannell'd, out of 24 of the sufficientest of them, 12 for *Staffordshire*, and 12 for the other *Counties*; whose *names* being deliver'd in *Court* to the *Steward* and call'd over, and appearing to be full *Juries*, the *Foreman* of each is first sworn, and then the residue, as is usual in other *Courts*, upon the holy *Evangelists*.

73. Then to move them the better to mind their duties to the King, and their own good; the *Steward* proceeds to give them their charge: first commending to their consideration the original of all *Musick*, both *Wind* and *string Musick*, the antiquity and excellency of both, setting forth the force of it upon the affections, by divers examples; how the use of it has always been allowed (as is plain from *holy writ*) in praying and glorifying God; and the skill in it always esteemed so considerable, that it is still accounted in the *Schooles* one of the *liberal Arts*, and allowed in all Godly Christian *Common-wealths*; where by the way he commonly takes notice of the *Statute*, which reckons some *Musicians* amongst *Vagabonds* and *Rogues*^a, giving them to understand that such *Societies* as *theirs*, thus legally founded and govern'd by *laws*, are by no means intended by that *Statute*, for which reason the *Minstrells* belonging to the *Manor of Dutton* in the *County Palatine* of *Chester* are expressly excepted in that *Act*^b. Exhorting them upon this account (to preserve their reputation) to be very carefull to make choise of such men to be *Officers* amongst them, as fear God, are of good life and conversation, and have knowledg and skill in the practise of their *Art*. Which charge being ended, the *Jurors* proceed to the *Election* of the said *Officers*, the *King* being to be chosen out of the 4 *Stewards* of the preceding year, and one year out of *Staffordshire*, and the other out of *Darbyshire* interchangeably: and the 4 *Stewards* two of them out of *Staffordshire*, and two out of

^a Joseph Kebles Statutes at large. 39. of Eliz. chap. 4. §. 2. ^b Ibidem. §. 10. Darby-

Darbyshire; 3 being chosen by the *Jurors*, and the 4th by him that keeps the *Court*, and the deputy *Steward* or *Clerk*.

74. The *Jurors* departing the *Court* for this purpose, leave the *Steward* with his *assistants* still in their places, who in the mean time make themselves merry with a *banquet*, and a noise of *Musicians* playing to them, the old *King* still sitting between the *Steward* and *Bayliff* as before: but returning again after a competent time, they present first their cheifest *Officer* by the name of their *King*; then the old *King* arising from his place, delivereth him a little white *wand* in token of his *Sovereignty*, and then taking a *cup* fill'd with *Wine* drinketh to him, wishing him all joy and prosperity in his *Office*. In the like manner doe the old *Stewards* to the new, and then the old *King* riseth, and the new taketh his place, and so doe the new *Stewards* of the old, who have full power and authority by virtue of the *Kings Stewards* warrant, directed from the said *Court*, to levy and distrain in any *City*, *Town Corporate*, or in any place within the *Kings dominions*, all such *finer* and *amercements* as are inflicted by the said *Juries* that day upon any *Minstrells*, for his or their offences, committed in the breach of any of their ancient *orders*, made for the good rule and government of the said *Society*. For which said *finer* and *amercements* so distrained, or otherwise peaceably collected, the said *Stewards* are accountable at every *Audit*: one moyety of them going to the *Kings Majesty*, and the other the said *Stewards* have, for their own use.

75. The *Election*, &c. being thus concluded, the *Court* riseth, and all persons then repair to another fair room within the *Castle*, where a plentiful dinner is prepared for them, which being ended; the *Minstrells* went anciently to the *Abbey gate*, now to a little barn by the *Town side*, in expectation of the *Bull* to be turned forth to them, which was formerly done (according to the *Custom* above mention'd) by the *Prior* of *Tutbury*, now by the *Earle* of *Devonshire*: which *Bull*, as soon as his *horns* are cut off, his *Ears* cropt, his *taile* cut by the stump, all his *body* smeared over with *Soap*, and his *nose* blown full of beaten pepper; in short, being made as mad as 'tis possible for him to be; after Solemn *Proclamation* made by the *Steward*, that all manner of persons give way to the *Bull*, none being to come near him by 40 foot, any way to hinder the *Minstrells*, but to attend his or their own *safeties*, every one at his peril: He is then forthwith turned out to them (anciently by the *Prior*) now by the *Lord Devonshire* or his deputy, to be taken by them and none other, within the *County* of *Stafford* between the time of his being turned out to them, and the setting of the *Sun* the same day:

day: which if they cannot doe, but the *Bull* escapes from them untaken, and gets over the River into *Darbyshire*, he remains still my Lord *Devonshires* bull: but if the said *Minstrells* can take him, and hold him so long, as to cutt off but some small matter of his *hair*, and bring the same to the *Mercat* cross in token they have taken him, the said *bull* is then brought to the *Bayliffs* house in *Tutbury*, and there coller'd and roapt, and so brought to the *Bull-ring* in the high-street, and there baited with doggs: the first course being allotted for the *King*; the second for the *Honor* of the *Towne*; and the third for the *King* of the *Minstrells*. Which after it is done, the said *Minstrells* are to have him for their owne, and may sell, or kill and divide him amongst them, according as they shall think good.

76. And thus this *Rustick-sport* which they call the *Bull-running*, should be annually performed by the *Minstrells* only, but now a days they are assisted by the promiscuous multitude, that flock hither in great numbers, and are much pleased with it, tho' sometimes through the emulation in point of *manhood*, that has been long cherish'd between the *Staffordshire* and *Darbyshire* men, perhaps as much mischeif may have been done in the triall between them, as in the *Feu de Taureau* or *Bull-fighting* practis'd at *Valentia*, *Madrid*, and many other places in *Spain*, whence perhaps this our Custom of *Bull-running* might be derived, and set up here by *John* of *Gaunt* who was *King* of *Castile* and *Leon*, and Lord of the *Honor* of *Tutbury*; for why might not we receive this sport from the *Spaniards*, as well as they from the *Romans*, and the *Romans* from the *Greeks*? wherein I am the more confirm'd, for that the *Ταυρομαχία* amongst the *Thesalians*, who first instituted this game, and of whom *Julius Caesar* learned it, and brought it to *Rome*, were celebrated much about the same time of the year, our *Bull-running* is, viz. *pridie Idus Augusti* on the 12 of *August*; which perhaps *John* of *Gaunt* in honor of the *Assumption* of our *Lady* being but 3 days after, might remove to the 15; as after ages did (that all the *Solemnity*, and *Court* might be kept on the same day, to avoid further trouble) to the 16 of *August*.

77. Nor is this the only remarkable *Custom* that anciently belong'd to this *Honor* of *Tutbury*, for I find that *S. Philip* de *Somerville* 10 of *Edw.* 3. held the Manors of *Whichenovre*, *Scire-scot*, *Ridware*, *Netberton*, and *Cowlee*, all in *Com. Stafford* of the *Earles* of *Lancaster* Lords of the *Honor* of *Tutbury*, by these memorable *Services*, viz. *By two small fees*: "That is to say, when

^k *Fran. Willughby's voyage through Spain*, p. 499. ^l *Humph. Prideaux in notis ad Marmor Tauroμαχίας inter Marmora Ozonienf.* † *E. Rot. Memb. penes Joh. Turton de Alrewas in Com. Staff.*

other

" other Tenants pay for Reliefe one whole Knight's fee, One hundred Shillings, he the said *Sir Philip* shall pay but Fifty shillings: " and when *Escuage* is assessed throghe owtt the land; or to Ayde " for to make th' eldest sonne of the Lord, *Knyght*; or for to marry the eldest daughter of the Lord, the said *Sir Philip* shall pay " bott the motye of it that other shall paye. Nevertheless, the " said *Sir Philip* shall fynde, meyntienge, and susteingne one " *Bacon* styke, hanging in his Hall at *Whichenovre*, redy arrayede " all times of the yere, bott in Lent; to be given to everyche " mane, or woman married, after the day and the yere of their " marriage be pass'd: and to be gyven to everyche mane of *Religion*, *Archbishop*, *Bishop*, *Prior*, or other *Religious*: and " to everyche *Preeft*, after the year and day of their profession " finished, or of their dignity reseved, in forme followyng; when " soever that ony suche byforenamed, wylle come for to enquire " for the *Baconne*, in there own persone; or by any other for them, " they shall come to the *Baillyfe*, or to the *Porter* of the *Lordship* " of *Whichenovre*, and shall say to them, in the manere as ensewethe; " *Baillyfe, or Porter, I doo you to knowe, that I am come for my self [or, if he be come for any other, shewing for whome] to demaunde one Bacon styke, hanging in the Halle, of the Lord of Whichenovre, after the forme thereunto belongyng.*

" After which relacioun, the *Baillyffe* or *Porter* shall assign a day " to him, upon promyse, by his feythe to retourne; and " with him to bryng tweyne of his neighbours. And, in the " meyn tyme, the said *Baillyffe* shall take with him tweyne of the " *Freeholders* of the *Lordship* of *Whichenovre*; and they three, " shall go to the *Manoir* of *Rudlowe*, belongyng to *Robert Knyghtley*, and there shall somon the forseid *Knyghtley* or his " *Baillyffe*; commanding him, to be redy at *Whichenovre*, the " day appoynted, at pryme of the day, withe his *Caryage*; " that is to say, a *Horse* and a *Sadyll*, a *Sakke*, and a *Pryke*, " for to convey and carye the said *Baconne*, and *Corne*, a " journey owtt of the *Countee* of *Stafford*, at hys costages. And " then the sayd *Baillyffe*, shall, with the sayd *Freeholders*, " mone all the *Tenaunts* of the said *Manoir*, to be ready at the " day appoynted, at *Whichenovre*, for to doo and perform the " vices which they owe to the *Baconne*. And, at the day assign'd, " all such as owe services to the *Baconne*, shall be ready at the " *Gatte* of the *Manoir* off *Whichenovre*, frome the *Sonne-rysing* to " *None*, attendyng and awatyng for the comyng of hym, that " fetcheth the *Baconne*. And, when he is comyn, there shall be " delivered to hym and hys fellowys, *Chapeletts*; and to all those " whiche shall be there: to do their services due to the *Baconne*:

k k k

And

“And they shall lede the seid Demandant wythe Trompes and Tabours, and other maner of Mynstralfeye, to the Halle-dore, where he shall fynde the Lord of *Whichenovre*, or his Steward, redy to deliver the Baconne, in this manere.

“78. He shall enquire of hym, whiche demandeth the Baconne, yf he have brought tweyn of hys Neighbors with hym. Whiche must answer; *They be here ready.* And then the Steward shall cause thies two Neighbours to swere, yf the seyd Demandaunt be a weddyt man; or have be a man weddyt: and, yf sythe his Marriage, one yere and a day be passed: And, yf he be a free-man, or a villeyne. And yf hys seid neighbors make Othe, that he hath for hym all thies three poynts reherfed; then shall the Baconne be take downe, and broghte to the Hall-dore; and shall there be layd upon one halfe a Quarter of Wheatte; & upon one other of Rye. And he that demandeth the Baconne shall kneel upon his knee; and shall hold his right hand upon a booke; which booke shall be layde above the Baconne, and the Corne; and shall make Othe, in this manere.

Here ye, Sir Philippe de Somerville, Lord of Whichenovre, mayntener and gyver of this Baconne; That I A. sithe I wedded B. my wyffe, and sythe I hadd hyr in my keepyng, and at my wyllie by a yere and a day, after our Marriage: I wold not have chaunged for none other; favez, ne fowlez; rychez, ne poirrez; ne for none other descended of greater lynage; slepyng, ne wakyng, at noo tyme. And yf the seyd B. were sole, and I sole, I wold take hyr to be my wyffe, before alle the wymen of the worlde; of what condicions soever they be; good or evylle, as helpe me God ond hys Seyntys; and this fleshe, and all fleshes.

“And hys neighbors shall make Othe, that they trust veraly he hath said truly. And, yff it be founde by his neighbours, before-named, that he be a Free-man; there shall be delyvered to him half a Quarter of Wheate, and a Cheefe. And, yf he be a villeyne, he shall have half a Quarter of Rye, wythoutte Cheefe. And then shall *Knyghteye*, the Lord of *Rudlowe*, be called for, to carrye all thies thynges, to fore reherfed: And the said Corne shall be layd upon one horse, and the Baconne above ytt: and he to whom the Baconne apperteigneth, shall ascend upon his horse; and shall take the Cheefe before hym, yf he have a horse: And, yf he have none, the Lord of *Whichenovre* shall cause him have one horse and Sadyll, to such time as he be passed hys Lordshippe: and so shalle they departe the Manoir of *Whichenovre*, with the Corne and the Baconne, tofore hym that

* Rudlow seems to be that at Taten-hill Wood-Lane near the house of Joseph Sutton as Tenant, An. 1680.

hath

“hath wonne itt, with Trompets, Tabourets, and other manoir of Mynstralce. And, all the Free-Tenants of *Whichenovre* shall conduct hym, to be passed the Lordship of *Whichenovre*. And then shall all they retorne; except hym, to whom apperteigneth to make the carryage and journey, wythoutt the Countye of *Stafford*, at the Costys of hys Lord of *Whichenovre*. And, yff the sayd *Robert Knyghtley*, do not cause the Baconne and Corne, to be conveyed, as is reherfed; the Lord of *Whichenovre* shall do it be carryed, and shall dystreigne the seyd *Robert Knyghtley* for his defaulte, for one hundred shyllings, in his Manoir of *Rudlowe*; and shalle kepe the distres, so takyn, irreplevisable.

“79. Moreover, the said Sir *Philippe* holdeth of his Lorde, th’ Erle, the Manoir of *Briddehalle*, by thies services; that, att such tyme, that hys sayd Lorde holdeth hys Chrystemes at *Tutbury*, the seyd Sir *Philippe* shall come to *Tutbury*, upon Chrystemasse Evyn; and shall be lodged yn the Town of *Tutbury*, by the Marhall of the Erls house: and upon Chrystymesse-day, he himself, or some othyr Knyght (his Deputy) shall go to the Dressour; and shall sewe to his Lordys meese: and then shall he kerve the same mett to hys sayd Lord: And thys service shall he doo aswell at Souper, as at Dynner: and when hys Lord hath etyn; the said Sir *Philippe* shall sit downe, in the same place, wheir hys Lord satt: and shalle be served att hys Table, by the Steward of th’ Erls house. And, upon Seynt, *Stevyn-day*, when he haith dyned, he shall take leve of hys Lorde, and shall kyffe hym: and, for hys service he shall nothing take, ne nothing shall gyve. And all thies services, tofore-reherfed, the seyd Sir *Philippe* hath doo, by the space of xlviij. yeres; and hys ancestors byfore hym, to hys Lordys, Erls of *Lancastre*. Item, the said Sir *Philippe* holdeth of his seid Lord, th’ Erle, his Manoirs of *Tatenbull* and *Drycotte*, en percenerye, by thies services; that the seid Sir *Philippe*, or his Atturney for hym, shall come to the Castell of *Tutburye*, upon Seynt *Petyr* day, in *August*, which is called *Lammesse*; and shall shew the Steward, or Receiver, that he is come thither to hunt, and catch his Lord’s Greefe, at the costages of hys Lorde. Whereupon the Steward or the Receiver shall cause a Horse and Sadyll to be deliveryd to the sayd Sir *Philippe*, the price Fifty shillings; or Fifty shillings in money, and one Hound; and shall pay to the said Sir *Philippe*, everyche day, fro the said day of Seynt *Peter*, to *Holy Roode-day*, for himself Two shillings six pence a day; and everyche day for his servant, and his Bercelett, during the sayd time twelve pence. And all the Wood-masters of the Forest of *Nedewode* and *Duffelde*,

k k k 2 withe

“with all the Parkers and Foresters, shall be commandyd to awatte, and attend upon the sayd Sir Pbelippe, while theyre Lord’s Greefe be takyn, in all places of the seyde Forestys, as upon their Master, during the said tyme. And the said Sir Pbelippe, or his Attorney, shall deliver to the said Parkers, or Foresters, that shall belonge to their Lordys Lardere; commandyng them to convey itt to the Erls Lardyners, abyding at Tutbury: and with the remenant, the sayd Sir Pbelippe shall do hys plesoure. And, upon Holy-Rood-day the sayd Sir Pbelippe shall returne to the Castell of Tutbury, upon the said Horse, with his Bercelet; and shall dyne with the Steward or Receyver: and after Dynner he shall delyver the Horse, Sadyll, and Bercelett to the Steward or Receyvour; and shall kysse the Porter and depart.”

80. There was much such another Custom as that of the Bacon, also intituted at the Priory of Dunmow in Essex, by Robert Fitzwalter a potent Baron of the Realm Temp. Hen. 3. the Summe whereof was contain’d in this old distich. viz,

That he that repents him not of his Mariage in a year and a day either sleeping or wakeing,
May lawfully goe to Dunmow and fetch a gammon of Bacon.

or else a fysh, as appears by the Register of the said Abbeyesome enjoyed; but neither, unless they would swear kneeling upon two hard pointed stones set in the Priory Church-yard for that purpose, before the Prior and Covent, and the whole Towne, in this forme

You shall swear by Custom of Confession,
If ever you made nuptial transgression:
Be you either married man or wife,
By household brawles or contentious strife,
Or otherwise in bed, or at boord,
Offend each other in deed, or word;
Or since the parish Clerk said Amen,
You wish’t your selves unmarried agen:
Or in a twelbe moneths time and a day
Repented not in thought any way:
But continued true and just in desire
As when you joynd hands in the holy quire.
If to these conditions without all feare,
Of your own accord you will freely sweare,
A whole Gammon of Bacon you shall receive,
And bear it hence with love and good leave.
For this is our Custome at Dunmow well known,
Though the pleasure be ours, the Bacon’s your own.

81. The next considerable antiquity after the Castle of Tutbury,

“ Sr. Will, Dugdales Barrenage of England, Tom. 2. p. 106, 107, 108. “ History of Robert Fitzwalter, Lond. 1616. “ Ibidem in fine

that

that I met with in this County, whereof there are yet some foot-steps remaining, is Heyley Castle, built upon a lofty rock with the very stone that was dugg forth the ditches, which was given to Henry de Alditbleg, as M^r Camden says, by Harvey Lord Stafford, temp. Regis Johan. when the whole Country seem’d in a manner to conspire to make a great man, as may be seen by the Copy of confirmation made by Hen. 3. of all the Lands contributed by divers great men for the advancement of this family. Which Henry indeed seems to have built this Castle: but upon perusal of the Record, I find they were the heirs of one William de Bettelegb or Berley, qui dederunt totam terram de Heylea cum pertinentiis, i. e. that gave the whole land of Heyley to this Henry; and that Harvey Lord Stafford gave only the land quæ jacet sub Castro de Helegbe, that lay somewhere near under the Castle; as Nicholas, and not (as he says) Theobald Verdun gave Alditbelege it self*, where also there seem to be the foot-steps of a Castle, built by some of this family, or of the Verduns before them. About this time the advowson of the Church of Penckridg in this County, anciently Pencriz, settled before by King Stephen upon the Church of Lichfeld, being endowed with lands, and made Collegiat, by one Hugo Huose, was given by King John in the last of his reigne, to the Arch-Bishops of Dublin, in whose Diocess it remains to this very day; which being a thing somewhat strange, and known but to few how it came to pass, for their better satisfaction I have here annext a Copy of King Johns Charter taken out of the black book of the said Arch-Bishops Registry at Dublin, and sent me by the Reverend and learned M^r William King Chancellor of S^t Patricks, which take as follows.

JOHANNES Dei gratia Rex Angl. Dominus Hibernie Dux Normanie & Aquitan. & Com. Andeg. Archiepiscopus, Episcopus, Abbatibus, Comitibus, Baron. Justic. Vicecom. Preposit. & omnibus Ballivis & fidelibus suis salutem. Sciatis nos concessisse & hac presenti carta confirmasse venerabili Patri nostro Henrico Dublin. Archiepiscopo & successoribus suis, terr. & tenement. subscript. que habet ex dono Hugon. Huose; scil. Manerium de Penkeriz cum villa de Cungrave, & villa de Culega, & villa de Wuolgareston, & villa de Besscot, & cum terra de Duun cum feria ejusdem ville de Penkeriz, & cum omnibus ad predic. terr. & tenement. pertinent. sicut carta ipsius Hugonis Huose (quam inde habet) rationaliter testatur. Preterea concessimus de dono nostro, intuitu Dei, & pro salute anime nostre, & antecessorum, & successorum nostro-

* Sampf. Erdeswick’s view of Staffordsh. in Audley. “ D. Guliel. Dugdale Monast. Angl. vol. 3. p. 235.

k k k 3

rum

rum regum Angl. dict. Archiepiscopo Dublin. & successoribus suis advocacionem Ecclesie de Pencriz cum pertinen. in perpetuum. Ita quod cum dicta Ecclesia vacare contigerit, dictus Archiepiscopus & successores sui eam cum pertinen. pro voluntate sua possint ordinare. Quare volumus & firmiter precipimus quod predic. Henric. Dublin. Archiepiscopus, & successores sui habeant & teneant predic. terr. & tenement, & advocacionem dicte Ecclesie cum omnibus pertinentiis suis bene & in pace, libere & quiete, integre & plenarie cum omnibus libertatibus & liberis consuetudinibus, ad predic. terr. & tenement. & predic. advocacionem pertinen. sicut predictum est. Testibus, Dominis P. Wynton. W. Coventry, Epif. Magistr. Pando. Norwic. Electo; & Abbate Cirencest. Huberto de Burgo Justic. nostro Angl; Wide Cireton; Ric. de Burgo; Johanne Ruffelle. Dat. per man. Magistri Richardi de Marisco Cancellar. nostr. apud Downre; tertio decimo die Septembris, Anno regni nostri septimo decimo.

82. In short, the History of this Church stands thus, as well as I can discover it from the Records of Lichfield and Dublin, viz. it was first given, as I said above, to the Church of Lichfield, by King Stephen; not long after being endowed with the lands mention'd in King Johns Charter, it was made Collegiat, having 4 Chappells, one whereof was strangely lost (viz. Capella de Canoto, sive Cannock) tempore Episcopi Hugonis de Novant in the reign of Hen. 2. and not recover'd till the 2 of Edw. 1. In the mean time being a free Chappel of the Kings, the advowson of it was settled by King John upon the Arch-Bishops of Dublin, and confirm'd to them by Pope Alexander the 4. temp. Edw. 1. the Arch-Bishops of Dublin collating the Prebends as often as they fell, and holding the Deanry themselves, upon account there was then no renew annex to the Deanry, for the support of any other, they should give it to; in which posture it stood for 30 years: wherefore the said Pope Alexander upon the petition of the Arch-Bishop then being, by his Bull bearing date at Anagni (the place of his birth) Nov. 11. Pontif. sui An. 5. annex this Deanry to the Arch-Bishoprick for ever. Yet I find afterwards by a taxation of the Prebendaries, and other Officers belonging to this Church, that the Dean did enjoy the benefit of a Prebend: which Taxation, that the number and places of the Prebends, and the names of the persons, that then held them, might be known, I have here annexed.

³ E Libro nigro in Registrar. Reverendis in Christo Patris D. Franc. Archiep. Dub'in. part. 1. fol. 116. ⁴ Ibidem. part. 1. fol. 114. ⁵ Ibid. part. 1. fol. 31. l. 2. ⁶ Ibidem. part. 2. fol. 10.

Taxatio

Taxatio Prebendarum & Officiorum apud Pyncriche exempt.

	lb.	s.	d.	lb.	s.	d.
Imprimis Prebenda Decani	1.	6.	8.	2.	0.	0.
Item Prebenda de Copnall — Trygram	7.	0.	0.	10.	13.	4.
Item Prebenda de Sbarisfull — Fr. Symmons	5.	0.	0.	6.	0.	0.
Item Prebenda de Sutton-Richards	4.	0.	0.	6.	13.	4.
Item Prebenda de Dunstone-Tatton	5.	Marks	6.	6.	8.	
Item Prebenda de Penkrich-Elice	2.	0.	0.	4.	0.	0.
Item Prebenda de Congreife-Willowe	5.	Nobles	2.	6.	8.	
Item Prebenda de Longegrigge-Gardon	0.	8.	0.	0.	16.	0.
Item Canonicus residentiar. absque Prebenda Webb	2.	13.	4.			
Item alter Canonicus silicet residentiarus } fine Prebenda ————— } Gytton	2.	13.	4.			
Item Officium Sacriste, Canonicus perpetuum } est & Vicarius Decani in mortuariis & aliis } casualibus ————— }	3.	6.	8.			
Item Officialis Jurisdictionis peculiaris, & ad } visitandum Comissarius specialis ————— }						prout i. subscribitur.
Item Vicarii residentes omnium dict. Prebend. quorum salaria sunt bene diminuata.						

By which Charter and taxation it is easy to conclude, not only how this Church came to be in the Diocefs of Dublin, but of what value it was whilst in its flourishing condition. But how the lands came after to be alienated, whether by fee-farmes (as it seems most of the Irish Bishopricks were) or otherwise, and how the Jurisdiction neglected; I list not to declare, it not becoming a Natural Historian either to enquire in titles, or make reflections on Church goverment, wherefore manum de Tabula.

83. Not long after this settlement of the Church of Penckridge, Randall the third, surnamed Blundevill, Earle of Chester, An. 1218. 2. Hen. 3. built the Castle of Charley*, where he lay, says Leland, during the time of his building the Abbey of Dieu la Grefs; but this sure could not be, unless it were long in building, that Abbey being founded, as appears in the History of it, An. 1214. before the Castle. And in the reign of his Son King Edw. 1. Walter de Longton Bishop of Lichfield, and Lord high Treasurer of England, some say built, others repaired, Eccleshall Castle; and the Manor of Shoubrough or Shuckborough, which before says Leland

⁷ In eodem Lib. nigro in Registrar. D. Archiep. Dublin. ⁸ Tho. Mills Catalogue of Honor. p. 570. ⁹ Job. Lelandi Itinerar. vol. 7. ¹⁰ D. Gul. Dugdali Monast. Angl. vol. 1. p. 890.

be-

belong'd to one *Shuckborough* with the long beard, by whom it was given to the Miter of *Lichfield*¹. Quickly after in the beginning of *Edw. 2.* *Alveton* Castle seems to have been built by *Theobald de Verdun*, as may pretty plainly be collected from the *Annales* of *Croxden*. And not long after, in the latter end of the same Kings reign, the goodly Castle of *Caverswall*. (as *M^r Erdeswick* calles it) by *S^r William de Caverswall*, it being all built of *Masonry*, and so the damms of the *pooles* near by it, as was anciently exprest upon his monument in the Church, his *Epitaph* being this.

*Castrum structor eram, domibus fossisque Cemento
Vivus dans operam, nunc claudor in hoc monumento*².

which some body rendering in *English*

*S^r William of Caverswall here lye I,
Who built the Castle, and made the pooles by.*

as the report goes, was thus *burlesqu'd* by another hand,

*S^r William of Caverswall here you lye,
Your Castle is down, and your pooles are dry.*

as indeed they are, all but the deep *moat* about the *Castle*, in place whereof a fair house has been since built of squared stone, not altogether unlike a *Castellated mansion*, the walls about it being flank't with *hexangular Towers*, as in its prospect here annex *Tab. 37.* it being at present the seat of that generous Gent. *William Jollife Esq;* a cordial encourager of this work.

84. The original of *Terley*, and *Stourton* Castles, I could no where meet with, but beleive them both of good *Antiquity*; nor of that treble entrenchment on the South side of the *Watlingstreet*; near *Frogg-Homer*, call'd *Knaves-Castle*, which yet is not all above 40 yards *diameter*, or 50 at most: in the middle whereof there is a round hill, now excavated, which for what use it has been (being so very small) I cannot imagin. The *tradition* is, that this *heath* being formerly all *wood*, and much infested with *robberies*, here was a watch set to guard strangers over it, for which the *passengers* allowed some small gratuity. Others say that the *Robbers* themselves harbour'd here, and that therefore it was call'd *Knaves-Castle*. Some other such *Entrenchments* are also here and there still in being, in several parts of the *Country*, without any

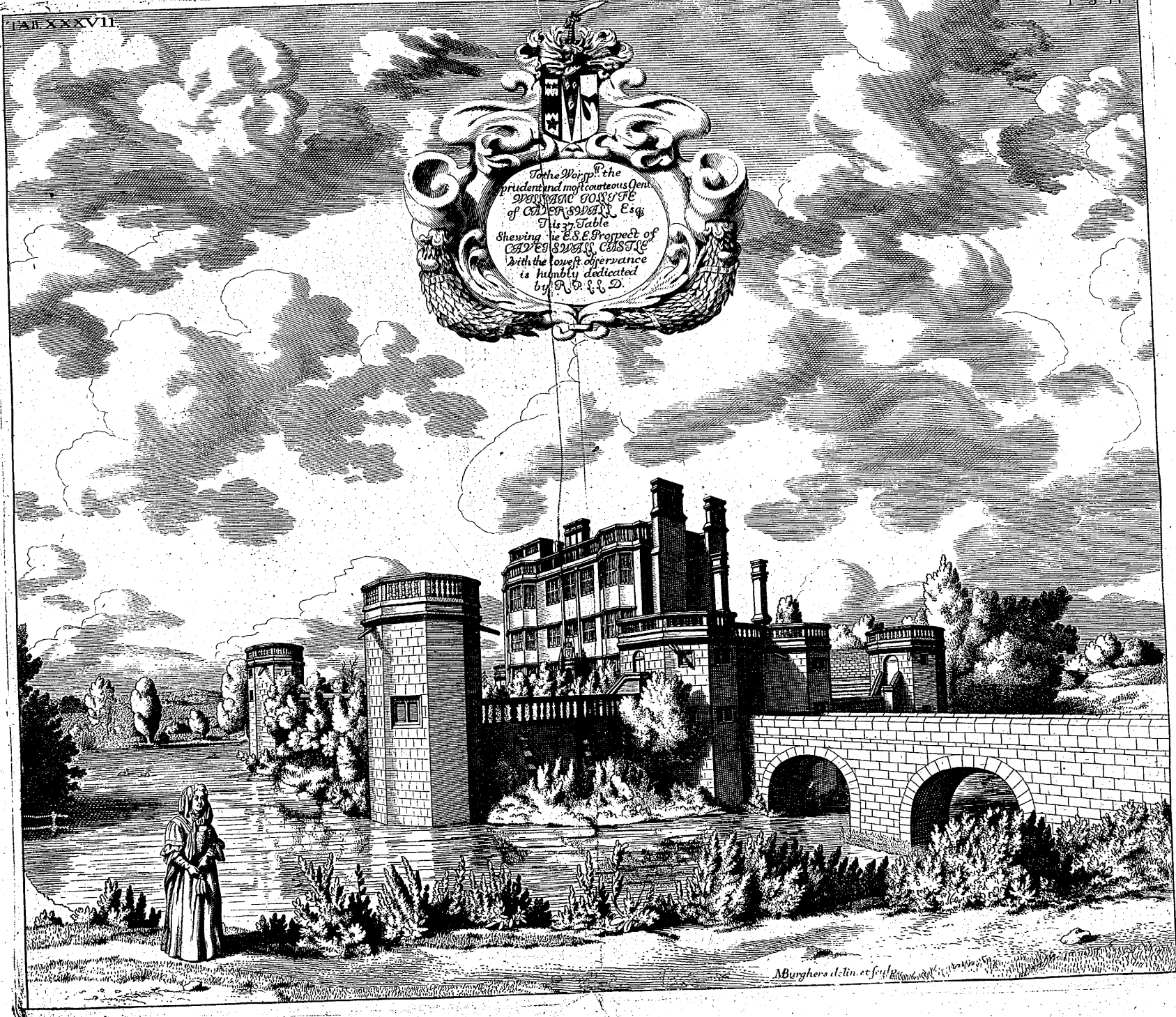
¹ *Joh. Lelandi. Itinerar. vol. 7.* ² *D. Gul. Dugdali Monast. Angl. vol. 1. p. 913.*
³ *Mr Samp^s. Erdeswick's view of Staffordsh. in Caverswall.*

building

TAB. XXXVII.

ad pag. 448.

To the Worshipp^t the
 prudent and most courteous Gen^l
 WALTER BURY, Esq^r
 of CANTON, Esq^r
 This Table
 Shewing the E.S.E. Prospect of
 CANTON CASTLE
 with the lowest observation
 is humbly dedicated
 by P. P. R. D.



M. Burghers del. et scul. P. P. R. D. fecit.

Chap. X. Of STAFFORD-SHIRE. 449

building now remaining within them, which I suppose were only the *Castellated mansions* of some principal families (which were absolutely necessary during the *Barons warrs*) now decayed and gone: such as that call'd the *moats* near *Kinnerston* in this *County*, but anciently *Rodbaston*, inclosed with a double trench, the inner banks yet remaining very high, of a square figure, each side about 50 paces long, the *corners* being much higher than the rest, as if there had been round *Towers* or *bastions* there: which was only the seat of *John de Sandersted*, as appears by the entail of the Lordship of *Chesterton* in the *County of Warwick* 9. *Edw.* 3. by the Kings special command, upon him and his heirs, in case *John de Warrenyk* the possessor of it dyed without issue^b.

85. About a quarter of a mile South of *Okeover* near the park-pale, I was also shewn a deep entrenchment of a square figure, now call'd the *Hallsteds*, which I suppose might be likewise some *castellated mansion* in the *Barons warrs*, the *tradition* being, that it was anciently the seat of the family of *Cockain*; and there are others of the like kind at many other places: but these being but of a late date, in comparison of the former, and scarce deserving the name of *Antiquities*, I leave them to the consideration of a more modern *Historian*, and shall content myself with the mention but of one *Antiquity* more, which is the stone set up upon *Blore* heath in memory of the fall of *James* Lord *Audley*, slain just in that place, in the quarrel of *Hen.* 6. valiantly fighting for his *Soveraigne* against the Earle of *Salesbury*, which fight was long and bloody, no less than 2400 being slain upon the spott, *Queen Margaret* looking on all the while (as the *tradition* goes) from the tower of *Muckleston* hard by: whence she fled, says *Leland*, (the *Victory* falling upon the death of the Lord *Audley*, to the Earle of *Salesbury*) to *Ecclesball* Church, by direction of *John Halse*, alias *Hales* Bishop of *Lichfield*, who caused her to lye there^c.

86. And this is all I have to offer the *Reader*, but that it should have been remember'd *Chap.* 8. §. 54. that *Ralph Basset* of *Chedle* was cheif Justice of *England* *An.* 2. *Hen.* 1. his Son *Richard* *An.* 4. of the same King *Hen.* and that his grandchild *William* was also Justice in *Itinere*, 22 of *Hen.* 2. *Bertram de Verdun*, eodem tempore; and perhaps *Simon de Patesbull* 7^o. *Rich.* 1. & 1^o. *Johannis*^d. Nor must it be forgot, that one *Thomas Dalton* (as *Norton* tells us) had store of the *Medicina rubra Philosophorum*, or the *Elixir* of life, which he owned was left him for his service by his *Master*, who was one of the *Canons* of *Lichfield*, that dyed *An.*

^b *Sr William Dugdales Antiquities of Warwicksh. illustrated. p. 375.* ^c *Job. Lelandi Itinerar. vol. 7.* ^d *Mr Samp. Erdeswick's view of Staffordsh. in Blore. vid. etiam D. Gul. Dugdali Orig. Juridic. in Chronica serie Cancellarior. in distis An.*

1477. temp. Edw. 4^o. Which at last (after many long and tedious journeys; a large expence of time, and money; and many other difficulties undergon in the mean time) concludes this History of Staffordshire: in the writing whereof, tho' I dare not think, much less can by any means assure the Reader, that I have made no mistakes in any of my Relations; yet I am inclined to beleive there are none very material, I am sure none willfull: wherefore I hope all Readers will deale so candidly with me, as only to reprove me calmly, for what is done amiss, which sort of Chastisement I shall cheerfully receive; sincerely promising never to offend in the like manner again, being pretty fully resolved, never to publish any more of these Histories (tho' I think I was never so fit as now) unless commanded by a power that I must no resist.

* Vid. Ordinale Secretorum Tho. Norton. MS. Laud. in Bib. Bod. K. 61. p. 14.

ERRATA

PAG. 63. line 25. read Conservatories. p. 63. l. 27. r. to part. p. 66. l. 4. r. Iceland. p. 69. l. 17. r. Calander. p. 82. l. 34. for Parabolical r. elliptical. p. 152. l. 42. dele. p. 185. l. 36. r. Conchiter. p. 196. l. 25. r. Sculpture. p. 198. l. 17. r. wale. Stanton. p. 199. l. 16. r. somewhat. p. 200. l. penult. r. Hollandicus. p. 240. l. 12. r. rubeus. p. 263. l. 38. r. Friteni. p. 264. l. penult. r. Sbamois. p. 270. l. 7. r. the. p. 286. l. 24. r. 37. p. 340. l. 9. r. Commensalib. p. 349. l. 13. r. hereby (as Genab expounds it) p. 370. l. 10. r. 10 n. p. 424. l. 38. r. against.

FINIS

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