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AN ATTEMPT
Towards a
Natural History
OF THE
FOSSILS of ENGLAND;
IN
A CATALOGUE of the English Fossils
in the Collection of
J. WOODWARD, M. D.

Containing
A Description and Historical Account
of each; with Observations and Experiments,
made in order to discover, as well the Origin
and Nature of them, as their Medicinal, Mecha-
nical, and other Uses.

PART I.
Of the FOSSILS that are real and natural:
Earths, Stone, Marble, Tales, Coraloids, Spars,
Cryftals, Gemms, Bitumens, Salts, Marcasites,
Minerals, and Metals.

TOM E I.

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THE

Publisher to the Reader.

D R. Woodward has been so full in his Prefaces to these Catalogues, and in his Dissertations on the several Parts thereof, that he has made it in a manner needless to say any thing more about them.

It may be, however, proper to observe, that the Catalogue of the first Tome of the English Fossils, in the Cabinets A and B, contains an Account of such as the Doctor bequeathed by his Will to the University of Cambridge; and that the English Fossils in the Cabinet C, and the Foreign ones in the Cabinet D, described in the second Tome of the Catalogue, are those which He has ordered to be disposed of, and are now to be sold.

Both these Collections are not only extremely choice and curious, but (what is more surprizing) are compleat in their kind. They contain each of them a great Variety of all sorts of Fossils; especially the Latter, which
which the Doctor procured from all the known Parts of the Globe, with a Trouble and Expence more than sufficient to discourage any other body from attempting a Work in which he so happily succeeded. He succeeded indeed, but it was not without having carried it on for a Course of near forty Years, with a Passion for the Improvement of Natural Knowledge in general, and with a particular View to evince the Universality of the Deluge; which they prove, indeed, by ocular Demonstration.

A Collection of English Fossils, if a Man uses a proper Diligence, and will not scruple the necessary Expence, may possibly be made in the space of eight or ten Years; but to make such a Collection of Foreign Fossils, as are exhibited in these Catalogues, will require an Age, and is not to be done without an universal Correspondence, and an inconceivable Expence. This is necessary, whatever the Exemplars are; but to make a Collection of such choice and curious ones as these, requires likewise an exquisite Judgment, not above one in ten, perhaps, of the Bodies collected having been admitted by the Doctor to make part of it, whilst the rest were rejected for being defective in something requisite to render them fine Exemplars.
Tis really amazing, how, amidst the continual Business of his Profession, and a Variety of other Avocations, he could find time to maintain all his Correspondencies, collect so fine a Library, and so vast a Number of Fossils, finish so many Pieces as he has printed and left in Manuscript, and make himself Master of so many different Sciences. Nothing can account for it, but his constant and unwearied Application to his Studies, which took up all the Time that he could call his own; and which he pursued to the last Moments of his Life, for several Months that he was confined to his Bed, with uncommon Assiduity and Success; he having wrote his Method of Fossils during that Space, and being actually engaged in the printing of it at the Time of his Death.

This was a Work exceedingly wanted in the World, yet scarce ever attempted, and never executed before. Few or none, indeed, were equal to it; nor could any body have been qualified for it without a long Course of Enquiry, and accurate Observations, and such a thorough Insight into the Nature and Kinds of Fossils, as enabled the Doctor to methodize them according to their several Species, and reduce them into
a Science. We may now justly expect considerable Improvements in the Knowledge of this Part of Nature; and the Method, which he has publish'd, will make these Catalogues exceeding useful, and serve for a Direction to any one that has a Gout for the like Studies, and is determin'd to make his Collections with such a Choice, and his Observations on them with such an Accuracy, as may render them most instructive to himself, and most beneficial to Mankind.

As these Catalogues have been printed in great haste, 'tis not impossible but the Reader may find in them several Errors of the Press, which he is desired to excuse, and ('tis hoped) will easily correct.
THE PREFACE.

NOW, that I have been for some time engaged in Mineral Studyes, with no small Application, 'tis a Pleasure to me to find that it has not been wholly without Fruit. One Sample of which I gave in my Essay towards a Natural History of the Earth; which met with so favourable Reception from the Publick, as to give me great Encouragement to proceed. I had indeed, before ever that Work was set forth, drawn up some others in pursuit of that Design: and have since added several more; to which I shall now subjoin the following, which exhibits an Attempt towards a Natural History of the Fossils of England.

This noble and happy Country is extremely fertil, as of those above, so likewise of its Productions under Ground. These it yields in great Number, and Variety: and many of them of extraordinary Excellence, Worth,
and Use*. Nor are there perhaps many, that, either by my own Searches, or the Diligence of my Friends, I have not procured Specimens of. There is indeed in this Collection, the far greatest part, if not all those that have been recounted by Writers: and a great Number more that have never been, either described, or so much as mention'd. Not but that this, and indeed every Attempt of this kind, must needs be defective, the Stores of Nature being endless and inexhaustible. Nor can it be suppos'd that the Accounts of the Bodyes, here exhibited, are every where complete, or all the Descriptions of them full and perfect. But any other Man, who shall have Leisure and Encouragement to pursue this Design, will here find Land-Marks and Notices sufficient to conduct himself by, in that so useful a Pursuit.

In order to the forming a better Judgment in this Affair, and making some Estimate of the Bodyes set forth in this Volume, I shall lay a brief Summary of all the several Kinds of them here in view.

* See several Instances, p. 2. & 3. infra.
So great a Variety as fifteen hundred Bod- 
yes, and upwards, and each so much dif- 
ferring from other, that in the whole there 
are scarcely any two alike, in every respect, 
to be produced within the Bounds of one 
Country, must needs be allow'd to be very con- 
siderable.
siderable. All these I have endeavoured to reduce to Method: and, where the Bodyes were capable of such Distinction, cast the various Kinds, with the subordinate Species, into Classes; according to their mutual Alliances, and their Relations to each other.

In ranking of them, I have founded my Judgment wholly upon their Nature and Properties, so far as the most rigorous Examination, and the exactest Experiments I could make, laid them open to me; not neglecting, in the mean time, such Notices or Intimations as were given me by their Figure, and exterior Appearance, or any other Phenomena of them.

The History, of the greatest Part of these Fossils, is here deliver'd a-part; together with an Account of the Place where every one was found. I should have been glad I could, in each, have also set forth, what I have of several, at what Depth, and in what Manner it lay: among what Matter it was reposited: as also in what Plen ty; along with all the other considerable Circumstances of it. This is follow'd, as far as my other Affairs would permit, by particular Observations upon the Body itself: upon the Colour, the Bulk, the Form, the Texture, the Constitution, the Purity or Mixtures dif-
discernible in it; and whatever else occurs worthy of Notice and Remark. Next is set forth the Result of the Experiments, that have been made upon the Body, in order to discover the natural Disposition and Properties of it: its various Medicinal, Mechanical, or other Uses; and the several sorts of Metall, or other Matter that constitute it, or are contain'd in it. In fine, upon these Histories, Accounts, and Observations, are founded several Reflections and Inferences relating to the Origin and Formation of the Body: as also to both its past and present State and Condition.

This Method I have made choice of as the most plain and simple of all others: and consequently the least liable to mislead me. The exterior Circumstances of many of the Bodyes, while in the Earth, where they are deliver'd, 'tis done with real Care and Faithfulness: and none the least Particular omitted that might give any Information or Light into the Natural History of each. As to the several Phenomena of the Bodyes themselves, they are at this Hour extant: and apparent in every single Individual thorough the whole Collection. And for the Experiments, they were all made with the utmost Exactness and Circumpection; besides, that several of them
them were repeated more than once. Now the Reflections, that are everywhere inter-
spersed, being founded entirely upon those Cir-
cumstances, Phenomena, and Experiments, are in truth so many Deductions from them: and therefore as much Matter of Fact as Those are, and to be rely'd on with equal Cer-
tainty. This is evident at first View: and so incontestible, as to leave no Room for a Man of Understanding to doubt of it. Nor do I see any reason to call in question either the Modesty or Judgment of those who think Natural Truths, when pursued in right Me-

dthod, capable of being brought to the highest Stability and Demonstration. I only wish I could say, All, who have wrote upon natural Subjects, had pursued that Method: and that both their Observations, and their Rea-

sonings upon them, had not given too just cause to the common Declamations of the Uncertainty of these Studyes. Then again, Some there have been who have reasoned happily and successfully enough upon the Ob-
servations they have made; but Those have been too few to make any general Conclu-
sions from: and of Extent and Strength not near sufficient to bear the Bulk and Weight that they have been charged withall. I am far from going about to offer now a
complete Theory of any of the Subjects here set forth; yet it may not be unreasonable to remark, that none of the Deductions are made from single, or a very few, Instances. The Bodyes presented in most of the Classes of this Catalogue are very numerous and various: and found frequently in Parts of the Kingdom, very distant from each other; not to enter here into a Detail of the Particulars of the Catalogue of the Foreign Fossils, which exhibits Samples from even the remotest Parts of Europe, from Asia, Africa, and America; in order to the carrying on the Natural History of Fossils quite round the Globe.

I know well there are Those who would have the Study of Nature restrain'd wholly to Observations; without ever proceeding further. But due Consideration, and a deeper Insight into Things, would soon have undeceived and made them sensible of their Error. Assuredly, that Man who should spend his whole Life in amassing together Stone, Timber, and other Materials for Building, without ever aiming at the making an Use, or raising any Fabrick out of them, might well be reputed very fantastic and extravagant. And a like Censure would be his Due, who should be perpetually heaping up of
of Natural Collections, without Design of building a Structure of Philosophy out of them, or advancing some Propositions that might turn to the Benefit and Advantage of the World. This is in reality the true and only proper End of Collections, of Observations, and Natural History: and they are of no manner of Use or Value without it. 'Tis indeed what all intelligent Men would much rejoice to see prosecuted, not only thorough the Mineral Kingdom, but all Parts of the Universe; for the Honour of the great Author of all Things, the Enlargement of our Minds by the Discovery of useful Truths, and the common Good and Interest of Mankind.
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Smoothness and Softness to the Touch.

ART. I. Those that adhere to the Tongue, if apply'd to it.

A.1. CIMOLIA, of a dark lead Colour. This is found near Northampton, and used there for making Tobacco-Pipes.

A.2. Another Tobacco-Pipe-Clay, of a whitish or very light grey Colour. From Pool, Dorsetshire, CIMOLIA alba. Dr Wyndebank, in a Consultation for the famous Mr. Thomas Papilion in a Fever, told me the CIMOLIA alba was one of the chief Arcana of Sir Theodore Mayerne in both intermittent and continuous Fevers.

A.6. Argilla, Clay, of a pale Ash-Colour. From Thurston, Northumberland. The Bed of it is about 3 Foot thick, and lies under several Strata, and particularly one of Coal. 'Tis used for making the Pots impoy'd for melting the Glass-Metal at Newcastle: endures the Fire to admiration, and is probably the best for that purpose of any in England.

A.10. Fullers-Earth, of a grey Colour, with a Cast of greenish Yellow. From Wooburn in Bedfordshire.

A.11. Another Sample, little different, only the Colour is somewhat darker. From Detling, near Maidstone, Kent. This Fullers-Earth lay 33 Foot deep; the Stratum of it is about a Foot thick. Immediately over this was the Stratum of the following Fullers-Earth, A.12. which was about five times as thick as the Stratum of this. Above that was a Stratum of Loam, abounding with Sand 25 Foot thick, and over all a Stratum of common vegetable Mould about 2 Foot thick. The Workmen sink for the Fullers-Earth in several Places in the Ground all round, and find the Strata of Mould, Loam, and Fullers-Earth every where lying in the same Order, and of much the same Dimensions with those
(5)

those set forth above. In the Loam they find Variety of Sea-Shells, Oysters, Cockles, and the like: as also River-Muscles; which they do likewise sometimes in the Fullers-Earth; but those in this last are generally much rotten and decay'd.

a. 12. Another, of a dark grey Colour, approaching to black. From the same Pit.

Fullers-Earth is a thing of great Service and Importance. 'Tis a Property of it to imbibe Oyl, Grease, and other unctuous Substances; and the great Use that is made of it, is for the cleansing of Woollen-Cloth. Every body knows how frequently Tar is employ'd, as also Tallow and Grease, in the external Affections and Diseases of Sheep. Nor can the Wool be work'd, or made up, without being first greased or oiled: All which unctuous Matter must be taken forth again out of the Cloth before it can be worn. Nor is any thing yet known so serviceable to that purpose as this Earth. And as the Fullers-Earth of England is very various and copious, so it very much exceeds any yet discover'd abroad in goodness. Which indeed is one great Reason why the English surpass all other Nations in the Woollen Manufacture: And, to preserve and secure this to the Country, the Exportation of English Fullers-Earth is restrain'd by Act of Parliament. This Earth is one illustrious Instance of the Pre-eminency of our Soil, and the Excellency of the Productions of the Earth of this Kingdom above most others. Another Instance we have in Wadd, or Black-Lead, a Mineral of great Use and Value: Nor is there any of worth yet found out in any part of the Globe besides. The Amber and Jet of England are found in considerable plenty, and are much finer than any I have seen from abroad. Even our Canal-Cole nearly equals the foreign Jet. Nay, the common Cole is infinitely superior both in Goodness and Quantity to any got elsewhere. There are in this and the following Class, various Instances of the Pre-eminency of the English Earths, the Gravels, the several forts of Stone, Slates, Flags, and other Bodies that are fitted to various Purposes, and are of mighty Importance in great variety of human Affairs. As are also Vitriol and Alum, which are found in greater plenty here, than in any other Country; insomuch, that we can sell them cheaper than Foreigners can. Then the Tin found in that one County of Cornwall, to say nothing of the Excellency of it, is superior in Quantity to all that is got in the whole World besides. The Lead-Ore of England yields a great share of Metal, and is found in greater abundance than in any other Country; besides, that it runs kindly in the Fire, with less Trouble and Expence, is better, softer, more ductile and fit for use than the foreign Lead. Which yet does not arise from any Peculiarity in the Metal; for Metals of the same sort, when reduced to an equal Purity, are alike, in all respects, in what Country soever they be got: but because the Spar, and other extraneous Matter,
Matter, incorporated with the *English Lead* in the *Ore*, happens to be of such Nature and Disposition, as to be wrought upon easily and freely to part from it. For the other Metals, *Copper* and *Iron, England* likewise affords them in great plenty: and several sorts of their *Ores*, not understood in former Times, have been now lately discover'd by the Diligence and Curiosity of the Searchers into Nature here. To the same Diligence are also owing several Methods of melting and working *Ores*, that are not only new, but far surpris'd any that ever were in use in foreign Parts, both for Convenience, Cheapness, and Expedition. As to *Gold* and *Silver, England* affords both, and in greater Quantity too than is commonly imagined; which several late Tryals have taught me. Then we have *Carnelions, Agates, Mochoes, Onyx's* and *Jaspers*: as also *Topazes, Emeralds, and Saphyres*, tho' they are not so hard as the oriental. The *Diamond* indeed we want, and some few others of the *Gem-kind*: But, excepting these and *Cinnabar*, which is the *Ore* of *Mercury*, I know no Metal, Mineral, or Fossil whatever that *England* does not yield; so very fertile is it, and happy in its Productions under ground, as well as in those above, and in its Clime and Situation; its Laws, Government and Constitution.

*a. 16. Clay*, of an Ash-Colour, very smooth and fine, and adhering slightly to the Tongue. It abides the Fire well for several Days, and serves for the making the Pots that are used for the incorporating of *Calamin* with *Copper*, in order to the making of Brass. *'Tis got at Cheame near Epjam, Surrey.*

**Artic. 2. Those that will not adhere to the Tongue.**

*a. 20. Steatites*, white, with Veins of red. From the *Sope-Rock, Cornwall*. A considerable Part of the Cliff near the *Lizard-Point* consists of this Earth. From several Tryals that have been lately made for the baking and making this Earth into Pots, I am satisfy'd that 'tis not much inferior to that of which the *Porcellain* is made, and that the Pots formed of it would be near as fine, did our Potters understand the Ordering and Management of it so well as the *Chinese* do.

*a. 21. Steatites*, spotted, veined, and variegated with red and white like a *Marble*. From the same Place.

*a. 22. Steatites*, much like the foregoing. *'Tis found among the *Iron-Ore* at Langron, Cumberland. *'Tis very much harder than when first taken out of the Earth, it having then a Confidence not much more firm than that of Tallow.*
Sect. II. Earths that are more or less dry, and harsh to the Touch.

a. 30. A dusky grey Earth, become very hard since it was dug up. Found near Sturbridge in Worcestershire. Of this they make the Pots in which the Glass-Metal is melted in the Furnaces. If they are well made, they will endure a very intense Fire for three or four Months.

a. 31. Another-like Earth, but rather paler, used for making Bricks for the insides of Furnaces, at the Lord Derwentwater's Lead-Works near Haden-Bridge in Northumberland.

a. 32. A light brown Earth, become now very hard. 'Tis used for polishing, and call'd by the Workmen Rottenstone.

a. 33. An Earth of an Ash-Colour, very fine. Sherborn, Gloucestershire.

a. 40. A whitish gritty Earth, sent by Mr. Morton with the Title of Calx nativa. It makes an excellent Plaister, or Cement, mix'd only with Water, without previous burning. From Clipston Stone-Pit in Northamptonshire.

a. 45. A loose Earth, very fine, of a brown Colour. Found in Wooky-Hole, near Wells. 'Tis used by the Silver-Smiths for Calling.

a. 50. A loose Earth, of a pale green Colour. Found adhering to the Sides of the great Copper-Vein at Goldcalf, Cumberland, being brought by the Water which is perpetually trickling down those Sides. This is the same with what is called Terre verte, and doubtfuly owes its Colour to an Admixture of Copper.

a. 51. More, little different. Found on Wenskill-Hill near Selby, Yorkshire.

a. 52. A like Earth, but of an azure or bright blue Colour. Found together with the former, and used by Painters by the Name of Lamberti's-Blue. This is the same with the Lapis Armenus of the Shops, and owes its Colour to an Admixture of Copper.

a. 55. A loose Earth, of a pale Flesh-Colour, i.e. white with a blush of red. Found in small Fillures of a brown soft Stone in the Skrees, a Mountain in Cumberland.

a. 60. Chalk, from Greenhills in Kent. Fine clean Chalk, is one of the most noble Adsorbents I know: and most powerfully corrects and subdues acrid Humours in the Stomach; tempering and allaying the Emotions and Ebulitions of them. This property is what renders it so very serviceable in the Cardialgia, or Heartburning; an Affection of the upper part of the Stomach caus'd by the ascent of hot acid corrosive Steams: and in Diarrhæas or Fluxes. In the Heartburning, the common People dissolve 3⅛ or 3⅜ of it in a Glass of Spring-Water, which seldom fails of giving them Relief. Indeed I my self have known it, in some
of the most obstinate Cases of this kind, succeed very happily, where Crabs-Eyes, Pearl, the cretaceous Matter in Oyster-shells, and the other Tertiary Absorbents, availed little. Nor is it less helpful in Diarrhoeas. Those who frequent the Sea, and are not apt to vomit at their first setting forth, fall frequently into Loosenesse, which are sometimes long, troublesome, and dangerous. In these, they find Chalk so good a Remedy, that the experienced Sea-Men will not venture on board without it. They chiefly make use of that which is contain'd in the Shells of Echinus Marinii, which indeed is usually very fine and pure. These are dug up very commonly in the Chalk-Pits on each side the River, at Purfleet, Greenhithe, and Northfleet, where the Chalk-Cutters drive a great Trade with the Sea-Men, who frequently give good Prices for these Shells, which they call Chalk-Eggs.

\[a.62.\] A loose white Earth, light, and very fine, part of it concreted into little Lumps, and part in a mealy Powder, found in the Slate-Quarry at Colly-Weison, Northamptonshire. This is the Lac Luna of Dr. Plot and other late Writers.

\[a.65.\] An Earth, very fine, and light; almost of the consistence of Chalk; but of a dark brown Colour, with a cast of Yellow. 'Tis a sort of Umbræ, found plentifully in a Vein of Lead-Ore, the same in which the crystalliz'd Ore, \(n.120.\) was found, in Arkendale, Yorkshire. I never saw of it elsewhere. Vide \(a.76. 6^{77}.\) infra. The Earths that are found in Strata, are commonly mix'd, foul, coarse, and gross: but this Umbræ, the yellow Ochre, \(a.76. 6^{77}.\) and the red Ochre, \(a.90.\) consist of Matter extremely small, subtile, and even impalpable. Indeed, being found in the perpendicular Fissures of the Strata, it could not be otherwise: for all the Matter that composes them, must have past the Pores of those Strata, before it could arrive at those Intervals; which it could never have done, had it not been very subtile and fine. This Constitution of these Earths, renders them far above all others fit for Colours for the use of the Painters.

\[a.67.\] Another, of a dark brown Colour, with a small Cast of red, and thick set, with bright shining Sparks extremely small. Out of a Fissure of a Mountain near the Skrees, Cumberland. There is Iron-Ore frequently found in the Fissures thereabouts.

\[a.68.\] Another, black, out of the same Fissure.

\[a.69.\] Another, likewise black, but with Specks of white and red, found in large Masses upon the top of a flat Mountain, near . . . . . in Cumberland.

\[a.75.\] Yellow-Ochre, very fine, from Shot-over-Hill near Oxford. This has been wash'd. The Ochre here constitutes a Stratum of 3 or 4 Inches thick, about 10 Foot deep. Over it, in Sand, lie numerous ferruginous Geodes, holding in them some Ochre, others Sand. See one of these among the additional English native Ochres, \(b.79.\) Conr. \(a.85.\) infra.

\[a.76.\] Ochre, very fine, of a deeper Yellow, found in the same Fissure with \(a.65.\) In sinking the Shafts for Lead, at about the distance
distance of half a Mile, they pass a Stratum of Coal about a Foot thick. Vide a. 77. infra.

a. 77. Another Sample, more harsh, and likewise somewhat harder, brought by the Water that runs out of the Adit of a Coal-Pit at Broughton, near Cockermouth in Cumberland, and settled down in Cavities at the bottom of the Adit, over which the Water paffes. This is common in the Adits of many of the Cole-Pits in the North. I take it to be the ochreous Part of the Coal, drain'd out by the Water, the bituminous Part never settling, but appearing upon the Surface of the Water, and swimming off. Vide a. 65. & a. 76. infra.

a. 78. Yellow-Ochre. course, veined with red and black; found upon a Moor near Whitehaven, in Cumberland.

a. 85. A harsh Earth, composed of Plates, alternately white and yellow; out of a Pit in which the Yellow-Ochre, a. 75. is got, on Shot-over-Hill near Oxford. This is the Ochre mention'd by Dr. Plor; but with the yellow has some white intermix'd.

a. 86. A harsh Earth, variegared with yellow and purple; found on the side of a Ditch near the Hill where Oyster-Shells are dug out, near Hedley in Surrey.

a. 90. Earth, very fine, and of a bright red, preferable to that brought from the Eafi-Indies for the use of Painters; found in a Fissure, among Iron-Ore, in the Skrees, a Mountain in Cumberland. 'Tis a Red-Ochre. Conf. a. 65. supra.

a. 91. Red-Ochre, from . . . . . in Staffordshire.

a. 92. Red-Ochre, more floney and hard; from . . . . . Cumberland, Lord Bishop of Carlile.

a. 100. Loam, very fine and soft, with very small Spangles of Mica in it; used for Moulds by the Bell-Founders. Thrup, Northamptonshire. Mr. Morton.

a. 101. Loam, more harsh, used for making the Bricks employed in building the Wind-Furnaces for melting Iron with Sea-Coal. 'Tis got at Hedgerley, about five Miles from Windsor.

a. 102. Loam, of a dusky green Colour, appearing to be composed of Clay and fine Sand, and the Tincture to be owing to an Admixture of a Vitriolum Martis: From Hamstead-Heath, near the Mineral-Spring; where 'tis found in considerable plenty.

a. 103. A reddish brown Clay, just as digg'd up out of the Earth. 'Tis used to make Bricks, and is of the best sort of Brick-Clay, dug up in the Fields on the East-side of Hyde-Park.

a. 104. Clay, little different from the foregoing, used for making of Tyles; from Kilburn, near Marybon, Middlesex. There are found among this Clay some Selenites: and there are many small ones in one Part of this very Rails; indeed there appear Sparks of that Body in all Parts of it. This had been flung up some Months, and expos'd to the Air: and there are green (Conf. a. 102. supra.) Efflorescencies in several Parts of it, which seem to be of Vitriol; that Mineral, and the Pyrites, being very frequent in almost all Parts about this City for many Miles round. There
There is very little Earth that does not contain some Salts in it. 'Tis very providential indeed, that those Salts are so dispers'd in it; they serving to mellow the Earth, as the Husbandmen speak, to open, loosen, and disentangle the Matter that serves for the Increment and Formation of Vegetables. The Design of the Workmen, in expelling the Clay to the Rain and Weather, is to drain it from those Salts, that the Bricks and Tiles may be the more firm and durable. If the Salts be not drawn forth before the Clay is baked, they do not only hinder its setting well in the Kiln, but are apt to liquate afterwards, and so make the Bricks and Tiles moulder and decay. I think there is an Act of Parliament ascertaining how long time the Clay is to lie expos'd before it be work'd up. The Pot and Tobacco-Pipe-Makers steep their Clay in Water for some time; and by drawing off the Water, drain forth the Salts before they use and make up the Clay.

a. 105. Clay, of a light brown Colour, used for the making Tiles, got in the Fields near Pancras. There are in it Veins of a blueish marly Matter; and, in some parts, very small Selenite. The Clays used for the making Bricks and Tiles, all burn red, and doubtless hold some share of Iron.


APPENDIX I. to CLASS I.

SANDS.

EXTRACT.

S Pangles, of a white silvery Talc, in Sand, + a. 7.

Spar, from a Vein, in form of Sand, + a. 2.

Sand, cohering pretty firmly, and having the Consistence of a soft Stone, + a. 4.

Sand, mouldered, and beat off the Rocks by Weather, + a. 9.

Sand, used for the making of Glass, + a. 1.

Sand, dispos'd into its present State by the flowing of the Water, departing at the Deluge. Vide Preface to App. II. to Clas I.
APPENDIX I. to CLASS I.

S A N D S.

+a.1. WHITE Sand, used for the making Glass. From the Isle of Wight.

+a.2. Loose Matter in form of Sand, very white and sparkling. It exactly resembles a fine white Spar, when broken; and indeed 'tis only Spar found in this manner. From a Vein of Lead- Ore, in Barrow-Work, Cumberland. There is found in the same Vein, as also in the Lead-Mines of Arkendale, of this very Matter, much grosser, to the bigness of Pease. Where there is found any of this Matter, the Masses of Spar in the Vein are usually very shatterly and friable: so that this is doubtles nothing but Spar, either formed thus, or shatter'd and fallen to pieces.

+a.3. Sand, pretty gross, of a pale brown Colour, from a Gravel-Pit, near the Road a little on this side Newington, Middlesex.

+a.4. Sand, very fine, of a grey Colour, with a Cast of green; out of a vast Stratum, lying underneath the Loam in the great Pit at the further end of Woolwich, Kent. This Stratum is bared down for near 20 Feet. It may be much thicker, they having not digged to the bottom of it. The Stratum of Sand at the hither end of Woolwich, and that at the farther end of Deptford, is wrought as deep into, tho' they have not sunk to the bottom of either. The Sand, in some parts of all these Pits, hangs pretty firmly together, and is in form of a soft friable Stone.

+a.5. Fine Sand, of a very light brown Colour; from the great Sand-Pit, at the hither end of Woolwich, Kent.

+a.6. Sand, pretty fine, brown, with a Cast of red; from a Sand-Pit on the South-East side of Croydon, Surrey. There was also, in the same Pit, Sand exactly of like Colour and Constitution with that +a.4. Both sorts are got here in great plenty.

+a.7. Sand, fine, of a yellow Colour, with Spangles of a white shining Talc amongst it. Out of a Gravel-Pit on Hamstead-Heath, where 'tis found in considerable plenty.

+a.8. Sand, part pellucid, part yellow, and part black. From a Gravel-Pit on the South side of Marybone.
† a. 9. *Sand,* of a pale Colour, very near white. From Mount-Hermon, near Tunbridge-Wells. 'Tis found in considerable plenty on the sides, and at the bottoms of the naked Rocks there; from which indeed 'tis moister'd, and successively driven down by the Action of the Rain and Weather upon those Rocks, which consist entirely of this sort of *Sand,* and are externally tender and friable, tho' they be more firm and solid deeper and within. Conf. b. 34. infra, Cl. II. p. 1.

† a. 10. *Sand,* white, shining, and very small; from Congham by Lynn, in Norfolk. 'Tis found there in great quantity.

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**APPENDIX II. to CLASS I.**

**GRAVEL.**

**PREFACE.**

THE Gravel about London, and in most parts of England, is no other than Pebles, or Flints, or both, with an Intermixture of Sand, chiefly of that sort that is compos'd of extreme little and small Pebles.

The People of those Country, that afford no Gravel, are very sensible of the Inconveniencys that attend the want of it. England abounds, in several Parts, with such as is very fine and good; and may be brought to be very smooth, binds well, and is capable of a very firm Confinement, so as to serve for the covering and making Alleys, and Walks.

That sort of Sand, that is in common Use about this Town, brought from Black-Heath, and other Parts of this Neighbourhood, viewed with a Microscope, appears to be nothing but very small Pebles. It is found likewise in several other remote parts of the Kingdom. Whoever shall attentively consider the Manner in which this lies in the Earth, will see that it is not in regular orderly Strata, of equal thicknesses in all parts, as Stone-lies, and various sorts of Earth which are in their original State, and just as they subsided from the Waters, stagnating at the Deluge. No, this lies in Trains, and manifestly pitched in Streaks, and just as it would be cast by Water, flowing, in its departure towards the Ocean, and the Inlets of the Abyss, which are at the bottom of it. Gravel is shot and pitched into the same Method; and doubtlesse owes its disposition to the same
Caused. What adds much Confirmation to this is, that both are found, commonly out of their proper Region, cast on lighter Matter that is dispo’d into Strata, and is in its original State. Thus we see even in this Neighbourhood near Deptford, on other Parts of Black-Heath, and in many more Places, a great Quantity of Sand, and Gravel, lying above Chalk: and when we come to dig thorough perhaps twenty or thirty Foot of Gravel down to it, we find the Chalk lying, in regular Horizontal Strata, underneath, down frequently to a very great depth. In my answer to Dr. Camerarius, (pag. 64, & seqq.) I have shewn what a vast and immense Quantity of Water there lay on the Surface of the Globe during the Deluge. And this was not only of mighty Bulk and Weight, but seems to have pass’d off in Hurry and Precipitation. There are in many Parts of the Earth Marks of the greatness of its force, and the Havock it made at its departure. In some Countries we find Fragments of Stone, of many Ton in Weight, where none of like sort is found, there, in the Ea. th, they having been torn off, and brought from afar. Lesser Bodies so import’d, are found in many Countries without Number. By such Quantities of Matter, solid Stone, and the like, and loose Sand and Earths, being taken from one part of the Globe, and convey’d to others, great Alterations were made in the Surface. As to Sand and to Gravel, ’tis very probable the Pebles and Flints that constitute them were depos’d at first, diſper-fedly, in the Strata of Earth, Clay, Marl, Loam, or the like, as we at this day find them in such Strata as are yet entire. But when those Strata were torn up, and born off by the Water, the Earthy Matter, that was softer and lighter, would be easily wash’d away, and separ’d from the Pebles and Flints, that were harder and heavier. So that ’tis not strange that this sort of Sand, Pebles, and Flints, are found at this day collect’d together, and ex-tricat’d from other Terrestrial Matter. We see Infances of the like on the Sea-shores: Nor was this Hurry of the departing Waters without a Providential Conduct. These, and other Bodies, of greater use to Mankind, were select’d, and bring’t together by it: The Bowels of the Earth were laid open to human View, and the Riches there brought nearer to the Hand of Man. The Loads or Veins of Metal were by this Action of the departing Water made easy to be found out by the Shoards, or Trains of Metallic Fragments, born off from them, and lying in Trains, from those Veins, towards the Sea, in the same Course, that Water falling thence would take.

There are Pebles and Flints now frequently found, among the rest in Gravel, that have their Surfaces rubb’d and smooch’d, nay some much ground, and worn. All which was done by the hurry and force of the Water, in their removal from Place to Place. There are some Infances of this in Clas III. particularly. c. 227.
Gravel and the common Sand, clear’d, collected, and put into its present Posture and State by the Water, of the Deluge, departing, p. 133.
Gravel consists of Sand, and Pebbles or Flints. Of the goodness of the Gravel of England. The Usefulness of it.

Gravel

Gravel from a Gravel-Pit on Hamstead-Heath, Middlesex.

CLASS II.

FOSSILS that are solid, and form’d into Strata.

EXTRACT.

PART I. Stone and Stony Substances.

SECT. I. The several sorts of Stone that break with equal indifference in any Direction.

Grind-stone, b. 30, 31. Whet-stone, b. 32.
Sand-Stone, b. 34.

C.1. Extraneous Matter found lodged in Stone.

Mica in Stone, b. 1. 31, 32.
Selenite in Stone, b. 13.
Spar and Crystal in Stone, V, x d. 40. Cl. 4.
A pitchy, or bituminous Matter in Stone, g. 1.
Nitre in Stone, g. x 30, 31.
Minerals of all sorts in Stone, Claps 8, 10, 11.
Metals of all sorts in Stone, Claps 12, &c. seq.

C. 2. The Mechanical Uses of the several sorts of Stone in this Section.

A Stone, that endures the Fire, used for Hearths, &c. b. 1.
— used for the Insides of Cupoloes, employ’d in melting Copper, b. 31.
Freesone used for Hewn-Work in the best Buildings, b. 12, 13, 14.
Stone used for Floors, Pavements, &c. b. 20, 21, 22.
Stone used for whetting chiefly Scithes; b. 32, 33.
— for Grinding, b. 30, 31.

SECT.
Sect. II. The several sorts of Stone that break or rise straight in only one Direction; splitting with a Grain, lengthways, or parallel to the Site of the Strata. V. Cl. 2.

Whetstone, b. 60.  Blue Slate, b. 80.
Limeflone.  White Slate, or Flag, b. 85.
Ragstone, b. 70.

C. 1. Extraneous Matter found in the Stone exhibited in this second Section.

Mica in Stone, b. 60.
— in white Slate, or Flag, b. 85.
Talc in Ragstone, b. 70.
— in blue Slate, b. 80.
Salts in Shiver, b. 90.

C. 2. The Mechanical Uses of the several sorts of Stone in this second Section.

Stone used for whetting Tools, b. 60.
A smooth Stone used for setting a fine Edge, b. 70.
Slate used for covering Houses, grey, b. 80.
— White, b. 85.
A white Stone used for the flagging of Floors, for Cisterns; and Tanners Fatts, b. 85.
Shiver used in Agriculture. The Salts in it, when liquated by Rain, serve to mellow, open, and relax the Earth, b. 90. Conf. Cl. 1.
a. 104.

Sect. III. The several sorts of Stone that will not break straight, or in any certain Direction; but, by reason of certain Flaws, and Chaps, shatter, and break irregularrly, and cross-grain'd; so as to be of little Mechanical Use. Conf. Cl. 2.

Appendix. The terror of those who suppose that Stone now grows. f. x 53.

Part II. Alabaster, + b. i. Conf. Cl. 2.

Part III. Marble.

Marble is found both in Strata, and in perpendicular Fissures, Cl. 2. Pref.
That found in those Fissures has no Sea-shells in it, ibid.

Maffes
Ma{Tes of fine Marble found on the Sea-shores; being Fragments, of Strata, that are worn round by the Agitation of the Sea, ibid. or of the Water, departing, at the end of the Deluge. Conf. Ap. to C. 2.

Of the Marmor fusile, and the slender round Scapi of Pillars, in several Churches of England, suppos’d to be made of it: x b. 60. Conf. Cl. 4.

Sect. I. Veined Marble, Cl. 2.

Sect. II. Spotted Marble, Cl. 2.

Porphyry, ☰ d. 36.39. A greenish Marble, with Linum Granite, ☰ d. 32,38.38+ 38†. Asbestos in the Seams of it, Ophites, x b. 25. + d. 8, & seq. x b. 28.

Sect. III. Marble both vein'd and spotted.

Sect. IV. Marble variegated and distinguished by Sea-shells, Corals, and other extraneous Bodies, contain'd in the Mass of it. Conf. Sect. 4. x b. 60.

Some of the River and Sea-shells were fill’d with Spar before they were lodg'd in this Marble. x b. 60.

Sect. V. Flinty-Marble, or that nearly approaches Bodies of the Flint or Agate-Kind, in Hardness, Poli'ture, and Comple'tion.

Flinty Matter found both in Nodules and in Strata. Conf. Pref. to this Sect.

Chert or Whern, x b. 85.

CLASS II. (b).

FOSSILS that are solid, and formed into Strata.

Part I. Stone and Stony Substances.

Sect. I. The several sorts of Stone that break with equal indifference in any Direction.

b. 1. Stone, soft, and of a pretty small Gritt; of a pale Grey Colour near white; with numerous small Mica of a white Silvery Talc. It endures the Fire well: and is therefore sometimes used for Bottoms of Ovens, but chiefly for Hearths, and Coveings of Chimneys. Got in considerable plenty near Rygate, Surrey.
b. 12. Stone, out of the great Quarry of Portland, of a pale or whitish Colour, composed of numerous small roundish Grains, not unlike the smaller Ova of Fishes. They split in the cutting of the Stone; so that it is capable of being brought to a Surface very smooth and equal. Besides, this, and all like sorts of Stone that are composed of Granules, will cut and rive in any Direction: as well in a Perpendicular, or in a Diagonal, as Horizontally and Parallel to the Site of the Strata. 'Tis for this reason that they have obtain'd the Name of Free-stone. Then these bear the Injuries of the Weather equally and indifferently in all Positions. Whereas all the Stone that is Slaty, with a Texture long, and parallel to the Site of the Stratum, will split only lengthways or horizontally: and, if placed in any other Position, 'tis apt to give way, start, and burst, when any considerable Weight is laid upon it. Which Inconveniences the Portland-Stone, being not liable to, cutting freely, and being of a Colour very good and agreeable; 'tis made use of for the better Buildings and Works about London.

b. 13. Another Mass of Stone, of like Texture, and from the same Quarry; but not quite so white. There are in this Mass several small Selenite: and, in some Masses of this Stone, I have seen much larger.

b. 14. Stone, of a pale brown Colour, very thick set with Pelli- cles of the Ova of Fishes, and small testaceous Bodies, from Ket- ton, Northamptonshire. This also is Free-stone, and made use of for Building, particularly of several of the Colleges in Cambridge.

b. 20. Stone, of a light grey Colour, and of a pretty fine Grain; used for Paving. From Purbeck.

b. 21. Stone, of a light brown Colour, used likewise for Paving. From Purbeck also.

b. 22. Stone of a dusky brown Colour; thick set with Sea-shells. Used also for Paving. From the same Place.


b. 31. Stone, of like Grit; having several Mica of white Talc in it. 'Tis of a grey Colour, with a Cast of Red. From White- haven, Cumberland. 'Tis made use of there for Building: as also for Grind-Stones. It abides Fire very well: and therefore is like- wise employed for the Building of the insides of the Cupules for running of Copper there.

b. 32. Stone, of much the same Constitution and Complexion, with that b. 11; only it has a slight Cast of Brown. There are likewise in it numerous Mica of a white Silvery Talc, and some very small ones of black Talc. This is used for whetting Scithes. 'Tis of the finer sort, and therefore is called fine Scythe-Stone, or Rub- ber. From Heage in Derbyshire.

b. 33. Stone, composed of white and brown Grains, with small Mica of a Silvery Talc. This likewise is used for whetting of Scithes: and having a groser Grit than the precedent, is call'd, Sand-
Sand-Stone, Coarse-Slithe-Stone, or Rubber. From Spoondon, in Derbyshire.

b. 34. Sand-Stone, from Mount Hermon, near Tunbridge-Wells. There are several naked Rocks of it, compos'd of Grains of Sand, (Conf. § a. 9. App. to Clafs 1.) partly white, and partly pellucid. The exterior Parts of the Rock, that are exposed to the Weather, have frequently in them Spots and Veins of Black and Brown, as in this Sample, and sometimes of Red; those Colours seeming to have been cau'd by extraneous Matter introduced by Rain; the interior Parts of the Rock being generally free, clean, and white.

Sect. II. The several sorts of Stone that break straight in only one Direction; splitting with a Grain lengthways, or parallel to the Site of the Stratum.

b. 60. Stone, Grey, with a Caft of Brown, with numerous extremely small Grains of a black Mica, and some few, as small of a Silvery. White-stone got near Newcastle upon Tyne.

b. 70. A grey talky Stone. This is call'd Ragstone, and is used for setting an Edge to Knives, Chizels, Axes, and the like, after Grinding, or Whetting upon that sort b. 60. or other like Stone that is harfher and of coarser Constitution.

b. 80. Slate, Grey, with a Caft of Green; of a glossy, talky Constitution: (Conf. Class 4.) splitting even, freely, and into very thin Plates. From a Slate-Quarry in Newlands, Cumberland, about a Mile from the Black-Lead Mines.

b. 85. This is call'd in the North, White-Slate, or Flag. 'Tis thick set with Spangles of white Talc; from a Quarry by the Road betwixt Carlisle and Newcastle. This sort of Stone is frequent in those Parts, and in the North of Yorkshire. 'Tis of a pale Brown; but there is of it of a Grey, or Ash-Colour. This is just half an Inch in Thickness; having the two Surfaces exactly smooth, even, and parallel to each other. This sort is every where thus flat, rising in this Form, and in Layers of about this Thickness, for perhaps ten or twelve Foot in perpendicular. But generally the uppermost Strata are the thinnest; those that lie deeper gradually increasing in Thickness, till at last they are so thick as not to serve for Slates. The thicker Flags they use for Cisterns, and Tanners Fats, as also for Pavements and Floors: as they do the thinner for covering of Houses. For this last Purpose they use Plates of this from one to four foot Square. For, in the Earth, each Flag, or Stratum, keeps the same Thickness in all Parts, how far soever it be pursued horizontally; till the Quarry terminates. They lie level generally, or a little inclining.

b. 90. Shiver, of a dark Ash-Colour, near Black. From a Lead Mine at ———— not far from Newcastle. It lies in Strata. Some of it is pretty hard; and to that they give the Name of Plate. But the softer sort, in raising, falls into Shivers like this in this Sample; which is the Reason of the Name. This Body much re-
fumbles the Alum-Rock, both in Constitution and Colour: and indeed most of it holds of that Mineral, more or less; for which Reason, being wet, by Rain, or otherwise, the Salts liquating, it becomes soft like Marle; and, as such, succeeds well in Agriculture.

**Sect. III.** The several sorts of Stone that will not break some, or in any one certain Direction: but, by reason of certain Flaws, and Chaps, shatter, and break irregularly, and cross-grain'd; so as to be of little Mechanick Use.

+ b. i. Alabaster, from Marged-Overton, Rutlandshire.

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**CLASS II.**

**Part III.** Marble.

**Preface.**

Tho' Marble be frequently found lying in Strata, as is intimated in the Title at the Head of this Class; yet 'tis sometimes likewise found in the perpendicular Fissures. That also is the case of Alabaster. Of this there are Instances amongst the Vein-Stones: in particular, that f. 9. (App. to Cl. 6.) That which is found in those Fissures, can never have Shells or other extraneous Bodies in it, as that which is in Strata usually hath.

There are some Marbles also in the Lifi of the Micæ: and in particular the Granite, Θ d. 32. 38. as also Porphyry, Θ d. 36. 39. Then, in the Appendix to this Class, there are Fragments of very various sorts of Marble found upon the Shores of England: and several of them so beautiful, and fine, as to equal, if not surpass the noblest Marble I have yet seen from Italy, so as well to deserve to have further search made after them in the neighbouring Cliffs, from which, perhaps, (Conf. App. to this Class.) those Fragments were forced by the Insults of the Sea. And indeed several of the Masses in the Class of Coraloid Bodies appear to be Fragments of Marble, of that sort set forth in the fourth Section of this Class, broke off the adjacent Cliffs, worn, and rounded by the Agitation of the Sea in Storms and Tides. In particular, that c 22, and several of those that follow: as also c 35, and some others, found on the Coasts of Lincolnshire and Yorkshire.

In the same Appendix, and in Class III. are likewise Instances of Marble, worn, and rounded, found at Land, and at distance from the Sea, that were torn from their original Strata, and so rounded...
by the Water of the Deluge retreating towards the Sea, and the Apertures at the bottom of the Sea, to which the Water tended, in order to its return thorough them back to the Abyss.

Sect. I. Vein'ld Marble.

x b. 1. Marble, the Ground of a pale brown Colour, with Veins of white Spar, and some Lines of a purple Colour. From ....... in Somersetshire.

x b. 2. Marble, of a yellowish brown Colour, with Veins of a bright Red and of White. From .... in Wales. Sir Chr. Wren.

x b. 3. Marble, of a dusky green Colour, vein'd with White. Found in the way betwixt Ambleside and Penrith, in Cumberland; where there is a considerable Quantity of this sort.

x b. 4. Marble, vein'd with White and Red. Plymouth. This is somewhat harder than the white Genoese Marble.

Sect. II. Spotted Marble.

x b. 25. Marble, the Ground of a dusky brown Colour, with oblong Spots of a bright Green. This is a Species of the Ophites, and was dug up in the Marle-Pit at Hunton, near the River Medway in Kent, mention'd by Dr. Hatley, Philos. Transactions, No 157. p. 463. The Doctor sent me this, avering 'twas assur'dly dug up there, tho' he never saw any more of it.

x b. 27. Marble, the Ground grey, spotted with a pale green. Found on the Sea-shores at the Oslium of the River Palmer, Cornwall.

x b. 28. Marble, the Ground dusky, near black, with a Cast of Green, having in it Spots of a pale Green. In the Chaps, Seams, and Fissures of this, is found the Linum Asbestinum. From the Isle of Anglesey.

Sect. III. Marble variegated and distinguishing'd by Sea-Shells, Corals, and other extraneous Bodies contain'd in the Mass of it.

x b. 60. Marble, from Petworth, Sussex. The Ground grey, with a Cast of green. 'Tis very thick set in all Parts of it with Shells, chiefly turbinated. Some of them seem to be of that sort of River-Shell that Dr. Lister, Hist. Cochlear. Angl. p. 133. calls Cochlea maxima, fusca sura nigricans, fesziata. Several of the Shells are filled with a white Spar, which variegate and adds to the Beauty of the Stone. That Spar was cast in the Shell before this was repolished in the Mass of Marble, as is demonstrable from view of this and other like Masses. Conf. Nat. Hist. of the Earth, Part IV. Confess. 2. p. 181. & seqq. second Edit. This is of about the Hardness of the white Genoese Marble.

The slender round Scapi of the Pillars of the Abbey-Church in Weminster, and of the Temple-Church, are of this sort of Marble.
So likewise are those of the Cathedral Church of Salisbury, as I remember; and my Lord Pembroke assures me positively they are. Some Persons, that are less skillful in these Matters, fancy these Scapi, that occur in most of the larger Gothick Buildings of England, are artificial: and will have it, that they are a kind of fulfil Marble, cast in cylindrick Moulds. Any one, who shall confer the Grain of the Marble of those Pillars, the Spar, and the Shells in it, with those of this Marble got in Sussex, will soon discern how little ground there is for that Opinion. And yet it has prevail'd very generally. I met with several Instances of it as I travel'd thro' England: and had frequent Opportunities of viewing those, who affirmed these Pillars to be fictitious, Stone of the very same sort with that they were compos'd of in the neighbouring Quarries. Camden* had entertain'd the same Notion of those vast Stones of Stone-Heng; but is fully refuted by Inigo Jones†.

x b. 61. Marble, of an Ash-Colour, very hard, and taking a fine Polish. It is thick set, in all Parts, with Entrochi of different Sorts and Magnitudes, and lying in variety of Postures. They appear whiter than the rest of the Stone, by which means they make a pretty Variegation of it, and take as good a Polish. From the Peak in Derbyshire. Sir C. Wren. This is as hard as the Plymouth Marble.

x b. 62. Black Marble, in which are several Pieces of a white Coralloid Porus lodg'd in different Positions, so that the Sides of some, and the Ends of others appear. They are of several Sizes; the largest near an Inch in Diameter, the least not above one tenth of an Inch. The longitudinal Plates of these Bodies are join'd by several thin cross Coralloid Septa, passing from one to another, and exhibiting a very elegant Texture. The Interfices are generally fill'd up with a greyish semi-pellucid Matter, appearing to be Spar. Both the Coral and Marble take a very fine Polish: and the one being white, and the other black, make together a beautiful Composition. From . . . . in Wales. The Tomb of Sir Thomas Gresham, the noble Founder of this College, is built of this Marble. It is in Great St. Helen's Church.

Sect. V. Marmor Silici vel Achatii accedens. Flinty Marble, or that nearly approaches Bodies of the Flint or Agat-kind, in Hardness, Politure, and Complexion.

Preface.

Tho' Flinty Matter be most commonly found formed into Nodules †, yet it is also sometimes found formed into Strata, of which there is an Instance in x b. 85. infra. I am not sure whether the

* In his Britannia. p. 97.
† Stone-Heng restored. p. 33.
‡ Conf. p. 33. infra.
Roman Word Silex answers exactly to our Flint. This is certain, that would strike fire, was very hard†, and broke sharp and in Angles* like our Flint. 'Twas also in Nodules‡, and used both in Italy and Greece, mix'd with other Stone in the Walls of BuildingsŒ, in like manner as heretofore in Kent, Surry, and other Parts of England. But the Romans also apply'd the Word Silex to denote Stone very hard, black, white, and red form'd into Strata++. 

x b. 85. A Mass of a greyish horny Constitution, with Streaks of Red in it. 'Tis very hard †, and semidiaphanous; very like the common Agat, and gives fire as readily. From the Moulds in Arkendale, Yorkshire. The Stratum, off which this was broke, was about 3 Foot thick. I traced it for 20 or 30 Yards in length: and found a like Stratum, probably the same, at about a Mile's distance. I have observed Strata of this sort in several Parts in the North of Yorkshire, interpos'd amidst Strata of a grey Lime-Stone. There is another sort of it of a dusky Hue, and much like the common black Flint. This the Miners there call Chert, and Whern: The Stone-Cutters of London, Nicomia. 'Tis so hard, that the Picks and Tools will not touch it. It will not split; but breaks irregularly, with a Grain cross, like that of the common Flints. There are also in some of this natural Cracks, as there are in those.

APPENDIX to CLASS II.

Marbles, and the finer sorts of Stone, that were originally beat off from the Strata of the neighbouring Rocks and Cliffs down upon the Shores, and there rolled and moved to and again till they were rounded, smoothed, and reduced to the Form of Pebbles, by the Water of the Sea, or Rivers, when put into Agitation by Tides and Storms; or, by the Waters departing at the end of the Deluge. Also of Stones perforated by Pholades, and other Creatures. Concerning these Bodies, see p. 25. infra.

x Silicis Scintillam excudit—Æneid. I. 178.
† Dura Silex—ib. vi. 471.
* Acuta Silex. ib. viii. 233.
‡ Lapis Globofus. Plin. xxxvi. 22.
Œ Plin. Ibid.
† Mr. Hardy, who has work'd in it, assures me 'tis near as hard as Agat.
Porphyry, *b. 2.
Mica in Marble, *b. 11-19.
Marble vein'd with white Spar, *b. 11.
Parts of the same Mass of Marble of different Hardness, *b. 15.
Marble fooc'd and perforated by Pholades, *b. 19. &c. seq.
Marble that takes a Polish not inferior to that of Agat, *b 9.

PREFACE.

THO' it be true that many of these Bodies have been beat out of the Cliffs by the Insults of the Sea: and some of them from off the Rocks there, and afterwards smoothed and rounded by the Waves and Action of the Sea on the Shores; yet, because we find several of Composition very different from the Stone of the neighbouring Rocks, 'tis most probable that these latter, at least, were Remains of Fragments, broke off from harden'd Strata, borne hence, worn and rounded by the Force of the Water departing at the latter end of the Deluge; and finally, many of them left, with other Bodies, when the Force of the Water abated. Such indeed are frequently found in the midland Parts, (Conf. Clfs. 4. Part I. Pref. infra.) of most Countries, as well as nearer to the Seas, and even to the very Shores, whence they are was'd forth by the Agitation of the Sea. See the Nat. Hist. of the Earth, Part IV. near the end, treating of the Sea beating Amber out off the Cliffs.

Marble and Stone worn and rounded by the Motion of Water.

* b. 1. A Mass, brown, with a Blush of Red; thick set with Spots of White. Found on the Shores at Loo-Beach, Cornwall.
* b. 2. Another, little different, only the Ground is of a more dusky Brown. Found amongst several others on the Shores at the Land's-End, Cornwall. There are vast Strata of Stone of like fort in the Country thereabouts, and particularly in the adjacent Cliffs, from which these Masses were first broke and forced, and afterwards smooth'd and rounded by the Working and Agitation of the Sea. This is much like the true Porphyry, both in Colour, Spots, and Constitution.
* b. 3. Another, the Ground light Red, with numerous Spots of a dark Blue, and some few of White. From the same Shore.
* b. 4. Another, variegated with Red and White; found along with *b. 1. at Loo-Beach, Cornwall.
* b. 5. Another, the Ground Red; with Spots, some White, others Pellucid. Found in the River Palmer, not far from its Discharge into the Sea. Cornwall.
* b. 6. Another, variegated with Red, White, Brown, and Yellow. From the same Place.
*b. 7. Two others, variegated with Brown, Red, and White; from the Shores at the Lands-End, Cornwall.
*b. 8. Another, the Ground a deep Red; spotted and lineated with a bright Red, and White. Found upon the Shores near Overthorn, in Holderness, Yorkshire.
*b. 9. Another, of the same sort, from the same Shore. This is cut, and polished. 'Tis a very beautiful Stone, taking a Polish almost equal to an Agat; and superior to any Marble I ever saw.
*b. 10. Another, the Ground a dark Ash-Colour, spotted very thick with White. Found in the River Palmer, Cornwall, along with *b. 5. and *b. 6.
*b. 11. Another, the Ground Brown, with a Cast of Red, thick set with Mice of a white silvery Talc; and vein'd with white Spar. From Loo-Beach, Cornwall.
*b. 12. Another, the Ground Ash-Colour; with Veins of a fine White interfacing each other in a very remarkable manner. From the same Place.
*b. 13. Another, the Ground Brown, with Spots of a dusky Yellow; vein'd with White. From the Shore near Overthorn, Yorkshire.
*b. 14. Another, the Ground an Iron-Grey; vein'd with Red and Incarnate. Found, amongst many other like Bodies, on the same Shore of Overthorn. There is got near Plymouth a Marble of like Constitution with this: and with the Ground and the Veins of like Colour.
*b. 15. Another, the Ground a dark Ash-Colour; vein'd with White. From the same Shores. The Parts of this Stone that are white, stand forth somewhat above the ordinary Surface of the Stone, as being harder than the rest, and so having better maintained themselves against the Attrition these Bodies undergo by the Motion of the Sea on the Shores.
*b. 16. Another, the Ground a yellowish Brown; vein’d with White. From the Shores of Lincolnshire, betwixt Skegness and Ingoldmels.
*b. 17. Another, the Ground Grey; thick set with Veins of White, interfacing one another in a very remarkable manner. From Loo-Beach, Cornwall.
*b. 18. Another. This is of a Grain not so fine as the rest: but is variegated and veined with Red, and a very pale Grey, in a very beautiful manner. Found on the Shore, under Pendennis-Castle, Cornwall. There is among the rest, a Stratum of Stone of this sort in the neighbouring Cliffs; whence this doubtless was beaten.
*b. 19. Another, of an Ash-Colour; thick set with Mice of a white silvery Talc. It is scoop'd and perforated by Pholades or some other like Fili. Found, among a vast many others, on the Shores betwixt Workington and Whitehaven, Cumberland.
*b. 20. A dark-grey Mafs, found on the Shores of Lincolnshire, betwixt Skegness and Ingoldmels. 'Tis of an oval Form, about two Inches long, and one and a quarter over. 'Tis perforated in all parts
part of it, and thorough the whole Body of the Stone, the Perforations running into, and communicating with one another. They are so very numerous, and thick fet, that they take up as much space as the Substance of the Stone that parts them does. The largest of them are capable of receiving a Vetch; but there are others less, in all degrees. There's one part of it somewhat more free from these Perforations than the rest of the Body. The Planks of Ships are frequently perforated in this manner: only those Perforations are commonly larger. And the Shells of Oysters, and other like crafs Shells, are frequently found eroded and pierced in all Dimensions, and sometimes full as much as this Stone, by a fort of Worm. I do not undertake to determine whether this, and other like perforated foney Masses, be so wrought by Insects: but 'tis certain the Pholades work themfelves into, and perforate Stones as hard as thefe. About Weymouth there are grey and white Stones much bored and scoop'd by Pholades. Mr. Robert Ball tells me he faw Marble, cut into form of Pillars, taken up at Sea, oft Legborn, that was fo much scoop'd and hollow'd by Pholades, that 'twas scoop'd, and render'd of no Ufe. 'Twas of the common white Carara Marble: and had been caft away, and lain in the Sea, about fixty Years. He alfo affures me the red Coral, dragg'd up on the Coafs of Italy and Spain, is often found perforated and eroded by Worms under Water. The true Purpura, of which we have not in England, bores Holes in Shells to get at the Fifth. Vide Cat. of the Exotic Fossils, part 2. p.121. 'Tis worth In-quiry whether the saline Steams of the Sea have not fome fuch Effect upon the Stones on the Shores. The Author of the Observations, Philof. Transact. N. 27. p.495. acquaints us, that "on the Point Cagna, the Iron Guns at the Fort were fo corroded, that "fome of them were become near ufelefs, being perforated almost "like Honey-Combs." This he afcribes to the Salt Steams arifing "from the Sea.

*b.21. Another of a whitifh Colour. 'Tis perforated in like manner as the precedent: only the Surface of a confiderable part of it is not near fo much perforated as the rest of the Body. Found on the fame Shores. Mr. Morton.

*b.22. Another of a pale brown Colour. On only one fide this is perforated or fet with Pores, generally oblong, smaller, and fewer in number, than in either of the former. The Surface of this is pretty smooth. Each Pore is environ'd with a small white

* See Mr. Azout's Observations on the Worms in Oyster-Shells, Philof. Tranf. N. 12. p.204.

Circle, and that with a brown, darker than the common Colour of the Stone. Mr. Morton. From the same Shores.


* 6. 24. A Mass of a brown Colour, variegated with several Lines one within another, alternately of a lighter and darker brown, so as together chiefly to compose an Oval very much resembling a Knot in a Piece of Wood. In a large part of it are severalaight, round, tapering Perforations of several Sizes, from \( \frac{3}{4} \) of an Inch over in the biggest part, to about \( \frac{1}{8} \) of an Inch. These are generally encompass'd with Circles of a pale brown Colour, near \( \frac{1}{4} \) of an Inch thick: Some of these Perforations are fill'd with small Crystals. Found on the Strand near Harwich-Cliff.

* 6. 25. A Mass of a pale brown Colour without; within 'tis white with a glossy Lustre, like that of some sorts of Spar. Upon breaking it, I found some small Cavities in it, from the sides of which arise several small crystalline Columns, hexangular, pointed, and very transparent. On one part of the Stone there appears a Cast of Red. Found on the Top of an Eminence, near Dorchester, Oxfordshire. Before I broke it 'twas smooth on the Outside, and appear'd to be worn, and rounded by the Motion of Water. There were some other like Masses, which, being broke, shew'd themselves to be only Spar out of some Vein or Fissurre of a Stratum, whence they were born by the departing Water at the End of the Deluge. There was no appearance of any Fissure near.

* 6. 26. A Mass of a dusky Iron Colour, the Surface smooth'd by the Motion of the Water. From ... in the Peak, Derbyshire. This may serve well for a Touchstone.

* 6. 27. A green Mass, surrounded, in one part with a Zone of a pale yellow. From the Shores of Outhorn, Yorkshire.

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**CLASS III.**

**Pebles, Flints, Agats, and Stones related to them.** Vid. Pref. to Cl. 3.

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C. 1. Observations and Reflections.

Of the Silex of the Antients, Vid. Pref. to Sect. 5. Cl. 2.
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C. 4.

Pebles and Flints are natural Nodules; and were all originally covered with a Film or Crust, Vid. Pref. ad Cl. 3.

Some of them had that Crust worn off by an Attrition, caused by the rapid Motion of the Water, retreating toward the Sea and the Abyss, at the End of the Deluge, c. 227. Vid. App. to Cl. 2.

Others, found upon the Shores, have had their exterior Crusts fretted off by the Agitation of the Sea, Vid. Pref. ad Cl. 3.

Pebles, Flints, and Bodies of the Flint-kind, have no Grain, as the Workmen speak. Nor will they be brought to split in any determinate Direction; but break irregularly and uncertainly, Vid. Pref. ad Cl. 3.

Pebles and Flints are composed chiefly of Crystal; and owe their various Colours to the various Admixtures of Stone, Mineral, or Metallic Matter, that is incorporated with the Crystalin. Vid. Pref. ad Cl. 3.

From those various Admixtures they have obtain'd various Names, as Agats, Cornelions, Onyx's, &c. Vid. Pref. ad Cl. 3.

Crystaline and Pellucid Pebles and Flints.

Crystaline Shoots in the Cavities of Flints and Pebles, c. 243.

Flint, with Bubbles, of a semipellucid or conereal Constitution, and striated like the Hematites, c. 263, &c. seq.

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Of the Cracks in Flints, xld. 40.

Flinty Matter sometimes form'd into Strata, as well as into Nodules, Vid. Pref. ad Sect. 5. Cl. 2.

Masses of Marble, rounded, and worn into the Form of Pebles, by the Agitation of the Sea, to be distinguish'd from the true Pebles, Vid. App. to Cl. 2, &c. seq.
Of the Uses of the Bodies of this Class.

Agats, &c. for Heads of Canes, Hafts of Knives, &c.
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Small Pebbles incorporated and cemented together by a gritty Mass used for Millstones, c. 1.

Pebles, Flints, Agats, and Stones related to them.

Preface.

Calcui, Pebbles. Under this Title I intend Bodies of very various Colours: and somewhat of the Constitution of Spar, but much harder; breaking irregularly and uncertainly.

Silices, Flints. Bodies of various Colours, but ever with a corneous Ground: and harder than Pebbles; but breaking irregularly as those do. Agats, Cornelianis, Chalcedonies, Onyxes, and Mochoes, are no other than Flints: but finer than the Common; and have obtain'd those different Names from certain Differences in their Colours.

The true Flints, and Pebbles, are all natural Nodules: and, many of them, were originally cover'd with a thin exterior Film or Crust, (Conf. c. 37. a. to c. 37. h. & c. 89. infra) that usually differs in Colour, Hardness, and Constitution from the interior Substance of the Body *. This was their first State before they were reposited in the Strata †. Since which time several have been broken by some accidental Force: and others, tho' very rarely, because of their great Hardness, have been worn, and had their invenient Film fretted off by the Agitation and Motion of the Water, of the Deluge returning, (Conf. Append. to Cl. 2.) of the Sea, and of Rivers. But these, tho' thus alter'd, may be judged of by their internal Constitution; and by their Hardness. These two Tests alone sufficiently distinguish them. As to their Form, they have that in common with the Pyrites, and other Nodules: and indeed with certain small Masses of Stone, and of Marble, that are frequently found upon the Shores of the Sea, and of those Rivers that are impetuous, and their Water much agitated by Tides and Storms. These have indeed the Form

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* Of the Crusts of the Ludus Helmontij, vid. Clasfs 4. part 3. x.d. 25. Of the Crusts of Amber, g. 47. 9. 48. infra. Of Pyrites, h. 36. & h. 40. h. 45. Of Geodes, Mineral Bezoar, Aërites, o. 102. † 6.1, & seq.
† Vid. Natural History of the Earth, Part 4. Conf. 23.
of Pebles, but not, ordinarily, either their Hardness or Constitution; and are never invested with a Film or Coat. They split regularly, and with a Grain like several Bodies that are lodged in Strata; which the true Flints or Pebles never do. In a word, they are only Fragments, beat off from the Strata of Stone and Marble in the neighbouring Cliffs; and worn into that Form by the Waves and Water. Of these there are Instances in the Appendix to the second Clafs; as also of those that were smooth'd and rounded by the Water, departing, at the end of the Deluge. Cont.c.167. infra. & c. 227. infra.

Pebles, Flints, Agats, and all other Stones of the Flint-kind, are composed of Crystal; but ordinarily with an Admixture of Stoney, Mineral or Metallic Matter amongst it. Some Pebles there are that consist entirely of pure Crystal: and the more transparent and fine Flints, Agats, and the like, owe that Transparency to the Crystal in them. Those that are more Opaque, have less of this; and more Mineral, or Metallic Matter in them. 'Tis to this that the brighter Colours. Red, Yellow, Blue, &c. are chiefly owing. Conf. Cl. 11. o. S2. infra.

Of flinty Matter formed into Strata. Vid. Pref. ad Sect. 5. Cl. 2.
When I came to review this Clafs, I found in it a considerable number of Bodies that exhibited nothing particularly observable or uncommon. All these therefore I have rejected; being not willing to incumber this Collection with Repetitions, and Things that exhibited nothing new, or different from the rest.

The Bodies of this Clafs being numerous, and ranked in haste, they are not in so good Method as was to have been wish'd. Then there are some Bodies in it, that a more careful Attention has taught me, do not properly belong to this Clafs; which I have noted in the Accounts of them.

Pebles, Flints, Agats, and Stones related to them.

c. 1. Small Pebles, from the bigness of the Seed of Rape to that of a common white Pea, some pellucid, others white, others brown, black, &c. all incorporated into one Mafs, and cemented naturally together by a sort of ferruginous Matter. This is used for Mill-stones. From ——— in the Peak, Derbyshire.

c. 2. Another Mafs, but the Pebles most of them much larger, and of different Colours. They are cemented together also by a sort of dark brown ferruginous Matter. In some parts of the Mafs, the said Matter is formed into Cruits not unlike those of the Bezoar Mineral: and there are Veins of it running upon the Surface of the Pebles, and Flints, which (in this) are mix'd amongst the Pebles. Found near Southamton.

c. 3. Another Mafs of Iron-stone, of a dusky red Colour, in which are eight or nine brownish-white Pebles, about the bigness of Wall-nuts. Banstead-Downs, near ——— Surrey.
c. 3. Another like Mafs, with reddish Pebles in it, from White's Haven. There are vast Mafs of an hundred Weight and bigger, of this Matter, containing these Pebles, found lying in Strata, of Grey Stone in the Cliffs and on the Shores there.

c. 4. Pebles, white with a brown yellow, from the bignefs of an Horse-bean to that of a Nutmeg, cemented together by a grey Flinty Matter, with very small red, black, yellow and white Spots; perhaps they may be small Pebles. The whole is cut into an Oval Plate, and that polished, both the Pebles and Cement taking a very good Polish. Here was a double Procefs; firft of the Formation of the small Pebles; and next the Coalition of the Flinty Matter, that united and cemented them into one Nodule. From —— near Barkhamstead.

c. 5. Another Oval-Plate, in which the Pebles are some of them of about the bignefs of an Horse-bean, the rest generally less. They are black, white, grey, yellow, and variegated. The Ground, or Cement, pale-grey, with a Coat of yellow in some places. The whole takes a fine Polish, and 'tis a very beautiful Stone. Barkhamstead.

c. 6. Another like Plate, the Pebles much of the fame bignefs with those of the foregoing; most of them are black, the rest grey. The Ground or Cement is of a brownish yellow Colour. It takes a fine Polish, and the whole is very elegant. Conf. N. c. 7. infra.

c. 7. The Stone, off which the precedent Plate was cut. 'Tis a large Nodule of a compref'ed round Shape, the Surface pretty smooth, the whole outwardly appearing like a yellowish Pebble with black Spots. Found in a Gravel-Pit on this fide Tatum-Court, along with N. 26. infra. The Surface of this, rightly confider'd, shews it to have been rounded, worn and smooth'd by the Motion of the Water. Conf. Appen. to Cl. 2.

c. 8. Pebles of much the fame Sizes with those in the three foregoing. They are white, with some degree of transparency. They are held together by a brown Cement. The whole is of a flat oval Form, about two Inches long. The Surface is worn and smooth'd, but not quite fo smooth as that of the former: but it takes a fine Polish. Hempstead, Hertfordshire.

c. 10. Many small white Pebles, with a few black, held together by a red Cement. The Surface of the whole very smooth. Found in the North-field of Draycote, on that fide towards Riffy, in Derbyshire.

c. 11. Many small Stones, generally about the bignefs of Peafe, and flattifh, held together by a pale-brown coarse Cement. From —— Hill in the Road between Cirencefter and Gloucefter. There is a vast Quantity of this fорт of Mafs in the faid Hill; and, on the Sides of it, prodigious Numbers of the fame fорт of small Stones, loose, and disengaged from the Cement. Perhaps these may be of that fорт that the Antients call'd Pifolithi. There is a piece of a striated Peftunculus incorporated in this Mafs. "Near —— a Sé-
" pulchral
"pulchral Monument, shewn for Rachel's Tomb, Gen. 35. 19. not "far from Bethlehem, in Judea, are found a sort of small round "Stones exactly resembling Peas." Mr. Maundrell's Journey from 
Aleppo to Jerusalem. p. 86. Strabo Geogr. l. 17. p. 808. d. takes 
Notice, that in Egypt, near the Pyramids, there were Heaps of the 
Chippings or Hewings of Stone. [αιτώς ευροί τινές] And in these 
were found Stones of the Shape and Bigness of Lentils. [Ψήματα 
και τόσο καὶ μεγάλεια φιιοείδη] The fancyful Tradition of the Inhabitants concerning these was, that they were of the Remains, of 
what were wont to be eat by those that work'd in Building the 
Pyramids, in tract of Time turn'd into Stone. He observes also 
that there were plenty of these Lenticular Stones on an Hill, where 
\textit{Aeg.} — "Harena late pura circunm, lentis Simillitudine, qualis in "majori parte Africa."

c. *II. Small Nodules, some round, others oval, of a dusky grey 
Colour; found in a Stratum of Shiver, in Arkendale, Yorkshire. 
The biggest of these do not much exceed the Size of the common 
Bean: and there are seldom larger found.

c. 12. A Flint perfectly pellucid, of a lenticular Form, the long-

est Diameter about an Inch and a Quarter. The Surface is very 
smooth and polite. This was given me for \textit{English}; but I have 
forgot where 'twas found: and the Person that gave it me is now 
dead. There are paid to be of these Stones found somewhere a-
bout Bristol. Dr. Light has described and grav'd some of them. 
\textit{Philos. Trans.} N. 201.

c. 12. a. A Crystal, or pellucid Flint, wrought into an orbicu-
lar Form, found somewhere in England. This is of that sort 
that is call'd \textit{mineral Pearl:} and probably the same mentioned by 
\textit{Suetonius,} in \textit{Caesar,} §. 47. "Britanniam petitī sīpe margaritarum, 
"quarum Amplitudinem conferentem, interdum sūa manu exægtī 
"Pondus."

c. 13. Another Crystalline Flint, of an oblong Form, * the Bafis 

near flat, the upper Part terminating in a Ridge. The Base, and 
Sides are not plain, but somewhat swelling and convex. 'Tis 
regular and polite, as if wrought by Art. \textit{Conf.} N. 12. 

I have since shewn this to some Lapidaries; who agree that this 
Body is cut and polished. 'Tis part of a Crystalline Nodule. There's 
one of this Figure set forth by Dr. Light, \textit{Phil. Trans.} N. 201. 
who thinks those \textit{naturally Polished}, but erroneously: 'tis very 
probable all these Bodies were us'd for Ornaments among the an-
cient Britains. Mr. Aubrey was wont to assert they were us'd in 
Magick by the Druids: and I believe intimates some such thing 
in his Natural History of 
Wiltshire; for which he had made Co-
lections. They are now in two Volumes MSS. in the 
c. 15. he mentions a Crystal Sphere, or Mineral Pearl, used by 

* See Dr. Plut's \textit{N. H.} of Staffordshire, p. 178.
Magicians: and to be inspected either by themselves or by a Boy.
Mr. Webster in his Book of Witchcraft also treats of these Bodies.
c.16. p. 310. & seqq. This was found near Barkhamstead: and
made use of, as Mr. Steel informs me, by the late Dr. Woodhouse,
there, as a Magical Speculum, he pretending that a Spectrum was
wont to discover it self to him in it. Mr. Steel fancies the Glass,
as 'twas call'd of Dr. Dee, and Mr. Kelly, mention'd by Dr. Meric
Cafabon, was of this sort. For my own part I can imagine
these to be nothing other than Baubles, used formerly as Orna-
ments by the Britains, while Savage, and before the acces of the
Romans. Mr. Morton found one of this sort in Kettering-Field,
Northamptonshire.

c.14. A Pebble, about the bigness of a Wallnut. 'Tis wholly
pellucid. From .......... Oxfordshire. This kind the Lapidaries
call Peble-Cryftal. The Cryftallin hexagonal Columns they call
Sprig-Cryftal.

c.15. Another, somewhat less, also pellucid. Ibid.

c.17. 4. Pellucid Pebbles about the bigness of Peafe. One of them
I got out of a gritty Stone, made up chiefly of such Pebles, cement-
ed together, near Worcefter: the other three out of a reddish gritty
Stone, much like that N. 1. infra, near Belpor in the Peak. There
are vast Quantities of that sort of Stone about Belpor, Worksworlth,
and the Places thereabouts in the Peak. It lies in Strata. There
are mighty Rocks of the same sort about .......... in the Forrest of
Dean in Gloceftershire: and the Pebles and Flints, contained in them,
are of all Sizes, little and large. Their lying thus in Strata is a
Proof that the Pebles and Flints were fingle, independent and apart
till after the subsidence. When the Matter subsided down with
them, and settled in the Intervals of them, confolidating, became
a Cement to hold them together.

c.18. A Cryftallin Flint, cut Diamond-wife. 'Tis of a clear
Water, and fine Polish. 'Twas found in a Field near Croydon,
Surry.

c.19. A light grey Semi-pellucid Flint. 'Tis of much the same
Complexion with the common Indian Achate. On one Part of the
Surface 'tis thick set with Tubera like small Bubbles. Found in a
Gravel-Pit, near Kentifb-Town. Vid. N. 263. infra.

c.20. A piece of the foregoing cut into an oval Plate, and
polifh'd.

c.20. A Plate of an Agate, no ways inferior to the finest or-
rientul Agate, and nearly approaching the white Cornelian. There
are in the horney Ground two white Lineations; attended with
two of a pale Red, not discernible unless held up to the Light.
The Stone, off which this was cut, was found near Gaddefden
magna, Hertfordshire.

c.21. Three round Plates, cut out of a Flint, approaching the
nature of an Agate, and indeed very much resembling those Agates
call'd Mocha Stones, with Appearances of Shrubs in them. The Stone,
off which these Plates were cut, was found near Stratford in Essex,
and
and, having in it a striated *Concha Anomia*, is exhibited in the 1st Part of this Catalogue, of the extraneous *English Fossils*, f. 346.

*22.* A Semi-pellucid grey Flint. In the Body of it are white Plates or Flakes, usual in some of the *Indian Achates*, which this resembles and equals in all respects. 'Tis cut, and polished. Found by the *Thames* side, on *Lambeth* Shores.

*23.* A Flint much like that N° 19. only scarce so clear. *Tattum-Court*, *Middlesex*.

*24.* Another of like Sort: only one part of it is of a brownish white Colour, and Opake. Broke off a Flint on *Sydenham Common*, *Surrey*.

*25.* A pellucid Peble, with a faint Eye of Green. 'Tis about the bigness of a Nutmeg. There appear in it several long round Bodies of the thickness of small Pins. They are placed at uncertain distances, but near parallel to each other, and run slanting a-cros the Peble, which is a little flattened, and both ends of them terminate in small holes at the two opposite Flats of the Surface of the Stone. They are of a green Colour, and appear very plainly and distinctly in the Body of the Peble. Found on the Shores near . . . . . in *Cumberland*.

*26.* Another Peble, red and semi-pellucid, less than the foregoing. There are in this several Columns, little different in any respect from those of that, only they are white. Found on the Sea-shore, near . . . . in the Bishoprick of *Durham*.

*27.* A Peble of the bigness of a Nutmeg, white, with fine streaks of red on the Surface, and thorough the Substance of it. 'Tis semi-diaphanous, and takes a fine Polish. Found on *Plow'd Lands* a little beyond *Henley upon Thames*.

*28.* A Peble of a flat oblong Shape, somewhat bigger than an *Horse-bean*. The Surface of it is smooth and very fine. 'Tis opake, and of a dark green Colour. Found with N. 26, & 27.

*29.* A small Peble, semi-diaphanous, yellowish, with slight streaks of a somewhat darker Colour. Found on the same Shores.

*30.* A Peble, semi-pellucid, brownish, with Spots of a whitish hue. On one side is a Cavity, the sides of which are beset with a Crystal-like Spar. Found on the same Shores.

*31.* Another Opake, its Surface finely variegated with Spots of a Flesh-colour, a dark red, and streaks of white. The same Shores.

*32.* Another, very transparent. In the Center of it is a fine Cloud of red. The same Shores.

*33.* Another, the other parts pellucid, the middle opake, and of a very bright red. From the other Edge of *Blackheath*, near *Deptford*.

*34.* A grey Peble, pellucid, having on one Part very many thin white triangular Cruffs, one within another, appearing like a Nest of triangular Boxes set one in another. From the same Shores.

*35.* Another whitish with a Cast of red; having many like Cruffs in it. From the Shores near *Whitehaven* in *Cumberland*. These Crustaceous *Pebles, Flints*, and other Nodules of like Construction,
irraction, particularly the native *B
dau* mineral, Godez, &c.
The Beginning or first Advances towards a Formation, was by the Congress of certain of their constituent Corpuscles at one Place or **Punctum**, where they formed a Nodule. Other Matter succeeding towards the same Point, on all sides the Nodule, and affixing upon it, still augmented the bulk of it. When it so fell out, that this Matter was of the same fort with that that concurred before to form the central Nodule, there could be no variety of Colour, or Consistency, from this or any more like Additions that were made to it. And 'tis highly probable that all the Nodules, that consist of one uniform Substance, were as well formed thus, beginning from a Point or Center, as the crustied ones: Nay, and most of the spotted, variegated and clouded ones too, and all others, however mix'd and variegated, or how different Matter soever might concur to the forming them, and indeed all whatever except those that are tabular and plated, of which **vid. c. 209. Cl. 3.** But where the said succeeding Matter was not of the same fort with that of the central Nodule, 'tis distinguishable by its Colour, or Consistency, and appears upon breaking or cutting the Body, as a Shell or Crust enclosing the central Nodule. Again, other Matter still succeeding, and applying it self on all sides quiteround this first Shell or Crust, where 'twas of a different fort, it constituted a second Crust covering the former. A third application of different Matter constituted a third Crust: and so on, as long as a successive Application of different Matter continued.

The thickness of each Crust, is greater or less, as the Quantity of Matter so succeeding to form it was greater or less.

The same Crust is in all Parts of the same thickness, when there happened to be an appulse of an equal Quantity of Matter on all sides the Nodule, or, if there were such before in-crusted round it, the interior Crusts*. But where the Quantity of Matter so applying it self was unequal, and more on one side than another, there the Crust, form'd of it, is of different thickness in different Parts; which is frequently observable in the Crusts of Nodules. Hence 'tis that we commonly find the central Nodule not in the middle, but approaching nearer one side of the Stone. Of this there are Instances *infra.*

Where the Matter that formed any single Crust was homogeneous and all of the same fort, the Crust is uniform and of the same Colour and Consistency: but where 'twas different, the Crust formed out of it differs in Colour or other ways. This is the Cause of all the Varieties observable in the same Crust.

Where the Matter that successively applied it self to the Nodule in its Formation was on one side homogeneous and entirely of the same fort, on the other side of different forts; the Stone formed of such, would be on one part uniform, on the other crustied with half Crusts or Hemispheres.

* Of this c. 37. a. c. 37. c.d. and * are Instances.
Where the central Nodule was globular, the inner Surface of
the first Cruft would be Spheric; and if the Cruft was in all parts
of the same thickness, that whole Cruft would be Spherical. But
if the Surface of the central Nodule was unequal and irregular, the
Cruft formed upon it would be so likewise. So also for the fe-
veral succeeding Crufts each without the other.

If the Matter whereof the several Crufts were formed happen'd
to differ in Diaphaneity, Colour or several other Rejpects, yet a-
greed in Hardnefs, Figure and Disposition to unite and confo-
lidate, the several Crufts would cohere and form one common Solid,
as they do in Flints, Agats and the like. But if the Matter of the
several Crufts happened to be of different Constitutions, such as in-
dispos'd them to unite, then they part and separate upon breaking the
Stone, as is observable in the Native mineral Bezoar and Geodes.

C. 37. a. A piece of a Flint, broken off to shew the interior
Constitution of it. 'Tis of an oval Figure. In the Center of
it is an oblong blackish oval Spot, which is surrounded with
a Line of brown: and that encompass'd with a Line of white:
the white with another of brown: and without all is a pretty
thick Cruft of white. The others that I call Lines are in-
deed so many Crufts, contained in one another: all of them pa-
ssing the Substance of the Stone, and being conspicuous in the same
Manner and Order on the opposite Face of it; only the second
Section is not thorough the central Nodule, but thorough the first
Cruft. In this Stone, the central Nodule has its Surface pretty
smooth and regular: and the several Crufts about it are, in all
parts, of nearly the same uniform thicknefs. Hamstead-Heath.

C. 37. b. Another Flint, likewise broken. In the Center 'tis
brown: round that is a Circle of white: then one reddiifh mixt
with white: after that, a very thin one of black: and lastly, a

C. 37. c. A coarse Flint, of a triangular shape, broken also. 'Tis
of an Ash-Colour, only about 1\(^\frac{1}{2}\) of an Inch from the Surface is a
triangular Line, about \(\frac{1}{16}\) of an Inch over in all Parts of it, of a
reddiifh brown Colour. This lay near the former. I broke a vaft
many of the Stones therabouts, and found them of like Con-
struction; confisting of Crufts one within another.

C. 37. d. A Flint, broken. The middle part is of a pale brown
Colour. Next that is a Cruft of white: then a Cruft of dark
brown: and without all a thin Skin of white. The two Crufts, and
Skin, are each in all Parts of them nearly of the same thicknefs.
Cane-wood, near Highgate.

C. 37. e. Another. In the middle is a large round Spot of grey
with a Cast of green. This is surrounded with a pretty broad
Circle of yellow. Without all is a Cruft of brown. The Surface
of the central Spot or Nodule is pretty smooth and regular: and
the two Crufts (for in reality that, which with such a Section of
the Stone appears only as a Circle, is part of a Cruft) about it in
all Parts of near the same thicknefs. Newington-Green, Middel-
sex.

D 2  c. 37. f.
c. 37. f. Another. In the middle is a Spot of a Grey, pellucid, or horney Constitution. Without that, is a thick Cruft, opaque, and of a pale brown Colour. Found in a Corn-field near Northfleet, Kent.

c. 37. g. A small Flinty Peble, broken so as to discover the interior Constitution of it. In the Center is an oval white Spot, as it appears in the Plane of the Segment of the Stone, but is indeed a Nucleus. Round this appears a blackish or rather a deep grey oval Ring, which is an oval Cruft, including that Nucleus; 'tis about \( \frac{1}{2} \) of an Inch thick. Without this is an oval Ring or Cruft of white, like that of the Nucleus, \( \frac{1}{5} \) of an Inch thick. Lastly, without all, is an oval Cruft of the same deep grey again \( \frac{1}{2} \) of an Inch over. Found in a Gravel-Pit in St. George's-Fields, Southwark.

c. 37. h. Another broken in like manner. In the Center is a red oblong Nucleus. This is invested with a black Cruft. That Cruft is surrounded with a grey Cruft. Then a black Cruft again: next a grey; and so on to the Surface alternately; there being in all eight of these Crufts, viz. four of each Colour. The Crufts are each in all Parts nearly of the same thickness, their Figure suited to the Nucleus, and the outer Surface of the Stone exactly of the same Form with that of the Nucleus.

c. 38. Another almost opaque, but thick for with Crufts of various and uncertain Figures encompassing one another. Found near Malden, in Essex. Mr. Buddle.

c. 39. Another with like Crufts. This is somewhat more transparent, and one half of it has an Eye of red. From the Shores of the Bishoprick of Durham.

c. 40. Several like pellucid, lineated or crusted Pebles. Some of them are besides spotted and streaked with red, yellow, and white. Found in several Places on the same Shores.

c. 41. A black Flint, cut and polished. In the middle of it are several Lines of grey and white alternately, which appear very beautiful and fine, especially as being so beset and environ'd with black. Gravesend, Kent.

c. 42. A Flint elegantly diversify'd with Stripes of a dark brown near black, and grey, alternately. The darker Stripes are not so broad as the grey ones. Shooters Hill, Kent.

c. 43. A Plate cut off the foregoing, and polish'd. It takes a good Polish: and being held betwixt the Eye and the Light, the darker Stripes appear to be transparent.

c. 43. * A Plate off an Agate, with a Series of Stripes, white and blackish alternately, passing the middle of it. Gaddesden magna, Hertfordshire.

c. 44. A Flinty Peble, the Ground grey, with an Eye of green, striped with white and yellow. It takes a good Polish. Greenwich Park.

c. 45. Another, the Ground much the same, but in some Places clouded with yellow. 'Tis striped with red and white. The Stripes
Stripes run round into an oblong oval Form, and environ one another. Indeed they are properly Crufts within one another, and seem to be made by a successive Application of different Matter as it came to hand in the Formation of the Body, beginning at the Center, and so concreting and crusting successively Cruft upon Cruft, the diversity of the Matter that came on in course, causing the diversity of Circles and Colours. Found in the Road near Bromley in Kent.

c. 46. A Plate cut off the foregoing Stone, and polish'd, with good Success.

c. 47. A Flinty Pebble black without, lineated within with Stripes of white, yellow and red, encircling one another, the innermost surrounding and including a dark blue Spot. Found in the Road near Deptford.

c. 48. A Plate cut off the same, and polish'd with good Success.

c. 49. Another Plate having a Spot of blue near the middle of it, and that surrounded with red and white Stripes alternately. On one side is a Line of yellow. It has taken a good Polifh. This was cut off a very large Flint Pebble, found on Hammead-Heath.

c. 50. A Plate beautifully striped and clouded with Purple, dark red, and yellow. It takes a fine Polifh. The Stone was found, on the Brow of the Hill, near the Mill on the Edge of Hammead-Heath.

c. 51. Another Plate. It has a bright brown Spot in the middle, environ'd with a white, and that with a brown Circle, and so on alternately several Rounds. Found in a Gravel-pit, not far from the Bowling-Green on Hammead-Heath.

c. 52. Another small round Plate, the Ground grey. In the middle is a Spot of yellow, surrounded with a Circle of red, that with one of white, and that with one of yellow, and without that are Circles of purple, blue, and yellow, but all very faint. 'Tis very beautiful, and the Polifh fine. Found in the Gravel-Pit near the Bowling-Green. Hammead-Heath.

The forty four following Flinty Pebbles, beginning with No. 53. and ending with No. 96. inclusively, are variously clouded, spotted, and striped or lineated, the Lines generally encircling and within one another, tho' variously disposed and figured. The Colours of the Spots, and Lines are very various, blue, yellow, brown, red, grey, and white. These I mention are the Colours of the interior Parts, the Bodies being broken to shew the inner Constitution of them, which is very close, and hard, so that they are capable of a good Polifh.


c. 58. Another, found in the Gravel-Pit, near the Bowling-Green, on Hammead-Heath.

c. 61. A Plate, cut off a Flinty Pebble. Found in a Gravel-Pit, among the new Buildings by Dover-street, near St. James's.
e. 65. Another. Found in Greenwich-Park.

e. 70. Another. Found in the Road, a little on this side Hamstead.

e. 71. Another. Found at the Foot of the Hill, about a Mile on this side Hamstead.

e. 73. Another. Found in the Road, a little on this Side Hamstead.

e. 77. Another. Found in the Road, a little beyond Kentish-Town.

e. 78*. A large oval Plate, cut off a Flinty Pebble. Found in a Gravel-Pit, near the Bowling-Green on Hamstead-Heath. It takes a good Polish, and is a very fine Stone.

e. 89. Another, broke in two. From a Gravel-Pit near Gravesend. I once was in doubt, whether the blackish Coats of these Flinty Pebles, (so common in Surrey, Kent, and Middlesex,) were their original outmost Coats. But View of this, of that, e. 95. and indeed the Sth, e. 37. a. to e. 37. b. as also e. 58. e. 65. e. 77. and e. 90. with very many others that I have observ'd since, have satisfy'd me that they really were. For these Coats, in Shape, nearly conform to the Lineation or Coats within. Which they never could possibly have done, had they been alter'd and worn by the Motion of Water, or the like, in Bodies of this irregular Form. In Bodies of a globosiform, they might.

e. 90. Another, broke in two. From still the same Gravel-Pit,

e. 95. Another. Gravel-Pit near Gravesend, Kent.

The following Flinty Pebbles, are very few of them striped, but spotted, and clouded very variously, and many of them in a very elegant and beautiful manner, with Black, Blue, Yellow, Red, Purple, White, Grey, and Brown. They begin with N° 97. and end with N° 129. inclusively. They are as firm, and capable of as fine a Polish as the other.

e. 97. A Flinty Pebble, spotted with Yellow. The Body of it is semi-pellucid. 'Tis cover'd with a very rough grey Cortex. Found in Kensington Gravel-Pits.

e. 98. Another, on one part flat, on the other convex; found near Woolwich. This has the Convex Part cover'd with a Crust, as the Outsides of these Bodies constantly are; but the flat has no Crust, but is in Constitution like that of the inner Substance of these Bodies. And doubtless there was a natural Flaw and Crack there; at which the Body parted, and fell into two pieces. Such Cracks we frequently observe in them, when lying in their Strata, and before any external Force could come at them to break them. And some there are that part at those Cracks, with the greatest ease imaginable. 'Tis likewise the Case of those, e. 180. e. 37. b. e. 37. a. e. 178. e. 179. e. 214. e. 233. e. 232. e. 251. e. 307. The grey Lines on the flat, enter not the Substance; seem to be superficial, and owing to an external Agent.

e. 102. Another, found in the Gravel of the King's-Bench Walks in the Temple. This seems to have been parted like that, e. 98. and the flat seems to have suffer'd by some external Agent, per-
haps Water; and to have been a little rough'd, perhaps by being moved and slid on by the Water departing at the end of the Deluge. I have commonly observed *Flinty Pebles* with their Flats rough'd like this.

c. 106. Another, broken off No 154.
c. 112*. A Plate cut off a *Flinty Peble* found near Greenwich, Kent. 'Tis an elegant Stone, hard, and the Polish admirable.
c. 113. Another. Found at the foot of the Hill, in the Road, a Mile on this side Hamstead.
c. 114. A Plate cut off a *Flinty Peble*. Found in the Gravel-Pit, near the Bowling-Green on Hamstead-Heath.
c. 115. A Plate cut off a *Peble*. Found in the Road a little beyond Kentish-Town, Middlesex.
c. 117. Another. Found in the Gravel-Pit near Islington.
c. 129. A *Flinty Peble*, semi-diaphanous, not unlike the Achat, the Ground grey, with Spots of Red; only towards the Surface it terminates in a Yellowish. Found in a Gravel-Pit near Gravesend, Kent.
c. 129*. A Piece of *Flint*, having, on one side, extremely small Sparks of Crytal: The other side, being polished, exhibits several Colours, chiefly red and white, finely intermix'd. The Stone nearly approaches a Jasper. Netleden, Buckinghamshire.
c. 130. Another, the Ground more pellucid, of an horny Appearance, and as fine as the East-Indian Agat. 'Tis spotted, like the two former, with red Spots. The Outside of this is smooth, clear, and shews the Spots at and underneath the Surface. Found near in the Peak.
c. 131, 132. Two oval Plates, cut off the foregoing, and polished. They are of a very fine Polish, and beautiful Stones.
c. 135. An oval Plate cut off a *Flinty Peble*. Found in the Road about a Mile on this side Hamstead. It takes an admirable Polish: and is indeed a fine Stone.
c. 136. Another oval Plate, finely variegated with Red, Purple, Blue, a semi-diaphanous Grey or Skye, Yellow, and Brown. The Polish is extraordinary. The Stone was found in the Road, on the Brow of the Hill about half a Mile on this side Hamstead.
c. 137. Another Plate, variegated with Blue, Grey, White, Red and Yellow, in an elegant manner. The Polish very good. The Stone off which this was cut, was found in a Gravel-Pit, near the Bowling-Green on Hamstead-Heath.
c. 138. Another Plate, variegated with White, a light Grey, a more duskey Grey, Yellow, and a few faint small Spots of Red. 'Tis finely polished. This, and that, No 147. were both cut off the same Stone, which was found at the Foot of the Hill, in the Road, near a Mile on this side Hamstead.
c. 139. Another oval Plate, variegated with Yellow, Red, Purple, and White; the Colours very lively, and the Polish excellent. This was cut off the Stone, No 154. infra, which was found in the same Road with the precedent, on the Brow of the Hill.
c. 140. Another oval Plate, variegated with White, Red, a pale Yellow or Straw-Colour, and Brown, with a faint Eye of Green. The Polifh is good. The Stone was found, in the Road, a little beyond Kentifh-Town.

c. 141. Another oval Plate, variegated with a semidiaphanous Grey, Red, Yellowfih, and Brown. The Polifh is extraordinary, and 'tis indeed a fine Stone. Found in a Lane about a Mile on this side Hamfhead.

c. 142*. A Flinty Peble, cut and polifh’d; variegated with Red, Yellow, and White. Found, in the Road, about a Mile West of the Church of Gaddefden Magna, Hertfordshire.

c. 143. Another Flinty Peble, variegated in a very lovely manner, with a semipellucid Agat-like Grey, Red, and Yellow. Found on the Brow of the Hill, in the Road, a little on this side Hamfhead.

c. 144, 145. Two oval Plates cut off the foregoing Stone. The Polifh is excellent, the Colours lively and distinct, and the Stones little inferior to any Indian Agat I have seen.

c. 146. Another oval Plate. The Ground a dark semipellucid Agaty-Grey, very like that of some Mochoa-Stones. There are a few Spots in it more clear and pellucid; and one pretty large, part of it being of an Opake White, and part of an Opake Afi-Colour. But what is most curious and observable, is, that there runs obliquely a Line (of about ¼ of an Ince in breadth) for almost the whole Length of the Stone; which seems to confift of several small Cells, much like thofe of an Honey-Comb, only considerably less. The Paricetes, or Partitions of them, are white and opake. They are fill’d with a grey semipellucid Matter, but in some parts darker, in others clearer, being indeed little different from that that confifts the main Ground of the Stone. The Flinty Peble, off which this Plate was cut, was found near Carlton, Kent.

c. 147. Another small oval Plate. On one part 'tis of a fine semipellucid Agat-like Grey; in the middle Yellow; that is succeeded by a Line of Red; and that by Spots of a darker and lighter Grey, and of Red. 'Tis a beautiful Stone, and bears a fine Polifh. This was cut off the fame Stone with the Plate No 138. supra.

c. 148. A very small Stone, cut into a convex Form on one side, and a flat on the other. The Basis is grey and opake, the Middle white and opake, and the upper Part of the Convex yellow and semipellucid. Hamfhead-Heath. 'Twas originally of this Shape, and is only leften’d so far as the polishing required.

c. 149. Another, of like fort and opake. The Balis White, the Top of a dark Afi-Colour. The Peble off which this was cut, found on the top of Oak of Honour Hill, Surrey.

c. 150. A small white Stone, cut into an oblong Convex Shape, the Basis flat. 'Tis sprinkled with very small Spots of Red, and crofs’d obliquely with a Vein of the fame Colour. It has taken
a fine Polish. The Peble was very little bigger than now 'tis cut. 'Twas found by the Brook-side near Lusham, Kent.

c. 152. An oval Plate of a yellowish Brown, and clouded in some Parts with a darker Brown. 'Tis opake, but takes an excellent Polish. Found in the Road, about a Mile on this side Deptford.

c. 154. A Flinty Peble, finely variegated with Purple, Red, White, Grey, Yellow, with a faint Cast of Blue and Green. Conf. N° 139. supra. That Plate being cut off this Stone: as also N° 106. that Stone being a piece of this.

Eleven Flinty Pebles, beginning with N° 156. and ending with N° 166. lineated like those N° 53. &c. supra.

c. 158. Another, from the same Pit.

c. 161. Another, broke into two Pieces. From the same Gravel-Pit.

c. 167. A Peble, of an oval Shape, the Colour very white, and its Surface very smooth. Found on the top of a Hill near Henly, Oxfordshire. This is of a Sparry Constitution, and apparently worn and rounded by Water. Conf. 27. supra, &c. 187. infra, &c. 192. infra, &c. 227. infra.

c. 168. Another, of a globular Form, but somewhat compresse'd; the Surface pretty smooth, and of a light whitish brown Colour. Found near Warwick.

[c. 169. A Flint, of the same Shape, the Surface very smooth, and of a dark grey Colour. 'Tis whole, but seems to be semipellucid. Found in a Gravel-Pit in Hyde-Park.

c. 170. A Peble, round, and of a Figure more compresse'd. 'Tis of a dark yellow Colour. Kensington Gravel-Pit.

c. 174. A Piece of the common black Flint, broken, and wholly divested of its outer Crust. 'Tis glossy'd all over with a Brass-like shining Armature, like that of the Cornua Ammonis, and other like Bodies that are found in the Earth, together with the Pyrite. This was found in a Rivulet near Hockson, Suffolk. Mr. Adam Buddle. All the Flints in the same Rivulet were tinged with the same shining Gloss. Qu. Is the Water of this Rivulet impregnated with Vitriol? or are there any Pyrite in it?

[c. 175. A black Flinty Peble, with several large white Spots, and one of a light brown. What is observable in this Stone, is, that the Spots are of the same Colour throughout, even to the very Edges, there being an immediate Transition from White to Black, and the Colours not fading or declining gradually, and mixing as they approach each other. Found on Shooter's-Hill, Kent.

c. 176. An oblong, black, Flinty Peble, the Surface pretty smooth, and having on it three large yellowish Spots, of much the same Size and Figure, in both those respects much resembling a Garden-Bean.

c. 177. A dark grey semipellucid Flint. In one Part of it is a Delineation in white, not unaptly resembling a human Face. The Marks of this sort are wholly contingent, and so scarcely worth notice.
notice: but there are those who set a Value upon them, so that I thought such not altogether to be neglected, and therefore mention this, and the two or three more that follow. Found near Clapham, Surrey.

c. 178. A yellowish Flint, with a greenish Cast. Newington-Green. There is naturally delineated upon it, in a pale Yellow, a Figure somewhat resembling a Scorpion, in an Hollow of the Stone. There's another broad Hollow on the opposite side of it. Conf. No 232. infra.

c. 179. A grey Flint, with a Figure in white, resembling a waved or flaming Scymeter. Found near Peckham, Surrey.

c. 180. A Flinty Pebble, of a dark grey Colour, with an Eye of Purple. There are upon it two Figures in white, like the Roman V. Found on Clapham-Common, Surrey.

c. 182. A large, flat, Flinty Pebble, the Ground black, undulated in a very elegant manner, and veined with White. The Veins are in all parts of near the same Diameter, and about \( \frac{1}{10} \) of an Inch over. Found on the Shores of Sheppy-Island.

c. 183. Another, likewise very curious, and little different from the former, only the Veins are somewhat larger. Found on the same Shores.

c. 187. A Pebble, of a pale brown Colour, vein'd pretty thick with small Lines of a yellowish brown Colour, variously intersecting one another. Found on a Hill near Henly upon Thames. The Surface of this is very smooth, excepting that the Veins rise, and are somewhat more prominent than the rest of the Surface, tho' but very little. This appears to have been smooth'd and rounded by Water.

c. 191*. Another, clouded with brown and a dark Red, and encompass'd with Zones of White; to which, in some parts of them, is superadded an Eye of Red. Found, near Sir John Mor- dant's Hospital, on Black-Heath.

c. 192. Another, of a reddish brown Colour. 'Tis surrounded with two Zones of White of about \( \frac{5}{10} \) of an Inch thick, nearly parallel to one another, and distant about \( \frac{7}{10} \) or \( \frac{7}{12} \) of an Inch from each other. They are indeed two white Plates, terminating in circular Lines or Zones at the Surface of the Stone; but passing quite through its Substance, as appears by the breaking and view of the interior Constitution of it. Found in the Road near Droitwich, Worcestershire. This seems to be worn by the Motion and Agitation of Water; which also I take to be the Cafe of c. 188. c. * 191. c. 198. c. 199. c. 200. c. 230. c. 298. c. 276. This, on a Review, appears to be, not a Pebble, but rather a Fragment of some hard Stratum, probably of Marble, broke off, and rounded, by the departing Water of the Deluge. Which seems also to be the Cafe of c. 195, 196, 202.

c. 193. A Flinty Pebble, surrounded with many parallel Lines, or Zones of White and Grey alternately. 'Tis broken, and the same Lines discover themselves within through the whole Substance of it.
it. So that the exterior ones are no more than the Terminations of the grey and white Plates, of which alternately this Body is composed. **Bromly, Kent.**

c. 194. Another, very little different from the former. **From a Gravel-Pit near Graveend.**

c. 194*. Another, not differing considerably from the two foregoing. The Surface of this is extremely smooth and polite. Found in a Gravel-Pit on **Hamstead-Heath.**

c. 195. Another, of the same Composition still, only the Plates are one of a whitish, the other of a reddish Brown, placed alternately. Found near **Bewdly, Worcestershire.**

c. 196. Another, little different from No 197. except that the Plates and Zones they end in, are broader. The Surface smooth for this sort of **Peble.** Found not far from the precedent.

c. 197. Another, of yet the same Composition. In this the Zones are grey and yellow alternately. **Shooter's-Hill.**

c. 198. Another. The Zones white and brown. **West-End, Middlesex.**

c. 199. Another. The Zones grey and brown. The Surface exceeding smooth. **Near Woolwich, Kent.**

c. 200. Another. The Zones grey and yellowish. Found in **Greenwich-Park.**

c. 201. Another. The Zones white and a dark Grey. **Greenwich-Park.**

c. 202. Another, of an oblong Figure. In the Middle 'tis encompass'd with Zones of Black and Brown alternately; at each End 'tis only Brown. The Surface is smooth for this sort of Peble. Near **Bewdly, Worcestershire.**

c. 203. A Peble, of an oblong Figure, surrounded alternately with Ridges and Furrows. The Ridges are composed of a Matter that is hard and polite, and of a darker brown Colour than the Furrows. Found near **Bush-Hill, Middlesex.**

c. 203*. Another, little different from the precedent, only 'tis smaller. **Islington.**

c. 204. Another, of an oblong Figure, and brown Colour. One half of it is ridged as the former: the other smooth. **Hyde-Park.**

c. 205. Another, of a rounder Form; but encompass'd with Ridges and Furrows, tho' not quite so deep as the foregoing. 'Tis of a reddish brown Colour. **Fulham, Middlesex.**

c. 206. Another, little different from No 205. only 'tis of an Ash-Colour. **Kentish-Town.**

c. 207. Another, ridged in like manner. This has some degree of Diaphaneity. **Black-Heath, near Deptford.**

c. 208. Another, ridg'd also, and of a light brown Colour. **Islington.**

c. 209. A grey Flint, consisting of Plates variously apply'd to one another, their Extremities terminating in Ridges at the Surface of the Stone. **Holloway, near Highgate.**
A black *Flinty Pebble*, oblong, with several like Plates in the middle of it. *Isle of Man.*

Another, oblong also, of a pale brown Colour, composed entirely of like Plates. *Silverton, Devonshire.*

A *Flinty Pebble*, of dark grey Colour. In two or three Parts 'tis striped with Lines of White and the same Grey alternately. Found on *Black-Heath*, near Sir *John Mordant's Hospital.*

Another, very little different from the foregoing. *Northfleet, Kent.*

Another, Grey. At one end 'tis striped with small Lines of Grey and White. *Hamstead-Heath.*

Another, Grey with an Eye of Green. At one end 'tis striped with Lines of Grey and White. *Greenwich.*

A *Flint* of a light brown Colour. In one part of it is a *Sinus*, cross'd with Lines of Yellow and Ash-Colour, alternately. *Islington.*

A Piece of a *Flint* cover'd with a white Crust, which is ridged and furrowed, tho' very slightly. Being broken, it appears within to consist in some parts of Plates, White, and a very light Grey, alternately: in others 'tis only of a dark Grey. It has some small degree of Diaphaneity. Found in a Gravel-Pit, at *Green-Hythe, Kent.*

A gritty *Stone*, of a reddish brown Colour, and globular Form. 'Tis about 2⁄3 of an Inch in Diameter. From a Brook near *Otterton* in *Devonshire*, where there are great Numbers of them found.

Another, somewhat less. From the same Brook.

A *Flint* in shape of a small Pear. *Shooters-Hill.* At the lesser end, for half the length of it, 'tis White, the rest a dark Grey. There's a Stone in *J. Bauhin's Book de Fonte Bollenfi*, of much the same Figure and Size. He calls it *Lapis Cinereus Cyphoides Judaico similis* and has graved an Icon of it, p. 35.

A brown *Flinty Pebble* of an oblong square Form, only the four Corners jet out into so many Prominencies gradually lessening till they end in a blunt Point, and are all of much the same Size and Shape. Found in *St. George's Fields, Southwark*, in a Gravel-Pit.

A yellowish *Pebble* swelling out at one end in such manner, that it somewhat resembles one of the common pileated Mushrooms. The two parts appear as they would, had they been soft like Palls, and then stuck together. Taken up in *Hamstead-Town.*

An oblong compress'd greyish *Pebble* with a very rough Surface, only there are two parts very smooth, of a much darker Colour, and tho' plain, yet raised above the ordinary Surface of the Stone; appearing like two Pieces of Plaister stuck upon it. These Parts are closer and harder than the rest of the Stone. *Tate-nam-Cours.*
c. 223. A Peble of a light brown Colour, and oblong Shape, hav
 ing two Appendages of the same Size and Shape, and opposite
to each other jetting out on each side, about the middle of the
Stone, so that it appears as if it were transfixted by a Bolt. Shep-
pey-Island, Kent.

c. 224. Another, of a somewhat paler Colour, befit with sever-
 al Proruberances, appearing like so many Warts lefter and larger
upon its Surface. Sydenham-Common, near Dulwich.

c. 225. A Flint of an oval Shape, an Inch and a half long, and
about an Inch over. 'Tis somewhat flat, terminating all round
in an Edge. On one side 'tis white, somewhat rough, and rises
into a regular oval Convex. The other rises likewise, but not
near so much, is very smooth, of a yellow Colour with a Caft of
Green, and has a Line of White, about \( \frac{1}{16} \) of an Inch over, round
the Edge. This was found in the great Gravel-pit on the East-
side of Hyde-Park. I have seen several in the Gravel about this
Town of the fame Shape and Colours, but all less than this.

c. 226. A gritty Peble of a very light brown Colour, an oblong
oval Shape, an Inch and \( \frac{3}{4} \) in length, and one Inch in breadth,
flattifi, and having the two Ends somewhat pointed. There's a
narrow Ridge, of the fame breadth in all parts, running directly
long-ways of the Stone, and quite encompassing it. This Ridge
consists of a clofer and harder Sort of Matter than the rest of the
Stone. In the middle on one side, the Stone sinks in, and rises out
on the opposite, as if it had been soft and pres'd in that Part. In-
deed it appears, upon the whole, as if it had been flat the quite
contrary way of what it is at present, and the Ridge that now runs
thorougb the middle of the Flat, had terminated at the Edges of the
Stone, till some exterior Force compressing the two opposite
Edges, brought it to the Form it now obtains, which indeed is
very odd and extraordinary. Not but that it might originally
have concreted into this Form, and perhaps it did. Where the
ordinary Surface of the Stone sinks in, the Ridge yields in pro-
portion. 'Tis not likely that this Ridge was extant at the first
Formation of the Stone. Confer. N° 227. infra. but it appears
very naturally as if it had been soft, and then compress'd, and
wrought into the Shape it now bears. I found it in a Gravel-
Pit amongst the New Buildings by Dover-street, St. James's, in
the Year 1688. and 'twas the first Stone I ever took notice of, or
gather'd. J. Bauhinus, de Fonte Bollenf, p. 36. has an Icon of a
Stone not unlike this. He gives it the Title of Lapis cinereus se-
miowalis coasa per medium longitudinem leviter surrecit.

c. 227. A flinty Peble of a darker brown Colour, and firmer
Confidence, but much the fame Shape with the foregoing, tho'
it be of size somewhat lefs. Instead of the Ridge, mention'd in
the former, this has a whitifh Line environing of it length-ways,
in like manner as the Ridge does that. This Line does not rife
at all above the ordinary Surface, this Body being in all parts of
the fame Hardness. And possibly that which is now the Ridge
in that Stone, was originally not more raised than the rest of the Surface of the Stone, but being harder than the other parts of it; if the Stone was fretted or rubbed against other Bodies, 'tis certain the softer parts of it would yield soonest to the Attrition, and wear off the fastest; and this, more resiling the external Force upon it, would abide, and remain thus prominent, whilst the rest yielded, and wore off. 'Tis very certain, and there are multitudes of Instances in those Stones that are tumbled about upon the Shores by the Sea, agitated by the Tides and Storms, that the Parts that are softest wear fastest, and are hollow'd; whilst the harder, better enduring the Bruin, are prominent, and stand out above the others. The Stone, No 226. lay in a Gravel-Pit, far from the Sea, or any River: and 'tis not likely but that it had lain quietly ever since 'twas first reposit'd there. But from Contemplation of this, and several others of like Constitution, Conf. No 187. 203, & seq. uti & No 222. 'tis evident that these Bodies have had their Surfaces ground, and worn, betwixt the Time that they were form'd in the Water of the Deluge, and that when they were reposit'd in the places where they are at this day found. Now that could never happen from any other Caufe, than the Hurry, Precipitation, and rapid Motion of the Water, returning, at the end of the Deluge, towards the Sea, and the Apertures of the Abyss, which are at the bottom of it. For, from several Observations that I have made, which shall be all deliver'd in their proper place, I find that the Force of the Water, so returning, was so great, as to tear up some of even the most solid Strata, and bear vast Masses of them with it, tumbling them along, rounding and smoothing them, and leaving many of them behind, when its Force began to abate; of which there are Instances in almost all parts of the World. lesser Fragments, and Nodules, were more eaily born away, and rounded. That they were really so, besides this Argument, of the harder parts of these Nodules commonly standing out, and being more prominent than the softer, where they consist of two sorts of Matter, the one more firm and solid than the other; I take the Smoothness of the Surface of some Pebles and Flints, their original native rough Coats being worn off, to be a Proof of the same Thing. This Smoothness is very observable in the Surfaces of c. 167, 168, 169, 187, 192, *194, 196, 199, 202, all found in Gravel-Pits, or other Places where they had lain undisturb'd from the Time that they were first reposit'd there. And yet these have their Surfaces as smooth and polite as thofe, c. 186, 188, or any other that I ever met with upon the Shores, that had been ground and polish'd by the Agitation of the Sea. But there's yet another Phenomenon, that I take to be an undeniable Evidence of this Motion of the Water, and Attrition of the Stones hurry'd on by it. It is that the Nodules, that are made up of a Collection of smaller round Pebles, of different Figures and Sizes, cemented together into one Mass or Lump, I say these Nodules have their Surfaces smooth. Thus in the Nodule;
dule, No 7. supra, taken forth of a Stratum of Gravel, and that is
made up of many black, small, flinty Pebles, held together by a
yellowish Cement, tho all of them that are within the Stone, have
some degree of Convexity, yet those at the Surface on all sides
the Stone, terminate in a Flat that is coincident with the Plane
of the Surface of the Nodule. Insofar much that on the outside it
appears like a yellowish Peble, spotted with black, the whole Sur-
face being pretty smooth. The Stone is cut thorough the mid-
dle; by which means the Shapes of the Pebles that compose it are
very evident, and their Convexity manifest. And it must needs
be granted, that Pebles of that Shape could never by any Contri-
vance whatever be so disposed as to constitute a Body with a
plain even Surface. Indeed it might be so order'd, that only a
small part of the Surface of the black Pebles standing to the com-
mon Surface of the Nodule, the Interstices of the Pebles might
be fill'd up with the Matter that constitutes the Cement, and so
the Surface be render'd smooth. But then the black Spots must
be small, whereas in this the Diameters are as large, most of them,
as the largest Diameters of the Bodies of the said Pebles; which
'tis impossible they should, had only some small Portion of the
Convex of them appear'd at the Surface of the Nodule. In short,
they are as large as that Flat would be, after they were ground
down to the Middle or Center. And indeed they appear here to
have been ground so; for viewing the Face of the Stone where
cut, the Pebles at the Surface of the Nodule have their inner Sur-
faces, I mean those towards the Center of the Nodule, constantly
convex; whereas those Surfaces that terminate at the Surface of
the Nodule, are every where near plane. So that these are there,
some of them, Half Spheres, others Half-Ovals, and the like; but
there are none of such Figures in the Body, or interior Parts of
the Nodule. In fine, at the Surface of the Nodule there are some
few Pebles of a firmer and closer Constitution than the rest;
and these are more polite than those, and rise somewhat above
the ordinary Surface of the Nodule, as having better maintain'd
their ground, and endured the Attrition, than the rest could, that
were not quite so hard. Upon the whole, here are so many Evi-
dences that the Surface of this Body was originally uneven, and
afterwards ground and wrought to a Plain, that the Thing cannot
possibly be doubted of. Further Proofs of this we have in those,
No 8 & 10. supra, and other like Bodies consisting of Pebles ce-
mented and held together in one Mafs.

C. 228. An oval Stone, of a brown Colour with a Coat of Green.
It somewhat resembles a Walnut, divested of its outer green Coat,
both in Size and Shape; and is, in like manner, divided into two
equal Parts, by means of a Line passing length-ways round it. 'Tis
smoother and more polite on the Parts on each side the Line than
elsewhere, which indeed are now somewhat more prominent
than the other parts of it, and appear formerly to have been yet
more so, but ground and worn down by Attrition against some
other
other Bodies, by which means 'twas smoothed and polished. This is so evident from Inspection of the Stone itself, as not to be de-
y'd. Brompton, near Chelsey.

c.229. A black flinty Peble of a compress'd Form; and, in-
deed, both in Form, and Bigness, resembling a Garden-Bean. Quite round the Edge of it runs a Line, \( \frac{1}{12} \) of an Inch in breadth, and of a yellow Colour, with an Eye of Green. Gravel-Pit in St. James's Park.

c.230. A triangular flinty Peble, of a dark grey Colour, with a Coat of Green. It rises on each side into a Convexity. There runs quite round the Edges, and by the Angles of it, a Line of a yellow Colour, and about \( \frac{1}{2} \) of an Inch in breadth. There's also on the more convex side a part bunching out a little, of a yellow Colour with a higher Coat of Green. 'This, and the Line round the Edges, are smoother than any other part of the Stone, and seem to have been ground down, thorough the exterior Coat, till the inner Constitution of the Stone appears. [Let it be cut, in order to discover whether it be yellow throughout.] 'Twas found in a Gravel-Pit in St. George's-Fields, Southwark.

c.231. A Peble of a light brown Colour, and of a gritty coarse Constitution. 'Tis encompassed with two parallel Lines of about \( \frac{5}{6} \) of an Inch in breadth, and at the Distance of \( \frac{1}{6} \) of an Inch from each other. These Lines are more prominent, and polite, than the rest of the Surface of the Stone; and of a firmer and closer Constitution. Indeed the whole seems to have been ground and worn, which these have endured better than the other less firm Parts, and so are more rising and prominent than they are. Gravel-Pit on this side Hyde-Park.

c.232. A flinty Peble, having six roundish Cavities in it, pierced through the Coats of the Stone to the medullar Parts of it; where 'tis of a dark green Colour. The exterior Cortex is of a Folio-
mort Colour. The next under that a whitish brown. Then a Foliomort again. And, lastly, the green Substance. These Cavi-
ties do not appear to have been caufed by any breach of the Stone; but are as if six other Bodies had been contiguous to it whilft it was in Formation, and hindered the successive Application of the Matter, in order to the Continuation of the Cruits in those Parts or Cavities. Conf. N° 178. supra. Kentish-Town.

c.233. A Peble of a round compress'd Form, the exterior Sur-
face very rough, of a brown Colour with Spots of yellow. There is a semblunar Cavity (naturally) in it, that is of the same Colour, but much smoother than the Surface. St. George's-Fields, South-
wark.

c.234. A small, black, flinty Peble, of much the same Shape with the former. The Surface is black, with a Spot of yellow. It has (naturally) a Cavity in it, smoother than the Surface. Found at the Foot of Shooters-Hill.

c.*234. A Flint, the outer Crust of an horney Grey, with some degree of Diaphaneity, like an Agat; the inner of an Asli-Colour, and
and opaque. In the middle is a clear Crystaline Matter, shot in some parts, where there was room, into hexagonal pointed Cry-
Stals. I have elsewhere set forth those Observations on Flints, and Agats, from which it appears that the Parts of these Bodies, that have an horney Diaphaneity, owe it to an Admixture of Crystal incorporated with the common Mafs of the Stone. This was found near Purfleet, Essex. I have seen several Flints, that, when broke, had Cavities within, thick set on all sides with fine hexagonal Crystal Shoots, and after the manner of the concave Crystaline Balls; and some very fair, and pretty large.

c. 245. A Pebble of a light brown Colour. In one part of it the Surface is somewhat depress'd; and there, upon a Plane, are several small oblong Studds, each near as big as a Rape-Seed, placed regularly in a Quincunx Order, at the Distance of about \( \frac{1}{2} \) of an Inch from each other. The Plane is near square; and there are nine Rows of the Studds each way, from side to side. On one side of the Square the Stone is broken, and seems to be worn away on another; so that how far the said Plane might originally extend, is not to be known. 'Twas found in a Gravel-Pit amidst the New Buildings near Dover-street, St. James's. The Studds of this are smooth at top, and not abrupt; nor have they any appearance of being broken off from any thing else; which those of the following manifestly have.

c. 246. A grey Flint with a brownish Cast; the outer Coat grey. 'Tis split in two; and in one Piece are very many Studds, somewhat larger than those of No. 245, and set closer together. They stand in an Order approaching a Quincunx, tho not quite so regular as in the foregoing. They are abrupt at top; and were originally continuous to the opposite Piece. The Surface, or Plane, whereon they are planted, is depress'd in three places, and rifes gently in the Intervals. The Depressions, and Rifings, are straight, and parallel. Whether there were not more of them; or how far the Plane extended, does not appear, this being only a piece of the Flint, and is entirely studded over. In the opposite piece of the Flint are several little Cavities, into which the Studds were implanted. The Intervals of the Cavities, rising a little, make a pretty kind of reticulated Work. The Surface of the Plane in this rifes alternately, and is depress'd so, as to tally with, and answer the other. Found in a Corn-Field, near the Thames, by Gravesend.

c. 247. A brown Flint of a Conic Figure. The Basis is oblong, being one Inch and a quarter long-ways, and near an Inch across; and is somewhat depress'd or hollow'd gradually towards the middle of it. Round the Edges of the Basis are two Ranks of Cavities, in each of which is placed a roundish Studd, about the bigness of a Grain of Millet. The Studds have their Surface punctuated, as if set all over with other Studds infinitely lesser. Near the Apex, or Top of the Cone, is a Corona or Circle of the same sort of Studds, but much broader, there being more of them in
some parts than in others. The Studds are of a much darker brown than the rest of the Surface of the Stone; and they being punctuated, and the ordinary Surface smooth, make the whole a very extraordinary Object. This I found in a Gravel-Pit near Cambridge. A very small piece of this Flint is broken off, which discovers it to be of a whitish grey Colour, very polite, and of a firm close Constitution within. **Vid. No. 252, infra.**

c. 248. Another, of like Figure, but much larger. This is covered all over with a grey Crust; and has two Fragments of Spines of some sort of marine **Echinus** adhering to the Surface of it. Round the Edges of the Base of it is a Line \(\frac{1}{8}\) of an Inch in breadth, thick set with small Pores, and Studds, and there are some large flat Ridges running irregularly across it. The Top of the Cone is cover'd with a Spot, rather inclining towards one side of the Body, \(\frac{1}{4}\) of an Inch in Diameter, fluted and porous, for the main, like the Line round the Base. Found in a Corn-Field near Green-Hythe, Kent.

c. 249. A dusky brown Flint, of a Conic Figure, but rounder and more slender, and having the Base less than either of the former. 'Tis about an Inch and a half long; and an Inch in Diameter. Round the Edges of the Base runs a Line about a quarter of an Inch over, and of a paler Colour than that of the rest of the Body. It sinks in for about \(\frac{1}{2}\) of an Inch, as if the Surface had been graved, and the Stone cut into by a Tool. The Margins of it, on each side, do not terminate in a straight Line, but are indented, each Indentation being continued in a small Ridge across the Line to the Indentation that answers it on the opposite Margin. They are towards the Edge of the Base a little effaced, as if fretted or worn down. Round the Apex at top, 'tis encircled with a Line or **Corona** of much the same Breadth, and Work, as that at the Base. **Hampstead-Heath.**

c. 250. A small grey Flint, cover'd with a whitish Crust, and of a Conic Shape; only the Base is somewhat convex, and the Apex of the Cone not directly in the middle, but inclining towards one side of the Body. Round the Base runs a Line undulating to and again, not unlike a Suture in a Skull. With a little Force the Body parted in two at this Line, the Cohesion being slight, and only an inconsiderable part of the Flint broke. The lower piece within is furrow'd pretty deep, and ridged alternately, the Ridges gradually rising and running up into an Apex or Cone in the middle. The upper Piece has a conic Cavity, ridged and furrowed in such manner as to admit and tally with the other. Found in a Stratum of Chalk about fifty Foot deep, in the great Chalk-pit at Northfleet, Kent.

c. 251. A Flint, cover'd with a dark grey Crust. On one part of the Surface is a Line of a pale brown Colour, about \(\frac{1}{8}\) of an Inch over, and sinking near half as much below the Surface. 'Tis undulated to and again, so that the Body in that part appears much like
like the Cerebellum of a Man. Found on Gogmagog-Hills, near Cambridge.

c. 251. Another, with the Surface undulated in like manner. Found near Cambridge.

c. 252. A greyish brown Flint, of an obtuse conic Figure; an Inch in Diameter at the Base, and about \( \frac{1}{3} \) of an Inch in height. In the middle of the Base is a round Flat about \( \frac{1}{2} \) of an Inch over, and somewhat raised above the rest of the Base. The whole Surface besides is very rough, being thick set with very small Pores, excepting certain smooth Ridges that run into one another, so as to constitute an elegant reticulated Work upon it. Found near Rumford in Essex. This somewhat resembles a sort of Echinus we meet with frequently in our Chalk-Pits; as that N° 247. does another; tho there's no reason to think they either of them owe their Form to a Shell.

c. 253. Another Flint, of much the same Colour. A great part of the Surface rises into Ridges, which are so disposed, that the whole not unaptly resembles the Surface of the Brain of some sorts of Fowls. Found in a Gravel-Pit in St. George’s-Fields, Southwark. The Intervals, or those parts that lie betwixt the Ridges, are rough and porous, much as in the foregoing.

c. 254. A Flint of a Cylindric Figure, only lessening a little toward each end. 'Tis three Inches long, and one Inch and a half in Diameter. There runs thro the whole length of it a cylindric Cavity, of about half an Inch in Diameter. The Surface without is of a whitish; that of the Cavity yellow. The Substance of it, where broken, is grey. Found in a Gravel-Pit near Greenhithe, Kent.

c. 255. Another of like Shape in all regards, but somewhat shorter. The exterior Surface of this is of a yellowish brown Colour; and the cylindric Cavity larger than that of the foregoing. Found in a Gravel on the back-side of Golden-Square.

c. 256. Another, little different in any respect, only 'tis considerably less than either of the former. Found in the same Pit with N° 255.

c. 257. A Flint, brown, with a Cast of Green. It consists of three round Stems or Branches concurring in the middle. There is a Hole at the Extremity of each Branch, passing on to the middle of the Stone, where all three Cavities communicate together. So that this Stone is no other than a triple-branch'd fistulous flinty Crust. Besides that, at the end, in the side of one of the Branches, which is somewhat longer than either of the rest, are two pretty large Holes opening into the Cavity of the Branch. Found, among Gravel, near Marybone, Middlesex.

c. 258. An orbicular grey Flint, about three quarters of an Inch in Diameter. In the middle of it is a spherical Cavity, lined with a cretaceous Matter. This was found in a Chalk-Pit near Charlton, in Kent. These flinty Shells are pretty frequently found. Their Cavities are sometimes empty, sometimes filled with
with Chalk *; and sometimes with a somewhat harder white Body †, which, if looë, so as to rattle when the Stone is shaken, is what the Antients call 'Aëtitus. I have met with these several sorts in the Chalk-Pits of Surrey, Kent, Essex, and Hertfordshire, from the bigness of a Pea, to the Diameter of four Inches.

c. 259. An orbicular brown Flint, somewhat less than the former. There's a spheric Cavity in the middle of it; and a round Hole (naturally) from the Surface passing into that Cavity. If

ington.

c. 263. A large piece of a concave flinty Ball. The Coat without is brownish, and very rough and uneven. The inside rises up into fine pellucid Bubbles not unlike those of Frog-spawn, of different Sizes. They indeed very much resemble the botryoid Tubera on the Hamatites. Vid. Clas 14. No. 42. Found in a Gravel-Pit on this side Tatnum-Court, along with No. 7. supra. One of the Bubbles being broken, discovers a Texture within, very like that of the Hamatites; (vid. Clas 14. 0.42.) and is in like manner striated too: but the Stria in this are extremely fine and small. 'Tis true, the Bubbles of the Hamatites are outwards, and upon the convex of them; and these of the Flints on the inside, and concave part: but that's a variety we see frequently happening to the very same sort of Matter. Witness the echinated crystalline Balls, on which the Crystals rise out of the Convex; and the concave crystalline Balls, where they are all on the concave part. Nay, both these are found in the same Place, or Ground, too. Conf. c. 19. supra.

c. 264. Another, little different, only the Bubbles are scarcely so clear, having in them a flight Tincture of Yellow. Found in a Gravel-Pit in St. George's Fields.

c. 265. Another Gravel-Pit in Hyde-Park. The Bubbles of this have their Surfaces glistering, and frosted over with extreme small crystal Sparks. There are Sparks very like these observable on some Samples of the Hamatites; particularly on one part of that Clas 14. o. 55.

c. 266. A large black Flint, with a white Coat. Being broke in two, there appears in the middle of it an oval Cavity, two Inches in length, and an Inch and half a-cross. There passes a Cylinder of Flint, a quarter of an Inch in Diameter, through the whole length of the Cavity, and incorporates with the Flint at each end of that Cavity. And at one end of it arises a flinty String, of of an Inch in thickness, which wreathing itself five times spirally about the Cylinder, is inferted into the Flint at the other end of the Cavity. The Flint constituting the Body of the...
Stone, of the Cylinder, and the String about it, is all of the same Colour and Substance. The Inside of the Cavity is lined, and the Cylinder and String invested, with a white flinty Coat, frosted over, in all of them, with very fine small Sparks of Crystal. Out of a Chalk-Pit, by Purfleet, Essex.

c. 267. Another large grey Flint, with a like Cavity, and Cylinder passing long-ways of it. There's a like String also spirally wreathed about it, tho' (in this) only three times. The Cavity, Cylinder, and String, are cover'd with a white Coat, frosted over with crystalline Sparks, but smaller and less conspicuous than in the foregoing. Found in a Field between Cashalton and Bennington, in Surrey.

c. 268. A yellowish brown Flint, near round, and about three Inches and a half in Diameter, the Surface somewhat tuberose and uneven. In the middle is a Cavity, with a hard Body lying loose in it, and ratling when the Stone is shaken. This is a sort of Ætites, or Eagle-stone. Kentish-Town.

There's another Ætites, c. 299. infra. See also c. 306.

c. 269. A roundish Flint, outwardly brown; inwardly, as appears by a little Bit struck off, it is of a deep grey, near black. It is about two Inches in Diameter, and of the Ætites kind; discovering a Callimus in the middle of it when shaken. I found this on the plough'd Lands near Marlborough, in Wiltshire.

c. 270. A round Flint, about the bigness of a Walnut. 'Tis of a brown Colour, with a Cast of green. There's a pretty deep Furrow running in manner of a Zone round the middle of it; the Surface, on each side of the Zone, for a little space, being porous and uneven. Dr. Prideaux found this amongst the Gravel in the Walks of his Garden at Norwich. This also is an Ætites.

c. 271. Another, very round, and smooth. 'Tis of a pale brown Colour. The loose Stone within is very hard, as appears from the brisk Noife it makes when shaken. Mr. Morton. Found in - - - - Hertfordshire.

c. 271. Another, a little different from the precedent; only less, and of a deep Colour, near black. Found near Uxbridge.

c. 272. A roundish Flint, of a very dark brown Colour. In the middle of it is a large Cavity, into which there pass two Holes from the Surface. In the said Cavity lies loose the Shell of some sort of Bivalve, larger than could be introduced in at either of those Holes. Taken out of a Cliff, near Dover.

c. 273. A blackish flinty Peble, in shape very much resembling a human Heart. The Bafis has several Foramina, appearing not unlike the Cavities of the Blood-Vessels cut off at their Rife out of the Heart. 'Tis two Inches and a quarter in length. Found upon the Strand near the Pier at Dover.

c. 275. A small flinty Peble, which being broken, discovers a porous scabrous Nucleus in the middle of it, which is contain'd in a grey Cruff, a quarter of an Inch in Thickness, and that involved in another of a yellow Colour, \( \frac{3}{25} \) of an Inch thick. The

Crufts
Casts including the Nucleus are of a close flinty Texture. Found in a Gravel-Pit in St. George's-Fields, Southwark.

c. 276. A Pebble about the bigness of a small Walnut, of a brownish yellow in most places; but where the outward Crust has been worn off, it appears of a very light yellow. It has some degree of Transparency; and in the whole resembles very much a piece of Amber. Epping-Foreste, near Lord Castlemain's House.

c. 277. A Flint with some degree of Diaphaneity in all parts, but the middle of it is very diaphanous, with some small Spots of red. This is surrounded with a Crust of brown, set pretty thick with grey Spots. Found in St. George's-Fields, Southwark.

c. 278. An oval Plate cut off the foregoing, which takes a fine Polish.

c. 280. A Plate, cut off a flinty Pebble found near Islington. It takes a good Polish. There's a cellular Texture in this finely shewn; and 'tis a beautiful Stone.

c. 282. A Plate, cut off a Flint having some degree of Diaphaneity. The Ground of it is red, and thick set with Spots of yellow. Found in St. George's Fields, Southwark.

c. 283. A Flint cut into the Form of a Knife-haft. 'Tis partly diaphanous, and besides, shews a beautiful Mixture of Colours, being variegated with white, yellow, green, brown, red and purple. 'Tis very hard, bears a good Polish, and is as fair an Agate as is generally seen.

c. 285. A Plate cut off a flinty Pebble semi-pellucid, the middle part of it is grey, thick set with black Spots, and some few white. Round this are Streaks and Spots of red, white, and yellow, in a Ground of a lightish brown Colour, with a Blush of Green. Found in the Road to Hampstead, half a Mile on this side the Town.

c. 287. A Plate, cut off a flinty Pebble; the greater part of the Ground of a deep grey, approaching black, finely variegated with red, yellow, purple, and white.

c. 290. An oval Plate, cut off a flinty Pebble, variegated with grey, white, yellow, purple; with a good Polish. The Stone found in the Road near Hampstead.

c. 294. An oval Plate, cut off a flinty Pebble found on Hampstead-Heath. 'Tis finely variegated with white, purple, red, yellow, and brown; and takes an excellent Polish.

c. 295. Another, semi-pellucid; the Ground an horney grey, but having in some parts a Cast of Yellow. There are in it five or six white Streaks or Plumes, lying parallel to each other, and passing a-cross the Plate. The Polish is very good. The flinty Pebble off which it was cut, was found likewise on Hampstead-Heath.

c. 296. Another Plate very beautiful, and its Polish admirable. 'Tis variegated in a very lovely manner with white, red, purple, and yellow. From the same Heath.
c. 297. One half of a Flint, that was of a shap[e near orbicular. Tis hollow, and lined with Spar, shot into Cry[tals, pellucid, and very small. Without these is a flinty Cruft of a pale brown Colour, of an Inch in thickness; and, over all, another Crutf, somewhat paler, and of an Inch thick. The Body itself is two Inches and a half in Diameter. Greenhythe.

c. 298. A flinty Peb[e, of a compre[f'd flat shape, almost triangular. The three Corners are of a pale yellow Colour; the rest of the Surface of a reddish brown. Found near Hackney.

c. 299. A Flint, of a light brown Colour, pretty round, on the Surface smooth, except that there are some small Cavities in it. It is about an Inch and half in Diameter. It is of the Ætites Kind, having a loose Callimus in it, which rattles and makes a noise upon shaking the Stone. Found near Marybone, Middlesex.

c. 300. A Pair of Stones, cut Diamond-wise, polished, and fit to set. They are transparent, clear, and of a good Water. They were cut both out of the same Flint; which was found near Ashburn, in the Peak.

c. 301. A small oval Plate, cut off a flinty Peb[e, and polished. The Politure is very good; and tis prettily variegated with a pale grey, blue, yellow, and purple. Found in the Gravel-Pit at the Top of the Hill, near the Town, on Hamstead-Heath.

c. 302. Another like Plate, with much the same Colours, but variegated in a different manner. The Stone found in the Road between Deptford and Southwark.

c. 303. Another, with like Colours, only the Yellow is darker, with a Cast of Green. The Stone off which it was cut, was found along with the precedent.

c. 304. Seven and twenty flinty Pebles cut into oval Figures, and polished. They are hardly so big as Pigeons Eggs. Several of them are of the Agat kind; and of a fine corneous, or semi-pellucid Grey. The rest are most curiously variegated with almost all sorts of Colours. They were found in several Parts, of Surrey and Middlesex, near London. The Design of preserving these, is to shew the inner Constitution of this sort of Stone, when thus cut, and laid open to view; and the Method and Proces[s in the Formation of it.

c. 305. An oval Plate, cut off a flinty Peb[e. Found on Winchmore-Hill, not far from Southgate, Epping-Forest. The Ground of this Plate is of a light grey Colour; but is spotted with a darker grey, and with black. One of the black Spots is long, slender, and, as the Lapidary Fancies, resembles a Dagger, or Bayoner. Towards one end is seen a pretty Intermixture of red and yellow.

c. 306. A small round Flint, broken so as to shew 'tis compos'd of three Cruts or Spheres; the outermost white, the next corneous, and the innermost white. In the Center is a Cavity, in which is a Core of a grey Colour; affix'd on one Side to the innermost Crut. Had this been loose, as they frequently are, it would
would have shook; and then the Body would have been call'd an &etites, of which sort it truly is. Deptford.

c. 307. A black Flint, cover'd with a white Crust, off which Flakes seem to have started in several parts of the Surface, most of which have left small Cavities, in figure of a Crescent or Half-Moon. Found, amongst several others that had like semilunar Cavities, near Cambridge.

c. 308. A small Peble, yellow, with numerous small Specks of red. From the Shores near White haven.

c. 309. Another, of a dusky red Colour, with small Specks of a brighter red. From the same Shores.

c. 310. A Plate cut off a flinty Peble. Found on Hamstead-Heath, finely variegated with yellow, white, and red.

CLASS IV.

Talc and Talky Bodies.

PART I.

EXTRACT.

A Classical Distribution of the Talky Bodies according to their Figures, Textures, and Relations to each other. Part 1.

Talc differs from all other native Fossils in this, that it is flexible and elastic; and all Talky Bodies are so more or less, answerable to the greater or less Quantity of the Talc they have in them. Part 1.

Talc in Ragstone, b. 70: in blue Slate, b. 80: in the Piped-waxen Vein, ± d. 9.


— in various other Fossils. See the Index of the first Part of this Class.

CLASS IV.

Talc and Talky Bodies:

PREFACE.

These are either, 1st, Regular in their Texture and internal Constitution; but not in their exterior Figure. As 1. The fibrous or filamentose Bodies, which are composed of parallel Threads. 2. The
2. The piped-waxen Vein, that is composed of parallel Tubules.
3. The Ludus Helmontii, which is composed of Talky Plates forming Cells, that are filled with stoney Matter. 4. Talc and the Micæ, which are composed of parallel Plates; all which Bodies have their exterior Surfaces irregular and uncertain. Or, 2dly, Regular, both in their internal Constitution, and in their external Figure: As, 1. The Selenites, which is composed of parallel Plates, and is externally of a Rhomboid Figure. 2. The Belemnites, which is composed of various Cortices including one another, and is externally of a Conoid Figure.

One Property Talc has that is peculiar; and in which it differs from all other Native Fossils: which is, that it is flexible and elastic, being disposed to bend; but return to its original straight Posture as soon as the Force that bends it is withdrawn. The same Property is observed in all Talky Bodies; but more or less, according as they contain more or less Talky Matter in them. The Plates of the Selenites, and Threads of the fibrous Bodies, Class 4. Part 2. bend much more easily than the Talky Spar; and the Septa of the Ludus Helmontii, the Pipes of the piped-waxen Vein, and the Cortices of the Belemnite, have so little Talc incorporated with the Spar that composes them, that it is no wonder they are not flexible.

Wadd or Black-Lead apparently holds a considerable Proportion of Talc in it; and the finer parts of it, when cut into thin Plates, or into Threads, bends, and is elastic. The Talky Sorts of Slate, such as that b. So. supra, have likewise some small degree of Flexibility and Elasticity. This elastic Disposition discriminates the Talky Fossils from all others that are Native. Indeed there are none besides that are flexible, except only the Virgin Metals; and they are not elastic.

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CLASS IV. PART I.

The squamous or foliaceous Talc and Mica.

EXTRACT.

C. 1. The several Names given to these Bodies by Writers and others.

Lapis Specularis, Iing-Glas, or Muscovy-Glas, along with a black glossy Talc, in a sparry semi-pellucid Stone, Θ d. 1.
Talc like the Venetian, Θ d. *7.
Galaicos Argyrodamanti similis, Plinii, Θ d. 27.
Wormseed-Stone, a Talky Body, related to the Porphyry Kind, Θ d. 36.

Granite,
Cranite, like that from Arabia, \( \Theta d. 38 \cdot \frac{38}{4} + 38 \).

Warming-stone, \( \Theta d. 7 \).

Sulphur Earth, \( \Theta d. 41 \).

Call, \( \Theta d. 45 \).

Mica argentea, the white or silvery Mica; Glimmer, or Cat-Silver, \( \Omega d. 1.2.4.9.10. \cdot 10.29.30.31. \& \text{ seq. to } 39 \).

Mica aurea, the gilded or yellow Mica, \( \Omega d. 16, \& \text{ seq. } 25.42 \).

Mica grysea, the grey Mica, \( \Omega d. 7.28.38. \cdot 38.43 \).

Mica nigra, the black Mica, \( \Omega d. 11.12.13.14.15.16.22.23.25 \).

44.45.

C. 2. The various Bodies in which Talc is found.

Talc in a saline Earth, g.\( *3.\)

Talc in Loam, a. 100.

— in Sand, \( \text{a. } 7 \).

— in Strata of Stone, b. 1.31.32.60. \( \Omega d. 14.38.39 \).

— in white Slate, or Flag, b.85.

— in Stone mix'd with Coal, g.16.

— in Marble, \( * b. 11.19 \).

— in Geodes, \( \text{a. } 1.10 \).

— in the Ludus Helmontii, x d. 5.

Talc in various other Fossils. See the Index of the general Reflections at the Head of this fourth Class.

Mica argentea, in Stone, \( \Omega d. 4.5.9. \cdot 10.31.37 \).

— together with Spar, \( \Omega d. *7.29.44 \).

— with Iron, \( \Omega d. 44 \).

Mica aurea in Spar, \( \Omega d. 16.17 \).

— in a gritty friable Stone, \( \Omega d. 20 \).

— in a hard Stone of a ferruginous Colour, and holding upon trial, Sulphur, and Tin, \( \Omega d. 21 \).

Black Mica in Spar, \( \Omega 11.16.22.25 \).

— in Stone and Spar, \( \Omega d. 14 \).

— in Stone, \( \Omega d. 12 \).

— mix'd with a white diaphanous Sand, \( \Omega d. 23 \).

— suspected to hold Silver, \( \Omega d. 45 \).

C. 3. Of the Uses of Talc.

Talc reducible to an impalpable Powder, of use in casting of Metals, \( \Omega d. 14 \).

Of the Medical and Chirurgical Uses of Talc.

Of the Mechanical Uses of Talc.

C. 4. Of the Composition of Talc; and of its Origin and Formation.

Talc is, in specific Gravity, to Water, as \( \frac{24}{1} \) to 1. It is flexible and elastic. In which it differs from all other Fossils; and, which
which is remarkable, somewhat approaches the Tenor of Animal and Vegetable Substances.

It ever concretes, and is form'd into Plates, or Flakes; in which likewise it agrees with Wood, Shells, Bones, and other vegetable and animal Substances.

The lesser Masses of it, that are lodg'd in Sparry, Stoney, and other like Bodies, dispersedly, from their shining and glittering more than the other Parts of those Bodies, were an Inducement to the Writers of Fossils to give those Bodies the Name of Mica, and Glimmer.

These lesser Masses do not differ from those that are larger, that have the Plates of greater Extent, and are commonly call'd Talc, in Constitution, or any other Respect, except only in Bigness.

Talc, when homogeneous, pure, and free from extraneous Mixtures, is of a white, silvery, Glossy Complextion: and the Plates of it are generally plain, smooth, and pellucid. Such is the Lapis Specularis, or that sort that is call'd Muscovy-Glaes.

As to the yellow Talc, the Tryals I have hitherto had opportunity of making, have not inform'd me to what that Colour is owing: whether to the Accesion of Sulphur, or of some Metal.

The black and grey Colours arise from an extraneous Stoney or Mineral Matter, that is so intimately mix'd and incorporated with the Talky, as, being superior to it in Quantity, to give the form'd Mafs not only a different Complextion, but even frequently a Tenor, Form, and Disposition, different from what the Talky Matter ever assumes, when pure and free from such Admixture.

The Masses of the purer Talc, particularly those which are incorporated with Sparry Matter, consist of several Plates or Flakes set, Face to Face, contiguous to each other, Θ d. 1.

The Talky Flakes in the Strata, were all form'd before the Subsidence: and settling down, along with the Sand, and other constituent Matter of the Strata, they became repolished amongst them. The Weight, Density, and Resistance of the Matter of those Strata is such, that the Talky Flakes could not have been form'd since the Compilation of the laxer Strata, e. gr. of Earth, Sand, and Gravel. And for those of Stone, Slate, and the like, their Solidity would be a still greater Obstacle to the Formation of the Talky Plates in them. Those Plates lie flatways, and parallel to the Site of the Strata, as all flat Bodies constantly do in the Strata: and indeed in the very manner that flat Bodies are wont to be repolished, as settling down from a Fluid, Θ d. 1.

The Flakes of the Talc, found incorporated with the Spar, and Vein-Stones, in the perpendicular Figures, are accommodated to the Tenor of those Bodies. This was all repolished originally amongst the common constituent Matter of the Strata, either
either in single Corpuscles, or Masses, so small as to pass the Interstices and Pores of the Stone; through which they, as indeed all the Matter now found in those Fissures *, were drain'd, in Tract of Time, by the Water that is continually passing thither, in order to the Supply of Springs and Rivers.

C. 5. The Places where the Talc and Mica are found.

Hampshead-Heath, Θ d. 10 *
Loving-Land, Suffolk, Θ d. 17.
Oxendon, Northamptonshire, Θ d. 4.
Welfon, Northamptonshire, Θ d. 28.
Crick, Northamptonshire, Θ d. 24.
Buckland, Hertfordshire, Θ d. 30.
- - - - Bedfordshire, Θ d. 18.
Bullock's-Hill, Bedfordshire, Θ d. 19.
Shores near Skegness, Lincolnshire, Θ d. 3. 5. 12.
Near Hull, Θ d. 8. 9. 10. 13.
Shores near Outhorn, Yorkshire, Θ d. *1. 7. 11. 16. 22. 26.
Poul, Yorkshire, Θ d. 25.
The Top of Pendle-Hill, Θ d. 37. Lancashire.
Eden-Hall, Cumberland, Θ d. 38.
Skrees, Cumberland, Θ d. 38*.
Keswick, Cumberland, Θ d. 43.
Northmouton, Devonshire, Θ d. 44.
- - - - Devonshire, Θ d. 14.
Cornwall, Θ d. 21.
Minhiniat, Cornwall, Θ d. 45.
River Palmer, Θ d. 32. Cornwall.
St. Clear, Cornwall, Θ d. 35.
Near Castlock, Cornwall, Θ d. 36.
Roach, Cornwall, Θ d. 29.
Hinerton, Cornwall, Θ d. 31. 39. 42.
Jersey Island, Θ d. 20.
Newcastle upon Tyne, Θ d. 27.
Hackness, Yorkshire, Θ d. 23.

CLASS IV. PART I.
The squamous foliaceous Talc and Mica.

PREFACE.


* Nat. Hist. of the Earth, Part IV. Conf. 4.
None, of these which follow, in this Catalogue, are in Form of Nodules, or invested with a Crust. There are several, found on the Shores, that have been worn, and rounded by the Agitation of the Sea: and one, [O d. 4.] found, among Gravel, in a Midland-Country, rounded by the Water of the Deluge departing. O d. 1. was out of a Vein, or perpendicular Fissure. Most of the rest were Parts of Strata.

**Talcum & Mica. [O d.]**

O d. 1. Part of a large white sparri semipellucid Mass, found near Backwell in the Peak, containing, in several Parts of it, certain Masses of a white or silvery glossely Talc. Some of them are of a considerable Extent, the largest being an Inch and \( \frac{1}{4} \) in length, and an Inch broad. They easily split into thin transparent Lamina or Plates: and are of that sort of Body which is call'd by Pliny Lapis specularis, in the Shops Jting-Glafs, and Muscovy-Glafs. In one part, the Sparry and Talty Matter appear to be incorporated together, and equally mix'd. There are interpos'd in some parts of it, small, black, glossy Masses.

In this, and the Body O d. 30. the Plates of each distinct Mass lie parallel to one another: but the Masses themselves lie crofs, and in Postures as different as may be. Whereas in Stone, Slate, and other Bodies that lie in Strata, the Talty Flakes lie parallel to the Surface of the Strata. Even those two Bodies O d. 10\*, and O d. 28. that were found, tho' amongft Gravel, yet lying parallel to the Site of the Strata, have the Talty Plates lying parallel to each other, and to the Surfaces of those Strata. And in those Masses that were found, beat off from the Strata upon the Shores, such as O d. 2, 5, 6. the Talty Plates are disposed in the same Method. The reason of which will appear very plain to any one that knows that Pebles and Flints are of a cross-grain'd Constitution: and break irregularly, and uncertainly, Conf. Pref. to Glass 3. Whereas the Stone of the Strata that has Talty Plates in it, breaks with a Grain, and parallel to those Plates.

O d. 2. A Mass whitish, with a Caft of brown, thick set, in all parts, with small Spangles of Talc of the same sort with that of the precedent. From the Shores near Outhorn, Yorkshire. I have seen of the very fame from the Shores of Humber, near Hull. This seems to be a sort of the Mica of Agricola *\*. The Germans call it Glimmer, and Catzilver; the English, Cat-silver: and indeed Mica Argentea may not be an improper Name to distingiuish it from the yellow sort, which the Mineralists call Mica aurua.

* In Bermanno, p. 696. "Quiddam candidum Scintillarum " modo in hoc lapide lucet.—Colore Argento simile fit.”

O d. 3.
d. 3. A Piece of a larger, little different. From the Sea Shores betwixt Skegnæs and Ingoldmills, Lincolnshire. Mr. Morton.

d. 4. Another Mafs of a coarser Grain, whitish, with Spots of a light Brown, and small Spangles of the Silver Talc. Found near Oxenden in Northamptonshire. Mr. Morton.

d. 5. A small oval grey Mafs, very thick set with like Spangles, but somewhat larger. Found on the Lincolnshire Shores with No. 3.

d. 6. Another larger, otherwise a little different. From the same Shores.

d. 7. Another flat oval Stone, in which the Talky Matter consists of parts very small and fine, and is throughout incorporated with the grey Matter of the Stone. 'Tis thick set with small round ferruginous Bodies, standing out somewhat above the ordinary Surface of the Stone, being probably harder, and so having better sustain'd the Agitation of the Sea, which the Stone appears to have undergone. Still from the same Shores.

d. 7*. Another like Body, found along with the precedent. 'Tis cut and polish'd, to shew the interior Constitution of it.

d. 7†. A Piece of dark grey glossy Talc, with some white Spar interpos'd betwixt the Flakes of it. From Yorkshire, where it is in great plenty. 'Tis called there the Warming-Stone, they laying it in their Beds at their Feet in cold Weather. When once heated, it retains it a great while.

* d. 7. A flakey Mafs, grey, with a Cast of Green; in which the Talky Matter makes the greatest part of the Mafs: and is equally diffused and incorporated with the other Matter of it. This very much resembles what is sold in the Shops for Venetian Talc: and differs from the Lapis specularis, or Muscovy-Glass. d. 1. only in this, that the Plates of that are flat and plain, whereas these are convoluted and inflected: that is homogeneous, pure, and uniform. This has a greenish mineral Matter incorporated with it; which is the case of several of the following.

†† d. 7. Another, in which the Parts of the Talc are extremely small, but distinct, tho' inferior in Quantity to the rest of the Mafs. Outborn Shores, Yorkshire.

d. 8. Another, very small, otherwise not different from d. 7. Found on the Shores of the River Humber, near Hull.

d. 9. A dusky brown Mafs, with little Spangles of the silver Talc in it. From the same Shores of Humber.

d. 10. Another, of a light brown Colour, consisting of several Plates lying one upon another: and thick set with very small Flakes of the silver Talc. From the same Shores.

d. 10*. A Piece of a Gritty-Stone, of a deep red Colour, having in it very many Flakes of a white Talc, larger than those of the precedent. Found in the Gravel-Pit, near the Bowling-Green on Hampstead-Heath.

d. 11;
A white sparry Mass, thick set with Grains of a black glossy Talk. Found upon the Shores near Outborn, in Yorkshire. This sparry Mass appears to have been beat out of a Vein of the Neighbouring Cliffs: and, tho' the talky Plates in it lie in something of a Method, yet not near so regularly as they do in the Strata. And they lie in much the same Manner in those Q. d. 25, 26, 31, 32, 33, 34, 37, 39, 40. Also in the Masses Q. d. 14, 15, 24, 29, *38, 44. which were all out of the Veins, or Perpendicular Fissures.

A Mass, grey, and having throughout a very plentiful admixture of a black glossy Talc. From the Sea-Shores of Lincolnshire, between Skegness and Ingoldmells.

Another, less, otherwise not much different. From the Shores of Humber, near Hull.

A piece of Stone consisting partly of a Spar, white, with a Cast of red: and partly of a black glossy Talc. The Talc is very loose and brittle, the Flakes of it scaling off with the slightest force imaginable. 'Tis easily reducible into an extremely fine and impalpable Powder: And may fitly serve to keep any Metal that is cast, from sticking to the Mould. By reason of the Ponderousness of it, some have thought it contain'd metalick Matter in it; but, upon Tryal, that proves a mistake; nor is there any Metal in the same Pits where it is found; which are at ....... in Devonshire. There are several whole Strata of it lying from near the Day to a great Depth.

Another piece, consisting entirely of the same black Talc, without any interposition of Spar. Found with the former.

A whitish sparry Mass, having in it many Spangles of a shinning Gold-colour'd Talc, and some of a Black. This may not unfittly be call'd Mica- Aurea. Vid. No 2. From the Shores near Outborn in Yorkshire.

A Mass consisting chiefly of a yellow Talk, somewhat paler than the former. There are amongst it a few Grains of a whitish Spar: and on one side there adheres to it a pale brown hard Clay. From Loxingland, on the Coasts of Suffolk.

A piece of fine Sand-Stone, having a large Proportion of a pale yellow Talc, in very small Spangles, throughout all parts of it, sent me, for Silver-Ore, from .... in the Countess of Kent's Estate in Bedfordshire.

A Mass of yellow shining Talc, with a yellow earthy Matter mix'd with it. From Pullock's-Hill, near Selsae, two Miles from Ampthill, Bedfordshire.

A gritty friable brown Stone, with small Spangles of a pale yellow Talc. From the Island of Jersey. Mr. Southwell.

A very hard Stone, of a ferruginous Colour, in which is a considerable Number of Spangles of Talc of a Gold Colour. Upon tryal it yields some Sulphur, and a very little Tin. 'Tis found in vast Quantities, at ...... in Cornwall.
Ο. d. 22. A piece of a grey Mafs, compos'd partly of a white Spar, and partly of black Talky Spangles, in near an equal Proportion. Found about of a Mile South of Outborn, Yorkshire.

Ο. d. 23. A piece of a black glossy shinning Talc, with some intermixture of a white diaphanous Sand. From Hackney Shores, Yorkshire.

Ο. d. 24. A Talky Mafs, from Crick, Northamptonshire. 'Tis of a Sandy Colour. The Talky parts break in Flakes, not unlike the Lapis Judaeus.

Ο. d. 25. A whitish sparry Mafs, with Spangles of a Black, and some few of Gold-colour'd Talc. This is little different from Ο. d. 16. only that the Spar has a reddish Castle, and the Golden Micas are fewer. Found near Paul, in Yorkshire.

Ο. d. 26. A Mafs made up of black, white, and reddish Grains of a Talky Spar. Found near Outborn, Yorkshire.

Ο. d. 27. A Talky Mafs, grey, and flaky, with a very shining Silvery Glofs. There are in it small Knots, the biggest not exceeding the Size of a common Pea. Some of them of a deep red, others of a black Colour. From Scarborough, Yorkshire. It lofes not the Glofs in Calcination, but burns to a Subftance more approaching a Gold Colour: and is so very like Litharge, as not to be diftinguifh- ed by Refinners, who have made many Tuns of that Commodity. Sent me by Dr. Cay, who fupposes it to be the Galaxis Argyroda-manti Similis. Plin. Nat. Hist. L. 37. C. 10. From Newcastle upon Tyne.

Ο. d. 28. A grey Silver Mica, very thick fet with small shining Spangles. Welton Gravel-Pit, Northamptonshire. Mr. Morton.

Ο. d. 29. Spar, white, and brown; with Plates of a fine white glossy Talc in it. Roach, Cornwall. It seems to have been taken out of a Vein.

Ο. d. 30. Part of a coarse, brittle, sparry Mafs, full of Flakes of Talc, very fair, white, with an Eye of yellow. Buckland, near Royfion, Herefordshire.

Ο. d. 31. Mica argentea. Hinxton, Cornwall.

Ο. d. 32. Mica argentea. This is in Appearance very much like the Granite of Arabia. See the Catalogue of the Exotic Fossils. Found in the River Palmer, Cornwall, near the Sea; and worn to an exact Round or Globof Form, by the Motion of the Water.

Ο. d. 33. Mica argentea, with a whitifh Spar. Found in the same River.

Ο. d. 34. Mica argentea, in a Stone of a blackifh Ground, spotted with light brown. St. Cleer, Cornwall. This fort is also found on Rowtofe, in the same County.

Ο. d. 35. A Stone, porous, grey, with a Castle of Green. There are Plates of a white glossy Talc in it. Found in the River Palmer, Cornwall.

Ο. d. 36. A Stone, finely variegated with Spots of red and white; with extremely small Flakes of white Talc in it. Found on a great Hill near Caslock. 'Tis also not uncommonly found
in other Parts of Cornwall: and is called there, Wormseed-Stone; being thick set with small Bodies, not unlike the Semen Santonici, or Wormseed. 'Tis somewhat related to the Porphyry-kind.

Θ. d. 37. Brown Stone, with Spangles of the Mica argentea in it. From the top of Pendle-Hill, Lancashire.

Θ. d. 38. A Mafs spotted with black and white, and having in it Micas of a grey Talc; very much resembling the Granite of Ararabia. See the Catal. of the Exotic Fossils, Partt. 2. 5.—This was brought from Eden-Hall, in Cumberland, where 'tis found in vast Quantity.

Θ. d. *38. A Mafs, white, spotted with black, having grey Micas in it. This is exactly like the Granite. 'Tis found in Fissures in the Skrees, Cumberland.

Θ. d. †38. A Mafs little different; only the Ground has a Cast of red. There are Fragments of it, of considerable Bulk lying near the Skrees, Cumberland.

Θ. d. 39. A gritty Stone, ponderous, of a dusky red Colour; with silver Micas in it, and small Bits of a white Crystallin Spar. This is not much different from the Porphyry. Hinxton, Cornwall.

Θ. d. 40. A Mica, white, with a Cast of yellow. Loo-Beach, Cornwall.

Θ. d. 41. Another, from—— in the Peak; where 'tis call'd Sulphur-Earth.

Θ. d. 42. Mica aurea. Hinxton, Cornwall.

Θ. d. 43. A grey Mica. Keswick, Cumberland.

Θ. d. 44. A Mafs, red, and ponderous; with white Spar intermixed, and Flakes of a black glossy Talc. From the Mine at Northmoulton, Devonshire. This seems to hold Iron. The Workmen there give this the Name of Call.

Θ. d. 45. A black glossy Mica. This is found in great Quantity at Minhiniat, Cornwall. About fifty Years ago 'twas judged to hold Silver, and work'd for that Mettal.

CLASS IV. PART II.

Selenites Rhomboidalis.

EXTRACT.

Selenites, found lodg'd in Sand-Stone. b. 13.

—— found in Clay. a. 104, 105. d. 1. &c.

—— found particularly in the Clay near the Wells of purging Waters at Epom, Dulwich, &c. and therefore hath been supposed to impart the cathartic Property to those Waters: but erroneously; the Selenites being so far from being cathartic, that it is astringent. d. 44. Append. d. 49.
Clay in Selenites. d. 17. 33. 34. 54.
Spar, incorporated with the Selenites. d. 46.
Marcasfe, incorporated with the Selenites. d. 46.
Pyrites, adhering to the Selenites. d. 31.

C. 1. Of the Rhomboidal Selenites of Steno Prodr. p. 79:

Sect. I. With the Rhombs single or separate.

The Rhomboid Selenites is cautiously to be distinguish'd from the Selenites of Dr. Scheuchzer, (Specimen Lithogr. Helvet. p. 29.) and the German Naturalists; which is only a Spar: externally of no certain or regular Figure, but breaking into Rhomboidal Masses.

Whereas this is ever externally of a Rhomboid Shape: and is properly a Nodule. 'Tis indeed one of the most remarkable of all the figur'd ones. When entire, 'tis constantly uniform: and has no marks of Adhesion to any Solid. Consequently this Body was form'd in Water; in which 'twas wholly free during its Concretion, and not contiguous to any solid Body whatever. d. 1. 6\textsuperscript{o} seqq.

'Tis frequently met with very small, and indeed of all sizes, from the Weight of a Grain, to that of a Pound, or thereabouts; but is ever of a Rhomboidal Shape, tho with some diversity. Now the Body being constantly of the same Figure, of whatever Magnitude it happens to be, 'tis evident that every Advance, in the Formation of it successively from the very Initia and first Stamina, is in a Rhomboidal Form; the Process here being much the same as in the Crystallizations of the common Salts, Vitriol, Alum, and the rest; that are ever observ'd to be of near the same Figure, at what size soever a stop is put to the Progress of their Concretion.

The same is further evident, by a blueish Clay in d. 19. which, intervening whilst the Body was in the Act of Formation, and only about \textsuperscript{3}{\text{4}} of the Matter, that finally compos'd the whole, was concreted, distinguish'd and shew'd the Figure of the Surface of the Body when of but about \textsuperscript{3}{\text{4}} of the Dimensions that the whole at length attain'd to. And the Surface of this interior Rhomboid is exactly of the same Figure with that of the exterior: and every part of that at equal distance from this. The blueish Clay abovemention'd, appears plainly to be of like sort and Constitution with that of the Stratum wherein the Body lay. Indeed, in splitting and breaking the Selenite, found in several Places, I have commonly observ'd incorporated with them Particles of Clay no ways different from that of the Stratum, in which the Selenitæ were lodg'd, frequently very thick in great Numbers, and with such other Accidents, as clearly to indicate
indicate they were all form’d and finish’d before ever they were reposed there, or the Strata compiled. In truth the Sea-Shells, of several sorts, that are commonly found lodged together with them, point forth the Deluge for the time of their Formation; when, as well as all other terrestrial Matter, that Clay was sustaine’d in the Water, wherein these, and all other Nodules were form’d: and so it could not well be avoided but that some of it must intervene in the Concretion of the Selenites, and be inclosed in the Body of it. Considering the Circumstances of their Formation; ’tis rather a Wonder that so many of them are free, clear, and transparent, as we commonly find. In conclusion, the Selenite, Shells, and Clay, settling all down, compiled the Stratum.

The Rhomboid Selenites, is composed of parallel Plates, transparent, very thin, flexil, elastics: and that are easily split, and parted from each other. The Plates are compose’d of straight parallel Fibres. d. 1. 2.

The Plates of this Body were anciently employ’d for the Lights of Windows: and, when Glass came afterwards to be more commonly made, and generally to obtain, they cut it into Rhomboidal Panes, in Imitation of these Plates. d. 18. Appen.

Sect. II. The composit Rhomboid Selenites.

The Conjunction of several Rhombs happen’d by their being in the Water, so near together, whilst in the Act of Formation, that they interfer’d, intrench’d upon each other: and so, of meer necessity, combin’d into the same Lump. d. 20. & seqq.

C. 2. Of the Irregular Selenites.

This is of the same Nature and Constitution with the Rhomboid Selenites: from which it differs only in Figure. It is form’d in Fissures of Stone, where ’twas confin’d, and had not Scope to crystallize and attain a Rhomboidal Figure. d. 50.

CLASS IV. PART II.

Selenites Rhomboidalis.

d. 1. The Selenites Rhomboides of Dr. Plot, (Nat. Hist. Oxfordshire.) found in the Place he mentions, viz. in Heddington Quarrey, in a vast Stratum of a dark blue Clay, that lies above the Strata of

* Vid. Nat. Hist. of the Earth, Part. IV. Conf. 3.
Stone. This Body in length, measuring in a Diagonal, from the two extreme Angles, two Inches and $\frac{3}{10}$ of breadth, measuring from the two opposite Ridges of the longer Sides of the Rhomb, 'tis $\frac{1}{2}$ of an Inch: in thickness, measuring from the two parallel Rhomboidal Planes, 'tis $\frac{1}{10}$ of an inch. These Bodies are soft, and easily split into Plates, parallel to the Rhomboidal Planes. This is very clear and diaphanous: and its Surface very polite. The Ridge that runs round the Sides of this Body is in all Parts equi-distant from the two Rhomboidal Planes: and consequently the eight Trapezia on its Sides are all of the same breadth.

\[d.2\] Another Selenites Rhomboidalis. This is nearly of the same size with the foregoing, but much thicker, the two opposite Rhomboidal Planes being $\frac{3}{4}$ of an Inch distant from each other. 'Tis not so diaphanous as the former; several dusky Clouds shewing themselves in the Body of it. Nor is its Surface so polite as the Surface of that. 'Twas found in a Clay-Pit in a Lane in the Midway betwixt Worthing and Standford, Northamptonsire. There are multitudes of them found in this Clay. Mr. Morton. The Trapezia in this are not so near of the same breadth as in the former. This consists of several Plates laid upon each other, all parallel to the Surface of the Rhomboidal Planes: and the Plates are made up of several Threads, laid all parallel to the shorter sides of the Rhomboid. They are very conspicuous all over the two Rhomboidal Planes, and the four shorter opposite Trapezia, i.e. those at the Ends of the Body: but not on the Sides, or the four opposite longer Trapezia. So that 'tis evident this Body consists entirely of Threads running across it, and all parallel to each other, and to the shortest sides of the Rhomboid.

\[d.3\] Another of the same Shape, but scarcely a quarter so big as that No. 2. The Threads of this run the quite contrary way to those of the other: being all parallel to the longer side of the Rhomboid. From the same Clay-Pit.

\[d.4\] Another, of near the same Size with No.2, but not near so thick; the Threads running also the same way as in that. Only on one of the Rhomboidal Planes, for about the thickness of $\frac{3}{4}$ of an Inch: at one of the acute Angles, the Threads fall short, and do not reach home to the other side of the Body, by almost $\frac{1}{5}$ of an Inch; by which means there's left a Cavity of a Rhomboidal Shape. From the same Clay-Pit.

\[d.5.6.7\] Three other Rhomboidal Selenites, having nothing peculiarly observable in them; only the Threads terminating abruptly before they arrive at the opposite side of the Rhomboid, make there a cavernous, abrupt, and irregular Surface. But from all 'tis apparent that these are constituted, and the Threads of which they consist, are disposed in the manner noted in No. 2. From the same Clay-Pit.

\[d.8.9\] Two others, in which some of the Threads are abrupt, as in the four precedent: and some others are wholly wanting at one end of these: So that instead of the Ridge that parts two of
of the Trapezia in those, there appears a Furrow in these. From
the same Clay-Pit.

\[ d. 10. \] Another, having only this observable in it, that one of
the Trapezia, on the longer side of the Rhomboid, is as broad
again as the adjacent Trapezium. All the rest are nearly of the
same breadth with each other, the Ridge parting them in the
middle. From the same Clay-Pit.

\[ d. 11. \] Another, of a more oblong and slender shape than any of
the former. 'Tis one Inch and \( \frac{1}{2} \) in length from the two extreme
Angles. One of the longer sides of one of the Rhomboidal Planes
is \( \frac{1}{2} \) of an Inch in length, and \( \frac{1}{2} \) a-cross. The other opposite
Rhomboidal Plane is something narrower, being but \( \frac{1}{4} \) of an Inch
a-cross. Two of the lateral Trapezia are as broad; but the other
two are not much above half that breadth. The Ridges in this rise
but very little: So that the Body approaches pretty near a Parallel-
lipped. This was found in the great Clay-Pit near the Wells at
Richmond in Surry. Upon the larger Rhomboidal Plane, appear
four Lines, at near an equal distance from the Margins of the Plane,
so as to describe a somewhat lesser, but like, Rhomboid upon it.

\[ d. 12. \] Another, less than any of the former. The sides of the
opposite Flats are nearly equal; being each about \( \frac{1}{4} \) an Inch: So that
these Planes are, if not perfect Rhombs, yet approach very near
that Figure. The Ridge on the Sides environs the Body in the
middle: So that the Trapezia are all of equal breadth. Found in

\[ d. 13. \] Another, little different from the foregoing, only some-
what less: and found too in the same Place.

\[ d. 14. \] Another, much less, being but \( \frac{1}{6} \) of an Inch in length,
measuring from the two extreme Angles. This is of an oblong
Rhomboidal Shape, very like that N° 1. The Body is very di-
phanous, and the whole Surface very smooth. The two opposite
Rhomboidal Planes are of like Figure and Extent: and the Ridge
environ the sides of the Body in the middle; So that 'tis a very

\[ d. 15. \] Another, little different from the foregoing, only some-
what less. Found in the same Quarry.

\[ d. 16. \] Twelve others, little different in Shape from the foregoing.
Found in the Clay-Pit, betwixt Wotrep and Stanfordcl, along with
N° 2. Six of these are nearly of the Size with that d. 14. the rest
are less: two or three of them are indeed not above \( \frac{1}{4} \) of that
bigness.

\[ d. 17. \] Another about the Bigness and Figure of that N° 14. Be-
ing held to the Light, there appears in the Parts next the four
Sides of the Body, four dusky blackish Clouds, the intermediate
Parts being pellucid, and in form of a Cross, the Extremities ter-
minating with the four Angles of the Body. Found in the same
Pit with the precedent.

\[ d. 18. \] Another, a little bigger, from still the same Pit. This
has on one of the Flats, four whitish Lines, describing a Rhom-
boid,
boid, all equi-distant from the Margins of the Rhomboidal Plane. The Lines seem to pass the Body diametrically quite to the opposite Flat or Surface, where a like Rhomb appears.

*d* 18. One half of a very large Rhomboidal Selenites. 'Tis somewhat above five Inches long, or betwixt the two extreme Angles. In some Parts it is very clear and transparent: In others are thin Maculae, of a grey Colour, and indeed of the same Colour with the Clay in which 'tis was found. This is not different from the other half, which would easily split thorough the whole Body of the Stone, into thin Plates. This Selenites is of that sort and shape which was used anciently for Windows, when split in that manner, and framed together with Lead. In imitation of which, when Glass came afterwards into use, that was commonly cut into the same Form. This was dug up in a Tyle Clay-Pit in Childrens-Field, in the Parish of Thurnham, three Miles from Maidstone, Kent. Dr. Hatley.

*d* 19. A large Rhomboid Selenites, being two Inches and $\frac{3}{4}$ from the two extreme Angles. 'Tis in Figure oblong, and very like that N° 1. In the middle of it appears another, exactly of the same Shape with the exterior; and having all its sides equally distant from those of the ambient. This central Rhomboid is one Inch and $\frac{4}{5}$ in length, measuring in a diagonal to the two extreme Angles. Mr. Bland. Found in a Brick Clay-Pit, at Kettering, Northamptonshire. The Surface of the interior Rhomboid is distinguished by blue Clay that happened to apply there in the Progress of the Formation of the Body: and this, with what has been noted in the several precedent Bodies, shews plainly that the first Stamina are laid, and the whole Progress of the Formation, to the last made, in the same Rhomboidal Form.

*d* 20. Another of near the same Shape, but less, being only two Inches in a diagonal from the two extreme Angles. Into the middle of one of the Trapeziums is infix'd a lesser Rhomboid is Selenites, passing into the Body of the larger. Near as much of it is immers'd or included in the Mass of the larger as is extant: and that End that is within, the larger being very pellucid, appears to be of the same Rhomboidal Figure with that without. Heddington Quarry, in the Stratum of Clay. Vid. N° 1. The lesser of these Bodies must have been form'd before the larger: and with the space in which this was form'd, so that 'tis was in the way of its Concretion: and there was not scope for it to complete its full Form. This affords us an Argument of the quiet State of the Fluid in which these Bodies were form'd.

*d* 21. Another of the same Shape and Size, having three lesser infix'd into it. From the same Clay-Pit with N° 2.

*d* 22. Another, with a lesser in like manner infix'd into it. This is split in a Section parallel to the Planes of the Rhomb. The exterior, in dividing, parts at the Surface of the infix'd lesser Rhomb. Whence 'tis evident that they are not continuous: and that
that the lesser included Body was formed before the larger. *Heddington-Quarry. Vide No 1.*

d. 23. Another, of near the same Shape and Size with that No 19. It has one pretty big, and three or four lesser Rhomboids, infix'd into the Trapeziums on each Side about the Middle of it. Found in the great Clay-Pit near *Richmond-Wells.*

d. 24. Another as large, from the same Pit. Each of the Trapeziums are as broad as the rhomboidal Planes: So that it is not so flat as the precedent generally are, its greatest Diameter being from one of the said Planes to the opposite; whereas the greatest Diameters of those are from the two opposite Ridges parting the lateral Trapeziums. There are ten or eleven lesser ones infix'd into the Middle of it.

d. 25. Another, not near so big, but of much the same compreß'd Shape: and having seven or eight lesser ones infix'd into the Middle of it. From the same Pit at *Richmond.*

d. 26. Another, from the same Pit; and of the same Shape and Bignefs with No 25, having two lesser infix'd into it.

d. 27, 28. Two others, bigger, from the same Pit. They have a great many lesser ones infix'd in Clusters all round the Middle of them.

d. 29. Another Rhomboidal Selenites of a compreß'd Form, having many others of like compreß'd Form infix'd round the Middle of it. From the same Clay-Pit, near *Richmond-Wells.*

d. 30. Another, not so big, having a vast many little ones infix'd all round the Middle of it. From still the same Clay-Pit.

d. 31. A large flat Body, being 4 Inches in length, 3 in breadth, and 1 1/16 in thickness. It is made up of 6 Rhomboidal Selenites. In the middle are two pretty long Rhomboids, seeming to cros; each other at equally oblique Angles. In the two opposite Sinus's of the Cross, are two Rhomboids of the same Thickness with the cros ones, but shorter, adhering to each other, and to the cros ones in the same Plane. All of them are much chop'd and fulcated by their having lain for some time expos'd on the top of the Clay to the Weather, and perhaps to the Erosion of the vitriolick Matter that is pretty plentifully mix'd amongst the Clay, in which this was originally lodg'd. There adheres to it, in a Sinus, a Nodule of the Vitriolick Pyrites of about the bigness of a large Pea. Clay-Pit, near *Richmond-Wells.* The Chops and Clefts shew the Manner of the Grain, and Constitution of these Bodies.

d. 32. Two other Rhomboidal Selenites, placed cross-wise like the former. In the two opposite Sinus's, are two Bodies of like Thickness and Substance with the Rhomboids, adhering to them so as together to make up an oblong flat Body. Found at *Great Bowden in Leicestershire.* Mr. Bland.

d. 33. An oblong flat Selenites, 4 Inches and 1/4 in length, 1 in breadth, and 1/2 an Inch in thickness. The two opposite Sides rise into Ridges, like those of the Rhomboidal Selenites. And on one Side,
Side, towards the End, a Part stands forth about \( \frac{3}{10} \) of an Inch, for about 1 Inch and \( \frac{1}{3} \) in length, terminating with an acute Angle, and appearing exactly like a Side of a Rhomboidal Selenites, jetting forth further than the rest of the Body. Indeed the Body seems to be composed of two Rows of oblong Rhomboidal Selenite, each joining to other at the Ends, and each Row being joined to the other at their Sides. For the Threads, that constitute it, run all obliquely in a Parallel, as those of the Rhomboids do; and meeting in the middle of the Body in obtuse Angles, just as several Rhomboidal Selenites, placed in the manner intimated above, would do. Through the Middle of it, for near the whole Length, runs a blackish, dusky, plumous Body, much like that delineated by Dr. Plat, Oxfordshire, Tab. 2. Fig. 1.d. sending forth, on each side, small Fibres obliquely, and indeed parallel to the Threads of the Body; being probably no other than some fine Parts of the blue Clay, either incorporated with it at its Formation, or insinuated since into it, the Body being of a Constitution so lax, that Ink will sink and insinuate into it, as the said Clay dissolved in Water might. 'Twas found in a Bed of a dusky blue Clay, in digging the Canal near the Earl of Montague's House at Boughton, in Northamptonshire. Mr. Morton.

d. 34. Another, little different from the preceding; only, as that has one, this has two Jets, over-against one another, on each side of the Body, forming acute Angles with it, and appearing as two Rhomboidal Selenite apply'd together in the manner intimated above. This has also a like plumous Body in the Middle, but finer, and somewhat less conspicuous than that of the former. Found in the Clay, over the Stone, in Hedington-Quarry. Vide N° 1.

d. 35, 36. Another, somewhat broader, and split in two, to shew the interior Texture of it. One End of it terminates in an Angle exactly like that of the Rhomboidal Selenites. The Threads of it are placed obliquely and parallel: those of one Side meeting at a Line in the Middle of the Body at obtuse Angles, as in N° 33: Hedington-Quarry, near Oxford. It parts into Plates, as the Rhomboidal Selenite do: and is ridged on the Sides, as they are.

d. 37, 38, 39. Three others, broken, so as more plainly to exhibit the interior Texture and Composition of this sort of Selenites, which is suggested in N° 33: and the two following.

d. 40. Another oblong Selenites, much less than any of the foregoing. 'Tis flat, 1 Inch and \( \frac{1}{3} \) long, and \( \frac{1}{10} \) of an Inch broad. 'Tis ridged on each side, as the precedent are. Hedington-Quarry.

d. 41. Another, of much the same Shape and Size with N° 40. From the Clay-Pit in which N° 2. was found.

d. 42. Another, from the same Pit, and of the same Shape, but a little less.

d. 43. Four like small oblong Selenites, all fix'd into the End of one somewhat larger. Hedington-Quarry.

d. 44.
d.44. A flattish Body, somewhat concave, being composed of many Selenites, all small, but of different Sizes. As to their Shapes, they are all angular, and tending towards Rhomboids. They are placed in no Method or Order: being cemented profusely together, by a very small Quantity of a light-brown earthy Matter. This was part of a Ball, about the Bigness of a Man's Head. 'Twas hollow within, and lined with this Crust of Selenites. Without 'twas cover'd with a thin Crust of a pretty hard Substance, and a dusky grey Colour. 'Twas lodged in a Stratum of Clay of the same Colour, at the depth of about 16 Foot, and about 2 Foot above a Stratum of Stone. 'Twas found in sinking a Well at Bowden, in Leicestershire. Mr. Bland. There was nothing in the hollow of it, except a small Quantity of a loose Dust or Powder. They found only this Ball and another, which was of an oblong Form, and not so big as this was. No.45 is a Piece of it.

d.*44. A like flat Body, thicker than the precedent, composed of Rhomboidal Selenites, of several Sizes, very clear and fine. This was found in sinking the Purging-Well at New-Crofts, near Deptford.

d.45. Another flat Piece of like sort; on the Outside of it is a grey Crust of a pretty hard Substance, about \(\frac{1}{12}\) of an Inch in thickness. Upon this are irregularly set many small Selenites; all of them, or for the most part, standing endwise. They are generally of the same Size, and of a compress'd rhomboid Shape, not unlike those of No.29. supra, but much less. Confer. No.44. supra.

*d.*45. Several like Selenites, separated: not so transparent as those of the precedent. Found, many Years ago, at the first sinking of the Purging-Well at Acton.

d.46. A pretty large Piece of a Selenite, seeming, by the Cast and Grain of it, to have a Sparry Matter mix'd with it. There are incorporated with it several Grains of a very bright yellow glittering Marcasite; the largest of them scarcely so big as a small Pea. Found in sinking a Well near Nottingham.

d.47. A flat Body, half a Foot in length, and 3 Inches broad, composed of several pretty large Rhomboidal Selenites, placed in one Plane in a double Row, except some few at one End of it, whose Position is irregular, one or two of them being prominent, and seeming to be infix'd transversely into the Body. Found in the great Clay-Pit near Richmond-Wells.

d.48. Another, from the same Place, much like the former, only somewhat less: and there are several Rhomboidal Selenites infix'd round the Middle of it; where it, being broken, discovers they all tend to the same Point in the Axis of the Body.

d.49. A Mass, consisting of several small Rhomboidal Selenite, placed irregularly and confusedly one by another. Found in digging the Well of Purging-Waters at New-Crofts, near Deptford, Kent.
Kent. The Selenites being discover'd near this Well, the Purging-Springs by Shooter's-Hill, and those of Streatham, Dulwich, Epsom, Richmond, Kensington, and Acton, has induced some unskilful Persons to believe, that these impart the Purging Power to those Waters. But the Selenites is found in those parts, as commonly where there are no such Waters: and indeed in equal plenty where-ever there is digging for common Wells, Brick or Tile-Clay, or other Occasions. This Body, by Calcination or otherwise, being to be reduced to a very fine and impalpable Powder, is fitted for being taken either inwardly or outwardly. But all our Tryals inform us, that its Properties are the same with common Talc, it being a pretty Strong Exsiccant and Absorbing: and is very powerfully binding, instead of purging. More accurate Enquiries and Observations have taught us, that the purging Qualities of those Waters are owing to the vitriolic and other Salts: lying, along with numerous Pyrites, in the Strata through which those Waters drain and pass.

*d. 50.* A flat Body, near half an Inch thick, composed of small thin Plates, placed all edgeways, but irregularly, and terminating in the same Plane on the two opposite Surfaces. Found about 150 Foot deep, in a Fissure of Paving-Stone in the Isle of Portland. They are found both in the horizontal and perpendicular Fissures of the Stone. This appears to have fill'd the Fissure, and been contiguous to the Surface of the Stone in both sides. It seems to be of the same Constitution and Matter with the Selenites.

*d. 51.* Another flat Piece of the same sort, but thinner; several of the small Plates in this are placed not directly edgeways, but more obliquely than in the former. From the same Quarry.

*d. 52.* A Mais, made up of many very small Selenita, cemented together by a brown earthy Matter. They are angular; but of what particular Figure, is not easy to determine, because of their being impacted so thick and confusedly together. Out of a Lead-Mine, at Wrakesworth in the Peak. It lay near the Surface: and seems to have been left by the Water of the Deluge departing; by means of which it appears to have been tumbled thither from afar, worn, and smooth'd.

*d. 53.* A Piece of Flaky, Fiffil, Selenites, in some Parts of a white, in others of a yellow brown Colour. Digged up near Epsom-Wells, Surrey.

*d. 54.* A Rhomboidal Selenites, with Clouds and Specks of blue Clay in the Body of it. From in the Peak.

*d. 55.* A Selenites, 2 Inches and an half in Length, and 3/4 of an Inch in Diameter; having six Sides near equal, and terminating at each End in a trigonal Point. There are several lesser ones infix'd into it about the Middle of the Column: in much the same manner as in d. 24, 27, & seqq. This was found on the Top of the Moulds, an high Hill in Arkendale, Yorkshire.

CLASS
TALKY BODIES that are Fissil and easily disposed to split; being composed of Fibres, generally straight, and lying parallel to each other.

**EXTRACT.**

Gypsum, + d. 11.

*English Talc,* +d. 1, & seqq.

Asbestos or Amianthus +d. 8, 9, 10, &c.

--- Consists of transverse Fibres of a *Talkey Spar,* in Veins like the Scepta of the *Ludus Helmontii.*

Linum Asbestinum, + d. 10*.

Of the Origin and Formation of the Asbestos & Linum Asbestinum.


Asbestos with Marcasit affix'd. +d. 9.

Asbestos in the Fissures of Marble. +d. 10.

--- in the Load-Stone. +d. 15.

*English Talc,* found in the Perpendicular Fissures of Stone, +d. 1, 2.

A Talkey Body resembling Wood petrified, having in it several Veins, which seem to have been Cracks fill'd with Spar. Vid. +d. 40.

When broken, it emits a Sulphurous Smell. Found in a vast Stratum of Stone. +d. 5, 6.

A Talkey Body found lodg'd in a Stratum of Gravel. +d. *7.


*English Talc* employed for the making Wicks for Lamps: and will burn very long without any sensible Consumption. + d. 1.

Of the Mechanical Uses of Gypsum.

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TALKY FIBROUS BODIES.

+ d. 1. A Piece of a flat Body, very white, and shining, with some degree of Diaphaneity. 'Tis somewhat above two Inches thick: and is made up of several very fine Threads, laid exactly parallel to each other, and very closely united together. The two opposite flat Surfaces are somewhat rough: having a small Quantity of a reddish gritty Matter adhering to each. The Body seems to have been lodged in one of the Perpendicular Fissures of a Stratum of Stone to have fill'd it; and the Threads to have run horizontally a-cross from side to side. This is commonly sold in our Druggetts Shops, by the Name of *English Talc.* Little-Leak, Leicestershire. This Specimen is only part of one that was much larger.
larger, flat, and having all the Threads laid a-cros; so that their Ends terminate in the two opposite flat Surfaces. 'Twas of the same thicknefs in all Parts of it. It splits, in a Section parallel to the Threads, very easily. A small Piece of it, a little bruised, so that the Threads part and open a little, serves very well for a Wick to a Lamp, and gives a good Light. Suck a Wick will last a great while. I kept one burning twelve Hours; when, extinguifhing the Flame, I found the Wick had suffer'd no sensible Consumption: nor was it any ways alter'd, only the Colour was changed to a pale brown. Mr. Hunt says, great Quantities of this Body are found in Beds of Marl, about Highley, betwixt Warrrington and Knapton, in Cheshire, in flat Lumps, lying horizontally. Those are ufually somewhat thinner than this.

4d. 2. Another like flat Body, but somewhat more pellucid. 'Tis near an Inch and \( \frac{3}{4} \) in Thicknefs: and the Threads grofter than those of the former. They run in like manner a-cros from the one flat Surface to the other; but are intercepted by four Plates or Partitions, placed at near an equal Difiance, and all parallel to the Surfaces of the Body. To one of the Surfaces adheres a pale-brown Stoney Matter: and that of the Partitions is of the fame Sort and Colour. This alfo seems to have been contained in a perpendicular Fissure; near Newbury, in Berkshire. Major Heron.

4d. 3. Another, composed of like parallel Semi-pellucid Threads with a Cafis of Green. Found very plentifully - - - - - in Bedfordshire. Dr. Allen.

4d. 4. Another, consisting of like straifght and parallel Threads; coarfer than those of No. 1. opake, and of an Ash-Couleur. Found plentifully on Knipe's-Scarr, near Lowther in Westmorland.

4d. 5. Another, opake likewise, and of much the fame Colour with the foregoing. This is very large, being about seven Inches from flat to flat. 'Tis round, about five Inches \( \frac{3}{4} \) in Diameter, and somewhat resembles a Piece of the Trunk of a Tree. The Workmen in these Quarries find this fsort pretty frequently: and take it for petrify'd Wood. But that is an Error, as may be evinced from the disposition of the Threads of it. For, tho' they lie, in moft parts of it parallel, yet there are fome that do not: but decline, into an oblique pofition, fo as to make acute Angles with the adjacent Filaments. This is of a Stoney Subftance, a fine clole Grain, pretty hard, and when broken emits a sulphurous Smell. There run thorough the Body of it feveral Veins of a Semi-pellucid Spar, that seem to have been originally Cracks in the Body till fill'd up with that sparry Matter. Found lodged in a vaft Straturn of Stone in the Quarry in Portland, at a confiderable Depth.

4d. 6. Another, little different, only less, from the fame Quarry. The Colour, Solidity, Texture, Sparry Veins, like those of the.
foregoing; tho' it has somewhat a nearer likeness to Wood, and, in one Part of it, is a resemblance of such a Knot, as is usual in Timber.

+ d. 7. A Piece of another, from the same Quarry. This has some degree of Diaphanocity. The Fibres of it are near streight, and parallel.

+ d. *7. A flat Piece of another, half an Inch thick. From a Gravel-Pit, near Ashtley, Northamptonshire. Mr. Sawyer.

+ d. 8. A Piece of a flat Body, something above \( \frac{1}{2} \) an Inch thick. There run a-cros it many flexil parallel Threads, of a white Colour, with an Eye of Green. 'Tis a fort of Asbestos or Amianthus. From the Island of Anglesey. Mr. Lhuyd. Vid. Philos. Trans. No° 166. p. 823.

+ d. 9. Another like Body, from the same Place. The Fibres or Threads of this have a somewhat stronger Cast of Green: and are intercepted in their Passage cros the Body, by three thin Plates set at near equal distance, and parallel to the Flats or two oppose Surfaces of the Body. On one of those Surfaces is affix'd a small Piece of a Marcasite.

+ d. 10. A thin Vein of Asbestos; in Marble, as it seems, of a blackish Colour with a Cast of Green. In some Parts of it is a Body very like Spar, of a greenish Colour, with an Eye of Yellow. From still the same Place.


+ d. 10*. Marble, of a blackish grey Colour; with Spots, sparry, whitish with a Cast of green. 'Twas part of a very large Maf, of like Colour and Constitution; and broke off from a Stratum. The Maf was thick set with Veins of Spar, having a Talky Glofs, white with a Cast of green in some parts, in others with a Cast of yellow. The largest Veins were in Diameter about \( \frac{1}{4} \) of an Inch: the rest, thinner, of various Diameters; some so small, as to be just discernable. Thole Veins are in Constitution exactly like the Septa of the Ludus Helmontij; and consist of various thin Plates, as thole do. They are likewise striated a-cros; and composed of transverse Fibres or Filaments. Some of these Fibres are inconceivably fine and flexible; and are what is commonly call'd Linum Asbestosium. Some few parts of the Veins consist of Spar that is not striated a-cros. Tho' Veins appear manifestly to have been originally no other than Cracks, that were fill'd successively by Spar, drain'd, by Water, out of the Bodies of the Strata; which abound with Spar of like Complection. From Anglesey.

+ d. 10@. Another Piece off the same Body, shewing the Veins and Plates very distinctly.

+ d 10++. Another Piece off still the same Body, with part of a Vein not striated a-cros. The Spar, as usual, is whitish, with a Cast of green.

+ d. 11. A flat Body much like \( + d. 1. \) only the Threads are not so fine. This is a fort of Gypsum. From ----- Derbyshire.
Another. This is extremely white, glossy, and shining. Found in the Alabafter Pit, at Chellaston, Derbyshire.

A Mass in which the Gypsum is mixed confusedly with a reddish earthy Matter. In some parts of it are Veins of the Gypsum more pure, and composed of Threads like the foregoing. From the same place, with +d. 11.

Another, consisting chiefly of the red earthy Matter, but with some small Veins of the white thready Gypsum running thorough it, with some Selenite lodged in it. From still the same place.

A pretty large Piece of a Body of a very dark grey Colour, consisting of parallel Fibres running pretty straight the whole length of it. It was sent me by the Name of petrified Wood; and indeed it much resembles the Grain of Wood. 'Twas found on the Shores near Lulworth, nine Miles East of Weymouth.

A Mineral of a grey Colour with an Eye of green, only on one side it is of a pale brown. 'Tis composed of several Sheafs of grey Filaments, those of each Sheaf being generally parallel to each other, but the several Sheafs are variously laid, so that some of them lie cross one another. The Filaments appear like those of the Lapis Asbestos. 'Twas broke off from a piece of Loadstone of a dark ferruginous Colour, some Fragments of which still adhere unto it. From ---- Devonshire, Mr. Stonesstreet.

A Body, white, glossy, and made up of Threads running cross-wise of it. 'Tis little different from that +d. 11. only that is flat, and smooth, on the two opposite Surfaces, as if it had fill'd a Fissure in Stone, and been contiguous to both sides of it. Whereas this is unequal, and jetting out into Crystallizations on one side; tho' plain, and seeming to have been contiguous, and adhered to the Stone on the other. Artheburrow-Quarry, Northampton. Mr. Morton.

CLASS IV. PART IV.
The Waxen-Vein, or Ludus Helmontij. Vide Preface infra.

EXTRACT.

INTRODUCTION. Of the various Names given to this Body by Authors. Vide Preface infra.

An Historical Account of the several particular Bodies in this Class; as also Observations upon each: with various Deductions from them. Vide Preface infra.

These recollected, and digested into a Method; in order to the setting forth the Natural History of this Body.
C. i. The Places where this Body occurs: On the Sea Shores; x d. 1. & seq. x d. 9. 11. 17. 18. 19.
On the Cliffs. x d. 1.
In the Plains, at distance from Sea. x d. 28. & seq.
On high Hills. x d. 25. 30. 35. 40.

C. ii. The several Parts of England where 'tis found. In the Isle of Grains. x d. 19. In the Isle of Sheppy. x d. 1. &c. In the Isle of Thanet. x d. 17. 18. Sherburn, Gloucestershire. x d. 7.

C. iii. In what sort of terrestrial Matter 'tis lodg'd. In the Strata of Earth, that constitute the Cliffs by the Sea, x d. & seq.
In Strata of Clay, x d. 26. & seq.

C. iv. At what Depths in the Earth it has been observ'd, x d. 43.

C. v. Of the Number and Frequency of the Ludus Helmontij, x d. 30.

C. vi. Of the Posture in the Earth, flat-ways, and parallel to the Site of the Stratum in which 'twas reposited, x d. 1. &c. 43.

C. vii. Of the various Magnitudes of the Ludus Helmontij, x d. 25. 28. 30. 43. 51. 52.

C. viii. Of the exterior Form of this Body.

§ 1. Tis a Nodule, and found ever loose and independent, x d. 25. & alibi passim.

§ 2. Of a broad, flat, or compressed Shape, 'and commonly approaching round. x d. 1. 28. 38. 43. 52. 53.

§ 3. Generally somewhat lessening, or growing thinner towards the Margin, all round. x d. 52. & seq.

Appendix. 1. Tis sometimes found naked and uncover'd, vide x d. 1.

2. But is most commonly surrounded and invested with a Stony Crust. x d. 25. 26. 28. 30. 41. & seq. 51. 52.

3. Some Influences there are of this Body composed of various Crusts, including one another, like those of the Bezoar Minerals. x d. 42. vide 40. 20.

C. ix. Of the interior Frame and Composition of the Ludus Helmontij.
§ 1. It consists chiefly of a lapidous Matter. *x d. 1. & seq.*
Conf. c. 11. infra.
§ 2. That Matter is intercepted and divided into Tali. *x d. 1. & seq.*
§ 3. This is done sometimes by Cracks and Fissures variously passing the Body. *x d. 34. 38. 51.*
§ 4. But generally by means of certain talky Septa or Partitions. *x d. 1. & seq.*

C. x. Of the Figure of the Tali.
They are in shape of a Column, with 3, or 4, but most commonly 5 Sides. *x d. 1. 3. 17.*

C. xi. Of the Magnitude of the Tali. *x d. 1. 17.*

C. xii. Of the Texture and Constitution of the Tali, or the main and common constituent Matter of this Body. Conf. C. ix.

§ 1. supra.

§ 1. The Tali are composed sometimes of a ferruginous or ochreous Matter, *x d. 17. 18. 19. 28.*

§ 2. But most commonly of a close stoney Matter, of a grey Colour. *x d. 7. 22. 41. 52. 53.*

— of a foliolomort Colour. *x d. 1. &c.*
— of a Rust Colour. *x d. 42.*
— of an Iron Colour. *x d. 35.*
— of a light Brown. *x d. 1. 6. 12. 17. 20. 28.*
— of a dark Brown. *x d. 5. 10. 13. 25. 52.*
— dark Brown, with a Blush of Purple. *x d. 29.*
— Brown outwardly, and grey within. *x d. 30.*
— variegated with Brown and Grey. *x d. 11. 13. 51.*

Append. 1. Several Particulars in the Constitution of Tali discover'd by the Assistance of Microscopes. Vide Preface infra.

2. Of the specific Gravity of the Tali, of the several sorts of this Body. V. ibid.

3. Chymical Experiments and Tryals with several Menstrua, in order to discover the Nature of all the different Kinds of this Body. V. ibid.

4. Tryals of the several sorts of this Body by Fire. V. ibid.

5. Of the medicinal Powers and Properties of this Body. V. ibid.

C. xiii. Of other extraneous Bodies, or Matter, intermixt or incorporated with the common constituent Matter of the Tali.

§ 1. Yellow Ochre. *x d. 28.* § 5. Marcasit. *x d. 11. & seq.*
§ 3. Talc. *x d. 5.* § 7. Piped-Waxen Vein. *x d. 11.*
C. xiv. Of the exterior Cruft with which this Body is frequently found invested. x d. 52. Conf. C. viii. Appendix. 2.

C. xv. Of the Septa, or Partitions, that parcel out this Body into various Mafies or Tali. x d. 1. & seq.

§ 1. They are composed sometimes of an ochreous Matter. x d. 17. 18.

§ 2. But most commonly of a talky Spar. x d. 10. 16. 20. 23. 40. 53.

§ 3. The various Thickness of the Septa. x d. 1.

§ 4. In those Bodies that are invested with a Cruft, the Septa lessen and grow thinner as they approach the Cruft, terminate there, and rarely pass thorough it. x d. 5. 28. 32. 37. & seq. 51. 52.

§ 5. The Septa are compos'd of thin Plates standing edgeways, and generally parallel, and consisting of transverse Fibres, so that the whole appears to be striated cross-ways. x d. 1. 22. 25. 28. 30. 35. 36. 43. 45. 46. 51.

§ 6. The Plates, tho' generally contiguous, are sometimes divaricated, and stand at some Distance from one another, so as to leave room in the Intervals for Spar to shoot, which it does into small Crystals. x d. 13. 24. 36. 37. 55.

Append. i. Those Crystals are sometimes finely colour'd. x d. 33. 34. 36.

2. Stellar Efflorescencys form'd also in the said Intervals. x d. 16. Of the starred Wacken-Vein. ibid.

3. Efflorescencys and Crystalizations of Marcasit, upon the sparry Plates, form'd in those Intervals. x d. 12. & seq.

4. A Plate of Marcasit, interpos'd betwixt the sparry Plates, in one of those Intervals. x d. 11.

C. xvi. Instances of some few sparry Partitions that intercept and pass thorough others. x d. 47.

C. xvii. The Cracks and Partitions divide and pass the Sea-Shells, lodg'd in it, as well as the Stone itself. x d. 25. 28. 40.

C. xviii. Dendrite, or fuliginous mineral Delineations of Shrubs, in the Ludus Helmontij. x d. 28. 40.


Artic. I. Reflections.

§ 1. Upon the Bigness of this Body. Conf. C. vii. supra.

§ 2. Upon its being in Form of a Nodule, loose and independent. Conf. C. viii. supra.

§ 3. Upon its lying flat-ways, and parallel to the Site of the Strata, in the very Manner that all Bodies of like Form settling down from a Fluid are wont to lie. x d. 43. Conf. C. vi. supra.

§ 4. Upon the various Shells and marine Bodies included in it, and incorporated with the Mass of it. Conf. C. xiii. § 8. supra.

§ 5.
§ 5. Upon the Cracks in this Body. Conf. C. ix. § 3. supra.
& C. xv. § 1. & seq.
§ 7. Upon their growing gradually less, as they approach the
Cruft. x d. 40. Conf. C. xv. § 3.
§ 4. Append. 1. 2. supra.
§ 9. Upon the Partitions passing the Bodies of the Sea-Shells di-
viding and parting of them. x d. 40. Conf. C. xvii. supra.
§ 10. Upon those Partitions that divide and intercept others.
x d. 47. & seq.

Artic. II. Deductions. Conf. Natural Hist. of the Earth.
Part IV. Conf. 2. 3.

1. The main and common Mass of this Body concreted, and
was form'd in Water. x d. 43.
2. In which it was sustaine'd, along with Sea-Shells, and other
like Bodies. x d. 43.
3. This was at the Time of the universal Deluge. x d. 43.
4. Upon the Retreat of the Water, it settled down along with
the Clay, Earth, and other like Matter that form'd the Strata
in which it was lodg'd. x d. 43.
5. It was, at its first Settlement, uniform and solid. x d. 40.
6. The Cracks in it were form'd afterwards. x d. 40. 47. Conf.
4 d. 5.
7. The Cracks and Breaches of the same Body, were made
chiefly at the same time. x d. 47.
8. But some few Instances there are of Cracks made after that
Time. x d. 47.
9. As the Water in which the Ludus Helmontij was form'd at the
Deluge, Conf. C. xix. Art. 11. 1 2 3. supra. where-
with the Pores and Interstices of the Body were saturated,
during the Coalition of the Matter that compos'd it, gradu-
ally quitted it, and got forth, the said Matter was contracted,
and shrunk up in divers Directions, and with a Tendency to-
wards divers Axes in the Body; by which means the Cracks
were affected, and the Mass parted into Segments or Tali. x d.
25. 40.
10. The Cracks both of the Stone and Shells, were, generally,
in tract of Time, gradually filled by Spar; the Water which
is continually pervading the Strata deriving thence loose Par-
ticles of that Mineral, introducing them into the Cracks, and
affixing of them there, so as thereby to form the Plates and
Partitions. x d. 40. 45.
11. The sprarry Partitions that are continued thorough, and inter-
cept other sprarry Partitions, are of a second Order, and were
form'd since those others were. x d. 47.

The
The Waxen Vein: or Ludus Helmontij.

PREFACE.

The Body I am here about to exhibit is commonly called in England the Waxen-Vein. That Name, like many others, is not so apposite that one may imagine that they who gave it, made use of much Thought or Reflection. The Spar of some of the Veins, or Septa, particularly in those of Sheppy Island, is by Authors, of a yellowish Colour, and somewhat resembles melted Wax, which perhaps was the only Reason they had to give it that Name. Indeed Dr. Grew (Mus. Reg. Soc. p. 311) seems to imply as much. He supposes the Waxen-Vein to be the same with the Ludus of Paracellus and Van Helmont. Dr. Plot (Nat. Hist. Staffordshire, c. 5. § 23.) is of another Opinion: and takes that Ludus to be a tessellated Pyrites. Of which sort he notes, out of Wormius, there are, at Osferdale, in Norway. Wormius reckons this among the Copper-Ores: (Museum, p. 121.) and 'tis certain some of these Pyrites hold some small Portion of Copper, as others do of Iron. That Author, (ib. Mus. Worm. p. 39.) speaking of a like tessellated Body, found upon the Banks of the River Scald, near Antwerp, judges it the same with the Ludus Helmontij & Paracelii. He calls this Body Silex: and Dr. Grew pronounces him mistaken in reckoning it among Flints. (Mus. Reg. Soc. p. 312.) But in truth the Doctor himself is mistaken in thinking the Danish, German, and other Writers of Fossils restrain the Name Silex, to what we call here in England, Flint; they applying that Name to very various Bodies: and Wormius particularly refers the Pyrites to the Silex-kind, because it strikes Fire. He adds, (Mus. Worm. p. 39.) that Fr. Merc. Van Helmont, the Son of the famous Cymijt, J. B. Van Helmont, produced a Stone, as the Ludus of his Father, that was very different from the tessellated Pyrites. His description of it is obscure: but it seems to have been of the same sort with that exhibited in this Glass. I my self have a Stone (See the Catalogue of the Foreign Fossils, Vol. 1. No 1.) that was brought over, from Antwerp, into England, by Fr. Merc. Van Helmont, as his Father's Ludus, that is truly of this kind; but both the Tali, and Septa, are of a more dusky, or, as Wormius expresses it, of a more fuliginous Colour, than ours in England commonly are: Wormius suspects this Testimony of the Son. For my own Part, I shall not enter into the Controversy, but content my self to give J. B. Van Helmont's Sens in his own Words.—Neque enim Ludus Paracelii parat Lixivium: sed sedem ex acido amarum. (De Litchiae. c. iii. § 28. p. 672.) Quapropter suum Ludum, Fel terrae vocat. Eft enim Lapis Siliceus, tenerior tamen, & qui feret totus per diuturnum bidui ignem avolat; cum fale petrae vero, multa celerius. (ib. c. vii. G 2 § 22.)
§. 22. p. 699.) And again,—Ludus semper tali, tesseræ aut cubi
forma erruitur. Paracelsus represents this Body as capable of disso-
ling the Stone in the Kidneys and Bladder: and Van Helmont pro-
ceeds here to give that Chymist's Method of preparing of it. After-
wards he expressly distinguishes this from the Pyrites: and indeed
seems manifestly to design a Body of the very sort with that set forth
in this Class, having the Tali of a pale or grey Colour, and the
Crufts or Septa, in the Commifures betwixt the Tali, Sparry, and
in some measure pellucid. This he found also in a Stratum of brick-
Clay: as we commonly do ours in England. (x ib. p. 700.) His Words
are,—Reperi autem illud ad ripam Scaldis prope Antwerpiam, ubi
lateres coquntur: Situsque eft plus minusve 40 pedes subtus hori-
zontem,—in agro vicino,—per aliquot milliaria. — Eft & pre-
dicio agro Pyrites frequentes, sulphure dives atque vitriolo. Quicfì
sub terra praedurus ft, mox tamen sub aura fit friabilis, fatificente
scilicet fenlim vitriolo. Sed Ludus, lapis eft pallefcentus, subinde
Crufta perspicua per Commiffuras obductus, magna sui parte, in
cibano figurino volatilis. Hic nempe eft Lapis, Saxifragorum apex,
& Calculorum desiderium.

That Stone which B. Ambrofinus calls Marmor figuris Mathe-
maticis naturaliter exaratum, Aldrovand. Muf. Metall. p. 768. ap-
ppears, by his Icon, to be of the sort set forth in this Class.

P.S. Since that above was wrote, Sir I. Newton gave me a
Piece of this kind of Body brought over from Germany by the younger
Helmont, as the true Ludus of his Father; which does not differ,
either as to the Constitution of the Body of the Stone, or the Septa,
from those commonly found in England. The Tali are also of a grey
Colour: as ours here commonly are. See the 1st Vol. of the Cata-
logue of the Foreign Fossils. So that there can be no doubt but the
Body exhibited in this Class is the very same that J. B. Van Hel-
mont design'd by the Name of Ludus. But then he was greatly
mistaken in supposing this to be the Ludus of Paracelsus. The Chy-
mists, and Mineralists of Germany, who are very curious in these
Things, and very exact in their Notices and Traditions concerning
them, all agree that the Ludus Paracelsi is the tesselated Pyrites.
And Sir Isaac Newton had this very Body sent from Saxony as
Paracelsus's Ludus; of which he gave me a Specimen, which I have
exhibited, amongst several others, in the 1st Vol. of the Catalogue of
Foreign Fossils. No. 2. But yet Van Helmont, imagining it to
be the same, positively ascribes to this the very Powers and Virtues
that Paracelsus does to his: and particularly that very extraor-
dinary Power of dissolving the Stone in Humane Bodies. Which is
but one of many Instances of the Fondness and Credulity of the Gen-
tlemen of that Study. 'Tis not a very wild Name, Ludus, to
be given, to a Dye, or Talus lusorius; considering how humourous
a Writer Paracelsus was.

I have rarely observed the Ludus Helmontij lodged shallower
than within four Foot of the Surface, or deeper than about fifty. 'Tis
pro-
probable it may be found to a greater Depth; but I, having observ'd it only in Pits wrought for Tile and Brick-Clay; and in the Cliffs on the Sea-shores, but never in Mines, nor where there is sinking to a more considerable Depth, have had no Opportunity of making Ob-
servations deeper ($$). See also the Register of the Chymical Expe-
riments and Tryals, with several Menstrua: as also the Tryals in the Fire.

The Waxen-Vein, or Ludus Helmontij.

x d 1. A Stone, consisting of 28 Tali, distinguished each from other, by means of certain Septa or Partitions. The Tali are ob-
long: and some of them have four, but the greater Part five fides, which are very rarely equal. They are of different Sizes; some of them being as big again as others. The largest are about two Inches in Diameter. The Body that they, together with the Septa, compose, is near flat; being about the thickness of two Inches; which consequentially is the length of the Tali, they stand-
ing tranverse, and passing directly a-crofs the Body. Tho' the fides of the Tali be unequal, yet they are so fitted and placed by each other, as not ordinarily to leave any void Space. They are all made up of a very compact sort of Stone, of a fine Grain, and a light brown Colour. The Partitions pafs quite thorough the Body of the Stone; the Edges of them appearing on each of the opposite fides; where they form a sort of Net-Work. This makes a very beautiful Variegation of the Stone; the Septa being of a yellowish Colour, and the Tali brown. Indeed each Talus is en-
viron'd with a Cruft or Cafe; which, conforming it self to the Sides or Planes of the Talus, is of a Figure quinquangular, or quadrangular, answerable to that of the Talus which it happens to cover. The Cafes, where they join and are contiguous to one another, form the Septa or Partitions. These consequentially are double every where in the middle of the Stone, and on the insides of the Tali: but on the outside of those that stand outmost and compose the Rim or Margin of the Stone, they are single, and in Form of a Cruft; which is of a pale yellow Colour. These Cafes are composed of several parallel Plates, set one within another, and striated a-crofs. They are compoud of a talky Spar. Each Cafe is about $\frac{1}{10}$ of an Inch in Diameter: and consequentially each Partition about $\frac{1}{4}$. This very elegant and extraordinary Body was found loofe upon the Shores betwixt the Minfter and Warden in the Isle of Sheppy, Kent. There were many other like Bodies lying scattered upon those Shores for a Mile or two together; which were generally broken, worn and fretted by the Motion and Agi-
tation of the Sea; of which there are plain Indications upon this here treated of. They are all lodged originally in Beds of Clay in the adjacent Cliffs, whence they are beaten down by the Insults of
of the Sea in Storms and high Tides. I observed several lying in those Cliffs: and caused some of them to be taken forth. They lay all flat-wise, or in an horizontal Posture. They were of several Sizes. The leaf I took notice of, was not above two Inches in breadth: the largest about two Foot and a half broad, four Inches and a half thick, and pretty near round. Viewing several of those that appear'd in the Brow of the Cliffs, and were actually lying in the Strata, entire, unworn, and in their native and original State, I found the Ends of the Tali naked, and that they did not differ considerably from those that lay loose on the Shores; nor could I find one of these Bodies here invested with an exterior stony Crust, as those found near this City commonly are. The most regular of these Bodies I ever saw, was at my return to Town, after my Travels thorough England, in the Collection of Mr. Conyers; what is become of it now, I cannot tell. This was flat, about a Foot and a half broad, three Inches thick, and near round. The Tali were almost all of near the same Size: and their Sides near equal. The Stone that constituted them was very close and hard, of a Foliomort Colour: and the Partitions and Crusts of a dusky Yellow. This also was found somewhere upon the Shores of the Isle of Sheppy.

_xd. 2._ Another, little different, only less, and composed of fewer Tali. Found on the same Shores. Part of this is polish'd.

_xd. 4._ Another. Ibid.

_xd. 3._ A single pentagonal Talus, consisting of the same sort of Stone with that of the two foregoing: and cover'd on all the five sides with a yellow Crust. 'Tis two Inches and \( \frac{1}{3} \) in length, and about one Inch and \( \frac{1}{2} \) in Diameter. Found on the same Shores.

_xd. 4._ Two Tali, one of them Quadrangular, the other Quintangular, consisting of the same sort of Stone with the former, having in it small Sparks of Crystal. Each is invested with its proper Crust: yellow, and like that of the foregoing. Found on the same Shores.

_xd. 5._ A piece of a Ludus Helmontij near Square, worn and ground by the Agitation of the Sea. On one side of this Body, two of the Partitions, crossing it in the middle, divide it into four near equal Parts. 'Tis observable that some of the Partitions do not quite pass the Body: and those that do are so thin as to appear only like a small white Line on the opposite side of the Stone. In the Mass of the Tali, appear some small Flakes of Talc. From the same Shores.

_xd. 6._ Another piece, of an oblong form, worn in like manner: and divided on one side, by the Partitions intersecting in the Umbilicus of it at near right Angles, into four Parts. On the other side 'tis cover'd by a Crust. The Stone of the Tali is, in this, of a somewhat lighter brown Colour than any of the former. From the same Shores.

_xd. 7._
x d. 7. Another Ludus Helmontij. In this the Tali are smaller than those of any of the foregoing, of a grey Colour, and the Stone softer. Found in a blue Clay in a Lane on the West side of Sherborn in Gloucestershire, going down the Hill to the River. 'Tis of a compress'd oval Form, two Inches long, and one and a half broad.

x d. 9. Another piece of a rufi Colour. The Partitions of this do not every where pass the Body of the Stone, so as to part the Tali, as in the former. 'Tis worn by the Working of the Sea: and was found upon the Shores near Burlington in Yorkshire, where they are very plentiful. This fort is indeed found all along the Shores of this Coaft, from Burlington, Flamborough-Head; and thence quite to Scarborough, where are several found, near the Spaw, on the Shore.

x d. 10. A large piece, in which several of the Tali are separated from the Partitions, and are wanting, the Cells or Places of them being empty. Those that remain are of a dark brown Colour, the Partitions are, as in the other, composed of several Plates, but more gros than in any of the rest. They appear outwardly of a reddish Colour. One or two of the Cells seem to have been fill'd with a talky Spar, which is pellucid with a dusky yellow Caft, and indeed seems to be much of the same fort with that of the Partitions. One of the Tali had a Cornus Ammonis immer-
sed in it, a Joint of it being very evident: and I think the Edges of the Shell. In a Gravel-Pit near Oxendon-Church. Mr. Morton. I found pieces of Ludus Helmontij, very like this, by a Brook on Hamstead-Heath: as also in a Clay-Pit, at Harrow on the Hill.

x d. 11. Another, not so big, of an oval Figure, and worn by the Sea. The Tali are part of a light brown Colour, and part of a darker, spotted with Grey, the Spots being only the Ends of Tubes fill'd with a grey Stony Matter. They are of that fort which Dr. Grew calls the Piped Waxen Vein. (Clas IV. Part 4.) The Cases of the Tali are of the same Matter and Colour with those of x d. 1, and 2. but stand further asunder, being distanced by the Interposition of a middle Partition, that is in some places of an Inch over. This consists of the same fort of Matter with that of the Pyrites: and is for the main of a dusky Hue, but in some Parts yellow and glittering. In some Parts of the Body that middle Partition is discontinued: and the Spaces there left empty; where the two opposite Surfaces of the Sparry Cases, on each side those Spaces, are shot into Tubercula & Efflorescences. Shores of Sheppy Island, near Minster.

x d. 12. A small Piece of a Talus of the Ludus Helmontii of a brown Colour, with Part of a yellowish semidiaphanous Crust adhering to it. Upon the Outside of the Crust is a Cluster of crystalliz'd Grains of Marcasite, small, and all tending towards a cubic Figure. From the great Tile Clay-Pit near Richmond-Wells.
x 6. 13. A large Piece, of a somewhat darker Colour. On one side is a large Segment of a shining Crust striated a-cros adhering to it. On the Outside of it, at some distance from each other, are three Studs, each about \( \frac{1}{2} \) Inch in Diameter, of a bright shining yellow Brafs-like Marcasite, let all over with small square Brassly Scales. The Sparry Plate, as well as the Marcasite, is florid, and crystalliz'd; the Crack, in the middle of the Body, in which they were form'd, being capacious, and affording room for these Crystallizations. All the Tali of this Body were variegated with a light Brown, and a dark Grey. From the same Clay-Pit.

x d. 14. Another, with two like Efflorescencies of Marcasite standing so close, that they intrench somewhat upon one another. From still the same Clay-Pit.

x d. 15. Another, very small, with a like hemisphérick Marcasite allix'd upon it. Tho' this Marcasite be of the Bigness of those above, the Scales upon its Surface are much les. 'Tis broken, and appears within to confift of Brassy Threads, or Strize, tending from the Surface of it to its Center. From the same Clay-Pit likewife.

x d. 16. A Piece of a Talus of the Ludus Helmontii, cover'd with a yellow Crust, on one side of which grows a white semipellucid taly Spar; compos'd, much like the Marcasite in the foregoing Body, of several small Filaments tending towards the same Center. Upon which account, Dr. Grew calls another like Body the Starr'd Waxen Vein. (Maiæum Reg. Soc. p. 312. & Tab. 21.) The Starry Crystallization is \( \frac{1}{4} \) of an Inch over. The Surface of the Sparry Crust, upon which the Star is affix'd, is tuberous and florid; the Crack in which the Crust and Star were form'd being capacious, and allowing room for those Efflorescencies. This, as also that of Dr. Grew, was found upon the Shores of the Island of Sheppy, Kent.

x d. 17. A flat Stone, made up of many Tali irregularly pentangular. They are small, generally not above \( \frac{1}{2} \) of an Inch in Diameter; and of a light brown Colour. They seem to be of a firmer and closer Confitution, than those of any the precedent. The Partitions pass through the Body of the Stone, appearing in much the same manner on the two opposite Flats of it. They are of a Colour darker than that of the Tali, and compos'd of a ferruginous or ochreous Matter. They are very thin; being only like so many pentangular Lines, little broader than an Horfe's Hair, describ'd upon the two flat Surfaces of the Stone. This elegant Body I found upon the Shores of the Island of Thanet, near the North-Foreland.

x d. 18. Another, of a rounder Form; otherwise little different. It seems to have been worn by the Motion of the Sea, and by that means reduced to a rounder Form. Found along with the foregoing.

x d. 19.
x d. 19. Another, small, of a compriṣd oval Shape; and a light brown Colour. Upon each of the two opposite Surfaces appear several black Lines, describing irregular angular Figures. These are only the Edges of the Septa; which, in this Body, are very thin. This was found on the East Shore of the Isle of Grains, near the Ofium of the Thames.

x d. 20. Another. In this the Partitions are of a whitish Colour, with a talky shining Gloś. The Tali of a light Brown. Found alone in the Road at the North End of Masbham, Yorkshire.

x d. 22. Another, in which the Partitions are in some parts near ½ an Inch thick, of a dark Colour, glossy, and composed of Filaments running parallel and tranfverfe to the Planes of them. The Tali are of a dark grey Colour, and very hard. From Crick in Northamptonshire. Mr. Morton.

x d. 23. Another small Piece from the same Place, and not different, only it has a triple Partition, two Plates whereof are of the same Texture and Colour with the former, and each about ⅔ of an Inch over; between which is interpos'd a Plate of a very white talky Spar, about 18 of an Inch in Thickness.

x d. 24. Found near Cole-Ashby, Northamptonshire. The Tali of this are of much the same Constitution with that of those found in Sheppy-Island, x d. 2. & seqq. The Septa are composèd of a grey gloſsy Spar; which, in one of them, is cræftalliz'd, and run into trigonal Shoots.

x d. 25. Part of a Ludus Helmontij, in which the Tali are of a very dusky brown Colour, near black, appearing to hold Iron, as several of these Bodies do. The Septa seem to be compos'd of various thin Plates, they being all lineated length-ways. They are striated across, in a manner not very unlike that of the Crusts of the Hematites. There are Sea-Shells immers'd in several Parts of it; one of which seems to be intersected by a Sparry Septum. If that be really so, it would be a Proof that the Septa and Tali were not form'd at the same time; but that these Bodies have been burst or chink'd since their first Conflation, and the Chinks afterwards fill'd with a Sparry Matter that insinuated itself into them. When 'tis expos'd on the Surface of the Earth to the Air and Weather, it flattens and falls to pieces. Of this there were several Instances in the Heap flung by the Workmen out of the Tile Clay-Pit where I found this Body; which is upon the very Top of Shooter's-Hill. There are several Clay-Pits upon and about that Hill; and the Ludus Helmontij is found in most of them. By the Samples I saw there of that Body, it appears plainly to have been a Nodule: and most of those I observed in that Place, were externally invested all over with Crusts, from ¼ of an Inch, to an Inch in thickness, composèd of a pale brown Stoney Matter. The Bodies were of several Sizes, up to the Bigness of a Man's Head. In the Cliffs of Sheppy Island, I formerly took notice of several that were much larger; of which see x d. 1. sub-

x d. 26.
xd. 26. A Piece of one of the aforementioned Crusts. From the same Clay-Pit.

xd. 27. Part of another Ludus Helmontij, little different from that xd. 27, and found in the same Pit. 'Tis observable, that there is in this a Suture, running cross one of the Septa, where another comes up to and joins it. There are inclos'd in this also several small Bivalves, of the same Kinds with those commonly met with in the Sand-Pits and Clay-Pits about Black-Heath.

xd. 28. Part of a Ludus Helmontij, of a pale brown Colour. In this, and in several others, I saw in the same Pit, is a Mixture of Matter that is yellowish, and in Confistence very like Yellow-Ochre. The Partitions are striated across: and, as they tend towards the Crust, they gradually lessen. One of them also diversifies into two: and another into several small ones. The same I observed in others of these Bodies there. They sometimes enter into the Body of the exterior Crust: but I never saw any that quite pass'd it to the Surface. This Piece was found in a Tile Clay-Pit near Peckham, in Surrey. I observed here, in some of these Bodies, those fuliginous Delineations of Shrubs, call'd commonly by Writers Dendrites: and these upon the Tali, on each side the Septa. Most of these Bodies here were externally cover'd with a Crust. They were of all Sizes to the Bigness of an Horse's Head: and generally of a compress'd or flattish Form. I observed in the same Pit, other Bodies of like Form and Bulk: but constituted of a gritty Sand, and composed of Crusts alternately grey and brown, in manner of the Bezoar Minerale.

xd. 29. Part of another, the Tali of a deep brown Colour, with a Blush of Purple, very like some Iron Ores, and seeming to hold some of that Metal. The Septa, or Partitions, are striated. both long-ways and cross-ways: and upon one there are Ves-tigia of Sutures, where the other cross Septa come up to, and join it, as in xd. 27. Out of a Tile Clay-Pit at Norwood, about a Mile from Croydon, Surrey.

xd. 30. A Ludus Helmontij, the Tali outwardly of a pale brown Colour, and grey within. The Septa terminating sharp, in Edges, on all Sides of the Body. Where broken, they appear to be striated both length-ways and cross-ways. This Body seems to be entire, and not to have been invested with a Crust. Out of the great Clay-Pit at Richmond, Surrey. These Bodies are found in this Pit in great Numbers, and of all Sizes, to double the bigness of an Horse's Head. The greatest part of them are invested with Crusts. In breaking several of these, I observ'd, immersed in the Maf of the Tali, Sea-Shells, both turbinate and bivalve, of the very same sorts with those commonly found lodg'd in the Clay of this Pit. These Bodies, when expos'd to the Air and Weather here, and in the other Tile Clay-Pits of Middlesex and Surrey; in most of which they are found, shatter, in time, and fall to pieces.

xd. 31. A Piece of a Ludus Helmontij, in which the Septa are of a dark grey Colour in the Middle, and white on each Side. From the same Clay-Pit, at Richmond.
x d. 32. Another, that appears to have been expos'd to the Weather, and fretted. In this the Septa gradually lessen, and come to an Edge, as they approach the external Crust. From the same Clay-Pit.

x d. 33. Part of a Talus of another, still from the same Clay-Pit. The Septum, adhering to the Surface of this, is shining, glossy, and appearing very much like Velvet. 'Tis indeed little different from that on x d. 13, and x d. 14. only the Colour is deeper, or more dusky than in those.

x d. 34. A Fragment of a Ludus Helmontij, found in a Brick Clay-Pit North of Lamb's-Conduit. The Surface of the Septum, adhering to it, is glossy, and much like that of the precedent. I observed in several of the Masses of Ludus Helmontij in this Pit, the Septa were, in some Parts of the Body, discontinued, and the Spaces not fill'd: but empty, in form of Cracks.

x d. 35. Part of a Ludus Helmontij, the Tali brown; but externally, and where contiguous to the Septa, of a dusky Iron-Colour. (Conf. x d. 41. infra.) The Septa are finely plated, and striated across. Found in a Tile Clay-Pit, at the South-East Side of Highgate. This was broke off that x d. 43.

x d. 36. A Talus, with part of two or three others adhering to it; as also the Septa, which are plated, and striated across. In this there is a Vacancy in the middle of one of the Septa, in form of a Crack or Vein: and the Plates on each side have the Surfaces glossy, like those mentioned x d. 33, and x d. 34. This Glos, and various Reflection of the Light, arises from the shooting of the Spar into extremely small Crystals, on the two opposite Sides of the Crack; that Crack allowing it room to shoot and crystallize in. Which doubtless was the Case of all the Plates that are found with their Surfaces thus crystalliz'd. (Conf. x d. 11. supra.) From the same Pit with the foregoing.

x d. 37. Part of a Ludus Helmontij, found amongst several others in a Tile Clay-Pit, about two Miles from Layton-Stow, in Epping-Forest. In this the Septa, passing from the Center towards the external Crust, become gradually less: and, in one part, there arise from the Surface of a Plate, Crystals somewhat larger than in any of the foregoing Bodies.

x d. 38. Part of another Ludus Helmontij, from a Brick Clay-Pit betwixt Marybou and Sobo. The Sparry Partitions, in this, approaching towards the Outside of the Body, grow gradually less: and one of them divaricata into four smaller Branches. These Bodies: in this Pit, in that on the backside of Gray's-Inn, those by Hogsdon, Ifington, and some others that lie North of the Town, are commonly round: and of a flat or compre's'd Shape. In these the Septa run ordinarily across them: and are largest in the Middle; gradually lessening as they approach the two opposite Flats. Some I observ'd, in all those several Pits, in which there were only transverse Cracks, without any Spar at all in them to compose the Septa. Some others, like Ludus Helmontij, with like Cracks
Cracks in them, I observed in a Tile Clay-Pit at Holloway, near Highgate.


x d. 40. Six Pieces of a Ludos Helmontij, in which are immer-

fed great Numbers of a sort of Pellunculus. The Septa passing
towards the exterior Crust gradually leffen, as in the precedent.
Several of the Shells are broke; and have the Septa directly pas-
ning thorough those Breaches. This imports that the Stone was
broke after 'twas consolidated, and the Shells incorporated with
it; and that the Spar, that constitutes the Septa, only succeeded
and fill'd up the Cracks. Cryftal is one of the most obvious Mi-

nerals of this Country; and the Fiffures of the Strata of Stone in
most parts of England have considerable Quantities of it, partly
pure, but much more commonly mix'd, and in form of Spar, col-
clected and drain'd into them. This was repofited, originally, dif-
peredly, and in fingle Particles, or at least very small Molecules, in
the Interftices of the Sand that composes those Strata of Stone.
They must have been extremely small, or they could not have
paff'd the Pores and Interftices of the Stone, as 'tis apparent they
did, in order to get into the Fiffures of the Strata of Stone, the
Cracks of the Ludos Helmontij, and other Bodies. These Cryftalline
Particles are, in like manner, mingled and interspersed among the
Earth, Clay, or other like Matter that composes the laxer Strata.
Now the Parts of this Mineral being small, light, and disposed to
be moved along with the Water and Humidity which is contin-
ually paffing the Strata, it is commonly derived and drain'd out
of them, and convey'd and repofited in the Cracks and Fiffures
of Stone. For these give way to the Motion of the Water; which
therefore naturally tending towards them, carries the sparfy Cor-
puscles along with it thither, where there is Room and Recep-
tion for it, and where it affixes and concretes to the Stone on the
Sides of the Cracks and Fiffures. By this means the Spar, and
other Mineral and Metallic Matter, is brought into the perpen-
dicular Intervals of the folid Strata*. By the fame means the spar-
fy Veins are form'd in feveral forts of Stone; as alfo thefe Septae
in the Ludos Helmontij. I have taken notice elsewhere (o. 105.
infra) of a fort of Spar compos'd of Cryftal and Lax Luna. This,
that constitutes thefe Septae, is compos'd of Cryftal, with an In-
termixture of a fibrous Talc. There is likewise a flight Proport-
ion of other Matter, fometimes Mineral, and fometimes Metallic,
in feveral of them; nay, fome of them feem to hold fome small
thare of Vitriol in them.

The Septa in this, and other of these Bodies, gradually lessen as they approach the outer Crust, and terminate without ever reaching it: as do also the Chasms or Cracks, of which there is an Example in the foregoing; but the Bodies might have been crack'd in their interior Parts, and yet the Cracks not always extend to the Surface. Of this we have Proofs and Instances in the cracking of Clay, and of Timber, as they dry, and certain Parts growing clo'er, quit others. In Timber, or Trees fell'd, upon the Sun's drawing forth the Sap, the Knots are the aptest to crack. Again, Spray-Wood in charring, parts frequently into various Cracks, made from the Axis of the Spray towards the Surface; but terminating before they reach the Surface. Which is the very Cause of those Ludi Helmontij, whose Cracks or Septa do not pass the outward Crust.—In Lud. Helm. f. 434. of the second Part of this Catalogue, one of the Septa, approaching a firm robust Shell, fill'd with a very hard Pyrites, divides into two; so as to attend the Surface of the Shell, incomps it, and take the Impression and Figure of it. From a Tile Clay-Pit on the East-side of Highgate, near the top of the Hill, which indeed appears to be the highest Ground thereabouts for several Miles round. The Shark's-Tooth, N° 69. of the second part of this Catalogue, was found in the same Pit. These here, the Sharks-Teeth found on one of the highest Hills in Epping-forest, ibid. N° 70. those found at Harrow on the Hill, N° 67 x. and those found in that Hill above Richmond in Surrey, N° 64. along with a great Variety of Sea-Shells, afford us Instances of Remains of the Deluge in several of the highest Parts of the Country hereabouts. Like Instances there are, in the other Catalogues, of those Remains deposited in the highest Hills of the other Counties of England; as well as in those of foreign Countries.

x d. 41. Part of a Ludus Helmontij of that flat sort mention'd x d. 38. Found in a Brick Clay-Pit, North from Grays-Inn, near Pindar of Wakefield. 'Tis broke thro' the middle; from whence the Septa, tending towards the Surface, gradually lessen: and terminate before they reach the Crust. The Tall are of a grey Colour, as also the Crust; only this has withal a Caft of brown. There were, as in Flints*, and many other Fossils, in this, and others of these Bodies, several Cracks, so fine as not to appear to the naked Eye, only the Bodies in breaking, easily part, and fall to pieces at them; and the Bodies on each side the Cracks are tinged with a reddish or Iron Colour. But neither those Cracks,

* Flints are found very commonly in the Earth crack'd, and parted into various Segments, particularly in the Gravel-Pits on the East-side of Hyde-Park. And there are frequently Dendrites delineated on these, in like manner as sometimes on the Ludus Helmontij.
nor that Colour, pervaded the external Crust. *Conf. x d. 35. supra.

*x d. 42. Part of a Crust of a Ludus Helmontij, of an ochreous, or yellow Colour; appearing to be composed of numerous thin parallel Plates. 'Twas not so firmly join'd, but that it parted coldly from the interior Body, as if there was only a lax and slight Adhesion of the Crust to that Body; the Tali of which were of a Rust Colour. From a Tile Clay-Pit, in a Field near Pangridge. The Ludus Helmontij that is inveseted with a Crust, originally, before 'twas crackt, and the Septa form'd, appears to have been nearly related to the Bezoar Mineral. And indeed those mentioned. *x d. 28. supra, are no other than Ludus Helmontij not crack'd.

*x d. 43. A large Piece of a Ludus Helmontij, part of the same with that *x d. 35. The Body was of a flat compress'd Form, roundish, and very large; being, in most parts of it, about 1 4 Inches thick, and near 3 Foot broad. It lay in the Bed of Tile-Clay, about 8 Foot deep, flatways or horizontally, as did those I observed in the Cliffs of Sheppey Island; and indeed all the Flints, Tyrite, and other Nodules, (all which were form'd in the Water at the Deluge, before the Subsidence,) that are of like Shape. The Fossil Bivalves, and other flat Shells, lie generally in the same Posture into which all these would naturally settle at their Descent from the Water. These broad flat Bodies being thus found universally in all Parts of the Earth repolished flatways, or parallel to the Strata in which they lie, is one of the many Arguments there are, that they, and the Matter amongst which they lie, subsided from a Fluid in the same manner all round the Globe. In this Piece the Septa are very finely plated, and striated across. Tending towards the exterior Surface they gradually lessen, and some of them divert into small Branches. Found in a Tile-Clay-Pit on the S. E. side of Highgate, Middlesex.

*x d. 44. Another Piece of the Same Stone.

*x d. 45. Part of a Ludus Helmontij, also from the same Pit. This shews very fairly the gradual Diminution of the Septa, as they approach the Surface of the Body, as also the Manner of the Application of the Spar to the Tali on each Side the Cracks, and the successive Formation of the several Plates that compose the Septa; which indeed the following and several others do.

*x d. 46. Another from the same Pit; the Septa finely plated, and striated.

*x d. 47. Another, likewise from the same Pit. Thorow the middle of one of the Tali of this there passes a thin Septum, that also passes and intersects one of the larger or common Septa. The Crack, which this Septum fills, was apparently made, not only since those Cracks in which the larger Septa are, but even since

† *Conf. Nat. Hist. Earth, Part iv. Conf. 2. 3. Where these Particulars are made out.
the larger Septa themselves were formed. Of this there are also like Instances in the three following Bodies. Indeed the Partitions in the *Ludus Helmontij* appear not only to be made by the cracking and starting of the Parts, but 'tis manifest that those Cracks were made by the Body shrinking and contracting at different, and considerably distant, times, successively, each after other.

x d. 48. Another from the same Pit.

x d. 49. Another from still the same Pit.

x d. 50. Another, from the same Pit also.

x d. 51. A *Ludus Helmontij*, with part of the Cruft broken off, to discover the interior Constitution of it. 'Twas of an oval Figure, near one Foot in Length, and above \( \frac{3}{7} \) Foot over. The Septa are veined, and striated across. Palling towards the Cruft, they gradually lessen; from still the same Pit. The Mass of the Tali is in some Parts of a light brown, and in others of a dark grey. Even the different Parts of the same Talus are of those two different Colours, and the Cracks and Septa uncertainly and indifferently pass both.

x d. 52. Part of another, less, from the same Pit. 'Tis of a compress'd Form, the interior Parts are of a deep brown, and the Cruft of an ochreous, or light brown. The Septa generally pass cross-ways, and from Flat to Flat, gradually lessening towards each Extreme, as they approach the environing Cruft. I have observ'd very many of the *Ludus Helmontij* of a grey Colour, in the Clay-Pits in the Fields all along the North Side of London, from Hogdon to Paddington, that have the Septa of like Constitution, and crossing the Bodies in the same Manner.

x'd. 53. A *Ludus Helmontij* of a flat compress'd Shape, 9 Inches in length, 7 in breadth, and \( \frac{1}{2} \) in Thickness, in the middle, from which it gradually thins, and lessens towards the Edges. The Stone is very compact, hard, and of a dark grey Colour. The Septa are of a talky Spar; white, with a Caft of Yellow. They are very numerous, and stand very thick in the Stone. From Lowestoft in Suffolk.

x d. 55. *Ludus Helmontij*, the Stone of a very pale brown Colour, the Septa white, with a Caft of yellow. The Surfaces of the Plates that constitute those Septa, are in some Parts shot into extreme small Crystals. Where this happens, there are between the Plates, Hollows and Intervals, where commonly the Stone parts in breaking, which this also did, except only on one Part, where one of those Intervals is observable. This was found, among several others, about 12 Foot deep, in sinking near the White-Tower, within the Precincts of the Tower of London.
CLASS IV. PART V.

Lapis Syringoides, s. Tubulis resertus. The Piped Waxen Vein*. With an Appendix relating to the Piped Pyrites.

EXTRACT.

C. 1. Of the Tubuli or Pipes.
The Pipes are of a yellow Colour with a Cast of green. + d. 1.
—and are compos'd of various Crystals, including one another, and striated across; like the Septa of the Ludus Helmontij.

They consist also of a talky Spar, much like that of those Septa: + d. 1.
— and are most of them about the Thickness of a Swan's Quill. + d. 1.
— generally round, but some of them compreft. + d. 1.10.14.
They lie ordinarily all the same way, and parallel to each other. + d. 1.
— tho' sometimes they vary in their Postures, and lie cross one another. + d. 5.9.13.21.22.
They are commonly pretty strait. + d. 1. & seq.
— but some of them are inlefted. + d. 12.18.
They are not ever in equal Number in all Parts of the Stone; but lie thicker in some Parts than in others. + d. 15.
In some of these Bodies they are covered with a fine Reticulum of a blackish Colour, and rise into various round Tubercles. + d. 14.

Many of them are empty, and parted into Cells, by transverse Diaphragms. + d. 1.2.3.18. Conf. Cl. 5. § 2. Part 2. infra.
The Cells are thick set, and lined with small Crystals, like those of the Septa of the Ludus Helmontij, where the Plates part so as to leave an Interval for those Crystals to shoot in. + d. 5.
Some of them are filled with a grey Honey Matter, + d. 1.10.
Others with a white talky Spar. + d. 9.
Others with a Pyrites. + d. 1.
Some of them are compos'd of a Cast of Pyrites within a Cast of Spar. + d. 8.15.
Others consist entirely of a yellow shining Pyrites. + d. 18. & seq.

* Dr. Grew, Muscum Reg. Soc.
In some, the tubular Pyrites, tho' within of a brassy shining Con-stitution, are externally Black, and striated lengthways, partly empty, only having in them various Efiforencencies of the Pyrites, very bright, fine and glittering with yellow, green, blue, and other Colours, and partly filled with a grey stoney Matter. \( \pm d. 16. \)

C. 2. Of certain Partitions in this Body, like those of the Ludus Helmontij.

In some of these Bodies are Septa of a yellow talky Spar, not differing from that of the Tubes. They are composed of va-rious Plates, striated across, and exactly of both the same sort of Matter, and the same Constitution with the Septa of the Ludus Helmontij. \( \pm d. 5. 7. 10. 23. \text{Conf.} \pm d. 5. \) & x d.40. Append.

The Surfaces of these Septa are sometimes thick-set with cry-stallin Shoots, exactly like those of the Septa of the Ludus Hel-montij. \( \pm d. 17. \)

And sometimes likewise rise into small botryoid Tubercles, like those of the Hamatites, which the Surfaces of the Septa of the Ludus Helmontij likewise sometimes do. \( \pm d. 5. \)

C. 3. Of the Stone in which the Pipes are immers'd.

A black Stone, with Sparks of a brassy Pyrites in it. \( \pm d. 13. \)

A grey Stone thick set with small Tubercles. \( \pm d. 11. \)

A Stone, in some Parts brown, in others grey. \( \pm d. 10. \)

Another like Stone with Pyrites in it. \( \pm d. 14. \)

Some Instances there are of this Stone of a brown Colour, and composed of Fibres, running all across to the Site of the Pipes. \( \pm d. 1. \)

Others composed of Fibres running lengthways, or parallel to the Pipes. \( \pm d. 5. 6. \)

A few there are that resemble petrify'd Wood. \( \pm d. 10. \)

As also that resemble char'd Wood. \( \pm d. 12. \)

Some of these Bodies, like the Ludus Helmontij, are externally co-vered over with a stoney Crust. \( \pm d. 11. 13. \) & seq.


These Bodies are frequently found lodg'd in Beds of Clay along with the Ludus Helmontij; and, as several of that kind, so some of these also are externally invested with a stoney Crust. \( \pm d. 11. 13. 14. 15. \) The Pipes differ indeed in Form from the Septa of the Ludus Helmontij, but they agree with them in all other respects, e.g., They consist of various Cruffs, set one within another. These are striated across, and composed of talky Spar, of the very Colo-ur and Constitution of that of those Septa. This Spar is cry-stalliz'd also, in like manner as in those, and has sometimes Cruffs of Pyrites of the same sort that those have. Nay, there are Instances of this Stone's being intersected by Septa of the same Natur
Nature and Texture with those of the Ludus Helmontij. In fine, 'tis without Contest, that the Lapis Syringoides is a Nodule, and was formed at the same Time, and by the same Means that all other Nodules were*. But as to the Pipes in it, the Samples I have met with, and the Observations I have hitherto had opportunity of making, have not exhibited Phenomena numerous enough, or afforded Light sufficient, either to clear the Natural History of them, or determine my Judgment as to their Origin, which therefore must be suspended and reserved to future Enquiry.

Mean while, if I might be permitted to offer a Conjecture in so abstruse and uncertain an Affair, it should be, that as the Ludus Helmontij, and the other Nodules have in them Sea-Shells that were incorporated with them during the Time of their Formation in the Water at the Deluge, so thefe Stones had then incorporated with them testaceous Tubules, related to the Siphunculi, or rather the Vermiculi marini. And there are several of them, particularly that \( \text{d. 3} \), that exactly resemble thofe bodies, and are not to be diftinguifh'd from them. That Stone likewise \( \text{d. 12} \), has in it several Tubules that appear to be not sparly, but really testaceous. Now if there were thus tubular Shells originally incorporated with, and immers'd in the Stone, they might be eroded, and in tract of Time quite dissolved by the Vitriolic Salts, with which the Pyrites abounds, and which are so plentiful in the Clay of that Pit near Richmond, wherein the greater part of these Bodies were found, as to impart a purging Quality to the Water that arises out of it. And as much of the laid testaceous Matter of the Tubules as was so eroded, would be successively, in the ufual manner, supply'd by Spar, brought by little and little, and deponited in the room of it, by the Water that is ever more or lefs impregnated with sparly Matter, and is continually pervading the Strata. Or, where that Water happen'd to be more copiously fa-turated with the Corpuscles that constitute the Pyrites, it would deponit them, and so form the Tubular Pyrites. At leaft it is very certain, that this was the Case of several sparly Bodies in form of Concha, Cochlea, and other Sea-Shells, of which there are many Instances in the second Part of this Catalogue. \( \text{d. 23} \).

* Vide Nat. Hist. of the Earth, Part iv. Conf. 2. 3.
CLASS IV. PART V.

Lapis Syringoides, s. Tubulis refertus. The Piped-Waxen-Vein. With an Appendix relating to the Piped Pyrites.

‡ d. 1. A flat Stone, broken so as to shew the interior Constitution of it, in which are several Tubes, most of 'em ftreight, and lying parallel to each other. They are chiefly of a yellow Colour with a Cast of green, and run through the whole Length of the Stone, which is 4 Inches \( \frac{1}{2} \). The Thickness of the Sides of the Tubes is about one 20th of an Inch; the whole Tube generally about the bigness of a Swan's Quill, only some few there are less. Most of 'em are empty, and are parted at some Distances into several Cells, by Valves, or rather Diaphragms, consisting of the fame Matter with the Tube. A few of them are wholly filled with a grey Stoney Subftance, and one or two with a Pyrites. The Stone in which thefe Tubes are contain'd is of a brown Colour, and is made up wholly of Fibres which run directly transverfe to the Position of the Tubes. From the Shores of Shepepy near Minfter.

‡ d. 2. Two Tubes broken off from the foregoing Stone: and shewing very plainly the Diaphragms above-mention'd. The Tubes of thefe, and of several of the following, are compofed of various Cruffs, including one another: and ftriated a-crofs; like the Septa of the Ludus Helmontij.

‡ d. 3. Several Tubes, fome ftreight, others crooked, lying together in the manner of the Shells of Vermiculi marini. There is in the Middle one larger than any of the foregoing. There is little Stone with thefe. From the fame Shores.

‡ d. 4. A Mafs of Stone, like that ‡ d. 1. with several Tubes in it somewhat larger than those in that. From the Shores of Shepepy Island.

‡ d. 5. Another Stone, in which the Tubes are of much the fame Size, Colour, and Matter: and plac'd in the fame manner with thofe of No 1. Only there is one transverfe to all the reft, and is double, having a smaller Tube included in it, the End where broken appearing not unlike one of the cruffed Belemnites. The Stone in which thefe Bodies lie, is of a much darker Brown than No 1. but consists of Fibres, not transverfe, as that does, but parallel to the Length of the Body, and the Generality of the Tubes. This being broke, parted at a Plate of like Constitution...
with the Septa of the Ludus Helmontij; where doubtless was a Crack: and the Sparry Matter successively filling it, form'd the Plate; which is of the same Colour and Matter with that of the Tubes. Its Surface rises up every where in small Bubbles, not unlike those of the Botryoid Hamatites, No. o. 42. and is striated a-cros, as the Tubes in this Body, and the Cruts of that Hamatites are. Found in the great Clay-Pit by Richmond-Wells. The Tubes consist of various Cruts, striated a-cros; and having the Bore or Cavity thick set with extreme small Crystals, like those in the Intervals of the Plates of the Ludus Helmontij.

‡ d. 6. A Piece in which the Tubes differ little from those of the immediately foregoing: and the Stone in which they lie, is striated length-ways, as that is. From the Shores of Sheppey, betwixt Minster and Warden.

‡ d. 7. Another, with a Crust upon it of the same nature with that of the Tubes, rising up into several Bubbles, clutter'd together, and set all over with extreme small crystalliz'd Shoots of the same Matter. From the great Clay-Pit at Richmond-Wells.

‡ d. 8. Another, in which some of the Tubes are lined, and others fill'd with a glittering Pyrites of a Copper-Colour. From the same Clay-Pit.

‡ d. 9. Another, very much worn, and ground by the Motion of the Sea. This is very thick set with Tubules in various Positions, most of 'em smaller than those of the foregoing, and fill'd, some with a grey Stoney Matter, and others with a white Talky Spar. From the Shores of Sheppey Island, Kent.

‡ d. 10. A large Stone, in some places grey, in others of a dusky Brown: with Fibres all placed length-ways of the Stone, and very much resembling petrified Wood. In the brown part of the Stone, there appear several thin Tubes, some round, others of a compres'd Shape, all fill'd with the same for't of grey Matter that the other part of the Stone consists of. There are in it a few Veins of a yellowish Talky Spar, of the same kind with that of the Tubes mention'd above. Upon the Shores of Sheppey. Vide ‡ d. 14.

‡ d. 11. A grey Stone, the Surface of which, on one side, rises into several round Knobs, about the bigness of Peas, set very close together. Whether they be the Ends of the Columns of Matter, filling tubular Bodies, like those before mention'd, is not easy to determine; but they seem not to pass deep into the Substance of the Stone. Found in the great Clay-Pit, near Richmond-Wells.

‡ d. 12. A large Piece of the Piped-Waxen-Vein. The Tubes in this, are much of the same Substance, Colour, and Size with those in ‡ d. 1. but are neither sofreight, nor do they lie all parallel to one another, as in that. Some of them are empty: and many fill'd with a Stoney Matter of the same sort with that wherein they are immers'd; which, in some parts, is of a light brown Colour; in other, of a deep grey, and on one side of a dusky brown, with parallel Fibres, much resembling Charr'd-Wood,
Wood, both in Colour and Texture. From the great Clay-Pit at Richmond.

‡d. 13. Another. In this the Tubes are little different from the foregoing, but that they lie all together, very thick, and in various Positions in the middle of the Stone. The Part in which they lie, is near black, with some Sparks of a Brassily Pyrites in it. The Crust inclining this has no Tubes in it: and is of a light grey Colour. From the same Clay-Pit.

‡d. 14. A Piece of Stone much like ‡d. 10. and with like Tubes also in it, some of them round, others compressed, and some very much so. The Tubes are coated with a fine blackish Reticulum. On one Surface the Tubes bunch out into round Tubers, like those of ‡d. 11. but bigger. Being broke on one side, there appears a considerable Quantity of a shining Brassily Pyrites. From still the same Pit. Confer. b. 49.

‡d. 15. Part of a large flat Nodule, gritty, and of a grey Colour. Thorough the middle of the whole Body pafs'd a large Vein of a blackish Matter, thick set with Tubules, partly composed of Spar, and partly of Pyrites. That ‡d. 13. is of the same sort with this: and found in the same Clay-Pit at Richmond.

‡d. 16. Part of a large Nodule, composed chiefly of parallel Pipes, of Pyrites, of a grey shining metallic Complexion. Externally they are blackish: and striated length-ways. The greatest part of them are fill'd with a grey Stoney Matter. In the few that are not fill'd, are Efflorescencies of Pyrites, very bright, and shining, partly yellow, partly of a flame-colour, green and blue. From the great Tile Clay-Pit, near Richmond, Surrey.

‡d. 17. Another Piece broken off the same Body: as were also the five following.

‡d. 18. Another. In this several of the Tubules are bended: some of them composed of Spar: and one divided into Cells, by means of transverse Septa.

‡d. 19. Another.

‡d. 20. Another.

‡d. 21, 22. Two more, still broken off the same Body. In these the Tubules lie in diverse Positions: and some are placed directly cross the rest.

‡d. 23. A Piece broke off a Nodule that was of the bigness of an Horfe's Head, composed of a grey Stone, partly clear, and partly thick set with sparry Tubes, tapering, and much resembling the Shells of the Siphunculi marini. They generally lie parallel to one another; but some few cross-ways. In one Part of the Body is a Septum of Spar, striated a-cross, like that of the Septa of the Ludus Helmontij: and subdivided into several Branches, which lessen gradually as they approach the Surface of the Body. The Tubes and Septa are composed of Spar, of like Colour and Constitution. In one Part of the Body are numerous small Bodies, chiefly oblong, round, and in Form of Worms. They are black externally. Within, part of them are grey, consisting of Stoney Matter.
Matter; of like Constitution with that of the common Mass of the Nodule: and part yellow, and shining, being composed of Pyrites. Out of the great Clay-Pit. Richmond, Surrey.

CLASS IV. PART VI.

Belemnites. Vide Part VI. infra.

EXTRACT.

C.1. Of the Conic Belemnites.

§ 1. Of the Shape of this Body.

Conic, and terminating in a Point, *d. 1. & seqq.

A Suspicion that this Body is broken: and was originally pointed at both Extremes, *d. 45.

It is generally round, *d. 1. & seqq. 20.

In some a little flattish, or compressed. *d. 20.

§ 2. Of the several Magnitudes of the Conic Belemnites, *d. 1:


§ 3. Of the Colour of this Body.


— Of a dark Ash-Colour, *d. 12.


— Of a light Brown, *d. 1.

— Of an Amber Hue, with some degree of Diaphaneity, *d. 10. 11. 16. 17. 40.

§ 4. Of the external Constitution of this Body.

The Surface of the Belemnites is smooth. *d. 5.

Only it has usually one Chap or Seam running down one side, parallel to the length of it, *d. 40. 43. 44.

This, in some at least, passes on, tho' with a very fine Fissure, to the Middle or Axis of the Body.

§ 5. Of the interior Constitution of the Conic Belemnites.

It appears to consist of a Talky Spar, *d. 22. 29. 37.

And is compos'd of several Conoid Cortices, Crusts, or Cups including one another, *d. 1. 2. 4. 6. 7. 8. 10. 11. 12.

36. 40. 43. 45.

Those Crusts are all striated a-cros; they consisting of numerous Fibres, or Filaments, that pass them generally towards the Axis of the Body, *d. 1. 4. 6. 7. 8. 10. 11. 12.

14. 17. 18. 19. 20. 22. 25. 30. 31. 37. 38. 43. 45.

Tho' in some the Striae tend towards a Line placed near one side of the Body, *d. 17. 19. 20. 21.

Most of these Bodies have a conic Cavity in the middle. *d. 1.


This in some of them is empty. *d. 14. 17.
In others 'tis fill'd with Chalk. * d. 2.
— with Stone of the same sort with that of the Strata in
which the Body is found, * d. 17. ? 17. 22. & seq. 29. 43.
— with a greyish Matter.
— partly a black shining Matter, and partly white Spar,
* d. 37.
— with a grey Alum-Mineral, * d. 38.
— with a yellow Brastra-like Pyrites. * d. 30. 31.
— with a grey talky Spar, and some Admixture of Pyrites,
* d. 31.
— with a grey talky Spar, * d. 29.
— with a coarse Spar, * d. 26. 27.
— with a semi-pellucid Spar, * d. 27.
— with a white diaphanous, crystalliz'd Spar, * d. 19.
This Spar is sometimes divid'd into several Joints, or Parts, that
are at one end concave, and at the other convex; each
gradually less than other, so as to form a Cone, and termi-
nate in a Point, * d. 32.
The said Joints are sometimes of a harden'd clayey Matter,
having in it Flakes of This; sometimes Sparks of a Pyrites,
and being girded with a shining Armature. * d. 32.
Sometimes of a bluish Stoney Matter * d. 29.
A Plate of a Selenites wedg'd or included in one of these joint-
ted Cones, * d. 29.

§ 6. Several Accidents of this Body.
Some of the conic Belemnite have Vermiculi Marini. and oth-
er Sea-shells, adhering to their Surfaces, * d. 14, & seq. 23.
Some of them are crack'd, inflect'd, distorted, and compres'd,
* d. 17, & seq. 38. 44.
Some of them, particularly those found, beat out of the Cliffs,
on the Sea-shores, have Holes in them like those made in
Wood by Worms; and seem to be eroded, or scooped by
Pholades, or other like Creatures, * d. 7. 41.
Sea-shells, Teeth of Fishes, and other marine Bodies, found
lodg'd in the Strata of Chalk, Clay, Stone, &c. along with
the Belemnites.

C. II. Of the Belemnites fusiformis. * d. 34. to 36 x, &c. 40.
This sort is less than the Conic, * d. 34, & seq.
But is striated in the same manner, * d. 34. 36.
Consists of various Crufts, * d. 36. 40.
And has likewise a Seam running parallel to the length of it;
* d. 34. 40.
Some of these are of a grey Colour, * d. 34.
Others of the Hue and Compleation of Amber; with some de-
gree of Diaphaneity, * d. 40.
C. III. Belemnites in Cuspidem utrinque terminans, *d. 45.

This also is composed of several Cruits striated a-crois; and is, in Constitution, little different from the two precedent Kinds, *d. 45.

But none of these, that I have hitherto met with, have any Vestigia of the Chap, or Seam, that the two former Kinds have, running length-ways of their Surface.

C. IV. Observations and Reflections.

The Belemnites is found lodg'd sometimes in Stone, *d. 22; & seq.

Sometimes in a blue Clay, *d. 40.
Sometimes in Chalk, *d. 45.

Those Fossils are of Constitution too much differing ever to give birth all to the same Body.

Besides the Matter of the Strata of Chalk, or Clay, and much more of Stone, would not have given way, or made room, after their Compilation, for the Formation of Bodies of the Bulk, to say nothing of the Texture, that some of these are of.

So that the Belemnite must have been form'd before the Strata were compiled.

They are every where found as much independent upon the Strata as the Sea-shells, Pyrites, Flints, and all other Nodules are.

For this reason, formerly, when I drew up my Essay towards a Natural History of the Earth, I concluded that they were mere Sparry or mineral Nodules; and form'd before the Strata.

The latter of which Propositions is certain; and beyond contest. And 'tis as certain that nothing appears in the Constitution of any of them, that I have yet ever seen, but what is evidently of a talky Sparry Constitution. But there are some of them, e. gr. *d. 14., & seq. 23. that have Sea-shells, and particularly of the Vermiculi Marini, adhering to their Surfaces. Now, tho' it be true that the same Accident is sometimes observable in other Nodules that are of irregular and uncertain Figures, and indisputably of mineral Origin; yet that is very rare; and, upon a closer Inspection and Examination of these Bodies, I observe that the Shells are affix'd to the Surfaces of them, in such manner as they are wont to the Surfaces of Bodies, lying now on the Sea-floraes, upon which they live, thrive, and grow. So that I am not without some Suspicions that the Bodies upon which they are so affix'd, were form'd and existent before ever the Water of the Deluge came forth upon the Earth; and were of Animal, and not of Mineral Nature, as these now appear to be, and as I took them ever to have been. This is certain, many of the teftaceous and animal Substances, then reposited in the Earth, are since dissolved, their Compagons destroy'd, and succeeded by Sparry and other mineral Matter, that at this day is exactly of their Shape and Mien; it filling the Places where they were, and so being circumscrib'd and determin'd
(105)

termin’d in its Figure by them.—Nay, there are some animal Substances, that are themselves also still extant, that yet have their Pores and Interstices so saturet with mineral Matter, as to appear, to a less heedful Observer, to be wholly mineral. Of this I have some very extraordinary Instances among the Echini Species; some of which are so saturet with sparry, and others with flinty Matter. From an almost endless number of Phenomena, I am satisfy’d that at the Deluge, all Fossils were so far dissolv’d, as to be reduce’d to their single Atoms and Principles; and that no two of these remain’d united or coherent. And those Principles, or Particles, in many Minerals, are small and fine infinitely, and beyond Expression. These were capable of being insinuated into the finest Pores of the animal Substances; and consequently of so far eclipsing, absorbing, and disguising the animal Matter, that the Body should appear afterwards to be entirely mineral. And I leave it to further Observation and Scrutiny, whether these Bodies were not originally Horns, or other like animal Appendages; of which we see by the Afteria, Extrochi, and many more, there are or have been vast numbers at the bottom of the Ocean, that never appear upon the Shores †. Another Phenomenon I must take notice of; which is, that the Belemnites sometimes appear to have been compres’d, crack’d, and distorted; which is what I do not remem- ber ever once to have observ’d in any Fossil that was not form’d in an animal Mould. But in these ‡ there are Instances of it; of which there are Accounts in the second Part of this Catalogue.

† After all, I cannot conceive how the Body, that was succeed- ed by the Belemnites, should be dissolv’d, and the Shells, adhering to the Surface of it, not be dissolv’d likewise. ’Tis most probable that these Shells affix’d to the Body at the time of its Coalition and Formation, which happen’d to some other Fossils. Vide e. 67. infra.

Of the successive Formation of the Crusts of the Belemnites, * d. 43.


The Places where the Belemnites are found.

Greenhith, * d. 1.45.
Northfleet, in Kent, * 2, & seq. 45, 46.
Thurham, Kent, * d. 36.
Croydon, Surrey, * d. 45.

Great Bowden, Leicestershier, * d. 16. * d. 32.
Ashley, Northamptonshire, * d. 32 x. 33.
Clipston, Northamptonshier, * d. 12. 13. † 17. 17. 20.28.29.
Boughton, Northamptonshier, * d. 28.

† Vide Nat. Hist. of the Earth, 2d Edit. p. 25.
‡ See the second Part of this Catalogue, of the Extraneous Fossils, Class v. Part 1. Sect. 1. of the Echini Spat. l.27.32.33.40.

Sherburn,
Sherburn, Gloucestershire, *d. 24.
Hannington, Wilts, *d. 34. x. & seq. 42.
Silverton, Devon, *d. 43.
Whitby, Yorkshire, *d. 30. 37.
Spittal, Yorkshire, *d. 9. 10. 11. 18. 40.
Scarborough, Yorkshire, *d. 8. 41.
Sheppey Island, *d. 6.
Ewsham, Oxfordshire, *d. 15.
Tanworth, Gloucestershire, *d. 15. *d. x. 17.
Barrington, Oxfordshire, *d. x. 15.
Farmington, Gloucestershire, *d. 17.
Stowell, Gloucestershire, *d. 19.
Birling-Hill, Gloucestershire, *d. 22.
Norleach, Gloucestershire, *d. 25.
Stunsfield, Oxfordshire, *d. 34. *d. 35.

CLASS IV. PART VI.
Belemnites.

*d. 1. A Belemnites of a light brown Colour, somewhat above two Inches long, and \( \frac{1}{3} \) of an Inch in Diameter in the middle; from which it lessens equally towards both Extremes. At one of them it terminates, not tapering and gradually, but suddenly, in a Point; at the other 'tis abrupt, and \( \frac{1}{3} \) of an Inch over, appearing to consist of three or four Crufts, set one within another, and having in the middle a round Cavity \( \frac{1}{3} \) of an Inch a-cross. Found in the great Chalk-Pit at Greenhithe, in Kent.

*d. 2. Another, little different, only the Colour is somewhat lighter; and it seems to be made up of six or seven thinner Crufts. It has a Cavity at the obtruse End, as the other has, which in this is full of Chalk. In a Chalk-pit near Northfleet, Kent.

*d. 3. Another, less; from the same Chalk-pit.

*d. 4. Another, still from the same Chalk-pit. This is broken; and appears to be made up of several Fibres, transversely passing thro' all the Crufts, to the Axis of the Body.

*d. 5. Another, with its Outside very rough, as if eroded; the former, and indeed all these Bodies having their Surfaces usually smooth. From the same Chalk-pit.

*d. 6. A Piece of a larger, much rougher than the former, having in its Sides some Holes made, and those so great, as to reach almost to the Axis of the Body. This too is striated from the Surface to the Axis. Where smooth, 'tis semi-pellucid, and of a yellow Cast, somewhat deeper than that of the Piped-waxen-
Vein, and glitters slightly not unlike a dusky Scelentes. Found on the Shores of Sheppey-Island.

*d. 7.* Another, having several Holes and Furrows in it, appearing exactly like the Erosions of Worms in Wood. *Tis broke at the obtuse End, and striated from the Surface to the Axis. From the Shores near Scarborough, Yorkshire.

*d. 8.* A Belemnites very much like that No. 1, only of a darker Colour. *Tis a little broken in one part, at the obtuse End; and appears to be striated thro' the Crusts towards the Axis. Found in a Clay-pit near Lambeth.

*d. 9.* Another little different from No. 4, but of a fadder Colour. Taken out of a blue Clay in a very high Cliff near Spitton, Yorkshire. They are found plentifully in that Cliff; but many of them are very brittle, and even friable.

*d. 10.* Another, very small. This is pellucid, and of a pale Amber Colour. The obtuse end of it is smaller, and comes nearer a point, than in any of the former. *Tis striated, or rather made up of Fibres tending from the Surface to the Axis, as this sort of Bodies generally are. Found with the precedent in Spitton-Cliff.

*d. 11.* Another from the same Cliff, and of the same Colour, only somewhat darker, and striated in like manner. The Point of this is like the Point of that *d. 1.*

*d. 12.* Another, no way different from No. 10. only of a dark Ash-colour, and not pellucid. In a Quarry West of Clipston, half a Mile from the Town, Northamptonshire.

*d. 13.* Another, little different from No. 3. only of a fadder Colour. From Clipston-Quarry.

*d. 14.* Another large one of a brown Colour; 5 1/12 Inches long, and its Diameter at the obtuse end 1 Inch and 1/12. This is more taper than any of the former, lessening gradually to a sharp point. It has a conical Cavity at the obtuse end 2 1/2 Inches deep; 1/12 of an Inch over at the top; and consequently the Crust, which is single and striated a-cross, is about 1/12 of an Inch thick. There are adhering to it a Vermiculus Marinus, and three small Shells of a sort of Bivalve, found frequently in the Stone-pits about Oxford, and seeming to be of the Tree Oyster-kind. There are Vestigia of several more that have stuck to it, but are now broken off and gone. They seem to adhere only to its Surface, and not to be incorporated with the Matter of the Stone. Found in a Stone-pit on Cowley-Common, near Oxford. [There are parts of Balani affixed on the fossil Coralloid, e. 67. infra.]

*d. 15.* Another, lefs, otherwise little different; having likewise one of the same Bivalves, and two or three Vermiculi, sticking to it. Stone-pit, near Etonham, Oxfordshire.

*d. 15.* A Piece of another, with several Shells of the Vermiculi Marinis adhering to the Surface of it. Sherburn, Gloucestershire.

*d. 17.* Another, with two or three like Vermiculi upon it. Stone-pit near Yarmouth, Gloucestershire.
*d. 15 x. Another having on it five small Vermiculi, twirl'd in such manner as to resemble a sort of small Cochlea Marina. Bar- 
rington great Quarry, near Burford, Oxfordshire.
*d. 16. A Belemnites terminating in a pretty blunt Point, semi- 
pellucid, and somewhat resembling Amber. Bowden, Leices-
tshire.
*d. 17. Another, with a conical Cavity; and having its Sides 
which are very thin, striated a-crofs. 'Tis of much the same 
Colour with the former, but not quite so pellucid. 'Tis but 1 3 
Inch in length. Toward the Cone there is a circular Crack in 
the Stone, at which the Body is bent a little. Farmington, Glou-
cestershire.
*d. 17 x. Another, larger, being 2 1/2 Inches long; and having its 
Cavity fill'd with a brown Sand-Stone. This is crack'd in several 
places: much compress'd, and distorted; in such manner as that 
it appears to have sustain'd some great external Force upon it af-
fter its first Formation. Yanworth, Gloucestershire.
*d. 17 y. A Piece of a Belemnites, crack'd likewise and com-
pres's'd. 'Tis the larger or obruft part of the Belemnites; its Ca-
vity being fill'd with a brown Sand-Stone. At the bigger end it 
consists of one thin Cruft striated a-crofs; but one side being bro-
ked lower down, there appears another like Cruft within it. At 
the other end, where it is broken diametrically a-crofs, it is made 
up of four Crufts, one within another, and striated transversely 
which Crufts are parts of so many concave Cones. From Clip-
ston-Quarry, Northamptonshire.
*d. 17 g. Another small one from the fame Quarry, crack'd 
compress'd, and distorted.
*d. 18. A Belemnites, little different from No. 16. only not quite 
so pellucid, being of a somewhat more dusky Colour. Found in 
Spitton-Ciff, with No. 9.
*d. 19. A large Belemnites, near as big as that No. 14, and much 
of the fame Shape. The Apex, or lefser End of it is broken off, 
where the Stria, arising from the Surface all round, tend, not to 
the Middle, or Axis of the Body, but to a Line, placed much nearer 
one side of it, being not above 1/3 of the Diameter of the Body 
distant from the Surface on that side. So that the Stria or Fibres 
there, are not above one third of the length of those tending to 
that Line from the oppofite side. The Cruft at the other end is 
striated a-crofs; and on one side is part of a second Cruft, within 
the other, striated in like manner. The rest of the Cavity is 
filled up with a white diaphanous cryftalliz'd Spar. Stowell, Glou-
cestershire.
*d. 20. Another, broken at each end, and of a flattish form; 
all the foregoing being round. It appears at the Breaches at both 
ends to conifit of several thin Crufts, one within another, all stri-
ated from the Surface towards a Line placed near one side of the 
Body, as in the lefser end of the former. Found in Clipston-
Quarry, Northamptonshire.
*d. 21. Another Piece, broken long-ways, so as to shew the Line above mention'd in No. 19, &c. 20. running the whole length of the Body, placed, not in the middle, but pretty near one side of it. *Ibid.*

*d. 22. Another, the Cavity of which is fill'd with a grey fort of Sand-Stone, of the same fort with that of the Stratum, in which the Body was originally lodg'd. This is made up of several thin Crusts, striated a-cros, towards the middle of it: On one side it appears as if worn or ground away, so that several of the Crusts are visible one within another for the whole length of the Stone. It happens in two or three places to be broken cross the Grain of the *Stria*, and appears there flaky, not unlike a fort of Talky Spar. I found in the same Stratum several whose Cavities were fill'd with the same fort of Stone. *Birlip-Hill, Gloucestershire.*

*d. 23. A Mass of the Stone of the Stratum above mention'd, with a Piece of a *Belemnites* in it, broken so as to shew a Cone of the same fort of Stone lodg'd in its Cavity. There is on the Stone an Impress of part of a fort of Bivalve.

*d. 24. Another Mass of a greyish Stone mix'd with a Spar and having in it numerous Fragments of Sea-shells. There is lodg'd in it a Piece of a *Belemnites*, whose Cavity is fill'd with the same fort of Stone. From a Stratum of Stone in Sir Ralph Duston's Home-Park at Sherburn in Gloucestershire. In this Country the Farriers use the *Belemnites*, finely powder'd, in watery Affections of the Eyes of Horses. The common Pharmacologists recommend it inwardly in Nephritic Cakes; and doubtless it has much the same Properties with Spar. *Vide infra f. 21. Cl. p. 2.*

*d. 25. A *Belemnites*, broken so as to shew the interior Texture of it. 'Tis striated at the small end towards the Axis of the Stone. Its conical Cavity is fill'd up with a white semi-pellucid Spar. This Spar consists of several Joints, each about $\frac{1}{2}$ of an Inch in thickness. On the broader Surface they are concave; on the other convex; so as they fit and joint close to each other, growing still less and less, till they end with a very small one at the Point of the Cone. *Northleach, Gloucestershire.*

*d. 26. Another, broken so as to shew a like articulated Cone, but of a coarser Spar. *Coln-Allins, Gloucestershire.*

*d. 27. Five Pieces of other like jointed Cones, taken out of the Cavities of *Belemnita*. From ---- Northamptonshire.

*d. 28. Three other like Pieces: the two larger found in the blue Clay got out of the Canal of the Earl of Montague at Boughton, Northamptonshire: the last from Clipston-Quarry. Mr. Morton.*

*d. 29. A Piece of a *Belemnites*. The conic Cavity, at one end, is fill'd with a grey Talky Spar, at the other with a blueish Stone, in which is mix'd a small Plate of *Selenites*. *Clipston, Northamptonshire.*
Another, in which the Cone, filling the conic Cavity, consists of Joints of a yellow Brass-like Pyrites. The Belemnites is of a blackish Colour, and a Conick Shape, and is striated from the Surface towards the Middle. Found lodg’d in the Alum-Stone at Whitby, Yorkshire.

Another out of the Stone too, of the same Shape and Colour, and striated in like manner, but appearing to be made up of several thin Crufts set one within another, and surrounding the Cone. The Joints of the Cone, filling the Cavity, are of a grey Talky Spar, with a slight Admixture of Pyrites.

Six Joints each gradually less than the other. The biggest is very large, being about 1 ⑦ Inch in Diameter. They approach an oval Figure, and consist of a hard grey Clay, with some very small shining Sparks, seeming to be of Talc. Both their concave and convex Surfaces are very polite, and in some Places have a shining Armature upon ’em, like that frequently observable on Cornua Ammonis and other Shells that have lain in a vitriolic Earth: and in some Places there appears a little quantity of a Pyrites adhering to them. At Great-Bowden in Leicestershire, Mr. Bland.

Several Joints, near 20, of much the same Size with the foregoing. Ashley, Northamptonshire. Mr. Sawyer.

A single Joint of much the like Size and Shape with d. 32. sent also by the same Person, Mr. Bland, from the same Place, Bowden. The Clay of it is of a like sort with that of the former; the convex side is polite, and plainly appears to be covered with a thin Cruft about ① ④ of an Inch thick. What these Bodies are, is not easy to determine; particularly whether Joints of the Cone contain’d in some very large Belemnites. Mr. Bland informs me he has seen Systems of these of a Conical Figure, and ending in a small Joint or Point; but he never saw any part of a Belemnites adhering to ’em. Be that as it will, they are found elsewhere, filling the Conic Cavities of Belemnites. Conf. * d. 25. supra, &

A small Belemnites, differing in Shape from any of the former. ’Tis ① ④ Inch in Length, and ① ④ ④ of an Inch in Diameter, where thickest. It terminates at one End in a bluntish Point, from whence it gradually swells to about ① ④ part of the Length, thence gradually thickening for ① more, till its Diameter be little more than ① ④ of an Inch, which thickness it holds to the other End, only swelling a little at the very Extremity where it is hollow, but the Cruft very thin. ’Tis a little broken in one part, and appears to be striated toward an Axis, in the same manner as the rest. In the thicker part ’tis of a dark grey Colour; in the thinner of a somewhat lighter. There is a small Chap or Seam running the whole Length of it, but is most confpicuous at the thinner End. This is of that sort which J. Banninus in his Treatise de Fonte Bollenfi, p. 34. calls Belemnites fuji infrav ventre craffioare, in acumen utring, definitae. Found in a Stone-Pit at Stewfield.
field in Oxfordshire. This Species of Belemnites is also found about Zurich in Switzerland. F. Scheuchzer Spec. Lithogr. Helvet. p. 25.

* d. 34 x. Another of the same kind, found along with * d. 42.

* d. 35. Another, in nothing different from * d. 34. only somewhat less, and found in the same Place. * d. 9. 10. 12. supra are of this Species.

* d. 36. A Piece of a larger of the same sort. In the thickest part tis $\frac{1}{2}$ of an Inch in Diameter. *Tis broke about the middle, where it is solid throughout, and striated from the Surface across two thin Cruts to the Axis. From still the same Stone-Pit.

* d. 36 x. Another, dug up in a Tile Clay-Pit, near Thurnham, 3 Miles from Maidstone in Kent.

* d. 37. A Conic Belemnites, near 4 Inches in length. *Tis rough on one Side, and looks as if grated and worn away; glittering there like-wit in small Spangles not unlike one of the Mica. Being broke at the bigger End, it discovers itself to be compo'd of tranverse Fibres. The Conical Cavity is filled partly with a black shining glossy Matter, and partly with a white, much resembling a coarse Spar. In Whitby Alum-Mines, Yorkshire.

* d. 38. Another of much the same Size, Shape and Texture. This is flat at the bigger End, and crack'd as if compre'sd by some external Force, though the Parix or Sides are not brought so near together but that some of the Conic Cavity remains, and is filled with the common grey Alum-Mineral. On one part, where broken, the Fibres appear with a shining brawly Glo'ss, like a Pyrites, but it seems to be only superficial. From the same Mines.

* d. 39. A Piece, broke off from the bigger End of another, of like Size. The Conic Cavity of this is filled with a greyish Matter made up of several Joints as that * d. 25. Both the Concave and Convex Surfaces of the Joints are very smooth and shining. Whitby Alum-Mines.

* d. 40. A Belemnites fusiformis, about an Inch long, somewhat Diaphanous, and of the Colour of Amber. When held up to the light, a Slit or Crack discovers itself passing straight on for the whole length of it. It appears to be compos'd of many very thin Cruts. Found lodged in a blue Clay in a large Cliff near Spitton in Yorkshire, where there are great Numbers of them. This is very firm and hard, but some of them are so friable that they will crumble betwixt one's Fingers. The Crack above-mentioned'd is frequent both in this, and the common Belemnites, of which there are Instances in * d. 2. 3. 6. 8. 9. 10. 11. 13. 14. 16. 17. 18. 22. In several of these the Crack is visible from the Axis of the Stone, quite to the Surface. The Seam, or Sulcus, in the Belemnites * d. 43. infra. and the fusiformes * 34. supr. & seq. is wholly external, so far as appears, and quite different from these Cracks.

* d. 41.
*d. 41. A Belemnites from Scarborough Shore, worn and fretted by the agitation of the Sea, and having in its Surface several small oblong Cavities, appearing as if corroded by Worms.

* d. 42. A Belemnites, little different from that *d. 14. Out of a Clay-Pit at Hannington in Wilts hshire, where they are found in great numbers.

* d. 43. Part of a Belemnites broken to shew the interior Texture of it. The Fibres or Striae tend all to the Axis, about which the Circles appear very plain; and at one End is a brown stoney Matter in the middle, which is surrounded with a Circle of white spartry Matter, and that with a Circle of blackish horney Matter. This shews the Manner of the Formation of the Body, and the successive Application of the Constituent Matter. There'sa Seam or Sulcus runs down one Side of this Body for the whole Length of it. Silverton, Devonshire. There were several of them; all of this, which is the common fort, conic, and terminating at one End in a Point.

* d. 44. Parts of two more, of the same sort, from the same Place, crack'd and inflected, but cemented at the Cracks, and held together by interposition of a stoney Cement.

* d. 45. Four Belemnites, each an Inch and 1/4 in Length, and 1/4 of an Inch in Diameter, where thickest, which is not in the Middle, but rather towards one End. That End terminates in a Point like that of * d. 1. 2. 3. and of those *d. 46. which makes me suspect all those to be of the same sort with these; tho' that cannot be ascertained, because in all those one End is broken off. But they are of the same Colour and Constitution with these, and were found in the same Places, viz. the Chalk-Pits of Greenhythe and North-fleet, Kent. What is observable in these, is, that they terminate at the opposite End likewise in a Point, little different from that of the other End, only the Body is smooth on that End, and on this 'tis set with Ridges round the Point. As to the interior Constitution of these, they are striated from the Axis to the Center, and are composed of several Crusts, including one another like the other common Belemnites, which appear to be all broken, and we find only Pieces of them. 'Tis not improbable but, when they are whole, they terminate in a Point at each End as these do. I observed Belemnites of this Species in the great Chalk-Pit, on the S. E. of Croydon, Surrey.

* d. 46. Two Belemnites like those * d. 1. & 2. but bigger. Found in a Chalk-Pit near Northfleet, Kent.
Introduction to Class V.

Of the Marine Corals.

Part 1. Of the Nature and Constitution of the marine Corals:
   C. 1. The Specific Gravity of the several kinds of marine Corals:
      — of the Antipathes, or Black Coral.
      — of the red Coral.
      — of the white Coral.
      — of the ramose Porus.
      — of the corallin Asfroites.
      — of the corallin Mycetites.
   C. 2. Chymical Tryals of the several kinds of marine Corals:
      Crystal Spar, is a constant and certain Ingredient of the marine Corals, and there is some small quantity of it in all of them.
      The different Constitutions, Forms and Colours, of the several kinds of Corals, are owing to the Admixture and Incorporating of various sorts of earthy, stoney and mineral Matter, with the Crystallic, in the Formation of them.
      There is, besides the mineral, an Admixture of a fibrous Vegetable Matter, more or less, in the Composition of most marine Corals.

Append. The various submarine Shrubs are of a corneous, or ligneous Constitution, consisting chiefly of a fibrous Matter: Otherwise they carry externally somewhat of the Face and Appearance of the Corallin Shrubs. They are also affix'd, like them, to the Stones or other Bodies upon which they grow, by a Pedicle: and have not Roots, as the Shrubs at Land have.

C. 4. A Collation of the marine Corals, with the several kinds of Spar.
      The Constituent Matter of Coral and of Spar compared.
      The interior Texture of Coral and Spar compared.
      The Colour of the several sorts of Coral and Spar compared:

Part 2. Of the Forms of the marine Corals, and a Collation of them with the various Forms of Spar, and of some other Minerals.
   C. 1. Of the Corallin and Sparry Asfroites.
   C. 2. Of the Corallin, Sparry and Mineral Mycetites, e.47.48.
   C. 3. The fistulose Sparry Stalacitae compared with the Corallin Porii.

Append. Of the native Iron Stalacitae; and the Brush-Iron-Ore. o.22. & seq. Of the Florid Iron-Ore.c. o.2S.85. & seq.

C. 4.
C. 4. The florid and ramose Corals compared with the florid and ramose Spars that are form'd by the meer Action of the Water in the perpendicular Fissures of the Strata. See the Spars, N° 'f. 68, 69.* No 3.

Append. Of the Capillary, and Arborescent Silver, and the Arborescent-Iron. o. S£. found in the Metallic Veins and Fissures.

C. 5. Of a very elegant Spar found in the perpendicular Fissures of the Lead-Mines of Arkendale, that very nearly approaches the Shape of Erica or Heath.

Part 3. Of the Manner and Posture in which the Marine Corals grow, and are affix'd to the Rocks.

C. 1. Of those that are found erect.

C. 2. Of those that are protended horizontally.

C. 3. Of those that are found hanging down from the Jets of the Rocks, like the Sparry Stalactite, in which manner the far greatest Part of Corals are found. Conf. Raij Hist. Plant. Tom. 1. p. 61. d. and Mr. Willoughby's Voyage thorough Spain. p. 466.

Part 4. Instances of several other Bodies that resemble some kinds of Corals in Figure; and may serve to illustrate and clear up the Natural History of them.


C. 2. Of the Stellar Shootings upon the Surface of the Regulus of Antimony, as it becomes cool, after Fusion.

C. 3. Of the Ramose and Stellar Sketches upon the Mocho-Stones.

C. 4. Of the Dendrite, or Delineations of Trees, Shrubs, and ramose Figures, made by mineral Steam, on Flints, Marble, Stone, Slate, and various other Fossilis. Vide Mantiifi. 1. infr.

C. 5. Of the ramose Concretions of the volatile Salts, observable upon the Giais of the Receiver, where the Spirits of Vipers, Hart's horn, and other like Spirits are drawn; especially if the Operation be gentle and slow.

C. 6. Of the fuliginous Matter form'd, by the Drift of the Air, into the Shape of a Species of marine Lichen, in Creeks of Chimneys, Stoves, Forges and Furnaces, where there are Fires kept for a considerable Time, and much Fuel spent.


C. 7. Of Snow affix'd, in ramose Figures, on Trees and other stable Bodies, by means of the Wind, or Drift of the Air.


C. 11. Of the Ramose Figures form'd by a sudden Parting of the Stones used in grinding and preparing of Glass-Eyes, Pearl, Coral, and other like Bodies for Medical Use.

C. 12. Of the Ramose Figures form'd by the terrestrial Matter left, upon the Evaporation of a small Quantity of muddy Water diffused, very thin, upon any poler Surface

PART 5. Of the Origin and Formation of the Marine Corals.


The Earth is the Promptuary of the Corallin Matter, it being originally derived from the Rocks, the Cliffs, the Shores and Shallows.*

It is distributed and lodged in the Earth with great uncertainty, some Shores abounding with it, and others having little or none.

The Corallin Matter is likewise very various, that reposited in one Cliff being frequently unlike that of another.

Nay, that in the same Cliff is sometimes very various; and that which is lodg'd in the upper Parts, differs in Kind, in Constitution, in Colour, and in Mixtures, from that which is below.

C. 2. Of the Agent that educes forth the Corallin Matter, distributes and disposes of it.

This is the Water of the Sea which washes and drains it out of its Fund, assumes it up into itself, conveys it to the Place of its Formation, and depots it there.

At such time as the Sea is agitated, and in Emotion, it takes up into itself Terrestrial Matter of all kinds, and in particular the Corallin Matter, depositing and letting it fall again, as it becomes more quiet and calm.

The Promontories and Jets of the Shores being chiefly exposed to the Action of the Sea and Storms, the greater Part of the Corallin Matter is, by that means, beaten off from them, and is again precipitated, and the Corals form'd out of it in Creeks, Bays, the Bottoms of the deeper Seas, and such other Parts as are quiet, still, and shelter'd from those Emotions.

In the greater and more violent Storms, the Sea being forced and cast up to the higher Parts of the Rocks and Cliffs,

* The Bottom of the Sea, at greater Depths, being not affected, or Earthy Matter rais'd from it, in the most boisterous Storms. Vide Nat. Hist. of the Earth, 2d Edit. p. 25. 26.
draws thence frequently Matter very different from that which is reposited in the lower Parts of them; which is only what it was wont to draw forth during Tides, and the lesser and more common Agitations.

The Number and the Bigness of the Corals on any Shores, is in Proportion to the Quantity of the Corallin Matter thereabouts, and to the Intenseness and Agitations of the Seas.

C. 3. Of the Modulation and Composure of the various Corallin Bodies.

When the Sea-Water, charg'd and impregnated with the Corallin Particles, becomes, after Storms and Emotions, again calm and quiet, it lets fall those Particles, depositing and affixing them upon the Rocks, Stones, Shells, Sea-Shrubs, the Corals before extant, and such other stable Bodies that happen to be near and present.

This it has done in all Ages, does at this Day, and will continue to do so as long as the Sea shall continue to work and beat off Matter from the Cliffs and Shores, to remove and transpose it from Place to Place.

The Coral found affix'd and growing upon wreck'd Ships, lost Anchors, and various other artificial Bodies, that are daily dragg'd up out of the Sea, affords a Demonstration that Coral continues to be form'd to this Day, and shews likewise in what Quantity and Proportion it is produced.

Where the Corallin Matter, in the same Cliff, is chiefly uniform and of the same kind, the Corals form'd out of it are so too. Where 'tis various, they vary as much, and there are Bodies of different Tenor and Complexion, found together in the same place. Nay where it so happens that the Matter reposited in the upper Parts of the Cliffs differs from that below, and is not drawn forth commonly as that is, but only in the greater Storms, when the Sea is cast up to those Heights, the Corallin Bodies form'd in those Parts are variegated. Sometimes a distinct Sprig of Red is form'd on a Shrub of white Coral, or a Crust of Red cast upon a Sprig of White, with several other like Varieties.

The Corallin Matter is found either, 1°, only simply precipitated in likeness of a Sediment; or 2°, concreted upon Stones, Shells, and Sea-Shrubs, after the manner of an Incrustation; or else 3°, it is form'd into regular and observable Figures, such as are the Corallin Shrubs, the Pori, Asfroítæ, and Mycéitæ.

The first sort nearly approaches the Plates of Spar, found concreted upon the Stones of the Sides of the Perpendicular Fissures of the Strata. vid. Cl. vi. Part iii. § 1.

The second sort, or the Corallin Incrustations are, in all respects, like the Incrustations of some sorts of Spar upon Bodies in the Sources of Springs and Rivulets, there being none the least difference between them either in the Nature of the Matter of each, the Colour of it, or in its Texture and Disposition. vid. Cl. vi. Part 1.
As these two sorts of Coral agree exactly with the plated and incrusted Spar in Constitution, so do they likewise in the Process of their Formation. *Vid. Cl. vi.

The Corals of the third Rank are generally composed of a Matter much finer than that of the two former. The Parts are also more close, firm and compact: nor are these of a Constitution near so simple as those are, but shew throughout something more regular and observable, as well in their interior Texture as in their external Figure.

As has been noted of the two former, so there are Spars that both in Texture and Figure, very nearly resemble the Corals of this Rank: and not only Spars, but several other Mineral and Metallic Bodies.

Of this, to pass by all the rest, the Heath-like Spar and the Arboresecent Iron-Ore, o. 87, and the Arboresecent Silver are illustrious Instances. These carry not only a Resemblance of some of the Ramose Corals, but have something in their Frame and Shape, as curious and artful as any of them all.

So likewise the flinty and sparry Astroides are, in all respects, as remarkable and extraordinary as the marine.

And there are Pyrites that agree exactly both in their outward Shape, and their interior Constitution, with the Corallin Mycetites. *Vid. e. 47. 48. infra.

Other Pyrites there are of the very same Figure, Texture and Compages with the Astroides corallinus undulatus of P. Boccone. Recherches & Obs. Nat. p. 141. which is indeed the most admirable of any in all the whole Tribe of Marine Corals. *Vid. b. 20. 32. 41.

As these Bodies, both Fossil and Marine, agree in their Texture and Composition, as well internal as external; so do they likewise in the whole Series, Process and Method of their Formation.

The constituent Particles of both are originally derived from the Earth, by the Motion of Water; and are by little and little precipitated again, upon the Cessation of that Motion.

And for the Structure of both the Mineral and Corallin Bodies, it is merely the Result, partly of the Figure and Disposition * of the Particles, of which the several sorts of these Bodies are composed: and partly of the Motion and Modulation of the Parts of the Water, wherein the separate Particles were sustained.

*Which likewise is the Case of the Ramose, Fuliginous, Snowy and Prunose Bodies; with this only Difference, that the Air or Atmosphere was the Vehicle of the separate Corpuscles of these, as the Water was of those.
The uliginous lacceous Matter, taken notice of by that diligent and ingenious Botanist P. Boccone †, in the Coral Fiftings upon the Coast of Italy, was only a Collection of the Corallin Particles thus sustained in the Sea Water, hovering about and applying it self to the Corallin Shrubs and Pori, for their Growth and Enlargement. The Acrimony, he observed in tallow of it, arose from an Admixture of the Sea-Salt; which, in Bodies taken forth of the Sea, is not to be avoided. Indeed some Tryals I have made, have taught me that 'tis not excluded even from the Corallin Bodies themselves, there being some admixture of it incorporated with the Corallin Matter in their Constitution.

This is what some Writers, that are very fancyful, but not over happy in their Fancies and Opinions, call the Seed of Coral ‡, and it must be allow'd in favour of their Notion, that this is the very Matter out of which the Corals are raised and composed; how little Analogy tover it may carry to Seed.

And this likewife was, I suppose, what run in the Head of a late Writer of Natural History, (who 'tis agreed on all hands, is not wont to have the most lucky Hits of any Man living, in the Comed of his Thoughts) when he diverted himself so much with the Speculation of the Seed of Coral; and, as for more surenefs he repeats it, the Sperme of Coral, which he imagined he had so often seen. Only he quite mislook the matter, and unfortunately sit upon what was as foreign to it as well could be, what has nothing of a Corallin Nature in it, no any the least Concern in the Formation of Coral. For that pellucid gelatinous * Substance, which he pitches upon with so great Reliance and Poffitiveness††, is chiefly of Animal Constitution, and no other than an Excrement cast off from the numerous Shoals of Fish that inhabit the Main. This is flung upon some Coasts || in far greater Plenty than others by the Drift and Bearing in of the Sea upon

‡ As others do the separate loose Metallic and Mineral Corpuscles, brought by the Water into the Veins, for the Compilation of the Air there, the Seeds of Metals and Minerals. See Nat. Hist. of the Earth, 2d Edit. p. 216. 217.
|| As also what Dr. Tournefort has noted about this Substance, Mem.de l'Acad.des Sciences 1700 p. 29. & 35.
* For such it is, and not mucilaginous, as he fifies it.
|| As I remember one Sort of it is called Sea-blubber in some parts of England.
then. 'Tis indeed true there are sometimes found Corallin Particles implicated in this; but that is merely accidental, and Fragments of Shells, Sand, Ouze, and the other Recrements of the Sea, are much more commonly observed to be intertangled in it. At such time as the Sea is in any unusual Emotion, this floats; when that is calm, it sinks to the Bottom, and alights upon the Shells, Flints, and all other Bodies there promiscuously. Amongst the rest, if there be Coral, it frequently happens to settle down upon that, and being of a Disposition very flexible, it readily plies and conforms itself to the Surface of the Coral, and so receives and assumes the Figure of it. This was what chiefly amazed and milled this Writer; which yet is no more than what it does indifferently to all the Bodies it chances to light upon, and he might, with equal Reason, have concluded that it was the Seed of the Shells, the Flints; and the other Bodies that 'tis much more commonly found shaped to, and lodg'd upon, as of the Coral. But nothing more need be offer'd to evince upon how slight a Foundation this Notion stands, than that 'tis certain Matter of Fact that there are Corals found in great Plenty and Variety in Places, where little or none of this gelatinous Substance, which he has pitch'd upon for the Origin and Rudiments of all Corals, ever appears; and it occurs frequently and in abundance, in Seas where not so much as one single Sprig of Coral is any where to be met with.

Append. 1. The Effects of great Storms upon Coral.

Those Creeks, Bays, and other Parts of the Sea where Corals are form'd, tho' generally calm, and free from Disturbance, at some Times, and particularly when Hurricanes happen, and Storms that are more than usually Violent, are put into Emotions so great as to break and tear up the Coral again, and to dash and beat to pieces the Bodies that were form'd in the Calms and the Intervals of those Commotions.

Append. 2. Of the Coral Fishery.

The chief Place for the Coral-Fishery is upon the Coasts of Sardinia and Corsica: the next upon the North Coast of Sicily: then upon the Coasts of Barbary, near Tunis: towards the Isle of Tabarca; upon the Coasts of Catalonia, chiefly at Catache, where the Coral is of the deepest Red, and so, the finest, of any Part of the World, but 'tis small, and frequently eroded and perforated by Worms. 'Tis also found under Monte Nero, and indeed upon the whole Coast near Leghorn: tho' 'tis there also small, and therefore not so much valued. They drag up Black-Coral, and Fisularia purp. Fer Imperati, sometimes, with the Red; and also the White that is firm and polite: and of that which the Pesadori call Ravano, which is the white Porus of several Species, which they fling away.

A Pound of red Coral being powder'd and distill'd, per se, in Are-
na, I found betwixt 20 and 30 gr. of a fetid Oil, of a deep red
Colour in the Neck of the Retort. Besides the Oil, there came
over into the Receiver, a Phlegma, attended with a volatile Acid.
This Acid, by Digestion, was reduced to a volatile Salt, differing
no other ways from that of Amber, than in its wanting of the
flight bituminous Flavour which that has. The Oil, like other
fetid Oils, dissolved in Spirit of Wine. It approach'd the Nature
of the vegetable Oyls, but the most nearly that of Tartar, in
Smell, Consistence, and all other Respects. This shews there is
something of a Vegetable Nature in red Coral: but probably not
in such Proportion to the crystallin or flinty, as to have held that
together, and secur'd it from Dissolution at the Time of the De-
luge, when all other flinty and mineral Bodies were dissolved.

CLASS V.

Fossil Corals, and Coralloid Bodies.

The Classical Distribution of these Bodies.

Part 1. Coralloid Bodies that are ramose or branch'd.

Sect. 1. The branch'd Coralloid Bodies that have the Surface
smooth.

2. Those that have the Surface reticulated.

3. Those that have the Surface starr'd.

4. Those that have Striae passing from the Surface to the
Axis.

Part 2. Coralloid Bodies that are of a cylindric Shape.

Sect. 1. The Cylindric Coralloid Bodies that are composed of
Plates, set lengthways of the Body, and passing from the
Surface to the Axis of it.

2. Those that are tubular, but intercepted at certain Intervals
by Diaphragms, or transverse Plates.

Part 3. Coralloid Bodies oblong, and in Shape of Columns with
five Sides.

Sect. 1. The Pentaedrous Columnar Coralloid Bodies that are
composed of Plates set lengthways of the Body, and passing
from the Surface to the Axis of it.

2. Those that are intercepted, at certain Intervals, by Dia-
phragms, or transverse Plates.
(121)

Part 4. Mycetita, or Coralloid Bodies in Shape of Mushrooms.

Sect. 1. The Mycetita that are of a Conic Figure.
2. The Mycetita that are of a Difcoid or flat Figure.

Part 5. The Astroites, or Starred Coralloid Bodies.

Sect. 1. The Astroites, that have the Stars prominent, or rais'd;
2. Thofe that have the Stars delineated in Plano.
3. Thofe that have the Stars depress'd.
4. Thofe that are perforated or hollow'd.

Extract.

C. 1. The Names given to some of the Fossil Corals. Shrubby or branched Corals, some white and others grey. e. 1; Corallium nigrum, S. Antipathes. J. B. C. P. e. 2. Porus Coralloides, very beautiful, perfect, and as to its Texture little different from the marine; lodg'd in Black Marble.

x b. 62.

Tubularia Fer. Imperat. e. 4.

Stelechites. e. 13.

Junci Lapidei. e. 22 x. [These are found in an erect Posture: as also the Helsfield Cylindrick Coralloides. e. 17. e. 18.

Mycetita Coralloides, or Mushroom-Stones. e. 47. & seq. e. 54. 60. 62.

Porpites. e. 68.

Honey-Comb Stone. e. 112.

Starr'd Honey-Comb Stone. e. 43.

Astroites. e. 84. & seq. 97.

Astroites coralloides undulatus, or the Brain-Stone. e. 87.

C. 2. The several Places where the Coralloid Bodies are found.

Greenwich, e. 80. 81.

Croydon, Surrey. e. 12 x.

Purfleet. e. 47. & seq.

Norfleet. e. 65. 67.

Shepey Island. e. 47. 48.

Near Oxford. e. 56. 57. 61. 84. & seq. 107. 110. 114.

Oxfordshire, &c. e. 68.

Bullington-Green, Oxford. e. 117.

Shotover-Hill near Oxford. e. 85. 105. 106.

Abbington, Berkshire. e. 116.

Harborough, Leicestershire. e. 12.

From... Wiltshire. e. 41. 42.

Broadwell, Gloucestershire. e. 74.

Sherburn, Gloucestershire. e. 14. 83. 96. 98. 104.

Yanworth-Fields, Gloucestershire. e. 36. 98.

Wheatland's Mill, Gloucestershire. e. 54. 87. 91.

Stowell, Gloucestershire. e. 97.

Norleach, Gloucestershire. e. 92.
The various Sorts of terrestrial Matter, in which the Coralloid Bodies are found deposited.

In a blue Clay, e. 58. 59.
In Chalk, e. 47. & seq. 65. 67. 80. 81.
In Gravel, e. 13.
In a whitish Stone, e. 10.
In a brown Sand-Stone, e. 17. 18. 30. 40. 83. 86.
In a brown Stone of a finer Grain, e. 21. 23. 26. 31. 36. 37.
In a pale brown Stone, e. 19.
In a grey Stone, e. 3. 11. 20 x. 22. 22. 24. 25. 29. 32. 34 x. 34. 38. 34. 85. 114.
In an Iron-colour'd Stone, e. 35.
In a blackish Stone, e. 22. 29.
In black Marble, x b. 62. e. 27. 28.
In a grey semi-pellucid Flint, e. 41. 42. 43.
In a Brown Flint, e. 20. 39.


§ 1. The Specific Gravity of the several Kinds of Fossil Corals.

<table>
<thead>
<tr>
<th>Kind</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antipathes, or black Coral</td>
<td></td>
</tr>
<tr>
<td>red Coral</td>
<td></td>
</tr>
<tr>
<td>white Coral</td>
<td></td>
</tr>
<tr>
<td>ramose Porus</td>
<td></td>
</tr>
<tr>
<td>coralloid Astroites</td>
<td></td>
</tr>
<tr>
<td>coralloid Mycetites</td>
<td></td>
</tr>
</tbody>
</table>

§ 2. Chymical Tryals of the several Kinds of Fossil Corals.

§ 3. Of the constituent Matter of the Fossil Corals.

As in the Marine, so likewise in the Fossil Corals, there is constantly Crystal, but very much less in the former than in the latter. e. 93.

With the Crystal also are incorporated various sorts of Earthy, Stoney, and Mineral Matter; to which the Fossil Corals owe the Difference in their Constitutions, Forms, and Colours.

The fossil Corals never have in them any thing of fibrous, or vegetable Nature; which most of the marine Corals have: tho' many of them very little. Confer. Append. 3. to the Extract of the Account of the marine Corals.

And the common constituent terrestrial Matter, incorporated with the crystalline in the fossil Corals, is different from that in the marine. Vid. e. 69. 93. 97. 105. & seq.

§ 4. Many of the fossil Corals consist of the Matter of the Flint; or Agat. e. 41. & seq.

§ 5. Others of them consist of the Matter of the Pyrites. e. 47. 48. and b. 4. 20. 41.

C. 5. Of the Origin and Formation of the Fossil Corals.

They are found, reposed in the Strata of Earth, Chalk, Stone, Marble, and the like, (Conf C. 3. supra) along with the Pellicles of Ova of Fishes, and Sea-shells of all kinds. e. 10. & seq. 84.

Consequently they must have been form'd before ever the Strata were compiled, or had attain'd their Solidity.

They are apparently all referable to the Nodule-kind; and were form'd at the Deluge, as all other + Nodules were. e. 1. 86.

† Nat. Hist. of the Earth, Part iv. Conf. 2.
At that time all terrestrial Bodies, and in particular Crystal, Spar, and Corals, were in a State of Solution; and the Principles, or constituent Particles of them, sustain'd in the watry || Mass. e. 1.

After some time, those Particles, uniting and combining into Masses, composed the Metallic, Mineral, Sparry, and Coralloid Nodules.

And, there being sustain'd, in the same Fluid, Teeth and Bones of Fishes, Shells, and other marine Bodies of all kinds, the metallic and mineral Particles frequently affix'd and concreted upon them. Accordingly there are commonly found Flint, Ores of Metals, and Minerals, adhering to the fossil Shells *. In like manner there are found of the various kinds of fossil Corals actually adhering to the Shells dug up at Land; and some of them, particularly the Mycetita, have Pedicles, and are affix'd to Shells in much the same manner that those found at Sea usually are. e. 1. 10. 11.

33. 49

As sometimes Bodies of different kinds join'd in the same Nodule: and in particular the Pyrites, Sparry, and other Mineral Matter, grew to Flint; so likewise there are Instances of the Fossil Corals united to Flints.

In Conclusion, the Nodules of all kinds, and particularly the Coralloids, settling down, with the earthy, chalky, stoney, and other terrestrial Matter, were repofited in the Strata which that Matter composed †; in which they are at this day found repofited. e. 1.

C.6. Of the Modulation, and Composiure of the various fossil Corals.

As there is an agreement of many of the fossil Corals with the marine, in Texture, and in Form; and both were once in the same condition, the Particles separate, and sustain'd in Water, those at the Deluge||, and these in the Sea; so each owe their Formation to the same Cause, the Motion and Action of the Water, and the Figure and Disposition of the Particles that constitute them.

Of the Formation of the starr'd Flints. e. 43 x.

Appendix I. Concerning the Reason why the Sea-shells, and other animal and vegetable Bodies then in being, were not dissolv'd, at the Deluge, as well as the Corals, and all Fossils.

From what has been deliver'd, above, 'tis sufficiently clear that the marine, as well as the fossil Corals, had in them something of

† Ibid. Part iv. Conf. 3.
floncy and mineral Constitution; that, for that reason, the marine Corals were dissolv'd, as well as the terrestrial Bodies, of all sorts, at the Deluge: and that the fossil Corals were finally composed out of the coralline, flinty, sparriy, and other mineral Matter so dissolv'd. It has been also noted, that some of the fossil Corals affix'd to, and concreted upon Sea-shells, that were then sustainer in the Water along with them. And it being a thing very remarkable that all terrestrial Bodies whatsoever, even the most firm and solid, should undergo such Dissolution, and yet the animal and vegetable Bodies, some of which are very tender, be exempted, and remain all the while intact through the whole Process of that great Revolution; it may not be unreasonable to offer something touching the Reason of it. Not that I shall now go about to set forth all the Particulars of this Affair. To do that, would be tedious; and indeed not needful. So that I shall reserve the rest to its proper Place; and here restrain myself to as little a Compass as may be, without being obscure.

The Earth is the great Fund out of which Bodies of all sorts arise, Animal, Vegetable, and Mineral. But Things lie in that Fund with so much Confusion, Mixture, and Uncertainty, that there are not perhaps many Things derived thence that are wholly pure, homogeneous, and unmixed. Insomuch that several animal and vegetable Substances have in them an Array of mineral Matter; as there are mineral Mafles that contain some share of a vegetable Matter. Those Corpuscles that are truly of animal or of vegetable Nature, differ from those which constitute the mineral Solids, in several very considerable Respect. 1. They are lighter, and of less specific Gravity, than those of Minerals are. 2. They are of different Figure; the animal and vegetable Corpuscles being extended, oblong, and frequently ramose; whereas those of Minerals are compact, and more closely collected about their Center. 3. They are of different Constitution. These are flexible||, but

† The Animal Corpuscles are homogeneous, and of like nature with those in Vegetables; from which they were indeed all originally derived. Vid. Nat. Hist. of the Earth, 2d Edit. p. 127. & 227. & seq.

† For this Enquiry is only relating to the Dissolution of the solid Fossils; such as Stones, Ores, and the like.

|| I speak here of the Corpuscles that constitute them, and not the Parts themselves. Some of them, e. gr. the Bones, are inflexible. Which does not arise from the Inflexibility of the Corpuscles that compose them; but from the Greatness of their Number, and the Firmness and Tightness of their Union and Combination. This is evident from the Bones of Animals that are young and growing; which are tender, and flexible; their constituent Particles being then fewer in number, and less closely united. The same likewise is the Case of Trees.
but those generally ≠ rigid. 4. They differ in the Manner of their Union and Composition. The Corpuscles of Fossils are only contiguous to each other, and merely imply a'd Surface to Surface; whereas those of animal and vegetable Bodies are complicated, tied, and interwoven with one another. 5. They differ in the Cause of their Cohesion. This, in animal and vegetable Bodies, proceeds from themselves; from the Figures of the Parts of the Corpuscles, and their Twisting and Complications with one another. Whereas the Corpuscles of the fossil Solids are perfectly passive; and owe their Cohesion entirely to the Compression of the external Ambient †, wherein they exist; which Compression arises meerly from its Gravity. Now from several Phænomena, at this day extant in the Earth||, it appears that the Gravity of all Bodies, solid and fluid, in and about the terraqueous Globe, at the universal Deluge, for some time, ceased, and deserted them ‡.

Things therefore standing thus, the Consequences of them are very evident, and obvious. Upon the Cessation of the Gravity of

Trees; which, however firm they may become when grown, were all once very yielding and pliable. Besides that the Parts of either, being split, and thinned, are by that means rendered pliant and flexible. Not that mineral Matter, as has been already mention'd, is wholly excluded the Compages of Bones, Shells, and some sorts of Vegetables. And this may contribute something to the Increase of both their Firmness, and their Gravity. In like manner there are Fossils, as also Corals, that have a fibrous vegetable Matter incorporated with the mineral. Some indeed of the Corals, and particularly of the red, have so much, that it would not have been strange, had they been by it secured against the Dissolution here treated of.

† So generally, that I know of only one to be excepted; which is Talc: for this seems to be composed of Corpuscles that are flexible. Vide Cla.s. Preface.

‡ Not only the Air, and gossifer, but even the finest and subtilest Parts, and indeed the whole Fluid of the Atmosphere.

|| Vide Nat. Hist. of the Earth, paffim.

‡ Perhaps not intirely. For then, upon the Earth's Revolution on its Axis, all terrestrial Bodies would have been flung off, from the said Axis; and consequently the Parts of the Globe, both the Earth, and the Aqueous, have been dissipated. So that those Parts and Bodies retain'd still just as much of their Gravity, as might serve for a Counter-Balance to the Force of that Revolution, to prevent their Disipation; but no more. I mean in case there was then such a Revolution; which I am the more cautious of asserting, because Mofes seems to imply that both the diurnal and annual Motion of the Earth was suspended for the Time; and that there was then no more a Succession of Day and Night, than there was of the Seasons, Summer and Winter. See Gen.viii. 21. 22. Conf. Jerem. xxxiii. 20. 25.

the
the Ambient, to which the Fossils owe the Cohesion of their Parts, their Solidity would instantly cease, and the Corpuscles fall all asunder. But that would not in the least affect the animal and vegetable Bodies; the Cohesion of whose Corpuscles arose from a Cause so very different, as is the twisting, weaving, and combination of those Corpuscles amongst themselves; which would not be in the least touch'd or disturb'd by that means. So that they must remain as firm and intire, as if no such thing had ever happen'd.

This may be illustrated by the Example of the Magdeburg Experiment. In which two Pieces of Marble, having their Surface exactly plane, polite, and apply'd to each other in such manner, as, so far as they are contiguous, to intercept the Air, do cohere firmly together as one; the Gravity, of the Air without, pressing and holding them together. These two Pieces of Marble, thus conjoin'd, being put into a Receiver, and the Air exhausted, immediately diffuse, and fall asunder. But if there were put into the Receiver at the same time, two Pieces of Cord, that were firmly complicated and tied into a Knot; 'tis plain the drawing out the Air would contribute nothing to the loosing of that Knot, or untying the two Cords.

And this was the very Case of the animal and vegetable, and of the fossil Bodies, during the time that the Pressure of the Ambient was taken from off them at the Deluge; and lets us clearly into the Reason why these were not dissolved as well as the Fossils.

The Corallloid, and the other Nodules, form'd after that Dissolution; indeed, but during the Suspension and Relaxation of the Cause of Gravity, must have been at first soft; but as soon as the total Gravity was again restor'd to Bodies, they became solid, and settled down; and, along with the Shells and other extraneous Bodies, the Earth, Sand, and the like, compiled the Strata in which they are at this day found.

In this Catalogue there are several Instances of Nodules, and particularly of Pebbles and Flints, that appear to have been so soft as to have given way to external Force and Pressure since they were form'd. So likewise for the Bodies of this Class, the fossil Corals, some of them appear to have been compress'd, others infected, and crack'd, in such manner as could not have happen'd but before they had attain'd their present Hardness. E. 15. 22. 40. 49. 50. 65.

These Nodules, being form'd in Water, must have, in course, watery Particles disseminated thro' their Pores and Interstices. So that, during the abode of those Particles in them, the Bodies could not attain their full Solidity. But, as they successively withdrew and gave way, their Corpuscles approaching nearer to each other,

† Vide Nat. Hist. of the Earth, Part iv. Conf. 2.
the Nodules became more solid, close, and firm; or at least the
Parts of them: for it sometimes so happen'd, that by this Aëtion,
they were crack'd and divided into Parts. Of this the _Ludus Hel-
montij_ affords us an egregious Proof, (Vide Preface to the Account
of that Body, _supra._) Nay, by the like Aëtion the Strata of Coal,
Stone, and Marble, were frequently crack'd in like manner. But
tho', in tract of time, part of the Water, wherewith they were
saturated, thus quits them, yet the whole never drains forth, nor
do they arrive at their utmost Solidity till they are brought up,
out of the Bowels of the Earth, into the Air. This is evident in
Stone, and in Marble, which are softer, and may be cut and work'd
with much greater ease, when first parted from their Strata, than
afterwards when they are rais'd to the Surface, and have lain there
till wholly freed from the Humidity wherewith they were charg'd
whilst below.

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**CLASSIS V.**

**Corpora Coralloidea, & hisce affinia.**

**Pars I.**

_Coralloidea ramosa._

_Sect. 1._ Coralloidea ramosa, superficie laevi.

2. Corall. ram. superficie reticulata.

3. Corall. ram. superficie stellata.

4. Corall. ram. à superficie ad Medullam striata, seu lineata.

**Pars II.**

_Coralloidea Cylindrisformia._

_Sect. 1._ Coralloidea Cylindracea, à lamellis composita secundum
longitudinem à Superficie ad Axin tendentibus.

2. Coralloidea tubulosa crebris lamellis transversis intercepta.

**Pars III.**

_Coralloidea Columnaria pentaedra._

_Sect. 1._ Coralloidea oblonga pentaedra, laminis à Superficie ad
Axin tendentibus.

2. Coralloidea oblonga pentaedra septis transversis distincta.
Pars IV.
Mycetitæ Coralloides.

Sect. I. Mycetitæ Conoides, seu Calyciformes.

Pars V.
Astroitæ Coralloides.

Sect. I. Astroitæ Stellis prominulis.

CLASSIS V.
Corpora Coralloidea, & hisce affinia.

Pars I.
Coralloidea ramosa.

Sectio I.
Corpora Coralloidea ramosa Superficiæ levii.

e. i. Five small Branches of Coral, of a grey Colour; and one white. Found in a Quarry not far from Ensium-Ferry, Oxfordshire. One of them has the Shell of a Vermiculus Marinus adhering to it: 'Tis very common to see Flint and other mineral Matter affix'd and adhering to fossil Shells. This apply'd itself to them during the time that the said Shells, and the disfolved mineral Matter, were sustaine'd together in the Water at the Deluge. Vide Nat. Hist. of the Earth, Part iv. The Cape of this Coralloid Matter was the same. Nor can I see any reason why real Coral, not different from that now observ'd at Sea, may not be found: and adhering also in like manner to Shells. There are below some Bodies that I take to be Instances and Proofs of it, and really of the same sort. Vide e. 12. 33. 34. 49. 55. The true marine Coral is indeed a stoney Substance; and of mineral Nature and Origin. The constituent Matter of it is beat off from the Rocks and Cliffs, where the Agitation of the Sea is great; born thence, precipitated, and affix'd to Rocks, Stones, Shells, or other Things, where the Water is more still and calm. As 'tis of the same Constitution, so it owes its Solidity, and the Cohesion of its Parts, to

K
the same Cause that Stones and other Minerals do: and consequently must have undergone the same common Fate, and been diffolved, as well as they, at the Deluge. And that Coralline Matter, so dissolved, might as well concrete again, as that Matter which constituted the mineral Nodules, particularly those of this Classis, and Flints, Pyrite, &c. Nor can there reasonably be any doubt, but there was, in some parts of the Fluid, a Collection of homogeneous Coralline Matter: as from the Nodules we learn there was of Talky, Crystalline, and other Mineral Matter. Now, out of that, Coral might as well be formed, as Talky, Crystalline, and other Mineral Nodules out of those dissolved Minerals.

e. 2. A Piece of a Coralloid Body, black, both on the Outside, and in the Body, where broken. 'Tis not much above half an Inch long, thicker than any of the precedent, a little bent, and appears to be part of a Branch broken off from the rest. Out of a Quarry near Windrush, Gloucestershire.

e. 3. A great Number of Coralline Bodies, lodg'd pretty close in a grey Stone. They are generally near as thick as a Wheat-Straw: and some of them are branch'd, but whether all, is not so easy to discern. In a few there are Branches from one to another, which, meeting, join them together. Found on the Shore near Sunderland, in the Bishoprick of Durham.

Partis I. Sectio II.

Corpora Corallidea ramosa superficie reticulata.

e. 5. A pretty thick Piece of grey Coral, having the Vestigia of three Branches rising out of it. It is finely cover'd with a sort of Net-work all over its Surface, the Masses small, and round. Found in a Stratum of Rubble-Stone, lying over the blue Lime-Stone, in the great Pits near Dudley, Staffordshire.

e. 6. Another smaller, otherwise little different, from the same Place. Being broken, it appears to consist of a grey Spar. This is only a Piece broken off a Branch: as also e. 8. infra.

e. 7. Another from the same Place. The Masses of the Reticulum in this are smaller than in either of the former. The Trunk of it runs into two Branches.

e. 8. Another, the Masses still less. This differs from the rest, in that it is striated from the Surface throughout to the Middle of the Body. From the same Place. This is indeed nearly related to that e. 13. infra, and might as well be placed in that Section. Vide e. 6. infra.
e. 9. Another, with one Branch arising out of it. This is partly reticulated, and partly striated on its Surface. From the same Pits.

e. 10. A small white Piece, bifurcated, or branching into two, and finely reticulated all over. It lay in a whitish Stone, thick set with the Pellicules of Ova of Fishes, and Fragments of Shells, having upon it likewise a fair Impression of a small Pecten. Found in a Stone-Pit on the South-East Side of Wakerby, Northamptonshire. Mr. Morton.

Partis I. Sectio III.
Corpora Coralloidea ramosa superficie stellata.

e. 11. A pretty large Piece of a Coralline Body, of a brown Colour, dividing itself into three Branches, a few small whitish Stars appearing on some parts of the Surface of it. It lies in a grey Stone, in which are many Fragments of Sea-Shells of several sorts. Found in a Stone-Pit near Broadwell-Grove, (on the Edge of Oxfordshire) in Gloucestershire.

e. 12. A Piece of a ramose Coralline Porus, having its Surface thick set with Stellar Pores, very fair, and distinct, in a Quincunx Order. Found in a Chalk-Pit, upon the Downs, near Croydon, Surrey.

Partis I. Sectio IV.
Corpora Coralloidea, ramosa, á superficie ad medullam striata; feu lineata.

e. 13. A small Piece of a Coralline Body, with part of a Branch rising out of it. The Surface is black, and reticulated all over much like e. 8. It is not perfectly round, but of a flattish Shape. Both the Body and Branch are striated from the Surface to the Middle; and there are several Circles in the Substance of it intersecting the Striae. So that, somewhat resembling, in Shape and Texture, the Branch of a Tree. This sort is not unfitly called Stel e chites, by the Writers of Minerals. From T ortenbo in Cumberland: from whence I had several, little different, only that few of them had any Vestigia of Branches, being perhaps only Pieces. Mr. Morton.

e. 14. Another, of a dark yellow Colour, with three Branches rising out of it. This is not only striated from the Surface to the Middle, but has Striae running lengthways both on the Body and Branches of it. The Striae are so fine, that they are but just perceivable; and are in some places wanting, it seeming to have been fretted and worn. "Twas found amongst the Gravel in the quadrangular Court of Sir Ralph Dutton's House at Sherborn, Gloucestershire.
e. 15. A single Coralline Cylinder, \( \frac{1}{4} \) Inch in Length, and \( \frac{1}{2} \) of an Inch in Diameter; striated not only from the Surface to the Axis, but upon its Surface likewise with Striae parallel to its Length. There are also 12 or 13 annular Ridges round it. 'Tis of a grey Colour. Found with No. 5. \textit{supra}, in the Lime-Stone-Pits near Dudley. At one End 'tis crack'd, and compress'd as if by some external Force, before it had attain'd its present Hardness.

e. 16. Part of a Cylindraceous Body, an Inch in Diameter, and near as much in Length. The Plates passing from the Sides to the Axis are of a grey Spar, sprinkled very thick with small Sparks of a very bright Crystalline Spar. They are externally tin'd, or, in some parts, with a ferruginous Colour, and in others with a light brown. Found in sinking a Copper-Mine upon Ormshead, alias Lhandido, in Caernarvonshire. There are found along with these Bodies grey Flints, whereof some parts are solid, and capable of a Polisht; others are scabrous and porous. To these Flints the Bodies of the fort now describ'd do frequently adhere.

e. 17. Many like Bodies, but thicker somewhat, and longer; some of them double the Length of the preceding, lying pretty close, and parallel to one another, in a brown Sand-Stone. They are most of them broken, and appear to consist chiefly of a grey Spar. From the Rocks at Helsfield, near Kendal, Cumberland. Mr. Fitz-Roberts informs me, that they are found plentifully on the upper Surface of the uppermost Stratum but one, standing all of them erect, with their Tops tending into the horizontal Fissure that parts the two Strata. He never saw any of them lodg'd, or wholly immers'd in the Mass of Stone. Two of them have Branches, of the same Constitution, rising out of them. \textit{Conf. e. 18. infra.}

e. 18. A Piece of the same Stone, with several like Bodies in it. The Striae, tending from the Surface to the Axis, in these, are intercepted by several small white Circles within one another. From the same Place. See an Hint about the Origin and Formation of these, in the Account of the Spar, \textit{English Additional Native Fossils}, b. 170. I am not without Suspicion, that the Honey-Comb-Stone is form'd in like manner; at least I have seen it in the horizontal Strata of Stone in some Quarries near Oxford. \textit{Conf. e. 22. e. 84, 85. infra, & e. 17. supra.}

e. 19. A Mass of a pale brown Stone, in which are lodged, in various Situations, several Cylinders about \( \frac{1}{4} \) of an Inch in Diameter. They are made up of Plates, placed lengthways of the Cylinders, so as to compose such a sort of Stellar Pore, as is describ'd No. 12. \textit{supra}, running through the whole Length of the Body.
Body. These Plates are set in a small Tube. The whole consists chiefly of a semi-pellucid Spar. Found loose in a Stone-Pit, on the Top of Hackness-Head, a high Hill near Scarborough, Yorkshire.

e. 20. Several like Bodies, but somewhat less, placed parallel to one another, and very thick, in a brown Flinty Substance. These consist chiefly of a whitish Spar; and are made up of white Plates, set as those of the former are, but have no Pores, the Intervals of the Plates being wholly fill'd up with a somewhat more pellucid Spar. Kendal, Cumberland.

e. 20*. Like Bodies placed also in the same manner, in a very hard grey Stone. From -------- in Brecknockshire.

e. 21. Several Cylinders, little different from the former, only that they are scarce so white, and set in a brown Stone. Many of the Cylinders in this, and the following Bodies to e. 30. inclusive, have not the Plates so distinct, and easily perceivable, as those of all the foregoing. Indeed several of them seem to be wholly solid. Shores of Minehead, Somersetshire.

e. 22. Several Cylinders like those of the precedent, set very thick in a dark Stone Mafs. Found between Skegness and Ingoldmells, on the Shores of Lincolnshire.

e. 22*. Like Cylinders, about 1/2 of an Inch in Diameter, consisting of a white shining Spar-like Substance; but they are externally of a very dark grey, which is the Colour of the Stone in which they lie, very close, and parallel to each other. The Stone off which this was broke, tho' itself only a Fragment, was near two Foot long; and the Cylinders extended through it for that whole Length. Sent me by the very learned Dr. Cay, by the Name of fuccir Lapidei, or Marmor juncem. The Mafs takes a very good Polish. 'Twas taken out of a Quarry betwixt Carlisle and Cockermouth. The common Stone of the Quarry is much different; and this is found only in Spots: but, as he was informed, placed there in such a manner, that the Cylinders stood erect. Conf. e. 17. & 18. supra.

e. 22†. Another Piece of the same Stone. In this the Cylinders are many of them bent: not naturally, but by some external Force; they being apparently crack'd. There is in it a small Vein filled with Spar, probably since the Time of the Compilation of the Mafs.

e. 23. A Stone of a brown Colour, thick set with parallel Cylinders, little different from those of e. 21. & 22. In all these three, the Stoney Matter being stripp'd off by some external Force, the Cylinders appear on one Side of the Peble naked and fair in view. Found on the Shores near Sunderland along with e. 3.

e. 24. A grey Stone, in which the parallel Cylinders are of the same bigness, and placed as thick as those of the former; but are whiter, and more like Marine Coral, and some of them very plainly at the Ends radiated as a Star; that Form arising from the Position of the Laminae described already. Found on the same Shores
Shores with the former. On one part of the Body are several Cylinders, in a Position transverse to the others: and one of them as thick again as any of the rest.

e. 25. A grey Stone, very thick set with like Cylinders. This, and several of the following, are worn smooth by the Sea; so that the Cylinders appear, on all sides, variegating the Stone in a very beautiful manner. From the Shores near Outburne, Yorkshire.

e. 26. Another leaf, and of a brown Colour. Found between Skegness and Ingoldmells, on the Shores of Lincolnshire.

e. 27. Another black, the Cylinders smaller. From the same Shores.

e. 28. Another black, less, but the Cylinders somewhat larger. Found on the Shores near Scarbourough, Yorkshire.

e. 29. Another, of a dark grey Colour: and the Cylinders, being white, variegate the Stone very prettily; making together a very elegant Body. This was found on the Shores of the River Humber, in Yorkshire, near Paul.

e. 30. A brown Stone, very thick set with greyish Cylinders, whose Ends appear on all Sides of it. Found on the Shore of the River near Thridland, in Westmorland. There were more of the same.

e. 31. A brown Stone, set with whitish Cylinders. These are in some measure porous, the Intervals of the Plates being not quite fill'd, Sea-Shores, Sunderland.

e. 32. A grey Stone, in which are several white sparry Cylinders, something larger than those of the former, and set in a Quincunx Order. Found on the Shores of Lincolnshire with No 22. supra.

e. 33. A Mazz, not quite so hard as a Peble, of a very dark grey Colour. In it are several large Cylinders, being generally above \( \frac{3}{4} \) of an Inch in Diameter. The longitudinal Plates passing from the Surface to the Axis of the Body, are white, and their Inter-flices fill'd with a pellucid Matter. The Coralline Bodies being white, and the Stone near black, appear together very beautiful. Found on the Shores of the River Tyne, near the Sea, at North-Shields. This Stone, where broken, on one part exhibits an Impression of a Bivalve: and there are immers'd in it three or four Pieces of the Spine of an Echius Ovarius. Confer, e. 34.

e. 34. A small Stone, of a dark grey Colour. 'Tis flat, being worn and ground by the Motion of the Sea. In this are Pieces of Cylinders of several Diameters, from \( \frac{1}{10} \) to \( \frac{1}{10} \) an Inch over : composed of Plates passing towards the Axis of the Bodies. They are intersected by other Plates, so as when broken, the Bodies appear reticulated. The cylindraceous Bodies in this, and e. 33, are white: and, both in Substance and Texture, resemble a sort of Porous, which we have from the Sea. This was found on the Shores near Skegness, Lincolnshire.
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e. 34*. Coralloid Cylinders, set parallel to each other, in a grey Stone. This is worn in such manner, as very fairly to shew the interior Constitution of the Cylinders, which have Lamella, from their Surface to their Axis, for their whole Length, like the rest of the Bodies of this Section: which likewise are intercepted by transverse Lamella, like those in the following Section; which probably would appear to be the Case of several of the other Bodies in this Section, if their interior Constitution were as fairly expos'd to view. Potgill, near Hartly, in Westmorland.

e. 34†. Coralloid Cylinders, of much the same Constitution with the foregoing, but larger, being ¼ of an Inch in Diameter. They are environ'd outwardly with annular Circles, set very thick and close together. From - - - - Cumberland.

Partis II. Sectio II.

Coralloidea tubulosa crebris lamellis transversis intercepta.

Vide Ind. supra, p. xxvii. e.

e. 35. A Stone of an Iron-Colour, wherein are lodged many Tubes, appearing to be of a Spar, white, with a reddish Cast. They are generally about ½ of an Inch in Diameter, pretty near freight, and parallel to each other. The Stone is thick set with them. Throughout the whole Length of the Tubes, are Plates of the thicknæs of ¼ part of an Inch crossing the Tube, the Interval between each Plate being of about the same Dimensions. Shores near Ousborne, Yorkshire.

e. 36. Another, brown; set pretty thick with Tubes of the same Size and Matter with those of the foregoing, only without any Mixture of Red. The Tubes are striated length-ways; and their Cavities set with Valvules, or Septa, like those of the former. Shores near Skegness, Lincolnshire.

e. 37. Another; neither the Stone nor Cylindrick Tubes here differ from the former, only one of them has a Branch rising out of it. From the same Shores. Mr. Morton.

e. 38. Another, but softer, grey Stone, thick set with like Cylinders, but irregularly placed; those of the precedent from No 17. lying generally parallel to one another. One of these Cylinders is crooked, as if bent almost double. From the same Shores.

e. 39. A brown Nodule, very hard, and thick set with Tubes, variously placed. The Hollows of the Tubes have Valvules in them, which are crofs'd by thin Plates passing the whole length of the Tubes. The Intervals being empty, the Tubes appear cancellated where broken. They much resemble a sort of Coralline Porif. From the same Shores.

e. 40. A Stone of a light brown Colour, very thick set with small Tubes, in various Positions, some few of them a little crooked. The Diaphragms or Valvules are whitish: and have their Inte-

K. 4
vals fill'd up with a brownish Sparry Matter. The Ends of several of the Tubes appear stellated, they seeming to have Lamina passing from the Surface to the Axis through the whole length of them, of which indeed there are some Vestigia in most of this Class. Found alone on the Road between Bradford and Leeds, Yorkshire.

Pars III.

Coralloidea columnaria pentaedra.

Sectio I.

Coralloidea oblonga pentaedra laminis à superficie ad axem tendentibus.

e. 41. A grey semi-pellucid Flint, the Ground much like the Indian Agat, but thick set with white Pentagonal Columns, about \( \frac{1}{4} \) of an Inch in Diameter. They are made up of several longitudinal thin Plates, all set edgeway towards the Axis. The Columns stand parallel to one another: and are placed at equal distances, being about \( \frac{1}{35} \) of an Inch from each other. The Body being cut transversely, its whole Surface appears like a Net made up of pentagonal Masles, with a pentagonal Star in each. The Sides of the Columns are not exactly equal, and consequently not those of either the Masles or Star. From -------- in Wiltshire.

e. 42. An oval Plate cut transversely off the precedent Flint, and polished. It takes as good a Politure as any Agat: and is a wonderfully beautiful Stone.

e. 43. A piece of another, of the same sort, from the same Place. In this the Ends of the Columns terminate in the several stellatar Cavities at the under Surface of the Flint, much like those in the larger Astroites, or flarr'd Honey-comb-stone.

e. 43. A piece of another. In this the Stars, on one side, are hollow, so as exactly to resemble a common Species of marine coralline Affroite: on the other side, the Hollows are fill'd with a flinty Matter. This Body shews plainly that these starr'd Coralloids were form'd after the manner of the starr'd Sea-Corals: and differ only in the additional flinty Matter. From the same Place.

Partis III. Sectio II.

Coralloidea oblonga pentaedra, Septis transversis distincta.

e. 44. A Corallloid Body, of a grey Colour, made up entirely of several small quinquangular Columns, crossed very thick with transversel Septa. At the end of each appears a small pentagonal Cavity, by which means that part of the Surface of the Body is reticulated all over. The Columns are not placed parallel; but so that they point and verge towards a Center. This was found in the great Lime-stone Pit, near Dudley, Staffordshire.
E.45. Another, the Reticulum upon this is very uniform, and
elegant. The Stone is broken on one part: and appears within
to be compos'd of a grey Spar. From the same Place.
E.46. Another, with a like Reticulum spread over the whole
Surface of it. From the same Pit.

Pars IV.
Mycetites Coralloides.

 Sectio I.
Mycetites Conoides, ser Calyciformes.

E.47.48. Two small Mushroom-stones, in form of a bluntish
Cone, near half an Inch in length, and \( \frac{4}{10} \) crofs the broader End.
They are of a grey Colour, and made up of Lamellae running from
the outer Surface to the Axis of the Cone. They terminate so as to
make a round stellar Cavity at the broader End. The Lamellae are
held together by a whiter Matter interpos'd betwixt them. I col-
lected several of them on the Shores of the Island of Sheppey, some
of which are since dissolved, and appear to be compos'd chiefly
of Vitriol, which shoots plentifully out of them, in form of a
white Salt, after they have been some time expos'd to the Air.

E.49. Fifteen other Mushroom-stones of near the same Shape
with the precedent. Some of them are something bigger,
and others lefs than those are. These are of a white Colour, and
in Shape exactly resembling a sort of Coralline Fungus of Marine
Original, which I have by me. Some of them, at the small end
of the Cone, expand themselves into a flat Plate as if they had ad-
hered to some other Body: and two of them have fragments of
Cruffs of Echini affix'd to that part of them; to which Cruffs,
sustain'd in the Water of the Deluge, the Particles, constituting
these Mushroom-stones, affix'd and concreted. Two or three of
them appear somewhat bow'd or incurvated. From the Chalk-
Pits of Turfleet, North-fleet, Greenhythe, and Croydon.

E.50. Three other like Bodies, of a dark grey Colour, \( \frac{4}{1} \) of an
Inch long and a little incurvated. These end in a somewhat
sharper Point than the former; and are incomps'd by several
annular Ridges. One of them, being broken, appears within to
be made up of a grey Spar. From the Rocks near Kendal,
Westmorland. There are also Mushroom-stones of this kind found
at Torpenhoe, in Cumberland.

E.51 & 52. Two others, of a red Colour, near as big again as
the precedent, but of a comprefl Shape. Otherwise they differ
little from the former. From How-Lees, betwixt Newbiggin and
Stainton, Cumberland. Mr. Nicholson, afterwards Lord Bishop of
Carlisle.

E.53. Another from the same Place, not comprefl, and much
shorter than either of the foregoing.
e. 54. Another Mushroom-stone, of a light brown Colour, \(\frac{3}{4}\) of an Inch in length. This consists of a round Stalk \(\frac{1}{2}\) an Inch thick, swelling at one end into a Head \(\frac{1}{4}\) of an Inch over; upon which is a shallow stellated Cavity. 'Tis made up of Laminae plac'd as in e. 47. and 48. This was found in a Gravel-Pit, in a Valley near Wheat-Lands Mill, beyond Northleach, Gloucestershire.

e. 55. Another, in shape not much unlike the former, only somewhat bow'd; but much larger, being 2 \(\frac{1}{2}\) Inches long, and the Head near two Inches over. The Plates, of which it consists, are white: and appear of a Substance very like Coral, where freed and clean'd from the grey earthy Matter which is interwoven into it. Out of a Lime-stone Quarry, near Dudley, in Staffordshire.

e. 56. Another, somewhat bow'd and compress'd; 1 \(\frac{1}{2}\) Inch in length, and above \(\frac{3}{4}\) of an Inch over at the Top. There are four Angular Ridges environing it, at about \(\frac{1}{4}\) of an Inch distance from each other. It consists of a grey Spar: and was found on the plough'd Lands in the Fields on the West side of Oxford.

e. 57. Another little different, only less, being but an Inch long. Found with the former.

e. 58. Another of much the same Shape and Size with the precedent. This is made up of a grey Spar, but outwardly colour'd with a blue Clay, in which it lay. In a Pit at the Foot of Shotover-Hill near Oxford.

e. 59. Another found in the same Clay tinged with it, and composed of a like Spar with the former. This is of a conick Shape, an Inch and half in length, and near as much in Diameter, at the broader end, where 'tis hollow'd, in manner of a Cup, for above half the length of the Stone.

e. 60. A Mycteites, of a grey Colour, the lesser end appearing abrupt and about \(\frac{1}{2}\) an Inch over, the other near an Inch. 'Tis of a Form somewhat compress'd, being scarce half an Inch high. The Laminae appear at both ends tending towards the Axis of it. From the great Lime-stone Quarry, near Dudley, Staffordshire.

e. 61. Another like Body, but less, and of a white Colour, having a considerable cup-like Cavity in it. There arises out of one side of it, a Body of much the same Size and Shape with that e. 57. Found on the plough'd Lands with e. 56. and 57.

e. 62. A Mushroom-stone consisting of several Laminae placed as in the former: and surrounded with several pretty high annular Ridges. 'Tis inclining to a conick Form, though abrupt, and not coming to a Point. The Length of it is 2 \(\frac{1}{2}\) Inches, the Diameter \(\frac{1}{2}\) where broadest. 'Tis of a Ferruginous Colour: and by that, and its weight, seems to hold Iron. Found loose upon the Sides of St. Vincent's Rocks near Brislow, amongst many other like Bodies, beat out of the Stone by Rain and Weather.

e. 63. Another about the same length, but not so thick, nor so taper'd as the former; nor are the Ridges about it so high. It seems
seems to be of the same Nature and Composition with that: and was found in the same Place.

e. 64. Another, little different from the preceding, but thinner, and rough, as if eroded, on the outside. 'Tis broke in one part, where there appears a whitish Spar incorporated with it. Found also on St. Vincent's Rocks.

e. 65. A Body of the same Colour and Substance with those e. 49. supra, with a stellar Cavity, and Lamina passing towards its Axis, thorough the whole length of it, as in those; tho' 'tis of a different Shape, being not at all tapering, but of near the same thicknesses, viz. \( \frac{1}{3} \) of an Inch in all parts, crooked, and distorted. 'Tis an Inch and half in length. From the great Chalk-Pit at Northfleet, Kent.

e. 66. Another, of a grey Colour, near two Inches in Length, and one and \( \frac{1}{4} \) in Diameter. The Shape and Texture nearly agreeing with the precedent: only the Intervals of the Lamina passing lengthwise of it, and appearing at the two opposite Ends, are most of them fill'd with an adventitious brown earthy Matter; whereas in that they are generally empty. Found on the Sea-shores near Scarborough, Yorkshire. This, and the preceding Bodies, being not only made up of Longitudinal Plates passing towards an Axis, but likewise of a Shape nearly cylindrical, may be more fitly refer'd to those, Part 2. Sect. 1.

e. 67. Another, of much the same thickness in the middle as e. 65. supra, but somewhat tapering towards each end. 'Tis 1 1/2 Inch in length, of the same Colour, Substance and Texture, and found in the same Chalk-Pit with e. 65. There are Parts of the Bases of several Balani affix'd upon it.

PARTIS IV. SECTIO II.

Myceitia forma compressa, seu Dicosoides.

e. 68. Twelve Stones, opaque externally, and of a yellowish brown Colour, but consisting within of a white semi-pellucid Spar, as appears by one of these, and many others, which I have broken. They are all of a comprest Shape: but some more, and some less. They are generally round, and all these are so except two, which incline towards an Oval. One side of them, which may be termed the Bafe, is generally flat, but in some of them somewhat concave; the other somewhat rising and convex. In the middle of this side is a little Hollow or Umbilicus; from whence arise many very fine Sulci or Striae, and small Ridges, alternately, passing on, of all sides, and terminating in the middle of the Basis. Upon the Surfaces of some of those Stones appear many extremly small glittering Sparry Sparks. The leaf is not quite \( \frac{3}{4} \) of an Inch in Diameter, the largest above \( \frac{1}{4} \) of an Inch. The thickest is half an Inch in perpendicular height, the leaf not \( \frac{1}{12} \). These Stones are called by Doctor Plot, Porpites, as much resembling a Hair Button. These here were found generally on the plough'd Lands in
the West of Oxfordshire, and those Parts of Northamptonshire, Gloucestshire, and Berkshire, which adjoin to it.

e. 69. Two like Bodies of a middle Size, the Surfaces of these are smoother, having the Striae so extremely fine as to be but just discernible by the naked Eye. Found on plough'd Lands on a Hill near Ensum-Ferry, Oxfordshire.

e. 70. Another, of a flat comprefh Shape, almost an Inch in Diameter. The Basis of this is flat; but hollowed by the Edges rising into a Brim quite round. It is striated and ridged on both sides, but the Ridges in this and all the following to e. 79. are grofser than those of the precedent. Broadwell-Grove, Glouceflefthire.

e. 71. This is little different from the preceding. Aulfworth, Glouceflefthire.

e. 72. & 73. Two others, thicker than the foregoing and broader, being above an Inch in Diameter. The Bases of these are a little concave: and not striated to the Center as the former; but have several annular Striae, within one another, surrounding the Center. There appear some small glittering Sparks upon them: and having broke several of them, I find them to confift chiefly of a semi-pellucid Spar. Risington Parva, Oxfordshire.

e. 74. A Stone of the same Texture and Breadth with the two last; but flatter, and of a dark grey Colour, all the foregoing being of a light brown. The Ridges in this, and the following, are thick set with very little Knobs. From the Shores near Whitton, Lincolnshire.

e. 75. Another of the same Texture, Colour, and Constitution; only in this the striated side is a little Concave, and the opposite proportionably Convex. This also and the four following, from Whitton Shores.

e. 76. Another, not different, only less, being but about half an Inch in Diameter, and having its Basis flat. Whitton Shores.

e. 77. Another of the same Size and Constitution, only the Basis is concave. This also is of a grey Colour. Ibid.

e. 78. Another, 1/4 of an Inch in Diameter, and somewhat more convex than the foregoing. The Basis of this is flat and striated, the Ridges between the Striae being punctulated, as are all the foregoing from e. 74. inclusive. The upper or convex part is smooth, except three annular Striae described, round the Umbilicus of one within another. This is of a brown Colour. Ibid.

e. 79. Another, grey, and somewhat less; otherwise not different, only that the striated Basis is a little Concave. Ibid.

e. 80. A white Stone of the same Diameter with the last, but more concave in the Basis, and more prominent and tending towards a Cone on the Convex part. The Basis is smooth, excepting the Annuli encompassing its Center. The upper part is thick set all over with very small Cavities. From the great Chalk-Pit at Greenwich.

e. 81. Another from the same Place, less, but otherwise little different.
e. S2. A Stone of a grey Colour. The Base is pretty flat and distinguished by large circular Ridges and Furrows alternately. There are some Vestigia of other Ridges tending towards the middle and crossing these circular ones; so that this Body on the side appears as if cancelled. The upper part is Convex: and has its Surface pierc'd all over with small round Holes at near equal distances. This is about 1 $\frac{1}{2}$ Inch in Diameter. From the great Lime-stone Quarry, near Dudley in Staffordshire.

e. S3. A flattish Stone much larger than any of the former, being about 2 $\frac{1}{2}$ Inches in Diameter. Each Surface of this is somewhat convex, gradually lessening from the middle towards the Edges all round. The Edges are not plain, but curl'd or undulated. On one side there are circular Ridges, and Furrows, alternately, parallel to each other about the Center, in much the same manner as some of those described above. These are cross'd by fine small Striae, passing from the Edges towards the Center. On the other side, where-ever 'tis freed from the Sand-stone, in which it was originally enclosed, 'tis covered with linear Striae, tending towards several Centers, so as to compose flat stellar Figures. Found in a Quarry on the North-side of Sherborn, Gloucestershire.

P A R S V.
Aströita.

S E C T I O N I.
Aströita Stellis Prominulis.

e. S4. A Piece of a grey Stone, very hard, with Spar intermingled in small proportion throughout the whole Substance of it; but, on one part of it, which is flat, the Spar is in greater Quantity, and in some Places shot into small Crystals. From this flat Sparry Substance arise sexangular pyramidal Bodies. They are all nearly of the same Size, being about $\frac{1}{4}$ of an Inch in perpendicular, and somewhat more in Diameter at the Base. They are ranked, pretty regularly, in a Method, approaching to that of a Quincunx. They stand so close that their Bases are contiguous to each other, and are striated, from the Apex to the Bails; besides that the Striae of one run into and communicate with those of the other stellar Pyramids all round. In one part of the Stone is a Piece of a Shell of the Peetlen kind. Found in a Quarry on Cowley Common near Oxford.

These starry Efflorescencies were form'd on the upper Surface of a Stratum of Stone at a Partition, or horizontal Fissure. The part of the Stone, of that Stratum, on which it had so concreted, is still joining the starry Efflorescencies. The Stratum being horizontal, the Efflorescencies are erect. There were two other thin Strata over that on which these were fix'd. Vid. e. 18. 7bra.
e. 85. A Piece of a whitish Stone, very soft, and having one Surface set all over with stellar Prominences, but much less than the former. Found in a Stone-Pit, on Shot-over-Hill, near Oxford, growing on the upper Surface of a Stratum, at the Partition, after the manner of the precedent.

Partis V. Sectio II.

Astroites Stellis in Plano delineatis.

e. 86. A roundish Body of the bignefs of a large Walnut, of a yellowish brown Colour, like that of the Mycetes, e. 68. and having alfo, like them, upon its Surface, many extremely small, glittering, sparfy Sparks. The Surface is cover'd all over with stellar Figures, delineated in plano, about $\frac{1}{2}$ of an Inch in Diameter. The Striae of each of thefe Stars communicate with, and run into the Stars all round it. Having the Stars apparent on every fide, and there being not the leaft Mark of Adhesion to any other fix'd Body, 'tis plain this was form'd suspend'd in the midft of a free Fluid, as the other Nodules were, at the Deluge, and is itfelf a Nodule.—Found upon the plough'd Lands in Tanworth-Fields, in Gloucef-shire. This is a Nodule, as indeed all of this, and the following Section, are; unifefs it be 90, which is fo broken, I cannot well judge of it. I broke feveral of these; and found them, within, confifting intirely of a fine, white, transparent, crystalline Spar.

e. 87. A Stone much larger than the former. 'Tis compos'd chiefly of a coarse grey Spar; and has all over its Surface Stars much like those of the former. There are small undulated Rifes on feveral parts of its Surface, fo as to make it a little re-semble the Brainstone, or Astroites maritimis Coralloides undula-\-tus. Found in a Gravel-pit, in the Road in the Vale beyond the River, near Wheatlands-Mill, Gloucef-shire.

e. 88. A large flat Stone, of the fame Colour and Conftitution with e. 86. and having on the two oppofite Planes, Stars like those of that, but bigger, efpecially on one fide. Some few of the Stars are hollow'd; and pafs in manner of a stellar Pore into the Sub-fstance of the Stone. The Striae of the exterior part of these Stars, which stand next the edge of the Stone, pafs down by the fides of the Stone for the whole thickness of it, which is about an Inch, and terminate in the Striae of the Stars on the edges of the oppofite Plane. From which 'tis natural to conclude, that, as in feveral that I have broken, to obferve their Fabrick and Texture, both fottill, and marine, the Stars in this likewife pafs the Sub-fstance of the Stone quite crofs from Plane to Plane. Found on plough'd Lands near Sherborn, Gloucef-shire.

e. 89. Another large flat Body, of much the fame Texture and Conftitution, but of a grey Colour, excepting a large Vein of a reddifh sandy Hue. The Stars in this are larger than in any of the former, being generally about half an Inch in Diameter. Found at the Head of the Spring near Hilden, in the East-Riding of York-\-shire.

e. 90.
e. 90. A Piece of Spar, white, except on one side, where it is flat, and of a brown Colour. This Flat is pretty thick set with Stars of the same size with those of e. 86. only the Radij of the Stars here sink somewhat deeper into the Stone; nor do the Radij of one Star pass on and communicate with the adjoining Stars, as in that. From a Lead-Mine at Cumberland Mr. Nicholson.

PARTIS V. Sectio III.  
Asfroita Stellis depressis.

e. 91. A sparry Nodule of much the same Constitution with e. 87. and found in the same Gravel-Pit. The Surface is very uneven, rising into large Knobs on all sides. The Extremities of the Knobs are smooth, as if worn; but the Intervals, and other parts lets expos'd to Attrition and external Injuries, are beautifully adorn'd all over with little excavated Stars, each about \( \frac{1}{10} \) of an Inch in Diameter.

e. 92. A globular sparry Body, of a brown Colour, near four Inches in Diameter, with several large Knobs about the Surface. The whole is cover'd over with Stars, sunk something deeper into it than those of the former. Found on the plough'd Lands near Northleach, in Gloucestershire.

e. 93. A Piece of white, semi-pellucid, crystalline Spar. Part of the exterior Surface is of a brown Colour, set with like Stars, but somewhat larger, very fair, hollow'd pretty deep, and rising gradually from the Center to the Ambitus of the Star, there terminating in a pretty sharp Ridge all round. These Ridges communicating with each other, resemble a sort of Net-work, with a Star in each Mesh. 'Tis indeed a very beautiful Object. From a Quarry on the North-side of Irthingborow, Northamptonshire. Mr. Morton. See his Nat. Hist. of Northamptonshire, p. 183. He informs me that there are found there, of these, of different Sizes, from the bigness of a Hen's Egg to that of a Man's Head. Their Shape also is different; but, being, as he says, all Nodules, generally tending towards a globular Figure. The Outsides of them are constantly stellated all over. I cannot but take the Occasion to note, that, tho' these Bodies agree well with the marine Asfroita, as to the exterior Appearance, and Form of the Stars; and doubtless owe their Formation to much the same Agent: yet the Matter, which constitutes each, is very different. For in the marine, that Matter is ever opake; whereas in many of these, 'tis transparent. The marine, indeed, hold all a little Spar, or Crystal; but these terrestrial Asfroita hold so much, as to be near wholly compos'd of it. Vid e. 90. supra. e. 94. 95. The fossil Corals are more terrene, and ordinarily of greater specific Gravity than the marine. Then there are fossil Corals, Mycelites and Afteria, consisting of Flint, Agat, Pyrites, and other Matter, much different from that of the marine.

e. 94.
e. 94. Another, from the same Quarry. The Edges of the Stars here are not quite so sharp or raised as in the former; and the Striae of the Stars communicate with, and pass into one another.

e. 97. Another, from still the same Quarry, little different, but that the Stars are not so depressed.

e. 96. A very large sparry Nodule, outwardly of a brown Colour. cover'd over with Stars of the same Size and Figure with those e. 93. From the plough'd Lands of Sherborn Northfield, Gloucestershire. Having broke several Nodules of this sort, I find they consist within of a white, semi-pellucid, crystalline Spar. In some of these were Cavities; and these there had the Spar finely shot and crystalliz'd.

e. 97. A sparry Nodule divided into several Branches. 'Tis of the same Colour with the precedent, and starr'd all over like that. It much resembles a Species of a marine branch'd coralline Asroite as to its Shape and Stars. But this is externally brown, and that white; this of sparry, and that of coralline Matter. Found in Stawell-Fields, Gloucestershire. There is of this sort, branch'd, found pretty frequently in the plough'd Fields, call'd the Chessies, near CoIn St. Allens, Gloucestershire.

e. 98. A Branch of a sparry Nodule of like Constitution with the foregoing. 'Tis in shape round, almost two Inches long; and half an Inch thick, but tapering towards one end. At the other 'tis abrupt; appearing like a Branch broken off from a bigger Body. Plough'd Lands in Tanworth-Fields, Gloucestershire.

e. 99. A Piece of a Nodule consisting of Spar, white within, and brown on the Surface. This is let thick over with small round Cavities, appearing as if punch'd, the bottoms of which are flat and starr'd. On one side are Vestigia of stellar Pores palling towards the Center of the Stone. Farmington-Fields, Gloucestershire.

e. 100. 101. & 102. Two Pieces of a large sparry Nodule, with a stoney Callimus of a pale brown Colour, and oblong oval Figure, two Inches in length, and ¼ of an Inch in Diameter, that was lodg'd in the middle of the Nodule. The Spar is semidiaphanous, white with a Cast of red, and made up of Plates wedged in with each other in various Positions. The external Surface is thick let with pretty large Stars. Found in a Stone-pit in the Earl of Dysert's Yard, in Northamptonshire.

e. 103. A very large sparry Nodule externally of a brown Colour. It has somewhat of the resemblance of a large Champignon before 'tis open'd, bunching out into a large round Knob at one end, the part proceeding from it being less, round, and not unlike a Stalk. Much the greater part of it is cover'd over with Stars, very large, being half an Inch in Diameter. Found on the plough'd Lands near Audworth, Gloucestershire.

e. 104. Another Nodule, of like Colour, Texture, and Shape, but much less. The Stars in this are of the same bigness with those
those of the former, but sunk deeper in. Found on the plough'd Lands in Sherborn-Northfield, Gloucestershire.

Partis V. Sectio IV.

Astroite foraminosi, sive à Superficie ad interiorn Corporum excavati.

ē. 105. A Body of a flat Figure, an Inch and a half thick, five and a half long, and three and a half in breadth. It consists of a grey Spar; but the Outside is brown. The two opposite flat Surfaces are cover'd all over, in an elegant manner, with Stars, not different from those of e. 94. except in bigness, these being generally $\frac{1}{4}$ of an Inch in Diameter. Several of the Stars, especially on one of the flats, sink deep into the Substance of the Stone, making so many stellar Pores, with long parallel Striae running up their sides from the bottom to the Surface, and there communica-
ing with the Striae of the neighbouring Stars all round. Some of these Pores pass the Substance of the Stone diametrically from flat to flat: and round the Edges of the Stone are long parallel Striae passing it transversely. At the bottom of all the Stars on one of the flats there is a little striated Stud rising up in the very middle of them. "Twas found in a Stone-Pit between Oxford and Shotover-Hill, Oxonshire.

ē. 106. A Piece of another, from the same Pit, little different, only to one of the Flats adheres a Body in Shape like that ē. 102. but left. On this Body for the whole length of it, is a Row of stellar Ridges and Striae, which let fall Rays down by the Sides of it till they meet with those on the Stone to which 'tis affix'd.

ē. 107. A sparry Body, of a somewhat lighter grey Colour than the two foregoing, with Stars upon the two opposite Planes. On one side they are flat and of the same form with those Part V. Sect. II. on the other they are concave, but of different Sizes, from $\frac{1}{2}$ to $\frac{3}{4}$ an Inch in Diameter. Some of them pass deep into the Stone: and on the Sides are Striae passing diametrically between the two opposite Planes. Found in the Highways near Baxstebre in Berkshire, near Oxford.

ē. 108. A grey sparry Body with Stars, about $\frac{1}{4}$ of an Inch in Diameter, on the two opposite flat Surfaces. Some of them sink pretty deep into the Stone. In all parts of the Sides of this, where broken, appear Lines very numerous and thick, which seem to be the Edges of long Plates pervading the Body diametrically from the Stars of one to those of the opposite Plane. On one side of the Stone these Plates are croś'd by others, so as to appear can-
celled, very like some of the marine Pori. Found near Scarbo-
rough-Castle, Yorksire.

ē. 109. A sparry Stone of a blueish grey Colour, with Stars, much like those of the foregoing, on the two opposite Planes. All round the Sides of it are Canals, like parts of stellar Tubes, passing cross the Body. The Longitudinal Plates of these are in-
L

tersected
terfefted by others exactly in manner of some of the marine Por.
Out of a Cliff on the Shores near Whitton, Lincolnshire.

e. 110. A Piece of a white Sparry Body, on the Surface of which are Stars passing pretty deep into the Stone, about a quarter of an Inch in Diameter. The Striae of these are not so deep and distinct as in the preceding; and in some are hardly perceptible. Found somewhere in the Road between Ensham-Ferry and Oxford, where there were more of the same; but I cannot remember the Place more particularly.

e. 111. Another Piece from the same Place, little different, but that the Stars are generally less, and smooth, as if the Striae were effaced, they hardly appearing.

e. 112. A flat Body, with hexagonal Cells somewhat above a quarter of an Inch over; and very much resembling an Honey-Comb. The Cells are prettily crenated or notched quite round the Edges; but not striated down to any depth. These Cells are pretty deep; and some of them pass quite thro' the Body diametrically. The Partitions of the Cells, where broken, are white; but all the rest of the Body is of a ferruginous Colour. Found at the Foot of St. Vincent's-Rock, near Brisol.

e. 113. Another with like Cells. The Partitions of these are compos'd of little Bullæ or Granules, of a glittering Spar, white, with a Cast of red. The Cells are all deep; and some of them pervade the Body diametrically. Found upon the Shores of the River Ardin, near Leonards-Castle-Abbey, in Cumberland.

APPENDIX.

e. 116. An Astroites of the foraminose kind, Part 5. Sett. 4. little different either in Substance or Texture from that e. 105. but this Stone is not quite half so big. Found near Abbington, in Berks. They are pretty common there.

e. 117. Astroites Stellis prominulis, much like that e. 84. only in this the Stars are something larger. Found on Bullington-Green, near Oxford. It belongs to Part 5. Sett. 1.

CLASS VI.
Crystals, Spars, and crystalliz'd Gems.
Vid. Preface infra.

The Classical Method of these Bodies.

PART I.
Incrustations of Spar, and other like Matter, upon Bodies in Springs; and Rivulets.

PART
PART II.
Simple Spars, found in the perpendicular Fissures of the solid Strata.

PART III.
Spar form'd into Plates.

Sect. 1. Plates of Spar, plain, concreted upon the Stone of the Sides of the perpendicular Fissures.

Sect. 2. Plates of Spar, with Tubera, and Efflorescencies, upon them, concreted upon the Stone of the Sides of the perpendicular Fissures.

PART IV.
Stalactites, or Spar form'd into the Shape of Icicles.

APPENDIX. Stalagmite, Drop-stones, or Spar form'd into small roundish Masses.

PART V.
Crystals, and crystalliz'd Spars.

  2. Spars, and Crystals, shot into a cubic Form.
  3. Trigonal Pyramidal Talky Spars.

ARTICLE 1. Those that are white, or diaphanous.
  2. Those that are colour'd, yellow, red, purple, black.

Sect. 5. Sparry and crystalline Pyramids, join'd Base towards Base by the Interposition of an hexagonal Column, adhering to Sand-Stone, diaphanous, and colour'd.

PART VI.
Spars, and Crystals, independent, and in Nodules.

Sect. 1. Hexagonal, sparry, and crystalline Pyramids, join'd Base towards Base by the Interposition of an hexagonal Column, not adhering to any other Body, and without a Root.

ARTICLE 1. Those that are single, and apart.
  2. Those that are join'd, several in one Mass or Nodule.

Sect. 2. Echinated, sparry, and crystalline Balls.

Sect. 3. Concave, sparry, and crystalline Balls.

PART VII.
Spar of a frigated or ridg'd Form. And Spar shot into the Form of Erica or Heath.

The Names given to some of these Bodies by Writers, and others.

Persefations, f. 1. & seq. — florid, f. 68.
Osteocolla Officinarum, f. 5. — crystallized, f. 65†.
Stalactites, or Stagonites, f. 58. — of a red Spar, 66.67.
& seq. Stalagmites, f. 47.72*.72†.
— hollow'd, or fistulose, f. 55.
 — Lapis Lazuli Saturni, f. 18.
  57. Gauky Spar, f. 76*. 
  L 2
  Lac
Lac Luna Spar, f. 46.
Cry/stone, f. 81.
Petullid Spar, f. 28.
White Spar, f. 35.
Water Spar.
Brown Spar, f. 30.
Brown Sugar-Candy Spar, f. 17.
Rhomboal Spar, f. 18. & seq.
Dog-tooth Spar.
Botyroid Spar, f. 48. 49.
Echinated Crystal/line Balls, f. 134. & seq.
Concave Crystal/line Balls, f. 142. & seq.
Crystal, f. 99. 100*.
Cornish Diamonds, f. 97. & seq.
Bristol-Stones, f. 117.
Topaz, f. 177. 177*.
Saphire, f. 180.
Amethyst, f. 92. 118. 178. 179.
Emerald.
Selenites, Scheuchzeri, f. 25.
Iris, 129.

Extract of the Observations, relating to the Origin, Formation, and Natural History of Crystal, Spar, and the crystal/ized Gems.

Of Spar.

1. The Uses of Spar.
Spar, absorbing Sulphur, in the Ores of Metal, in the Fire, promotes their Fusion.
— Incrust/ed, call’d Osseocolla, used as a Conglutinator of broken Bones, f. 5.
— White, given in White-Wine in Cases of the Stone, and nephritic Affections, f. 18. 21.
— In the Cholic, f. 21.

2. The Place in which Spar is found.
Spar, in Fissures of Stone, f. 16. 18. & seq.
— In Fissures of Marble, x b. 1.
— In Fissures of Coal, f. 9. g. 17. & seq. — Of Canal Coal, g. 10.
— Finely crystal/z’d on the Sides of the perpendicular Fissures of Coal, f. 108.

3. The various Colours of Spar.
Spar, white, f. 18. 20.
— With a Cast of yellow, f. 76. 0.
— Yellow, f. 76. 94. & seq.
— Of a reddish yellow, f. 17.
— Trans-lucid, green, f. 16. 65. 1.
— Blue, f. 144.
StalaglZe, red, out of an Iron Mine, f. 66. 67.
Spar, with a Cast of Purple, f. 91.
— With a black Hue, owing to Coal concreted with it, f. 108.

The Constitution and Formation of Spar, f. 28. 29.
Spar, white, breaking in Rhomboids, f. 24.
— Pellucid, breaking in Rhomboids, f. 25.
Spar, white, breaking in Plates, f. 29*. Sparry Matter, brought out of the Strata of Stone by Water, fix'd in successive Incrustations, and spread over the Sides of the perpendicular Fissures, f. 30, 31, 32, 34, 35, 36, 36*. Sparry Incrustations, with Tubera, and Efflorescencies upon them, form'd by Water on the Sides of the perpendicular Fissures, f. 36†. & seq.

Spar grows, and is form'd, to this Day, f. 83.


Of C r y s t a l.

1. The Figure of Crystal. Crystal. Its natural Form hexagonal. When it assumes any other Form, that is owing to the Admixture of some adventitious mineral or metallic Matter concreted with it. f. 97. Conf. Pref. infra.

— in a cubic Form, f. 87. & seq. This Form owing to Lead incorporated with it, f. 87. 92†. n.132. All other Variations of its natural Figure, owing to metallic Mixtures with it. n.132.

2. The Colours of Crystal. Crystals, clear and diaphanous, f. 99. 120. & seq.

— with a Cast of Yellow, f. 87. 90†. 116. 128. 141*. n.132.

A Topaz, f. 177. 177*. This yellow Colour is owing to Lead incorporated with it, f. 87: 128. n.132.

— with a Cast of Green, owing to Copper, f. 93†.

— with a Cast of Red, owing to Iron incorporated with it, f. 117. 118. 126. 129. 131. 138. 145.

— with a Cast of Purple, owing to Iron, f. 91. 93. 119. 129. 141. Conf. f. 118.

— of an Amethystine Colour, owing to Iron, f. 92. 92†. 118. 176*.
Spars, Crystals, and Crystalliz'd Gems.

PREFACE.

Crystal was thought by the Antients to be only Water congeal'd, in long Tract of Time, into an Ice, harder, and more durable than the common. ’Twas for that reason they gave this Stone the very Name [κρύσταλλος] that they did to Ice. Plin. 1. 37. c. 2.—“Cry-

tallum,—gelu vehementiore concretò. Non alibi certe reperitur,

 quam ubi maxime hibernæ nives rigent, glaciemque esse, cer-
tum et; unde nomen Gracci dedère.”—Sexangulis nascitur la-
teribus.”

Spar is call'd Fluss by the German Mineralifs: and by Agricola,

and the other late Writers of Fossils, Fluor. Probably because they

imagined this also to have been form'd, ex Fluido, or out of Water.

In my Nat. Hift. of the Earth, Part IV. Confct. 6. &c. I have set

forth the true Origin of Spar and Crystal: and shewn that Water

is only the Agent that educes the Matter, of which they consist, out

of the Strata, and compiles and forms it in the perpendicular Fis-
sures. Nor are they les mistaken, who imagin'd Spar had the Name

Fluor, à fluendo in Igne; for it will not melt, but calcines in the

Fire. ’Tis indeed sometimes used, in the Fusion of Ores, like Lime,
to absorb the Sulphurs that may be incorporated with them. By

that means it removes indeed what would hinder the Fusion of those
Ores, and so by accident promotes their Fusion: but is not really a

Flux itself.

One sort of Spar is composed mainly of Lac Luna, incorporated

with Crystal. Vide f. 41. f. 46. f. 70. & o. 105. infra.

Talc is likewise frequently found incorporated with Crystal and

Spar: as in f. 29*. & 29+. f. 30. f. 34. and probably in the Sta-
lacites, f. 55. & seq.

There is in all Spar more or less of Crystal: Which renders it

more or less diaphanous, in proportion to the Quantity of the

Crystal incorporated with the Earthy, Stoney, Mineral or other

Ingredients in the Composition of the Sparry Mafs.
Spars, Crystals, and Crystalliz'd Stones.

Part I.

Incrustations of Spar, and other like Matter, upon Bodies found in Springs, rising from among Strata of Stone, or Rocks. [Confer. Nat. Hist. Earth. Part IV. Conf. 7, & 13.]

f. 1. Three Cylindric Incrustations, found in a Brook proceeding from Rushbank-Spring, Harrington-Grounds, in Northamptonshire.

These, and the following, to f. 5. inclusive, have little Spar in their Composition; they consisting chiefly of a grey light earthy Substance; but being found with those that contain more Spar, and form'd in the same manner, I take the liberty to range these with them.

f. 2. Several others, of different Figures, found part of them in a Rivulet, the rest in a Marl-Pit, in a Field not far from the Church of Norleach, Gloucestershire. Some of these, being broken, shew the various Crusts, successively one within another. The Straws, or other slight Bodies, on which these Incrustations were made, are since, in Tract of Time, perish'd and disappear'd; the Place, where they were, remaining.

f. 3. The common Garden Snail-Shell incrusted over. Out of the same Rivulet, near Norleach.

f. 5. An Incrustation, seeming to have been on a Stick, since perished. This is the Osteocolla Officinarum: which is recommended by the common Pharmacologists as an Absorbent, and Conglutinator of broken Bones; whence it has its Name. Taken out of still the same Rivulet.

f. 6. A Land-Snail, incrusted over with a pretty hard fine Stoney Matter, mix'd with Spar. Found in that which is called the Petrifying Spring, near Maidwell, Northamptonshire. I have had several like Incrustations from the same Spring.

f. 7. Bits of Sand-Stone, Sticks, and other Bodies, incrusted over, and cemented together with a slight Stoney Matter with Spar. Found in the Head of a Spring in Chedworth Town, four Miles from Cirencester, Gloucestershire.

**Part II.**

*Simple Spars found in the Fissures of the Solid Strata.*

f. 9. Fine white Spar in Veins or Fissures of Coal; from Measham, Leicestershire. Conf. f. 108. infra.

f. 10, 11, 12, 13. Plates of a grey Spar, found in the Veins or Fissures of Canal-Coal, at Haigh, Lancashire.

f. 16. A translucent green Spar. From a Fissure of the Strata of Stone, in the Copper-Mines, Croftill, Cumberland.


f. 17*. Another like Spar, very ponderous. Found in the Pits of Fullers-Earth, near Rygate, Surrey.

f. 18. White Spar, from Charter-House Liberty, Mendip; found in the perpendicular Fissures, both with the Lead, and alone. The Physicians thereabouts call it Lapis Lazuli Saturni; and use it for the Stone in White-Wine, Diss. 95.

f. 19. White Spar. From a perpendicular Fissure in the great Limestone-Pit, Dudley, Staffordshire.

f. 20. Spar, white, with a Cast of brown. Wooly-Hole, near Wells, Somersetshire.

f. 21. Spar, almost as pellucid as Crystal. Out of a Lead-Mine at in Cumberland. Here, and in Yorkshire, they use this fine and clean Spar, powder'd, in the Cholick; as also in Nephritic Cafes, taken in White-Wine.


f. 25. Another Sample more transparent and crystalline. From the same Lead-Mine, I take this to be the Selenites of Dr. Scheuchzer, Geogr. Phys. and of some of the German Minerals.

f. 28, 29. Two Pieces of a pellucid Spar, lineated with black in such manner, as to shew the Order and Succession of the Matter in the Formation of the Mass. From a Lead-Mine, near Haddon, Derbyshire.

f. 29*. White Spar, breaking in Plates. Out of a Lead- Vein in Newlands, Cumberland.

f. 29†. Like Spar, but more shattery, and the Plates more apt to part. Out of another Lead-Mine, Cumberland.

**Part III.**

*Spar form'd into Plates.*

**Sect. I.**

Plates of Spar, plain, incrust'd on Stone on the Sides of the perpendicular Fissures.

f. 30. A thin flat Plate or Crust of brown Spar. From Bowtell Coalery, Newcaslæ. It was twelve times as broad: and thus thin
thin throughout. It consists indeed of two Plates of Spar, a browner and whiter, successively apply'd; and striated a-crofs.

'Tis common to find Spar of this Constitution, spread over great Tracts of Stone in the Sides of Fissures in Quarries and Mines.


f. 32. A whitish brown Sparry Crust, striated a-crofs, consisting of several thin Incrustations, and shewing the successive Application of each to other in the Formation of the Body, by Water running down the Side of a Fissure of Stone, on which this Crust was form'd and affix'd, in Llany Monach-Cave, near Oswestry in Shropshire.

f. 34, 35. Two Pieces of Spar, composed of several Crusts variously apply'd to each other. Sherborn, Gloucestershire.

f. 35 †. White Spar, form'd into thin Plates, placed in very various manners, so that they intersect one another, and make Cells of different Forms and Capacities. The Cells have been fill'd with pale brown Earth, part of which is still remaining in them. From a Quarry near Caple Tar, Devonshire. This fine Earthy Matter, coming forth of the Strata with the Spar, concurr'd to the forming the common Mas's; but the earthy Corpuscles not being capable of concreting and consolidating, as the Spar did, remain'd loose: and when dry, was like a fine Powder, and easily diffipated. There was a great deal of this Sparry Matter, with the Cells thus fill'd with this Earth, in this Fissure.

f. 35*. Like Spar. Uppingham, Rutlandshire.

f. 36. A whithf Sparry Crust, with semi-lunar Processes on the Surface of it, owing their Form to the dribling of the Water that pass'd over it. The Convex of the Arches of these Processes hung downwards. From a Quarry near Turk-Dean, Gloucestershire.

f. 36*. Spar, flat: with a Coat of Yellow; consisting of numerous thin Incrustations successively cast, by Water, each on other, very much like the Spar that composes the Septa or Partitions of the Ludus Helmontij that is found in Sheppey Island. Harwich-Cliff.

PART III. Sect. II.

Plates of Spar, with Tubera and Efflorescences upon them, incrusted on the Sides of the perpendicular Fissures of the Strata of Stone.

f. 36 †. A large Knob, arising from a Plate of Spar, incrust'd on the Side of a perpendicular Fissure in Tanworth Quarry, Gloucestershire.

f. 36*. Two large oblong Tubera, arising from a Plate of Spar, incrust'd on the Side of a Fissure of Stone in Rancomb-Park, Gloucestershire.


f. 39, 40. Yellowish Efflorescent Sparry Incrustations on Stone, on the Side of a perpendicular Fissure of a Quarry near *Tanworth, Gloucestershire.*

f. 41. A Body consisting of *Spar,* with some *Lac Lune,* found frequently in these Quarries, incorporated with it. 'Tis finely im-bellish'd with Tubercles and Efflorescencies. Out of a Fissure of a Quarry near *Norleach, Gloucestershire.*

f. 42. Another, not much different. Out of a Fissure of a neighbouring Quarry.

f. 42*. A ramole Efflorescence, of a fine white *Spar,* found hanging from a Cufft of like *Spar,* at the top of an old wrought Cavern in one of Mr. *Batburst's* Lead-Mines on *Molderside-Hill,* in *Arkendale, Yorkshire.* There was Water, trickling down thence, by means whereof this was form'd. Its Formation must have been recent, and since that Cavern was made.

f. 42 †. A Tuberous Efflorescence, of a fine white *Spar,* found adhering to a Cufft of like *Spar,* on the Side of a Fissure in a Lead-Mine, at • • • • • in *Cumberland.*

f. 43, 44. Two white Sparry Incrustations, with Efflorescencies, in Form of Shrubs upon each, form'd by the trickling of Water in the Fissure of a Stratum of Stone, to the Sides of which they, with many more of the like, adher'd. Out of the same Quarry with the lat.

f. 45. Another, very thick set with Sparry Efflorescencies. The same was continued over the Side of a Fissure, to the Extent of 3 or 4 Foot. *Tanworth-Quarry, Gloucestershire.*

f. 46. Another, with like Efflorescencies. This is extremely light, and is compos'd chiefly of that Matter which Dr. *Plot,* and some other Naturalists, call *Lac Lune,* incorporated with a little *Spar.* Found in a Fissure of a Quarry on the Weft-Side of *Oundle,* a quarter of a Mile from the Town. *Northamptonshire.*

f. 50. A brown Sparry Effloresence, near Sir *Christopher Musgrave's House by Kirkby-Steven, Welfordland.*

f. 52. Very luxuriant Efflorescencies of a brown *Spar,* made by Water, at the foot of a Hill under a Hollow of an old Ash in *Maidwell-Dale, Northamptonshire.*

f. 53. From *Knaresborow, Yorkshire.* Out of that call'd the Pe-trifying Spring there.

f. 53*. A Piece of the Stoney Accretion on the Walls of Bath, mention'd by Dr. *Guidot, de Thermis Britan.* p. 165. In several Parts of the City-Walls of Bath, in a Garden on the South-West Side of the Town, are Stoney Accretions, and some pretty hard. They increase and are inlarg'd daily: and consist only of the arenaceous Matter that is beat down by the Weather from the upper Stones; which, falling upon the lower, is concreted and affixed upon them, by means of the interposing of a little Sparry Matter that drains out of the upper Stones: or rather, out of the Earth on the Side of the Walls; which is several Foot higher than that on the
the Outside in the Garden. Where the Stones in the Wall, above, are not fretted, and the Sand beat off, these Accretions are no where found. Nor are they every where found, where the Sand is beat off above: but only where there are Jets in the Stone, for the falling Sand to settle upon, or where the Wall bulges out to receive it. And 'tis observable, that the largest Accretion is at a kind of Angle of the Wall, which is much expos'd and worn by the Weather, and where there is a Bulge near the Ground. I show'd this to Dr. Guidot, and he aslants to these Conjectures about the Formation of these Accretions.

**PART IV.**

**Stalactite**, or Spar, form'd by the dropping of Water, in Fissures, and subterraneous Caverns, into the Shape of Icicles.

f.55. Part of a Stalactites of a Cylindric Shape, and about an Inch in Diameter; having adhering to it a Piece of the Stone from whence it hung in the Fissure of a Quarry at Windrush, Gloucestershire. 'Tis fiftulous, having a Foramen at the Axis for the whole length of it. 'Tis striated from the Surface to the Foramen: and is compos'd of many thin cylindric Cysts, induced each on other successively, by the Fall of Water, bringing Spar with it out of the Strata.

f.56. A Stalactites. King's-Weston, Gloucestershire. This was near two Foot long: of much the fame Constitution with the former; but not fiftulous.

f.57. A Stalactites. From a Lead-Mine, at Hopton in the Peak, Derbyshire. This is of a fine white Spar, has a Fistula at the Axis, to which the Striae tend, and which the Cysts surround: and is much of the Shape of the Belemnites fusiformis; but larger, being a Foot in length.

f.58. A Stalactites, of like Spar, but smaller, and not fiftulous; having adhering to it part of the Stone, of the Side of the Fissure, from whence it hung during its Formation. From the same Lead-Mine, at Hopton.

f.59. Another, of like Spar. This has a Fistula, not at its Axis, but to one Side; to which all the Striae tend. From the same Lead-Mine.

f.61, 62. Two fine slender Stalactite, found hanging down from a black Stone, at the top of an old desertted Vault, in Benwell Coalery, Newcastle. They were form'd since the Vault was made, and are a Proof that these Stalactite are form'd to this day.

f.63, 64. Two very light, thin, fiftulous Stalactite, found hanging down amongst others, in great number, from the Top of a Brick Vault, between the Gardens at Cliveden-House, near Maidenhead, Bucks. These afford another incontestible Proof of the present Growth of the Stalactite.
Appendix.

Stalagmites, Drop-Stones, or Spar form'd into small roundish Masses.

A. White Sparry Stalagmite. Wookey-Hole, near Wells, Somersetshire. They lay on the Floor, but seem to have been Efflorescencies fallen down from the Sides of this Grotto.


Class VI. Part V.

Crystals, and Crystalliz'd Spurs.

Section 1. Spurs crystalliz'd in an irregular manner.

A. White Spar, semipellucid, consisting of flatish Pieces, set edgeway each by other. There was a great Quantity of this Spar, about 6 Foot deep, in a Quarry near Pickering, Yorkshire.

B. Like Spar, but the Pieces less. From a Stone-Pit near Quendie, Northamptonshire.

C. Like Spar, out of a perpendicular Fissure of a Lead-Mine, Arkendale, Yorkshire.

D. White Spar shot into small Columns, Wookey-Hole, near Wells, Somersetshire.

E. Like Spar, but with a Cast of yellow, and Sparks of Lead-Ore. From a Lead-Vein, Newlands, Cumberland.

F. Spar, brown, columnar, in three Orders or Crusts, one on another. From the Marble Quarry at Caddown, near Plymouth.
I.  

Ironi infra. A part which with

f. 76 f. Spar, columnar, yellow, with part of the Stone, of the side of the Fissure, whereon it concreted, adhering to it. From Hartly Lead-Mines, Westmorland. This sort is not near so frequent here as the cubic is.

f. 76 X. A white, opake, cauky Spar, shot or pointed. Hinxton, Cornwall.

f. 76 f. White columnar Spar. Out of a Stone-Pit near Sherborn, Gloucestershire.

f. 77. White Spar, found in the Fissure of a Quarry near Stroud, Gloucestershire. The Shoots arising from each side of the Fissure, obliquely, met and united in the middle.

f. 78. Out of a Quarry near Sherborn, Gloucestershire. There's part of the Stone of the side of the Fissure, whereon it concreted: There are in this Stone numerous Fragments of Shells, and Pellicles of the Ova of Fishes. The Shoots of the Spar seem to be trigonal: and if so, this belongs to Sect. 3. infra.

f. 81. Spar, irregularly crystalliz'd in small Sparks: and call'd Croyl-Stone. From Worksworth in the Peak, Derbyshire.

f. 82. Spar, from the side of a Fissure, shot into round Tubercles; somewhat larger than Peas, with their Surfaces set all over with small Crystals. Portland great Quarry.

f. 83. Spar, part shot into very small Crystals: part into Tubera and Efflorefcencies in a very uncommon manner; struck off the Top of an antiently wrought Cavern of a Lead-Mine, of Mr. Bathurst, on Molderside-Hill. Arkendale, Richmondshire.

CLASS VI. PART V.  

SECT. II. Spars, and Crystals shot into a Cubic Form.

Androdamas * Plinij.

f. 87. Crystal, shot into Cubes, about of an Inch in Diameter. They are transparent, excepting a Cast of Yellow that appears in all of them. They were found concreted together in great numbers on the side of a perpendicular Fissure in a Lead-Mine, near Kirby-Stephen, Westmorland.

f. 88. Two larger Cubes, with others less. From the Lead-Mines of Sir Chr. Musgrave, at Hartly Castle, Westmorland.

f. 90. Two Clusters of Crystalline Cubes. Also four single Cubes; from the same Mine.


f. 91. Cubic Spar, with a Cast of Purple: and some Grains of a yellow fulphurous Marcasite. From the Lead-Mine at Nent-Head in Cumberland. These Cubes have probably, with the Lead,

* "Androdamas Argenti Nitorem habet, ut Adamas, quadrata, semperq; Tessellis similis." Plin. L. 37. c. 10. P. 740; which
which determined the Crystal to shoot into Cubic Figures, an infinitely small Admixture of Iron, to which the purple Hue is owing.


f. 92 †. Several Cubes of an Amethystine Hue, crystalliz'd confusedly together. From the Lead-Mines of Crossfell, Cumberland. Out of a Lead-Vein: and there are Masses of Lead-Ore, in the part, whereon these Cubes are crystalliz'd.

f. 93. Several small Cubes, very fine, ting'd with a slight Purple. From a Vein of Iron-Ore in the Skrees, Cumberland.

f. 93 †. Small Cubes, very fine, some ting'd Green. From a Vein of Copper-Ore in the Skrees Mountain, Cumberland.

C L A S S VI. P A R T V.

Sect. 3. Trigonal, Pyramidal, Tally Spars.

f. 94. Spar of a yellow Hue, shot into numerous trigonal point-ed Shoots of various Sizes; found growing to one side of a perpendicular Fissure of a Stratum of Freestone in digging, for laying a Foundation for Sir F. Guise's House at Randcomb, Gloucestershire. On one side of this appear several trigonal Surfaces, which perhaps are the Bafes of the trigonal Shoots. This sort is also found in Swizzerland: Dr. Scheuchzer calls it Flos Crystallinus trigonius. Specim. Lithogr. Helvet. p. 29.

f. 95. Lesser trigonal Shoots of a yellow Spar. Out of the great Quarry in Portland.

f. 96. Others, not quite so yellow. Fairford, Gloucestershire.

C L A S S VI. P A R T V.

Sect. 4. Hexagonal Pyramidal Spars, and Crystals.

Art. 1. Those which are white or diaphanous.

f. 97. Hexagonal Sprigs or Shoots of Crystal of various Sizes; some clear, others a little foam'd, with an Accretion of Tin, rising out of a white Spar, which was affix'd on the side of the Stone in a perpendicular Fissure, in Carrack-Gloofe Tin-Mine, Cornwall. They grew on the sides of the Load of Spar, which stands parallel to that of Tin-Ore. They are commonly found in great Numbers in Caverns of the Spar. The People there call them Cornish Diamonds. There is much Water in the Load of Spar and Ore. This Hexangular, is the natural Figure of Crystal. When it assinates any other, that is owing to the admixture of some adventitious mineral or metallic Matter concreted with it.

f. 98. A single Column, or Shoot, very large, being three Inches in Length; and 1 and ½ in Diameter near the Base. From the same Fissure.
f. 99. Five others, not so large; but, excepting the Soil on the Surface, most of them near as transparent as the Alpine Crystal. From the same Fissure.

f. 100. Part of a large hexagonal Sprig, with Bodies in it, black, slender, round, and very much like Hairs. Hinxton, Cornwall. These Bodies are, doubtless, compos'd of Tin, which assumes that black Colour when crystalliz'd.

f. 100x. Part of another, broke so as to shew the internal Constitution of it, which is much like that of the Marcasite, i. 44. infra. From the same Tin-Mine as the precedent.

f. 100†. Several Sprigs of Crystal, of different Sizes, from a perpendicular Fissure in Carrack-Glose Tin-Mine, Cornwall.

f. 100*. Others, more transparent, than those found in the Tin-Veins; from Tindagial, Cornwall. These were found with Spar, in a perpendicular Fissure, in the Slate Quarry at Denny-Bowl, Cornwall.

f. 100++. Two Crystal Sprigs or Columns, and part of two others, crossing one another at diverse Angles. During the Time of their Formation part of the Matter, which compos'd each, being within the Verge of the Matter of the other, the Columns were incorporated with, and lock'd into each other. The like Accident is observable in some of those, f. 97. & f. 100†. From a perpendicular Fissure in Carrack-Glose Tin-Mine, Cornwall.


f. 102. An hexagonal crystalline Shoot, with black Lines in it. From St. Vincent's Rock. Being broke, in one Part, it shews somewhat of the Texture of the Stone, and the manner of its Concretion.

f. 103. Three Shoots, out of a Fissure in St. Vincent's-Rock, Bristoll.

f. 104. A Mafs with large Pyramids. From a Lead-Mine, at Caskbourn, Cumberland.

f. 106. Found on the Wafts, between Alston-Moor, and Galmesby, Cumberland.

f. 108, 109. Spar, on Coal, finely crystalliz'd. From Earrington Coal-Pits, Somersetshire. In some of the Crystals there appears a fine black Matter, probably some fine Parts of the Coal, incorporated with the Crystaline.

f. 112. Spar, crystalliz'd, with part of the Stone whereon it concreted, on the side of a Fissure, in a Quarry, near Cheltenham, Gloucestershire.

f. 113. Hexagonal crystalline Shoots, small, but very sparkling. Out of the Fissure of a Quarry by Keynsham, Somersetshire.


f. 114x. Hexagonal crystalline Shoots, with part of the Stone, of the side of the Fissure whereon they grew, near Bangor. Sent me by the Lord Bishop of that Diocese. f. 114†.
f. 114†. Found in a Vein, along with the Iron-Ore. o. 90. in the Skrees, Cumberland.

f. 114*. In a Fissure of a naked Rock, Newlands, Cumberland.

f. 114++. A Shoot of Spar, hexagonal; with hexagonal Lines, one within another, at the Basis where 'twas parted from the Rock to which it grew; shewing the Order and Manner of the successive Application of the constituent Matter of every side of the Body at the same time, in its Formation. Found near the River Palmer, Cornwall.

CLASS VI. PART V.

Sect. IV.

Art. 2. Hexagonal Pyramidal Crystals, and Spurs colour'd, Yellow, Red, Purple, Black.


f. 117. Others, with a Cast of Red, and in some Parts black, concreted on a Crust of Iron-Ore. From a Fissure in St. Vincent's Rock, by Bristol.

f. 118. Others, with some of the Crystals Red, others Amethystine; concreted on a Crust of Iron-Ore, growing on the side of a perpendicular Fissure in St. Vincent's Rock, Bristol. Those different Colours are owing to the different Proportions of ferrous Corpuscles uniting with the Crystalline in the Concretion.

f. 119. Others, white, transparent; but some of them with a very slight Tincture of Purple. From —— in Cumberland.

CLASS VI. PART V.

Sect. 5. Pyramids, some diaphanous, others colour'd, Hexagonal, joint'd Base towards Base, by the Interposition of an hexagonal Column, adhering to Sand-Stone.

f. 120, 121. In these two the Crystals are very clear, and diaphanous, from an Iron-Vein or Fissure, in St. Vincent's Rock, Bristol.

f. 123, 124. Two others, the Crystals little different from the preceding; out of an Iron-Vein, at Stainton, in Fournesy.

f. 126. Another, with Iron-Ore adhering to it. Out of the same Vein. Some of these are ting'd red, by Iron Particles, concreted with the Crystalline, in the Formation of the Stone.

f. 127. Another, out of an Iron-Vein in St. Vincent's Rock; Bristol. The Crystals in this are of a fine deep black Water.

f. 128. Another, the Crystals small, but very brilliant and fair; some of them white and pellucid, but much the greater number of
of a bright yellow; form'd on Iron-Ore. But the yellow Tincture, being owing to Lead, shews Particles of this Metal had incorporated with the Crystalline. Nor can that be thought strange in a Country where Lead-Ore is so frequent and obvious.

f. x 128. Another, found in a perpendicular Fissure of a Stratum of Stone in Langron Iron-Mine, Cumberland.

CLASS VI. PART VI.

Spars, and Crystals, found loose, independent, and in Form of Nodules.

SECT. 1. Hexagonal sparry and crystalline Pyramids join'd Base towards Base by the Intervention of an Hexagonal Column, not adhering to any other Body, and without, what the Lapidaries call, a Root.

ARTICLE I.

Those that are single, and apart.

f. 129. Seven of these Bodies single, diaphanous, white, purple, red and black. All found about Kings-Weston, Gloucestershire. Vid. variarum Iridum Icones ap. Aldrov. Mus. p. 941. & 942. &c, inter ceteras, Iridis nigre, in Agro Senensi nata. Conf. p. 939.

ARTICLE 2.

Those that are join'd, several in one Nodule.

f. 130. Many, join'd in a very fair Cluster, very bright and pellucid, King's Weston, Gloucestershire.

f. 131. 132. 133. Three Clusters, King-Weston. These have a Cast of Red.

SECT. 2. Echinated Crystalline and Sparry Balls:

PREFACE.

There are sometimes found in the Chalk-Pits of Kent and Surrey Pyrites thus echinated. See the 2d Addition of Native English Fossils. No 1. & seq. Vid. etiam Pyritem ærosum subrotundum echinatum. Joh. Bauhini de Fonte Bollenii, l. 4. p. 53.

f. 134. A Body of an orbicular Shape, thick set round, on all Parts of its Surface, with crystalline hexagonal Pyramids, Kings-Weston, Gloucestershire.

f. 135. Another, somewhat larger. Ibid.

f. 136. Another, scarce half so big. Ibid.

f. 137. Another. Ibid.
f. 139. Another, found on Plough'd Lands, upon Cotswold Hills near Rancamb, Gloucestershire.
f. 141. Part of a large Cube of purple Spar, cover'd with a Crust of white, semipellucid, crystalliz'd Spar. From Cashbourn Lead-Mines, Cumberland.
f. 141*. Part of a lefs Cube, ting'd with yellow, and cover'd with a Crust of crystalliz'd Spar, very bright and sparkling: found in a Fissure among the Ore in that they call the Silver-Mine at Beer-Alston, Devonshire.

**SECT. 3. Concave crystallin Balls: or Nodules with Spar and Crystal within them.**

**PREFACE.**

Alonfo Barba of Metals, l. i. c. 15. mentions a sort of Stone in Paraguay and Buenos Ayres, lying 2 Fathom deep, which they call Coco's, because resembling the Coco-Nut. They are hard, heavy, and about as big as a Man's Head. On the Inside of them grow Amethysts. These Coco-Stones seem to be of the same Sort with those of this Section.

f. 142. An orbicular Body, consisting of a ruddy sparkling Spar, full of large Pores. 'Tis of about the bigness of a Wallnut. From Flatholms, an Island in the River Severn.
f. 143. A Piece of a much larger. From the same Place.
f. 144. A Piece of another, consisting of an outer Crust of ruddy talky Spar, and of blue, talky, foliaceous Spar, within. From Barry, on the West side of Severn, in Glamorganshire. There is a larger one of this kind upon the Top of the Cabinet. Copper concreting with Spar, and Crystal, imparts a blue to them. Of this there are Infancies in the Veins of Copper-Ore.

f. 145. A Nodule, orbicular, near 3 Inches in Diameter, concave, the Crust without ferruginous, within Sparry, with a Coat of red, of an Inch in Diameter, the inside lined with a crystalliz'd sparkling Spar. Found in a red Earth, in which was a Mixture of Iron, at Abson in Gloucestershire, not far from Bath.

f. 146. A Segment of a much larger, the Crust of a rust-like ferruginous Hue; the inside thickset with large hexagonal crystalline Pyramids. There are several more of these upon the Cabinet. They are found of all Sizes to the Bigness of a Horse's-Head, in Clack-Mill-Field, at King's-Wesfon, Gloucestershire; two Foot deep in the Earth, over loose rubble Stones.

f. 147. 148, &c. to 176, inclusively, are Parts of like concave Nodules or Crystals broke out of them, to shew the various Crystallizations, the various Colours, and Sizes of the Crystals. All from the same Place.
f. 176. Spar, shot upon the Stone at the side of a perpendicular Fissure, 60 Foot deep, in Warren's Works, St. Nyots, Cornwall. The Root or Part that was next the Stone is white: the Tips of the Shoots all of an Amethystine Hue.

f. 177. A Topaz, or Shoot out of a Ball like the foregoing, cut and set into a Ring. Kings-Weslon, Gloucestershire.

f. 177*. Another Topaz. Out of a like Stone. From the same Place.

f. 178. Four Stones, cut and polish'd, out of a concave Ball from the same Place. They are of the Colour of the Amethyst.

f. 179. A Stone, crystalline, deep, and with a pretty good Water. It has a fine soft Amethystine Tincture; but not equal, and alike throughout. 'Tis cut and set in a gold Ring. Out of a like concave Ball. Ibid.

CLASS VI. PART VII.

Spar of a strigated or ridged Form. Spar shot into the Shape of Erica or Heath.

Flour Strigatus.
Flour Erica-formis.

f. 181. This was Part of a Mass of the Bigness of a Man's Head, and most of the Shoots were thus large. This and the 6 following were found amongst various other sorts of Spar, in a large Vein of Lead-Ore, about 30 Fathom deep, in one of Mr. Bathurst's Mines in Arkendale, Yorkshire. I never saw any of either the strigated or Erica-form, in any other Place. 'Tis heavy as indeed all the rest are, and doubtless hold one of the white Metals, Lead, Tin or Silver.

f. 182. Ibid.

f. 183. There are some Sparks of Lead-Ore adhering to the Root of this. Ibid.

f. 184. Ibid.

f. 185. In this the strigated Spar is form'd upon the Tops of the Erica-formis; of which I saw several other Instances from this Mine.

f. 186. Fluor Erica-formis. Ibid. This also is ponderous, and doubtless has Lead, or some other white Metals incorporated with it.

f. 187. Fluor Erica-formis, ponderous as the precedent. Ibid.

Appendix to Class VI.

Vein-Stones, or Bodies consisting of Spar, earthy Stones, or other Matter ever of fine Constitution, found lodged in the Veins, or Perpendicular Fissures of the Strata along with the Ores of Metals and Minerals.

M 2
Of Earths, Umbres and Ochres, found in the Metallic Veins. vid Clas 1.


Vein-Stones.


4 f. 2. A stoney Mass, grey, with a Cast of purple; having in it Spar purple and grey, Specks of a black Mineral, and some small Sparks of Lead-Ore. Out of a Fissure of the Lead-Mines of . . . . . in Derbyshire, where 'tis called Toftan.

4 f. 3. A dusky, grey, stoney Mass, smooth and fine, much like the Shiver of the North. Found in the same Fissure with i. 40. near Buttermere in Cumberland.

4 f. 4. A stoney Mass, of a deep brown Colour, with a Cast of red. Found in a small Fissure, which is a String of the grand Vein in which the Wadd lies, in Borrowdale, Cumberland. The Place out of which this was taken was at the Distance of about 20 Foot from that Vein.

4 f. 5. A Body porous and stringy, black with a Cast of red. 'Tis more ponderous, seeming to have something of Iron in it; otherwise, as to its Constitution, it exactly resembles the white Pumice found on the Top of Pico Teneriffe, being porous, and fibrous, and the Fibres woven with each other in the manner of that. From . . . . . in Cornwall.

4 f. 6. Another, of a pale rust Colour, with the Surface tuberous and uneven, porous and very light. Found in a perpendicular Fissure in a Quarry near Lanceglos, Cornwall.

4 f. 7. A Pumice, black, light and porous, found in the same perpendicular Fissure with the precedent. This sort is frequently found at the Top of the Veins or Loads of Tin in Cornwall. It looks exactly like a Cynder or Scoria that has paied the Fire: and on one Side it has upon it a Crust that appears as if 'twas vitrified. It very much resembles the black Pumice found in the Island of Teneriffe.

4 f. 8. A Mass, partly stoney and partly caukey, of a pale brown Colour. There is a Thread of Led-Ore runs through one part of it. Out of the same Vein in which the Shot-Lead-Ore, No 120. infra was found in Arkendale.

4 f. 9. Another, part stoney, white, with Spots of black, part of white Spar. Out of a String, or small Fissure, of the Skrees, Cumberland. This has the Appearance of a Marble.

4 f. 10.
CLASS VII.

Bituminous Fossils.

PART I.

Those that are of a more lax and coarse Constitution, and yield a groisser or pitchy Matter when heated. 1. Lapis Piceus, or Pitch-Stone. 2. Lapis Ampelites, Obidianus, or Canel. 3. Lithonthrax, or Coal.

PART II.

Those that are of a more dense, and fine Constitution, and yield an Oil.


CLASS VII.

Bituminous Fossils.

PART I.

Those that are of a more lax and coarse Constitution, and yield a groisser or pitchy Matter when heated. Lapis Piceus, or Pitch-Stone. Lapis Ampelites, Obidianus, or Canel. Lithonthrax, or Coal.

g. 1. Lapis Piceus, the Pitch-Stone; found near Bentel in Shropshire. Of this Stone, with the Method of extracting the Pitch forth of it, see Obs. relating to the Nat. Hist. of Minerals, p. 1. This I broke off a large Piece, that was flat, 3 Inches thick, and appear'd to have been part of a Stratum. Conf. r. 6, & 7. infra.

g. 2. A Bituminous Plate, compos'd of Crufts, alternately yellow and black, form'd by Water driveling and incrusting on the outside of the Gin-Pump of Mosyn Coal-pits. Flintshire.

g. 10. Coal, very black, fine and hard, so as to take a pretty good Polish. This is the Ampelites of the Shops, the Lapis Obidianus of some late Writers, and is called Canal Coal at Haigh in M 3.
Lancashire, where this was got. There are, in some small Fissures of it, thin Plates of a greyish Spar.

g. 15. Coal, from Benwell near Newcastle upon Tyne. There are in it Flakes of a shining, yellow, sulphurous Marcasit.†

The chief Ingredients of Coal are an Ochre and Bitumen. Conf. a. 77. supra g. & 20. infra.

g. 16. A brown gritty Stone, with small Spangles of a white silvery Talc in it. From Branfly-Brow near Whitehaven. There are in the Cliff out of which this was taken several Layers of Coal and Stone of this sort lying alternately; and I observed a Termination of a Seam, as they call it in the North, or a Stratum of Coal, where it divided into several thin Plates, the Measure of the Aggregate of all which amounted to the whole thickness of the said Stratum. They pass'd on thus for about 7 or 8 Yards where most of them (for some broke off short, and did not pass quite through) run again into a Stratum of Coal of like Substance and the same thickness with the former. This Piece shows some thin Plates of the Coal in it, and I have underneath given a slight Adumbration or Sketch of the Thing as it was in the Cliff.

g. 17. Coal, shatter'd and thick set with Veins of white Spar. From a Coal-pit at ...... near Newcastle. See Samples of Coal from Farrington Pits, Somersetshire, with Veins of Spar, and Spar shot into Crystals, f. 108, & f. 109. supra.

CLASS VII. PART II.

Those that are of a more dense and fine Constitution, and yield an Oil.

Sect. I. Gagates, Jere.

g. 30. A Piece of Jet, very fine and black, with Impressions of Ammonits upon it. ‖ From Whitby, Yorkshire. This Body Pliny describes under the Name of Gagates, l. 26. c. 19. and perhaps again l. 27. c. 10. under the Name of Gemma Samothracia. "Samothracia insula ejusdem nominis gemmam dat nigram, acfine

† Sulphur is very frequent in Coal, that Fossil ever containing Bitumen, which is an Ingredient of Sulphur.

‖ Upon the outsides of some Pieces I have observed Impressions of small Bivalves.
The Jet about Whitby lies in the Strata of Alum-Stone. They search for it chiefly in the Fronts of the Cliffs, as they are bared and beaten to pieces by the Sea. The Person that gave me this Account had been very inquisitive after it, and indeed had the Monopoly of it for several Years. He had observed it from 1 to 10 Fathom in depth. As to the natural Form of it, 'tis generally flat; some of it round, lessening towards the Edges, so as somewhat to resemble a Millstone: but 'tis most commonly oblong, and lessening on each side towards the Edges, so as to carry some Resemblance of a Rib. This last splits lengthways, having Fibres directing their Course that way, in such manner as to constitute a Grain not unlike that of some Wood. The Jet is found in the Alum-Mines; as also in the very same Cliffs that the Amber is. Conf. g. 47. & seq. 'Tis also, like that, found beat forth by the Sea, and lodg'd upon the Shores. The Jet lies in the Alum-Stone sometimes flatways, sometimes edgeways. I have seen of it that has had a very hard Sparry Matter in it.

I have by me a large Piece of Jet, from Whitby, 3 Inches and a half in thickness. Towards one side it becomes thinner, like g. 31. 'Tis parted into two by a thin Vein or Plate of Vitriol, which squared, being kept in a humid Place, so that the Mafs parted into two. In the Parts next the Vein the Jet split easily into thin Plates, exactly resembling those of Wood, and being of a like Grain and Texture.

g. 31. Jet of the Rib-like kind, Whitby. I have observ'd of this kind in Breadth from 1 Inch to 7, in Thickness in the Middle from 1/10 of an Inch to half a Foot. Nay I have seen four or five Pieces that were 8 or 9 Inches thick. I never saw any above two Foot in Length, but Mr. Jackson assures me, he has traced it for 8 or 9 Foot. It is usually st freight, but some I have seen in-flected like a Rib. The two Edges are usually parallel, and the Body of equal Breadth in all Parts. It is also equally thick in the Middle for the whole Length.

g. 32. A Piece of Jet gradually thinning towards one Edge. Whitby Cliffs.

CLASS VII. PART II.

SECT. 2. Electrum, Succinum, Amber.

EXTRACT.

Amber a Nodule, invested with a Coat, call'd Rock-Amber, g. 47. 48. The Coat being worn off by the Agitation of the Sea, 'tis called washed Amber. g. 47.

† Pyrite & Coaliformes. l. 65.

Amber
Amber digg'd up at Land. g. 45.

found beaten by the Sea out of the Cliffs on the Shores: g. 40. & seq.

The Place where Amber is found.

Sheppey-Island, Kent. g. 40. 41. Clay-Pit, Richmond, Surrey. g. 45.

Coast of Norfolk. g. 42.

Shores of -- - Norfolk. g. 46.

From the Shores near Plimouth. g. 43.

Shores near Whitby, Yorkshire. g. 47. 48. 49. 50.

On the Shores of -- - Yorkshire. g. 44.

Shores near Yarmouth. g. 51.

Amber.

Two small Pieces of clear Amber found on the Shores of the Isle of Sheppey, Kent. g. 40. 41.

Another, somewhat larger, found on the Coast of Norfolk. g. 42.

A small Ball, above half an Inch in Diameter, cut out of a Piece of far or white Amber, and polish'd. Found on the Shores near Plimouth. This is that sort that is chiefly used in Medicine: and the Powers of Succinum prep. Ol. Succini, & Sal succini volat. are sufficiently represented by the common Pharmacologists. g. 43.

An oval Plate, cut out of a Piece of clear Amber, about an Inch long, polish'd. Found on the Shores of -- - in Yorkshire. g. 44.

Two Samples of Amber, brown and foul, found at least 30 Foot deep in the Pit where they dig Clay to make Tiles at Richmond in Surrey. The Workmen call it Rosin. There is in some pieces of it a Salt, that I take to be Vitriol; which starting and shooting, makes the Mass very apt to dissolve, and fall to Pieces, of which I have seen several Instances. Conf. g. 47. infra. One of these Samples being very little broken, and is covered with an exterior Crust, after the manner of all the true Nodules. Exposed to Fire, this sort burns, emits an Oil, and a Smell exactly like that of Amber, but exerts no electric attractive Power, when rubb'd and heated.

A Piece of grey or fat Amber, from the Shores of -- - Norfolk. Mr. Merret. I saw a Piece of fat Amber, found on the Shores near -- - in Kent, that weighed 47 Ounces, and was the most firm and free from Flaws, as well as the most beautiful I ever saw. The finest from Dantzick was much inferior to it. Indeed I have seen several Pieces of Amber found in different Parts of England that much surpassed any I ever saw from Foreign Parts. g. 46. 47.
g. 47. Amber of a deep yellow, near brown; environ'd with a thick Crust of Amber, foul, brown, and very like that g. 45.* This Amber was found at the Foot of a Cliff on the Shores near Whitby, Yorkshire. The Person who gave me this, had been long enquiring into the Nature of this Body; and he is very positive, not only that all Amber is originally lodg'd in the Cliffs and Strata, and beat thence by the Agitation of the Sea, but that it is all, when first beat out, covered with a Crust, after the manner of Flints, and some other Fossils. And all that which is found naked, and uncovered, has had the Crust worn off by the successive Agitation of it upon the Shores by the Sea. This last the People who gather it here, call Wash'd-Amber; as they do the former, or crusted, Rock Amber. Which they find ever near the Cliffs, and but just fresh beat forth, as they do the Wash'd-Amber more remote, and further out upon the Beaches and Shores, where it has been longer expos'd and toss'd about. The same Person assured me he had several Times observed young Flies and Gnats, in Amber that he took up on these and the Scarborough Shores.‡

g. 48. White or fat Amber, covered with a coarse brown Crust. Found in a Cliff on the same Shores.

g. 49. Fat Amber, naked, also from the Shores of Whitby.

g. 50. Amber, very fine and clear, of a reddish-yellow or flame Colour. From Whitby Shores.

g. 51. Amber, of a very bright yellow, with a Cast of red, having in the Body of it several Spangles, of a paler yellow, but wonderfully bright and shining. This was found on the Shores near Yarmouth. 'Tis turn'd and fitted up for the Head of a Cane, and is by much the most beautiful Piece of Amber I ever saw.

* These Masses, compos'd entirely of the coarse crusty Amber, bear some Analogy with those Nodules that are not uncommonly found in the Chalk-Pits of Kent, among the Flints; and are entirely compos'd of the same Matter of which the Crusts of those Flints are compos'd.

‡ The Amber is beat out of the same Cliffs that the Jet is.

Conf. g. 30.
CLASS VIII.

SALTS.

CLASS VIII. PART I.

The common Fossil Salt, which is of the same Nature with the Marine Salt, and the Fossils that contain it.

**g.x.1.2.** Two Pieces of transparent Rock-Salt; one white, the other red. From ——— in Cheshire.

**g.x.3.** A pale brown Earth, with very small Micas in it. It has a saline Taste; and doubtless contains in it a marine Salt. Pigeons are continually picking at it. Thenford, Northamptonshire.

**g.x.4.** A Piece of Stone of a brown Colour, with little Perforations in it. It tastes manifester Salt. Oxendon Gravel-pit, Northamptonshire. Mr. Morton.

CLASS VIII. PART II.

The Fossils that contain Alum.

Of the Method of extracting Alum. Vid. L. Erkern. l. 5. c. 10.

ALUMINOUS FOSSILS.

**g.x.10.11.** Two Pieces of the Clay taken from the Vents of the fired Coal-pits at Fenham, near Newcastle. They are burnt to a Brick-like Substance, and have an aluminous Salt, sticking to them, that was sublimed and brought from beneath, by the Fire that passed forth at those Vents.

**g.x.12.** An aluminous Salt collected from the same Vents.

**g.x.13.** The common Alum-Stone, or Mineral wrought for Alum. ’Tis of a dark grey Colour, having in it numerous small shining Sparks. From the Duke of Buckingham’s Works, near Whitby, Yorkshire.

**g.x.14.** Another, somewhat paler. Ibid.

**g.x.15.** Another, still rather paler. Ibid.

CLASS VIII. PART III.

The Fossils that contain Vitriol.

Properties of Vitriol, administered either internally, or externally. See the Medical Writers.

VITRIOLIC FOSSILS.

g. x 20. Native capillary Vitriol, of a green Colour, amassed into a Nodule about the bigness of a Nutmeg. From the Lead-Mine near Mam-Tor, in the Peak. Sir George Wheeler formerly shewed me some of this sort found, in considerable Quantity, in sinking a Well, in a Common call'd the Road, near Chareing, betwixt Maidstone and Canterbury, in Kent. There were found likewise small Cornua Ammonis in a Stratum of Clay.

g. x 21. Native capillary Vitriol, of a pale brown Colour. From the Coal-pits at North-Eyrlery, Yorkshire. Mr. Fitz-Roberts.

g. x 22. Native capillary Vitriol, part white, and part green; also from a Lead-Mine near Mam-Tor, in the Peak.

g. x 23. Native Vitriol, capillary, part of a green, part of a pale brown Colour. From the Canal Coal-pits near Haigh, Lancashire.

CLASS VIII. PART IV.
The Fossils that contain Nitre.

Of the Method of boiling Earth for Saltpetre, and draining out the Salt. L. Erckern, l. 5. c. 1. & seq.

NITROUS FOSSILS.

g. x 30. A brown, light, porous, friable Stone yielding Nitre. Mr. Jezreel Jones.

g. x 31. Another like Body from ——— in Denbighshire. 'Tis found, in vast Quantities, from five to fifteen Yards deep, for a hundred Yards in length, and near twenty in breadth. It lies to the Day, rake and coarse, i.e. in an Interval betwixt two Rocks; by which is, I suppose, meant a perpendicular Fissure.

CLASS VIII. APPENDIX I.
SULPHUR.

PREFACE.

There is in the Earth a Salt which may fitly be call’d Sal acidum Fossil. This is the Basis of Sulphur, Alum, and Vitriol; the simple Salt, extracted out of any of these three indifferently, is the same; and is capable of constituting either of the other, with the Addition of a small Proportion of a Bituminous, Cretaceous, or Metallic Matter.

Sulphur is produced by only incorporating an oily or bituminous Matter with this Salt. Vid. g. 15. supra.

Alum is produced by joining a cretaceous, or other like earthy Matter with it.
Vitriol, by addition of a metallic Matter. If Iron be made use of, the Vitriol will be green; if Copper, blue.

Appendix II. Arsenic.

g.* 20. A Mineral, white, part in form of Dust, and part in small Masses. It appears to be chiefly Arsenic. 'Twas taken forth of the grand Vein of the Copper-Marcafit in Goldscalf, Cumberland. There was not much of it. What I observed, was sticking upon the Sides of the Vein, brought thither by the Water that drain'd in, and was perpetually dribbling, and dropping off from it.

CLASS IX. Metallico-Salsa.

Part I. Pyritæ.

Preface.

The Pyrites has its Name from τὸ πῦρ; which denotes Fire. For, these Bodies holding Sulphur, such parts of this, as happen to be loos'ned upon striking fire, are immediately kindled, burn, and make an addition to the Spark. Which is the reason that the Pyrites, upon Elision, give fire much more plentifully than Flints, or other like Bodies, that have little or no Sulphur in them, ordinarily do. The Arab Naturalists express this Body in their Language by the Word Marcafit. For distinction sake, I have taken the liberty to call those that are independent, in form of Nodules, and lodg'd in Strata, Pyritæ; and those that are found run in the Veins, or perpendicular Fissures, Marcafits.

Out of the Pyrites found plentifully on the Coasts of Essex, Kent, Sussex, &c. which are beat out of the Cliffs by the Agitation of the Sea, and are as well found in digging accidentally in many of the Inland Parts of those Counties, is drawn that vast Quantity of Vitriol, made use of by Dyers in striking their Colours, by Refiners for making their Menfuræ, and by Surgeons, Apothecaries, and other Artificers. In what Vitriol differs from Alum, I have shewn in its proper place. App. 1. to Cl. 8.

The Pyrites of Kent and Essex, &c. yield, upon Tryal, a small Quantity of Gold and Silver; and some of them a little Copper. As to Iron, I have found some few that have yielded one eighth of that Metal. I could never perceive any Arsenic in the Pyrites; in which they differ from the Marcafits, most of which contain more or less of that Mineral.

Ex-
Names vulgarly given to the Pyritæ. Iron-Stones, h. 33. Fire-Stones, h. 34. Gold-Ore, h. 39. Horse-Gold, h. 4.

A dusky grey Pyrites, cover'd with a Crust, after the manner of other Nodules, h. 36.

Sea-shells in the Pyritæ, h. 35.

Pyritæ moulded in Shells, both turbinated and Bivalves; see the 2d Part of this Catalogue, of the extraneous Fossils.

Pyritæ, found in a Stratum of Chalk, h. 6. 7. 11. 31.

in a Stratum of Earth.

in Shiver, h. 43.

in the midst of a Stratum of Stone, b. 16.

in Gravel, h. 17.

A Pyrites incorporated with a common black Flint, b. 21.

having in its Centre a white semi-pellucid Spar, b. 1.

having its Surface shot into Angular Figures, tending towards Cubes; with some Grains of Lead concreted with it, b. 1.

vid. b. 38. 41.


with Septa, in manner of the Ludus Helmontij, b. 28. 29.

form'd after the manner of the coralloid Astroites, b. 4.

form'd after the manner of the Astroites coralloides undulatus, b. 20. 41.

I found small Pyritæ in form of the common Fungi maritimæ coralloides, on the Coast of Sheppey-Island, Kent, e. 47. 48. supra. But they are since dissolv'd and fallen to pieces.

of a tessellated or cubical Figure, b. 43. 44.

A Pyrites of a faint yellow, green, and blue, as holding some Admixture of Copper, b. 23.

holding Copper, l. 65.

of a yellow, shining, Bras-like Complextion, b. 1. 8.

of an Iron, or Rust-Colour, b. 3. & seq. 12. 23.

brassily, with the Substance uniform, not striated, h. 1.

brassily, striated from the Surface to the Axis, or Centre, b. 8. 11. 21. 30. 31.

consisting of brassily shining Plates that break in Rhombs, b. 45.

PYRITES.

b. 1. A large round Pyrites of a very bright bras-like Appearance, beset with several Tubercles, these and the whole Surface being shot into angular Figures tending towards Cubes. There are several Grains of Lead scatter'd through the Body of it. Within 'tis of a shining greenish Yellow. The Substance uniform, not
not striated. In the very Centre of the Ball is a Lump of white semi-pellucid Spar of the bigness of a Nutmeg. Mr. Flamstead. From - - - - - Derbyshire. ['Tis perish'd, and fallen to pieces; the Salt starting, and getting loose.]

b.2. Another leaf, of a Figure near oval, the Colour not so bright. Found on the Isle of Greans, in the Mouth of the River Thames.

b.2. Another, globular, the Tubera more depress'd, about an Inch in Diameter. ['Tis of a shining Copper-like Composition. Found on the Shores of Thanet-Island.

b.3. Another, the Surface of a Rust-colour, rising into several gross Tubercles. ['Tis of an oblong Figure, and, both in that, and the Bigness, it nearly resembles the Kidney of a grown Calf. Being a little broken in that part, which answers to the Pelvis, it appears within of a shining Brass-like Constitution. Found about 40 foot deep in the great Chalk-pit at Greenbythe, Kent.

b.4. Another, also of a Rust-colour outwardly. ['Tis about 4 Inches long; of a cylindric Figure; but a little crook'd, and somewhat dwelling at each Extreme. At each end of it is a pretty large Cavity, in the middle, surrounded with several smaller, all striated after the manner of the marine and fossil Astrolites and Fungi Coralloidei, from their Centre to their Circumference. Found in a Chalk-pit near Cherry-Hinton; where others of like Figure are frequently met with. The Workmen there call these Bodies Horse-Gold.

b.5. Another, of the same Colour, two Inches long, and of a cylindric Figure. In the middle 'tis somewhat rough, but smoother at each end. At one end, in the very middle, is a small Apophysis, or Stalk; on the other, likewise in the middle, a small Cavity, as if such a one had grown there too, tho' now broke off. From the same Chalk-pit.

b.6. Another, of the same Composition and Figure, but a little thicker and shorter. At each end is a Stalk rising out of a small Cavity. Out of a Chalk-pit by Graveford, Kent.

b.7. Another Pyrites, of the same shape, only a little crook'd; of a dusky Rust-colour. Its Surface is thick set with small angular pointed Shoots. There are Vestigia of the Stalk at one end, tho' it be now wanting. Being broke at the other end, the interior Constitution appears, partly of a rusty, and partly of a brassy Hue. 'Tis not striated. From the before-mention'd Chalk-pit, near Cherry-Hinton, by Cambridge.

b.8. Another Pyrites, little different in any respect from b.5. and 6. Being broken, its interior Constitution appears. 'Tis striated from the Surface towards the Axis of the Cylinder; and of a brassy Colour, with a purple Calf. I do not exactly remember where I found it; but 'twas in some of the Chalk-pits down the River, Thames.

b.9. Another, thicker somewhat than b.6. and little above an Inch long. In other respects, 'tis little different, except that there are
are no Vestigia of Stalks at either end. From the Chalk-Pit near Cherry-Hinton.

b. 10. Another of a globose Shape, and bright russet Colour. 'Tis near two Inches in Diameter. The Surface rises into several round Tubercles pretty large, some of which are striated from the bottoms upwards. Out of a Chalk-Pit beyond Depsford, on the Entry of Black-Heath.

b. 11. Part of another of the same Shape and Bigness. Within 'tis of a brassy Hue, and striated from its Center to the Circumference. From a Chalk-pit, near Croydon, in Surrey.

b. 12. Another of an oval Figure, about an Inch in length. The Surface tuberous, and of a dusky russet Colour. From - - - in Norfolk.

b. 13. Another Pyrites of the same Colour, and tuberous in like manner. 'Tis globular, and near an Inch in Diameter. Found in Oxendon Fields, Northamptonshire. Mr. Morton.

b. 14. Another of near the same Shape and Complexion. The Surface of this is smoother, and finely shot into small angular Figures. Black-Heath, near Woolwich.

b. 15. Another also globular, its Surface very smooth and polite, of a dusky brown Colour near black. Found upon the plough'd Lands in Weekly Fields, Northamptonshire. Mr. Morton.

b. 16. Another of a roundish Form, a little broken. 'Tis throughout of a shining brassy Complexion. 'Twas found in the middle of a Stratum of Stone at Amble-side, Westmorland.

b. 17. Another of the same Constitution and Colour, only not so bright. Weston supra Welland, Northamptonshire. This was found in digging in Gravel.

b. 18. Another of a compress'd Figure, round: its Constitution and Colour like that of the immediately preceding Pyrites.

b. 19. Two small Pyrites, of irregular Figure, and an extreme bright Brass-like Complexion. The Surface shot into angular Figures. Sheppey-Island, Kent.

b. 20. A very curious Pyrites, of a brown Colour, with a flight shining brassy Gloi$. 'Tis near globular, and about an Inch in Diameter. Its Surface rising in an elegant manner into Ridges, undulated, and striated from their bottom to their top, very much like some sorts of the undulated coralline Alstroææ. From the Shores of the Island of Sheppey, near Minster.

b. 21. Part of a Pyrites, striated from the Center to the Circumference, of a greenish brass-like Complexion, adhering to the common black Flint. Sheppey-Island, Kent.

b. 23. Another likewise flat, but larger. Externally 'tis of an Iron-Colour: within a faint green, blue, and yellow, with small brassy Sparks. Found near Weymouth.

b. 24. A Pyrites of a round. compress'd or lenticular Figure, and a dark brown Colour. 'Tis about an Inch in Diameter from Edge to Edge. 'Twas found on the Shores of the Island of Sheppey.
pey: where I have seen several others of like Figure, but generally less.

b. 25. A Pyrites of the same Colour and Shape, placed in the Cavity of another of an hemispheric Figure, in much the same manner as an Acorn in its Cup. From the same Shores.

b. 26. Another of an oblong Shape, about three Inches in Length, and one in Diameter. 'Tis of a ferruginous Colour, with some intermixture of a light brown. Its Surface rises into large Tubercles; and the whole is thick set with small pointed Studs. From the same Shores.

b. 27. A Pyrites of a rust Colour, composed of several Tubera clustered together in an irregular manner. This is less ponderous than these Bodies usually are. From the plough'd Fields of Thorpe-Malfor, Northamptonshire. Mr. Morton.

b. 28. A light brown stone Body, with Veins of a dusky Pyrites running on the Surface and pervading the whole Substance of it, much after the manner of the Septa of the Ludus Helmontij. From the Shores of the Island of Sheppey, Kent.

b. 29. Another like Body, the Veins disposed in a very beautiful and elegant Manner. From the same Shores.

APPENDIX.

b. 30. A Piece of a Pyrites of a pale rust Colour, striated, or rather consisting of Fibres, tending from the Center to the Surface, and being of different Lengths, they render the Surface unequal; the longest joining, form pointed angular Bodies, with which 'tis studded in an elegant manner. Out of a Chalk-pit beyond Greenwich, Kent.

b. 31. A Pyrites of a deeper or redder Rust-colour. This is somewhat bigger than a large Walnut, in Figure near globular, only that its Surface is tuberous and unequal. Part of it being struck off, it appears to be striated within, its Striae tending from the Surface to the Center. Found in a Stratum of Chalk near 100 Foot deep, in the great Chalk-pit at Northfleet, Kent.

b. 32. Another, from the same Pit, less, otherwise not different, except that the Tubera on the Surface are generally angular, terminating in so many Points, and therein much resembling crystalliz'd Bodies. Chalk-pit by Charlton, Kent.

b. 33. Another small one, oblong, and flat. 'Tis of a grey Colour, with a Cast of Green: and thick set with small shining brassy Sparks. Found loose on the Shore near Scarborough Span. The Inhabitants call these Iron-stones.

b. 34. Another about two Inches long, and 1½ over. The Surface not so scabrous as b. 31 & 32. but pretty smooth, though rising in large Knobs. 'Tis of a brown Colour, but darker where 'tis worn: and has in some places Spots of white. Found ¼ of a Mile South of Otlihorn in Yorkshire, where there are call'd Fire-stones.

b. 35.
b. 35. Another of a dusky grey Colour, but in some Places shining and brassy. On the Surface of it is the Impressio of a small Tellina: These and other Shells being here commonly found in these Bodies. It lay 40 Fathom deep, in Bennwell-Coltery, about 2 Miles from Newcastle.

b. 36. A Piece of a round Body. The whole was about three Inches in Diameter. 'Tis of a dark grey Colour, near black, and cover'd all over with a Crust of an Inch thick of a lighter Colour. This Crust is in some Parts, both of its Surface and Mass, thick fet with small Parts of a shining brassy Appearance. Found by Hackness, not far from Scarborough.

b. 37. A Pyrites, flat, having its Surface studded over with small Tubercles. 'Tis of a greenish Colour with a slight brassy Cast. From the Brook at the North End of Welford, Northamptonshire. Mr. Morton.

b. 38. Another of the same Colour, but somewhat more brassy and shining. The Surface rises in almost all parts into small angular Bodies, tending towards a cubical Figure. From Outhorn, Yorkshire.

b. 39. Another, very small, of a grey Colour, with many Parts of a shining brassy Hue. From Spotton-Cliff, Yorkshire. The Inhabitants call this fort Gold-Ore.

b. 40. A large Pyrites, very uncommon, and extraordinary. 'Tis covered with a Crust of a reddish Colour, and about of an Inch thick. 'Tis broken, and its interior Substance appears elegantly variegated with a dark grey and a light brown, of which the former is the Ground, the other appearing partly in Spots and partly in irregular Veins. Each Colour is very distinct. There seems to be something of a resemblance between the Constitution of this Body and d. 10, & 14. In the reddish Crust, and the neighbouring Parts, are several shining brassy Spangles. Found on the Shore near North-Shields, Northumberland.

b. 41. A Pyrites, of a rust Colour, about the bigness of a common Sevil-Orange. Its Surface is very unequal, tuberous, and undulated not unlike the Brainstone, or the Asfroites maritimus Coralloides undulatus of Boccone, Obj. Nat. p. 142. The Undulations are composed of thin Plates set by one another in much the same manner as in those Bodies. Some Part of its Surface is set with small Cubes. Where broken, it appears of a yellow shining Brass-like hue. From Beacon-Hill, in Wiltshire.

b. 42. Another of a darker Colour, near round: and of the bigness of the largest Wall-nuts. Being broken, it appears to be friatted within from the Surface towards the Center: with a white shining Metallick Appearance. This was found, at South-floke, near the River Thames; where they are common, and yield Virtiol.

b. 43. A Pyrites of a rust Colour, cubic, and of an Inch in Diameter. These are found commonly lodg'd in the Beds of Shiver, in Yorkshire, and Cumberland. This was found near Carlisle.
b. 44. Another cubic Pyrites; larger than the former, and of an Iron-Colour. Found near Carlisle, Cumberland.

b. 45. Part of a Pyrites, large, brafly, and shining; consisting of Plates that break into Rhomboid Figures. 'Tis covered over with a Crust, black within, without yellow, with a Cast of Red. Found near the Tin-Mine of Wheal-and-Coats-Luggon, Cornwall.

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CLASS IX. PART II.

Marcasites.

PREFACE.

Of the Marcasite, see the Preface to Class IX. Part I. and to Class XI. Part I.

The Sulphurous Marcasites, and, in particular those call'd in Cornwall, Mundick, all hold Copper, more, or less. When that Metal is in such Quantity as to compensate the Pains and Charge of Working, the Mineralists call it not a Marcasite, but a Copper-Ore; of which there are some Instances in the following Class.

EXTRACT.

1. Of the Colour, and external Appearance of the Marcasites.

A Marcasite, cubic, yellow, shining, call'd by the Cornish Miners Copper-Grains. i. 42.

— Yellow, brafly, call'd in the Peak Brasil-Ore. i. 48.

— Yellow, brafly, call'd by the Tanners of Cornwall, Mundick, and yellow Mundick, i. 15. 46.

— of a whitish or pale yellow, call'd by the Cornish Tinners, white Mundick. i. 22*.

— call'd in Cumberland, Grey-Ore. i. 24.

— of a yellow, glossy, brais-like Hue. i. 1, 9, 31, 36, 48, 52.

— changeable, purple, blue and green. i. 10, 11, 17, 31, 38, 50, 51.

— of a blueish Colour. i. 27, 37.

— of a grey Colour, i. 22*, 23, 24, 25.

2. Of the external Figures of the Marcasite.

A Marcasite shot into a cubic Figure. i. 1, 42.

— shot into Grains. i. 4.

Small Grains of Marcasite, in an hard earthy Matter, grey with a Cast of Green. i. 14, 35, 45.

A Marcasite of a striaged or ridg'd Form. i. 41.

— with botryoid Efflorescencies. i. 38.
3. Of the internal Texture of the Marcasite.

Marcasites, made up of thin Plates, laid one on another. i. 36, 38,
---Fibrous, with a Grain like that of Wood. i. 26.
---of a plumose Texture. i. 57.

4. Of the Origin and Place of the Formation of Marcasites.

Marcasites, are all form'd in perpendicular Fissures. i. 38.
---in Veins in Coal. i. 12, 29.

5. Of the other Fossils incorporated with Marcasites.

Marcasite with black Talc, Mock-Lead, Blende, Galena inanis, or as
the Cornish Tinters call it, Tin-Glas, i. 37, 48, 53, 54, 55.
56. Blende, will neither calcine nor melt; but abides the Fire,
and all the Alkaline Fluxes. i. 56.
Marcasites, having Spar incorporated with them. i. 19, 20, 21, 22,
22*, 29, 31, 35, 37, 38, 45, 48, 50, 53, 56.
---having with them Spar crystalliz'd. i. 35, 57.
A Marcasite with red Crystals. i. 47.
Marcasites, all of them hold more or less of Sulphur. i. 23, 24.
---holding Arsenic. i. 23, 24.
---probably yielding Bismuth. i. 15, 22*, 25.
---with a greenish Æruginous Matter. i. 34, 53.
Mundick yields some Copper. i. 15, 22, 22*. 53.
A Tin Marcasite. i. 49.
Marcasites holding Tin. i. 51, 52.
---holding a little Lead. i. 53.
---with Lead-Ore. i. 47.
---with Iron-Ore. o. 99.
---with Bismuth. i. 15, 16, 17, 23, 24, 25. Conf. i. 54, 55.
---with Selenites. d. 46.
---with Flints.
---with Asbestos † d. 9.
---with Coal, g. 15.

**MA**RCA**SI**TÆ.

i. 1. A cubical Marcasite, the Cube about ⅜ of an Inch in Diameter,
and of a pale yellow Colour, with a metallic Gloss, and appearing
like Bralts. 'Twas found amongst others of like Figure, adhering
to Slate-Stone in its Fissures at Kentmire, near Kendal. This has
the Root or Mark of adhesion to the side of the Fissure, off which
'twas broke. The cubic Pyritæ, being found loose and independ-
dent, have not that Mark. Therein consists the difference. "Py-

N 2 i. 3.
1. 3. A Marcasite, of a bright Brass-like Hue, crystallized in an observable manner, the Angles and Sides irregular. From --- in Cumberland.

1. 4. A Marcasite of a deep yellow Colour, shot in some Parts, into Grains which are confused, and their Figure irregular. Minehead, Somersetshire.

1. 5. Another, much like the former. Minehead, Somersetshire.

1. 6. Another also of like sort, shot upon a soft dusky grey Slate much saturated with Sulphur. From Haigh in Lancashire.

1. 8. Another of like sort from another Pit near Haigh. The Texture of the Grains, and Application of the Plates to one another, very observable.

1. 9. Another, the Shoots of a shining brassy yellow, confused, but very fine, and tending towards a cubic Figure. Blogsfason-Work, Cornwall.

1. 10. Another of like kind, but the Shoots of a changeable Colour, betwixt a purple, blueish and green. Blogsfason-Work, Cornwall.

1. 11. Another, from the same Mine, and of the same sort, only the Colours in this are more vivid.

1. 12. Veins, of Marcasite, pretty thick, and numerous, in a Piece of Canel-Coal, from Haigh, Lancashire.

1. 13. A Marcasite, the Shoots very pure and yellow. From a Coal-Pit near --- in Somersetshire.


1. 15. A Marcasite of a very pale yellow Cast, pretty free from terrestrial Mixture, and by the manner of the Grain seems to hold some small Proportion of Bismuth. Reedamore-Work, Cornwall. This, and the following sorts, are of the same Nature with those now wrought at the Copper-Works, in vast Quantity, with Sea Coal, at Redbrook in Gloucestershire. 'Tis found plentifully, in the perpendicular Figures, all over Cornwall. It yields them from 1 in 14, to 1 in 24. To this, and most other Marcasites, they there give the Name of Mundick.

1. 16. Another, equally fine, but of a much deeper yellow. Cheswater, Cornwall.

1. 17. Another, of the same Colour, with an Intermixture of Purple. Ibid.

1. 18. Another, of a high yellow Colour. From a Copper-Mine at --- in Cumberland.

1. 19. Another, yellow, with a Cast of green, having intermixed with it an equal Proportion of Spar. From --- near Bristol. Mr. Southwell.

1. 20. Another, of like sort, the Marcasite and Spar in near an equal Proportion. Found in sinking a Sough-Pit at Haigh, Lancashire.

1. 21. A Marcasite, of a paler yellow Colour, with an Admixture of white Spar; and, as it seems, of Iron. From a Fissure, some
some of the Stone adhering on each side of the Mals. Out of a Lead-Mine, at Penrose, Cornwall.

i. 22. Another of a pretty deep yellow, with a small Admixture of white Spar, and a hardish grey earthy Matter. From the Duke of Somerset's Works at Goldscaulp, Cumberland. This holds ½ Copper: and was out of the same Vein with l. 62. infra.

i. 22*. Another, grey, with an Appearance very like Bismuth, and probably holding the Mineral. This is what they call white Mundick, in Cornwall. There is white Spar amongst it. It holds some Copper: and lay in the same Vein with the foregoing. Vide i. 25. infra.

i. 23. A grey Marcasite, it consists chiefly of Sulphur, but holds a third Part of Arsenick, and perhaps a very little Copper and Bismuth. From the Duke of Somerset's Works, call'd St. Thomas's Works, near Goldscaulp, Cumberland.

i. 24. Another, very like the foregoing. It consists mainly of Sulphur and Arsenick, and seems to hold a little Bismuth. The Miners call this Grey-Ore. From the Duke of Somerset's Works, at——— Cumberland.

i. 25. Another grey Marcasite, like the two foregoing, only part of it is shot into Grain. From Killesrew-Wood, in Cornwall. It seems also to hold Bismuth. This sort is called there White Mundick.

i. 26. A Marcasite, in Texture resembling the Grain of Wood, and so formed, as if two Pieces of Wood lay one a-cross the other. The Marcasite Grains are of a bright Yellow; but some of the Body is of a Black, the rest of a Brick Colour. Found in sinking a Well, near the Stables on Gogmagog-Hills, near Cambridge.

i. 27. A Marcasite, pretty like that i. 22. supra, only it has a somewhat more blue Cast. Found in sinking a Well at Great Bowden, in Leicestershire; where 'tis found pretty plentifully, in most of the Wells they dig thereabouts.

i. 28. A yellow Marcasite, with a blackish Admixture. From the Copper-Mines of——— Cumberland.

i. 29. A Piece of Coal, with fine white Spar, and a yellow shining Braffy Marcasite intermingled with it. Taken out of a Byke in Sir William Blacket's Coaley, Newcastle.

i. 30. A Marcasite, flat, and equally thick in all parts, as if it had fill'd a Fissure. 'Tis about an Inch in thickness. The two opposite Surfaces are very black; within 'tis grey, with many Sparks of a yellow. From——— on Mendip, in Somersetshire.

i. 31. A Piece of Marcasite, of a deep yellow shining Gold Colour, except some small Parts, which are of a shining Red or Purple, and a little Mixture of white Spar. It seems to hold a very small Proportion of Copper. From Mr. Courtney's new Copper-Mine, in the Parish of Mallard, near South Molton, Devonshire. This is one sort of their Mundick.
i. 33. Another, little different, only not of a yellow quite so deep, with the Spar in greater Proportion, and part of it crys-
talliz'd. From Nancy-keag Downs in Cornwall. Mr. Basset.

i. 34. A Marcasite of the same Colour with the precedent, but
somewhat more bright and shining. On the Surface of it ad-
heres a small Quantity of a green æruginous Matter. From Cor-
bock, Cumberland.

i. 35. A large Marcasite, consisting of Brassý and Sparry Grains,
near equally mix'd in all parts. Sent by the Name of Treleath-
Ore. From Cornwall. Mr. Basset.

i. 36. A Marcasite of a very fine Brassý Hue. It appears to be
made up of thin Plates laid one upon another. The Matter of it
is very pure and free from any Mixture. The Surface is polite.
'Tis angular, as if crystalliz'd. From Benwell-Coalery, Newcastile.

i. 37. Another, with Spots very shining and bright, some blueish,
others of a Copper Colour. Amongst the rest is a white Spar:
and a black glossy Matter like Talc. This sort of Matter is com-
mon in Cornwall: and call'd there Mock-Lead. 'Twill not run in
the Fire with any Alkaline Flux: nor will it calcine, Poldice-Work,
Guinnop, Cornwall.

i. 38. A Marcasite, with white Spar on the Parts that grew to
the Sides of the perpendicular Fissure from which 'twas separated.
The Outside is thick set with botryoid Efflorescencies, or small
Knobs, yellow, blueish, and purple; all of a shining metallic Hue:
and composed of little Flakes or Plates; the whole being a very
observable and beautiful Body. This was part of the Dead's, as
the Tinners call the Part of the Vein that they judge not worth
working. From the Tin-Mine of Wheel-and-Coats-Luggon, Corn-
wall.

i. 39. Another, from a like Fissure: and of a Constitution little
different. From Poldice-Work, in Guinnop, Cornwall. Dr. Coamar.

i. 40. A Vein-Stone, of a dark grey Colour; the Mass thick
set throughout with extremely small cubic brassý Marcasites, out
of a perpendicular Fissure of a Rock by Buttermere, a Lake where
Charrs are taken plentifully, in Cumberland.

i. 41. A Mundick Grain, fine, shining like Brass, half an Inch
in Thickness, and terminating in an Edge like a Wedge; much
like the Spar from the Lead-Mines of Arkendale. f. 181. & seq.
This was sent by the Name of Gold-Ore, from the Gold-Mine of
Mr. Forteshue, at Coppole-Tar, Devonshire.

i. 42. A large cubic Marcasite, with a blueish Stoney Matter ad-
hering to one Part of it. From Vellan-Grease-Work, Cornwall.
The Miners call it Copper-Grains.

i. 43. Mundick Grains of several Sizes, and shot into several Fi-
gures; lodge'd part of them in a blueish grey, and part in a brown
Stone. From the same Work.

i. 44. A Marcasite, very fine, yellow and brassý in one Part;
composed of Plates, breaking with a Grain exactly like the Roch-
Alum
Alum from Italy, in the Catalogue of the Exotic Fossils, p. 183.

From the Copper-Mine at Hinxton, Cornwall.

i. 45. Small Mundick Grains, yellow; thick set in a grey Mass, with a little white Spar. From St. Columb, Cornwall.

i. 46. The common yellow Mundick. From the same Mine.

i. 47. A Marcasite, of a greenish yellow Cape, with some Grains of a Matter very like Lead-Ore: and two small hexagonal pointed Cristallizations, red, and much like Granats. From Cornwall.

i. 48. A Marcasite, of a fine Brass-like shining Appearance, cristalliz'd; with an Admixture of white Spar, and Mock-Lead. This the Miners call Brassile Ore. From Workswood in the Peak. Upon its lying by some time, a very yellow sulphurous Dust proceeds forth of it in several Parts.

i. 49. A Tin-Marcasite of a dusky Colour, near black, with a Cape of green and yellow. Carenbr, Cornwall. Mr. Basset.

i. 50. Another, Part of a brassly shining yellow, Part blueish and purple, with white Spar. Trevafcas, Cornwall. Mr. Basset.

i. 51. Another, little different, only the blue and purple Colours are here more bright and fine. It holds a little Copper, and Tin. Toldice, Cornwall. Mr. Basset.

i. 52. Another Tin-Marcasite, with yellow Mundick, but the greater Part of it of a dusky blue Colour. Relision, Cornwall. Mr. Basset.

i. 53. A Lead-Marcasite, being a mineral Mass, flaky, glossy, and breaking in Angles; much like the Potters Lead-Ore, only 'tis of a Colour more dusky, and tending to black. The Miners call this Mock-Ore, Mock-Lead, Wild-Lead, and Blinde: Agricola, Galena inanis; the German Mineralists, Blende. There are in it Veins of a yellow shining Marcasite; with a little white Spar: and on one side a greenish Æruginous Matter. Upon tryal of a Piece of this Body in the Fire, it yielded a very little Copper, less Lead, and no Tin. The Blende is very oblitinate. Several Attempts have been made with the Alkaline Fluxes to run this, but in vain. Godolphin-Ball, Cornwall.

i. 54. Another like Mass, sent by the Name of Tin-Glafs. Found in a Drift-Work 50 Foot deep, near Caslock, Cornwall.

i. 55. Another, sent also by the Name of Tin-Glafs. Found about 20 Fathoms deep at St. Stephen's, in Branwell, Cornwall.

i. 56. Another Mass of Mock-Lead, very ponderous, black, bright, and shining, with white Spar, but no yellow Marcasite. From a Tin-Mine in Wythyell, Cornwall. There are vast Quantities of this Mineral in several Parts of that County. Many Tryals have been made of it; but it can neither be brought to calcine, nor run in the Fire.

i. 57. A Mass composed alternately of Veins of white cristalliz'd Spar, and a black glossy shining Matter, seeming to be Mock-Lead. The Texture of the Veins of this last is very remarkable; it being composed of two Orders of Fibres, meeting
in an acute Angle in the middle of the Vein, and composing a 
Body not unlike a Feather. Found in a perpendicular Fissure near 
Caudbeck in Cumberland. I have seen, in the Mendip-Mines, Man-
ganese, nearly resembling the black Part of this Mass, incorpora-
ted with the sparry Lead-Ore, as like the white Part of this 
Mass.

CLASS X. 
Metallic Minerals.

Mineral Bodies that approach somewhat the Nature of Metals; and, 
like them, run in the Fire to a Regulus; but not malleable: 
wherein it differs from the Regulus of Metals.

PART I. Antimony.
II. Calamin.
III. Black-Lead.

CLASS X. PART I. Antimony.

This is one of the most powerful Simples of our Dispensatories.

k. i. Ore of Antimony, from ----- in Flintshire. 'Tis found 
near the Day.
k. 2. Another Sample, from ---- in Cornwall. 'Tis not so 
rich as the former. Mr. Kemp.
k. 3. A pretty large Mass of Antimony, crustled over with a 
brown flakey sulphurous Matter, with some Grains of Spar in it.
Barbary-Work, Cornwall.
k. 4. Antimony. part of it in Striae, and Part in Sparks, coated 
all over with a sulphurous Crust of a pale brown Colour. Found 
plentifully 24 Foot deep in a Mine at Howson, in St. Stephen's, 
Cornwall.
k. 5. Part of another, finer, from the same Mine.
k. 6. Antimony-Ore. From St. Austil's Mine, Cornwall. 
Mr. Scobell.

CLASS X. PART II. Calamin.

This is in frequent use amongst the Surgeons, in Plaisters, 
Ointments, and Collyria.

k. 11. Lapis Calaminaris, externally of a Rust Colour: with-
in of a dusky green, got near Blagen upon Mendip. 'Tis found 
in the perpendicular Intervals. They meet with it at the Depth
of about 3 Fathom. This was out of a perpendicular Interval. There is a little Spar in it: and some few small Sparks of Lead-Ore.

k. 12. Another Sample, of a paler Colour. From the same Mine.

k. 13. Another Sample of Lapis Calaminaris, with some Spots of a deep red, and others of a Straw Colour. The latter only is Calamin. Mendip, Somersetshire.

k. 14. Another Sample, little different from that k. 12. Only on one Part are three Plates, each about \( \frac{1}{16} \) of an Inch in Thickness, of a somewhat deeper and browner Colour, and of a harder and closer Consistence. They are placed one over another; with a small Interval, of about \( \frac{1}{10} \) or \( \frac{1}{12} \) of an Inch betwixt each, which consists of a very pale yellow Matter, and is much more florid and porous than that of the Plates. This last is the Calamin. Mendip.

k. 15. A piece of Lapis Calaminaris, of a light brown Colour, friable, and thick set with small Pores. There is in it a pretty large Vein of white Spar, having several Grains of Lead-Ore, of the Potters-kind, in it. Mendip. This holds a very small Proportion of Calamin. What there is, of this Mineral, in the Mass, is of a Straw-Colour, and porous.

k. 16. A Lump of Lead-Ore; coated over with a very thin Coat of Calamin, Part of it of a reddish, and Part of a dusky Green. From Mendip, Somersetshire.

Class X. Part III.

Nigrica Fabrilis Merresi. Black-Lead, or Wadd.

See the Account of this Mineral, and the several Uses of it, in the Observations relating to the Nat. History of Minerals, p. 2. This Mineral is sometimes found in the Veins of Copper. Vide l. 59. infra.

k. 1. A Mass of Black-Lead, of the very finest Sort; from the Mines in Barrowdale, 6 Miles from Keswick, in Cumberland.

k. 2. Another Mass, coarser, run in some Parts of it into angular Figures. From the same Vein: as are likewise all that follow.

k. 3. Another, with Stoney Matter, Part of it grey, Part greenish, and Part of a Rust-Colour, incorporated with it. There are also in it two Lumps, or Knots, of Black-Lead, both very fine. Ibid.

k. 4. Another Mass, very fine; with a reddish Stoney Matter adhering to it. Ibid.

k. 5. Another, with white Spar incorporated with it. Ibid.

k. 6. Another, with a Vein of Spar in it, Part of it white, and Part red. Ibid.
A Knot of Black-Lead, that, happening to be form'd within the Verge of another, has a Sinus; in which, Part of that existed, on one side. *Ibid.*

**CLASS XI. METALS.**

The Introduction to the following Classes.

**Of Metals in general.**


These one main Fund of our Trade, and Riches, our Strength and Power, by Sea and Land.

Late Discoveries of metallick and mineral Bodies.

And Improvements of the Art of ordering, separating, and refining of them.

Considerable Defects yet remaining in the present Methods of smelting and managing of Ores.

As likewise in the Natural History and Knowledge of them.

Fossils, of little Value or Consideration, work'd in several Parts of the Kingdom.

Whilst others of great Importance are neglected: and their Worth not known.

Methods of remedying this.

The Design of the present Papers: and of the Discourse concerning Mining, and that concerning Assaying.

The Use and Advantage of metallick and mineral Studies to the Publick.

C. 2. Of the Steadiness and Constancy of Nature in all its Productions: and in the Formation of all Bodies.

This happens, 1°. from the Constancy of the Procedure of the Agents that are instrumental to the Formation of those Bodies: And, 2°. from the Unalterableness of the Corpuscles, which serve for the constituting and composing of those Bodies.

All Gold, when equally pure, and freed from extraneous Matter, is absolutely alike in Colour, Constience, Specific Gravity, and all other respects; the Corpuscles which constitute that Body being perfectly uniform and homogeneous.

The same holds in Silver, Iron, and all other Metals: as likewise in all the simple Minerals, particularly Tale, and Crystal; which are found incorporated with all the several kinds of Metals, much more frequently than any other Bodies besides in all the whole mineral Kingdom.

Sect. 1.
Sect. 1. Of the Fibrous Tale. Class IV. Part III.

This Body generally holds to its fibrous Texture with what other Matter forever it happens to be incorporated, unless that Matter be superior to it in Proportion very greatly indeed.

Of the Hematites, and Schiflos. The Tale in these Bodies keeps to its fibrous Texture, tho' they hold 10 or 12 Parts in 20 of Iron. Compare the English fibrous Tale, †d. I. with the Hematites, o. 74.

So also in the green, crusty, fibrous, talky Copper-Ore. This yields 5 Parts in 8, of Copper. †. 45; 46.

Likewise the fibrous Talky Lead-Ores, n. 56. & n. 75. seq. yield 2/3 of Lead.

Metal discover'd in these Bodies by its Gravity.

The particular Species of Metal, by its Colour, Hue, and Complexion.

The fibrous talky Iron-Ores all red.

The fibrous talky Copper-Ores all green.

The fibrous talky Lead-Ore white, n. 75. or yellow, n. 54.

Of the fibrous Constitution of some of the Pyrites and Marcasites.
Of the fibrous Constitution of Antimony.
Of the fibrous Constitution of some Cinnabar.
Of the fibrous Constitution of the Asbestos.
Of the fibrous talky Spars.
Of the fibrous, talky, sparry Plates of some of the corneous Flints, c. 263. seq.

Of the fibrous, talky, sparry Plates of the Ludus Helmontij.
Of the fibrous, talky, sparry Pipes of the Lapis Syringoides.
Of the fibrous, talky, sparry Crusts of some of the Satalicta.
Of the fibrous, talky, sparry Constitution of the Stelechites, and some others of the Fossil Corals.

Of the fibrous, talky, sparry Cones of the Belennitae.
Of the fibrous, talky, sparry Plates form'd out of the Water of the Springs in and about London, upon the Evaporation of the Water: particularly in the common Tea-Boilers.

Appendix.

Of the fibrous, talky, sparry Crusts of several Concretions in animal Bodies: particularly of the Bezoar.

Of the fibrous, talky, sparry Crusts of the Stone of the Vesica Fellea.

As also of the Stone of the Kidneys.

And of the Stone in the Vesica Urinaria.

Of the fibrous Constitution of some of the factitious Vermillions.

Sect. 2. Of Cinnabar of Antimony. o. 42.

Of Crystals and Spars. These are found incorporated with Metals of all sorts, much the most commonly of any Fossils whatever.
§ 1. The specific Gravity of Spars of various sorts.  
The specific Gravity of Crystal.  
All Sparry and Crystaline Bodies, that surpass that Standard in  
specific Gravity, hold Metal.  
§ 2. As to the Texture or Grain, and interior Constitution of  
Crystal, 'tis irregular: and breaks uncertainly. But when in-  
corporated with the fibrous Talcs, it shews, if broke, a striated or  
fibrous Texture, like that of those Talcs; of which, more above.  
When it breaks into angular Pieces or Figures, e.gr. Cubic,  
or rather inclining to Rhomboid; 'tis disposed to that Texture  
by Lead that is incorporated with it. And such Crystal, or Spar,  
is frequently found in the Veins along with the Lead-Ore: par-  
ticularly in the Lead-Mines near Worksworth. Vide f. 25. This  
is in specific Gravity to Water, as 2 3/5 to 1; whereas pure Cry-  
stral is but as 2 1/2 at the most. This shews that there is an Ad-  
mixture of extraneous Matter in it: and several Experiments I  
have made upon it, prove that Matter to be Lead. e.gr. Difolv'd  
in Acids, it gives a Sweetness to the Meftruum exactly like that  
impacted by Saccharum Saturni, disfolv'd in like manner. And, by  
Tryals in the Fire, I have obtain'd some small Quantity of Lead  
out of it.  

A Spar very common in Lead-Mines, that is flattery, and  
breaks in Squares, exactly like the finest Pattern-Lead-Ore.  
§ 3. As to the exterior Form of Crystal, when pure, 'tis found  
not only into a pyramidal Figure: or into a Pyramid erected upon  
a Column; each with six Sides, and Angles.  
Whenever it recedes from that Figure, the Variation is caus'd  
by the Admixture of some extraneous Matter, either mineral, or  
metalick.  
Metalick Matter, when pure and simple, never shoots into an  
angulated Figure: nor is indeed capable of doing that.  
The Bodies that, incorporated with Metals, dispose them to  
shoot into angulated Figures, are either, 1. Sulphur; or, 2. Crystal.  
And all Fossils that are angulated, or shot, have more or less of one  
or other of those Minerals in them, n. 132.  
1. There is ever Sulphur in the tessellated Pyrite, and the an-  
gulated Marcasites; neither of which indeed ever hold any con-  
siderable Quantity of Metal.  
2. But Spar and Crystal are infinitely more obvious and com-  
mon: and found more or less incorporated with the Metals of  
most Mines in the World.  
Where the Crystaline Matter prevails, and is superior in Quan-  
tity to the Metalick, the Body is more or less pellucid; answer-  
able to the greater or lesser Proportion of the Crystal.
(189)

But, when the metallic matter is superior, the body is in colour opaque. Instances, in the Tin Grains — — — the tessellated Lead — — — and the Iron Rhombs.

Where there is metallic matter, incorporated with the crystalline, it frequently causes this to recede from its natural hexagonal figure, and to assume one different, answerable to the figure and disposition of the parts of the particular metal incorporating with the crystal in its concretion.

Iron, incorporated with crystal, determines the body to shoot into a rhomboid figure, o. 19.

Tin, incorporated with crystal, disposes it to shoot into a quadrilateral pyramid, sometimes placed on a quadrilateral base, or column, m. 1. m. 6.

Lead determines it to a cubick or a parallelepiped figure.

The specific gravity of the pure, pyramidal, or sprig crystal, 2:45. 2:5.

The specific gravity of the cubick crystal, f. 88. is 3:16.

Tryals of the cubick crystals by acid menstrua: and by fire, evincing that they hold lead.

The diced crystals, f. 87. *88. 89. & *141. have all a cast, more or less, of yellow, the colour imparted to crystal by lead, when incorporated with it. Confer. §. 4. infra.

The cubick crystals are found in the veins along with the lead-ore, in the lead-mines of westmorland, Arkendale in Yorkshire, &c.

Sometimes where the lead is not sufficient in quantity to obscure the body, and render it opaque, yet it is capable of determining it to a cubick figure.

The same crystal, holding metals of different kinds, may be disposed by the one to a particular figure, and by the other to a particular colour. Instances of lead and iron, in the tessellated purple crystals, f. 91. & seq.

Different metals, or metals and minerals, incorporated with crystal in the same body, give it a figure somewhat compounded and irregular. Of this there is an instance in f. 93 f. in which all the crystals that hold lead are yellowish, and of a cubic or parallelepiped figure; whereas those that are green, and hold lead and copper, recede from that, and are of an irregular figure.

§. 4. Of the various colours observable in crystals.

These arise from an admixture of some extraneous mineral, or metallic matter, but much more commonly the latter, incorporating with the body in its formation.

All the gems owe their colours to an admixture of such extraneous matter, chiefly metallic, with the crystalline.

They are found either in form of nodules, reposed in the bodies of the strata; or else crystallized in the fissures or perpendicular intervals of those strata.
The Nodules are, either, 1. Solid, and of Figures wholly irregular and uncertain like Pebles. 2. Solid, and round, with their external Surfaces beset all over with crystallized Gems. 3. Concave, having their inner Surfaces beset with like crystallized Gems. 4. In Rhomboid Figures. 5. In form of Columns, with several Sides, generally fix, terminating at each end in a Point.

The Gems in form of Nodules were form'd during the time of the Deluge, along with all other metalick, and mineral Nodules.

Those in the perpendicular Fissures are form'd and grow there like the Crystals and Spars; and were form'd by the same means.

The Nodules were sustain'd amidst metalick and mineral Matter during their Formation; and the Gems in the Fissures have frequently Minerals and Ores of Metals accompanying them.

The black Stones and Gems owe their Colour to Tin, m. 1. The red Stones and Gems owe their Colour to Iron; and are found chiefly in Iron Mines, or along with the Ores of that Metal.

Stalactite of a red Spar in the Veins of Iron-Ore, f. 66. 67.

Red Crystal and Spar in Iron-Ore, o. 28. 55. 59. 60. 61. 98.

The Bristol Stones have frequently a Tincture of red.

I obsev'd in St. Vincent's-Rock, by that City, some Stones that nearly approach'd the Granate Complexion; and several very nearly resembling the Amethyst. That, and indeed most of the Rocks thereabouts, are of a red Hue; and impregnated with Iron. And indeed most of the Bristol Stones, particularly the red, I found actually growing along with Iron-Ore in the Veins and Fissures of those Rocks.

Of the Granate, i. 47 † 0. 2.

Of the Ruby.

Of the Amethyst, f. 80.

The green and blue Stones owe those Colours to an Admixture of Copper. That Metal, dissolv'd, and incorporated with an Acid, assumes a green Colour; with an Alcali, a blue, l. 53.

Spar, white, tinged with green, yielding ½ Copper, f. 15.

Crystal, Part pellucid; and Part tinged throughout with green, along with Copper-Ore, l. 53.

Crystal and Spar of a green Colour from Veins of Copper-Ore, f. 15. 15*. 16. 93 †.

Of the Emerald, l. 53.

Copper-Ore, of a green Colour, very frequent.

Of Ærugo, or Verdigrase.

Of the green Ruft of Brats, and of Copper.

Copper-Ore of a blue Colour.

Of the Saphir, l. 53. 54.

Blue Spar, f. 16*. 16 †.

The yellow Gems owe that Colour to an Admixture of Lead.

Of Litharge.

Of Saccharum Saturni.

Of Vitrum Saturni, p. 503. 0. 12.
A Calx of Lead, Minium, or Litharge, run down and flux'd with a triple proportion of crystalline Pebles, or Sand, constitutes a Glass transparent and yellow.

The Specific Gravity of Vitrum Saturni.

The Specific Gravity of the Topaz.

Of the Topaz, its Colour and Constitution, \( f. 128.177.177^* \).

A yellow cubic Crystal from a Vein of Lead-Ore, \( f. 141^* \).

Of a sort of Lead-Ore, of a greenish yellow Colour, from Men-

dip - - - - -.

**APPENDIX.**

Of the different Hardness of the various kinds of Gems. This chiefly happens from the different Hardness of the crystalline Matter, which is the Basis or main Ingredient of them.

That Matter seems to be of three sorts. 1. The *Common Crystal*, which appears to be the Basis of the Occidental Topaz, Amethyst, and Saphir; of the Opal, the Chrysolite, the Aque Marine, the Chaledony, the Jacinth, the Vermilion; of the Nephritic Stone, the Jasper, and the Heliotropium; of the Cornelion, the Beryl, the Agat, the Cat's Eye, the Onyx, the Sardonyx, and the Moco Stone.

2. Another Species of Crystaline Matter, many degrees harder than the common Crystal, and usually call'd the *White Saphir*. This is the Basis of the Granate, the Oriental Topaz, the Amethyft, the Ruby, and Saphir.

3. The *Adamantine Crystal*, or constituent Matter of the Diamond. Even this likewise admits of a metallic Admixture; and is sometimes observ'd with a yellow Tincture, as also, tho' much more rarely, with a green, red, or blue.

The Hardness of several of the Bodies of the first Class is much augmented by the Incorporation of the additional Matter. Thus the Jasper, Heliotropium, and Agat, are four times as hard as Crystal, which is the Basis of those Stones.

But the Hardness of some of the Bodies of the second Class is diminish'd by the additional Matter; and the Oriental Granate, Topaz, and Amethyst, are not so hard as the white Saphir.

Of the Specific Gravity of Crystal, the white Saphir, and Diamond; as also of the various kinds of colour'd Gems.

The Refraction of Crystal, the white Saphir, the Diamond; and the several kinds of transparent colour'd Stones.

Of the various sorts of colour'd Glassles, Paste, Enamels, and factitious Gems.

A Recapitulation, with the several Canons or Rules of the Art of judging of the Constitution, and the mineral or metallick Contents, of any Body; founded upon the Specific Gravity, the Texture, Figure, and Colour of it.

Metal, of the same sort, has ever the same Properties, and is alike in all respects, in what part of the World ever it is got, or
in whatever Matter it is found, when it is disengaged from that Matter, and brought to be equally pure, and free from extraneous Mixture.

CLASS XI. PART I.

The Ores of Copper.

PREFACE.

Copper is found incorporated with very various Matter; in particular with the Sand (1.188 & seq.) of the Stony Strata; with the Matter of the Lapideous Nodules; with Sulphur, or other Minerals; with Spar; and with Earth. Where the Copper is predominant, and in such Quantity as to be worth working, I have ranged the Body amongst the Copper Ores; but, where the other Matter is superior, I have ranged it under the proper Head of that Matter. Of this there are Instances in the Marcasites and the Pyrite; (i.15.16.17.23.32.51.53.) in the Spurs and Crystals that are tinged with blue and with green (f.16.93.) in the poorer Lapis Armenus (a.52.) and Terre Verte (a.53.) and finally, in the Tin and Lead Ores (n.104.)

The EXTRACT.

Steel-grain’d Copper-Ore. l.42.
Copper-Ore of a dusky brown Colour, near black, l.63.
 glandy, purple, l.64.
 red, with a Cast of Purple, l.38.
 friable, æruginous, green, l.167.
 friable, with a green villous Coat, l.47.
 with a hard, green, æruginous Crust, striated across, or having transverse Fibres, in manner of the Lapis Hamattites, l.45.
 with fibrous talky Concretions, green, l.19.38.
 vein’d with blue and green, l.55.59.
 green, blue, and black, l.16*.18.22.37.
 blue, or Lapis Armenus, l.26.27.28.29.
 with Spar, white, green, and blue, l.9.10.11.12.13*.14.17.24.35.
 green, with green Crystals, l.16.53.
 blue, with blue Crystals, l.25.54.
 Copper dissolv’d with a volatile Alkali, takes a blue; with an Acid, a green, l.53.
 blue, with white fibrous Lead-Ore, l.28.
 Copper-Ore with Potters Lead-Ore, l.5.8.35.
 with Tin-Ore, l.22.
 with Iron-Ore, l.18.19.38.
 with Marcasite, l.16*.18.22.37.
 Mundick, holding Copper, with white Spar, l.61.
Copper-Ore, with Wadd or black Lead, l. 59.
   — in the Mafs of Sand-Stone, l. 1. 2. 3.4.
   — Virgin or Native Copper, l. 30. 31. 32. 33. 48. 50. 51.
   — with Bits of white Spar in it, l. 49.
Green Ore yielding \( \frac{1}{2} \) Copper, l. 25.
   — yielding \( \frac{2}{3} \) Copper, l. 46.
   — blue, yielding \( \frac{1}{2} \) Copper, l. 26. to 29.
Æruginous, friable, green Ore, \( \frac{1}{2} \) Copper, l. 16.

Copper-Ores.

1. 1. A gritty Sand-Stone with a white Peble in it, 'tis tinged with a green Colour. White Pebles are frequently found in it, and some near pellucid. There is a little Vitriol in it: and 'tis suppos'd, some Copper, but so little I could never extract any. From Mr. Boothe's Works at — — — in Chefiire.

1. 2. Another Sample, with Spots of a fine blue; from the same Mines.

1. 3. Another, from the same Mines. It has an admixture of a brass-like Marcafitc, and white Spar, with some small Quantity of Copper.

1. 4. Another, without Spar or Marcafitc, holding somewhat more Copper, with a little Lead or Antimony, as I judge by View. From the same Mines.

1. 5. A gritty Copper-Ore, with Spots of brown and green. It has a few Grains of Lead-Ore in it. From Cumberland, Mr. Nicolson.

1. 6. A yellowish brown Spar. By its weight I conjecture 'tis impregnated with some Metal, probably Copper. From the Copper Mines of — — — in Cumberland. Mr. Nicolson.

1. 7. A Spar of a brick Colour, from the same Mines; perhaps it holds a little Copper. Mr. Nicolson.

1. 8. Spar, white and green; it contains Copper. And there are several Grains of something which appears like Lead. From a Lead-Mine at Nesthead in Cumberland. Mr. Nicolson. vid. l. 35. infra.

1. 9. Spar, white and green, with a very bright blue. It holds a little Copper. From the same Mine. Vid. l. 36. infra.

1. 10. A brown Spar, with Spots of blue and green. It holds a little Copper. From the Mines of — — — — in Cumberland. Mr. Nicolson.

1. 11. Spar, pellucid and green, crystallized: with an admixture of a little Marcafitc, and a little Copper. From Caldbeck Copper-Mines, Cumberland. Mr. Nicolson.

1. 12. Spar, white, pellucid, and green, with an admixture of Marcafitc, Lead and Copper. From — — — Cumberland. Mr. Nicolson.

1. 13. Spar, brown, with a little green: and a great Proportion of a Brass-like shining Marcafitc, also a little Copper. From the Mines of — — — in Cumberland. Mr. Nicolson.

1. 13*. Another Sample, one half consisting of Spar, white, with a Cast of brown: the other of a yellow shining Marcafitc.
this latter appear several Spots of a green Colour: and some few of a fine bright blue. In one Part of the Spar, is a small Cavity set round with Shoots of a diaphanous crystalline Spar: and some of the Crystals have a fine soft glance of yellow with an Eye of red. From the same Mine.


l. 14*. A Mass consisting chiefly of white Spar a little pellucid, with Veins of Antimony, and several green Copper Spots. 'Tis said to yield a little Lead. There is a Vein of Marcasite in it, but so fine 'tis scarcely discernible. Found with the foregoing. The five first of these Bodies are Stoney, and not worth working. The following are Sparry, hold little Copper, and ought rather to have been rank'd amongst the Vein-Stones.

l. 15. White Spar, with a Brass-like Marcasite, and a small admixture, as it seems, of pure Virgin-Copper. Mr. Southwell.

l. 16. A blackish Copper-Ore, very poor, with Spots of green. On one side of it is a crystalliz'd Spar, pellucid, and green. Mr. Kingston's Mines in Northumberland.

l. 16*. A Copper-Ore, with Spots of green, blue, and blackish: also an admixture of Marcasite. It holds about \( \frac{1}{4} \) of Copper. From the same Mines.

l. 16+. A green cruginous Ore, from the perpendicular Fissures of the same Mines. It holds about \( \frac{1}{4} \) Copper.

l. 17. Spar, white and green, with an admixture of Marcasite, and some little Copper. Cumberland. Mr. Nicolson.

l. 18. Copper-Ore, of a dusky brown Colour, with Spots of green and blue. There is Marcasite amongst it, and a very little Iron. Cumberland. Mr. Nicolson. Vid. l. 37. infra.

l. 19. Copper-Ore of much the same Colour with the former. It contains a very little Copper, with Marcasite, and a small admixture of Iron. There are in some Parts of it capillary or fibrous Shootings of the Copper, of a green Colour, very pretty. Near Ashburn in the Peak.

l. 20. Another Sample, not much different from the former, it probably may hold about \( \frac{1}{15} \) of Copper. From — — — in Cumberland.

l. 21. Another, with Veins of green, a ruddy black, and yellow fulphurous Marcasite. It seems to hold about \( \frac{1}{15} \) of Copper. From — — — in the Peak.

l. 22. A Marcasite of a shining, brassly Complexion, with Spots of purple and blue. It seems to hold about \( \frac{1}{12} \) Copper; and, as 'tis said, a little Tin. From — — — in Cornwall.

l. 23. Copper-Ore, of a fine purple Colour, with an admixture of a shining brassly Marcasite, and white Spar. It is said to hold \( \frac{2}{3} \) of Copper, but this Sample does not seem really to hold above \( \frac{1}{2} \). 'Tis found in great Quantity. From the New Mines of Comarten, in Devonshire.
l. 24. Copper-Ore of a dusky Colour, with green and blue: There is with it a small admixture of Spar. This holds \( \frac{1}{5} \) of Copper. From Sir Thomas Stanley's Mines at Alderly-Edge, in Cheshire.

l. 25. A green porous Ore, consisting of Laminae, with some tuberous Efflorescencies. From the perpendicular Fissures of --- Mine in the Peak. It holds \( \frac{1}{5} \) Copper.

l. 26. Copper-Ore of a sky, or pale blue Colour; found in small round Lumps, some a little larger, others less than Peaè. They yield near \( \frac{1}{5} \) Copper. Cheshire. Mr. Upton.

This is the Lapis Armenus Officinarum; used by the antient Physicians in their Purges, in Cafes of Melancholy and Phrensy.

l. 27. A blue porous Ore, with brown Spar adhering to it. The blue Part will probably yield \( \frac{1}{5} \) Copper. From Mines formerly wrought by some German Undertakers at Worksworth, in the Peak.

l. 28. Copper-Ore of a fine Azure Colour, that yields about \( \frac{1}{5} \) Copper. From Malham in Yorkshire. It lies in a loose Soil, amongst white fibrous Lead-Ore, like that n. 56. There is ten times as much of this latter Ore as of the Copper. It lies 8 Fathom deep.

l. 29. Two Samples of Copper Ore of a somewhat deeper blue Colour. From Malham in Yorkshire. Mr. Lydall assures me that he has melted many Tuns of it, and it yields full \( \frac{1}{5} \) Copper run with Sea-Coal. It makes a good Colour; for which use he sold one Tun for 100 l. and 'twas carry'd to Rotterdam. These Mines are not now work'd.


l. 31. Two Flakes of pure fine native Virgin-Copper. 'Tis in Plates, and malleable. From --- in Cornwall.

l. 32. A piece of the Stone to which the aforesaid Flakes grow in the Mine. 'Tis of an Iron Colour: and has some small Filaments of native Copper in it.

l. 33. Native or Virgin Copper. Two Plates, one of them consisting of Grains like those of Sand cohering together, and constituting a flat Body, or Plate. The other Plate consists of Parts like small Threads. From the same Mines with the Flakes. n. 31.

l. 34. Two small Nodules, given me by the Name of Copper-Stones, and said to hold \( \frac{1}{5} \) Copper. From --- in Wales. Mr. Baden.

l. 35. Spar, white, with some parts of a lovely green, and bright blue: In others there's a faint Cast of Purple. It has a little Copper in it, with some small Grains of Lead-Ore. From the same Mine, at Nesthead, with l. 8. supra.
l. 36. Another small Sample from the same Mine. Little Copper or Lead discover themselves in this. The Spar much as in the precedent. The blue is very fine, and the Spar, being partly diaphanous, shews the Colour passes deeper into the Substance or interior Parts of it. This differs little from l. 9, and is from the same Mine at Nenthead, Cumberland.

l. 37. A piece of Copper-Ore, of a dusky reddish black Colour. Among it is a pretty deal of a yellow shining brassly Marcasite: with white and green Spar, whereof part is crystalliz'd. This is of the same sort, and from the same Mine, with l. 18. supra.

l. 38. Copper-Ore, red, with a Caft of purple. There are some Grains of Spar intermix'd with it: and very fine capillary or fibrous Concretions, of a bright green Colour, like those of l. 19. From Sir Coppleston Bampfield's Mine at Northmolton, Devonshire. The Ore lies in the perpendicular Fissures. 'Tis in considerable plenty. The Ore of this Mine yields $\frac{1}{2}$ of Copper one with another. 'Tis sold for 6 l. 10 s. per Tun. All of it holds a little Iron; which they free it from by melting some sulphurous or mundick Copper Ore along with it.

l. 39. Another Sample from the same Mine, of a dusky reddish Colour, with an intermixture of Spar, and a brassly, or as it is call'd, the Golden Marcasite. Some Parts of this Body shine very finely, and are of a beautiful Colour, betwixt a Purple and Blue.

l. 40. Another Sample of the same, in which the Spar, Marcasite, and the purplish-blue Parts, are more distinct: and so appear with more Beauty than in the precedent.

l. 41. Another, as well as the four following, from the same Mine. This, excepting a little grey Spar in it, is throughout of a purple Colour, glossy and shining.

l. 42. This is red on the Outer-parts: but within of a deep grey, glossy and shining, and much resembling the Grain of Steel where broken; only the Grain of this is somewhat coarser. From the same Mine; it yields $\frac{1}{2}$ Copper.

l. 43. Two small Matlès, each about the bigness of a Hazel-Nut. They are of a dusky green Colour, their Surface is smooth, and they appear very like two Drops of a melted Metal. They yield above half Copper. From the same Mine.

l. 44. A Piece of Copper-Ore, part of which is of a green, and part of a deep red Colour, 'Tis softer and more friable than any of the foregoing. It yields about $\frac{1}{2}$ Copper. From the same Mine, at NorthmoUon, Devonshire.

l. 45. A Copper Marcasite, with a shining brassly Caft, in the Middle, but externally brown with a Caft of Copper. This is cover'd with a very fine florid green æruginous Crust, striated across, very much like the Crusts of the Haematites, and the Septa of the Ludus Helmontij, and about $\frac{1}{12}$ of an Inch in thickness. From the Isle of Man. Upon Tryal, in the Fire, I find that the Marcasite yields $\frac{1}{2}$ of Copper: the æruginous Crust $\frac{1}{2}$. Out of a small Drift in a Cliff, in the Mine-Haugh in Kirk Christ Rysken, of
of the South side of the Isle. These Cliffs yield Lead-Ore: of
which there are many Tuns now raised.

l. 46. Small Pieces of Copper-Ore, green, and very rich: in the
middle of each is one, or more Spots, of Copper, very fine, and
almost of the natural Colour of that Metal. This Ore, upon
Trial, yields \( \frac{2}{3} \) of Copper. Isle of Man. Found with the foregoing.

l. 47. Four Masles of Copper-Ore, light, porous, and friable: brown within, and externally environ'd with a very thin Coat of
green, villoö or nappy, and not unlike Velvet. Perhaps this may
be the Viride Montanum of Dr. Lister. Isle of Man. Found with
the foregoing.

l. 48. Native Copper, flexible and malleable, in small Masles,
some of which are granulated, others ramoë. In some parts it
appears of the native Colour of this Metal: in others, 'tis ting'd
with green. Also a Piece of Copper-Ore, of a deep brown with
a Coat of red, and Sparks of a very bright native Copper. On
some Parts of it is a green Aërugo: and on others, a crystalliz'd
Spar. From the Isle of Man, found loose upon the Sea-shores,
near the foregoing; being beat out of the Cliffs by the Sea.

l. 49. Native Copper, with bits of white Spar amongst it, from
Boldice Mine, Cornwall. The Vein of this lies higher up
in the Hill than that of the Tin.

l. 50. Native, or, as 'tis call'd, Virgin-Copper, extremely pure,
and malleable; from - - - - in Cornwall.

l. 51. Native Copper, fine, flexible, and malleable. Cheswater,
Cornwall.

l. 52. Copper-Ore, Part of it black, with a Coat of red, and
Part green. Near Ashburn in the Peak.

l. 53. Copper-Ore, green; and amongst it Crystal, part of it
dull, and part tinged throughout with green. Hartly, West-
morland. The Emerald owes its green Colour to an intermixture
of Copper, and so does the Saphire its blue. This Metal assumes
the one or the other of those colours according as the Nature of
the Matter, with which it incorporates, happens to be. Copper
dissolved in a volatile Alcali, as Spirit of Urine, or Sal Ammoniac,
takes a blue Tinctor: in an Acid, e.g. Vinegar, strong Aqua-
fortis, or the like, it becomes green. 9 (Pliny took notice that the
Emerald was found in Copper-Mines, in Metallis aëraeis. Nat. Hist. l.
37. c. 5. p. 714.)

l. 54. Spar, part grey, and part brown; with green Copper-Ore.
Also a fine blue Copper-Ore: and amongst it Cryftals shot into
very small Columns of a bright blue Colour. From Cockly-Beck,
in High Furness, Lancashire. The Saphire owes its Colour to an
intermixture of Copper.

l. 55. Copper-Ore, brown, vein'd with blue, and green: and
having in one part a Vein of Mundick. Found in a perpendicu-
lar Fillure, in the Skreer, a very high Mountain in Cumberland.
Upon Tryal it yields \( \frac{1}{4} \) Copper. This Vein has not been work'd.

l. 56,
l.56. Gritty Copper-Ore, green, from Chefswater Mine, Cornwall. It lies 25 fathom deep. The Load is one Foot and a half over. 'Tis of difficult Fusion.

l.57. Gritty Copper-Ore, green, Caudbeck, Cumberland. It is not work'd.

l.58. Copper-Ore, with a little Tin; from Mr. Basset's Mine at Camborn-Eacon. It holds about ¼ Copper.

l.59. A Maf of a considerable Vein in a Mountain two Miles from Goldieap, in Cumberland. 'Tis of a dusky Colour, with Spots of green, and blue: as also bright shining Sparks appearing to be either of Lead or Wadd. This is within a Mile of the Wadd-Mine: and I have seen Samples of this Vein that had Specks of Wadd more plain in them.

l.60. A Marcasite, externally brown: within of a shining braffy Constitution; with Specks of green. Viz. of Man. Given me by my Lord Derby.

l.61. Mundick, holding Copper; with white Spar, and Specks of a Copper Colour. It fill'd the Vein: and there are Parts of the Sides of the Vein adhering to the two opposite Surfaces of it. Sir William Penington's, Conynton-Fells, Lancashire.

l.62. Mundick, diffused in Strings thorough the common Vein-stone in the Grand Vein of Goldieap, Cumberland. A Piece, broke off this, upon Tryal with the black Flux, after a flight Roasting, yielded ½ of fine Copper at the first running. Viz. i. 22. supra.

l.63. Copper-Ore, of a dark brown Colour near black, with some Specks of green. It holds also a little Tin. St. Columb, Cornwall.

l.64. A glossy Purple Copper-Ore. Comarten, Devonshire.

l.65. Part of a Pyrites, black, with Veins of yellow and purple. It holds Copper. The Mine was lately discovered in the Estate of Sir Thomas Aiton, at Nun-Eaton, in Warwickshire. I observed several of these Pyrites; which were all, in Form oblong, compressed, or flat, growing gradually thinner towards the two opposite Edges; in such fort as pretty nearly to resemble the Ribs of an Animal*. I can determine nothing concerning their length, having seen none but what were broken; but some of the Pieces were two Foot long. As to their breadth, I observed of all Dimensions from an Inch to above half a Foot. They lay very close, and in great numbers, in a Stratum of greyish Stone: at the Depth of about 20 Foot.

CLASS XI. PART II.

The Ores of Tin.

PREFACE.

This Metal is no where found so pure as to be malleable. Viz. Agric. p. 421. a. supra.

* In which Form Jet is sometimes found. Viz. S. 30, 31. supra.
The Tin-stones, or Ores, crude, and as taken out of the Mine, yield the richest, about 1 in 30: the middling Ores, about 1 in 60: and the poorest, about 1 in 120; for even such are wrought to some small Profit. But when the Ores are dressed, and brought, by stamping, and washing, to what they call Black-Tin, which is the Ore clean'd and prepared for the Fire, they yield $\frac{1}{2}$ Metal; or, if well dressed, more, perhaps 5 in 8; which the Tin-Grains yield without any Dressing. For these are large, and may be easily pick'd out from amongst sparrey, sandy and stoney Matter. Whereas the small Sparks of Tin-Ore require those Methods to separate and extricate them.

All Tin-Ores, that are capable of clean Dressing, yield pretty much alike when dressed. I have said something of the Shoads, trailing down from the Loads, or main Veins of Tin, towards the Sea, in Append. II. to Class I. supra.

The EXTRACT.

1. Tin-Mines mention'd in the following Class.

St. Martins-Mine, near St. Auffle, m. 1.
St. Agnes, m. 2.
Trevaunns St. Agnes, m. 3.
St. Twst, m. 4.
Redruth, m. 5. 7.
Golodphin-Ball, m. 6. 17.
Poldice, m. 8. 24.
Polgoth, m. 9.
Penrose, m. 11.
The Pell, Gunlaus-Works, m. 12. 22.
Trevala, Redruth, m. 13.
St. Breigh Downs, m. 14.
St. Columb, m. 21.
Budnoch, m. 23.
Beam-Works, m. 25.
Luggon, m. 26.
Warleggon Downs, m. 27.
Wheat and Crack Works, m. 28.
Carneban Works, m. 29.
St. Twen, m. 30.

2. The Depth of the Tin-Mines.

A Mine 200 Foot deep, m. 4. 17.
—— 80 Foot deep, m. 5. 29.
—— 40 Foot, m. 7. 21. 27.
—— 150 Foot, m. 9.
—— 20 Foot, m. 15.
—— 45 Foot, m. 19.
—— 30 Fathoms deep, m. 1. 22.

—— Prezages of Rain, m. 19.

4. Of the Water in the Mines.

Water in the Tin Veins, not clear, m. 17.
—— clear and tafteless in the Tin-Veins, m. 7, 8, 9, 12, 15, 16, 19, 20, 21, 26, 28, 30.
Water clear, but of a harsh Taste. m. 23.
reddish, and tasting like rusty Iron. m. 14. 18.

5. Of the Strata of Earth and Stone through which the Tinners mine. m. 2. & seq.
Killas call'd Ras' by the Tinners. m. 9.

6. Of the Tin Loads and Shoads. Appendix 2. to Class 1. supra, and m. 19. infra.
A Shoad-Stone. m. 10.
Tin-stones beaten out of the Cliffs by Storms. m. 11.

7. The Tendency and Direction of the Load.
A Load running North-West. m. 28.
 Loads running East and West, m. 3, 4, 8, 14, 18, 21, 23, 25, 26, 27, 29.
The Lead-Veins, in Cornwall, run the same Way. n. 102, 104.
The Iron-Load, North-West and South-East. o. 97.

8. The Thickness of the Vein, or Load of Tin-Ore.
A Load 4 Inches thick. m. 4. — 2 Foot over. m. 18, 26, 29.
— 1 Foot. m. 5, 7, 20, 28, 30. — 15 Inches m. 19.
— 3 Foot over. m. 9. Polgooth. — 10 Inches. m. 23.

Spar, the Load 2 Foot over, standing by a Tin-Load of the same Diameter. m. 18.
— the Load 5 Inches thick, standing by a Tin-Load 2 Foot thick. m. 26.


10. The different Proportions of Metal in the various sorts of Tin-Ores. ibid.

Tin Grains yield at least $\frac{3}{4}$ Metal. m. 1, 2, 3, 6.
— of a Quadrangular Pyramidal Figure. m. 1, 6.
— call'd by the Miners, Corns of Tin. m. 3.

11. The various other Bodies with which Tin is found incorporated.
Tin-Ore with black Spar. m. 19.
— with white Spar. m. 2, 6, 13, 26.
— with crystalliz'd Spar. m. 25.
— attended with Spar and Cornish Diamonds. m. 18.
— with Marcasite or Mundick.
— with Copper. m. 14.
— with Lead. m. 24.

Tin-Ores.

m. 1. Tin-Grains. A Sample fairer than ordinary. These yield above half Tin. This Sample was found thirty Fathom deep in St. Martin's Mine near St. Austell. Mr. Seabell. The Grains, or crystalliz'd Shoots are Quadrangular, and of a Pyramidal Form. m. 2.
m. 2. Tin-Ore, grained, or shot, of a dusky black Colour, with a little white Spar in it. On the two opposite sides is an earthy Sand, of a Buff-Colour. It seems to hold at least one half Tin.

St. Agnes, Cornwall.

m. 3. Tin-Ore. Mr. T. Lower collected this, and several others, for me. His Account of it is as follows. "Tis from Trevanas, "St. Agnes. The Mine is in a Valley, the Ground on every side "round, being higher. 'Tis twenty Fathom deep, downright, "to the Load; which runs East and West. They sink thorough "only two Strata to come at the Load. The first is of a black "Earth, two Foot thick. The second is of white Kellas, down "to the Load. There is much Water in the Shaft; draining "thorough the Walls of the Mine. In the midst of the Load, in "some Places, are hollow Cavities, wherein Tin-Grains are found, "or, as the Miners call them, Corns of Tin."

m. 4. Tin-Ore from St. Tuijts. T. Lower's Account. "The Mine "is upon an Hill. 'Tis two hundred Foot deep. There are three "Strata. The first is of black Earth, two Foot deep. The se- "cond is of a blackish Earth, and Sand, mixed together, 6 Foot "deep. The third is a sort of Growan down to the Load; which "runneth East and West. 'Tis nine Inches over, and very well "tinn'd. But in some Places the Load is not above four Inches "thick."

m. 5. Tin-Ore, from Redruth. T. Lower's Account. "The "Mine is in the side of an Hill, declining to the East. 'Tis eighty "Foot deep, down strait to the Load. There are two Strata of "Earth, and then one of Free-stone down to the Load. The first "Stratum is black Earth two Foot deep; the second is of a yel- "low Earth four Foot deep, distinguished from the former "by an horizontal Fissure; wherein is a loose sort of red sandy "Matter, with some Water draining through it. Next is the "Bed of Free-stone, lying flat and level; and the Load is one "Foot over, running East and West. There is a small Matter of "Water foaking out of the Rock or Stone aforesaid."

m. 6. Tin-Ore, shot, in several Parts, into Grains; of which, all that are distinct, appear to be Pyramidal and Quadrangular. There is a light brown Sand, and some white Spar, mixed with it. Godolphin-Ball, Cornwall. Vid. m. 17. infra.

m. 7. Tin-Ore, holding about one half Tin. From Wheal-and- "Crack, Redruth. T. Lower's Account. "This Mine is in a Valley, "between two Hills. 'Tis forty Foot deep, downright. There "are two Strata, the first is of black Earth, two Foot deep. The "second is a sort of Yelvane Stone, and Earth, mixed together, "down to the Load; with perpendicular Fissures from the first "Stratum down to the Load. This is one Foot over: and runs East "and West. There is a Spring of Water that cometh forth by the "Load, as big as a Man's Wrifit, very clear and tasteles. In this "Place, in the old Works, fifteen Years since, was found an Oak- "Tree, eighty Foot deep, with Branches and Roots, all, besides "what at was perished."

m. 8.
m. 8. Tin-Ore, Poldice. T. Lower's Account. "This holds a-

about $1$ Tin. The Mine is 70 Fathoms deep downright. The first

Stratum is of a yellowish Earth, four or five Inches. The fe-

cond Stratum is of white Rubble, and Clay, down to an hun-

dred Foot deep. Then there is a dun Stone which the Miners
call Elvan Stone, two Foot thick. Then the same sort of

Rubble and Clay as before, down to the Load; which runs East

and West, but dippeth away after an End Westward. There

issues forth a Spring of Water as big as a Man's Leg, by the

Load, very clear and taffeles. The Work is begun in a Valley,

but is wrought home to the Shaft aforesaid by an Adit: and the

Water drawn off by Engines."

m. 9. Tin-Ore, Polguth. T. Lower's Account. "This holds near

half Tin. The Works are on the side of an Hill. The Surface

is of a Raze, and a little red Earth. The second Stratum is of

a white Clay, intermixed with this sort of Raze, as the Miners

call Kellows, downright, an hundred and fifty Foot deep to the

Load; which is three Foot over, very hard, and rich. There

is a sort of Water rifes out by the Load: and runneth East and

West."

m. 10. A Shoad-stone, found near the Surface of the Earth.

--- Cornwall.

m. 11. A Tin-stone. This, and others of the same sort are

commonly flung upon the Coasts, near Peurofe, Cornwall, by

Storms. The Tin-stones, which he thinks flung up by the Sea,

are most probably beaten out of the Cliffs by Storms and Vio-

lence of the Sea.

m. 12. Tin-Ore from the Pell, Gunlauz Works. T. Lower's Ac-

count. "This Mine is forty Fathoms downright. Here is a small

Spring of Water, but very clear and taffeles, issuing out, by the

Load, on the South-West side of it, as big as a Man's Thumb."

m. 13. Tin-Ore, grey, sparkling, and porous, with a white

Spar, in Quantity near equal to the Ore, intermix'd with it. From

a Work called Trevela, in Redruth.

m. 14. Tin-Ore from St. Breigh Downs. It seems to hold some

Copper, and about $\frac{3}{4}$ Tin. T. Lower's Account. "This Mine is on

Downs that are near level; having no descent in half a Mile or

more. The Mine is twenty seven Fathoms deep, downright.

There are two Stratums. The first is of a reddish brown Earth,

two Foot thick. The second Stratum is red Kellas, down to

the Load; which runneth East and West. There is a Spring

of Water, which issueth out of one side of the Load, as big as

a Man's Wrift. 'Tis of a reddish Colour; and the Miners say it

taffeles like old rusty Iron. I could not taste it, it being distur-

bed by the Miners. By the side of this Load there is a Load of

Mundick, four Inches over in some Places, in others. more."

m. 15. Tin-Ore from Carnt-Barn. It holds near $\frac{1}{4}$ Tin. T.

Lower's Account. "This Mine is in a Valley, and is twenty Foot

deep, downright. They sink through two Stratums, the first is
of black Earth, two Foot deep: the second of Sand and Pebbles intermixed, down to the Load; which runneth East and West; having a Spring of Water, issuing out by the Load, as big as a Man's Wrist, very clear, and tasteless.”

m. 16. Tin-Ore from Wheat and Coast-Luggon. It holds about \( \frac{3}{4} \) Tin. T. Lower's Account. "This Mine is on Downs that are level, and no way declining. 'Tis twenty Fathoms deep, going down from Shamble to Shamble. There are over it two Strataums. The first is two Foot and a half deep, of red Earth and small Stones mixed together; then a white Kellas, down to the Load; which is half a Foot over, running East and West, having a small matter of Water draining out by the Sides, (or as the Tinners call it, the Walls) of the Country,” [Vein, or Load.]

m. 17. Tin-Ore. Godolphin-Ball. It holds about \( \frac{1}{4} \) Tin. T. Lower's Account. "The Work is between two Hills: and descends into two Valleys; one on the East-side, the other on the West. The Mine is two hundred Foot deep, perpendicular. There are two Stratums above it. The first is, of two Foot deep, black Earth: the second is of white Kellas, down to the Load. There is some Water in the Mine, but not very clear. The Load runs East and West.” Vid. m. 6. supra.

m. 18. Tin-Ore, from Carrack-Gloofe Works. It holds about \( \frac{3}{4} \) Tin. T. Lower's Account. "This Mine is on an Hill, and is 60 Fathoms deep: there are three Stratums over it. The first is black Earth, one Foot deep, (or thick.) The second Stratum is of white Kellas, four Foot thick. Then an horizontal Fissure, and under it, a brown Stone 7 Inches thick. Then a Stratum of red Kellas down to the Load. On the South side of the Load is a Load of Spar, full of Cornish Diamonds. The Load of Tin is two Foot over, and runneth away East and West. The Load of Spar, is two Foot over, running parallel with the former. 'Tis hollow in some Places, where the Diamonds are. There is a Spring of Water, issuing forth by the Load of Spar, and Tin Load. The Spring is as big as a Man's Wrist; and in Winter bigger than a Man's Leg, but of a red Colour: and of taste like old rusty Iron. The Hill is as high as Bow-Steeple perpendicular. On one side, 'tis bounded with the Sea; the other running into a deep Valley.”

m. 19. Tin-Ore, from Treveddo. T. Lower. "It lies 400 or 50 Foot deep from the Surface of the Earth. The Work is on an Hill, very steep, 200 Paces, perpendicular, to the bottom, where runs a pretty large River. I went under Ground 150 Paces, or farther; it having been very much wrought in old time. The Surface is nothing but a sort of Rubble and Moors. The second Stratum is of a blackish sandy Earth. Then a perpendicular Fissure of a kind of a black Spar, some Places Tin in it, and some Places none. It leads from the second Stratum down farther than I could go; even under any Working. The third and last Stratum, is white Sand and Clay intermixed one with the other.

And
"And Fissures or Veins are crost one over the other in the Bottom, and run every way. Some are one Inch and a half over, others two or three, to 12 or 15 Inches over. The firft the Miners call Strings, the latter they call the Load, which is commonly beft tinned. There is Water in this Work, altho' on such an Hill, which iffueeth out of the Load, and round about it. This Water runs and finds a Way through the Earth. If there be, in any Mine, a Paflage or Ca- vity in the Earth to receive the Water, then there is a good Air, and good working for the Men. If not, there happens many times unwholfsome Air, and Damps; which not only im- pair their Health, but take away even their Life, as I have been informed by feveral Tinners, who have been in Mines where such Damps have happened; and some of the Men have died immediately in the Mines. Nay, some who have thus informed me, have themselves lain for dead for a considerable Time. In some Works, Damps happen where there is no Water. Great Damps come forth of the Earth, they fay between the quick and dead Earth. Thefe Damps have a very naufeous smell, and in a Moment take away a Man's Breath, if he venture to go up or down through the Shaft. They happen moft fre- quently in Fenny-Ground: and are great Prefages of Rain. I was told by a Miner, who feemed to be a fenfible Perfon, that he saw a Man wound up out of a Tin-Shaft, dead to all appear- ance, but they rolled him (as their manner is) and his Body jerked and twitched on the Earth, like one poifoned, and fo died."

m. 20. Tin-Ore, from Wythyell. T. Lower's Account. "This Mine is on a plain Downs. 'Tis 20 Fathoms deep, downright. There are two Stratums. The firft of black Earth, two Foot thick. The second Stratum confifts of red Kellas, down to the Load. The Load is a Foot over: and runneth Eaft and Weft. There is, in this Mine, a small matter of Water, which the Miners call the Soaking of the Country."

m. 21. Tin-Ore, from St. Columb. It holds near half Tin. T. Lower's Account. "This Mine is on a plain Downs, with no Defcent for a great way. 'Tis 40 Foot deep. There are two Stratums. The firft is of black Fen Earth, a Foot and an half deep. The second is white Clay, and white Spar, mix- ed together down to the Load; which runneth Eaft and Weft, dipping away toward the Eaft: and there is a small Spring of Water iffuing out by the Load."

m. 22. Tin-Ore, from Gunlas-Works. It holds about ½ Tin. T. Lower. "This Work is on the fame Hill with Carrack-Gloofe. There are, over the Load, but two Stratums; the firft is of black Earth, one Foot thick. The second is only of white Kellas and white Clay, down to the Load. The Shaft is 30 Fathoms deep, downright. The Load runs Eaft and Weft; and is one Foot over, without any Water."
m. 23. Tin-Ore, from Budnock. It holds about \( \frac{3}{4} \) Tin. T. Lower's Account. "This Mine is on a Hill as high as Bow-
"Steeple. The Mine is sixty Fathoms deep, downright. There
"are three Stratums; the first of black Earth, four or five Inches
"deep. The second is of brown Earth, three Foot deep. Then
"small Pebles three or four Inches deep, mixed with a blackish
"Earth. Then a red Earth, and small Kellas, down to the
"Load. This runneth East and West, being ten Inches over.
"Here is a small Spring of Water which ariseth not by the Load,
"but out of the middle of the Draught, out of a perpendicular
"Fissure; wherein is a sort of Spar, which runs down from an
"Horizontal Fissure. The perpendicular Fissure is at the Top
"not above two Inches over; but groweth bigger all the way
"downwards. So that at the bottom, it is seven or eight Inches
"over; and the Water that runneth out of this Fissure, taketh
"hard, but is very clear."

m. 24. Tin-Ore. Poldice. This, besides Tin, seems to have
Lead in it.

m. 25. A thin Vein of Tin-Ore, with crystallized Spar; found
fifty Foot deep, in Beam-Works. The Load runs East and West.
T. Lower.

m. 26. Tin-Ore, with Spar, from Luggon. T. Lower's Account.
"This Mine is on the Top of a great Hill, declining on all Parts,
"except on the West-side, where it runneth away, for a Mile,
"on a Level. But on the East, North, and South, it runs down
"into Valleys, but in some Places in a Perpendicular, as high as
"Bow-Steeple; where there run forth Brooks of Water. The
"Mine goes down strait, about fourty Fathoms; where the Load
"lies East and West; and is two Foot over. There runneth out,
"by the Load, a-Spring of Water as big as a Man's Wrist. It
"cometh from the West; and on the South-side of the Tin-Load
"is a Load of Spar, about five Inches thick, in some Places
"pretty clear. There are three Stratums: The first is black
"Earth two Foot thick. The second is of red loose Earth, three
"or four Foot thick. Then there is an Horizontal Fissure of Spar,
"four or five Inches over. Lastly, all white Kellas, and white
"Clay, down to the Load."

m. 27. Ore, holding about \( \frac{3}{8} \) Tin, from Warleggon-Downs, ab-
out forty Foot deep. The Surface is of black Fen-Earth, 12 or
13 Inches thick. The second Stratum is of Sand, mixed with
Earth. The third Stratum is of great Rocks of Moor-stone, and
Sandy-Earth, reposited together, down to the Load, which runs
East and West. It lieth on a Hill.

m. 28. Ore, holding about \( \frac{3}{4} \) Tin, from Wheat and Crack-
Works. This Mine is on the side of a Hill, 100 Paces to the
Bottom. The Shaft or Mine goes downright; and the first Stra-
tum is about two Foot deep, being a black Fen-Earth. The se-
cond Stratum is of Kellas, down to the Load, being ten Fathoms
deep; and runneth away North-West. The Load is one Foot
over 5
over; and a Spring of Water issues out by the Load: But the Water is carry'd away by an Adit, which is brought from the Bottom.

m. 29. Ore, holding about \( \frac{3}{4} \) Tin, from Carneban-Works. There are two Stratums. The first is black Earth, sixteen Inches deep. The second is of white Kellas, down to the Load. The Mine is eighty Foot deep; the Load two Foot over, and runs East and West.

m. 30. Ore holding about \( \frac{4}{3} \) Tin, from St. Twen. This Mine is sixty Fathoms deep downright. There is, over the Load, two Stratums. The first is of black Fen-Earth, two Foot deep. The second is a blackish Elven Stone, down to the Load. There is Water draining in, within seven Foot from the Surface of the Earth. The Load dippeth away toward the East, and is a Foot over, being very rich in some Places.

CLASS XI. PART III.

The Ores of Lead.

PREFACE.

Lead-Ore has obtained various Names: 1. From its Colour: Blue Ore, Grey Ore, White Ore. 2. From its Constitution and Texture: Capillary, Fibroë or Stringy Ore, Striated or Antimoniated Ore, Steel-grain'd Ore, Sparkling or Star-grain'd Ore, Broad-grain'd or Smooth-grain'd Ore, Cross-grain'd Ore, Diced, Cubic, or Tessellated Ore. 3. From its Form; Flat, Plated, or Rib Ore, that ever stands Edgeway or Parallel to the Sides of the Vein, Loose Lumps or Loose Work; of which, those that are so large as to require to be broke for the Furnace, are called Knockings; those that are cover'd with any extraneous Matter, are called Coated Ore; those that are clear and free, Naked Ore. 4. From the Place in which 'tis found; Vein Ore, Belly Ore, Float Ore. 5. From its Use; Potters Ore. Several other Names have been given at random, by the Miners of several Countries; of which some are hereafter exhibited. Indeed, when this Catalogue comes to be review'd, the Names appropriated to several Lead Ores, especially those Sorts that are brighter, and nearest resemble that Metal, ought to be corrected. Thus, there are several Samples that are called by the Miners, Potters-Ore, and enter'd under that Name. Whereas, in truth, that Name ought not to be restrain'd to one Sort of Ore, since the Potters use all sorts indifferently, that are clean, or have the Appearance of Lead, and melt freely. Such indeed, may have the generical Name of Potters-Ores, or, as they are styled in some Countries, Blue Ores. And these may be subdivided into the three following subordinate Species. 1. The Sparkling or Star-grain'd Ore; such as that n. 34. 2. Broad-grain'd or Smooth-grain'd Ore; such as that, n. 42. n. 112. And 3. The Cross-grain'd Ore; such as that, n. 104. and n. 107.
n. 107. n. 75. and the Ores that follow, are better distinguished than some of the Precedent.

The great or smelting Works commonly come up to the Assays of Lead within 1 in 20.

Lead-Ores.

EXTRACT.

I. The Names and different Sorts of Lead-Ores.

Talky or Stoney Lead-Ore. n. 17.
Porters-Ore. n. 64, 73.
— or, as the Miners call it, Blue-Ore. n. 82.
Porters, or Broad-grain’d, or Smooth-Ore. n. 42, 90, 111, 112, 118.
Broad-cy’d Lead-Ore. n. 110.
Cros-grain’d Lead-Ore. n. 103, 104, 105, 107.
Star-grain’d Ore.
Honey-comb Lead-Ore, Mendip. n. 37.
Shelley-Ore. n. 106.
Small-grain’d Lead-Ore. n. 113.
Striated or Antimonial Lead-Ore. n. 113.
Steel-grain’d Ore. n. 21, 69.
— or Galena, as this Kind is called by Pliny, and the Miners—lifts who follow him. n. 21.
White Semipellucid Lead-Ore. n. 58.
White Foliacous Lead-Ore. n. 74.
Whitish Squamous Lead-Ore, call’d by the Miners White-Ore. n. 82, 83, 84.
White Fibrous Lead-Ore, call’d by the Miners, Stringy-Ore. n. 54.
& seqq. 71, 72, 75, to 81.
— resembling Saccharum Saturni. n. 81.
— lies above the Potters-Ore, at Nenthead in Cumberland. n. 54.
— rare at Barrow-Work, Cumberland, but found along with the Potters-Ore, at all depths, where there is room for it to shoot. n. 75.
Lead-Ore, diced or cubic. n. 7, 120. & seqq.
— found in Vacuities, of the perpendicular Fissures. n. 120, 132.
the Cubic Figure is owing to Crystal incorporating with the Lead. n. 132.
Lead-Grains so pure as nearly to approach the Fineness of Virgin Lead. n. 62, 63.
— call’d by the Miners Diced-Ore. n. 63.
Lead-Ore so pure and rich as almost to come up to the Purity of Native-Lead, being free from Spar and other extraneous Mixture. The Miners call this Naked-Ore. n. 127.

II. Th.
11. The Manner in which Lead-Ores lie in the Earth.

Lead-Ore found in the Veins, or perpendicular Fissures of the Strata. n. 27. & seqq. n. 112, 116, 118.
— brought thither out of the Bodies of the Strata, by Water.
— sometimes borne thence, and hurry'd into Springs and Rivulets by the Water, which proceeding out of those Veins, forms and supplies those Springs and Rivulets. n. 131.

A Lead-Vein eight Inches over. n. 104.
— one Foot over. n. 102.

The Lead-Veins in Cornwall run East and West. n. 102, 104. as the Tin-Veins there do. Vide Extract of Class X. Part 2.

§ 7.

Lead-Ore, with part of the Stone of the side of the Fissure to which it grows, n. 95, 96, 97.
— with part of a thin Rider of Stone in it. n. 96, 119.
— concreted, in Grains, on a dusky grey Stone, part of a Rider. n. 119.

Potter's Ore, part of a Rib. n. 12, 81, * 97, 98, 106, 112, 115, 124, 125, 126.

— Part of a Rib that fill'd a String. n. 106.

Boofe-Work or Naked-Ore found in Lumps. n. 60, 61.

Lead-Ore lying in a Float. n. 65.

III. The Fusion or Melting of Lead-Ore.

The Smelters come up to the Assayers, within 1 in 20. Pref. to Class XI. Part 3.

Of the smelting Works in Arkendale. n. 108.

Mendip Green-Ore runs with the greatest difficulty in the Fire; the white fibrous Lead-Ores with the greatest freedom of any in England. n. 49, 54.

IV. The different Proportions of Lead in the several Ores.

Potter's-Ore, Arkendale, holding \( \frac{3}{4} \) Lead. n. 111, 112, 114.
— Flintshire, holding \( \frac{2}{3} \) Lead. n. 45.
— Worksworth, \( \frac{\frac{1}{2}}{3} \) Lead. n. 40, 41, 42.
— Austin Moore, \( \frac{1}{3} \) Lead. n. 64.
— Sodbury, yielding \( \frac{\frac{1}{4}}{8} \) Lead. n. 27.

Common Lead-Ore, Mendip, \( \frac{1}{2} \) Lead. n. 29, 30, 33, & seqq.
Crofs-grain'd Ore, holding \( \frac{\frac{1}{4}}{3} \) Lead. n. 107.

Steel-grain'd Ore, holding near \( \frac{1}{2} \) Lead. n. 20, 26.
— holding near \( \frac{1}{3} \) Lead. n. 21.
— holding \( \frac{1}{3} \) Lead. n. 22.
Richmond, Diced-Ore, \( \frac{1}{3} \) Lead. n. 63.

Fibrofe Lead-Ore, yielding \( \frac{1}{2} \) Lead. n. 54, 56.
Squamofe or White-Ore, yielding \( \frac{\frac{1}{4}}{1} \) Lead. n. 82, 83, 84.

Mendip Green-Ore, \( \frac{1}{2} \) Lead. n. 49.

Caldbeck, Green-Ore, yielding \( \frac{3}{4} \) Lead. n. 52.

Gritty Lead-Ore, yielding \( \frac{1}{3} \) Lead. n. 87.
V. The Proportion of Silver in the Lead of different Mines.

Devonshire, Steel-grain'd Ore, a Tun yielding 30 Ounces of Silver, n. 20.

The Company's Welch Mines, Steel-grain'd Ore, a Tun, yielding 30 Ounces of Silver. n. 21.

Potters-Ore, near Holy-Well, Flintshire, 18 Ounces per Tun. n. 45.

Dovegang, Potters-Ore, yielding upon trial, but 4 Ounces of Silver per Tun. n. 26.

Lead, of the Talty-Ore, Wales, a Pound yielding 14 Grains of Silver. n. 17.

VI. Combinations of the different Sorts of Lead-Ore each with other: and of Spar, Marcajite, Calamine, and other Minerals, and Metals, with Lead-Ore.

Fibrofe Lead-Ore concreted on Potters Lead-Ore, n. 81*, 85, 86.

Potters Lead-Ore in Lumps, cover'd over with a Crust of white Spar and Fibrofe Lead-Ore, call'd by the Miners Coated-Ore. n. 81†.

Lead-Ore with white Spar. n. 19, 22, 25, 26, 46, 47, 66, 67, 73, 90, 103, 104, 105, 107, 123.

— with a pellucid Spar crystaliz'd. n. 7, 68, 93.

— with a pellucid cubic Spar. n. 8, 59.

— with a grey Spar. n. 1.

— with a yellow Spar, that Colour proceeding from Lead incorporated with it. n. 5.

— with purple or iron Spar, and with green or copper Spar. n. 2, 5, 6, 8.

— with Spar, white, purple, and yellow. n. 92.

— with Spar and Talc. n. 17.

— with Cauk. n. 89, 95, 96, 112, 116.

Lumps of Lead-Ore in a Rib of Cauk. n. 129, 130.

Cauk incorporated with Lead-Ore, forced off the Vein by Water, worn, rounded, and brought forth into a Rivulet. n. 131.

Lead-Ore abounding in Arsenic. n. 82, 83, 84.

— with Marcajite. n. 123.

— with a glossy sulphurous Marcajite shot into small Cubes. n. 16.

— with yellow Mundick. n. 103, 104, 108.

— with Calamine. n. 28, 49, 50.

Steel-grain'd Ore, with Antimony. n. 18, 19, *19, 22, 38, 113.

Lead-Ore with Copper-Ore. n. 48, 74, 104.

VII. The various Depth at which Lead-Ore is found in the Mines.

A Lead-Mine, Mendip, 15 Fathoms deep. n. 28.

— 20 Fathoms deep. n. 30.

Row-Pits are the deepest on Mendip. The Lead-Ore is there found from 8 to 30 Fathom deep. n. 37.

A Lead-Mine, Charan-Math-Cob, Cornwall, 10 Fathoms deep. n. 104.

Perran-Sands, 80 Foot deep, n. 102.

Dovegang, the deepest of any in the Peak, being upwards of 60 Fathoms. n. 26.
A Lead-Mine *Richmond-Moor*, Yorkshire, 11 Yards. *n. 63*.

in *Richmondshire*, 71 Yards deep. *n. 67*.
Potters-Ore, *Flintshire*, found from 15 to 30 Fathom deep. *n. 45*.

Lead-Ores.


1. A piece of a coarse, greyish, ponderous Spar, with a thin Plate of Lead-Ore, adhering to part of it. From *Cumberland*, Mr. *Nicolfon*, since Lord Bishop of Carlisle.

2. White Spar, with a faint Cast of purple and green. There's Lead-Ore incorporated with it, *Cumberland*. Mr. *Nicolfon*. Those two Colours in the Spar are Signs of some small admixture of Iron and Copper with it.

3. Another Sample, in which the Purple is stronger. From the same Mine.

4. Lead-Ore, of the Potters fort, lying very fair, and distinct, in Spar white, with a slight reddish Cast. *Cumberland*. Mr. *Nicolfon*.

5. Lead-Ore in a white or semi-pellucid Spar, with a Vein of a yellowish Cast, and another of purple. Those two Colours are owing to an admixture, the yellow of Lead, the purple of Iron, incorporated with the Spar. *Cumberland*. Mr. *Nicolfon*.

6. Lead-Ore in a semi-pellucid white Spar, with a very fine green Spar, that Colour being owing to an admixture of Copper, incorporated with it. *Worksworth* in the *Peak*.

7. Lead-Ore, part of a large Cube, having upon it a white pellucid Spar crystalliz'd. *Cumberland*. Mr. *Nicolfon*.

8. Lead-Ore, with a pellucid Spar curiously shot into small Cubes. From *-. *in the *Peak*.

9. Lead-Ore in a coarse white Spar, the Grains or Maffes of both large. From *Worksworth* in the *Peak*.

10. Lead-Ore in a like Spar, but the Grains of both less. From *Mugglesworth-Park*, in the Bishoprick of *Durham*. A Tun of this Lead yields 60 Ounces of Silver. *Vid. n. 25, infra.* I have seen Lead-Ore incorporated with Spar, exactly after the manner of this, from *Shildon*, near *Blanchland*, in the Bishoprick of *Durham*.

11. Lead-Ore, of the Potters fort, very fine, incorporated with a yellow glossy sulphurous Marcasite, part of which is shot into small Cubes. From St. P's Work, *Cornwall*. Mr. *Crew*.

12. Lead-Ore, with Tale, and a little Spar, equally mix'd with it. It holds about 1/16 of Lead. From *--, *in *Wales*. Mr. *Kemp*. A Pound Weight of the Lead reduced out of this Ore, yields about 12 or 14 Grains of Silver. This the Miners call a *Talky* or *Stoney-Ore*.


* n. 19 *
n. 19. A Sample of like sort, with an Admixture of white, Spar. It holds Lead, Antimony; and, as 'tis said, Silver. From Birch-Bank in Blackburn, Cumberland.

n. 20. Ore, very sparkling, of the Steel-Grain. It holds near half Lead, some Antimony, Marcasite, Tale: and, as 'tis said, a little Tin. The Lead yields, of Silver, 30 Ounces per Tun. From Ziras-Newton, near Exeter, in Devonshire.

n. 21. Ore of the finest Steel-Grain. It has in one place a fine soft Coat of Purple, Blue, and Brass. 'Tis the richest I ever saw of this Mine, and holds 3 Lead. It has a little Silver in it; the Lead yielding 15 Ounces per Tun. Sir Carbery Price's Mines at - - - - in Cardiganshire. This answers the Description that the Mineral Writers give of that sort of Lead-Ore, yielding also Silver, that they call Galena.

n. 22. Ore of the same sort, tho' the Grains be not quite so fine. There's with it a little white Spar, and Antimony. It holds 5 Lead: and about 3 Penny W. of Silver in a Pound. [In the Spar of this Mine, sometimes Virgin Silver appears in small Plates and Threads.] From Comarten, Devonshire.

n. 23. Ore of the same sort, only the Grains yet larger, with some of the Potters-Ore adhering to it. From Oden-Mine, under the Mount call'd Mamum-Tor, in the Peak.

n. 24. More of the same sort, but the Grains still larger, with an Admixture of a coarse white Spar. It may hold about 1 Lead. There's a little Marcasite Matter in it. From - - - - in Cufhshire.

n. 25. Another Sample, with the Grains larger than the foregoing, and not unlike that which the Miners call the Star-Grain-Ore. It may hold about 1 Lead. There's a white semi-pellucid Spar mix'd with it. From Mugglesworth-Park, in the Bishoprick of Durham. Vide n. 10. supra.

n. 26. Lead-Ore, with an Admixture of white Spar. It yields above one half Lead. Worksworth, in the Peak. Dovegang is the deepest Mine in the Peak, and upwards of 60 Fathoms. Of all the Peak-Lead that I have known, none yields, of Silver, above 4 Ounces per Tun. There's little Steel-grain'd Lead-Ore found in the Peak.

n. 27. Lead-Ore, in a thin flat Form, being taken forth of a small perpendicular Fissure (which it fill'd) of a grey Stone. In a Mine near Sodbury, Gloucestershire. It yields 3 Lead.

n. 28. Lead-Ore, of the same Form, likewise from a small Fissure which it quite fill'd. 'Twas at about the depth of 15 Fathom. 'Tis as rich as the precedent. From Major Twiford's Work, at Chuton, Mendip. Somerjesse. On each flat of this, is a brown Mineral Concretion, appearing to be Calamine.

n. 29. More of the same; from other like Fissures, to one side of which this Ore adhered. The same Mine. This yields 1 Lead.

n. 30. Another flat piece, but thicker, from one side of a Fissure of the same Mine, 20 Fathom deep. It is found in great quantity, and holds above 1 Lead, but little Silver; on one sett.
are Vestigia of the Rock to which it adhered, on the other various Protuberances. The Ore here, usually adheres to both sides of the Fissure: and, in the middle, is frequently a Drift of Clay, from 2 or 3 Inches to a Foot, nay sometimes 2 Foot thick. The different manner of the several successive Applications or Plates of the Lead successively incrusting on the Rock, is very observable in this Sample.

n. 31. 32. Two Pieces somewhat thicker, they were found 4 Foot deeper, adhering to one side of the same Fissure.

n. 33. This Sample has more Protuberances, and some of the Clay interfused with it, from the side of another Fissure of the same Mine. This yields near $\frac{1}{2}$ Lead.

n. 34. Part of a still thicker Piece of sparkling or star-grain'd Lead-Ore, with an admixture of Clay or Earth, found deep in the same Mine. Qu. Whether the brown and grey Matter adhering to this, be not Calamine? This yields near $\frac{1}{2}$ Lead.

n. 35. Another, the Surface of the Tubercles crusted over with a thin coarse Spar. At near the same depth, in those Mines. Near $\frac{1}{2}$ Lead.

n. 36. Lead-Ore, florid, with many Protuberances, and an admixture of white Spar. Out of a Fissure of a Lead-Mine - - - - Mendip, near $\frac{1}{2}$ Lead.

n. 37. Lead-Ore, thick set with Tubercles, and several Pores or Intervals. The Miners call it Honey-Comb-Ore. There's a great deal of earthy Matter, of a rust Colour, in its Intervals, and on the Surface of the Tubercles: This sort of Ore is found in the perpendicular Fissures of the Stone, in vast quantity, from 8 to 30 Fathom deep. From Row-pits, in Chuton Liberty, Mendip. Row-pits are the deepest on Mendip.

n. 38. A Mafs of Lead-Ore that seems to have lain in the hollow of some Stone. Its Surface being unequal, and having Fragments of Stone adhering in almost all Parts of it. It may hold about $\frac{14}{15}$ Lead; and a little Antimony. From - - - - in the Peak.

39. Another, of the Potters-kind. There's a whiffy sparry Matter adhering to a large Part of the Surface of it. From - - - - in the Peak.

n. 40. Potter's-Ore, from Worksworth in the Peak. It holds near $\frac{3}{12}$ Lead; but little Silver.

n. 41. Potters-Ore, as rich as the former. From Hartly-Castle, Westmorland.

n. 42. Broad-grain'd, or smooth-grain'd Potters-Ore, from Winster in the Peak. As rich as either of the foregoing.

n. 43. Potters-Ore. From - - - - in Northumberland.

n. 44. Potters-Ore, having a talky Spar (of a greyish Colour with a green Cast) adhering to it. From - - - - in the Bishoprick of Durham. Sir William Blacket.

n. 45. Potters-Ore, from the Lord Bishop of St. Asaph's Mines in Flintshire. 'Tis found in vast quantity, from 15 to 30 Fathom deep in the perpendicular Fissures of the Strata of Stone. It holds full
full 2 Lead; but scarce any Silver. Indeed there is but one Mine in this County, that affords Silver worth working: and that lies near Holy-Well, yielding 18 Ounces per Tun.

n. 46. Potters-Ore, with a Vein of white Spar passing through the middle of it. From a Lead-Mine at Penrose, near Kelstone, in Cornwall.

n. 47. Lead-Ore, with a little white Spar adhering to it. From Sir Thomas Standish's Mines at Dukesborow in Lancashire.

n. 48. A Piece of Lead-Ore, flat, having fill'd a String, or small Vein; with a little Spar adhering, and Copper-Ore on one side green, and yellowish on the other. From - - - in Cheshire.

n. 49. Lead-Ore of a Popinjay green Colour. 'Tis cavernous and porous, and has a little Calamine of a reddish brown Colour, in its Caverns. It yields ½ Lead; but hardly any Silver. This sort is found in considerable quantity from two to fourteen Fathom deep, both in the Strata, and in the perpendicular Fissures. Mr. Baden, from Blagen-Hill, Mendip. The Calamine Mines are very near. They smelt this green Ore, in a reverberatory Furnace, with the Coal of Mendip; running old Iron with it to imbibe the Sulphur. This is of the hardest Fusion, and the fibrous Ores, n. 54, 55, 56, the softest Lead-Ores we have in England.

n. 50. Another Sample, not so Cavernous, with Calamine mix'd with it. In this small Grains of Lead discover themselves to the Eye. From the same Mine. This is of a pale green, and more inclining to a yellow.

n. 51. Another of a Sea-green Colour, its Surface studded with several Tubercles. From the same Mine.

n. 52. Another of the same sort, of a yellow Colour, with a mixture of green. There's a little white Spar amongst it. It yields ¼ Lead. From Caldbeck, Cumberland.

n. 53. Potters Lead-Ore. There adheres to it a friable Body of a rust Colour, with several small sparkling Grains in it. From the Lead-Mines at Brickhillburn, near Nent-head, Cumberland. Mr. Nicolson.

n. 54. Lead-Ore of a brownish Colour, consisting chiefly of short fibrous or capillary Bodies, variously disposed throughout the Mass, the whole nearly resembling a coarse Saccharum Saturni. From the same Mine with the former. This lies in great quantity, at the top of the Mine, before they come to the Water. Underneath is Potters-Ore. This is my Lord Darwentwater's Mine, and is one of the most considerable in England. This and the two following run easily in the Fire. These fibrous Ores yield, at the great Works, rarely above 8 in 20. It holds more Lead indeed; but, being of gentle Fusion, some of the Metal drives up with the Fire. They have no Sulphur, nor Arsenic in them: nor any Silver at all. This yields, on Assay, ¾ Lead.

n. 55. Another Sample, of like fibrous or capillary Texture, and different in nothing from the former, only 'tis of a blackish hue. From the same Mine still.
56. Another, very curious, the capillary Bodies of a pale Straw-colour, disposed into numerous Faticculi, variably disposed and laid upon one another. 'Tis very rich, yielding at least 5½ Lead, tho' nothing like that Metal appears in the whole Mass, it much more resembling a Spar than a Lead-Ore. 'Twas found in Barrow-work, a Mine in a high Mountain, near Keswick, in Cumberland. There are in it Specks of a yellow Matter, which probably are Sulphurous: and there is Mundick in the Veins of both this and the neighbouring Mountains.

n. 57. Lead-Ore, flakey, and striated, the Striae parallel to each other. 'Tis white, with a slighE Eye of yellow. Its whole Appearance is like that of a Spar, and nothing like Lead appears, tho' it be very rich of that Metal. From -- - near Bristol. Mr. Cole. "Vena plumbi apud Ubios candida. fluoribus candidis non pellucidis "similis." J. Kenteman. Nomenclat. Foss. Misulta. p. 83.

n. 58. Lead-Ore, white and semi-pellucid, appearing much like a clear Flint, both in Texture, Diaphanecity, and all other respects. From Mendip, in Somersetshire. Mr. Kemp.

n. 58*. Another Sample from the same Place. This is entire, in form of a Nodule, transparent. The exterior Surface is a little rough. To the Eye 'tis no ways different from the common pellucid Pebles; but 'tis very ponderous, and rich of Lead. "Vena plumbi candida fluoribus candidis pellucidis similis: copiose "dives ex centenario enim sunt libera plus quam sexaginta plum- "bi." J. Kenteman. N. Foss. Misulta. p. 83.

n. 59. Potters-Lead-Ore, adhering to a Ball of white talky Spar. The Spar consists of small flat roundish Plates wedged together in a very observ'able manner. Near the Lead are several small Cubes of a more clear and crystalline Spar. 'Twas found in a Bed of Clay, 4¼ Fathom deep, in a Lead Mine at Hartly-Castle in Westmoreland.

n. 60. Lead-Ore in Form of a Nodule, very fine, and rich, yielding above half Lead. It consists of fine thin Plates differently disposed, and variously reflecting the Light. Found together with the following. n. 61.

n. 61. Another, with a thin rough grey Crust covering it, thorough which the Lead appears. These form'd Lumps are very rarely found. This lay 36 Fathom deep in Clay. There were some others along with it, from the Size of a Hazel-Nut to that of a Man's Fift. The Miners call this Naked-Ore. There was of the common Lead-Ore, in vast quantity, above thefe in a perpendicular Fissure, but none deeper; these Lumps lying at the Bottom of all. The Miners sink deeper to search, but to no purpose. From Reeves's Works, in Charterhouse Liberty, Mendip. The Lumps are of the same fort with those that they call in Yorkshire, Boosework; which are found there both in the perpendicular Fissures, and in the Bellies.

n. 62. Two Samples of Lead-Grains, so pure and fine, as to be near malleable. 'Tis shot into Figures, with plain sides, in manner
her of Crystal, but not regular. From - - - in Cumberland.

Mr. Nicolson.

n. 63. Another Sample of the same sort, tho' the Lead be not quite so pure. The Shoots in this are larger than in either of the former; the Planes of some of them being above half an Inch over. Those Planes are of different Figures: the Workmen call this sort Diced-Ore. 'Tis found in the perpendicular Fissures of the Stone of the Mines, the Lumps of it being from the Bigness of a Walnut to that of a Man's Fist. This lay about 11 Yards deep. From Colonel Byerlye's Mines, on Richmond-Moor, 2 Miles West of Richmond, Yorkshire. It yields at least 3 Lead.

n. 63*. A Sample of the same Ore, and out of the same Mine. This has but little Lead in it; the far greater part of the Mass consisting of a white granulated soft Spar. The Grains are made up of a Congeries of short Fibres. In this Spar also there may be some Lead; that Metal sometimes affecting to shoot into such like Fibres, as in n. 54. & seq.

n. 64. A Piece of Lead-Ore, of the Potters kind, found in a perpendicular Fissure. Thorngill Lead-Mine, about a Mile from Autfin, Northumberland. The Autfin-Moor Potters-Ore yields Lead and Silver, much in the same Proportion with the Potters-Ore in the Peak. Conf n. 26. supra.

n. 65. Another, little different, found in a Stratum of the same Mine. This Stratum of Lead was in one part about a Foot thick, and lay failing in view for about 30 Yards, but grew less gradually till it came to the thickness of about 3 Inches. What is here called a Stratum, was probably, rather a Float.

n. 66. Another, not different, only that it has a little white Spar mix'd with it. From Blay-gill Lead-Mine, which is near the former.

n. 67. Another, with a pretty Quantity of white Spar lying in Veins among it. From Mr. Bathurst's Mine, Arkendale, in Richmondshire. It lay in the bottom of the Mine, 71 Yards deep, in the middle of a perpendicular Fissure, two Foot over, amongst an earthy Matter.

n. 68. Another, in nothing different, but that the Spar in some places is shot into small Crystals: also from Mr. Bathurst's Mine.

n. 69. A piece of Lead-Ore of that sort which the Miners call Steel-Ore. From Hays, two Miles East of Autfin, Northumberland.

n. 70. Another, of the same Grain, with small Veins of white Spar in it. This is very brittle, and in a manner friable. From a Mine 24 Miles South-West of Autfin.

n. 71. A piece of Lead-Ore, but much resembling a white Spar. It is thick set with small Cavities, over the whole Surface of it. Being broken in one place, it appears compos'd of small parallel Fibres. From the same Mine with n. 58. supra.

n. 72. Another, of the same sort, and from the same Mine. This is more diaphanous than the former, the Cavities pass deeper.
into the Body of it, and the Fibres lie in Sheafs, which variously interfept and cross one another.

**n. 73.** Lead-Ore of the Potters kind, with white Spar amongst it. From Sir Copleston Bamfield’s Mines at North-Moulton, Devonshire.

**n. 74.** A white talky Spar, with a flat Base, rising to an Apex, almost in manner of a Cone, only the Apex is not over the Center of the Base, but verges towards one side of the Body. ’Tis three Inches over at the Base, and near as many in height being composed of Plates standing erect, and jetting from the Axis to the Surface of the Cone. ’Tis very ponderous, and doubtless contains Lead in it: as also a little Copper, whereof the green Spots at the Base are a Sign. Great-Ashby, Westmorland.

**n. 75.** A Piece of the capillary, fibrous, or, as the Workmen call it, stringy Ore, from the same Vein in Barrow-Work, Cumberland, with that **n. 56.** from which it differs only in Colour, this being somewhat whiter. There are in it Specks of a yellow Matter: and Veins of grey; both probably Marcasite, or Sulphur. This stringy Ore is found but rarely. It grows at all depths of the Vein, in Hollows, where there is room for it to shoot, along with the Potters-Ore; which, with the cross-grain’d Ore, are the common Ores of this Mine.

**n. 76.** Some Fasciculi of Ore of the same sort with the foregoing: adhering to Part of the Stone of the end of the Stratum, on the side of the Fissure. From the same Mine.

**n. 77.** A large Piece of the same sort, from the same Vein; with a considerable Quantity of the abovemention’d (**n. 75.**) yellow Matter amongst it.

**n. 78.** Another, less, with the Fasciculi smaller. From the same Vein.

**n. 79.** Another, with a reddish gritty Matter interspersed. From the same Vein.

**n. 80.** Another, with part of the Fasciculi white, part brown, and part black; little different from that **n. 55.** From still the same Vein in Barrow-Work.

**n. 81.** Another, little different from the foregoing; only on one side is a reddish gritty Matter, and several small capillary Bodies much like Saccharum Saturni. Also from the same Vein.

**n. 81.** Part of a Rib of Porters-Ore, on the outside of which is a thin Crust, composed chiefly of the white capillary Lead-Ore, from still the same Vein.

**n. 81.** A Lump of very fine Porters-Ore; with the Surface covered all over with a thin Crust, composed partly of white Spar, and partly of the white capillary Lead-Ore. The Miners call it coasted Ore. ’Twas found, among many others, some bigger, and some less, lying loose, sometimes in Clay, sometimes in an ochreous Matter of several Colours, call’d by the Miners Sols, in the aforesaid Vein at Barrow Work.
n. 82. Lead-Ore, whitish with a Cast of brown; composed of small Chips, or Plates; placed, some parallel, some cros'd to one another. From Gravel-Work, near Buckton, in Craven, Yorkshire. The Miners call this white Ore. It holds somewhat more than \(\frac{4}{5}\) of Lead. It lies in a Vein, and is found in vast Quantity, there being little Ore of any other kind, except here and there some of the blue Ore as they call it, or Potters-Ore. This white Ore abounds in Arsenic: and is the most noxious and poifinous of any Ore whatever; the Fumes and Flores, lighting upon the Grass, kill the Cattle to near a Mile's distance from the Smelting Works.

n. 83. Another Sample, little different, only that there are intermix'd Specks of a pale yellow Matter, which I take to be Arsenic. And there is in it a Vein of mineral Matter, partly Red, and partly Brown. From the same Mine.

n. 84. Another, also from the same Vein, gritty, and appearing like a Mass of white shining Sand. There are in it Grains of a black glossy Matter.

n. 85. White Lead-Ore, little different from n. 82. with Potters-Ore amongst it, from the same Vein.

n. 86. Another Sample, also from the same Vein, but of a more dusky Complexion. 'Tis likewise much more firm and compact: and seems to be very rich. There is in it a Mass of Potters-Ore.

n. 87. Gritty Lead-Ore, variegated with white, yellow, brown, and black; yielding \(\frac{4}{5}\) Lead. From St. Iffy, Cornwall.

n. 88. A Mass of Lead-Ore, the Grain and Texture not unlike that of Cauk, of a pale brown Colour, and very ponderous. The Workmen call it white milled Lead-Ore. From Erkeriggall, Montgomeryshire, Wales.

n. 89. Potters-Ore, in a Mass of brown Cauk: with a reddish glittering Spar adhering to it. From a Vein in Newlands, Cumberland.

n. 90. Broad-grain'd, or Potters-Ore, with much white Spar intermix'd. Moulds. Arkendale, Yorkshire.

n. 91. Cross-grain'd Ore; with white Spar, part of it crystal-liz'd. Out of a Vein, Newlands, Cumberland.

n. 92. Lead-Ore, in Spar, part of it white, and part tinged with purple, the rest with yellow, Arkendale.

n. 93. Lead-Ore, that adhered to the side of a Vein; with white Spar, and many small Shoots of Crystal along with it. Arkendale.

n. 94. A Plate of Lead-Ore that grew to the side of a Vein. To the opposite side of it adheres a coarse Spar, very tuberous and ragged; such as is commonly called by the Miners Hungerstone; because when it runs forth and sprouts in this manner, there must be much room in the Vein, and consequently little Ore there, Arkendale.

n. 95. Lead-Ore, with white Cauk: this was affix'd to a side of the Vein, part of which still adheres to it, the said side being composed of a common dusky brown Limestone, of which many of the strata of this Mine consist. Arkendale.

n. 96.
n. 96. Lead-Ore, vein'd alternately with Ore and Cauk. From the same Mine. This has also adhering to it a Chip of the side, of Lime-stone: and in the middle of it, Edges of two thin Riders of the same sort of Stone.

n. 97. Two parallel Ribs of Lead-Ore, united by Intervention of Spar. On one Part, are Vestigia of the side of the Rock, to which it adhered; on the other, is a Crust of grey glittering Spar. Moulds, Arkendale.

n. 98. Part of a thin Rib of Lead-Ore, with sparry Efflorescences on each side. Arkendale.


n. 100. Lead-Ore in Sparks, in grey Spar. There was much richer in the Vein, which was very large. Howden-Field, Nor- thumberland.


n. 102. A Lump of Lead-Ore, from Peran-Sand, Cornwall. The Mine is 80 Foot deep. The Load is one Foot over; and runs East and West. Mr. Kingfion. I have made no trial of this; but suspect it to have in it more of Blende, or black Talc, than of Lead.

n. 103. Cross-grain'd Lead-Ore, incorporated with yellow Mundick. From St. Columb, Cornwall.

n. 104. Cross-grain'd Lead-Ore, with Mundick, and green Copper-Ore. From Charan-Math-Cob-Works, Cornwall. The Load is eight Inches over, and runs East and West. This lay ten Fat-thom deep.

n. 105. Cross-grain'd Ore. This was part of a Rib that fille'd a String. Newlands.

n. 106. Part of another Rib, from the same Mine. When the Rib is thus thin, 'tis call'd Shelly-Ore.

n. 107. Cross-grain'd Ore, very fine, and holding near 4 Lead. Barrow Work, Cumberland.

n. 108. Ore of much the same sort, but not so rich, with Spar and Marcasite in it. Windegg, Arkendale. This is the only Mine in Arkendale that has Sulphur with the Ore. They run it without any Addition of Iron; and indeed nothing is used in any of the Smelting-Mills, for any of the Ore of Arkendale, but Wood Peat, or Coal.

n. 109. Lead-Ore glossy and shining, formerly work'd for Silver, by the Hochfletters, Caudbeck, Cumberland.


n. 111. Broad-grain'd, or Potters-Ore, fine and clear. Holds near 2 Lead. Moulds, Arkendale.

n. 112. Another Mafs, part of a Rib, with Cauk adhering to one side of it. From a Vein, or perpendicular Fissure, Moulds, Arkendale. 'Tis rich, and holds near 2 Lead. Indeed the Ore of this Work, if well dres'd, yields one with another, above 5 Lead in the Smelting-Works. This is of the Broad-grain'd or Smooth-grain'd Ore.
n. 117. *Small-grain'd* Lead-Ore, holding Silver, Comarten. 'Tis striated, as if there was some Antimony in it.


n. 115. Sparky Lead-Ore, little different from the Steel-grain'd. 'Tis in two Ribs join'd: out of a String. *Newlands.*

n. 116. Sparks of Lead-Ore, in a grey flony Matter; found in a Vein. *Howden-Field, Northumberland.*

n. 117. Steel-grain'd Lead-Ore, with Cauk, part white, and part greenish. Sent by the Name of *Silver-Ore, from the Silver-Mine in Beeralston Devonshire.*

n. 118. Broad-grain'd Lead-Ore, with the Surface very tuberous and unequal, out of a Vein. *Arkendale.*

n. 119. Grains of Lead-Ore, growing on a dusky grey Stone, that was part of a Rider. From the Moulds, *Arkendale.*

n. 120. Lead-Ore shot into Cubes, and oblong Squares, put together in such manner as to form a Plate or flat Body. It stood on edge, in a Vacuity of a Vein. *Totter-Gill-Intacks-Nook, Arkendale.*

n. 121. Another Plate from the same Vein, the Squares larger.

n. 122. Lead-Ore shot into Squares. The greater part of the Vein is thus shot, from a Mine of my Lord William Pawler: I think it is called Hindrake, near Redhurst, in the North-riding of Yorkshire.

n. 123. Lead-Ore very fine, shot into a multangular Figure, with Marcasite and Spar, in a Mine by *Stainmore.*

n. 124. Part of a Rib, very ponderous, fine, and rich, probably holding Silver. The Grain of it is in most Parts much smaller and finer than that of the common Steel-grain'd Ore. The Surface of this is pretty smooth. From a Vein in *Totter-Gill-Intacks, Arkendale.* Upon Trial of part of this, it yielded 2 Lead.

n. 125. Part of another Rib from the same Vein. The Surface is more rugged and tuberous. There are in it small Mafses of the Potters kind interposed; but the main of the Body is striated, as if there were Antimony in it.

n. 126. Part of another, from the same Vein, with a Cauky Spar adhering to each Flat of it. The Grain of this is like that of *n. 124. supra: but the Tubereles on the Outside of both this and n. 125. are of a Broad-grain'd Ore, and differ from that, in the middle of the Bodies.

n. 127. Lead-Ore, the purest and richest I ever saw; part of it being so very near the Constitution of melted Lead, that it may not uniterly be call'd Native Lead. This the Miners call *Naked-Ore,* as they do all other Kinds that are thus naked, and not covered with an extraneous Crust. *Arkendale.*

n. 128. A Lump of Naked Ore, extremely rich; found, lying loose and independent in a Vein, *Arkendale.*

n. 129. Part of a Rib of whitish Cauk, out of a Vein with small Lumps of very rich Lead-Ore inclosed in it. All the Ore I observed
observed in this Vein was of like sort, and lay in like manner. Ruthberry-Forbes. Northumberland.

n. 130. Five Lumps of the same Ore beat out of the Cauk. Their Surfaces are entire: and they part from the Cauk in such manner, as to shew that the Lumps of Ore are distinct, and not incorporated or mingled promiscuously with the Cauk, as is usual in the common Ores.

n. 131. Four Masses of a whitish cauky Spar, with Grains and Veins of Lead-Ore in them. These are rounded and worn smooth. They were found in a Rivulet, in Arkendale; and were probably born forth of the Veins of the neighbouring Mountains, by the Water rising out of those Veins.

n. 132. Lead-Ore of the Potters-kind, very fine. There is incorporated with it several Masses, of a white friable Substance, form'd into small Plates set edgeways; as also very numerous cubic Crystals, some of them transparent, but having a Cast of yellow; others opake, having their exterior Surfaces black, and some few brown. This was taken up at the depth of about 30 Foot, in a Vein of a Mine of Mr. W. Hodgkinson, near Alhove in ScarisDALE, DERBYSHIRE. That the Ore of any Metal shows, proceeds, generally, meerly from Crystal, combining with it in the Concretion and Formation of the Mass. Crystal, pure, and without Mixture of other Matter, concretes ever into an hexagonal Figure, pyramidal or columnar, terminating in an Apex or Point. Mineral or metallic Matter concreting with it, frequently determines it to other Figures peculiar to the Disposition of each Kind of that Matter. Iron concreting with Crystal, determines it to a rhomboid Figure *: Tin, to a quadrilateral Pyramid †: Lead, to a Cubick ‡. Where the mineral or metallic Matter thus concreting with the Crystalline, is equally diffus'd throughout the Body of it, and in so small Quantity as not to be perceived by the Eye, the Body continues still near as transparent as Crystal. Where the mineral or metallic Matter is in greater Quantity, so as to take the Eye, the Body appears imbued and tintur'd with the Colour, that the Mineral or Metal concreting with it, naturally gives and imparts; and is finer or higher, and more sature, in proportion to the Quantity of the mineral or metallic Admixture. 'Tis to this, that all the ting'd Crystals, and the various ring'd Gems, owe their Colours. Lead incorporating thus, imparts a yellow; Tin, a black; Copper a blue or green; Iron, a purple, amethystine, and all the various sorts of Red. Where the mineral or metallic Admixture with the Crystalline happens to be superior, and in so great Quantity, as wholly to render the Body Opake: and all flat or angular, Fossils that are Opake, owe their angulated Figure chiefly to the Crystalline or harder gemmeous Matter, incorporated with
them. No other Matter, that I have ever seen, concreting into such figures; except, sometimes, a little Sulphur: of which there are Instances in some Pyrites and Marcasites. This Matter, n. 132, rightly reflected upon, exhibits some Phenomena that attest this Doctrine; and numerous other Instances there are, among the Bodies of this Catalogue, that give further Proof of it: to say nothing here of the Observations and Experiments in my other Papers, that favour and make it out.

CLASS XI. PART IV.

The Ores of Iron.

PREFACE.

There are some Ores in Germany that answer the Load-stone; insomuch that, when finely powder’d, all the Iron leaves the Earthy Parts of the Ore, and applies itself to the Magnet. Laz. Erckern. L. 4. c. 21.

Iron is rarely found pure in the Earth, so as to be malleable. wid. Agric. L. 5. p. 421. supra.

From the Hämatites, and some other Iron-Ores, are prepared several Medicines that are in frequent use; tho’ I confess, I cannot approve of them.

Iron-Ores.

EXTRACT.

I. Names used, by the Miners, to distinguish the several sorts of Iron-Ores.

Smith, o. 95*, 96. — also the Mother of the Mine. o. 96.
Iron-Stone, call’d by the Miners, Cabala-Vein. o. 3.
—— Gentle Pit-Ore. o. 4.
—— Ball-Vein. o. 5.

II. The various Bodies work’d for Iron. Their Origin, Texture, Constitution, and Figure.

The Geodes, and other crusted Bodies work’d for Iron. o. 1, 5, 6, 7, 102.
Iron Nodules in form of the Ludus Helmontij. o. 29, 30, 31, 32, 104, 105, 106.
Iron Nodules ally’d to the piped waxen Vein.
Iron-Ore, soft, and in form of Clay. o. 95, *95, 96.
Yellow Ochreous Bodies, yielding Iron. o. 2.
Yellow-Ochre in the Iron-Veins. o. 12.
—— in the Iron Geodes. o. 102.
Red Ochreous Iron-Earth. o. 62, 63.
Iron-Stone. o. 3, 4, 5, 8, 34, & seq. 103.

Hämatites,
Hæmatites, Iron-Ore. o. 42. & seq.
— compos'd of Crusts made up of transverse Fibres, like those of the fibrous Tales. o. 42. & seq.
Hæmatites sometimes form'd in Fillures, in the Forest of Dean. o. 11, 26.
— in Cornwall. o. 75.
Hæmatites having in it cubic Hollows, seeming to be Impressions of a cubic Spar, Pyrites, or other like Body. o. 47, 49, 50.
A Crust of Spar betwixt two Crusts of Hæmatites. o. 7 8.
Iron-Ore shot into quadrilateral Pyramids, as if it held in the Grains of that Metal being naturally in that form. o. 82.
— shot into Rhombs. o. 16, 18, 19.
— with Shoots and Efflorescencies somewhat resembling Erica, or the common Heath. o. 85.
Iron Stalactitæ, found with the sparry, in the perpendicular Fillures, and form'd, after the same manner, by Water, bringing the ferreous Particles out of the Strata into the Fillures, where it quits them. after, by its falling, as by an Icicle, it has dispos'd them to concrete into that form. o. 20, 21, 22.
— several united in one Falcis; and, for that Reason, call'd Bruhl Iron-Ore. o. 22, 24.
— final, black, joint'd in a Fasciculus, each striated from the Axis to the Surface. o. 26.
— with ferreous Rhombs upon them. o. 25, 27.
The Iron Stalactitæ continue to be form'd to this day. o. 23.
Ferruginous Threads in Iron-Ore, seeming to be Native Iron. o. 11.
Iron-Ore, in a perpendicular Fillure, so rich as nearly to approach the Constitution of Native Iron. o. 81.

III. The Place and Manner in which Iron-Ore is found.
Iron incorporated with the Sand constituting the Stone of the Strata. o. 3, 4, 5, 8, 34, & seq. o. 103.
Iron-Ore form'd in perpendicular Fillures. o. 16, 19, 60, 81.
— a Load 3 Foot over, at Temple, in Cornwall. o. 97.
— running North-West, and South-East. o. 97.
Smitt found in Veins or perpendicular Fillures. o. 96.
Hæmatites lies in Bellies. o. 60.
An Iron Shoad-Stone, from the Peak, o. 41.
— from Cumberland. o. 100.

IV. Other Bodies incorporated with Iron-Ore.
Iron Nodules with Lac Lune in the Shrinks or Cracks. o. 104, 105.
Iron-Ore with Spar. o. 11, 12, 84.
— with bright sparkling Spar. o. 101.
— with crystalliz'd Spar. o. 12, 13, 14.
— with
with a reddish glittering taly Spar. o. 28.
— with Spar white with a Cast of Red. o. 93.
— with Crystals tinged red. o. 60, 61.
— with Marcasite, called by the Miners in Cornwall, Cockle.

Iron-Stone with a Vein of Coal in it. o. 36.
— with the Bodies call'd Screw-stones in it. o. 93.
— with Sea-shells in it. o. 4, 36, 38, 39, 40.
Hematites with Spar crystalliz'd, semipellucid with a Tincture of red. o. 55, 59.

V. The Uses of these Bodies.

Of the Use of Hematites in Medicine. Preface to this Part.
Smith us'd for a red Colour, by Painters o. 95*.
The Uses of Iron and of Steel are too many to be enumerated.

VI. The Proportion of Iron in the various Kinds of Ores.

Of the Fusion and smelting of them.
Iron-Stone, yielding \( \frac{3}{4} \) Iron. o. 34.
— yielding \( \frac{1}{2} \) Iron. o. 3.
Hematites, the richest of Iron-Ores, yielding \( \frac{12}{10} \) of Metal. o. 42.
The Geodes and other crustated Bodies run pretty freely in the Fire. o. 1.
Of the smelting of the Hematites Iron-Ore. o. 42.

Iron-Ores.

o. 1. A smooth flat Body of a brownish yellow Colour, about an Inch in breadth. From ——— in Sussex. Mr. Harris. 'Tis of a hard stoney Constitution: and scarcely holds above \( \frac{1}{2} \) Iron. It seems to have been a Nucleus, and included in a stoney Cruft. Indeed this, and several of the Bodies work'd for Iron in Sussex, appear to be of the same Constitution with the Geodes and Bezoar Mineral. Vid. o. 5, 6, 7, infra. That likewise from Derbyshire, o. 7. is of the same Constitution. The Sussex Ores run pretty freely in the Fire for Iron-Ores; otherwise they would hardly be worth working.

o. 2. Another larger, and paler, as also softer, and indeed only an Ochre. This seems also to have been a Nucleus: and has Fragments of two ferruginous Crufts within one another, still adhering to it. They are about \( \frac{3}{12} \) of an Inch thick: and hold Iron. There is wedg'd into the Middle of it a Plate of about the same thickness, and much the same Constitution and Colour. From Battle, in Sussex.

o. 3. A piece of Stone flat, of a dusky brown Colour, with a slight Blush of red. 'Tis said to be pretty rich in Iron. The Miners call this Cabala Vein. Battle in Sussex. This yields \( \frac{1}{4} \) Iron. Conf. o. 103, infra.
0. 4. Another, of a somewhat paler Colour. This has several shining Sparks throughout the Body of it, which probably are Grains of Spar intermix'd with those of the Stone. 'Tis a Piece of a Stratum: and in one part of it are many Fragments of some sort of small Bivalve. It holds scarcely so much Iron as the former. They call it Gentle-pit Ore. Battle, Sufex.

0. 5. Another broad flat Piece, gradually thinning towards the Edges. The interior Sub stance of it is of a brown Colour, the exterior a brownish yellow. There are Fragments of thin Crufts of a ferruginous Colour adhering to the Surface of it. This yields near as much Iron as n. 3. They call it the Ball-Vein, Battle in Sussex.

0. 6. Another, likewise gradually thinning towards the Edges. 'Tis of a brown Colour. There are Fragments of five Crufts of a ferruginous Colour, tho' some darker, and others paler, one over another, adhering to it, each about 4 or 15 of an Inch thick. From Battle in Sussex.

0. 7. Another, of an Iron-grey Colour, its Surface brown. There was a Cruft upon it of a ferruginous Colour, and about 4 of an Inch thick, which easily parted off from it. This holds but little Iron. From Smally, in Derbyshire.

0. 8. A Piece of Stone of a dark Iron-grey Colour, but in some Parts of a ferruginous Colour. There are many extremely small metalline Sparks mix'd throughout the Body of it. This seems to hold about 4 Iron, being more ponderious than any of the foregoing. From -- Staffordshire. There are thick Strata of this Stone. It lies about 15 Fathom deep over the Coal.

0. 10. Iron-Ore, said to hold also a small admixture of Lead. The interior Substance is of a grey Colour, shining: the Surface of a rust Colour. From near Torbay, Devonshire.

0. 11. Iron-Ore, of a dark ferruginous Colour, but in some places tending towards a yellow, and in others towards a white. There appear several shining sparry Sparks throughout the Body of it. In the middle of it is a Chink, or Hollow, lined with a shining Cruft striated a-cros, like the Crufts of the Hamatites, and appearing to be of the same Nature. There are several Threads of a ferruginous Colour, and seeming to be native Iron. There were other Pieces that had the same kinds of Crufts very plain. From Cleeverwall, in the Forest of Dean, Gloucefsiri.

0. 12. Iron-Ore, of a ferruginous Colour, having a great Quantity of white Spar incorporated with it. There are several Chinks in it, all lined with crystaliz'd Spar, of a yellowish Caf. (Conf. o. 13. & o. 20.) From the same Mines. I observed a yellow Ochre, in small Quantities, in some of the Veins of these Mines: and the Rust of the Iron of some Mines, is of a brown Colour, verging upon a yellow. Tho' that Colour may be owing to Lead incorporated with the Crystal that constitutes that Stone; because of the Colour of Litharge, and of Vitrum Saturni. This is certain, there is Lead in this Neighbourhood.
0. 15. Iron-Ore of a ferruginous Colour, but in some Parts of a light brown. Throughout the whole Substance of it are extreme small Sparks of a glittering Spar. There are in it several Chinks, all beset with a crystallized Spar, which in some is white, in others diaphanous, in others yellowish, in one brown, and in another red. The Mass near this Chink is of a lively deep red Colour, and heightens the nearer it approaches the Chink, which besides the Spar has a fine bright red Ochre in it. From the same Mines.

0. 14. Another Piece, of an Iron-grey Colour, full of Hollows beset with a diaphanous crystalliz'd Spar. From the same Mines.

0. 15. A piece of Iron-Ore of a ferruginous Colour. Throughout the Substance of it are several thin Plates, of near the same Colour, placed parallel to each other. The Intervals of these Plates are, in some places, filled with the said Iron-Ore, in others with a diaphanous Spar. From a Fillure of the Stone in the same Mines.

0. 16. A piece of the Stone of the same Mines, of a yellowish brown Colour, an arenaceous friable Substance, and with some white Spar mix'd with it. 'Twas broken from the side of a perpendicular Fillure. There are adhering to it small white sparry crystalliz'd Bodies, of several sides, in vast numbers. These, for the main, are placed in Rows, parallel to each other, and generally set each, in a thin ferruginous Socker. There are amongst them some Crystallizations of a rhomboid Figure. They are about 1/5 of an Inch in Diameter, wholly opaque, tho' the Surfaces be polite and thinning, some of an Ochre, others of a rust Colour.

0. 17. Another, found together with the former, and little different from it.

0. 18. Iron-Ore of a deep ferruginous Colour, with Veins of a white and yellowish Spar. In it are several Cells beset with Cubes or Rhombs, not different from those in 0. 16. only that they are all of a somewhat deeper rust Colour from the same Mines.

0. 19. Stone of the same sort with that 0. 16. from the side of a perpendicular Fillure. There's upon it an Irony Crust, having an Admixture of Spar with it; and from that Crust rises a fratured Substance, partly of a ferruginous, and partly of an ochreous Colour, in Texture much resembling rotten Wood. Upon this, grow many of the aforesaid Rhombs, of a light ferruginous Colour. Some of the Rhombs, near the Crust, being broken, shew that they consist of two Parts; there being in the Centre a greyish sparry Rhomb, included in a ferruginous rhomboid Cafe. From the same Mines.

0. 20. Small roundish Columns of a dark brown Colour, placed near a Parallel to one another, and cemented together by a white Spar with a yellowish Cast. The Out-sides of the Columns, I mean the Sides that terminate at the Surface of the Sheaf or Fascis of Columns, are frosted over, or thick set with small Sparks of a crystalliz'd Spar with a yellow Cast. Still from the same Mines.
Mines. This was found in an hanging Posture in a perpendicular Fissure; and the Columns are no other than several Stalactites, partly ferreous, and partly sparry, run into one Body and conjoin’d together.

0. 21. Another found in the same Posture; and in the same Fissure, but three Yards distance. This is little different from the former, only some of the Columns are red; and the sparry Frost without more pellucid, and without any Cast of yellow.

0. 22. Other like parallel Columns, consisting of a Mixture of Iron-Ore, and Spar of a very dusky brown Colour without, but somewhat more pale within. ’Twas found in another Fissure in a hanging Posture, adhering to a reddish Stone, part of which is broke off with it. In the same Mines. This is what is called Brush-Iron-Ore. The Columns are of about the Thickness of a midling Goose-Quill.

0. 23. Another Sample, little different from the former, only the Columns are somewhat more distinct, found hanging in like manner from the Roof or Top of the Vault of an old Work now deferted. The Ore was exhausted; and these Bodies are grown since the Miners left off working this Mine. There are a great many of these hanging from the top of the same Vaults.

0. 24. Another, the Columns somewhat less, rougher and more uneven in their Surface, and of a lighter brown Colour. They leffen gradually as they descend, till at last they end in an Apex or Point. There are a few angular Crystallizations, not different in Substance or Colour from the rest of the Body, on the Out sides of some of the Columns. From the same Mines, and hanging down in the same manner.

0. 25. Another, the Columns of a lighter brown, with a larger Admixture of Spar in them. The Oufides of them are set all over with Crystallizations of the same Colour, all tending towards a rhomboid Figure. Found in the same manner, in those Mines also.

0. 26. Another, chiefly of a black Colour. The Columns are broken off short, and are of the thickness of a Crow’s-Quill. Within, they appear very black and shining, and are striated or radiated from their Axis to their Surface. In some Parts of the Masts to which these Columns adhere, are Edges of Crusts, of the same Colour and Constitution with the Columns, but striated across, like those of the Hematites. From the same Mines.

0. 27. Another of a reddish Colour: ’Tis in some Parts run into Columns, groffer, but not so distinct, as in 0. 22, & 23. The Surface is set all over with red Crystallizations, tending towards a rhomboid Figure, sparkling and briskly reflecting the Light; and so placed, that their Edges stand generally to the Surface. From a Fissure of the same Mines.

0. 28. A piece of Iron-Ore of a black Colour externally, and its Surface very unequal, much resembling a Cinder or Slag. Internally the Colour is a reddish brown. The Substance perforated with
with several parallel pores; some of them empty, others fill'd with a reddish glittering talky Spar. From a Fracture of the same Mines. This is very rich.

0. 29. A Mass of an irregular Figure. 'Tis black without; and where broken, appears to be of a rust-colour. From Dudley Iron-Mines in Staffordshire. This is one of the Tali of a Nodule in form of the 

Ludus Helmontij. Conf. o. 105. infra.

0. 30. Another, very black, both within and without. Where 'tis broke, there adheres a thin Film of a white Matter, like that call'd by Mineralists, Lac Lune. Out of the same Mine with the former. Conf. o. 105. infra.

0. 31. Another, for the main of a rust-colour, with some Intermixture of black and yellowish. From the same Mine still. Conf. o. 105. infra.

0. 32. Another, brown without, and of an ash-colour within. From the Iron-Mines of Wolvedesbury in Staffordshire.

0. 33. Another of a reddish brown without, and a somewhat more dusky brown within. From the Iron-Mines of Walsal, Staffordshire. Where broken, it exhibits some whitish Films, like those in 0. 30.

0. 34. A flat piece of an Iron-Stone; its two opposite flat Surfaces black. Where broken, it shews an ash-colour, with some yellowish Spots. From Godnor in Derbyshire. This is the most common Iron-Ore, or rather Iron-Stone, of England. 'Tis of the middling Tenor, and yields about $\frac{4}{5}$ of Iron.

0. 35. Another of a dark-grey Colour, with a blush of red. From the same Mine.

0. 36. Another, of near the same Colour. There's in it a Vein of Coal of a very bright black; and another of a brown Spar. On one side is the Impression of a Bivalve, and some Flakes of the Shell still adhering to the Stone. From the same Mine.

0. 37. Another, of still the same Colour, with Veins of a brownish Spar. From the same Mine.

0. 38. Another, the Colour grey, yellowish, with a dusky brown. There are upon it Impressions of Bivalves of several forms, and of different sizes. From -------- in Sussex. Mr. Harris.

0. 39. Another piece of Iron-Stone, one side of a yellowish, the other of a reddish brown. On this side are Impressions of several small Bivalves. From -------- in Sussex. Mr. Harris.

0. 40. Another, of a very dark brown. There are several turbinated Shells in it: Some of them fill'd with this Stone, others with white Spar. The Shells are generally perish'd and gone, and the Places of several of them fill'd with the same sort of white Spar. From -------- in Sussex. Mr. Harris.

0. 41. A small Stone smooth without, and of a dark Liver Colour. 'Tis of the same Colour within, with the Addition of a faint Cast of Purple. From Worksworth in the Peak. This is what the Miners in Cornwall call a Shoad-Stone; it being a Fragment, broke off an Iron Vein, by the Water of the Deluge depart-
ing; worn and smooth'd, by being hurry'd along by it; and finally left behind. Conf. 4. 0. 100. infra.

0. 42. A Lump of Iron-Ore of a deep dusky red Colour. This is of that sort which is call'd by Mineralists Lapis Hamatites. Towards the Surface, 'tis cover'd with several Crystals, the thickest about \( \frac{1}{4} \) of an Inch, the thinnest not above \( \frac{1}{4} \). They lie close to and are exactly fitted upon one another. They confift entirely of transverse Fibres. The Surface is smooth, shining, and rising all over, in an elegant manner, into globular Tubera and Inequalities, not ill resembling a Cluster of Grapes. From the Iron-Mines of Langron near Whitehaven, Cumberland. Conf. Class 3. c. 263.

The Facetious Cinnabar or Cinnabar of Antimony, much resembles the Hamatites in its fibrous Texture, and other ways. Now this Body is form'd in the Fire; and the Hamatites seems to have been so too; tho' it be difficult to account for that. The Hamatites Iron-Ore is found here, about White-haven, in great quantity. It yields about \( \frac{1}{5} \) in Iron; and is, perhaps, as rich as any in the World. It comes at the first Fusion into a Mafs that is immediately malleable, and will not run thin, so as to cast and mould, unless mix'd with poorer Ore, or Cinders. 'Tis carried over, and work'd up, chiefly in several parts of Ireland, where Wood is more plentiful, than in England. Besides, they carry it into Chesbire, Staffordshire, and Pembroke-shire, and there melt it down with their poorer Ores; it promoting their Fusion, and fetching the Iron of those Ores more freely and fully out.

0. 43. Another, little different, only in the Body of it, now broken, appear small Sparks of a glittering Spar. From the same Mines.

0. 44. Another, having only one Crust or Shell at the Surface, of about the thicknes of a Line. The Globules in this, are smaller, the Surface more unequal, and the Body redder than either of the former. From the same Mines.

0. 45. Another, little different from n. 42. From the Iron-Mines of Furness in Lancashire. Mr. Fitz-Roberts.

0. 46. Another, consisting of several Crystals; whereof the innermost is near half an Inch thick, black, shining, and polite, and without any transverse Stria or Filaments. From the Mines of Langron, Cumberland.

0. 47. Another, consisting of only one Shell, breaking into several unequal Planes, black, shining, and polite, without any Striae. From the Mines of Langhorn, Cumberland. On the Inside of this is a cubical Cavity of about \( \frac{1}{4} \) of an Inch in Diameter, with several lessers, as if there had been either cubic Spar, Pyrite, or other like Bodies, lodg'd in it.

0. 48. Two Crystals, one upon another, each about \( \frac{1}{2} \) of an Inch in Thickness, and striated a-cross. From the same Mines.

0. 49. An Hamatites little different from that o. 46. only in the inner part, appears a cubical Cavity half an Inch over, and 2 or 3 lessers like Cavities. From the same Mines.

0. 50.
o. 50. Another, with like Cavities and Cruft, only the interior thick Cruft in this is striated. From the same Mines.

o. 51. Another, little different from o. 42. only the transverse Stria are scarcely so strong and conspicuous. From the same Mines.

o. 52. Another, consisting of only one Cruft, an Inch in thickness, striated, black, and shining. The Surface of this is rough and porous. From the same Mines. This has a Cast towards Purple.

o. 53. Another, little different from the preceding, having that tis redder, and its Surface smoother. From the same Mines.

o. 54. Another, within of a gritty Stone-like Substance, of an iron-grey Colour, in some places cover'd with a red Cruft striated a-crofs, and rising into small globular Tubera. From the same Mines of Langhorn, Cumberland.

o. 55. Another, broad, and near flat, consisting of 5 Crufts. The two exterior are red, and transversely striated: the rest black and sparkling much like a piece of Steel when fresh broken. The Crufts being in some places a little distant'd, there are in the Intervals several Sparks of a crysftalliz'd Spar, most of it of a reddish Colour. From the same Mines. The Surface rises into Pustules very thick, but they are lower and flatter than in most of the foregoing. Confer. Class. 3. c. 265.

o. 56. Two Crufts of an Haematites, each about 3/16 an Inch thick.
The outer, red, pretty smooth, and striated a-crofs; the inner, black, shining and sparkling like Steel, when first broken. On the inside of this, are many small, thin, black, shining Plates standing irregularly, but generally edgewise, by each other. From still the same Mines.

o. 57. Another, little different from the foregoing. From the same Mines.

o. 58. Another, seeming to consist of many Fragments of Crufts striated a-crofs, and irregularly placed on one another. 'Tis of a dusky rust Colour, glossy, with a faint Cast of Red. From the same Mines of Langron, Cumberland.

o. 59. Three Crufts of an Haematites, adhering to each other, and cross'd with fine small Stria. They are of a dark iron Colour, with a faint blue Cast. On the Surface of the outermost, is a crysftalliz'd Spar, semipellucid, and white, with a faint Tincture of red. From the same Mines.

o. 60. An Iron-Ore of a dark Colour, with a slight Cast of red. There are adhering on the sides of it, several sparry Crystallizations hexagonal and pointed, where they had room to shew. Some of them are diaphanous; others white; others of an iron red, very bright, shining, and polite; others not polite, but appearing as if powder'd over with an extreme fine Iron-dust. From the same Mines. This, the precedent and following Samples were taken out of Q. 3. Fissures
Figures of the Stone adjacent to the Bellies or Receptacles of the Ore of these Bellies and the Langron Mines.

0.61. Another, little different from the former. In this one of the Crystalline Shools is very distinct, large and fair. 'Tis red, shining, and polite: only one side of it appears rougher, and as if sprinkled over with a fine impalpable Iron-duct. From the same Mines of Langron.

0.62. A Body like a Red-Ochre, somewhat friable, and very thick set with very small blackish Sparks, appearing like Steel-duct. From the same Mines at Langborn. I have a sort of Native Cinnabar from Hungary, very like this; and the Artificial, or Cinnabar of Antimony, commonly much resembles this, only in that the Sparks are commonly smaller.

0.63. Another, not so red or friable: but thick set with like blackish shining Sparks. Amongst them in some parts are Brass-like shining Sparks: in others small Spots of a lovely bright blue Colour. From the same Mines.

0.64. A Tuberous Haematites. From Langron, in Cumberland.

0.65. Another, from the same Mine.

0.66, 67, 68, 69, 70, 71, 72, 73. Parts of Tuberous Haematites shewing several Varieties in the Cruffs, Striation, Texture, and Constitution of this Body. From the same Mine.

0.74. Part of a very thick Crust of that sort of Iron-Ore call'd Haematites. From the same Mine at Langborn. 'Tis two Inches and 1/4 in Diameter, and striated a-crofs. The fibrous Grain of this comes up so nearly to that of the fibrous Tale + d. 1. and + d. 11 *, that I cannot but suspect that the fibrous Structure of these Cruffs of the Haematites, and other like Bodies, is owing to an intermixture, of this sort of Tale, with the Iron in these, and the various other Matter that constitutes those other Bodies, in the Formation of them.

0.75. A small Body, appearing to be of the Haematites kind. Dug up about three Miles from Penzance in Cornwall. Dr. Coamar. He informs me that this sort has been lately discovered there in considerable Quantity.

0.76. A plated Haematites. From Langron in Cumberland.

[Concerning these Plates, see the Account of that Mine, p. 24.]

0.76 *. Another, with small Tubera arising out of it. From the same Mine.

0.77. Another, from the same Mine.

0.78. Another, from still the same Mine. This, betwixt the Cruffs of Haematites, has a parallel Crust of Spar.

0.79. A Piece of Iron-Ore, with Efflorescencies, of much the same Constitution with those of the Haematites, rising from it. There are also Sparks of Spar appearing in several Parts of it. From Mr. Steel's Mine, which is about two Miles distant from the great Mine, at Langton, in Cumberland. There is, in this, a Crack; which seems to have been a Shrink, or Contraction, in
the Body since 'twas first form'd. Of these Shrinks, see the Account of the Ludus Helmontij, Class 4. supra.

o.80. A Piece of Iron-Ore, black, with a Cast of red, glossy, and shining. It somewhat approaches the Hæmatites. From Furness in Lancashire.

o.81. A Mafs of Iron-Ore, extremely fine, with Efflorescencies and Tubera so rich that they very nearly approach the Constitution of Native Iron. Found in a perpendicular Fissure, in the middle of the Skrees, a vastly high Mountain in the Estate of the Duke of Somerset, in Wastdale, in Cumberland. This fort is very rare; but, in the Veins and Fissures of this Mountain, there is a considerable Quantity of good Iron-Ore, tho' it be not search'd after, or work'd.

o.82. Another Piece, very rich, in which Part of the Ore is shot into quadrilateral Pyramids, the Figure of the Tin-Grains, as if there was some of this Metal likewise in the Mafs. From the same Vein.

o.83. A Piece of Iron-Ore, approaching the Hæmatites, very hard, close, ponderous, and rich, of a flinty Constitution, and striking Fire very freely. From the same Fissure, in the Skrees. Vid. o. 101. infra.

o.84. A Piece of Iron-Ore, not quite so hard as the foregoing, but very rich; of a dusky red Colour; with an intermixture of a whitish glossy Spar. From still the same Fissure, in the Skrees Mountain.

o.85. A Piece of Iron-Ore, with Tubera, Shoots, and Efflorescencies, very fine. Taken out of a perpendicular Fissure near the top of a very vastly High Mountain, about half a Mile from Longthwaite-Gill in Cumberland. This Vein holds a great deal of very good Iron-Ore: but 'tis not known, or work'd. The Efflorescencies in this Sample, are not to be compared with several that I observed, in some Parts of the Ore of the fame Vein; but they were so tender and brittle that I could not easily preserve them. They arose, like Vegetables, with a single Stem; which parted afterwards into several Branches. I observed of all Sizes of them, to the Height of near two Inches. The Stems were round: and the Branches; only these, towards their Extremities, were jagg'd in such fort, that they there resembed the common Heath. They were exactly of the Complexion of Iron, a dusky red, with a Cast of blue.

o.86. Another Sample, with Efflorescencies not less observable. From the same Vein, or Fissure, in the Skrees Mountain.

o.87. Another, very fine, and rich; from the same Vein.

o.88. Another, from the same Vein.

o.89. Another, from still the same Vein.

o.90. A Piece of Iron-Ore, extremely rich, and very hard, of a Steel Complexion; with an intermixture of Sparks of Spar. From a perpendicular Fissure in the Skrees, about a Mile distant from that mention'd o. 81. The Ore got lately at Prisington,
near Whitehaven, is of much the same sort: but poorer and more stoney.

0.91. Iron-Ore, of a blackish Cast, from Newcastle under Line, Staffordshire.

0.92. Another, not much different. Suffix.

0.93. Iron-Stone, of a dusky red Colour; with an intermixture of a glossy Spar, having in it several small Bodies of that sort that are commonly called Screw-stones. From — — — Mines, near Winander-Meer, in Lancashire.

0.94. Iron-Ore, of a middle Nature betwixt the Clayey and Stoney sort. From Langron-Mine, Cumberland.

0.95. The sort, or Clayey Iron-Ore, from Langron, Cumberland.

0.95*. More of the same, somewhat softer, and work'd up into a Ball of the biggest of an Hen's-Egg. They commonly make up this sort into this Form: and call it for the Smitting, as they call it in the North, or Marking of Sheep: For which Reason also they call it Smitt. This is unctuous or oily: as are most of the Bodies in the Langron-Mine, whence this came. This is used by Painters: and makes a Red, little inferior to the Indian Red-Earth.

0.96. Like Clayey Iron-Ore. Found in the Skrees, in the same Fissure with 0. 81. This is the finest of the Clayey-Ore: and, thus made up into Balls, they use this also for marking of Sheep, and call it Smitt. The Miners call it the Mother of the Mine.

0.97. A Mafs of a deep grey Colour, bright, sparkling and very much like Steel, where broken, only the Grain is somewhat larger. I have not try'd it: but it seems to hold Iron. From Temple, Cornwall. 'Twas part of a Load, three Foot over, and running North-West and South-East.

0.98. A black glossy Iron-Ore, having in it a little Spar, white, with a Cast of red. From Mulberry-Works, in Lanivet, Cornwall.

0.99. Iron-Ore, in some Parts brown with a Cast of red: in others of a dusky Complexion, near black. There are also in it Parts of a Brass-like shining Marcasite: and 'tis very probable there is Copper in the Mafs. The Miners call this sort Cockle. From — — — in Cornwall.

0.100. A Mafs somewhat larger, and of a Grain more smooth and fine, otherwise of much the same Colour and Composition with that 0. 91. supra. Found among Pebles, near Penrith, Cumberland. Lord Bishop of Carlisle. This appears plainly to be a Shead-stone, born from some very rich Iron- Vein.

0.101. A Piece of Iron-Ore, of a dark Liver Colour. It breaks like a Flint: and its Constitution is near as compact and fine. On one side, in a small Cavity, is a bright sparkling Spar. Newent, Gloucestershire. It strikes Fire, as that 0. 93. supra, does.

0.102. Part of a Nodule, flat, and almost square. "Tis near an inch in Thickness: four Inches over one way, and above three another,
another, where it has been broke. In the middle is a Matter pret-
yty hard: grey, with a Cast of yellow. This is invested with a
Cruft of a deep red Colour: and, without all, is a Cruft of a Co-
lour more dusky and near black. Betwixt the two Crufts is a
fine yellow Ochré. This Body is nearly, ally'd to the Iron Ores.
o. 5. 6. and 7. supra. and indeed both those and this to the Geodes,
and mineral Bezoars. Found among Marl, near Hunton, in Kent,
in the Pit mention'd by Dr. Halley, Philosophical Transactions,
No. 155. p. 463. These Bodies are found in that Pit but sparing-
ly: but are got 10 or 12 Miles off, at - - - - in greater plen-
ty; where they are smelted, cast into Guns, wrought into Bars,
&c.
o. 103. Iron-Stone, the Colour dark grey, near black: of a
Constitution much like that o. 3. supra. From - - - in Stafford-
shire.
o. 104. Part of a very large Mass of the stoney Iron-Ore, from
Weddesbury in Staffordshire. There are large Masses raised of it.
'Tis very hard : and of a dark grey Colour. There are in some
Parts of it Cylindric Cavities: and some of them have Pipes in
them, in shape not unlike those of the piped waxen Vein; but
they are generally of a blackish ferruginous Constitution. Not
but that, in some Parts of the Stone, I have observ'd, in break-
ing of it, Spar very like the sparry Matter of the piped waxen
Vein: and in others a coarser Spar, with a white light farina-
cceous Matter, exactly like the Lac Lune. I also observ'd, in
some few Parts, Plates of a white Spar, not unlike those in some
of the less perfect Ludus Helmontij.
o. 105. The finer Iron-Ore, from Weddesbury. This was part
of a Nodule, of the bigness of a Man's Head. 'Twas apparently
of the Texture and Composite of the Ludus Helmontij; consist-
ing of several Tali, parted generally from one another by In-
tervention of that fine white dusty Matter, commonly call'd Lac
Lune: but sometimes by thin Plates of a whiter Spar, very
friable, and reducible to a Ponder, like that of Lac Lune. And
indeed this seems to be no other than that very Mineral incor-
oporated with a very small Proportion of Crystal. Perhaps, one
fort of the coarser white Spar is made of that very Composi-
tion: I mean, of the Farina of Lac Lune incorporated with
crystalline Matter. And as the one or other is superior in quan-
tity, the Body is more or less diaphanous. There are other kinds
of Matter that are frequently found intermix'd with Spar; but I
take the Lac Lune to be the most common of any in the white
Crufted Spar of Gloucestershire. This is certain, that Lac Lune
is very frequently found in the Fissures of the Stone, in great
plenty in the Quarries about Sherborn in Gloucestershire, loose in the
perpendicular Fissures, along with the Spar: And indeed, in
many of the Quarries of that, of Northamptonshire, and the neigh-
bouring Counties, as well as elsewhere in many other Parts, in the
the Quarries, and Mines *. This Specimen of Ore is part of the out-side of the Lump, which was a Nodule, and lay loofe in the Bed. 'Twas of a fluttery Constitution: and very easily broke to pieces. There is one of the Tali along with it.

o. 106. Part of another Core or Talus, out of the Nodule before-mention'd. These are hard and pretty rich of Iron. They do not split with a Grain: but break irregularly and uncertainly, like Flints.

APPENDIX to CLASS XI. PART IV.

Mineral Bodies that contain in them more or less of Iron.

SECT. I. Magnes, the Load-stone.

PREFACE.

A Load-stone that weigh'd but 11 Grains would take up a Piece of Iron of an Ounce in weight. Sir J. Petts's Dictionary to L. Erckern, in Load-stone.

SECT. I. Load-stone.

† o. 1. A piece of Load-stone, of a dusky blackish Colour, with a Cloud of an Iron-Colour, and several black glossy Sparks. There is incorporated with it a white Spar. Its Magnetick Power is very little. From —— in Devonshire. Mr. Robert Ball.

† o. 2. A piece of Load-stone, black, shining, and ponderous: with a Vein of Granates in it. From — — in Devonshire. Mr. John Walter.

SECT. II. Magnesia, Manganese.

—x. o. 1. Manganese, without of a reddish rust-colour, within more black. 'Tis porous, and not very heavy. From the Charter-house Liberties, Mendip.

—x. o. 2. Manganese, of a dusky grey Colour, near black: and of a Constitution more firm, close, and hard, than the former. From —— upon Mendip, Somersetshire.

SECT. III. The Crystallized ferruginous Bodies: Bezoar Minerale, Geodes, Enhydros.

PREFACE.

These Bodies have generally Iron in them, more or less; for which reason it is that they are ranked in this Place. Indeed, some of them hold so much Iron, that they are work'd and smelted for it. Confer. o. 1, 5, 6, 7, 102. supra.

* See some Specimens of Lac Luna in Spar, in my English Collection, f. 39. to f. 40.
For the better distinguishing these Bodies, it may not be amiss to
give the discriminative Characters of each, out of my methodical
Distribution of Fossils into Classes, published at the end of my An-
Sect. 5. "Stones consisting commonly of several Crusts one within
"another. 1. Having the Crusts close, cohering, and no Cavity
"within, BEZOAR MINERALE: or, 2. Having in them a Cavity,
"with Matter in it, loose, and moveable; either, first, solid, and
"floury, call'd a Callimus, ÆTITAE: or, secondly, loose, as Sand,
"Ochre, Chalk, Earth, GEODES: or, 3. liquid, ENHYDROS."
The flinty Ætitae are set forth in Clas III. in which the several
Varieties of Flints are exhibited. The Ochre-ferrous Ætitae are
of the Constitution of the Bodies treated of here: and, as I have
observed several of this latter sort, I kept some; but know not by
what Accident they have been since lost: so that there are none
entered here.

As for the other Bodies set forth here, they are not placed in good
order. But I must not now pretend to vary the Method, or the
Numbers, because they are refer'd to, under the Numbers they
stand here, in some of my other Papers.

The Crusted ferruginous Bodies.

4 o. 1. Enhydros. A Body of a flattish Form, and about the
bigness of a Man's Fift. 'Tis broke, and by that means two Ca-
vities discovered within it. The bigger of them is of about the
Capacity of the Shell of a Turkey-Egg: the lesser, of about that
of a Pigeon. It is consisttuted mainly of 3 Crusts, within one
another; which easily flake and subdivide into other thinner ones.
The innermost is not above \( \frac{1}{10} \) of an Inch in thickness: the mid-
dlemost about \( \frac{2}{9} \); and the exterior about \( \frac{4}{9} \). 'Tis, for the main,
of a yellowish brown Colour: but in some Places of a darker
and ferruginous Hue. This I took forth of a Stratum of Clay,
in which was a great deal of fine Sand, 15 Foot deep, in Caen-
Wood, betwixt Hamstead and High-gate. It had a Liquor in
the Cavities of it: and is one of those Bodies the Antients called
Enyndos.

4 o. 2. A Piece of another, little different, parted into several
Cells. The Surfaces of the Crusts of this rise into Scales, and
Flakes. Found with the former.

The two precedent Enhydri were found, amongst many others,
in sinking the Wells in Caen-Wood; whence that Water which
we call the Hamstead Water is derived, and conveyed first into
great Ponds at the bottom of the Hills, in which those Wells
are sunk, and from thence by Pipes to London. I was down
only in one of the Wells, which they were then in digging: but
I saw several of these Enhydri, with a pretty many Pyritae, a-
mongst the Earth that was h ung forth of the other Wells. They
are of several Sizes, from the bigness of a Walnut, to about 2
Foot in breadth. They are generally of a compress'd Shape: and
and lessen or grow thinner towards the Edge or Ambitus of them. Those that I saw, lay about 15 or 16 Foot deep, in a Stratum of sandy Clay: The Surfaces of that Stratum, and the Flats or larger Plains of the Enhydri lay parallel, and level. They were all hollow, and usually divided into several Cells, but there were uncertain, both as to their Number, Figure, and Capacity. The Partitions of the Cells were rarely very thick. The outer Coat was in some double, in others triple, and in a few quadruple; as consisting of 2, 3, or 4 hollow Crysts, involving and carrying one another. They were, for the main, of the same Constitution with those of the two described above. The Cavities or Cells were generally near full of an insipid Coagulum, or Liquor, about the Constifitence of Cream, though in here and there one was a little thicker. 'Twas most commonly of a greyish Colour; but in some few 'twas of a bluish, and in others of a blackish Hue.

4 o. 3. Another Enhydros, of an oval Shape, and near as big as a Man's Fift. 'Tis broken in two, and the Sides or Parieties of it are about half an Inch thick. In the middle of it is an oval Cavity, lin'd all over in an elegant manner, with a reticulated Work, the Mafhes all of near the same Size, and capable of admitting a Body somewhat bigger than a Rape-Seed. Both the Reticulum, and outer Surface, are of a yellow Ochre Colour; but the inner Substance is of a darker, or ferruginous. This was found somewhere on Mendip in Somerteshire: but whether in the Calamin-Mines, or where else, I cannot recollect.

4 o. 4. Bezooar-mineral, a small Stone of a ruf't Colour, with an Admixture of Ochre. It consists of several Coats or Crysts inclosed one in another: and is what is commonly called the Bezooar-mineral, found on the Shore of the Sea near Othorn in Yorkshire. It appears to have been tos'd to and again by the Motion of the Sea upon the Shores, which has ground away part of several of the outer Coats, and uncovered the inner ones.

4 o. 5. A Geodes, consisting of two or three Coats. 'Tis hollow, and had the Cavity filled with a ruf't colour'd Ochreous Powder. The Coats, where broken, appear of a dark ferruginous Colour. The Surface is very scabrous, and chop'd like the Bark of an old Tree; both that, and the inner Surface, being of a yellow Colour. 'Twas found in a Stratum of Gravel, in the great Gravel-Pit, on the East-side of Hyde-Park, without the Pale, where these Bodies are pretty commonly met with.

4 o. 6. Another Geodes, very scabrous, and hollow, made up of several very thin Coats of a ferruginous Colour, with an intermediate mixture of Ochre. From the same Gravel-Pit. The Cavity was filled with a loose brown Ochreous Matter.

4 o. 7. Another Geodes, likewise having an hollow, in the middle, filled with a loose yellowish Ochreous Matter. It consists of three Crysts, the middlemost much thicker than either of the other, being 1 of an Inch across. 'Tis within, where broken, of
A rufi Colour : the outer Surface yellow, and prettily cover'd over with a sort of Net-work. Found in a Gravel-Pit near Newington-Green.

4 o. 9. A whitish Body, with a Cast of yellow, friable, but rather harder than Chalk, inclosed in an hard, dusky, ferruginous Crust, about 3/16 of an Inch in thickness. Found in a Gravel-Pit on the North-side of Oxendon, near the Church. Mr. Morton. This is a sort of Geodes.

4 o. 10. A Stone of a ferruginous Colour. Being broke one part, it appears to be a Crust, inclosing a gritty Stone of a dark Ochre Colour. Both the one, and the other, shew some very small Sparks of a shining Talky Matter. This Body is very ponderous: and seems to contain more Iron than any of the foregoing. Found on the Sea-shores near Burlington, Yorkshire. This is referable, if to any of these, to the Bezoar-mineral. But this Body is not ordinarily so stoney and hard.

4 o. 11. A Geodes, of a ferruginous Colour, with several Cavities, having in each an Ochreous Duff. 'Tis broke, and in two of the Caverns are several small Cylinders, passing most of them across from side to side. There's one larger than the rest, being 3 of an Inch diameter. Found in a Stone-pit at the West-end of Desborow, Northamptonsire. Mr. Morton.

4 o. 12. A Geodes, of the Bigness and Figure of a Pullet's Egg, only it is somewhat compresse'd. 'Tis outwardly of a grey Colour. Being split in two, there appears in the middle an oval Nucleus, of the bigness of a Chestnut, of a light brown Colour, friable, and not unlike an Ochre. This is inclosed with a ferruginous Cafe, about one tenth of an Inch thick: and that with another, paler, and about three times as thick. Found near Wigan in Lancashire.

4 o. 13. A Geodes of an oblong Figure: and square, only a little flat. Outwardly it is of a dark brown ferruginous Complexion; and hard. In the middle is a Nucleus, grey, with a Cast of yellow; and softer. Sir George Wheeler. This is about two Inches in length. Found in a Gravel-pit near Durham, in which this sort is pretty frequent.

4 o. 14. Another of an irregular and compresse'd Figure; otherwise little different from the foregoing. Sir George Wheeler. From the same Pit.

4 o. 15. Another, of an oval Figure, but flat or compresse'd: and its out-side of a dark ferruginous Colour. It is compsoed of five or six thin Crusts; and betwixt each is a very thin Plate of an Ochreous Matter, which on one side of the Body is of a red, on the other of a yellow Colour. Within all, in the middle or the Body, is a yellowish Ochreous Matter, more soft and friable than in any of the foregoing. From still the same Pit. Sir George Wheeler. Indeed, the central Ochreous Matter hardens as it dries: and was much softer when first taken out of the Earth.
4. o. 16. Another, broke: scarcely different in any thing from that 4. o. 13. Found upon the Shores of the River Tyne, near Newcastle.

4. o. 17. Another Geodes, of an oblong Shape, about an Inch in length. It is composed of only one single Crust, about 1/10 of an Inch in thickness. This is of a very dusky red Colour: only the outside is of a brighter red. It is fill’d within with an Ochreous Duff, of a light brown Colour. Found in the great Iron-Mine at Langron, Cumberland.

4. o. 18. Another, of the bigness of a Walnut, of a very pale brown Colour, broken to shew the interior Constitution of it. This composed of one single Crust, having a dusty Colour within, of a darker Colour than that of the Crust. Out of a Brick-Clay-pit near Tatnam Court. They are very common in the Clay-pits all about this City; but the Brick-makers pick them out of the Clay; because, when they come to be heated in the Kiln, the Air, in the Cavity within, becoming rarefy’d, and expanding, breaks the Shell, and bursts and spoils any Brick that it may happen to be inclosed in. They call it Race or Rance.

4. o. 19. A Bezoar-mineral, of a Constitution harder than usual. This of a flattish Figure: and composed of several Crusts, each about 1/4 of an Inch in thickness. The outermost is of a red Colour: the next of a yellow: and so on alternately red and yellow to the Umbilicus of the Body. Harwich-Cliff.

4. o. 20. Part of a Bezoar-mineral, of a triangular Form, composed of Crusts alternately brown and white. Found in a Tile-Clay-pit, along with the Ludus Helmontij, x. d. 25. on the top of Shooters-Hill, Kent.

4. o. 21. Part of a Geodes, that was, when entire, about the bigness of a Man’s Fitt. This externally covered over with a ferruginous Crust, about 1/4 of an Inch thick. This was fill’d chiefly with a grofs Sand, amongst which was a yellow Ochreous Matter. Out of a Gravel-pit on Hamstead-Hearth, where there were several of the same sort.

4. o. 22. A Nodule of Race, of the same sort with that 4. o. 18. From a Brick-Clay-pit in the Fields, on the West-side of Hyde-Park.

4. o. 23. Another, oblong, and carrying the Appearance of a white Coral. From the same Clay-pit. Indeed, these Bodies are all tuberous, and unequal: and some have short Stems, branch’d, and not unlike Coral. I examin’d a great Heap of them that were pick’d out of the Clay by the Workmen: They were of several Sizes, from the bigness of a Pea, to that of a Hen’s Egg. When the Clay is wash’d off, they are all of near the same Colour, which is a light Ash-Colours. Breaking several of them, I generally found a kind of clayey Matter in them, sometimes of a brisk, and sometimes of a dusky red Colour. After they have been long expos’d, and thoroughly dry’d, this Clay comes into Form of a Duff or Powder, as ’twas in 4. o. 18. supra. Some few there
there were amongst those I broke, that, like this, had no Cavity, or clayey Matter in them.


MANTISSA I.
Natural Delineations, of Shrubs, upon the Surfaces of various Fossils, chiefly in black, but sometimes in brown, made by Mineral Steams.

DENDRITÆ S.

Inscripte Fossilibus Arbororum Delineationes, ab Halituum Mineralium Ascensu faites.

p. 1. A Piece of grey Slate, with a greenish Caft. On the middle of it stand Delineations of Shrubs, in a Row, done in black. Above and below are lesser Delineations, of the same colour, resembling Moss; all finely exhibited. Mr. Fitz-Roberts. From the great Slate-Quarries near Newlands, Cumberland.

p. 2. A Piece of pale brown Stone, with a Row of Shrubs on it, in black, and upon a black Ground. King’s Weston.

p. 2*. Delineations of Moss, or Shrubs, black, on a whitish Stone: got in a vast Quarry in Sella-Park, Cumberland. All the Stone of this Quarry exhibits these Delineations wherever it parts in breaking.

p. 3. A grey Flinty Peble, with various Delineations on the Inside of it. Found by the Road in a Gravel-pit beyond Deptford, on the Brow of the Hill entering on Black-Heath.

p. 4. Another, with like Delineations. Shooters-Hill.

p. 5. Another. Clapham-Common, Surrey.

p. 6. Another, white, with 3 or 4 Shrubs, of a deep brown, on the Surface of it. Greenwich-Park, Kent.

p. 7. The Shell of a Bivalve, struck out of a grey Stone, with Delineations of Shrubs very fair upon it. Stifford, Essex.

p. 8. Another, with like Delineations; from the same Place.

p. 9. A Piece of Stone, with part of the Spike of an Echinus Marinus, and several Fragments of Sea-shells inclos’d in it, with like Delineations upon them. From a Quarry near Sir Ralph Darton’s House. Sherborn, Gloucestershire. The Delineations, when brought forth to the Air, in Tract of Time fade, and decay.

p. 10. & 11. Two others, from the same Quarry, with like Fragments of Shells and Delineations upon them.

p. 12. & 13. Two pieces, of a very hard grey Flint, that were originally one, joining with a kind of natural Seam, at which they divided and parted. The Surfaces that were contiguous, have several very fair and large Delineations of Shrubs upon them. Those on the Surface of the one Piece are of the same Form, and Bignefs, and stand at the same Distance, that those do on the Surface of the other. Found by Guilford in Surrey, whence they
they were sent to Rome, and presented to S. Ag. Scilla, who sent them back to me.

MANTISSA II.

Scoria, Slags, and Vitrifications of Metals.

q. 1. A glassy Body, with Veins, or rather Crusts, of green straw-colour, and pellucid, included one in another, exactly in manner of some Agats.

q. 2. Another, of a very deep green approaching black.

q. 3. Another, black. From the Lead-smelting-Works, near Worksworth in the Peak.

q. 4. Another, black. From the Lead-Works at Chuton, on Mendip, Somersetshire.

q. 5. Another, likewise black. From the Tin-works at * * * in Cornwall.

q. 6. A piece of coarse brown Slag, seeming to be of Copper. There are great Heaps of this found on a Tenement call'd Stone, lying two Miles South-East of Chumleigh, Devonshire, near the Ruins of a Building; which, according to the Tradition there, was a Palace of a Saxon King. There's now no Mine or Forge near. I am not positive, that this, and the two following, are certainly Slags. Though they have much the Aspect of Slags, they may possibly have been natural Nodules; which I rather note, because there are noForges near any of the Places where these three are found.

q. 7. Another, of a dusky Colour, near black. There are of these frequently plowed up in the Fields of Weldon, Northamptonshire. Mr. Morton.

q. 8. Another, little different. Found amongst others very plentifully in plowing in the Fields near Deau, Northamptonshire. Mr. Morton.

q. 9. A flaggy Scoria taken off the Surface of the Lead, smelted out of Caudbeck-Ore. Cumberland. I never saw the like in other Lead-Works: but 'tis constant here. Observing it to be very ponderous, I suspected there was Metal in it: and making trial, I got a considerable Proportion of Lead out of a Piece of this sort.

q. 10. A Slag, taken out of the bottom of the Hearth of the Lead-smelting-Works at Newlands, Cumberland. They use there the Copper-Slags, that remain of the Hochfletters-Works, as a Flux to promote the Fusion of their Lead-Ore.

q. 11. A Copper-Slag, from the Remains of the Hochfletters-Works, near Keswick, Cumberland.

q. 12. Melted-Iron, from the Works at Cleter near Langron in Cumberland. The Undertakers pretended they ran it with Sea-Coal; but, upon breaking this Piece, and some others, in which I found Pieces of Charcoal, I discover'd their Deceit.
4. 13. A Regular, run out of black Lead, of the finest sort, powder'd, without any Flux.

MANTISSA III.

Miscellany Instances of metallic and mineral Bodies that have been wrought; and that give some light to natural History.

EXTRACT.

1. No Growth of Metals in Ore exposed to the Air. Nor in Ore long since cast aside in the Mines under Ground. Nor in the Slags remaining of ancient Works.

2. Of Dr. Meara's mistaking Quicklime for a native Mineral; and imagining it to be the Cause of the Heat of the Baths of Bath.

3. Blue Vitriol found adhering to the bottom of a Furnace that had serv'd for calcining Copper Marcasites.


5. Litharge.


7. An Oil out of that Pitch resembling Petroleum.

MANTISSA III.

Miscellanea, Historiam Metallorum & Mineralium quorundam, arts elaboratorum, spectantia.

v. 1. Three Mails of the dress'd Copper-Ore that was left in the Field unfinelcted, by the Germans, Hochsteters, when they de-
diff and quitted the Works of Goldsculp, about the Year 1630. There are several Heaps of these; and some very large. The Ore was broken and reduced small; but having lain exposed to the Air and Rain, the Salts in the Marcasites liquating, clotted and united the broken Ore in this manner into one Mass. These were Parts broke off the outtides of the Heaps; the interior Parts are harder and more firmly combined; they are likewise richer, and have more Copper in them; the Salts having dissolv'd a great deal of the Metal; which, partly by reason of its Gravity, and partly because of the smallness of its Parts, made its Way along with the Water that fell in Rain, to a greater depth in the Heap. Such a Removal of the Metal out of one part of the Mass, and collect-
ing of it in another, is what has mis-led some Writers, and gi-
von umbrage to an Opinion, that there is a growth of Metal in Ore exposed to the Air. But tho' this Ore happens thus to clott and combine, some forts there are, both of Copper, Lead, and Tin, that lie in Clay, Shiver, and lax Spar, that the Weather loosens, and opens the parts of, after they have been long exposed to it. So that in theie, the Ore that before could not be parted in wash-
ing, is, by this Means, in tract of Time, brought to such State as to render it separable; and is frequently after some time wash'd and smelted to Proft. Another Accident there is, that has given
as much ground to this Error, of the Production and Encrease of Metals, while exposed to the Air, as either of the former. This is, those who wrought the Veins anciently, when they were numerous, full, and the Ore rich, neglected and cast aside the poorer Ore. And this being work'd at this day to considerable advantage, has made some imagine, the Ore has grown since 'tis was to cast aside. Nay, there have been those who have fancied a growth of Metal, even in the Slags that are Remains of the ancient Works; because we now run them again to Profit. But, such was the unskillfulness and carelessness of the Smelters of those Times, they frequently left a considerable share of Metal behind in their Slags. They seem to have made their Fires not sufficiently strong and intense; so that few of their Slags are found vitrify'd. And the laxer Slags yield to the Weather, moulder, and fall to pieces; after which, the Metal may be separated from the Refuse, by washing, and so melted down.

r. 2. Lime, very white, that I collected on Lansdown near Bath. 'Twas scatter'd out of the Carriages that convey'd it to the neighbouring plough'd Lands for their Manure. I search'd thereabouts very carefully, but could find nothing else of like sort: So that there cannot well be any doubt but that this was what Dr. Meara call'd: a kind of Chalk as white as Snow, which being tasted, was attended with a biting and heat in the Mouth, and being put into cold Water, rais'd an Ebulition and Heat like Quick-Lime. So that he took it to be the cause of the Heat of the Water of the Baths; and thought this a noble Discovery*. This is certain, Lime is, and has been long used for Manure of the Fields thereabouts; and 'tis frequently found dropped out of the Carriages all about Lansdown, the very place where his white Chalk was found †: And his Description squares so exactly to Lime, that 'tis strange he should not know this Body was apparently nothing else. It seems, that which he saw, happened to be fresh, and gather'd before any Rain had fallen to make it. 'Tis not well, that Gentlemen that have not duly inform'd themselves of Things the most obvious and common, should take upon them to write of those that are the most abstruse and difficult. This is what has laid the foundation of Amusements in Natural History, and Errors without end. And they, who would hereafter write well and justly, must be very cautious how far they rely upon a vast number of both Observations and Reasonings, that some of late have set forth to light.

r. 3. Vitriol blue, found adhering to the bottom of a calcining Furnace of the bratly shining Copper-Ore in Newlands, Cumberland. 'Tis known, that this sort of Ore has Vitriol in it. The Furnace had been difused for some Months; and probably, the Humidity of the Air, during that Recefs, collecting there and fom-
ing Drops, as usual, these falling brought down the Salts that had been before carry'd up by the Fire to the top of the Furnace, affix'd and crystalliz'd them there. There was about a Pound of this Vitriol; and all of it finely shot and crystalliz'd: but this has been broke and injured by Carriage. The blue Tincture was owing to Copper concreting with the Vitriol.

r. 4. A quadrangular Shoot of Allum terminating in a Point, found with several other like Shoots adhering to the side of the Vessel, in which the aluminous Liquor was set to cool after boiling, at a Crack, thorough which a small quantity of the Liquor leak'd forth. Peak, near Hackney, Yorkshire.

r. 5. Litharge.

r. 6. Pitch from Bental in Shropshire, drawn forth of the Lapis Picus there. Conf. g. i supra.

r. 7. An Oil drawn forth of the Pitch above-mentioned. r. 6. They there fancy it like Oil of Amber; but in that they are much mistaken. Indeed, it does very much resemble the common black Petroleum, in Conformity, Colour, Smell, and all other Respects: and without doubt, the true native Petroleum, found floating upon the Water of some Springs, is no other than this very pitchy Substance, drawn forth of the Strata, by the Water, as it passes them in its Course to those Springs. Probably, the subterraneous Heat may also contribute something to the liquating and running of it.
A CATALOGUE OF THE ENGLISH FOSSILS

In the Collection of J. Woodward M.D.

PART II.

Exhibiting the Fossils that are extraneous; the Parts of Vegetables, and of Animals, digg'd up out of the Bowels of the Earth; in particular the Shells of Sea-Fishes: as also the Stoney, Mineral, and Metallic Bodes form'd in them.

Ranged and disposed in a Classical Method, according to their several Kinds and Alliances; with an Historical Account of each: as likewise various Observations, and Reflections.
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That when those Shells were thus reposited in the Stone, &c. all was in a State of Solution; hence the Impressions of Shells in Stone, and in other solid native Fossils, ibid.
That there has been a total Dissolution of the Earth, ibid.
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That the Conchite, and other stoney Bodies, resembling Shells, were moulded in the Cavities of Shells, ibid.
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Articulus 1. Forma compresse.


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P R E-


I t may not be improper or unfeasable, before I The first Begin
proceed to the brief Account I am going to giving of these
of the Bodies in the following Catalogue, to take Observations
notice that I began my Observations and Collections in and Collections;
Gloucestershire; whether I was invited by Sir Ralph in Gloucester-
Dutton, along with his Lady's Father Dr. Barwick, shire.
under whose Tuition I then was, very happily, he being
a Man of great Sagacity, Learning, and an Encourager of all ingenu-
ows Studies. Here I had very generously allow'd me all Conveniencies
and Assurances, for the furthering of comparative Anatomy, in which
I took great pains; and had all the several sorts of Brutes, of Birds,
of Fishes: that this noble and plentiful Country afforded, readily brought
to me for Dissection. I had here likewise, opportunity of carrying on
my Botanic Studies, of which being then young, I was very fond,
having the honour of an acquaintance with Sir George Wheeler,
Dr. Plukenet, Mr. Doody, and some other Gentlemen, very famous
for the Progress they had made in those Studies. Not that I confin'd
my self so much to this part of Natural History, as not to be ready,
forward, and desirous to look into any other; and the Country about
Sherborne, where Sir Ralph Dutton's Seat was, and the neigbour-
ing parts of Gloucestershire, to which I made frequent Excursions,
abounding with Stone, and there being Quarries of this laid open al-
most every where, I began to visit these, in order to inform myself of
the nature, the situation, and the condition of the Stone. In making
these Observations, I soon found there was incorporated with the
Sand of most of the Stone thereabouts, great plenty and variety of
Sea-shells, with other marine Productions. I took notice of the like,
lying loose in the Fields, on the plough'd Lands and on the Hills,
even to the very top of the higheft thereabouts. Nay, in many pla-
ces of this Country, they lay exposed on the plough'd Lands so thick,
that I have scarcely observed Pebles or Flints more frequent and
numerous on the plough'd Lands of those Countries that most abound
with them. This was a Speculation new to me; and what I judg'd
of so great moment, that I resolv'd to pursue it thorough the other
remoter parts of the Kingdom; which I afterwards did, made Ob-
servations upon all sorts of Fossils, collected such as I thought remark-
able, and sent them up to London. Some others were afterwards gi-
ven me by such curious and intelligent Persons, as being appriz'd of
the usefulness of these Studies, turn'd their Thoughts to such Searches.
Of which the chief were Mr. Stone-street, and Mr. Morton, two Men
of great Learning; and the latter deservedly famous for his Natural
History of Northamptonshire.
In the former part of this Catalogue, are set forth
the Earths, Stones, Minerals, Ores of Metals, and the
other Fossils of England, thus collected, that are na-
tive. In this part, I set forth those that are extra-
neous, the parts of Vegetables, and of Animals, more
especially those that have belong'd to the Sea, that
are now found at Land, and in the Bowels of the
Earth.

As method is the Life of all Business and Studies,
my first care was, that the Things exhibited in this
Catalogue should be digested, as far as might well
be, into their proper Classes, according to their mu-
tual Affinities and Relations to each other. That
was not indeed so practicable in the Vegetables, because there were
commonly Leaves of Plants of several kinds in the same Mass of Stone.
But for the parts of Animals, particularly the Sea-shells, which are
very numerous and various, I hope the method I have disposed them
into, will not be thought greatly amiss.

As to the Places where each was found, tho' they
be generally noted, it is in most very briefly; and the
particular Pit, Quarry, or Field, whence each was
taken, are not always so distinctly set forth as I could
wish. The reason is, most of them were collected in
Countries where I was a stranger; and so not always appriz'd of the
names of the Grounds and Tracts of Land, where I
took them up. Besides, in a Journey, and traveling, I could not well allow myself to descend to more
Particulars in this matter; reserving the time I had
to spare, for what I thought of much greater moment, I mean, no-
ting the Condition of the Earth, and of the Strata, not only in the
places where these Bodies were found, but all others, where the In-
trails of the Earth happened to be, by any means, display'd and laid
open to view. For 'twas from these Observations, that I have ad-
vanced what I have since publish'd, concerning the means by which
these Bodies were brought to Land, the great Changes the Earth then
underwent, the Rise of the Mountains, the Origin of Springs and Ri-
vers, and the Formation of Metals and Minerals, with several others
of not less importance.

For those Bodies in this Catalogue that are de-
scribed or grav'd in Books already printed, I propose,
so soon as I shall find leisure, to refer to the Places,
as well of the Authors who have wrote of the liv-
ing Shell-fish, Ariftotle, Pliny, and the Antients;
as Rondeletius, Dr. Lifer, and others of the Mo-
derns; as of those Authors that have set forth Mu-
seums, the Writers of Fossils, the Natural Histories
of particular Countries, and others who have de-
scribed or grav'd those that have been digged up out of the Earth.
If I am not so fortunate as to find Opportunity for this myself, those
into
into whose hands these Things shall hereafter fall, may well supply this defect; it being a thing not difficult for any one, who is Master of these Authors, and were in this part of Natural History, to make those Additions, and compleat this Work.

There is another thing that may safely be supply'd; which is, making Remarks upon several Things very well worth Consideration, that yet are obvious and discernible at first view, in many of the Bodies exhibited in this Catalogue. 'Twould have been a great pleasure to me to have done this myself, could I have spare'd the Time from my Business, and other more needful Studies.

One thing I think may be asserted with great certainty, that the Bodies here set forth give even ocular Demonstration, besides the Proofs from Experiments, that those of them that appear to be of marine Origin, are really so: that they differ in nothing from those found now at Sea: and exhibit in themselves plain Marks that they were all originally brought thence.

Then there are various Phenomena, exhibited by them, that as plainly shew, that when they were so brought forth at the Deluge, the Earth was destroyed, all the Solids of it, Metals, Minerals, Stone, and the rest, disjolvd, taken up into the Water, and there sustaine'd along with the Sea-Shells, and other extraneous Bodies: till, at length, all settled down again, and form'd the Strata of the present Earth. The Shells, and other extraneous Bodies, being thus lodg'd amongst this Stone, and other mineral Matter, that afterwards became solid, when this comes now to be broke up, it exhibits Impressions of the Shells, and other Bodies lodg'd in it; showing, even the hardest of it, to have been once in a State of Solution, soft, and susceptible of Impression.

These marine Bodies are thus found to the tops of the highest Mountains, to the bottoms of the deepest Mines: and this, as appears from the Catalogues of the foreign Fossils, with the Observations which I have caused to be made abroad, on all sides of the Globe; which shews the Dissolution to have been universal.

Other Phenomena there are of these extraneous Fossils, that prove, that this Havock and Destruction was begun in all Parts at the same Time, carry'd on, and finish'd in the same Manner.

When the Shells, thus lodg'd in the Earth, that happen to have been well preserve'd, come to be broken and examin'd, they are found ordinarily fill'd with metallic and mineral Matter, with which they came together; this, and the actions of heat and cold, has created Cracks and Separations in the Stone; thus the whole Globe was dissolv'd all at the same time.

That the Conchites and other stoney Bodies...
Shells, the and another, and this there;uid neighbourings and:

Like, that by reason of their resemblance of Conchæ, Cochleæ, Echini, have obtained, amongst the Writers of these Things, the names of Conchitæ, Cochlitæ, and Echinitæ. In such parts of the Water of the Deluge, where there happen'd to be great numbers of Salts, particularly the Vitriolic, fusltain'd in the Water along with parts of Trees, and other vegetable Bodies, and with Shells; and the like animal Bodies, the Salts prey'd upon, and by little and little dissolved the parts of the said Bodies; and there happening frequently to be, in the same parts of the Water, fusltain'd metallic, mineral, flinty, sparry, or other like Matter; this sometimes succeeded, and was deposited in the room of the vegetable and tellaneous Matter, in such method as to form metallic, mineral, sparry, and flinty Bodies of like Figure, Eignes, and Texture with the vegetable and animal Bodies so demolished and dißipated. This was transferred in much the same manner as we see in some Springs of Hungary, and elsewhere, highly impregnated with vitriolic Salts; which dissolve the Body of one Metal, suppose Iron, put into the Spring, and deposite, in lieu of the iron Particles carry'd off, coppery Particles brought with the Water out of the neighbouring Copper-Mines. This is done in such method that the Mass of Copper, thus compiled, exactly resembles the Mass of Iron so demolish'd. But more plain proofs of such Change, and substituting of one Metal or Mineral for another, we have in several of our chemical Processes, both in the Fire, and by Mentruum; of which I must not be allow'd to enter into the Detail here.

That some of the Shells that were nodg'd in Stone, are dissolved, conveyed away, and the Spaces

Dyes reëmbling Shells, were molded in the Cavities of Shells.

Stone, with Flint, and other, even the most solid Substanaces; which many Insances in this Catalogue give ocular proof of, and in such manner as to shew these several hard Substanaces were dissolved, and cast in these Shells, as in so many Plasms or Moulds; they resembling the insides of the Shells with as much exactness as Metal, Wax, or any other Matter melted and cast in them, could ever possibly have done.

These afford Evidence of Sence, that tho' the Shells, in which they were formed, be perished since, and gone; this was the true Origin and Method of forming those Bodies, consisting of Stone, of Flint, and the like, that by reason of their resemblance of Conchæ, Cochleæ, Echini, have obtained, amongst the Writers of these Things, the names of Conchitæ, Cochlitæ, and Echinitæ. In such parts of the Water of the Deluge, where there happen'd to be great numbers of Salts, particularly the Vitriolic, sustain'd in the Water along with parts of Trees, and other vegetable Bodies, and with Shells; and the like animal Bodies, the Salts prey'd upon, and by little and little dissolved the parts of the said Bodies; and there happening frequently to be, in the same parts of the Water, sustain'd metallic, mineral, flinty, sparry, or other like Matter; this sometimes succeeded, and was deposited in the room of the vegetable and tellaneous Matter, in such method as to form metallic, mineral, sparry, and flinty Bodies of like Figure, Eignes, and Texture with the vegetable and animal Bodies so demolished and dißipated. This was transferred in much the same manner as we see in some Springs of Hungary, and elsewhere, highly impregnated with vitriolic Salts; which dissolve the Body of one Metal, suppose Iron, put into the Spring, and deposite, in lieu of the iron Particles carry'd off, coppery Particles brought with the Water out of the neighbouring Copper-Mines. This is done in such method that the Mass of Copper, thus compiled, exactly resembles the Mass of Iron so demolish'd. But more plain proofs of such Change, and substituting of one Metal or Mineral for another, we have in several of our chemical Processes, both in the Fire, and by Mentruum; of which I must not be allow'd to enter into the Detail here.

That some of the Shells that were nodg'd in Stone, are dissolved, conveyed away, and the Spaces

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Spaces occur frequently in Stone, exactly, in all respects, of the figure and bigness of the Shell so destroyed and carry'd away; and of this, there are various instances in this Catalogue. Where the Water happened to carry in it, metallic, mineral, or sparry Particles, it commonly deposits them in the Space deferted by the Shell, ordinarily, till it had fill'd it; so that the Bodies thus form'd in those Cavities of metallic, of mineral, or of sparry Matter, must of course be of the Figure and Bigness of the Shell born forth of those Places: and of this, there are numerous Examples in this Catalogue.

Those Gentlemen who formerly made Observations, and Collections of these Things, seeing the Conchita, and other Bodies that had been moulded and form'd in the Cavities of Shells, which yet consist'd, where the Shell was quite perish'd and gone, entirely of mineral, sparry, or other like Matter: seeing like-wise Bodies, of the Bigness and Form of Shells, that yet consist'd also of like Matter: and having not inform'd themselves of the manner how these were produc'd, it much perplex'd the Question concerning the true Origin of them; and render'd it somewhat intricate and difficult. Insomuch, that they who had happen'd to make their Observations where rarely any but Bodies of such mineral Constitution appear'd, they were forward to conclude, that all were so, mere Stones, and form'd where they were found, by I know not what Lufus of Nature there. This was particularly the Case of Dr. Liftter. When he first wrote, 'tis plain from his own Accounts, he had made very few Observations but on the Bodies found in a Brook by Bugthorp, and a few others not far from the Place where he then dwelt. Now, as I suspected, and found afterwards upon Inquiry, the Shells there being generally perish'd, and succeeded by stone Matter: and he having seen few besides such, and Stones form'd in the Cavities of Shells, since decay'd, being a Man, tho' ingenious, and of some Learning, yet very rash, and precipitate in all his Notions; he immediately pronounced all these Bodies meer Stones, and Productions of the Earth. What was worse, after he had once declared for that Opinion, he was never to be drawn from it. Indeed, Dr. Plot, and others, fell so readily into the same: and it had so universally obtain'd, when I first enter'd upon these Studies, that I found it difficult to prevail with learned Men to credit their Senses, and to see that there were, amongst the rest, Shells that were real: as also, to observe how the mineral Bodies, that resembled them, were form'd by them. Dr. Liftter is every where positive that these are Stones, Lapidex sui generis, and never any Part of an Animal*:

* Philos. Transact. No. 77.
Quarries of different Stone yield us quite different Sorts or Species of Shells, not only one from another,—but from any thing in Nature besides that either the Land, salt or fresh Water doth yield us: as if the Stone was the Parent of these Bodies; and they own'd their Production, one Species to one sort of Stone, and another to another. Nay, tho' he afterwards met with plain undeniable Shells; and in a Book † that he set forth a while after, has given Icons of several such: though he there expressly afferts, that he found in a black Stone, approaching the Nature of Coal, the very same Species of Shell that he found elsewhere in Iron-Stone **: and that he found another Species in Gravel, which he found also in Stone that yielded Lead, and in the Alum Rocks ‡, yet he bravely continued to the last firm and unshaken in his Opinion, that different Stone yields us quite different Species of Shells: and would never be brought, to the very last, to give it up, though by his own Account, it appears to have had no Foundation, unless Coal, and Iron-Stone, were the same thing: or Gravel, Lead-stone, and the Alum-Rock. But this is but one of very many Instances that might be alledg'd of this ingenious Gentleman's Inadvertence and Precipitancy: Which I should scarcely take so particular notice of, but that 'tis a thing so easy to be observ'd in most of the Writers in natural History. The rest of the World do not much regard what they set forth; so that, where they do not fall foul on one another, their Oversights are neglected. Fild'd with the Satisfaction of their own discerning Faculties, they pass Judgment at first sight, write on, and are above being ever brought to retract it. Nay, 'tis odds but they are rather insulting others: and endeavouring to differt from those Truths that they have establish'd. These are the main Reasons why natural Studies, that are, of all others, of the highest Importance, are in the Confusion and Uncertainty that they are: and it brings into my Mind an Inscription mentioned by Mr. Locke, Natura fecit omnes Judices, paucos Artifices.

The Bodies set forth in this Catalogue, serve as so many Evidences and standing Proofs, as well to detect what is wrong and erroneous, as to assert what is certain and true. Here are, particularly digg'd up, out of the Earth, great numbers of Shells: that differ not in any respect, from those that the Land, salt and fresh Water doth yield us. Then there are, in this Collection, very many Instances of Shells that are of Species and Kinds as different as can be, that yet appear here actually lodg'd, all together, in the same Mass of Stone: as there are others, of the very same Species, lodg'd in Flint, in Chalk, in Stone, of various Kinds, in Sand, in Marle, and other Matter as different as can ever possibly be.

I should have been glad my Affairs had allowed me so much Leisure as to have compared all these Fossil-Shells with the marine, that are found at this day both in ours, and other remoter Seas, in order to the forming a Judgment whence each was brought hither. But that is a great Undertaking: and, after all, the Shores of England have not been yet so carefully search’d, but that we now daily find Shells; that had escaped the notice of former Naturalists. That also is the Case of most foreign Shores; besides, that there are great numbers there that are never sent over hither: as there are doubtless a much greater number at the remoter bottoms of the main Seas, and the Ocean, that are never brought forth thence to light. That I take to have been the Place of the abode of the Ammonitæ and Conchæ anomix; with a great number of other Kinds, digg’d up here at Land. Not but that I have seen of both those kinds from Sea, but so few that I can take them to be only such as have stray’d and strag’d from their main residence, and been accidentally intercepted and stranded by great Storms. For, were their residence nearer the Shores, they must needs have been, at this day, obvious and frequent there. For very various Species, of those two kinds, are found in incredibly great numbers at Land, as well in other Parts of Europe, as in this Island: and some of the Ammonitæ are so vastly large, that these would soon be describ’d and found, were there any on the Shores. Those Fossil-Shells, that are not the Production of the main Deep, but such as I have been able to match with others found on the Shores, and are not the Production of our Seas, are all from the West, and of American Extract. I have not yet seen any one that was peculiar only to the East. For there are several found in the Seas of East-India, and in the Mediterranean, that are likewise found in the American Seas. The rest, digg’d up here, are of the English Seas: and before all those, that I was satisfied were such, I have prefix’d the Letter [A] in this Catalogue. Not but that there are several others that I take to have been likewise such, and really the Products of our Seas, to which yet I have not ventur’d to prefix that characteristical Distinction, till I had Leisure to compare them more accurately with those found on our Shores. There are particularly in the 10th Clas, both Teeth, and Bones, that I am pretty sure will be found to be of Fins of the English Seas, when they come to be examin’d and compar’d. Others there are that I believe will be found to be of American Origin.

Of the Seas whence the marine Bodies, digg’d up here, were brought.
A Catalogue of the Plants in Stone, contained in the First Classis.

A strange Plant, but not intire, or so plain as that the Kind can be distinguished. a. 104. 105.

A vegetable Body with undulated Striae. a. 42.

Leaves of a reticular Texture, not unlike the Skin on the Back of the common Snake. a. 4. vid. a. 108.

A Plant not unlike the Sea-Fan. a. 41.

A large Plant jointed like those of the Cane-kind, and striated. a. 73.

Grafs. a. 31. 60. 73. 104. 105. 106.

Cyprus-Grafs. a. 19. 20. 23. 24. x. 41. 45. 73. 105.

English Cyprus-Grafs. a. 18.

Grafs of the Daftylon or Paniceum-kind. a. 20. 21. 21*. 22. 41.


The Flag, or Iris. a. 60. 61. 64. 66. 68. 69. 70. 71. 74. 75. 80. 81. 106.

Alce. a. 17. 36. 37. 38. 39. 40.

Equisetum. a. 24x. 25. 25b. 25c. 30. 53. 78.


Equisetum, sub Aquis repens. a. 73. a. III.

A Plant, of the Stellated-kind, like the Asperula. a. 27. x. 28. 29.

A Leaf, appearing to be of the Fern-kind. a. 1. Another Species of this. a. 2. 107.

Fern. a. 44. 46. 54. 60. 73.

Filix mas vulg. a. 27*. †. 0. 55. 56. 57. 58. 59.


Filix mas pinnulis angustis non dentatis. a. 5. 60. 61.

Filix mas non ramofas, pinnulis parvis oblongis non dentatis. a. 102.


Filix Fem. vulg. a. 23. 46*, 47. 49. 50. 51. 52. 53. [101.

Filix min. palustr. Rij. p. 48. a. 27. †. 29. 31.

Fern approaching the Filicula montana Ruta muraria facie tenerifolia Plucknet Fab. 181. f. 1. a. 62.

Polypody. a. 8. 9. 10. 11. 60. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98.

Seed-bearing Leaves of the Lonchitis aspera minor. a. 6. 7.

Osmunda Regalis. a. 16. 24 Θ. 30. 31. 32. 33. 43x. 78. 79.

A Chamaelix. a. 16.

A Leaf of a Capillary-Plant like the Chamaelix marina Anglica Parkinson. p. 1143. a. 12. 81. 82. 83. 84. 85. 99. 100.

Leaves of the Trichomanes. Parkinson. Rij Synops. p. 46. a. 43*.

44. 46. conf. a. 109.


Adiantum
An Account of the vegetable Bodies, Rosin, Roots, Wood, Twigs, Leaves and Fruits, mention'd in the 2d Classis.

Roots of a sedgy Water-Grafs. b. 18.
Roots of Fir-Trees. b. 28.
Fir. b. 26. 27. 31. 35. 37.
A resinous Matter that the Moss-Diggers call Frankincense. b. 36.
Oak. b. 30. 38. 39. 40. 41.
Yew. b. 32.
Birch-Tree. b. 21. 22. 23. 24. 25.
A Piece of a Branch of a Tree. b. 20.
Pieces of a Shrub like Hazel. b. 42. 43.
Hazel-Leaves and Twigs. b. 19*.
Juli of Hazel, Alder, &c. b. 4. 10.
Hazel-Nuts. b. 19*. 67. 68. 69.
Cones of the Larix. b. 72.
Cones of the Scotch-Pine. b. 70. 71.
A Fruit not unlike an unripe Nutmeg. b. 73.
Wood petrified. b. 45. &c.

Vegetables digg'd up out of the Earth.

Before I drew up the following Account of these, I took along with my own, the Judgment and Opinion of four Persons that have been very converfant with Vegetable Bodies, and are very eminent for their Skill and knowledge in Botany. These were Dr. Plukener, Mr. Stone-street, Mr. Buddle and Mr. Doody; and we carefully view'd and examin'd every individual Body herein mention'd.
they fall all into a Quincunx Order. On the back-side of the Stone is an Impression of a Leaf of the same Species. This was digg'd up in Moflyn Coal-Pits, Flintshire; and sent me by Sir Roger Moflyn.

a. 2. Another like Leaf, but of a different Species. The Sulci are larger and deeper, and the Interstices of them greater, than in the former: and the Vesicula stand at greater distance. Moflyn Coal-pits.

a. 3. From the same Coal-pits.

a. 4. Impressions of several long Bodies, appearing to be Leaves, of a reticular Texture, not unlike that of the Skin on the Back of the common Snake. Moflyn Coal-pits.

a. 5. An Impression of part of the Ala of a Male-Fern of the same sort with that a. 60. having the Seed-Vessels also much as that has. There is part of the Leaf of some other differing Fern in the same Stone. From a Coal-pit in King's-Wood, near Bristol.


a. 8. A Leaf, seeming to be of the Polypody-kind. Found in the sinking of a Coal-pit in Prestcott-Parish, near Wiggan in Lancashire.

a. 9. A Leaf, very little different from the precedent. Wales. Edward Lhwyd.

a. 10. & 11. Two Impressions of Leaves of the Polypody-kind: and not much differing from the two foregoing. Wales. Edward Lhwyd.

a. 12. Part of the Ala of a Capillary Plant, not unlike the Chamaelix marina Anglica Parkinjoni, p. 1143. only the Leaves of this are not serrated. Edward Lhwyd. Wales.

a. 16. A Leaf of the Osmunda Regalis: and several Impressions of Leaves of the same sort. Also, part of an Ala of the Chamaelix-kind. This piece of Stone lay at the depth of 60 Fathom, just above the Bed of Coal, in Mr. Montagu's Coalery at Benwell, not far from Newcastle upon Tyne.

a. 17. This Stone being split, has on one part the Impression: on the other, the Leaf it fell, of some Plant not unlike the Aloe. This, and the following to a. 73. inclusive, from the Coal-pits at Farrington, between Bath and Wells in Somersetshire. There is in this Stone either Alum or Vitriol; insomuch, that, being wetted, the Salts start, and the Stone shivers, and falls to pieces.

a. 18. Leaves, of a carinated Cyprus-Grafs, probably English. Farrington Coal-pits.

a. 19. Two Leaves of Cyprus-Grafs, a narrower, and a broader, different from each other, and from the precedent.

a. 20. Several Leaves of Grafs appearing to be both of the Culmiferous and Cyprus-kind. X. And on one part is an Impression of a short broad Leaf, seeming to be of the Daétylon or Paniceum-kind.

a. 21. A broad short Leaf seeming to be of the Gramen Daétylon or Paniceum-kind.
a. 21*. Another Leaf, of the same sort, with a slip of the Culm of the Gras it grew on, still adhering to it.

a. 22. A broad short-leaved Gras, of the same sort with the two precedent.

a. 23. Narrow and broad-leaved Cyprus-Gras, of the same sort with those N° a. 19. Also, an Impression of the *Felix fem. vulg.*

a. 24. x. The Stalk of an Equifetum naked. * Another, seeming to be of the same sort, befit with several Rounds of Leaves, after the manner of the Stellated Plants. These Leaves are short, and narrow at the end that is next the Stalk: but broad and obtuse at the other. The Rounds stand at near half an Inch distance from each other. † A Leaf of Gras of the same sort with that a. 20. x. O An Impression of the common Ofmunda Regalis.

a. 25. An Equifetum. 'Tis of the same sort with a. 24*.

a. 25. b. Another of the same. The Impression of another.

a. 25. c. The Impression of another. And a naked Stalk of the same sort of Equifetum with that a. 24. x.

a. 26. Seems to be an Equifetum palustr breviorib. fol. C. B. Raij Synop. p. 42. But the Leaves of this Fossil-Plant are narrower and sharper pointed.

a. 26. b. An Equifetum of the same sort with the precedent.

a. 27. x. A Plant of the Stellated-kind. There are 5 Roundels on this Stalk. They are placed at somewhat above an Inch interval. In each of these there are about 30 Leaves: and they generally at least an Inch in length. It looks at first view like an Asperula: but the Roundles appear to have grown edge-ways, rather than horizontally like those of the stellar Plants. Where all the Leaves meet at the Center, in each Round is a small circular Nodus. * An Ala of the Felix mas vulg. † Another Male-Fern, with the Pinnulae more deeply indented. O. Felix mas vulg. †† An Ala, seeming to be of the Felix min. palustr. Raij. p. 48. N. 6.

a. 28. A Roundle of the stellar Plant, of the same sort with that a. 27. x.

a. 29. Two Roundles of the same kind of Plant. And an Ala of the Felix min. palustr. 27.

a. 30. A Pinnula of the common Ofmunda Regalis. Two Equifeta, the same with a. 24. x. &c. *

a. 31. A Pinna of the common Ofmunda Regalis. Two Leaves of the Felix Pulsiris minor. a. 27. ††. &c a. 29. and two small Leaves of Gras.

a. 32. A Top-pinna of the common Ofmunda Regalis, with an Auricle at the Stalk, as usual.

a. 33. Three Pinnæ, seeming to be of an Ofmunda Regalis.


a. 36. Part of a broad flat long Leaf, appearing to be of some Iris, or rather an Aloe; but 'tis striated without. Within little
appears besides Stone, of the same sort with that of the Stratum in which it lay. Probably the medullar or interior Part of the Leaf being succulent, lax, and tender, 'twas partly dissipated, and partly was absorb'd and lost in the stony Matter that insinuated it itself into the Leaf.

a. 37. Another thicker.

a. 38. Two Leaves of the same sort with the precedent, contiguous to each other, and seeming to be broke off just at their Rise from the Root.

a. 39. Part of another, with larger Striae.

a. 40. Part of another, with like large Striae. This is broader than any of the precedent.

a. 41. Part of a reticulated Plant, not unlike some of the sorts of the Sea-Fans. Also a narrow-leav'd Cyprus Grass, of the same sort with one of those a. 19. And a broad Leaf of Grass of the Dactylon or Paniceum kind, the same with that a. 20 x.

a. 42. Part of a large vegetable Body, with undulated Striae. At certain Intervals are double Rows of pretty large Studs.

a. 43. x. An Impression of a large Pinna, of the common Officina Regalis ** Three Leaves seeming to be of the Trichomanes. Park. Rajj Synopsis, p. 46.

a. 44. Six Leaves, appearing like those of the Trichomanes. Vid. a. 43. **; but these lying parallel, seem rather to have been Alæ of the Leaf of some Fern. Also a Leaf of a Fern, but not so plain that Judgment can distinctly be made of what kind it is.

a. 45. An Alæ of the Filix mas non ramosa pinnulis angustis raris profunde dentatis. Ger. Rajj Synopsis, p. 48. N. 5. This Fossil is indeed a Variety of that sort found by Mr. Doody in several Places near London. Along with it are two Leaves of a narrow Cyprus-Grafs.

a. 46. x. An Alæ of the Filix fam. vulg. very plain. ** Two Impressions seeming to be of the same. † An Alæ like those a. 44. *.

a. 47. A large Alæ of the Filix fam. vulg. This agrees exactly, in all respects, with that * gathered on Hamstead-Heath, xi. Junij 1700.

a. 49, 50, 51, 52. Alæ of a Fern little different from the Filix fam. vulg.

a. 53. Two Alæ of the Filix fam. vulg. Equisetum, of the same sort with a. 25. supra.

a. 54. A large Alæ of a Fern, somewhat different from the Filix fam. vulg.

a. 55. An Alæ of a Fern, extremely fair and plain: different from the Filix mas vulg. in that the Pinnæ are longer, and more indented. 'Tis of the same sort with a. 27. † vid. a. 56. and a. 59. *.

a. 56, 57. Another Alæ of the same sort with the precedent; and its Impression on the Slate that was contiguous and adhering to that piece, on which the Alæ is, till broken and parted from it.
a. 58. Several Alæ of the same sort still. * An Ala seeming to be of the *Felix mas Vulg.*

a. 59. x. An Ala of the *Fexis mas Vulg.* * An Ala of the same sort with a. 27†. a. 55, & a. 56.

a. 60. A large Branch of a *Fexis mas pinnulis angustis non densatis.* It has not been yet observed growing in England. There are upon the back of the *Pinnuma, Punica seminaria* in two Rows: in which order the Seed-vessels of the Male-fern grow. On the back of the Stone are a vaft miscellany of Ferns of several kinds, Polypody, Grafs, Flags, &c. lying in great Confusion; and there's amongst the rest, a Body seeming to be the stalk of a Fern.

a. 61. This, till broken off, join'd to a. 60. and has on it the Impreffion of the large branch of the Fern above-named. On the back-side of it is a Flag.

a. 62. An Impreffion of a Branch, of a small Fern, approaching the *Filicula montana Ruta muraria facie tenerifolia.* Plukenet. Tab. 181. f. 1. "Tis English.


a. 64. A Branch of a Fern, nearly refeembling the *Adiantum major corniandri folio,* Raij Synopf. p. 49. Several Impreffions of Flags.

a. 65. Three Alæ of the same sort with the last: with 2 or 3 Leaves of the Flag-kind.

a. 66. Alæ and Impreffions of the *variata Filizis maris vulg.* Petiver. Raij Synopf. p. 341. These have the Seeds on the Backs, near the Edges of the Pinnæ.

a. 67. Another Ala, of the same sort; with the Seeds in like manner.

a. 68. Two or three Leaves broken off just at the Rise from the Root, friated, of the Flag-kind.

a. 69. Part of two Flags, friated, but deeper on one side than the other.

a. 70. Impreffions of both the carinated and concave side of some Flag.

a. 71. Two broad Flags, pretty smooth, lying a-crofs each other.


a. 73. An Impreffion of some large Plant, jointed like those of the Cane-kind, and friated. An English Equifetum, of that fort that is termed *sub Aquis repens.* On the back-side of the Stone is a Miscellany of Fern-Leaves, and Grafs, particularly a broad-leaved Cyprus Grafs.

a. 74. A piece of Stone, having on it part of the Leaf of an Iris: and a small Fern appearing to be the *Dryopteris alba* Dod. Park. 1137. Conf. a. 75.

a. 75. Another Piece of Stone, broken off from the precedent, having on it Impreffions of the Iris and Fern above-mentioned. From the Coal-pits at a little Village called Street, near North-Eylerly,
Eyerly, about three Miles from Markes-Bradford, Yorkshire. They have now deftistd from working in this Pit; and the Plants are found in none of the others thereabouts.


a. 77. The Impression of that Abies. The two pieces of Stone, on which are this Abies, and the Impression, were originally contiguous and united. From the Coal-pits at Street, Yorkshire.

a. 78. A piece of Stone, having on it several Impressions of Leaves single, seeming to be of the Osmunda Regalis. Also one round of the broad-leav'd Equisetum, a. 24* & c a. 25.

a. 79. The piece of Stone that was contiguous and united to the foregoing; with the Leaves of Osmunda upon it. From the same Coal-pits.

a. 80. Part of a Flag. From the same Coal-pits.

a. 81. The Impression of a Flag, and of a capillary Plant, not much unlike that a. 12. From the same Coal-pits.

a. 82. A capillary Plant of the same sort with the precedent: and from the same Coal-pits.

a. 83. A piece of a ferruginous stoney Nodule having in it 3 Leaves of a capillary Plant not unlike those of a. 12. but larger. Indeed they somewhat resemble the Leaves of the Osmunda Regalis, only that they are shorter. Kenton Coal-pits. These Nodules, with Leaves in them, are called Catheads, and seem to consist of a sort of Iron-Stone, not unlike that which is found very plentifully at Robinhood's-Bay in Yorkshire, and in the Rocks near Whitehaven in Cumberland: where they there call them Cat-Scaups, and are frequently melted with the fatter Iron-Ores. These perhaps differ not much from those described by Dr. Lister de Font. Med. by the Name, as I remember, of Minera ferri planiformis, called Ball-Mine in Staffordshire. These Catheads are found only at Kenton, which is about two Miles to the Northward of Newcastile: and Newbiggin, about a Mile to the Westward of Kenton. Those of Kenton attend the Stratum of Coal; but lie in a Bed of blue Chiver, about a Fathom thick, and have another Stratum of black Chiver of the same thickness lying under them. They are generally about 6 or 7 Fathom from the Coal. Those of Newbiggin are but 3 Fathom above the Coal. They have not always Leaves in them; indeed, not above one in five or six. When fresh taken forth, they break difficultly and irregularly; but when exposed a while to the Air, they split easily, and part at the Leaves. They are of several Sizes, from the bigness of a Walnut to that of a Man's Fift. They are found pretty plentifully: and at about the depth of 40 Fathom.

a. 84. A piece of ferruginous stoney Nodule, with several Leaves of the same sort with those of the precedent. Kenton Coal-pits.

a. 85. Another piece of the same Stone, and formerly united to it. It has the Impression of the said Leaves upon it. Kenton Coal-pits.

a. 86.
a. 86, 87. A Leaf, and Impression, approaching the Polypody Kind, of the same sort with a. 8. on the two divided pieces of a ferruginous Nodule. From Kenton Coal-pits.

a. 88, 89. A Leaf and Impression of the same sort of Plant, on the two divided pieces of a like Nodule. From Newbiggin Coal-pits.

a. 90, 91. A Leaf and Impression of the same, on the pieces of another like Nodule. From the same Coal-pits.

a. 92, 93. A small Leaf and Impression of the same on the pieces of a like Nodule, but less. From the same Coal-pits.

a. 94, 95. A larger Leaf and Impression of the same, on the formerly contiguous pieces of a like Nodule. From Kenton Coal-pits.

a. 96. The top part of a Leaf of the same, but less, on part of a like Nodule. Kenton Coal-pits.

a. 97, 98. Five small Leaves of the same, with their Impressions on the piece of the Stone that was contiguous. Newbiggin Coal-pits.

a. 99. A small ferruginous Stoney Nodule, having on it a Cappillary, rather more nearly approaching the Chama-filix Marina Angl. than a. 12. 'Tis not serrated.

a. 100. A piece of Stone with the Impress of the said Capillary on it. This tallies with the other piece, and was broke off it. These two, 9 & 100, from the same Coal-pits with the foregoing.

a. 101. A Branch of the Filix fam. vulg. or some Fern very like it. And an Impression of a Branch with Leaves a little shorter, otherwise not different. From the Coal-pits at Farrington, Somersetshire.

a. 102. An Impression of a Fern not yet described, but may be fitly called Filix mas non ramofo, pinnulii parvis oblongis non dentatis. Farrington Coal-pits.


a. 104. An Impression of some strange Plant, about 6 Inches in length, tho' not intire; and somewhat above 4 of an Inch broad. 'Tis not so plain, as that one may distinctly make Judgment of it. There are with it a mighty Miscellany of other Leaves, chiefly of Grasfs, lying in a confused and disorderly manner in the Stone. Farrington Coal-pits.

a. 105. An Impression of part of a Plant of the same sort with the precedent. There are also several sorts of Grasses both of the Cyprus and Culmiferous Kinds, some with broader, others with narrower Leaves. Farrington Coal-pits.

a. 106. A very thin Leaf striated, and long like a Flag, with a Leaf of Grass lying a-crofs underneath it. Farrington Coal-pits.

a. 107. A broad flat Body sulcated with 5 Sulci, at 4 of an Inch distance from each other. 'Tis not much unlike a. 2. Farrington Coal-pits.

a. 108.
a. 108. A Piece of a black stone, out of the Canal-Coal-pits near Haigh, Lancashire. The Colliers there call it black Bafs. The Colliers about Durham, and New-Castle, call this kind Plate. The Stratum of this is about a Yard thick, lies 120 Foot deep, and 30 Foot above the Canal-Coal. There is upon this Slate an Impression of a Body that hath its Surface reticulated in a Quincunx Manner, and much like what might be made by the Bark of the Branches of the common Fir, after the Leaves are fallen or stript off; that having little Flakes standing in that manner.

a. 109. A Branch of some Capillary Plant, something resembling the common Trichomanes, only the Pinnæ are larger, in a dusky grey flatey Stone, which the Workmen call White Earth. Found 70 Foot deep, in sinking a Canal Coal-pit, near Haigh, in Lancashire.

a. 110. A Branch of a Capillary Plant, of a different Species, having the Pinnæ narrower, and dentated, lodg'd in the same Stone; and found in the same Stratum with the former.

a. 111. An Impression of some Species of Equisetum, upon like Stone, seeming to be of the Equisetum sub aqua repens. Out of the same Stratum. This sort of Equisetum is found here pretty commonly. I have seen Parts of it to three or four Inches in length.

a. 112. Two Leaves, of the Fern-kind, very fair, each of a different Species, on a blackish grey Slate. From Swansey Coal-pits. Glamorganshire.

a. 113. Part of a flat Body, oblong, thinning somewhat towards the Edges, near 5 Inches in length, 2 in breadth, and 1/4 of an Inch in thickness. The 2 Surfaces are cover'd over with a Quincunx Work, the Panes of which rise gradually towards the middle; where there is a little oblong Dimple in each. Out of the Canal Coal-pits at Haigh, Lancashire.

a. 114. Impressions of long, flat, striated Leaves; having Appearances of Joints at certain Intervals; upon a dark grey flatey Stone. The Stratum of this lay at the depth of about 25 Fathom, in Branfly-Ciff, by the Duke of Somerfer's Salt-Pans, near Whitehaven. The Stratum was one Foot and 1/2 thick: and, upon the breaking the Stone, Leaves of Plants appear'd very thick in all Parts of it, where the Grain of the Stone was thus fine and dense. But where it happened to be more gritty, coarse, and lax, there was not one Leaf to be met with. All the following to a. 138 inclusive were taken out of the same Stratum. 'Tis observable, that those in this, and the following Pieces of Slate, to a. 117, appear to be of the same kind with those a. 36 & seqq. which were found in a Coal-pit near Farrington, in Somersefshire. And indeed, there were found 3 or 4 other kinds of Plants here, that were also found there.

a. 115. a. 116. a. 117. a. 118. a. 119.

a. 120. A Body, appearing to be like the Kernel of some Plant. Also the Ala of a Leaf of the Fern-kind.

a. 121. Another Ala.
CLASS II.

PART I.

Marsh, or Turf-Earth, having lodged in it Nuts, Twigs of Trees, and Shrubs, Grass, Sedge, &c.

b. 1. From Godalming in Surrey.
b. 2. Found in sinking a wet Dock at Deptford. vid. b. 39. & b. 68.
b. 3. From Hamstead-Heath.
b. 4. From Wilmeslow near Knutsford, Cheshire. This sort lies uppermost in the Moss, and next the Surface. It seems to be made up only of the Shives or Husks, and other parts of Juli, of Hazel, Alder, Poplar, &c. vid. b. 10. infra. The Juli are in being only in the Spring Season. There are quantities of this sort of Turf in the North parts of Yorkshire, and in the Bishoprick of Durham. It lies ever at the Surface above all. 'Tis seldom above a Foot in thickness, but extended frequently for 2 or 3 Miles together. 'Tis found chiefly on the flats of Mountains.
b. 5, & 6. From the same place. This sort lies under the former: and there are Trees lodg'd and bury'd in it. At the bottom of Wilmeslow-Marsh, they meet with a reddish Sand.
b. 7. Dug up on the Shore near Outhorn, Yorkshire.
b. 7*. Peat, the softer sort, within a Foot of the Surface. Arkendale.
b. 7‡. Peat, the firmer sort, lying a Foot deeper than the precedent.
b. 9. Moss Earth. From Kendal.
b. 10. From Kendal also. This seems to be the chaffy parts of Juli, of Alder, &c. vid. b. 4. supra.
b. 11. From the Marshes in Winline-Forest.
b. 12. From the Marshes in Winline-Forest.
b. 13. From the Marshes in Winline-Forest.
b. 15. From the Marshes in Winline-Forest.
b. 16. From the Marshes in Winline-Forest.
b. 17. From the Marshes in Winline-Forest.
b. 18. Roots of a fedgy Water-Grafs. From the Marshës in Windfor-Forës.

b. 19. From the Marshës in Windfor-Forës.

b. 19*. Earth with Nuts, Twigs, and Leaves of Hazel. Dug up in the Ifle of Wight. The Hazel Leaves were apparent and distinguishable when the Earth was first dug up and moist; but since they were opened and exposed to the Air, they are perifh'd, and now hardly discernible. vid. b. 69.

b. 19+. Peat-Earth, with numerous Roots, Culms, and vegetable Bodies in it. From a Moor near St. Anns, Cornwall. The common Turf of all the Moors, which are very frequent in Cornwall, is of this sort.

b. 19x. Peat-Earth very fine, seeming to be compos'd almost entirely of flakes and parts of rotten Wood. Found in the same Marsh with b. 44†. a Mile from Langron.

CLASS II.

Pars II.

Parts of Trees and Shrubs found bury'd under Ground.

b. 20. Part of the Branch of a Tree found bury'd with b. 3. Hamflead-Heath.

b. 21, 22, 23, 24, 25. Pieces of Branches of a Birch Tree found in the Peat-Moifles, in Windfor-Forës, with b. 11, &c.


b: 27. A piece FIr-wood dug up in Brigfler-Moif near Kendal, Westmorland.

b. 28. A piece of the Root of a Fir-Tree, dug up also in Brigfler-Marshës.

b. 29. From the Shores at Outhorn, dug up with b. 7.

b. 30. Oak which is the common Moif-wood at Wilmeslow; found with b. 5.

b. 31. FIr, from the same Moifles at Wilmeslow.

b. 32. Yew, from the same Moifles.

b. 33. Also from Wilmeslow Moifles.

b. 34. From the same Marshës.

b. 34*. Still from the same Moifles.

b. 35. A Piece of Wood appearing to be FIr. Part of it is burnt, or char'd. From Wilmeslow Moifles likewise.

b. 36. A resinous Matter found lying between the Bark and the Wood of some of the Trees dug up in Wilmeslow Moifles. They call it there Frankincence. [Resinam mittit candidam, Mastichi similem vel Thuri. Th. Barthol. Hist. 72. Cant. 5. ex Stellute de Ligno Fojili Umbria.]

b. 37. A Piece of FIr, from the Moifles near Wiggan, Lancashire.

b. 38. Oak, from the same Moifles.

b. 39. Oak, dug up at Depsford, with b. 2. & b. 68.

b. 40. & 41. From the same Place; where were found large and entire Oak-Trees, and some other sorts of Trees likewise.
b.42. & 43. Two Pieces of a Shrub, seeming to be Hazel, dug up, with the Nuts, b. 19*, in the Isle of Wight.

b.44. From the Moles of ——— in Lincolnshire.

b.44*. Wood, very rotten, and friable, found in pretty large Pieces lodg'd in the Stone of a Quarry at Marsham near Abington.

b.44 †. Wood, light, and rotten; out of a Stratum of Bituminous Earth, about a Mile from Langron in Cumberland. The Stratum in which this Wood was lodg'd was about 3 Foot thick, and lay under a Stratum of Rubble that was 10 Foot thick. There were in the said Stratum Parts of the Trunks of Trees, Leaves, Sprays of Shrubs, and other Vegetable Substances in such Quantity, that the far greater Part of the Stratum seemed to be compiled of them.

b.44*. A Piece of Firr-Wood from the Peat Marsh of Scaleby, about 4 Miles from Carlisle.

b.44 ‡. Two Pieces of Wood, much impaired and decayed, with some small Quantity of a black Bituminous Matter insinuated into them dug out along with the Hazel-Nuts, b. 69. in the Isle of Wight.

b.44 §. A Piece of Wood having manifest Marks of its having been char'd, or burnt by Fire before it was bury'd in the Earth. Dug up with the precedent. 'Tis not unusual to meet with Wood thus burnt, reposed in the Bowels of the Earth. I have found it also in the Peat-Marches of Chesshire, and elsewhere. And G. F. de Oviedo observed char'd Wood in Virgin-Earth, i. e. Earth that had never been digg'd in or disturbed, at considerable Depth in the Gold-Mines of Peru. Vid. Purchas Pilgrims. l. 5. c. 3. p. 971 c.

CLASSIS II.
PARS III.

PREFACE.

This sort of Wood is found most commonly in Strata of Gravel or Sand: and sometimes in Stone, Clay or Marl. All that I have ever observed of it was alter'd and increased in Hardness and Weight, either by Infusion of Stony and mineral Matter during the Time that these and other Bodies were sustained among the dissolved Stony and mineral Matter, in the Water of the Deluge; or by a total Solution of the Vegetable Substance, and a Succession of Stony Mineral or Metallic in its stead. What hath been imagin'd by some, that this Alteration was made since, by petrifying Waters, is without Reason, or any good Observation to countenance it. Even that which is found in Lakes, and in Rivulets, was originally lodged in the Earth at the bottom of them, and petrified before 'twas reposed there. In particular, a more accurate Enquiry, and Trials, have shewn that what was formerly pretended of the petrifying Power of Lake Oneagh in Ireland, is not true: and the Water makes no such alteration upon any Wood that is put into it; the petrified Wood that is brought thence, being of that which was originally lodged in the Earth at the bottom of the Lake. Linflance in the Wood brought out of this Lake, because it
is frequently insisted upon: and more Notice has been taken of it than of any other. As to the Soney Incrustation of Wood, and other Bodies, I give an Account of them in the former Part of this Catalogue, p.----

Wood Petrified.

b. 45. Found in a Gravel-pit, near Aspley, Bedfordshire.

b. 46. From the Bank of Rushton-Brook, Northamptonshire.

b. 47. From Aspley, in Northamptonshire. This has Veins of white Spar in it.

b. 48. From Clipston-Quarry, Northamptonshire.

b. 49. From the Shores near Harwich.

b. 50. Dug up in Mr. Malcolm's Yard, at Soutshrey, in Norfolk. It lay about two Foot deep in a brown sandy and gravelly Soil.

b. 51. From --- --- - Bedfordshire.

b. 52. This strikes Fire with a Steel. From Wanden-Heath, Bedfordshire.

b. 53. Out of Clay, near Tunbridge.

b. 54. Found, with other Pieces, several larger, in a Stratum of Stone in Hampnet-Quarry, Gloucestershire.

b. 55. From the Shores of Severn.

b. 56. From the Shores of Shepey-Island, Kent.

b. 57. From - - - - Northamptonshire. Mr. Morton.

b. 58. From a Stone-pit near Crick, Northamptonshire.

b. 59. From the same Stone-pit.

b. 60. From the same Stone-pit.

b. 61. Found very deep in the Stone-pits of Halston. Mr. Morton;

b. 62. Found inclos'd in Stone, in a Quarry at Aspley, Northamptonshire.

b. 63. From a Quarry near Islip, Oxfordshire. There was a large Quantity of it, but so rotten as hardly to be taken out entire. Pieces of Wood occur pretty commonly in the Quarries of Oxfordshire.

b. 64. Found in a Gravel-pit near Wellham, Leicestershire.

b. 65. From Llany Monach Cave, near Oswestry, Shropshire.

b. 66. From a Chalk-pit, near Cambridge.

b. 66*. A Piece of a Stick, ponderous, glossy, of the Constitution of the common Vitriolic Pyrites, as having its Pores satured with the constituent Matter of the Pyrites. Found on the Shores, among several Pyritae, near Portsmouth. I have frequently observ'd on the Shores of the Thames, 'below Gravesend, and on the Sea-Shores of Kent and Essex, Pieces of Wood, some branch'd, others with Knots; and all having apparently the Grain, Fibres and Texture of Wood, that were thus alter'd by Infusion of this mineral Matter. And so great is the Quantity of this Matter in them, that when the vitriolic Salts, in some of them that I kept by me, began to start and flioor, as those in the Pyrites are wont to do when kept in a warm humid close Place, the whole Bodies fell all to pieces, and appear'd in Form of a dusky grey Powder with Salts amongst it, exactly like the vitriolic Pyrites, and with-
But the least Appearance of any Wood or Vegetable Matter amongst it. But the Compages and Constitution of that is doubtless dis
tolved by the Action of the Salts in shooting, as set forth above.

CLASSIS II.

PARS IV.

Nuts and other like Fruits found in the Earth.

b.67. Hazel-Nuts, from the Shores of Outborn. Found with b. 7 & b. 29.

b.68. Hazel-Nuts, dug up with b. 2 & b. 39. at Deptford.

b.69. Hazel-Nuts, from the Isle of Wight, found with b. * 19. Out of many hundreds of them I have chosen these: and took care to pick some of the largest and fairest that I could. 'Tis plain, at first View, that the far greatest part of them were not full grown, or near ripe. I have open'd many of them, particularly of the largest, but found them hollow, and quite empty; except only one of the largest which had the Kernel very plain, and of the usual shape, but shrunk, much smaller than usual, and hardly so big as a Vetch. Mr. Stonestreet saw it with me. Had the Kernels attain'd to any considerable Growth and Confidence before the Nuts were thus bury'd, they would have remained to this day; the Shells of many of them being firm and close, and such Kernels being, when inclosed in the Shells, more likely to be preserved in this close Earth than the Leaves of Hazel, which are frequently found. Of all the Fossil-Nuts I have ever seen, either in the North, the Isle of Wight, or any other Part of England, tho' some few, perhaps by reason of some particular Advantage of Situation and Sun, are somewhat larger; yet the generality of them appear to be of about the Growth and Condition that Hazel-Nuts usually are at the end of May or beginning of June: and the De
luge began at that time of the Year †. I have observed that the Nuts got off the Trees at that time, have not only the Bulk and Appearance that these Fossil ones have: but likewise that, if kept a while, they are in like manner hollow and empty; tho' when fresh got they be full of a soft pulpy Matter, which in time transpires and passes through the Shell. Not but that sometimes in the recent Nuts I have observed a small Kernel remaining like that mention'd b. 69. There are Nuts, that appear to have been not ripe when repolished there, dig'd up, in great Numbers, about 10 Foot deep, in an original Stratum in Miln-Close Lead-Mines, in Darly Parish, in the Peak. Mr. Hodgkinson, Carew in his Survey of Corn
wall, p. 12. mentions Nuts found in Pear-Earth two Miles East of St. Michael's Mount.

b.70. Six Cones of the Scotch Pine, taken out of Lindan Moss in Chefsire. These Cones are fully spread and open'd in such manner as when they cast their Seed: and seem to be of above two Years growth upon the Tree.

6.71. Six other Cones of the same sort of Pine which are not open'd and of a growth later than the former by a year. The former are firm and entire, but these being younger and tenderer, are somewhat decayed. Found along with the former. These are of the Growth and Bigness that this Order usually is arrived at about the end of the Month of May.

6.72. Three Cones seeming to be of the Larix. From Cherry-Hinton Chalk-pits near Cambridge. These were not come to ripeness or maturity.

6.73. A Fruit taken out of a Stratum of Gravel in a Pit near Dorchester, Oxfordshire. Mr. Doody thinks this a sort of Nutmeg, which Fruit before it is ripe, is spongy and hollow.

ANIMALIUM PARTES EX TELLURE EFFOSÆ.

CONCHYLIA.

CLASSIS I.

Conchylia univalvia.

PARS I.

Conchylia univalvia tubulosa.

SECTIO I.

Conchylia Tubulosa figura indeterminata; seu Vermiculi.

c. 1. A Vermiculus. From the Chalk-pit, near Greenhithe, Kent.
c. 2. From a Stone-pit on Cowley Common, near Oxford.
c. 3. & 4. From the Chalk-pits at Northfleet, Kent.
c. 5. From the Chalk-pit near Hastingsfield, Cambridgeshire.
c. 6. From Woodstock-Park, Oxfordshire.
c. 7. From Godlow near Oxford.
c. 8. From a Clay-pit at Lambeth.
c. 9. From the Fields by Stow on the Wolds, Warwickshire.
c. 10. From a Quarry near Farmington, Gloucestershire.
c. 11. From a Field near Burford, Oxfordshire.
c. 12. A Vermiculus growing to a Piece of a Pinna Marina. From the great Chalk-pit at Northfleet, Kent.
c. 15. Many Vermiculi sticking to a Concha Anomia. From Winchcomb, Gloucestershire.
c. 16. Many small Vermiculi sticking to a Shell of the Tree-Oyster-kind. Found near Combl-Deans, Gloucestershire.
c. 17. Several very large Vermiculi in a Masp of Stone, along with numerous Fragments of other Shells. Found near Oxendon, in Northamptonshire. Mr. Morton.
c. 18. A Congerio, or Cluster of Vermiculi, found in the Gravel-pit, near Oxendon-Church, Northamptonshire.

c. 19.
c. 19. Another lefs Clufter, found near Cirencefter, Glouceffershife, c. 20. Another found near Witney, in Oxfordshife.
c. 21. Vermiculi tefla quadrangulari. From a Gravel-pit of a Mile Weft of Braybrook.
c. 22. A Congeries of small Vermiculi. From a Stone-pit, near the Mill, at Workton, Northamptonshire.
c. 23. Another from the fame Place.
c. 24*. A Piece of a Tubulus, having on one side Impreffions of very small Knobs upon it, fet in a Quincunx Order, which Impreffions it took, when growing, upon the Shell of an Echimus Spatagus. From the Chalk-pits at Greenhith.
c. 24†. Two Tubuli, twifted, having circular Fibres, very gross and plain. They are affix'd on a Piece of a Pinna Marina. From a Chalk-pit, near Northfleet, Kent.

CLASSIS I.
PARTIS I.
SECTIO II.

Conchylia Tubulofa, curva, versus unam Partem gracilescientia, feu Dentalia.

c. 25. & c. 26. Two small Pieces of a grey foney Matter, with the Surface black and thining, which feem by the Shape to have been each form'd in the Shell of a Dentale. Found in a grey Limef- 

c. 26. Another. This, the two following, and c. 35. were given me by Mr. Jackson, who died suddenly after, without having ac-

CLASSIS I.
PARS II.

Univalvia Discoidea: feu PATELLÆ.

c. 28. A Patella, with circular Ridges about it. From the Stone-

PARTES II.

Univalvia Discoidae: seu PATELLÆ.

c. 28. A Patella, with circular Ridges about it. From the Stone-

Pars II.

Univalvia Discoidae: seu Patella.

c. 28. A Patella, with circular Ridges about it. From the Stone-

Pars II.

Univalvia Discoidae: seu Patella.

c. 28. A Patella, with circular Ridges about it. From the Stone-

Pars II.

Univalvia Discoidae: seu Patella.

c. 28. A Patella, with circular Ridges about it. From the Stone-

Pars II.
Another small Patella, found in a Stone-pit at Aulesworth, Gloucestershire.

A small Patella mention'd by Dr. Lister in Hist. Conch. lib. 4. Fig. 28. under the Title of Patella exigua alba, cancellata, Fissura notabilis in margine. 'Twas found in Harwich-Cliff. 'Tis an English Shell, and found, at this day, upon the Coast of Cornwall and Devonshire.

A larger. Mr. Jackson. vid. c. 29. supra.

CLASSIS II.
TURBINATA.
PARS I.
Turbinata Figurâ compressâ, clavicula seu voluta apice non eminente.

SECTIO I.
Clavicula intus recondita: seu Nautili.

d. 1. Nautilus Greororum. Dug up in the Clay-pit near the Wells at Richmond, Surrey. This Species is found living at this day both in several Parts of the Mediterranean-Sea: and on the Coasts of America.

d. 1*. Another, of the same Species, and found 60 Foot deep in the same Pit, fill'd chiefly with Pyrites. 'Tis broke in such a manner as to shew the interior Constitution of the Body; by which means it appears to be really and indubitably a Shell of this Species.

d. 2. Another found at neather Slaughter, Gloucestershire. I caus'd this to be saw'd in two, to shew the interior Fabric of it. 'Tis near fill'd with a grey Spar; but there are plain appearances of the transverse Partitions and Spinâl Fissulas of the Shell. Dr. Lister has grav'd it, L. de Buccinitis. No 24. 25.

d. 3. This and the following to d. 10. are all of the same Species: and were dug up in the Clay-pit at Richmond, above mention'd.

d. 4. d. 5. d. 6. d. 7. d. 8. d. 9. d. 10.

d. 11. Another still of the same Species, found amongst other Shells 114 Foot deep, in sinking a Well at Kennington Gravel-pits, in a Bed of blue Clay.


d. 13. Ibid.


d. 15. A Nautilus, in which the Marks of the Diaphragms appear on the outer side of the Shell. vid. Museo Moscardo. p. 179. 217. From Whitton-Cliff, Lincolnshire. It has Linear Striae running along the Back all parallel to the Voluta.

Two Nautiloids, or Bodies form'd in Shells of the Nautilus, composed partly of a blackish Stone, and partly of a white Spar. There are, towards the end of the first Voluta, Lines resembling Sutures, not very unlike those of some of the Ammonites.

Of Man, sent by Dr. Wilson Lord Bishop of that Island.
d. 15. Another, less, being only the interior or central Part of
a Body of the same Species with the preceding: and found along
with them. In this the Lines resembling Sutures are very visible
throughout the whole Stone.

d. 16. A Stone form’d in the Cavity of a Nautilus, with bifur-
cated Ridges cross the back. In the Stone-pit ¼ of a Mile North-
West of Morton, Lincolnshire.

d. 17. & 18. Two others less, with some degree of transparency,
being compos’d of a brown Spar. These are of the same sort with
the foregoing. What the natural Bulk of these are, ’tis not easy
to determine, none of them being intire. Kings-Wesfton, Gloucester-
shire.

d. 19. & 20. Two more of the same sort, but larger. Dug up
two Miles from the Sea, near Weymouth.

d. 21. & 22. Two Stones cast in Nautili having a double Row of
Studs on each side. From Tocester-fields. Northamptonshire. Mr.
Morton, who sent me one of these, has described this, but wrong-
Tab. 9. Fig. 10.

d. 23. A small Nautilus of a comprefl Figure. From Folkston-
Cliff, near Dover.

CLASSIS II.

PARS I.

SECTIO II.

Figura compressa, voluta utrinque conspicua: seu Ammonitae.

Errores quorumdam Scriptorum circa Ammonitas.

Cornu Ammonis ex mera terra argillace consitutum, Statuit.


Testam esse fatetur Rob. Hook: sed ex Nautilorum Genere Microg.

P. -----.

ARTICULUS I.

Ammonita laeves: hoc est sine strigis per latera transversis.

d. 24. A small Ammonita with the Volutes smooth and plain,
from Mr. Morton.

D. 25. From Rocks of a blue Slate near Watchet in Somersetshire.

Mr. Cole. This seems to be flattened by some external Force, and is
plainly compos’d of a pearly Shell; much resembling that of the
Nautilus Gracorum in Texture and Appearance. Mr. Hutchinson
in the Searches he made by my direction, in the year 1706, ob-
erved incredible Numbers of these Shells, thus flattened, and ex-
tremely tender, in shivery Stone about Pyfton Passage, Lime and
Watchet. All he saw were near of the same Size: and he ima-
gines them to have been young, tender, and only of some few
Months growth. Which is the more probable, because some of

the
the Ammonitae, found in these Parts, that are at full Growth; are so vastly great. Conf. p. 79. infra.

d. 25 *. Found in a Marl-pit, at Allhampton, Somersetshire. This Shell is gloss'd over with a brass-like Armature.

d. 25 †. A small Ammonites with the Sides smooth, and the Back ending in a sharp serrated Ridge. Found in a Clay-pit at Hannington in Wiltsire.

**Articulus II.**

*Ammonites lateribus Strigatis, dorso lato.*

d. 16. & 17. Two Ammonitae found on the Shores of Whitton, Lincolnshire. They were beat out of the neighbouring Cliffs with several other Bodies, by the Wearing of the Sea. They are well preserv'd; the Shells being pretty found and entire. One of the Shells is fill'd mainly with Spar, the other with Stone.

d. 18. & 29. Togs-hill, Gloucestershire, between Bath and Bristol.

d. 30. This has some Remains of the Shell. From Wick and Abdon, Gloucestershire.

d. 31. This was found on the Shores of Whitton, Lincolnshire; and seems to be of the same Species with d. 26. & 27. as also does the following.

d. 32. From the Shores of the River Humber, near Whitton, Lincolnshire.

d. 33. Found in a Quarry, the most famous in England, for Lime-stone, it being very hard, and making excellent Lime, at Barrow in Leicestershire.

d. 34. A Mass of grey Stone, with several Ammonitæ in it, seeming to be of the same Species with d. 26. There are also some other small Shells in the Stone. From the Shores of Whitton, Lincolnshire.

d. 35. & 36. Two Pieces of Stone having in them Ammonitæ, appearing to be of the same with d. 26. &c. Minster-Lovel, Oxfordshire.

**Articulus III**

*Ammonites porcis sen Strigis dorsum trajicientibus.*

**Divisiō I.**

*Strigis Simplicibus.*

d. 37. Found in sinking a Well at Great Bowden, Leicestershire. Sent me by Mr. Bland.

d. 38. Two Impressions of an Ammonita in Stone. Found on the side of a high Hill about 2 Miles West of Stokeley, Yorkshire.

d. 39. 40. 41. 42. 42 *. Ammonitæ found in a Marl-pit, in vast
vaft Numbers, from the depth of 3 Yards to 18 Yards, at All
hampton 3 Miles from Brewton in Somerfetshire.

d.43. The Edges of this very perfect and beautiful Shell, are
surrounded with a Pyritæ. 'Twas found on the Shores near
Harlepool in the Bishoprick of Durham.

d.44. A Mafs of Stone, from Whitton in Lincolnshire, with Frag-
ments of Peçtines in it, and two Ammonitæ. The bigger of
them seems to be of the same fort with d. 26. but larger: the
other of the same fort with d.46. & 47. infra.

d.45. Found in the Cliff near the Spaw at Scarborough, Yorkshire.

d.46. & 47. From the Shores of Whitton, Lincolnshire.

d.47*. Found on the Shores of Humber, near Hull.

Articulus III.

Division II.

Porceis fen Strigis bifurcatis.

d.48. The Ridges in this are very much rais'd and sharp: and
the Shell appears very plainly in some parts. 'Twas found near
Gritworth, Northamptonshire. There adheres to it a small Am-
onitæ of the same fort with that d. 58. infra.

d.49. & 50. Taken out of a Bed of Clay about 250 Foot deep,
near Weymouth.

d.50*. A Segment of a Cornu Ammonis with a considerable
part of the Shell still investing it. 'Tis of a lovely shining pearly
Hue, rather finer than the Nautilus. Found in sinking a Well
at Great-Milton, Oxfordshire. Mr. Stone-street.

d.51, 52, 53. Three vastly large Ammonitæ, dug up in the
great Quarry at Portland. These lay parallel to the Surface of
the Stratum in which they were lodg'd; and about 50 Foot
deep.

d.51*. From Whitby, in Yorkshire. Found in the Alum Stone,
the Stratum of which is 30 Yards thick, and lies 28 Foot deep.

d.52x. Another out of the same Alum Stone.

d.52*. Another from the same Place (Whitby). This has the
Diaphragm at the end of the last Voluta.

d.52 x. Another found in Mereworth-Park, 7 Miles from
Maidstone in Kent. Dr. Hatley.

d.52†. An Impreッション of another in an Alum Stone, found on
the Shores near Whitby, Yorkshire.

d.53*. A Mafs of Alum Stone, with several Ammonitæ in it,
found upon the Shores near Scarborough, Yorkshire.

d.54. Windrush, Gloucestershire.

d.55. Found in a Gravel-pit near Wellham, Leicestershire. Mr.
Bland.

d.56. Paynswick, Gloucestershire.

d.57. Found on Plough'd Lands by Woodstock-Park, Oxfordshire.

d.57*. Another from Woodston in Huntingdonshire.
4. Another, very fair, composed of a bright shining Brass-like Pyrites. It has the Diaphragm at the end of the last Voluta. Found in the Isle of Portland. Mr. Chr. Wren.

d. 58 & 59. From Northamptonshire.

d. 60. From a Quarry of a Mile North-West of Clipston, Northamptonshire.

d. 61. This is cover'd with a shining Brass-like Armature.

d. 62. Found, in a Brook, near Oxford.

d. 63. Found with the former.

d. 64, & 65. The back of these rises into a sharp Edge; but yet is cover'd by the transverse Ridges, and therefore may indifferently be placed either in this or in the next Article.

**DIVISIO III.**

*Ammonita* *srigis bisurcatis dorsum trajicienibus, umbilicati.*

_d. 66._ This consists of a brown Spar, but has part of the Shell upon it. From Mr. William Cole of Bristol.

d. 67 & 68. Two Pieces of Stone struck forth of the Cavity of the Umbilic of Shells of the same sort with the foregoing. They are of a cochleated Figure: as is the Cavity in which they were found. Mr. Cole.

_d. 69._ An Umbilicated Ammonites, with a double Order of Studs on each side. Found near Standish, Gloucestershire.

_d. 70._ From Portland Quarry.

**ARTICULUS IV.**

*Limbo acuminato per totum dorsum ducto.*

**DIVISIO I.**

*Limbo inter duos Sulcos erecto.*

_d. 70*. A very large Ammonites. From Portland Quarry.

_d. 71, 72, 73, & 74._ Found in Whitby Alum-Mines, along with d. 51 *, &c.

_d. 74x._ Another, found on the Plough'd Lands upon the Hill on which Glassenbury Tor stands, Somersetshire.

_d. 74†._ Another from the same Place. This is bent in such manner that one of the Sutures was open'd by that means. It seems to have been so bent before the Stone had acquired its utmost hardness.

_d. 74*. Found near Keynsham, Somersetshire. Vid. Cambden’s Brit. P. 73. & 82. Edit. 1695. This has Parts of the Shell still remaining upon it.

_d. 75._ Found in a Close on the North-side of Sherborn, Gloucestershire.

_d. 76._ A Segment of a pretty large Ammonites. Standish, Gloucestershire.
d. 77. A Segment with Sutures very fair and plain upon the Surface. Sherborn North-Fields, Gloucestershire.

d. 78. A small Segment cover'd with the Shell. 'Tis of a Pearl Colour, like that of the common Sea-Nautilus. Dug up at the great Clay-pit at Richmond, Surry.

d. 79. & 80. Found by the River Cherwell, at St. Clements near Oxford.

d. 81. This Ammonites has a double Order of Studs on each side. In a Bed of Chalk by the Road near ——— about three Miles on this side of Middle-Colinbourn, Berkshire.

D. 82. A large Segment of an Ammonites. Found on Lansdown, near Bath.

D i v i s io n II.

Dorfo acuminato absque sulcis secundum Dorsum ductis.

D. 83. Found in a Brook near Brixworth, Northamptonshire.  

D. 84. From Oxendon. Mr. Morton. The Dorsum of this terminates in an Edge which is very prettily crenated or notch'd, like the Edges of the Leaves of some Plants. He has since describ'd this, Nat. His. of Northamptonshire. p. 225. Tab. 9. Fig. 3.

D. 85. Stone-pit near Crick.

D. 86. From ——— in Northamptonshire. Mr. Morton.

D. 86 *. Another, less, very fair, with the Shell on, and the Diaphragm at the end of the last Voluta. Found in a Clay-pit, near Hannington, Wiltshire.

D. 87. Fairford, Gloucestershire.

D. 87 *. From Bysfield, Northamptonshire. Mr. Morton.

D. 88. Found in a Stone-pit near Clipston. Mr. Morton.

D. 89. A Mafs of Stone with several of the same sort of Ammonitæ. From the same Stone-pit.

D. 90. A Vitriolick Alumious Pyrites with Ammonitæ in it. Found in a Bed of Alum-stone 30 Yards deep, at Peak near Scarborough, Yorkshire. [This is since dissolved, and perish'd.]

D. 91. & 92. Found at Allhampoton, in the same Pit with d. 39. &c.

D. 93. Found loose on the very Top of Suffolk-Hill, near Hackness, Yorkshire. This is a vast Hill, and very high.

D. 94. Found loose at the bottom of a Quarry near Nunnington, Yorkshire.

Ar t i c u l u s V.

Sulco unico per dorsum ducto.

D. 95. This Ammonites I found in the North-Field of Sherborn, Gloucestershire.

D. 95 *. Another, little different, only the Strigæ are not so much raised; found in the Road near Keynsham. In this some of the Sutures open, but not so much as in d. 74 †.

D. 95 †.
J. P. Port the outermost Voluta of another; &c, on each side the Sulcus, with a double Row of Spikes. Folkston-Cliff, Kent.

Appendix.

Impressions and Fragments of Ammonitæ.

d. 96. An Impression of an Ammonites, found near Outhorn, Yorkshire.

d. 97. Another Impression. Over-Slaughter, Gloucestershire.

d. 98. Another, very fine, found a quarter of a Mile North-West of Clipston, Northamptonshire.

d. 99. Another, found in Mr. Howard's Field, at Marston-Trussell, Northamptonshire.

d. 100. This is a very fair Impression of an Ammonites upon a Flint. From Shugbrow, Warwickshire.

d. 101. Part of an Ammonites, with several Shells adhering to it. From the Shores of Humber, near Whitton, Lincolnshire.

d. 102. The Body of this Stone is worn, but part of the Shell plainly appears. From the same Shores.

d. 103 & 104. Two Pieces of Ammonite, with white Spar in their Cavities; but the Edges of both the Voluta and Diaphragms of the Shells plainly appear; both of them from the same Shores with the precedent.

d. 105. A Fragment, shewing the Diaphragms. Scarborough, Yorkshire.

d. 106. Another, invested with a pearly Shell, having the Sutures finely display'd upon its Surface. From the Shores near Whitton, Lincolnshire.

d. 107, 108, & 109. Three others, with the Sutures as fine, from the same Shores.

d. 110. Another. From Slaujon, Leicestershire.

d. 111, 112, 113, & 113*. Four Pieces of Ammonite, parted at the Sutures. From Folkston-Cliff, near Dover. These shew the Sutures, and the Joints, in a manner very clear and plain.


d. 115. A Joint of an Ammonites. From the Cliff near Whitton, Lincolnshire.

d. 116. Another, consisting of a brown Spar. From Mr. Morton.

d. 117. Another lesser Joint. From a Gravel-Pit, near Bedford.

d. 118. Another, from a Stone-Pit, near Desborough, Northamptonshire.

d. 119. From Folkston-Cliff, near Dover.

d. 120. Three small Joints. From a Stone-Pit on the East-side of Kitsby, Northamptonshire.

d. 121. A Fragment, shewing the Diaphragms at each Extremity. Found near Silverton, Devonshire.
CLASSIS II.

PARS II.

Turbinata quibus Oris Margo duitu continuo ad Columnam pertingit. Sc. Trochi, Cochlea, Norita.

SECTION I.

Turbinata quorum Voluta exteriores in aciem quandam exsurgentes acuminantur: seu

TROCHI.

ARTICULUS I.

Trochi Forma compressa.

e. 1, 2, 3, 4. Four Trochi, all of the same Species, dug up in the great Clay-Pit at Richmond, Surrey.

e. 4*. Three more of the same, join'd by a Pyrites. Out of the same Pit.

e. 5, 6, & 7. Three Copperas Pyrites, cast in Shells of the foregoing Species. From still the same Clay-Pit.

e. 8 & 9. Two larger, and of another Species. From the same Pit.

e. 10 & 11. Two Copperas Pyrites, form'd in Shells of the same fort with the foregoing. From the same Place. [Dissolv'd in Tract of Time, and perish'd.]


ARTICULUS II.

Trochi Forma elatiore.

e. 13. A brown Stone, very fair, and finely cast in a Species of Trochus. Found in a Stone-Pit near Cirencester, Gloucestershire.

e. 14. Another, form'd in a Shell of the same Species. Found in a Stone-Pit at Eastington, Gloucestershire.

e. 15. A turbinated Stone, larger, being at the Basis 2 Inches $\frac{1}{2}$ in Diameter. Found near Weymouth.

e. 16. Another, somewhat less. Found in the North-Field of Shernorn, Gloucestershire.

e. 17. Another, larger than either of the precedent. Found above 100 Foot deep, in the Chalk-Pit at Northfield.

e. 18. Another, very fair, 2 Inches in Diameter at the Basis, and 1 Inch $\frac{1}{2}$ in Perpendicular. Found in a Quarry in Randcomb-Paul, Gloucestershire.

e. 19. Another, little different, found on the ploogh'd Lands in Laddington-Fields, near Gloucester.
e. 19*. Another. Found in a Quarry near Keynsham in Somersetshire.

e. 20. A larger, found in a Stone-Pit on Shot-over-Hill, near Oxford.

e. 21. The Shell of a Trochus, fill'd with Stone, and having some arenaceous Matter adhering to the Outside of it. 'Tis 1 Inch in diameter; and about 1 Inch in perpendicular. Found in the Cliffs near Whitton, Lincolnshire.

e. 22. Another larger, from the same Cliffs.

e. 23. Another still larger, found near Gloucester.

e. 23*. A Trochites, very fair. Found near Tame, in Oxfordshire.

e. 24. A small Stone, form'd in a Trochus, about an Inch and 1/4 in diameter, and 2/3 of an Inch in perpendicular. Found in a Stone-Pit, near Tetbury, Gloucestershire.

e. 25. Another, of near the same Bulk, having yet part of the Shell upon it. From Whitton-Cliffs, Lincolnshire.

e. 26. A small Trochus, struck out of a Piece of Stone, in the Wall of the great Park at Sherborn, Gloucestershire.

e. 27. Another smaller, [A] being not bigger than a common Pea; found in Stone, about 20 Foot deep, in the Home-Quarry, Sherborn, Gloucestershire. This Species is at this Day found living in our Seas; and is figured by Dr. Lister under the Title of Trochus pyramidalis, variegatus, Limbo angusto in summo quoq; Orbe circumditus. Hist. Conchyl. l. 4. f. 8. n. 1.

e. 27*. Two larger. Southampton.

e. 27 †. A Trochus, with the Clavicle much depres'd, and a concave Basis, out of Stone, raised near Stafford, in Essex.

Sectio II.

Cochleae.

Articulus I.

Forma compressiore.

e. 28. A very hard, grey, turbinated Stone, 4 Inches in Base; and the Volva, where thickest, near an Inch and a half thick. Found in the South-Fields of Sherborn, Gloucestershire.

e. 29. Another, somewhat less, of a brown Colour. There adhere to the upper part of this many Granules of a Stoney Matter, that in Tract of Time had affix'd upon it as it lay expos'd to Rain, &c. on the Surface of the Earth, after the Shell, in which it was moulded, was beat off and gone; which frequently befalls all sorts of form'd Stones that lie so expos'd amongst a fine arenaceous, or a loose sparrey Matter. This was found in a Close of Sir Ralph Dutton, on the North-side of Sherborn, Gloucestershire.

e. 30. A Cochlinites, of the same sort of Stone, but less, being not quite 2 Inches broad. Near Dursley, Gloucestershire.

e. 30*. From a Cliff, near Spitton, Yorkshire. This has the Shell yet covering it.
A Piece of a reddish Stone, exhibiting a Cochlea \( \frac{1}{2} \) Inch in Diameter, split horizontally. By this means, the interior part of the Shell is shown to be fill'd with Stone of the same sort with that that environs it without. Found in a Stone-Pit near Shipston, beyond Turk-Dean, Gloucestershire.

A Cochlea, about an Inch in Diameter. In the Fields near Tewkesbury, Gloucestershire.

Another, somewhat less. This is the most perfect, the Impression or Mould of the Shell being the most exquisitely taken off that ever I saw. 'Twas struck out of the middle of the Mafs of a Stratum of Stone in Portland Quarry.

**ARTICULUS II.**

Cochlea clavicula brevi.

This small Shell has Stripes of brown, very thick, running parallel with the *Volute*. 'Twas found in a Stone-Pit, near Sir Ralph Dutton's House, Sherborn, Gloucestershire.

Two more; [A] from Harwich-Cliff. They are English. Dr. Lister entitles this Species *Nerita edentulus lavis*; though they seem rather to be Cochlea.

A Stone form'd in another of this kind. Barrington, Gloucestershire.

Nine, [A] of different Growth and Size, but all of the same Species; from the Tyle Clay-Pit at Richmond. This seems to be the Cochlea *sublivida* or *fusco ad Basin cuspis*, orbis velut *multicus depingitur*. Listeri Hist. Conchyl. No 19.

Two verrucated. Clifton-Quarry, Northamptonshire.

Three, very small, with Striae parallel to the *Volute*. All found about Sherborn, Gloucestershire.

Harwich-Cliff. This is found, though rarely living at this Day, on the Coast of Guernsey. 'Tis figured by Dr. Lister under the Title of *Buccinum bilingue striatum labio propatulo digitato*. Hist. Conchyl. L. 4. S. 12. No 20.

Stifford, Essex.

Spar, cast in one of the same Species. From the same Place.


A Copperas Pyrites. Richmond Clay-Pit, Surrey. [Perished.]

Southampton.

Found in a Pit near Stowell, Gloucestershire.

The Shell, wherein this Cochlitus was form'd, being dissolved before the Body was turned forth of the Stratum, is here succeeded by a grey Spar, that in Shape and Thicknes resembles the Shell, being cast in the Cavity that the Shell before possest. Sherborn, Gloucestershire. Conf. Not. ad e. 54. infra.
e. 50, 51. Found in a Stone-Pit, near Hartleborough, Northamptonshire.
e. 52. Aultworth, Gloucestershire.
e. 53. Garston, Oxfordshire.
e. 54. Lechlade, Gloucestershire. This, like e. 49. supra, is covered with a sparry Crust in lieu of the Shell; which having been dissolved by Water, carrying vitriolic Salts, the same Water carrying also sparry Particles, repointed them in the place pos sess'd by the Shell so dissolved and carry'd away; which place being of the Form and Dimensions of the Shell, the Spar filling it, must of course be so too. When the Strata are, by ploughing, or other external Agents, broke up, the Bodies inclosed in them are turn'd forth, whether cover'd with the real Shells, in which they were cast, or with these fictitious Crusts, or with none, where the Water draining thro' the Mafs of the Strata, happens to have in it no sparry Particles.
e. 55. Cirencester, Gloucestershire.
e. 56. Broad-Rifington, Gloucestershire.
e. 57. Notgrave, Gloucestershire.
e. 58. Woodstock, Oxfordshire.
e. 59, 60, 61, 62. All compressed. Found in the great Quarry at Barrington, Gloucestershire.

ARTICULUS III.

Cochlea Clavigula productiore.

e. 62*. Four, dug up in a Marl-pit at Hanton, by the River Medway, in Kent. Sent by Dr. Halley, who formerly publish'd an Account of the Bodies dug up in this Pit. Philos. Trans. No 155. p. 463.
e. 63. Two, found in a Brook near Lubenham, Leicestershire.
e. 64. Found near Eynsham-Ferrey, Oxfordshire.
e. 65. Whiston-Cliffs.
e. 65*. This has Strigas, thick set with Tubercles, running parallel to the Volute of the Shell. Found in a Quarry near Cowlin-Deans, Gloucestershire.
e. 66. Stone-pit, near Stawell, Gloucestershire.
e. 67. Clay-pit, at Richmond, Surrey.
e. 68. Found in the great Quarry at Barrington, Gloucestershire. Graved by Dr. Lister, Append. ad Hist. Conchyl. 1. 4. de Buccinittis, T. 1028. No 15.
e. 69. Four, Stifford, Essex.
e. 70. From the Shores near Whitten.
e. 70*. Six, very small. All found about Sherborne, Gloucestershire.
e. 71. Aultworth, Gloucestershire.
e. 72. Windrush, Gloucestershire.
e. 73. Coln-Deans, Gloucestershire.
e. 74. From the great Sand-pit, near Woolwich, Kent.
e. 74*. Tanworth-Quarry, Gloucestershire.

e. 75.
e. 75. [A] Four, out of a Marl-Pit, near Wigan, Lancashire. This Species is found living, at this day, on our Coasts; and is figured by Dr. Lisler under the Title of Cochlea alba densè striata orbis primi superiori parte paulo depressiore. Hist. Conchyl. L. 4. Sect. 5. N° 57.

e. 76. Four vitriolick Pyrites. Sheppey-Island, Kent. [3 of these perished.]

e. 77. Eight, spirally studded. They lay about 12 Foot deep in a blue Clay, among several other sorts of Shells, in the great Sand-Pit at the Weft-end of Woolwich.

e. 78. Found on the plough'd Lands near Turk-Dean, Gloucestershire.

e. 79. Winchcomb-Fields, Gloucestershire.


e. 81. Out of a Stone-Pit on Shot-over-Hill, near Oxford.

**Sectio III.**

*Apertura oblonga, clavicular intus recondita. Concha Veneris.*

e. 82. A small one, [A] found in the great Clay-pit at Richmond, Surrey; appearing to be the same with Dr. Lisler's Concha Venera exigua alba Cylindracea. N° 70. Hist. Conchyl.

e. 83, 84. Two large ones, from Southampton, seeming to be form'd in Dr. Lisler's Concha Veneris major leviter & dense striata. N° 71. Hist. Conchyl.

**Classis II. Pars III.**

*Turbinata sinu [ex quo Linnaeus exoritur] ad Columellam donata.*

**Sectio I. Artic. I.**

*Apertura oblonga Figura Pyramidali. Rhombi.*

e. 85. Two very small Rhombi. From --- Northamptonshire.

e. 86, 87. Two others. [A] larger, very fair; one of 'em with the native Colour. Mr. Jackson. Vid. c. 29. supra. This Species is common in our West-India Islands; and I have seen of the like found upon the Coasts of Yorkshire, near Whitby.

**Artic. II.**

*Figura Cylindroide. Cylindri.*

e. 88. Six small Cylinders. Found with the precedent.

e. 88*. Two others. From --- in Northamptonshire.

e. 88*. Two larger. Norleach, Gloucestershire.
Sectio II.
Apertura subrotunda: Buccina.

Artic. I.

Sinn ad Columellam non rostrato.

Divisio I.

Clavicula breviore.

e. 89. From Southampton.
e. 90-91, 92, 93, 94, 95, 96, 97, 98. All found in the great Tile Clay-Pit at Richmond, Surrey.
e. 99, 100. Stifford, Essex.
e. 101. Richmond Clay-Pit, Surrey.
e. 102. Ibidem.
e. 103. White, smooth. Found with e. 87 & 88.

Divisio II.

Clavicula produciore.

e. 104. Two, small. Found with the precedent.
e. 106. A small one, [A] of the same Species. From the same Cliff.
e. 108. A Stone, seeming to be form'd in a Shell of the same kind with the foregoing. Portland-Quarry.
e. 109. Taken out of a Stratum of Limestone, in a Quarry on the top of a high Hill by Thornton, 2 Miles from Pickering, Yorkshire. There appear great number of Ova of Fishes in the Stone.
e. 110. Richmond Clay-Pit, Surrey.
e. 111. Two Buccina. Ibid.
e. 112. Five others, seeming to be of the same Species. Woolwich, out of the same Pit with those e. 77. There were of the same Species dug up, along with several Bivalves, near Bromley in Kent.
e. 113. Eight long turbinated Stones, seeming to be form'd like Shells with e. 112. In vast Strata of Stone in Portland-Quarry, at 15 Foot depth.
e. 113*. One larger, from the same Quarry.
e. 114. Found with e. 86.

Sec-
Section II. Articulus II.

Buccina Rostrata.

e. 115. Out of Harwich-Cliff.

e. 117. From the same Cliff.

e. 118. From the Cliffs of Sheppey-Island, Kent. Turbinated Pyrites.

e. 119. Another turbinated Pyrites, ibid. [Dissolv'd and perish'd.]

e. 120. Another, ibid. [Dissolv'd and perish'd.]

e. 121. Another. Richmond Clay-Pit, Surrey. [Dissolv'd and perish'd.]

e. 122. Five Buccina. Out of the same Clay-Pit.

e. 123. Two turbinated Pyrites, seeming to be form'd in like Shells with the precedent. Sheppey-Island. [Perish'd.]

e. 124. Four Buccina, with the Clavicula longer than the precedent. From Richmond Clay-Pit.

e. 124*. Two others of the same Species. Found, with several others, about 40 Foot deep, in sinking a Well by Sir Bart. Shore's House on Pinner-Hill; which is considerably higher than Harrow-on-the-Hill, as was found by an actual Survey. They lie at about 4. Miles distance. I saw several turbinated Shells of different kinds that were found along with these.

e. 125. Four Pyritæ, from Sheppey-Island, seeming to be form'd in Shells of the same Species with those e. 124, & e. 124*.

e. 126. One seeming to be of the same sort, but compress'd. Richmond Clay-Pit, Surrey.

e. 127. A Buccinum. Ibid.

e. 128. Seven, of another Species. Ibid.

e. 129. Three turbinated Pyrites, seeming to be form'd in Shells of the same Species. Sheppey Cliffs.

e. 130. Buccinum. Richmond Clay-Pit, Surrey.

e. 131. Another. Ibid.

e. 132, 133, 134, 135, 136, 137. Six Buccina, much resembling the Buccinum rostratum majus, erassum, &c. Lift. Hist. Conch. No 4. but that the Twirl in this is different from that of the others; this being an Heterostropha, the Twirls turning from the Right-hand to the left. From Harwich-Cliff.

Section III.

Buccina Bilingua.

Sectio IV.

Purpura, sive Buccina rostro obliquo, tecta velut ex plicis quibusdam composta.

e. 140, 141, 142. From Richmond Clay-Pit, Surrey.

Appendix.

e. 143, 144, 145, 146. From Marcham Stone-Pits, within two Miles of Abingdon.

Classis III.

Conchylia Bivalvia.

 Pars I.

Aurita.

Sectio I.

Sinu ad Cardinem trigono in utraq; testa, seu Pectines.

Artic. I.

Ambitus ad Marginem subrotundo.

Divisio I.

Superficies laxe, vel saltum Striis minuis admodum & utr. conspicuis inscripta.


f. 2. Found, in plough'd Lands, near Stunsfield, Oxfordshire.

Divisio II.

Striata Stris Circularibus.

f. 3. Found near Weymouth.


f. 5. Ristington-parva, Gloucestershire.

f. 6. Ibid.

Divisio III.

Stris ad Cardine ad Marginem duibus.

f. 7. Fairford, Gloucestershire.

f. 8. Near Gloucester.

f. 9.

f. 10. Lechlade, Gloucestershire.

f. 11. Sherborn, Gloucestershire.

f. 12. Ibid.

f. 13. Fairford, Gloucestershire.

f. 14.
Two. Farmington, Gloucestershire.

f. 15. Chalk-Pit, at Northfleet, Kent.

f. 16. Chalk-Pit, at Greenwich, Kent.

f. 17. Northleach, Gloucestershire.

f. 18. Found amongst Gravel, near Henley upon Thames.


f. 20. Stowell, Gloucestershire.

DIVISION IV.
Superficie sulcata.


f. 22. Little-Risington, Gloucestershire.

f. 23. King's-Weston, Gloucestershire.

f. 24, 25. Found in the Banks of the River Welland, Northamptonshire.

f. 25*. Found loose on the Side of a pretty high Hill near Stokesby, Yorkshire.

f. 29*, Bowden-parva, Northamptonshire. Mr. Morton.


f. 27. Ibid.

f. 28. Near Gravesend, Kent.

f. 29. From a Gravel-Pit, near Greenhithe, Kent.

f. 30. Woodstock-Park, Oxfordshire.

f. 31. Found, on plough'd Lands, near Eysham-Ferry, Oxfordshire.

f. 32.

f. 33. Shot-over-Hill, near Oxford.

f. 34. Stone-Pit, Cowley-Common, near Oxford. I observed of the same Species by the Oxford Road, about five Miles short of Gloucester.

f. 35. Ibid.

f. 36. Hanworth Gloucestershire.

f. 36*. Another of the same Species, but less. Sherborn, Gloucestershire.

f. 36*. Lechlade, Gloucestershire.


f. 37*. A small Peften. [A] very fair. Harwich-Cliffs. This is an English Shell, and the same with that figur'd by Dr. Lisler, Hist. Conchyli. Lib. 3. No 27 & 28. with this Title; Peften mediocris latus, ex rufa variegatus, circiter viginti Striis tenuiter admodum striatis diffinitus.

f. 38. Hilderskill-Quarry, Yorkshire.

f. 39. Gravel-Pit, near Ifington, Middlesex.

f. 40. Near Sherborn, Gloucestershire.

f. 41. Sir Ralph Dutton's Home-Quarry, Sherborn, Gloucestershire.

f. 42. Out of a Quarry in Northleach-Fields, Gloucestershire.

f. 43. Out of the same Quarry.
f. 44. 45. 46. 47. 48. 49. 50. Cowley-Common, near Oxford, in a Stone-Pit.
f. 51. Found in a Quarry on the top of a high Hill near Thornton, Yorkshire.
f. 52. Near Gritworth, Northamptonshire.
f. 52*. An Impression of a Peckten, very fair, upon a yellowish Flint. Found near Walthamslow.
f. 54. Trumpington-Fields, near Cambridge.
f. 55. Banstead-Downs, Surrey.
f. 56. Near Rygate, Surrey, in a Chalk-pit.
f. 56*. Chalk-Pit, Lullingston-Park, Kent. This is perfect and very fair.
f. 57. Chalk-pit, near Croydon, Surrey.
f. 58. Chalk-pit, by Greenhithe, Kent.
f. 59. Full of Flint. Chalk-pit at Northfleet, Kent.
f. 60. Ibid.
f. 61. Chalk-pit at Greenhithe, Kent.
f. 63. Chalk-pit, Northfleet, Kent.
f. 64. Chalk-pit, near Charlton, Kent.
f. 65. Chalk-pit, near Greenwich, Kent.
f. 66, 67. Chalk-pit, near Northfleet.
f. 67*. A common black Flint, form'd in a Shell of the same Species with the foregoing, with parts of the Shell adhering to it, very fair. Boxley-Hill, Kent.
f. 68. Part of this Shell being broken off, shews the common black Flint cast in it as in a Mould. There's a Maff of like Flint concreted and form'd on the Outside of this Shell likewise. 'Twas taken out of a Stratum of Chalk near 100 Foot deep in the great Chalk-pit at Northfleet, Kent.
f. 69. Out of the same Chalk-pit.
f. 70. Out of a Quarry near Farmington, Gloucestershire.

Articulus II.

Zellines, Marginis ambitu versus unam partem longius producere.
f. 88*. Stawell-Fields, Gloucestershire.
f. 88*. Farmington-Grove, Gloucestershire.
f. 89. Near Oxford.
f. 90. Barrington, Gloucestershire.
f. 91. Coln-Deans, Gloucestershire.
f. 92. Ibid.
f. 93. Turk-Dean, Gloucestershire.
f. 94. Randcomb, Gloucestershire.
f. 95. Moreton, Gloucestershire.
f. 96. Witney, Oxfordshire.
f. 97. A Pecten, with the Ridges fewer, and placed at greater distance than is usual in this kind. Found in the Road between Kettering and Rothwell, Northamptonshire.
f. 97*. Another, of the same Species, found near Ashley, Northamptonshire. Mr. Sawyer.

Articulus III.

Pectines Figura angustia à cardine ad Marginem oblonga.

f. 98, 99, 100, 101. Found on the plough'd Lands near Coln-Dean, Gloucestershire.
f. 102. Broadwell-Grove, Oxfordshire.
f. 103. Tangle, Oxfordshire.
f. 104, 105. Scarborough, Yorkshire.
f. 105*. Found by the Road near Pickering, Yorkshire.
f. 106. A grey Stone, form'd in a Shell of an uncertain kind, but seeming to have been a Pecten. It was found in a Quarry near the River Medway, on this side Maidstone, Kent.

Sectio II.

Conchylia aurita Cardine dentato, seu Sphondylis.

f. 107, 108. Found in a Stone-pit near Thorp-Malsor, Northamptonshire; and are pretty common in the Pits of that Field. This seems to be of the same Species with a Sphondylus, commonly found in the West-Indian Seas.
f. 109. From the Cliffs near Whitten, Lincolnshire.
f. 110. Burford, Oxfordshire.

Sectio III.

Conchylia aurita Cardine lavi, seu Margaritiferæ.

f. 111. Found in a Stone-Pit, on Cowley-Common, near Oxford.
f. 112, 113. Two Margaritiferæ, of an oblong Shape, out of a Quarry near Farmington, in Gloucestershire.
f. 113*. Another, left, of the same Species. From the great Quarry at Barrington, Gloucestershire.
f. 113*. Two more, of a Shape more round. From Windrush Quarry, Gloucestershire.
CLASSIS III. PARS II.
Bivalvia non aurita testis imparibus.

SECTIO I.
Alterae testae planae.

ARTIC. I.
Figura lata patula, rostro brevi vel nullo, Ousta.

DIVISIO I.
Ostrea labris non crenatis.

f. 114. A Pair [A] dug out of a little Hill near Hedley, in Surrey. This, and the following to f. 125*. are all of the same Species with the common Oyster.

f. 115, 116. Ibid. [A]

f. 116*. A Pair, [A] taken out of a Stratum of a sandy Marl, such as is betwixt the Valves of the Shell. Near Reading, Berkshire. There were, in the same Stratum, great Numbers more of these Shells.

f. 117, 118, 119, 120. Found [A] about 10 Foot deep in a Bed of Marl, lying over the Sand, in the great Sand-pit at the farther End of Woolwich, Kent. There were here, besides Oysters, Conchæ, Buccina, and other Shells, all of the very same sorts with those found in the great Sand-pit at the hither End of Woolwich: as also elsewhere on Black-Heath, and about Stifford, in Essex. The Stratum wherein they lie, is generally six or eight Foot thick: and the Shells in it are so numerous, and lie so close, that the Mals is almost wholly composed of Shells, there being only a very little Marl interpos’d. The Shells, in the Stone of Stifford, lie almost as thick in it.


f. 122*. [A] This has several fair Vermiculi Marini, and a small Oyster adhering to it. Out of the great Quarry at Barringdon, Gloucestershire.

f. 123. Stone-pit, [A] near Oxford. Ostracites, a Stone form’d betwixt the two Valves of an Oyster-Shell, one of them being struck off.

f. 124. Another Ostracites; both Shells being gone. Found near the precedent.


f. 126. On the plough’d Lands on the top of a Hill, by Wheatland’s Mill, beyond Northleach, Gloucestershire.

f. 127. From Thingdon Stone-pit, Northamptonshire.

f. 128. Three Pair, and three single Shells. Found in the Brook and Fields about Marston-Trussell, Northamptonshire

f. 129. Cliffs of Humber, near Whitton.
f. 130, 131, 132, 133, 134, 135. Ibid. These have all Marks upon them, by which they appear to have stuck to Shells, Stones, Shrubs, or other Bodies.

f. 136. Ibid.

f. 137. Found near Sheriff-Hutton, Yorkshire.

f. 138, 139. These two Oysters, when young affixing to an Ammonita, have taken Impressions from the Shell. Found in Ashley-Field, Northamptonshire. Mr. Sawyer, Rector of the Town.

f. 140. In a Gravel-pit, near Barly, Cambridgeshire.

f. 141. A vast thick Shell found in a Bed of blue Clay, a Mile and half East from Weymouth, 50 Foot higher than the Sea.

f. 142. Oxendon Gravel-pit. Mr. Morton.

f. 143. On a Hill near Eynsham-Ferry, upon the plough'd Lands, Oxfordshire.

f. 144. & 145. In the Fields near Quainton, Buckinghamshire.

f. 146. Plough'd Lands, near Eynsham-Ferry, with f. 143.

f. 147. Fullbrook, Oxfordshire.

f. 147*. Found upon an Hill near Stroud, Gloucestershire, among several others of the same Species. There is on the Cardo, the Impression of another Shell, to which this had affix'd during the Growth of it.

f. 148. Minchinhampton, Gloucestershire.

f. 149. Fields near Gritworth, Northamptonshire. The concave Shell of this and of all the following to f. 166 inclusive, have Marks of their adhesion to other Bodies in like manner as is observ'd of various kinds of Shell-Fish, now living at Sea. They affix themselves to Stones, and other solid Bodies, the better to secure themselves against the Agitations of the Water of the Sea.

f. 150, 151, 152, 153. Found in the great Quarry near Bar- rington in Gloucestershire.

f. 154, 155. Near Sherborn, Gloucestershire. This is the Otites of Dr. Plot.

f. 156. Near Sherborn, Gloucestershire.

f. 157. Ibid.

f. 158. Ibid.

f. 159. Tangley, Oxfordshire.


f. 162, 163, 164, 165, 166. In a Stone-pit near the Mill at Workton, Northamptonshire.


f. 167 x. Another from the Vale of Gloucester.

f. 168. Haddington, Oxfordshire.

f. 169. Richmond, Yorkshire. [Dissolv'd and perish'd.]

f. 170, 171. Whiston Cliff, Lincolnshire.
DIVISIO II.

Ostrea Marginibus dentatis Arborea dieha, quod Arboribus & Fru-
ticibus in Littore Maris nascentibus adhaerere solent.

f. 172, 173, 174. In a Stone-pit ¼ of a Mile North-West of
Morton, Lincolnshire.

f. 174*. Found in a Stone-pit near Peterborough.

f. 175. Three Shells. Found on Plough'd Lands near Cirencester,
Gloucestershire.

f. 176. Stow on the Wolds, Gloucestershire.

f. 177. Grav'd by Dr. Lifter de Conchitis, Plate 446. No 37.

f. 178. Islip, Oxfordshire.

f. 179. From a Stone-pit in the Road between Kettering, and
Rothwell, Northamptonshire.

f. 180. In a Stone-pit near Gritworth, Northamptonshire.

ARTICULUS II.

Figura angusta Rostro longo recurvo.

These are commonly call'd Conchae rugosae or Crow-stones, they
are frequent in Italy. Bonanni Obs. Teftac. p. 103. Bishop E-
vans of Bangor, gave me one from Angliea. I have seen of
them from Leppington in Yorkshire, and the Fields near Ailsbury.

f. 181. From the Shores near Pyrton Passage, on this side of
the Severn.

f. 182. From Ditchford, Worcestershire.

f. 183. Witney, Oxfordshire.

f. 184, 185, 186, 187. From the Vale of Gloucester.

f. 188, 189. From the Cliffs at Whitham, Lincolnshire.

f. 190. From the Banks of the River near Rythorp, Yorkshire.

f. 191. Out of a Brook near Northleach, Gloucestershire.


f. 192*. Found in a Quarry at Therton near Bath.


f. 194, 195. The Opercula, or flat Shells, from the Vale of
Gloucester.

f. 196. Pyrton-Passage over the River Severn.

f. 197. From the Cliffs near Whitham, Lincolnshire.

f. 198. From Rythorp River, found with f. 190. Yorkshire.

f. 199. Plough'd Lands near Painswick, Gloucestershire.
CLASSIS III.
PARTIS II.
SECTIO II.

Bivalvia non aurita, Testis imparibus, utraque Testa convexa, Vertice rostrato, seu ANOMIAE.

Some of these which follow in this Catalogue, are grav'd by Dr. Lister. APPEND. AD HIST. CONCHYL. L. 3. de Conchitis. N° 13, 14, 15.

There are so great Numbers of these Shells found about Sherborn in Gloucestershire, where I was, at Sir Ralph Dutton's House, several Months, that I thought it endles to note all the Places. These therefore, in this Section, that have not the Places noted, were all found about Sherborn, where they are call'd Pundibs; and lie as thick on the plough'd Lands, in some Fields about this Town, as I think I ever saw Pebles or Flints elsewhere.

The Anomia leaves are also found near Wickham in Kent, Bis- fer, in Caldy Island, Wales, Bridport, Dorsetshire, in great Numbers.


ARTICULUS I.

Anomia leaves.

DIVISIO I.

Anomia leaves Margine imo in duos Angulos terminato.

f. 200. Found in sinking a Well near Farrington, Berkshire.

f. 200*. Two from Woodston, Huntingdonshire. Mr. Morton.

f. 201. Found in Silverton Quarry, Devonshire.

f. 201 †. Of Spar, the Shell most of it struck off.

f. 202, 203. From Colverton in Leicestershire, on the Edge of Rutlandshire.

f. 204, 205.


f. 207, 208.


f. 211. Found near Oxendon, Northamptonshire. Mr. Morton.

f. 212. f. 213. f. 214. f. 214 †. Found by the River Avon, Wiltshire. Mr. Stontley, who says 'tis that which Mr. Lhwyd calls Sacculus longissimus. Lythophylac. p. 42. N° 872.

f. 214 ‡.
f. 214*. Fill'd with Spar, Oxendon, Northamptonshire.

f. 214x.

f. 215, 216. Tog's-Hill, between Bath and Bristol.

f. 217.

DIVISIO II.

Anomia leves Margine subrotundo plano.

f. 218. Two from a Stone-pit near Desborough, Northamptonshire.

f. 218*. f. 219. f. 220.

f. 221. In a Stone-pit near Stawell, Gloucestershire.

f. 222. Withington Fields near Randcomb, Gloucestershire.

f. 223. Greenhith Chalk-pit, Kent.

f. 223*. Broke out of the same Stone with f. 403.

f. 224. Oxendon. Mr. Morton. It seems to be of the same Species, and found in the same Place with f. 218.


f. 226.

f. 227. In the Fields near Wellingborough, Northamptonshire.

f. 228. A yellowifli Flint, form'd in this Species, the Shell gone. Out of a Gravel-pit, near Islington-Wells.

f. 229.

f. 230. Farrington, Somersetshire.

f. 231. f. 232. f. 233.

f. 234. In a Stone-pit near Stawell, with f. 221.

f. 235. f. 236. f. 237. f. 238. f. 239. f. 240.

f. 241. Twenty small ones, all found about Sherborn, Gloucestershire.

f. 241x. Two, found in a Quarry, on the side of an high Hill, near Silverton, Devonshire.

f. 241+. Two, from the same Quarry.

DIVISIO III.

Anomia leves Margine sinuato.

f. 242, 243, 244, 245, 246, 247. From the Stone-pits about Crick, Northamptonshire. These and the two following have only one Sinus. The others under this Membrum have all of 'em three.

f. 248. f. 249.


f. 253. f. 254. f. 255.

f. 256. Candlesby, Lincolnshire.

f. 257. Two adhering together from the Vale of Gloucester.

f. 258. Two more, one mix'd into the other. Out of a Stone-pit near Oxford.

f. 259.

f. 260. Grafton Quarry, Northamptonshire.

f. 261. Greenwich Chalk-pits, Kent.

f. 262. Purfleet Chalk-pits, Essex.

f. 263. Chalk-pit by Croydon, Surrey.

f. 264.
f. 264. Chalk-pits near Deptford.

f. 265. Chalk-pit at Greenwich; the Shell empty, Kent.

f. 266*. From a Chalk-pit near Northfleet, Kent.

f. 266. In Flint, from a Gravel-pit on Hampstead-Heath.

f. 267. Filled with Flint, Deptford Chalk-pits.


f. 269. Greenwich Chalk-pit, Kent.

f. 270. Northfleet Chalk-pit, Kent.

f. 270*. Found in a Chalk-pit on Boxley-Hill, Kent.

f. 271. Rygate Chalk-pit, Surrey.

f. 272. Charlton Chalk-pit, Kent.

f. 273. Four small, Northfleet, Kent.

f. 274. A single Valve, Chalk-pit near Greenwich, Kent.

f. 275. Another, Northfleet.

f. 276. Another small, Greenwich.

f. 277. A very large one, Withington Fields near Randcomb, Gloucestershire.

f. 278.

f. 279. From a Pit near Stowell, Gloucestershire, with f. 221.

f. 280. f. 281. f. 282.


f. 284. Withington Fields near Randcomb, Gloucestershire.


f. 286*. The Shell in this is gone, it being a Flint, blackish, with a Coat of Green, form'd in a Shell. Found near Edgeborough in Buckinghamshire.

f. 286. f. 287. f. 288.

f. 289, 290. Randcomb Park, Gloucestershire.


f. 297. f. 298. f. 299. f. 300. f. 301.

f. 301*. Found 35 Fathom deep in a Coal-pit near Meaburn, Westmorland.

f. 301 †. Found in a Quarry on the side of an Hill near Silverton, Devonshire.

D I V I S I O IV.

Anomia leves Margine subrotundof crenato.
tho' not so as to reach the Cardo, as they do in those of the following Article.

Articulus II.

Anomia à Cardine ad Marginem striata.

I have seen of these from Bridport, Dorsetshire. Caldy Island, Wales. Castle-Cary, Somersetshire. Chalk-pits near Guilford.

f. 321. Three small ones fill'd with the Pyrites. From the Cliffs of Sheppey Island. [These are dissolv'd, and perish'd.] The Pyrites is very apt, in tract of Time, to fall to pieces: and, by that means, I have lost some of the most elegant Bodies in this Collection.

f. 322. Another, from the same Cliffs, somewhat larger.

f. 323. Six from Dudley in Staffordshire. I take one of these to be that grav'd by Dr. Lister. Appendix. ad lib. 3. Hist. Conchyl. de Conchitis. N° 8.

f. 323*. One of the Shells of this has a large Sinus: the other is prominent, and rises as much. From the Isle of Man. Dr. Wilson Lord Bishop of the Island.

f. 324, 325, 325*. Sent by Dr. Nicholson, Lord Bishop of Carlisle, from Cumberland.

f. 326. Chalk-pit, near Rygate in Surrey.

f. 327, 327*, 328. Greenhith Chalk-pit, Kent.

f. 329. Ibid.

f. 329*. Two from the great Chalk-pit near Northfleet, Kent.

Articulus III.

Anomia à Cardine ad Marginem sulcata.

Divisio I.

Labiis in eodem Plano commissis.

f. 330. Consisting chiefly of a white Spar, most of the Shell being thiner'd off, and gone. Heddington, Oxfordshire.


f. 335. Impression in a dusky green Flint. In the Road near Pancridge.

f. 336. Impression in a grey Flint. Sydenham Common near the Wells.

f. 337. Impression with the Shell. Harrow on the Hill, Middlesex.
f. 337 a. A convex Impression, in a flinty Peble, Camberwell, Surrey.

f. 337 b. A concave Impression, very small, plough'd Lands near Oxford.

f. 337 c. Another larger, Gravel-pit, St. George's-Fields, Southwark.

f. 337 d. Another Impression of a Shell still larger, in an Agate, found in a Gravel-pit a little beyond High-gate, Middlesex.


Division II.
Margine aliquantulum sinuato

f. 339. Eight small ones. Found about Northleach, Gloucestershire:

f. 340. Four, Northfleet Chalk-pits.


f. 342. Two, Burford, Oxfordshire.

f. 343. A convex Impression on a grey Flint. Top of Shooter's Hill, Kent.

f. 344. Concave Impression in a flinty Peble, Kentish-Town, Middlesex.

f. 345. A Shell in a flinty Peble, brown and grey, Stoke-Newington, Middlesex.


The whole Stone was large; but shattered to Pieces in breaking: There is lodg'd in it a small Concha Anomia, broken on one part, and having its inside thick set with small crystalline Shoots, or Sparks. Found near Stratford, Essex. The three Agate Mocho Plates, in the first part of the Catalogue of the Fossils of England, with those that are Native. N° e. 21. q. r. f. p. ———— were cut off this Stone from the Shell thus lodg'd in it: it appears that this kind of Mocho Agates was dissolv'd, at the Deluge, as well as the rest, and as Flints, and other Nodules.

f. 347. Gritworth, Northamptonshire.

f. 348. Sudbury, Gloucestershire.

f. 349. Sherborn, Gloucestershire.


f. 351. Barrington, Gloucestershire.

f. 351 x. Found about 30 Foot deep in a Stratum of Stone near Silverton, Devonshire.

f. 352. Sherborn, Gloucestershire.

Division III.
Margine magis sinuato:

f. 353. Hedington, Oxfordshire.

f. 354. Dursley, Gloucestershire.
f. 355. Sherborn, Gloucestershire.
f. 357. Witney, Oxfordshire.
f. 358. Sherborn, Gloucestershire.
f. 359. Bold Aiton, Gloucestershire.
f. 360. Berkley, Gloucestershire.
f. 361. Sherborn, Gloucestershire.
f. 362. Fill’d with Spar, Ibid.
f. 363. Another broken, fo as to shew the Constitution of the Spar, Sherborn, Gloucestershire.
f. 364. King’s-Welton, Gloucestershire.
f. 365. Sherborn, Gloucestershire.
f. 366, 367, 368. Tog’s-Hill, between Bath and Bristol.
f. 368*. King’s-Welton, Gloucestershire.
f. 369, 370. Two comprefh from Tog’s-Hill.

f. 371*. Found near Badmington, Gloucestershire.
f. 372, 373, 374, 375, 376, 377. From Colderton, in Leicester-shire, on the Edge of Rutlandshire.

There were many more of the fame.
f. 379. Dudley, Staffordshire.
f. 380. Foreft of Dean, Gloucestershire.
f. 381. Found in the Stone-pit, at Brick in Northamptonshire.
f. 382. Two, the one infix’d into the other. From the fame Stone-pits.

f. 383. Sherborn, Gloucestershire.
f. 385. Walsal, Staffordshire.
f. 386, 387, 388, 389. These have no Rosstrum, but were found in Shells of the fame Species with the preceding. Found near Farringdon, Somersetshire.

Sectio III.

Bivalvia incerti Generis sed qua Anomis Fab. Columna accedere videtur.

Articulus I.

Figura à Cardine ad Marginem oblonga, Rosstro adunco.

f. 390. Found in a Clay-pit near Lambeth.
f. 391. Out of the fame Clay-pit.
f. 392, 393, 394, 395. From the Cliffs at Folkston, near Dover.

These are here found in great Numbers; and are of the fame Species with the preceding.

f. 396.
Digged up in a Pit of Clay, used for making Tyles, in Childrens-Field, in the Parith of Thurnham, 3 Miles from Maidstone in Kent. Dr. Hatley. There were several others of the same Species.

Articulus II.

Figurâ à Latere ad Latus oblongâ, Rofiro brevi.

f. 396*. Digg'd up in a Pit of Clay. used for making Tyles, in Childrens-Field, in the Parith of Thurnham, 3 Miles from Maidstone in Kent. Dr. Hatley. There were several others of the same Species.

Articulus II.

f. 397. A very large one grav'd by Dr. Lister, de Conchitis, Plate 465. Taken out of a Lead-Mine, near Worksworth, in the Peak.

f. 398, 399. Out of a Stratum of Stone, in another Mine at Worksworth.

f. 400. Another. Mr. Morton, from ——— ———.

f. 400 x. Musculo Mathioli accedens. This ought to be rank'd among the Polypleptoginglymi Forma oblonga. Dudley, Staffordshire.


f. 403. Dudley, Staffordshire.


f. 403 †. Cumberland. Mr. Fitz Roberts.

f. 404. This was taken out of a Stratum of 63 Yards deep, at the bottom of one of Mr. Bathurst's Mines in Arkendale, Richmondshire.

f. 405. Found in the River near Threpland, Westmorland.

f. 406, 407. Two, on one the concave, on the other the convex Impression. Mr. Southwell. King's-Weston, Gloucestershire.

f. 408. Found 30 Yards deep at Arkendale, in the same Stratum, with f. 402. supra.

f. 408 x. Found among many others, in a Stratum of flaty Stone, at the Brow of a vaft Precipice, on the top of Winedge, a very high Hill in Arkendale, Yorkshire. This part, where these are found, is perhaps the highest Ground in England, and the most raised above the Surface of the Sea. It lies near the mid-way between the East and West Sea: and some few Miles distant, in another Ridge of Hills, about the same Height with this, there arise Streams that pass into those two opposite Seas.


f. 410. Mr. Southwell, King's-Weston, Gloucestershire.

f. 411. Dudley, Staffordshire.

f. 411 x. From the Isle of Man. Bishop Wilton.

f. 412. Minster, in the Peak.

f. 413. Lead-Mine near Worksworth in the Peak. Figur'd by Dr. Lister, de Conchitis, Plate 464, n. 25.

f. 413 x. Isle of Man. Bishop Wilton.
f. 413*. A Shell of the same Species, and in like Stone, from the Isle of Anglesey. Dr. Evans, Lord Bishop of Bangor.

f. 414. From Colonel Byerly's Lead-Mines, 2 Miles from Richmond, in Yorkshire.

f. 415. [Dissolv'd, and perished.]

f. 416. Bishop Nicholston, Cumberland.

f. 417. Bishop Nicholston, Cumberland.

CLASSIS III. PARS III.

Bivalvia non Aurita, Testis paribus.

SECTIO I.

Ad Cardinem commissuram Dentibus multis minutis donata, seu Leptopolyginglymi.

ARTICULUS I.

Figura subrotunda.

[A] f. 418, 419. Given me by Mr. Jackson, vid. c. 29. supra. This Species of Shell-fish, is pretty commonly found upon our own Shores. One of these still retains the natural Colour, and both of them are very perfect and fair. All to f. 425 inclusive, seem to be of the same Species.

f. 420, 421, 422. Harwich-Cliff.

f. 423. Found in a Gravel-pit, on the North side of Shooters-Hill, Kent.

f. 424, 425. Found in sinking a Well, at Brompton, Kent.

ARTICULUS II.

Figura oblonga.


f. 427. Barrington, Gloucestershire.


f. 429. Aulesworth, Gloucestershire. This and the two following seem to be the same Species which is figur'd by Dr. Lister, among the Muscles, N° 207. of his Hist. Conchyl. and which is at this day found in the Seas of Jamaica. There is also an English Shell amongst the Peçt. Polypletypinglymi, N° 69. not much unlike it.

f. 430, 431. Mr. Jackson, vid. c. 29. supra.

f. 431 *. Peçtunculus exigus albus admodum tenuiter striatus. Lof. Hist. Conchyl. L. 3. N° 69. 'Tis found in the Western Coasts of Dorsetshire, Devonshire, &c. This was taken out of the Stone of a Quarry near Sherborn, Gloucestershire.

f. 431.
Four small Cuneiformes, and a Stone form'd in a Shell of the same fort, from Clipston Quarry, Northamptonshire.

Four, found in a blue Clay in digging the Canal at the Earl of Montague's-House at Boughton, Northamptonshire.

Another, of the same fort, dug up in a Tile-Clay-pit in Turnham Parish, 3 Miles from Maidstone, Kent.

A Stone form'd between the 2 Shells of a Bivalve, which seems reducible to this kind. Found in the Quarries about Quainston, in Buckinghamshire. Mr. Stonesfield.

Sectio II.

Bivalvia testis paribus, paucis Dentibus majoribus ad Cardines donata.

Articulus I.

Figura subrounda, seu Pectunculi.

Divisio I.

Laves.


Aldrovandus found one of this Species in a Mountain near Bononia, in Italy, Museum, p. 465.

[A] f. 434. Another. Ibid. Lodg'd in a large Mass of the Ludus Helmontij. 'Tis evident from this, that these Ludi are Nodules: and were form'd before the Subfidence at the Deluge. The whole of this is accommodated to the Shell: and a Crust of the yellow Matter of that fort that the Partitions of this Body are compos'd of, immediately surrounds and invels the Shell on all sides. The Shell is fill'd with a Pyrites. vid. f. 481. infra, that also being of this fort, and thick set with Fragments of Shells in all parts.


[A] f. 436. Another with a Pyrites concreted upon it. Ibid.


[A] f. 440. Another, ibid. The Shell of this being struck off, shews a Pyrites molded in it.

[A] f. 441. Another still less, ibid.

[A] f. 442. Another less yet, ibid.

[A] f. 442 x. Another, ibid. This is so small, as not much to exceed a large Pea in bigness. There are great numbers of this Size, as also of Pyrites of the same Size, and form'd in such Shells, found in this Clay-pit.

[A] f. 442 *. Two Pyrites, of the same Size and Shape with the
the precedent, and seeming to be form'd in the Shells. These
from the Cliffs of Sheppey Island.

f. 443. A Stone form'd in a Pectunculus somewhat more
convex than that f. 433; otherwise little different from it. The
Shell it self being perished and gone, is succeeded by a sparry
Cruft. When it so fell out that Shells were lodged in Stone that
was lax and porous, so as to give Paffage to Water, that, per-
vading the Stone and carrying with it Salts, Particles of Spar, or
other Minerals, whose constituent parts are scabrous or angulated,
by little and little frets, wears and carries off the parts of the
Shell. And in tract of time, the Water continuing still to pafs,
depofits, in the room of the Shell, Particles of such sparry or other
mineral Matter as it happens to bear along with it, successively,
till it has fill'd the Cavity. Now the Matter being thus collected
and caft in the Place which the Shell took up, it must in course
assume the very shape of that Shell. Which seems to be the
whole of this Affair, that has much amufed some People who
have not thoroughly considered these things. This was taken
out of a Stratum of Stone on Gazington-Hill, Oxfordshire.

f. 444. Another Stone, formed in a Shell of the fame Species
with the precedent. Out of a Quarry near Quainton in Buck-
inghamshire.

f. 443. Found on the plough'd Lands on a Hill near Wheat-
land's Mill, beyond Northleach, Gloucefsire. This is one sort
of the Bucardites.

f. 444. Another of the Bucardites. Badminton, Gloucefsire.

f. 445. Another, lefs, Stow on the Wolds, Gloucefsire.

f. 446. [Disfolvd', and perfor'd.]

f. 447. Harwich Cliff.

f. 448. Another, of the fame Species, in Stone; with Stone
also moulded in it. From the fame Cliff.

f. 449. Stone moulded in another of the fame Species. From
Southampton.

f. 449. A Pyrites moulded in another of the fame Species.
Sheppey Island, Kent.

f. 450. Another Shell little different from f. 447. There is a
Shell from the West-Indies, very like this, yet not the fame. This
was founed in the great Sand-pit near Woolwich: There are vast
numbers of them, lying amongst other Species, in Strata 10 or
12 Foot deep, for near ¾ of a Mile together. They are found
among a great variety of other Shells, also in all the Sand-pits up-
on Black-Heath: in the Stone by the Road, betwixt Stifford and
South Okendon: as alfo at Orsett, which lies about three Miles
East of it.


f. 452. Another, from the Sand-pit upon Shooter's-hill.

f. 453. A Pair, somewhat lefs, out of a Stratum of Stone near
Stifford, Essex.

f. 453. Two single Shells, of the fame Species, and out of the
fame Stone with the foregoing.

f. 454.
Another, Sherborn, Gloucestershire.

Another, Windrush, Gloucestershire.

Another, Mr. Jackson. Conf. c. 29. supra.

From the great Chalk-pit near North-streets, Kent.

Found near Pickering, Yorkshire.

On the ploughed Lands, on the North-side of Sir Ralph Dutton's new Park, at Sherborn, Gloucestershire.

Found near Pickering, Yorkshire. There were more of the same.

Sherborn, Gloucestershire.

Farmington, Gloucestershire.

On a Hill, near Wheatland's Mill, beyond Norleach, Gloucestershire.

Found near Tickering, Torksey.

On the ploughed Lands, on the North-side of Sir Ralph Dutton's new Park, at Sherrborn, Gloucestershire.

Found near Tickering, Torksey.

There were more of the same.

Farmington, Gloucestershire.

On a Hill, near Wheatland's Mill, beyond Norleach, Gloucestershire.

Out of the great Quarry, at Barrington, Gloucestershire.

Found in the Fields near Tork-Dean, Gloucestershire.

Portland Quarry.

Aylesworth, Gloucestershire.

Widdrington-Fields, Gloucestershire.

Cowley, near Oxford.

Marston, Northamptonshire. Dr. Evans, Lord Bishop of Bangor, lent me one of the same Species, found in the Isle of Anglesey.

Widdrington, near Randcomb, Gloucestershire.

Sherborn, Gloucestershire.

Found on the side of a pretty high Hill, two Miles West of Stokesley, Yorkshire. Vid. f. 536.

From Sir Ralph Dutton's Home-Quarry, Sherborn, Gloucestershire.

A small one; from Sir Ralph Dutton's Home-Park, Sherborn.

Cliffs of Sheppey-Island.

This Species of Shell is found in the Seas about Jamaica, and the adjacent Parts; and is called by Dr. Lister, Hist. Conchyl. No 138. Pelecunculus albus admodum crassus simile fove Silico conspicus. These were given me by Mr. Jackson. Conf. c. 29. supra.

DIVISION II.
Pelecunculi Fasciati.

This is an English Shell, [A] but fretted and worn. 'Tis called by Dr. Lister, in his Hist. Conch. Pelecunculus omnium crassif- simus, Fasciis ex latere bullatis donatus, No 122. Given me by Mr. Jackson. Conf. c. 29. supra.

Barrington, Gloucestershire.

In a Quarry near Halstow, Northamptonshire.

Four. Richmond Clay-pit, Surrey. The Shell of one of these is perforated with a small round Hole, as if bored by the Tongue of the Purpura. See my Answer to Camerar. p. - - -

X 4

f. 487.
f. 487. Two Pyritæ, moulded in Shells of this Species; and found in the same Place.
f. 488. Sherborn, Gloucestershire.
f. 489. Ibid.
f. 489*. Found in Harwich-Cliff. The Faslic in this are very small and fine.
f. 490. Windrush, Gloucestershire.
f. 492. Northleach, Gloucestershire.
f. 493, 494. Sherborn, Gloucestershire.
f. 495, 496. Sherborn, Gloucestershire.
f. 497. Oxendon, Northamptonshire.

DIVISIO III.

Pecluncu. Fig. subrotunda, striati à Cardine ad Marginem.

f. 498. Richmond Clay-Pit, Surrey.
f. 499. Stifford, Essex.
f. 500. Ibid. This lies upon a Shell of the same sort with f. 453.
f. 501, 502. Ibid.
f. 503, 504. Barrington, Gloucestershire.
f. 505, 506. Pyritæ. Sheppey. [Dissolved and perished.]

DIVISIO IV.

Peclunculi Fig. subrotunda à Cardine ad Marginem sulcatœ.

f. 507. [A] This, and the following, to 519*. were given me by Mr. Jackson. Conf. c. 29. supra.
f. 514. This [A] and the following, to f. 519 inclusive, are now found upon the Coasts of England; and perhaps the seven foregoing may be of the same sort. These fix are nearly of the same Size and Growth.
f. 515. f. 516. f. 517. f. 518. f. 519.
f. 519*. A Piece of a large Cockle, but so broken, as to appear like an entire small one.

f. 520. A small one, from the Quarry near Sherborn, Gloucestershire.

f. 521. A Piece of a large Cockle; found in a Chalk-pit near Rygate. This is the Penticuncul us crassus, maculatus striis imbricatis conspicuos. Lift. Hist. Conchyl. No 160. which is at this time found on the Coasts of the Leeward-Islands and Jamaica.

f. 522. An Impression, found in sinking a Well near Marybone, Middlesex.

f. 523. Harwich-Cliff.

f. 524, 525. Ibid.

f. 526, 527. [A] These two lay a Foot deep in the Sand, two Miles from the Sea, in the Marishes near Croft, Lincolnshire. Mr.
Mr. Morton. This is our common Cockle. *Lif. Hist. Cougbly*, No. 171.

*528.* Another of the same; [A] found with several more 30 Foot deep, in digging to make a Sluice near Boston, Lincolnshire. They lay in a Bed of blue Clay. Mr. Morton.

*529.* Another [A], in Stone; from the Cliffs, between Skegness and Ingoldsmells, Lincolnshire.

*530.* [A] Southampton.

*531.* [A] An Impression of a Cockle of the same sort found with *524.* at Brompton, in Kent, by Mr. Emmet, in sinking a Well. There happening to have been a lesser Cockle in the larger, the Stone exhibits an Impression of this also.

**DIVISIO V.**

*Pecluntuli Figura subrotunda diversimodo striati.*

*532.* The several Strix of this are disposed in such manner, as to form acute Angles on the middle of the Back of the Body, all parting towards the Margin of it. Welfall, near Burford, Oxfordshire.

*532 x.* An Impression, made by a Pair of Bivalves of the same Species with the foregoing. The Shells were opened, and expanded when the Impression was made. Woodston, Huntingtonshire.

**ARTICULUS II.**

*Pecluntuli Figura oblonga; quippe à cardine ad Marginem oppositum protervis.*

**DIVISIO I.**

*Sulcis & sriis, à Cardine ad Marginem ductis.*

*533.* Weymouth. Found in a Corn-Field, about a Mile and half from the Sea.

*534.* Out of a Stone-pit near the River Medway, betwixt Maidstone and Rochester, Kent.

*535.* Out of the same Stone-pit.

*536.* Found on the side of a Hill near Stokesley, Yorkshire, with *472.*

*537.* Broad-Risington Fields, Gloucestershire.

*538.* Burton on the Water, Gloucestershire.

*539.* Stowell, Gloucestershire.

*540.* Yanworth, Gloucestershire.

**DIVISIO II.**

*Sulcis striis, diversimodo ductis, ex altera siliicee parte fasciatim dispositis, ex altera vero à Cardine ad Marginem procurrentibus.*

*540 x.* A Pair, very fair and entire, beat out of a Bed of Clay in a Cliff betwixt Weymouth and Rodifole, on the East-Side of a Gulph on the Shore there.

*540 x.*
From the same Place; where No 608. infra, are also found.

A Shell, of the same Species with the foregoing. Found near Aldsworth, Gloucestershire.

Another, of the same Species, but much less. Found in a Quarry at Hampnet, Gloucestershire.

Another. From -- Northamptonshire. Mr. Morton,

**Articulus III.**

Peckunculi forma sere triquetra, leves.

Tewkesbury, Gloucestershire.

From ---- Yorkshire. Found on the top of a high Hill.

Workton Stone-pit, near the Mill, Northamptonshire.

Sherborn North-Fields, Gloucestershire.

Stawell. Gloucestershire.

Northleach, Gloucestershire.

Hampnet, Gloucestershire.

**Articulus IV.**

Bivalvis paribus tellis, paucis ad Cardinem Dentibus Figura à Latere ad Latus oblonga.

**Divisio I.**

Altero Latere proterfo, altero brevi, seu Cunei.

**Sect. I.**

Superficie sulcata, à Card. ad Marg.

found on the plough'd Lands, on the side of a Hill, near the Road from Sherborn to Burton on the Water, Gloucestershire. There were great Numbers of these in this Place. I observed of the same sort, and some of almost double this Size, in the Road near Wansford, Northamptonshire.

Two less, found along with f. 550, 551.

Hedington, Oxfordshire.

Stow on the Wolds, Gloucestershire.

Colnrogers, Gloucestershire.

Farmington, Gloucestershire.

Cheltenham, Gloucestershire.

A Stone, form'd in a Cuneus, with part of the Stone in which it was lodged. From Abson, Gloucestershire.

Found near the Oxford Road to Gloucester, about 5 Miles from Gloucester.

Northleach, Gloucestershire.

Sherborn, Gloucestershire.

Hedington, Oxfordshire.

A Pair, small, very finely striated. Found in a Sand-Pit on the side of Shooter's-Hill, Kent.
Sect. II.

Cunei superficie levi.

The Shells of several of the Bodies ranged in this Clas, are perished and gone; and only the Stones formed in them remain. These were formed by the Insides of the Shells, which sometimes are smooth, when the Outsides are spattered; so that no certain Judgment can be made, without the Shells in which they were form'd, whether these be clas'd rightly or not.

f. 564. Windrush, Gloucestershire.
f. 565. Found near Great-Funtley, Hampshire.
f. 566. From Cumberland.
f. 567, 568, 569, 570, 571. [A] Whitby Allum-Mines, along with the Ammonites, d. 51 x. These are very like one sort of our River-Muffles.
f. 572, 573, 574, 575, 576, 577, 578. [A] Found in several places in the plough'd Fields about Sherborn, Gloucestershire. These have no Remains of the Shells on them, but seem to be form'd in Shells of the same sort with the foregoing from Whitby. There are of this Species found on Tenison-Hill, in Hinekridge Parish, about 3 Miles from Milburn, Sonersetshire.
f. 579. Minster-Lovel, Oxfordshire.
f. 580. Richmond-Parva, Gloucestershire.
f. 581. Found in the Road near Pickering, Yorkshire. There's an Impression of a Pecten on Stone adhering to it.
f. 582. Found in the same Road, near the former.
f. 583. Found loose on the side of a pretty high Hill, 2 Miles West of Stokesley, Yorkshire. There are Sparks of a Mica in it.
f. 584, 585. Two, small, of a Pearl-Colour. Stifford, Essex.
f. 585 x. A Pyrites, form'd in a Cuneus, seeming to be of the same Species with that, f. 570. but much less, being probably form'd in the Shell of an Animal that was very young. Found, 6o Foot deep, in the great Clay-pit, Richmond, Surrey.
f. 586, 587, 588. Three Pairs. From the great Sand-pit on the East-Side of Woolwich. There are vast, and almost incredible Numbers of them here, as also of Oyster-Shells, and some other Bivalves, lying in a Stratum of Loam that is about 10 Foot thick, and is immediately under the Turf. Indeed there are such Multitudes of the Shells, especially of this Species, that in most parts of the Stratum they lie as thick and close as they possibly can, in Layers that are horizontal, parallel to each other, and to the great Stratum of Sand, that lies immediately underneath this Stratum of Loam and Shells. The whole has apparently the Face of a Sediment; and carries evident Marks of its having thus settled down out of a Fluid. There are of the same sorts of Shells lying in like manner in a Stratum of Loam, above a vast Stratum of Sand of vast extent. At the East End of Woolwich, and in all parts of Black-Heath, Kent and Essex.
f. 589, 590, 591. Stones form'd in the same Shells, with part of the Shell still adhering. From the great Sand-pit at the East-End of Woolwich.

f. 591 x. Another, from the same Place. This is manifestly bended.

f. 592. Found in the River Coln, at Compton in the Hole, four Miles from Randcomb, Gloucestershire.

f. 593. Found at Moreland, on the River Side, Westmorland.

f. 594. Bugthorpe, upon plough'd Lands. [A] This, and the two following, seem to be the English Shell describ'd by Dr. Lister, in his Hist. Conch. No 247. under this Name, Tellina fasciata, ex rubro variegata. This (f. 594.) seems to be the same with the Chamalites oblongus Aldrov. Mus. L. 4. p. 836. No 5.

f. 595. Near Scarborough Spaw, Yorkshire.

f. 596. Found on the Shore of Scarborough, Yorkshire.

f. 597. Found in a Brook, near Lubenham, Leicestershire.

f. 598, 599, 600. From Whiston-Cliffs, Lincolnshire. In these the Shell is gone, and succeeded by a sparry Crust of like Figure and Dimensions. That of Aldrov. Mus. p. 837. No 2. seems to be of this sort. He calls it, Chamites fasciatus.

f. 601, 602, 603, 604, 605. Ibid.


S E C T. III.

Cunei superficie fasciata.

f. 606, 607. From -------- in Northamptonshire. There are likewise of these found along with f. 608. infra.

f. 608. Three Pair, and a single Shell, very fair, and intire, with Studs set in a fasciataed Order; i.e. in Rings incircling the Cardo. Found on the Shore of the East-Side of a small Gulph betwixt Weymouth and Rodipole, being wash'd out of a Bed of Clay in the adjacent Cliff.

f. 608 x. This is of the same Species; but the Shell is perished, and succeeded by a sparry Crust of like Figure and Dimensions. Found near Bampton, Oxfordshire.

f. 6084. This shews the Form of the Stone moulded in this kind of Shell. The Pores of the Shell appear to be saturated with Spar. Found with the foregoing.

f. 6088. Part of a Valve of one of the same Shells, from the same Place; having in the Inside of it two other Shells, of different kinds affix'd. By which it appears that the Fish had been for some time before dead, and gone.

f. 608 e. Part of another. This, and the former, serve to shew the Form and Constitution of the Cardo of this kind of Shell.

f. 609;
f. 609. 610. Two Stones seeming to be form'd in Shells of the same Species which those f. 608. From a Quarry a quarter of a Mile North-West of Morton, Lincolnshire. These are call'd Hippocephaloides by Dr. Plot, Nat. Hist. Oxfordshire.

f. 611. Another Stone, of a Shape not so oblong as the preceding, Portland Quarry. Of several Hundreds that I have seen of this sort, from this Quarry, this is by much the fairest. 'Tis indeed perfect and entire; and has upon it all the Lineaments of the Inside of the Shell express'd upon it with wonderful exactness.

f. 612. Portland Quarry.

f. 613. Another of the same kind, found on the top of an Hill on the West side of Bath.

f. 614. Found in the Parsonage Garden at Southrey, Norfolk.

f. 615. to 618 inclusive, being fill'd with the Matter of the common Pyrites, are dissolv'd and perish'd.

f. 619. In the great Quarry at Barrington, Gloucestershire.

f. 620, 621. ibid.

f. 622. Stroud, Gloucestershire.

f. 623. Sherborn, Gloucestershire.

f. 624. ibid.

f. 625. Farmington, Gloucestershire.

f. 626. Hampnet, Gloucestershire.

f. 627. Sherborn, Gloucestershire.

DIVISIO II.

Quarum utrums? Latus à Cardine in longum protenditur, seu Tellinæ.

[A] f. 628, 629, 630, 631, 632, 633, 634. Found in several Places in the plough'd Lands about Sherborn, Gloucestershire, where they are very plentiful. The same Species are found in great numbers in a Stone-pit near Moreton, Lincolnshire. These are only Sand-stone, cast in a Shell which very much resembles one of our River Muscles, which Dr. Lister calls the Musculus angulus citrinus, No 3. Hist. Conchyl.

f. 635. One adhering to a Mafs of Stone, the exterior Shell is worn off, but the interior being fenced with Stone, is still preserv'd.

Cirencester, Gloucestershire.


f. 637. Stawell, Gloucestershire.

f. 638, 639. Sherborn, Gloucestershire.

f. 640. Burford, Oxfordshire.

f. 641. Sherborn, Gloucestershire

f. 642. Hampnet, Gloucestershire.

f. 643. Northleach, Gloucestershire.

f. 644. Windrush, Gloucestershire.

f. 645. Stifford, Essex.

f. 646. ibid.

f. 648. Five from the Cliffs of Sheppey Island, Kent.

f. 649, 650, 651, 652. From the Cliffs by the Side of the Humber near Whitton, in Lincolnshire. These are nearly allied, if not of the same Species with f. 603. supra.

f. 653. Tangley, Oxfordshire.

CLASSIS III. PARTIS III.

Sectio III.

Bivalvia Testis paribus ad Cardinum commissuram non dentata.

Articulus I.

Figura oblonga à Cardine ad imum Marginem, five Musculi.

f. 654. Large Muscle found in the Banks of the River Welland, near little Bowden, Northamptonshire.

f. 655. Ipslip, Oxfordshire.

f. 656. Barrington, Gloucestershire.

f. 657. Burford, Oxfordshire.

f. 658. From a Stone-pit near the Mill at Werkton, Northamptonshire.

f. 659. Fullbrook, Oxfordshire.

f. 660, 661, 662, 663, 664. Found in the great Quarry at Barrington, Gloucestershire. They are blunter at the Cardines than ours, and seem to be a sort of West-Indian Muscle. They are found in great numbers and lying very thick, which, indeed appears from the following Mafs.

f. 665. Four of the same in a Mafs of Stone from the same Place.


f. 668. The Valves of this are distanced by Infusion of more stoney Matter than the Shells could contain. Fullbrook, Oxfordshire.

f. 669. A short thick Muscle. This seems to be another sort of West-Indian Muscle. Stroud, Gloucestershire.

[A] f. 670. This is a young Shell of our common English Scallop Muscle. Tangley, Oxfordshire.

[A] f. 671. Another still less of the same, younger, and less, Windrush, Gloucestershire.

f. 672. A small one, of the same kind with f. 660, from Northamptonshire. Mr. Morton.

f. 672 x. Three small Mucles seeming to be of that Species that Dr. Lister calls Pholas Niger, India occidentalis. Hist. Conchyl. L. 3. No 268. These were found near Fosco, Oxfordshire.

f. 673. A long flender Muscle, from the Cliffs at Whitton, Lincolnshire. This is the Virginia Muscle. There was one of this Species in Mr. Bantsfer's Drawings.

f. 674. Found on the plough'd lands, on a Hill near heatlands-Mill, beyond Northleach, Gloucestershire.

f. 675.
f. 675. Hampnet Fields, Gloucestershire.

f. 675x. Mytilus Pinniformis. Out of the great Quarry at Barrington, Gloucestershire.

Sectio IV.

Bivalvia Testis imparibus aliqua Parte semper biantibus.

Articulus I.

Figura longa, angusta, ejusdem ubiq; latitudinis, seu Solenes.'


Articulus II.

Figura oblonga Telliniformi, seu Chama.


Articulus III.

Figura oblonga à Cardine ad imum Marginem qua Parte biant, seu Pinna.

f. 680. A Stone formed in a Pinna. From the great Quarry at Barrington, Gloucestershire.


There are Fragments of other Shells that every where discover themselves in breaking the Stone. vid. f. 434. supra.

f. 682, 683. Ibid.

f. 684. Taken out of the 3d Stratum of a Quarry on the top of a pretty high Hill near Thornton, by Pickering in Yorkshire.

f. 685. Burford, Oxfordshire.


Mr. Morton sent me this: and has since described this in his Nat. Hist. of Northamptonshire. p. 197. Tab. 3. Fig. 12.

Classis IV.

Multivalvia.

Sectio I.

Ex tribus testis constantia.

Articulus I.

Fig. ad Chamas accedente cum Testa teria parva, valvis juxta Cardinem opposita, seu Pholades.

g. 1. [A] Pholas latus rugosus ex dimidio dorso & asper. Lst. Hist. Conchyl. No 279. This was found in Harwich Cliff. The same Species of Shell-fish is at this day found living at Sea, on the Northern Coasts of England.
Another, of the fame Species, but bigger. Chalk-pit, Lullingston Park, Kent.

CLASSIS V.
ECHINI.

See the Catalogue of the exotic Fossils, where this Distribution of the Echini is somewhat enlarged; by an Addition of a 2d Division to Art. II. of Sect. II. of the Spatagi, and a whole Genus under the Name of Pentaphylloides.

PARS I.

Duobus in Tefla foraminibus, tuberculis exiguis & fere aqualibus in superficie donati, fen SPATAGI.

SECTIO I.

Spatagi qui in uno latere sulcum insignem habent, Cordati aliquibus dicti.

ARTICULUS I.

Foraminibus versus Latera positis, uno sub fissura, altero in Latere opposito.

DIVISION I.

Figura parum acuminata.

b. 1. From the great Chalk-pit near Greenhithe, Kent. It lay near 60 Foot deep.

b. 2. Chalk-pit, Purfleet, Essex.

b. 3. Chalk-pit, Northfleet, Kent.

b. 4. Chalk-pit near Gravesend, Kent.

b. 5. Chalk-pit, by Greenwich.

b. 6. Chalk-pit, near Deptford.

b. 6*. This has on it a small Peften, the Shell of a long slender Vermiculus marinus, and the Bafes of several Balani. Charlton, Kent.

b. 7. A yellowish Flint moulded in a Shell of this Species. Gravel-pit near Islington.

b. 8. Another. Found in a Gravel-pit near Mitcham, Surrey, by Charles Dubois. The upper part of this has a Cavity in it with 5 Sinus's, so that the flinty Matter appears not to have reach'd to the top of the Shell [which in this Species is raised pretty high] wherein 'twas form'd, or to have taken an Imprefion of it, as those which are form'd in empty Shells have. This happen'd probably from the interposition of the Body of the Fish, not permitting the flinty Matter, entering, to approach that part of the Shell to which the Fish was annex'd. So that this Flint fell short of filling the Cavity of the Shell by all that Space which the Body of the Fish possis'd; and therefore as the Basis
or lower part of the Stone has on it the Impression of the Shell, and exhibits the Form of it; the upper exhibits the Form of the contiguous Parts of the Fish.

**DIVISIO II.**

*Figura Compressa.*

b. 9. Greenhithe, Kent.
b. 10. Charlton, Kent.
b. 11. Dartford, Kent.
b. 12. Croydon, Surrey.
b. 13. Rygare, Surrey.
b. 15. Deptford, Kent.
b. 16. Purfleet, Essex.
b. 17. Gravesend, Kent.
b. 18. Northfleet, Kent.
b. 19. Deptford.
b. 20. Ibid.
b. 21. Ibid.
b. 22. Purfleet, Essex.
b. 23. Greenwich, Kent.
b. 23*. Northfleet, Kent. This is the smallest I ever remember to have seen.
b. 24. This hath parts of the Shells of the common *Verminculus marin.* the *Verminculus Nautiloides* [A] of Dr. Lister Hift. Conch. No. s. a reticulated Film, found sometimes upon Sea-Shells, and usually supposed to be the Remains of the Vessicles of the Spat of some sort of Shell-fish; besides these, there are some Coralline Efflorescencies upon it. Nettlebed, Oxfordshire.
b. 25. This hath parts of the Shell of a sort of Oyster sticking to it in several places. From — — — in Hertfirdshire.
b. 26. This hath part of one of those Shells, pretty big, upon it. Croydon, Surrey.
b. 27. Purfleet, Essex. This hath several of the *Verminculi Nautiloides* of Dr. Lister. Hift. Conchyl. sticking to it. *vid. b. 24. supra.*
b. 27*. Gravesend. This is compress’d, so as to part the Plates, and burst open several of the Sutures. *vid. b. 40. infra.*
b. 28. A Shell cut in two, to shew the inside of it. There adhere to the outside, Spat, and the *Verminculi Nautili.* *vid. b. 24.* Northfleet, Kent.
b. 29. Chalk cast in the Shell of an Echinus, and shewing the Lineaments of the Shell very finely. Fetcham, near Leatherhead, Surrey.
b. 30. A Shell, from Northfleet, broken, shewing the Flint wherewith *tis quite fill’d, in such sort as to demonstrate *twas as fine and thin as melted Metal, and is run in the Shell as in a Mould.
b. 31. Another immers’d in a black Flint: and broken so as to shew its Cavity fill’d with Flint. Croydon, Surrey.
b. 32. Another also fill'd with Flint, and having Flint adhering externally to it. This Shell is much compris'd, broken, and its parts displac'd. Charlton, Kent.

b. 33. An Echinites, form'd in the Shell of an Echinus Spatagus, of the Sort, and much of the Size of that b. 15. supra. very fair and perfect, having taken off all, even the finest Lineaments, of the Shell wherein it was cast and moulded. The Flint within appears to have been continued thorough one of the natural Apertures of the Shell, in such quantity as to have environ'd the Shell, and taken an Impression of the outside of it, with not less exactness. Betwixt the exterior and interior Flint is a Space, or Interval, equal to that of the Shell, that made these Impressions, which Shell in tract of time perish'd, and is now quite disappear'd. Lullingstone-Park, near Ainsford, Kent.

b. 34. A Stone form'd in the Shell of an Echinus Spatagus, and inclosed in a flinty Peble. The Shell seems not to have been entire; but where it was, there appears a Vacancy between the Echinite and Flint, answering to the dimensions of the Shell. Found in a Gravel-pit near Graveend.

b. 35. A Piece of the same flinty Peble, having on it the Impression of part of the outside of the Shell.

b. 36. Another Echinite adhering to a grey Flint, near Henly, 4 Miles from Ipswich, Suffolk.

b. 37. Another adhering to a black Flint. Oak of Honour Hill, beyond Peckham, Surrey.

b. 38. Another, found upon Banstead Downs, Surrey. There appears in this too an Interstice, between the Echinates and the Flint, of the thickness of the Shell.

b. 39. An Impression of part of the outside of this Species of Echinus upon a greenish Flint. Richmond-Park, Surrey.

b. 40. An Echinite or Flint, form'd in an Echinus compris'd, crack'd and opening at the Sutures in several Places, found among the Gravel in the Street, near Wadham Colledge, Oxford. The Shell in which this was form'd, was in much the same Condition with that b. 27*.x

b. 40x. Another also compris'd. Found on the Downs near North Tudworth, Wilshire.

b. 41. Another of a brown flinty Peble, the Impression and Lineaments of the Shell appearing plain and distinct, and even the very Sutures of the Shell. Out of the great Gravel-pit on the East side of Hyde-Park.

b. 42. Another of a yellowish brown Flint. Harrow on the Hill, Middlesex.

b. 42x. Another, of a grey Flint. Found in a Gravel-pit near Greenwich.

b. 43. Another of a dusky yellow Flint, very perfect and fair. Near Islington-Well.

b. 43x. Another. Hitchin, Hertfordshire.

b. 44. Another. Enford, Wiltshire.

b. 45.
Another. Kensington Gravel-pits.

Another. Barkhampstead.

Another of a black Flint, very perfect and fair. Boxhill, in Surrey.

Another of a light grey Flint. Henly upon Thames.

Another, found in the Fields near Eyton Bray, in Bedfordshire.

Another, very small, near Highgate, Middlesex.

Another. Newington, Surrey.

Found on the Downs near North-Tudworth, Wiltshire.

Parts of the Shell of an Echius Spatagus, with Shoots of Crystal on the inside, set in Rows, parallel to the Sutures of the Shell in a very regular and beautiful manner. Out of a Chalk-pit, on the Downs, near two Miles from Croydon, Surrey.

This is of a Species quite different from any of the preceding; it having the Sulcus at the end shallower: and the five oblong Depressions observable in those, are wanting here, and the Shell smooth at top. Cherry-Hinton Chalk-pit, near Cambridge.

Articulus II.

Spatagi Cordiformes uno foramine in media fere basi, altera in ipsa fissura posta.

A small yellow one. Witney, Oxfordshire.

Two of a grey Colour. Barrington, Gloucestershire.

Two, yellow, from the Stone-pit upon Cowley-Common, near Oxford.

Found in the Fields near Heddington, by Oxford.

Farmington, Gloucestershire.

Winchcomb, Gloucestershire.

Bifester, Oxfordshire.

Plough'd Lands on the Edge of Clarkendown, near Esth.

Windrush, Gloucestershire.

A large flat Echinites. Found in a Stone-pit between Earnham and Asley in Lincolnshire. Mr. Morton.

Another, larger, of a brown Colour, not so flat as the preceding. Found in that part of Tangleby Fields which is called Tangleby-bottom, near Burford in Oxfordshire. This is the Brontia or Ombria of Dr. Plot. Nat. Hist. of Oxfordshire, p. 90. Tab. 2. Fig. 9, 10.

A large flat Echinites. Found in a Stone-pit between Earnham and Asley in Lincolnshire. Mr. Morton.

Fullbrook-Field, near Burford, Oxfordshire.

Northleach-Field; where they are found plentifully: as also in the adjacent Parts, of Oxfordshire and Gloucestershire, for several Miles round, upon the plough'd Lands. This shews the Form of the inside of the Shell, and the Matter 'twas fill'd with; amongst which are great numbers of Ova of Fishes.

I found the like at Arlington, near Ebyberry, Gloucestershire.
Sectio II.
Spatagi nullo fulco ad latera donati, utrisq; foraminibus in basi Testae.

Articulus I.
Altero foramine in ipso Basii Margine, altero versus oppositum marg- ginem sitis Galeati aliquibus dici.i

I have observed the Echini of this Class of all Sizes, from one Inch $\frac{1}{4}$ length in the Basis to three Inches. There is something of a Difference in the Shape of several of these; some being flatter on the top, others more coupled; but the Differences do not seem to be so great as to imply that they are of distinct Species. Some of them are fill'd with Chalk; others with Flint.


b. 63. Purfleet, Essex.
b. 64. Nettlebed, Oxfordshire.
b. 65. Chizlehurst, Kent.
b. 66. Croydon, Surrey.
b. 67. North-Tudworth, Wiltshire.
b. 68. Gravesend, Kent.
b. 69. Rygate, Surrey.
b. 70. Greenwich, Kent.
b. 71. Charlton, Kent.
b. 72. Marlborough Downs.
b. 73. Deptford.
b. 74. From - - - - betwixt Southampton and Portsmouth.
b. 75. Greenwich, Kent.
b. 76. A galeated Echinus almost wholly fill'd with a dark grey Flint, found in sinking a Well at Sarret, a Village 5 Miles from Watford in Hertfordshire. It lay 26 Fathom deep in the Chalk, on an Hill. 'Tis compress'd and somewhat broken.
b. 77. Another, which shows the Sutures very distinctly on the Basis. Greenwich, Kent.
b. 78. Another having parts of Vermiculi, and some other Shells affix'd to it, and a good number of the Remains of the Spar of some Shell-fish, vid. b. 24. Northfleet, Kent.
b. 79. Another with several bottoms of small Balani on it. Croy-
don, Surrey.
b. 80. Another with parts of some Bivalve adhering, which are probably a sort of the Offrea Arborea: and some small Coralline Efflorescencies. Chizlehurst, Kent.
b. 81. Another with part of a large Bivalve of the same kind, and three Efflorescencies of Coral. They are round, $\frac{3}{4}$ of an Inch in Diameter, and the Striae appear plainly in them running from the Circumference to the Center, as in many sorts of Coral. Greenwich, Kent.
h. 81. Another with some Vermiculi and the flat Shell of a small Pecten adhering to it. Croydon, Surrey.

h. 83. A piece of another with several Vermiculi upon it. *ibid.*

h. 84. A Shell of this kind, cut in two, to shew the inside. Northfleet, Kent.

h. 85. A piece of a larger with the flat Shell of an Oyster upon it, and some Remains of Spat. Greenhithe, Kent.

h. 86. Another broken to shew the Chalk contain’d in it. *ibid.*

h. 87. Another broken, so as to discover it to be quite fill’d with Flint. It has the flat Shell of a small Pecten and the Bottoms of several Balani upon it: as also a Body flat and round, about $\frac{1}{4}$ of an Inch over, and very beautiful, striated from the Center to the Limbus, like the Porpitæ, and appear to be of like Original. Deptford.

h. 87x. A Shell of the same Species with the precedent: having a little striated coralloid Body upon it, very fair. Northfleet, Kent.

h. 88. Another fill’d quite full with Flint, so as to run out at both the Foramina: and has besides a pretty big Mass of Flint concreted on the outside at the top of the Shell. It has Spat, the bottoms of Tree-Oysters and slender ramose coralline Efflorescences upon it. Deptford.

h. 88x. A galeated Echinus, of a Species different from all the foregoing, being copped, and in Shape somewhat more conic than any of those. Indeed those differ considerably from each other in Shape, as do also the Echinituæ or Flints, h. 92. & seq. that were form’d in like Shells; some being of a compres’d, others of a round Figure, some squat or depress’d, others rai’d. This was taken forth of a Chalk-pit, near Norwich. The Echinites, h. 91. so nearly resembles this in Shape, that it probably was form’d in a Shell of this Species.

h. 89. The Impression of part of the Shell of an Echinus of this kind, in which the Sutures appear very plainly; taken out of a Gravel-pit near Greenhithe, Kent.

h. 90. An Echinites, consisting chiefly of a grey Flint, but towards the top of Crystal, finely wrought and cancelled. Given me by Sir G. Wheeler. ‘Twas found upon an Hill, amongst other Flints near Charing in Kent, in the midway betwixt Maidstone and Canterbury.

h. 91. An Echinus, very large, beautiful and perfect, having taken the Impression of all parts of the Shell and even of the Sutures very distinctly. [Conf. No. h. 88x. *supra.*] Found in a Gravel-pit in Hyde-Park.

h. 92. Another less. I found this not far from Marlborough: and observed others of this sort, and about this size, in several of the Downs of Wiltshire.

h. 93. Another. From the Gravel-pits at Greenhithe, Kent.

h. 94. Another. Henley upon Thames.

h. 95. Another. Gravel-pit, near Silington Wells.

h. 96. Another. Banstead-Downs, Surrey.
Another found in a Gravel-pit, at Bush-Hill, near Enfield, Middlesex.

b. 97. Another from Box-hill, in Surrey.
b. 98. Another found in the Fields near Eyton Bray, Bedfordshire;
b. 99. Another. Eltibam, Kent.
b. 100. Another from Netlebed, Oxfordshire.
b. 101. Another, Marybone, Middlesex.
b. 102. Another, near Lee, on the Edge of Black-Heath, Kent.
b. 103. Another, a Gravel-pit near Chelsea-College.
b. 104. Another. Hopwell, Derbyshire.
b. 105. Another, Ockbrook, Derbyshire.

**Sectionis II. Articulus II.**

*Spatagi altero foramine in Basis centro, altero in margine.*

**Divisio I.**

Figura ad Conoidem accedente, Pileati aliquibus diici.

Some of these are higher, and more copped or acuminated: other lower, and more round. They are of different sizes from near two Inches to ¼ of an Inch in height. Some of them are fill'd with Chalk, others with Flint.

b. 106. A piliated Echinus, taken up, with different Shells of several kinds, Sharks Teeth, and other marine Bodies, in a Stratum of Chalk above 50 Foot deep, near Greenwich, Kent.

b. 107. Croydon, Surrey.
b. 108. Deptford.
b. 110. Ibid.
b. 111. Rygate, Surrey.
b. 112. Purfleet, Essex.
b. 113. Netlebed, Oxfordshire.
b. 115. Greenwich, Kent.

b. 115 x. An Echinus with a reticular Accretion upon it, extremely fair. Whether this be the Spat of some Shell-fish, or an Alga: or a coraloid Body, I cannot tell; but 'tis at this day found also upon the Shells at Sea.

b. 116. Another, full of Flint, with Flint adhering outwardly to the Hole in the Centre at the Base. It was a very large piece of Flint; but being of no Use, I broke most of it off. Out of the great Chalk-pit, on the edge of Black-Heath near Deptford.

b. 117. Another, with the flat Shell of a Peeten adhering to it. Northfleet, Kent.

b. 118. A piliated Echinus cut in perpendicular, and emptied of the Chalk, to shew the Inside of it. Greenwich, Kent.
b. 119. Another, cut horizontally. Ibid.
b. 120. Another. Croydon, Surrey.
b. 121. Another. Charlton, Kent.
This, and the following, to 133, are not quite so rais'd and conical as the foregoing.

h. 123. GraveSEND, Kent.

h. 124. Ibid. h. 124 x. Purfleet, Essex.

h. 125. Ibid.

h. 126. Rygate, Surrey.

h. 127. North Tudworth, Wiltshire.

h. 128. Northfleet, Kent.

h. 129. Croydon, Surrey.

h. 130. Chizlehurst, Kent.

h. 131. Marlborough Downs, Wilts.

h. 132. Northfleet, Kent.

h. 133. Ibid. broken to shew the Flint included.

h. 134. Deptford. This, and the following, to 139 x, are still lower and rounder, seeming to be of a different Species.

h. 135. Croydon, Surrey.

h. 135. Greenwich, Kent.

h. 135 x. Purfleet, Essex.


h. 137. Deptford.

h. 138. Rygate, Surrey.

h. 139. GraveSEND, Kent.

h. 139 x. Northfleet, Kent.

h. 140. A large piece of a Shell, partly immers'd in a Black Flint, and partly fill'd with the same. From the great Chalk-pit at Northfleet, Kent.

h. 140 x. A Shell of this pileated Kind, somewhat compress'd and crack'd, fill'd with black Flint, and having a Mass of the same, adhering at one of the Holes of the Shell to the outside of it in such manner, that the Flint within is contiguous with that without the Shell. Northfleet.

h. 141. Another, immers'd in a flinty Peble. The inside of this Shell is seen. Found near the mineral Wells on Sydenham Common.

h. 142. An Impression of the Basis of an Echinus pileatus, very fair, and distinct in a yellow Flint. Near Deptford.

h. 143. A small Echinute of the same sort with those 122, &c. to 131, having curiously taken off the Lineaments of the inside of the Shell, found lying loose in a Cavity in the middle of a grey flinty Peble; which Cavity throws also the Lineaments of the outside of the Shell. Found in a Gravel-pit near GraveSEND, Kent.

h. 143 x. The Shell of a pileated Echinus, of a ferruginous Complexion, with Parts of the Pyrites growing upon it, in five double Lines, upon the five linear Commisures of the Shell, where tis perforated with small Holes standing in Rows. There are also other-like linear Accretions of the Pyrites that intersect the former; these probably attending Cracks that happen'd to be in the Shell. There appears an ochreous Matter at the two Holes: but,
by its Weight, the Shell seems to be fill'd with the Pyrites. This
terribly curious and towards the very great Curiosity was found in the Chalk-pit by Greenhithe; in which Pit Pyrites of the like Constitution, and this ferruginous Complexion, are commonly found. See that exhibited in the former Part of this Catalogue, No. 3.

b. 144. An Echinite, consisting of a white flinty calculous Matter. Found in a Gravel-Pit on Mitcham-Common, Surrey.

b. 145. This has some degree of Diaphaneity, and approaches the Constitution of an Agate. Gravel-pit, near Hampstead Town.

b. 145*. An Echinite of a dark grey Flint; towards the top is an Hollow that appears to be made by the Shell's being press'd in by some external Force. Found on the Downs near North-Tidworth, Wiltshire.

b. 146. Another, of a dark brown Colour. Walthamstow, Essex.

b. 147. Another. Found on the West-side of Mill'd-Hill, near Hendon, Middlesex.

b. 148. Another. Bromley, Kent.

b. 149. Another, of white Flint. Henley upon Thames.

b. 150. Another, of red Flint. Chislehurst, Kent.

b. 151. Another, of a dark brown Flint. Found upon the Hill near the Observatory in Greenwich-Park.


b. 153. Another. This appears not to have fill'd the Shell, but has pretty large Cavities on several parts of it, as if the Fifth, or Parts of it, were interpos'd betwixt the Shell and the Flinty Matter entering of it, whilst in Solution. Barkhamstead, Hertfordshire.

b. 154. Another. On the top of which is a Cavity, with five Sinuses radiating out, at equal distances from it. Possibly the Fifth of this Species of Echinus, may have been of a stellar Figure. And if shrivell'd, or forced up into a small compass, being interpos'd at the top of the Shell, the Flint entering it, would have such a Cavity at top, as is observable in this. Cane-Wood, betwixt Hampstead and Highgate.

b. 155. An Echinite of a brown Flint, appearing to be cast in a Shell of the same fort with that b. 122. Stoke-Newington, Middlesex.

b. 156. Another. Richmond, Surrey.

b. 156*. From -------- in Sussex.


b. 158. Another. Harrow on the Hill, Middlesex.

b. 159. Another. Lullingston-Park, near Ainsford, Kent.

b. 160. Another, of a grey Flint, of a rounder Figure than any of the former; and appearing to have been cast in a Shell of the same fort with that b. 134.


b. 162. Another. Found in the Fields near Eyton-Bray, Bedfordshire.

b. 162*. Another. From Great-Bowdon, Leicestershire.
Another, of a dark brown Colour. Enford, Wiltshire.

h. 164. Another. Hitchin, Hertfordshire.

h. 165. Another. Banstead-Downs. I found one very like this on plough’d Lands, near Watford, Hertfordshire.

h. 166. Another, of a whitish Flint. Thorp, Northamptonshire.

h. 167. Another. Near Fulham, Middlesex.

Articuli II. Division II.

Spatagi Figura magis compressa, seu Difcoides.

h. 168. A large Echinus, near 2 Inches in Diameter, and \( \frac{3}{4} \) of an Inch high. On plough’d Lands, near Woodstock, Oxfordshire.

h. 168 * Another, with the Basis somewhat less. Witney, Oxfordshire.

h. 169. Another, with the Basis still less, it being but an Inch and \( \frac{1}{2} \) in Diameter; but the convex Part is raised somewhat higher than the Convex of that.

h. 170. Another, of the same Species with the last, but less. Aulsworth, Gloucestershire.

h. 171. Another, still less. Cowley-Common, Oxfordshire.

h. 172. Another, less. Sherborn, Gloucestershire.

h. 173. Another, less. Ibid.

h. 174. Another, less. Over-Slaughter, Gloucestershire.

h. 175. Another, less. Found along with Cornua Ammonis, Conch Anomia, and other Shells, near Silverton, Devonshire.

h. 176. Another, less. Garstington, Oxfordshire.

h. 177. Another, less. Hampnet, Gloucestershire.

h. 177 * An Echinite of Flint, black, with a Coat of yellow. Found near Norwich.

Classis V. Pars II.

Echini uno tantum foramine praditi, Tuberculis majoribus & inaequalibus, seu Ovari.

h. 178. An Echinus, 2 Inches in Diameter. From the Chalk-pits at Greenhithe. ’Tis full 2 Inches in breadth, and but \( \frac{1}{2} \) an Inch in height; and consequently is somewhat flatter than the Echinus Ovarius. Found now on the English Coasts. The Tubercula in this are also larger than thole of the English Echinus Ovarius.

h. 179. Another, from the Chalk-pit at Deptford. This is not of quite so compress’d a Figure as the former, and so more nearly approaches the Figure of the English Echinus Ovarius.

h. 180. Another, with part of a Bivalve, and a little Spat upon it. Found in the great Chalk-pit at Northfleet.

h. 181. Another. Northfleet. This has a Spike along with it, which is smooth: and in all probability this kind of Spike belongs to this Species of Shells. Conf. h. 210 * & h. 226. infra.

h. 182. Another, depres’d by some external Force, so as to make a large Sinus on one side. Deptford.

h. 183.
b. 183. Another, full of Flint. Chalk-pit at Northfleet.

b. 183*. Another, full of Flint, and immers'd in Flint. From the Chalk-pit at Greenhithe.

b. 184. Another, from the same Place, full of Flint. The Flint too that, while in Solution, fill'd it, having run over, and so hanging forth a good way beyond the Shell, till broken off. Purfleet, Essex.

b. 185. Another, having several of the Spines actually upon it, with more lying by in the Chalk: besides several others that were shook off in the clearing away the Chalk. From Greenhithe, Kent.

b. 186. Another, fill'd with Chalk, with a Congeries of small long Bodies appearing in the Chalk, at a Hole on the upper Part of the Shell. These Bodies seem to be some of the little Bones found in this Fish, and which are usually call'd its Teeth, and lie also in this part of the Shell. Croydon, Surrey.

b. 187. Another, fill'd with Chalk. Ibid.

b. 188. Another, empty'd, so as to shew the interior Constitution of the Shell. Ibid.

b. 189. Another, with the Teeth mentioned, b. 186. Greenhithe, Kent.

b. 190. Another. Found near the Surface, in a Quarry near Farmington-Grove, Gloucestershire.

b. 191. Another, found lying amongst Rubble-Stones, under the Turf, near Sherborn, Gloucestershire.

b. 192, 193. Two small ones; the one fill'd with Flint, the other with Chalk. Greenwich, Kent.

b. 194. Another. From the Chalk-pit at Northfleet.

b. 195. Two others, very small. Ibid.

b. 196. Another small one, found amongst Rubble, over a Quarry of Stone near Woodstock, Oxfordshire.


b. 198. An Echinus, fill'd with Stone. This more nearly resembles our common Echinus. Stow on the Wolds, Gloucestershire.

b. 199. Another. Burford, Oxfordshire.

b. 200. A small one; but having the Tubercula larger, for the Size of the Shell, than any of the former. 'Tis fill'd with Stone, among which appear some of the Teeth. Vid. b. 186. Barrington, Gloucestershire.

b. 201. Another. Shot-over-Hill, near Oxford.


b. 203, 204. Two more, of the same Size with the precedent, but worn smooth. Tangley, Oxfordshire.

b. 205. Another less. Ibid.

b. 206. A Piece of a Shell, kept to shew the interior Constitution of it, and how exactly the Flints, cast in this kind, have been moulded by it. Deptford.
b. 207. An *Echinus Ovarius*, of a Species different from all the precedent, being more raised, and of a Figure more globose: The Plates and Papilae are larger likewise. There are two of the Spines in the Chalk along with it. From *Greenhithe-Chalk-Pits*, Kent.

b. 207 * Part of another, of the same Species, but somewhat less. Found about 60 Foot deep, in the great Chalk-Pit, *Purfleet*, Essex.

b. 207 * Part of another, larger. *Croydon*, Surrey.

b. 208. Seven Plates of the Shells of Echini, of the same Species with the foregoing, parted at the Sutures, with the Papilae upon 'em, all large. From the Chalk-Pits of *Purfleet*, *Greenhithe*, and *Northfleet*.

b. 209. A Plate and a Shell of the same Species, larger than any of the former. From a Quarry half a Mile North-West of *Clifton*, Northamptonshire. Mr. Morton.


b. 210 * Three Plates of a Shell of a different Species, very rare: *Greenhithe* Chalk-Pits.

b. 210 * Part of a Shell of an Echinus, different from all the foregoing. *Greenhithe*, Kent.

b. 210 * The Shell of an *Echinus Ovarius*, of the same kind with that b. 181, having several smooth Spikes lying in the Chalk along with it. *Greenhithe*.

b. 211. Parts of a large Shell, of the same Species with b. 207, broken, and lying in a Mafs of Chalk, along with several Spines that are thick set with Rows of small Knobs; which probably are the Spines that belong to this Species. *Greenhithe*, Kent.

b. 212. A large Spike, with several lesser, in Chalk. *Purfleet*, Essex.

b. 213. Several small smooth Spikes, in Chalk. *Chariton*, Kent.

b. 214. A Spike of an Echinus, of the same sort with those called *Lapides Judaici*, swelling from a short Stalk into a large Knob. Found in a Gravel-pit in *St. George’s-Fields*.

b. 215. Several short, coarse, round Spikes, of different Sizes and Figures. From the Chalk-pits of *Essex*, *Kent*, and *Surrey*. There are of these tumid Spikes found, in plenty, near *Wootton Bassett*, Wilts.


b. 218. Two on a Stone, along with several Bivalves. Sherborn, Gloucestershire.


b. 220. A very fair one, large, near 2 Inches and 4 long, thick set with Knobs in Rows; with part of the Chalk wherein 'twas found lodg’d. At the Depth of above 40 Foot, in the great Chalk-pit at *Purfleet*, Essex.

b. 221.

b. 222. Another, different. *Gravesend, Kent.*

b. 223. Several, of different Sizes, swelling a little towards the Middle. From the Chalk-pits of *Essex, Kent,* and *Surrey.*

b. 224. Several others, of near the same Thickness for their whole Length. Out of the same Chalk-pits.

b. 225. Others, of different sorts; from the Stone-pits of *Gloucestershire,* *Oxfordshire,* and *Northamptonshire.*

[†] b. 226. Others smooth and slender, of near the same Thickness throughout. These belong to that Species of *Echinus* that is exhibited, b. 181. & b. 210*. *Deptford.*

b. 227. A small *Echinus,* fill'd with Flint, and part of it immersed in a Mass of Flint, which was very large; but what remains was struck off from the rest. *Croydon, Surrey.*

b. 228. An *Echinus,* consisting of a brown Flint, cast in the Shell of an *Echinus Ovarius,* of the same sort with b. 178. but somewhat less. *Shooter's-Hill, Kent.* By comparing this with b. 188. & b. 206, 'twill appear how exactly it answers to the Inside of that Species of *Echinus,* in which it appears to have been cast and moulded.

b. 229. Another, of a yellowish Flint, but less. *Peckham, Surrey.*

b. 230. Another, less, immersed in a yellow Flint. Round the *Echinite* is a Vacancy answerable to the Dimensions of the Shell. Found on the Downs near *Croydon."

b. 231. Another, less. *Finchley-Common, Middlesex.*


b. 234. Another. *Cshalton, Surrey.*


b. 236. An *Echinus,* of still the same sort, of a greenish Flint, not above the bigness of a Vetch; found, in breaking a large Flint, inclas'd in the middle of it. *Barkhamstead, Hertfordshire.*

b. 237. A flinty Pebble, having on it an Impression of part of the Shell of an *Echinus Ovarius,* with Impressions of eleven tumid Aculei, of that sort which pass ordinarily by the name of *Lapis Jujus,* surrounding the Impression of the Shell, having all their Apices from it, and their Heads towards it, in such manner, that the Aculei seem to have belong'd to, and been affix'd on to the Shell that made the Impression in the midst of them. Found in a Gravel-pit near *Copenhagen-House,* besides *Islington, Middlesex.*

b. 238. A fair Impression, of part of a Shell of a very large *Echinus Ovarius,* on an Agate; found in Mr. *Heart's Park at Lullingstone, near Ainsford in Kent.*

b. 239. An Impression of part of a Shell of an *Echinus* of that sort, b. 207. on a grey Flint. 'A little beyond *Highgate, Middlesex.*

b. 240. Another; from --- in *Huntingdonshire.* *Mr. Morton.*


b. 242. An Impression of a single Plate of a Shell of the same Species, taken off with great Exactness. 'Tis on a grey Flint. *Hampstead-Heath.*
b. 243. An Impression of part of a Shell of still the fame fort, and of a Spike belonging to that fort too; being of the fame with those b. 223. Upon brown Flint. Among Gravel, near Northfleet, Kent.

b. 244. An Impression of a Plate, and Spike, also of the fame Species still, on a dark brown Flinty Peble. Hampstead-Heath.

b. 245. An Impression of a long, round, scabrous Spike of that fort, b. 224. Found, upon breaking a Flinty Peble, inclos'd in the Mafs of it. Gravel-pit, near Gravesend, Kent.

b. 246. An Impression of another Spike, a little longer, round, and of a Spike belonging to that fort too; being of the fame with those h. 223. In Gravel near Hampstead-Heath.


b. 248. Another, more slender, on a coarse grey Peble. Hampstead-Heath.

b. 249. An Impression of a pretty large Spike of the fame fort, on a brown Flinty Peble. This Spike appears to have been broken, and inflected, when it made this Impression. Dartford, Kent.

b. 250. An Impression of a thick short Spike, much resembling one of those, b. 215. on a greyish Flint. In Gravel, near Hackney, Middlesex.

b. 251. Another. Downs, not far from Epsom, Surrey.


CLASSIS VI.

Corpora quasdam Echinis, ut aedebetur, affinis.

i. 1. A pentagonal Body, compos'd of two Rows of small Joints. Chalk-pit at Northfleet, Kent.

i. 2. Several Parts and Joints of the same. From the same Place.

i. 2#. Part of a like pentagonal Body. In this the exterior Surfaces of the Joints are thick set with small Studs. From the great Chalk-pit, near Croydon, Surrey.

i. 3. Seven Joints, larger than any of the precedent, of another fort of Body. Gravesend, Kent.

i. 4. Several small Joints, of another fort. From the Chalk-pits of Kent, Essex, and Surrey.

i. 5. Several other Joints, swelling in the middle. From the Chalk-pits of Croydon, Purfleet, Deptford, Northfleet, and Greenhithe.

i. 6. Several long Joints, of like Bodies. From the Chalk-pits of Essex, Kent, and Surrey.

i. 7. Several other long Joints, swelling at one end into a Knob, upon which is a pentagonal Figure. Out of the same Chalk-pits.

i. 8. A single one, of the same kind, the Knob of which adheres to a small round Flint. Greenhithe Chalk-pit, Kent.

i. 9.
C VII.

A jointed Body, branched irregularly with a Piece of the Chalk in which it was found. *Northfleet, Kent.*

i. 10. Several of these ramose jointed Bodies. From several Chalk-pits in *Kent.* These broke, shew plainly a Texture like that of the Spikes of the *Echini Ovariij,* and seem to have serv'd as Appendages, or Trains to some kind of Shell allied to that *Echinus.* See what is noted of the *Entrochi,* class vii. and of the *Asteria,* class viii. both which Bodies are also of like interior Texture and Constitution, and break in like manner.

i. 11. Several Bodies of different, but regular Figures. From Cowley-Common, near Oxford.

i. 12. Part of the Shell of some Body, seeming to be a Piece of some uncommon kind of *Echinus,* lying in a whith gritty Stone. From a Stone-pit South-East of Wakerly. There are Fragments of other Shells, and Ova of Fishes in the same Stone.

i. 13. An Impression of some Body, seeming to be of the same kind with the foregoing, in a grey Flint. *Hampfleid-Heath, Middlesex.*

**Classis VII.**

**Entrochi & Trochitae.**

These Bodies are of much the same Texture and Constitution with the Spikes of the *Echini Marini*; and have serv'd as Appendages, or Trains, to a Shell not very unlike that of the *Echinus Ovarijs*; but tender and brittle, so that 'tis rarely preserved. Mr. Beaumont has graved one Species of it, Philos. Trans. N°.— I have consider'd these Bodies more particularly in one of my Gresham Lectures, Confer. N°. i. 10. supra.

k. 1, 2, 3, 4, 5, 6, 6*. Entrochi; found at Stainton, two Miles from Penrith, Cumberland, in a Bank near a Spring, very plentifully. Dr. Nicholson, Lord Bishop of Carlisle.

k. 7, 8, 9. On the Shore of the River near Moreland, and in Westmorland, where such are found pretty plentifully. Bp Nicholson.


k. 11. Bp Nicholson. Ibid.


k. 13. Many, small, red. Bp Nicholson. Also a Pentagonal of one of the Shells, to which this sort belong. From Howlees, betwixt Newbiggin and Stainton, Cumberland.


k. 14*. From Cumberland. Mr. Clarke.

k. 15, 16, 17. Found in the Shore of a River near Threapland, Westmorland. Mr. Clarke.

k. 18. In the same Place. Compress'd and flattened.

k. 19, 20, 21, 22, 23. Five compress'd, from still the same Place.

k. 24, 25, 26, 27. Hollow in the middle, and fill'd with a grey stoney Matter. From the same Place also.

k. 28,
k. 28, 29, 30, 31, 32, 33. Found in the Bank of a Rivulet at Ploveridge, near Shap, Westmorland. They call them there Fatry-Stones. Mr. Clarke.

k. 34, 35, 36, 36*, 36*, 37, 38, 39. Eight, large, with Vestigia of Branches proceeding forth of them. Mr. Clarke.


k. 42. Many, smaller; from the Banks of the Brook Ellerbeck, near Torpenthoe, Cumberland. Mr. Clarke.

k. 43. Many single Joints. Mr. Nicholson, and Mr. Clarke.

k. 44. Many Entrochi, and single Joints. Cumberland. Mr. Clarke.

k. 45. An Entrochus, with a Coralline Body adhering to it.


k. 46. Two, with Spat adhering. Mr. Nicholson. Ibid.

k. 47. An Entrochus, with many Branches ariling out of it. Found near Ipswich in Suffolk.


k. 49. Found, loose, in the bottom of a Quarry by the side of the Road to Fremington, 2 Miles from Mask, Yorkshire.

k. 49*. Found in the Isle of Man; and sent me by Dr. Wilson, Lord Bishop of that Island.

k. 50. Found near Wooky-Hole, by Wells, Somersetshire.

k. 51. Several Entrochi, in Joints; also a Piece of the Shell. From Mendip-Hills, Somersetshire.

k. 52. In the great Lime-pit, near Dudley-Castle, Staffordshire.

k. 53. From a Lead-Mine, near Worksworth, in the Peak, Derbyshire.

k. 54. Three Joints. Hadion Pastures, in the Peak, Derbyshire.

k. 55, 56. Two Trochites. Found in a Heap of Clay in the Pasture of Haddon, in the Peak, near the Earl of Rutland's House.

k. 57. From several Places on Mendip, Somersetshire.

k. 57*. Entrochi, of various Figures; found in the Rubble and Stone near Charter-House, Mendip; where they occur in great Numbers.

k. 58. A Mass of Stone, with several Entrochi in it, and Fragments of Shells; from a Pit near the Earl of Rutland's House, in Haddon Pastures, in the Peak.

k. 59. A Mass, very thick set with Entrochi. From the Quarry two Miles from Mask, Yorkshire, mention'd above, k. 49. All the Stone of this Quarry is full of them.

k. 60. Another Mass, as full of them as the former. From a Stone-pit, about 50 Yards in perpendicular, above the River Swale, on the side of a Hill about a Mile from Richmond, Yorkshire. There were great Numbers of these, of Shells, and of Impressions of Shells upon the Stone.

k. 61, 62, 63. Three Masses, with Entrochi, and several Corallloid Bodies. From the great Limestone-Quarry, near Dudley, Staffordshire.
k.64. A Mass of grey Stone, thick set with Entrochi; from Worksworth, in the Peak.

k.65. Mr. Southwell. Found near King's-Weslon, in Gloucestershire.

k.66. Ibid.

k.67, 68, 69, 70, 71. Five Masses of Stone, extremely thick set with Entrochi, and having also in them Fragments and Impressions of Shells. Found on the South-side of Ingleborough-Hill, near the Top, Yorkshire. Mr. Groome.


k.73. Mr. Nicholson. Ibid.

k.74. Entrochi, given me by Dr. Evans, Lord Bishop of Bangor. From the Island of Anglesey.

CLASSIS VIII.

ASTERIA.

These have serv'd, as the Entrochi, [Vid. Class 7.] as Appendages to Shells. See one of my Gresham-Lectures, concerning the Origin and Constitution of these Bodies. Confer. No. i. 10. supra.

1.1. Several Columns of Asteria, and single Joints; from two plough'd Lands of a Mile South from Marston-Trussell, Northamptonshire. One of the Columns has part of the Shell belonging to this Species still adhering to it: and was found by Mr. Howard, Rector of Marston. This last is since described by Mr. Morton, Nat. Hist. of Northamptonshire, p. 239. Tab. 10. Fig. 19.

1.2. Several Columns, and single Stars, of different Sizes; from the same Place.

1.3. Others, found plentifully in two Banks near Whitton, Lincolnshire; where the People call them Castles and Apostles.

1.4. Others, from Aukborough, Lincolnshire.

1.5. Others, from Laffington, near Gloucester.

1.6. A Column, found on the Shore of the River, near Moreland, in Westmorland. Mr. Clarke.

1.7. Another; found in a Bank, near a Spring, at Stainton near Penrith, Cumberland. Bp Nicholson.

1.7x. A Column, somewhat bent, consisting of 18 Stars. From the Shores near Hull, Yorkshire.

1.8. Several small Stars; found in the Quarries near Sherborn, Gloucestershire.

1.9. Joints and Columns; from the Cliffs of the River Severn, near Pyton-Passage.

1.10. Asteria; from Shugborough, Warwickshire.

1.11. Several Columns; from the Shores of the River near Rugby, Yorkshire.

1.12. A Column, with Fragments of Shells adhering to it; from Lubenham-Brook, Leicestershire.
l. 13. Several Columns, Stars, and Wires; from the same Brook.
l. 14. Others, found in sinking a Well at Marston-Trussel, Northamptonshire.
l. 15. A very strange one, seeming to be the Joint next the Shell. Found in sinking the same Well at Marston. Given me by Mr. Howard, Rector of the Town.
l. 16, 17. Two Columns, with Pieces of Shells adhering to them. From a Brook near Marston-Trussel.
l. 18. Several, with some of those Branches that are wont to arise from them, call'd, by some, Wires. From the same Brook.
l. 19*. Two Columns of the Entrocho-Astheria, with five Sides: and one Column with four Sides. From How-Lees, betwixt Newbiggin and Stainton, Cumberland. Mr. Clarke.
l. 21. A Mafs of Stone, thick set with Columns, Stars, and Joints of Wires. Found on the Shores of Severn near Arlingham. In some of the Columns, the Manner of the Articulation, or Conjunction of the Stars, is very conspicuous.
l. 22. A Mafs of Stone, with several Columns in it. Found in the plough'd Lands near Marston, Northamptonshire, along with l. 1. The Manner of the Articulations is likewise observable in this.
l. 23. A Mafs of Stone, with an Astheria, several Joints of Wires, and Fragments of Shells; from the same Place.
l. 24. A Mafs of a dark grey Stone, with several Columns in it, vast Numbers of Joints of Wires, and some Fragments of Shells. From the Shores of Severn, near Pyrton-Passage.
l. 24*. Another like Mafs, but larger, very thick set with Astheria, both single and in Columns, very fairly display'd; with Fragments of Shells. Pyrton-Passage.
l. 25. Another like Mafs. The Stars in this are white, glossy, and break much like the Lapis Judaicus, or tumid Spine of an Echimus Marinus. Pyrton-Passage.

CLASSIS IX.

CRUSTACEA.

m. 1, 2. Two small Crabs, not much unlike those which, on the Coasts of Sussex, particularly about Shoreham, are called Portugal Crabs. These were found in the Cliffs at Folkston, near Dover.
m. 3. A Piece of the Claw of a small Crab. From ----- in Wales. Mr. Lhwyd.
CLASSIS X.

Piscium Partes.

n. 1. Part of the Skin of a Fish, with the Scales on, adhering to a Pyrites; found in the great Clay-pit, Richmond, Surrey. This Mr. Doody shew'd to Mr. Ray; and, in his Physico-Theol. Discourses, he erroneously calls it, a Mass of Fishes. Given me by Mr. Doody.

n. 2, 3, 4, 5, 6. Five Pieces of large Bones, seeming to be of Sea-Fishes. Found upon the Shore near Harwich-Cliffs. Mr. Adam Budde.

n. 7. Several legs. Found in the Stone-pits about Witney, Oxfordshire. Mr. Fitz-Roberts.

n. 8. A large Vertebra of a Fish. Found on the plough'd Lands near Walgrave, Northamptonshire. Mr. Morton.

n. 9. Another. Found in digging to lay the Foundation of a Wall at Wetham in Leicestershire. Mr. Morton.

n. 9 x. Two Vertebrae of the Back-Bone of some large Sea-Fish, dug up near Bridport, Somersetshire.

n. 9 a. Two Vertebrae of some large kind of Fish. They have Shells affixed to them; even upon the Flats, that were contiguous while the Fish were living; so that the Fish must have been dead, the Back-Bone broke, and the Vertebrae parted and expos'd loose in the Sea, or on the Shore, for some time, before the Deluge. For these were fresh beat out of the Cliff: and there are no like Shells now living in the adjacent Creek. Found on the Shores, on the East-side of a Creek, about a Mile above Weymouth-Bridge.

n. 9 b. A Vertebra. Found at Pyrton-Passage, over the Severn.

n. 9 c. A Vertebra. Got out of the Cliffs between Limington and Christ-Church, about 5 Miles from the latter. There were several others, but much rotted and impair'd: The Soil here a-bounding with Vitriol, which erodes and destroys these Bodies.

n. 10, 10 x, 11, 12, 13, to 21. Vertebrae of Fishes of several Sizes. Found in the Cliffs on the North-side of Sheppey-Island, Kent.

n. 22, 23, 24, 25, 26, 27. Six others, flatter, belonging to some other Species of Fish. Two or three of these seem to have been Bones of Sharks. From the same Cliffs.

n. 28, 29, 30, 31, 32, 32 x. Six others, of different Sizes. Richmond Clay-pit, Surrey.

n. 32 †. Three Vertebrae, pretty large, adhering together. One of them is somewhat dislocat'd. There were five thus cohering when first found, but two of them are since broken off. There are Masses of the Pyrites concreted upon them. Found near 70 Foot deep, in the great Clay-pit at Richmond, Surrey.

n. 33. Two others, adhering together. From the same Clay-pit.

n. 34. A small one. From — — in Northamptonshire. Mr. Morton.

n. 35, 36. Two, pretty large ones; from the Cliffs of the Hum-ber, near Whiston, Lincolnshire.
n.36*. Another. Pyrton-Passage, over the Severn, Gloucestershire.

n.37. A small Bone of the Scapula Fin of a Porpus, Dolphin, or some other Fith of the Cetaceous Kind. Found in the Northern Cliffs of Sheppey-Island. This has something of a Pyrites adhering to it, as several of the Vertebrae, and Glosso-petra, found here, have.

n.38, 39, 40. Having Pyrites adhering to them, are dissolv'd and perifli'd.

n.41. A large Glosso-petra, or Shark's Tooth. From a Chalk-pit, at Northfleet, in Kent.

n.42, 43, 43 x, 44, to 58. Eighteen Sharks Teeth, of different Figures and Sizes. From the Cliffs on the Shores of Sheppey-Island.

n.59. From the same Cliffs. I have seen a young Shark, taken on the Coasts near Scarborough, that had in the Jaws several Rows of Teeth, like this, n. 59. only somewhat less. That Fish was near 4 Foot in Length.

n.60, 61. From the same Cliffs.

n.62. Ten, from the same Cliffs.

n.63. Eight, from the same Cliffs.

n.63 x. A large Shark's Tooth, with the Root cover'd with a grey fioney Accretion. On the Outside of which is a Substance, arising from the Roots of the Tooth, and seeming to be part of the Ligaments, by means of which the Tooth was connected to the Jaw. There is a bit of it broken off, and lying by. From the Cliffs by Whitstable, Kent.

n.63 †, 63 *. Two more, less; from the same Cliffs.

n.63 a, 63 b, 63 c. Three Sharks Teeth, digged out of a Cliff, at the depth of about 60 Foot, betwixt Milford and Hordwell, Hampshire.

n.64. Twenty-three, of different Sizes; from the great Clay-pit at Richmond, Surrey.

n.65. Ten, of different Shapes and Sizes; from the Chalk-pits at Greenhithe, Northfleet, Croydon, and Purfleet.

n.66. Another; from the great Chalk-pit at Northfleet.

n.67. Another, broken; from a Tile Clay-pit, near Highgate, Middlesex.

n.67 x. Another, fair and entire; found in a Pit of Clay, used for making Tiles, at Harrow-on-the-Hill. This Pit was in the Town; and the Workmen told me they met with these Teeth in the Clay pretty frequently; and that in sinking a Well near the Church, Shells of several sortes were found 70 Foot deep.

n.68. In a Clay-pit at West-End, near Hampstead.

n.68 x. From the Clay-pit at Hunton, in Kent, mentioned by Dr. Hatley, Philof. Trans. No 155. p. 463.

n. 69*. Eight, small; out of a Bed of blueish Clay 30 Foot deep; in a Tile Clay-pit, near Iflington, Middlesex. There were found in the same Bed turbinated Sea-Shells, and Fragments of some kind of crustaceous Shell-Fish.

n. 69 †.

n. 70. In a Tile Clay-pit in Epping-Forest, about a Mile and half from Waltham-Stow, by the Road, almost at the Top of the Hill, near the Mill. Other like Sharks Teeth I have seen, that were dugged up in another Pit betwixt that and the Green-Man.

n. 71. In a Chalk-pit, on the Downs, near Smitham-Bottom, not far from Croydon, Surrey.

n. 72. From Cherry-Hinton Chalk-pits, near Cambridge.

n. 73*. From a Sand-pit, at the bottom of Shooter's-Hill.

n. 73 x. Found in a Tile Clay-pit, at New-Crofs, near Deptford.

n. 74. Four; from the Chalk-pits at Northfleet, Kent.

n. 75. From a Gravel-pit, near Desborough, Northamptonshire.

n. 76. Several small ones, found at Farringdon, Berkshire.

n. 77. A conical Body, of a boney Substant, a little crooked, about half an Inch long. From a Stone-pit, near Grindon, Northamptonshire. To this Kind Mr. Lhwyd gives the fantastic Name of Piecetonites. (Lythophyl. Britan. Cl. 9. p. 66. & seq.) 'Tis the medullary Part of the Tooth of a large Fish. I have part of the Jaw, near 2 Foot long, with several other Pieces; found at the Depth of about 24 Foot, in a Quarry, in the Estate of Sir Tho. Read, near Shipton, Oxfordshire.

n. 78. Eight other like boney Bodies, of different Sizes. From Witney and Farrington, Oxfordshire.

n. 79. Several Bufonites, or Teeth of the Lupus Marinus. Found about Witney, and the Parts adjacent, Oxfordshire.

n. 79 x. Fourteen Teeth of the Lupus Marinus, with part of the Jaw, or rather the Palate, of that Fish in which they are infix'd. From Elton, Oxfordshire. Mr. Stonefrees. This is a very great and valuable Curiosity. Mr. Lhwyd mentions a Piece of a Jaw, with three Teeth in it; Philos. Trans. N° 200. p. 755. N° 19. & Lythophylac. p. 70. No 1368.

n. 80. Three more; from a Stone-pit, near Grafton, Northamptonshire.

n. 81. Four oblong Bodies, seeming to have been Teeth, or Parts of boney Palates of Fishes. From a Gravel-pit, near Desborough, Northamptonshire.

n. 82. Nine other from a Stone-pit, near Grafton, Northamptonshire.

n. 83. Another from a Stone-pit, near Farrington, Berkshire.

n. 84. Six Rhomboidal Bodies of like sort. Grafton Stone-pit.

n. 84 x. Another, Witney, Oxfordshire.

n. 85. Four small Rhombs. Desborough Gravel-pit.

n. 86, 87, 88, 89, 90. Five oblong Rhomboids. From a Stone-pit, near Grafton, Northamptonshire. To this Kind Mr. Lhwyd has given the affected Name of Siliquastrum. 'Tis a boney Substance.
stance: and seems to have serv'd to cover the Tongue, or the Palate of some kind of Fisli. M. du Hamel makes mention of such a sort of Coverture. "Vulpis marina Lingua praduris Offi
culis, argenteis, non acutis, sed quadratis munitur. Vidimus "Maxillas Piscis quas Clariss. Abbas Gandron à Canadensi Pro-
vincia atulerat, quae stratae erant dentibus complanatis, & duris; "hae Molarum inferior, Cochlearum testas quibus vesicur is Piscis, "terunt." Vid. du Hamel Physica Part. 3. Traét. 3. Dissert. 1. c. 1.

p. 331. d. in S°.

n. 91. Another, Witney, Oxfordshire.

n. 92, 93. Two more. Farrington, Berkshire.

n. 94. Found in the Gravel in Sir Ralph Dutton's Court-yard,
Sherborn, Gloucestershire.

n. 95. Another, from Farrington, Berkshire.

n. 96. Another, near Stunsfield, Oxfordshire.

n. 97. An oblong Body, black, full of very small Punèta, Witney.

n. 98. Three small Bodies from a Gravel-pit, near Desborough,
Northamptonshire.

n. 99. Two small boney Bodies of an irregular Figure, having
their Surface thick set with Punèta or little Holes. Farrington,
Berkshire.

n. 100. Part of a large hard, boney Substance, seeming to have
been the Palate of some Fising having its outer Surface ridged and
furrow'd alternately. The Ridges are sharp, except in the middle,
and upper part, where it has been most expos'd to be fretted and
worn in breaking the Shells of the Fising the Creature lived on; in
which part 'tis manifestly worn down, and the Ridges smooth'd.
'Tis very hard and polite: and could not have been reduc'd thus but
by long time and great force. Partly by that, and partly by the
bigness of it, 'tis plain this was of some grown old Fish: and had
been long us'd to grinding and breaking of Shells. Found near
40 Foot deep in the great Chalk-pit at Greenhithe.

n. 101. Another leifs and not of so old and grown a Fish as the
former has been. Nor are the Ridges so much worn; which in-
 deed is but a Consequence of its not having been so long us'd.
From a Chalk-pit, near Rygate, Surrey.

n. 102. Another still leifs, and probably of a younger Fising; the
Ridges being little or nothing ground. Out of a Chalk-pit near
Smisham Bottom, betwixt Croydon and Woodcot, Surrey.

n. 103. Another, very little; the Ridges entire, and with their
Edges very sharp. From the same Chalk-pit near Rygate, with 101.

n. 103*. Part of a flat Tooth; or rather Grinder of a Palate.
The Ridges and Eminencies of this are worn down by grinding,
ther' it be small; so that it seems to be of an old grown Fish, that
had us'd and worn it long. Consequently 'tis probable the Kind
have several of these Grinders, leifs, and larger, distinct, in the
same Jaw. From a Chalk-pit, on Boxly-Hill.

n. 103†. A Tooth, found in the same Chalk-pit with n. 102
now, near Smisham Bottom.
n. 103 ½. A boney Body, flat on one side, and convex on the other, the latter thick set with small Cavities in a very beautiful Manner. Out of a Chalk-pit near Epsom, Surrey.


n. 107. Another Piece of Stone with small Ova in it. From Desborough.

n. 106. Another, out of a Quarry near Shipton, Oxfordshire.

n. 107. Another, from a large Quarry, near Northbleach, Gloucestershire. In this Quarry there are vail Strata, near the Surface, all full of these Ova.

n. 108. Another of a faint Purple Colour. From the great Quarry at Ketton, Northamptonshire.

n. 109. Another, yellow. From the same Quarry.

n. 110. Another, yellow. Found near Burleigh House; on the Edge of Lincolnshire.

CLASSIS XI:

Quadrupedum Partes.

0.1. Part of a large Horn of the Moose-Deer. By Nicholson. See the Lecture about the Foil'd Moose-Deer's Horns of England and Ireland.

0.2. Part of a large Tusk of an Elephant. This with its fellow of the same Size were dug up at Bowden Parva, Northamptonshire. They lay in an horizontal Posture in a Stratum of common Clay, above which was a Stratum of Gravel: and over that a Stratum of blue Clay. They were pretty entire when found, and each 16 Inches in Circumference in the thickest part. But being decay'd, this was shatter'd and broken in the Carriage. Mr. Morton. He search'd the Clay that was dug and flung out there, but could find no other Teeth or Bones, but good store of Sea-Shells. The Stratum of Clay in which they lay was not above 3 Foot below the Surface. They were neither of 'em entire, the 2 Ends of each being broken off before he saw them. And consequently the thickest part was lost and gone, as well as the smallest. And yet 'tis very rare to meet with an Elephant's Tooth in any part 16 Inches about. So that these must have belong'd to a very large Creature. See the Lecture about Ebur Foillite.

0.3
o. 3. A letter Piece of the fame Tooth.

o. 4. Several Pieces of an Elephant's Teeth dug up in a Gravel-pit at Iflington, about a Furlong N. W. of the Well call'd London-Spaw. It lay about 8 Foot deep. There were several Bones with it.

o. 5. Part of the Thigh-Bone of an Ox, dig'd up in a Gravel-pit, in Windsor-Park.

o. 6, 7, 8, 9, 10. Dug up in another Gravel-pit at the fame Park. These lay about 14 Foot deep.

o. 11, 12. Found seven Foot deep in a Gravel-pit, near the Mill in Windsor Field.

o. 13. A Shank-Bone digg'd up, along with Nuts, and Branches of Shrubs, 6 or 8 Foot deep, in finking the Wet Dock, near Deptford.


o. 15. A small Bone and 2 small boney Polyhedrous Bodies, out of a Stratum of Stone, about 10 Foot deep, in a Quarry, near Broadwell-Grove, Oxfordshire.

o. 16. A Fragment of the interior or porous Part of a Bone, tinged of a fine bright green Colour. Found in a Copper-Mine in Cumberland. Tho' boney Bodies that are found amongst Copper-Ores in the Earth, are frequently tinged with green or blue, the Colours that that Metal naturally gives. The Turcois Stone, as it is commonly stiled by Lapidaries, is no other than part of a Bone so tinged. See the Account of that Body in the Catalogue of the foreign Fossils, p. - - - as also of a Bone dug up in the Copper-Mines of Hungary, tinged green, ibid. p. and of another found lodg'd at a considerable depth under a Stratum of solid Stone, at - - - in Yorkshire, in a Letter of Mr. Thoresby, dated Nov. 9. 1702.

o. 17. A Piece of a Bone, found, among several others, in a Stratum of solid Stone in a Quarry near Cape-Tar, Cornwall. It has several Spots of green upon it, which are no other than Efflorescencies of Copper-Ore. There were some small Veins of Marcasite, with a few Strings of green Copper-Ore, in the same Quarry: and Cape-Tar Gold Mine, as 'tis call'd, is not far off. See a Sample of the Marcasite got in that Mine, in the former part of this Catalogue, p. - - - The Stratum in which these Bones were lodged was above 100 Foot deep.

CLASSIS XII.

Corpora Marina, presenti Conchylia Masse lapideae confertim immittia.

p. 1, 2, to 10. inclusive. Ten Masses of reddish hardned earthy Matter, containing in it Entrochi, Sea-Shells, and Impellions of them, Corallina, the Sea-Fan, and other like Bodies. From Stan-ron, Cumberland. Sent by Bishop Nicholison. Dr. plukenet, Mr. Stonefrees.
Stonestreet, Mr. Doody, and Mr. Buddle, assert that these Bodies are real. p. 5. has in it a Pinna of a Plant of the Fern-kind.

p. 11. Small Fragments of Shells; and a white reticular Body, appearing to be part of a Sea-Fan, in a blackish hardened earthy Mafs. Found by the sides of a Brook about 50 Yards from a Farm-House, called Threpland in Westmorland. There's more of it in the same Banks. Dr. Plukenet, and the other three Gentlemen above named allso to this, and to what follows at p. 12.

p. 12. Another like Mafs from the same place, with part of a Sea-Fan also in it: and the Impression of an Enterochus.

p. 13. A grey Stone Mafs, very hard, full of Shells, worn by the Agitation of the Sea. Found on the Shores near Scarborough, Yorkshire. This, and the following to p. 22*, are not properly Pebles, or of the original Nodules, that were form'd in the Water at the Deluge, [vid. Nat. Hist. Earth. Part iv. Conf. 2.] but are only Lumps of hard Stone, broken off from the Strata: their Surfaces smooth'd and the Bodies ground into this Form by the Sea's agitating and rolling them to and again upon the Shores.


p. 15. Another, Found on the Shores near Owthorn, Yorkshire.

p. 16. Another, from Owthorn Shores.

p. 17. Another, brown. From Owthorn Shores.

p. 18. Another, reddish, from Owthorn Shores. The Shells in this appear with a talky Gloofs: and are probably constituted by Talc, the teftaceous Matter being dislovd, convey'd away: and succeeded by this talky Spar, brought by Water passing the Stone.

p. 19. Another from the same Shores. The Shells here are consumed and gone, and the Places of them fill'd with a white talky Spar.


p. 22. A small Mafs of a grey Stone, with two Shells of some Bivalve, very white, so worn as to appear like two C·C: From the Northern Shores of Skeppay Island, Kent.

p. 22*. Another, very large, with several sorts of the Bodies exhibited in the 6th Class above, i. 1, 2, 3, & seq. in it. Owthorn Shores.

p. 22 †. Another, less, with like Bodies in it. Owthorn Shores.

p. 22 *. Another, with Bodies of all the same kinds in it. Found on the Yorkshire Shores of the River Humber, near Paul.

p. 23. Part of a dark grey Stone. There were small Bivalves in it; the Shells whereof, being perill'd and gone, are succeeded by a shining braffy Pyrites. Out of a very thick Stratum of Stone, in a Quarry near Bakewell, in the Peak, Derbyshire.


p. 25. Another, Clipston-Quarry, Northamptonshire.


p. 27.
Another. From the Stone-pits at Tick-Marsh, Northamptonshire. This lay only a Foot deep: and 'twas taken up by Sir John Pickering, who observed them lying as thick thence to 6 Foot deep, which was the bottom of the Pit.

p. 28. A single Shell taken out of the precedent Mass.

p. 29. A Mass of Stone very thick set with Shells, out of a Quarry, near Fairford, Gloucestershire.


p. 31. Another, near Southampton. There are amongst Fragments of other Shells, two Valves of the Chama, lying in this open'd and display'd.


p. 34. Ibid. p. 35. Ibid.

p. 36. Whiston Shores, Lincolnshire.

p. 37. A Mass with Concha Anomia, lying very thick in the Sherborn, North-Field, Gloucestershire.

p. 38. Another Mass thick set with various Shells, out of a Lead-Mine, near Worksworth, in the Peak, Derbyshire.

p. 39. Another, thick with striated Concha Anomia, some of them filled with white Spar. King's-Weston, Gloucestershire.

p. 40. Another. Some of the Shells having in them likewise white Spar. Gritworth, Northamptonshire.

p. 41. Another Mass, holding Concha Anomia, in great Numbers, both of the leaves and striata, a kind of Oyster-Shell, and other Bivalves. Barrington great Quarry, Gloucestershire.

p. 42. Another, out of the same Quarry.

p. 43. Another, wherein are various kinds of Bivalves: and a long, fair Spike of an Echinus Ovarius. Found, above 30 Foot deep, in a Quarry near Farmington, Gloucestershire.


p. 46. 47. Another, likewise split in two. In this have been many Shells; but they are much decay'd, and but just discernible. Hinderskelf, Yorkshire. Mr. Groome.

p. 48. A Mass of black Stone, having in it partly Shells, very thick: and partly Spar, succeeded into the room of Shells decay'd: and succeeded by a sparry Talc. Found among the Rubble of a Coal-pit at Adderton, Yorkshire. The Colliers say that it lay four Farthom deep, just over the Coal.

[A] p. 49. A Mass consisting almost entirely of common Oyster-Shells, the Intervals only being fill'd with Sand. From a Rock two Miles distant from the Sea and 200 Foot above it. Weymouth.

p. 50. Ibid. In this are several very different Shells, both Bivalve and Turbinatae.

p. 51. Ibid.

p. 52. Whiston-Cliff, Lincolnshire.

these two Masses the Shells are very much decay'd; there remaining little more than Impressions of them. By such as these Dr. Lister was misled into the Notion that Fossil Shells were not real, but mere Umbra, Imagines, and I know not what. Vid. Listeri Hist. Animal. Anglia, Tract. 4. p. 243. See an Icon of this kind, Tab. 9. Fig. 49. Conf. p. 130. infra.


p. 56. Found in the Home-Park of Sir Ralph Dutton. Sherborn, Gloucestershire.

[A] p. 57. A Mass with Cochlitæ init. Petworth, Sussex. These seem to have been moulded in the Cochlea fasciata vivipara fluctuaviatilis, Listeri Hist. Conchy. fluv. No 26. There are of this sort in the Cliffs of Hampshire. See the Catalogue of the Shells found there. No 25.


p. 59, 60, 61, 62. Masses of Stone, out of Portland, great Quarry. The Stratum off which these were broken, lay 50 Foot deep, about 200 Foot above the Sea. They are thick set with Stones, of the same Constitution with that of the common Stratum, cast chiefly in long slender turbinated Shells, and in that Bivalve that Dr. Plot, Nat. Hist. of Oxfordshire, calls Hippocephaloides. The Shells are all perished, but the Space they posset'd, is left empty, except where accidentally fill'd since.

[A] p. 63. A Mass, wherein are several of the common Pecten, or Escalop-Shells. From ---- Northamptonshire.

p. 64. A Mass of a brown Colour, with Shells, and several Belemnitisæ in it. Some of the Belemnitisæ are broken so as to discover the Strature and Texture of their Crusts. Gritworth, Northampt. 

p. 65. Another, with Shells and Belemnitisæ. Ibid.

p. 66. Another, Ibid.

p. 67. Another, with Shells, and a piece of Wood, being part of the Branch of tree Tree. Ibid.


p. 69. A Mass with Asteria, those 'call'd the Wires, of this Body, and various Kinds of Shells. Oxenden Gravel-pit. Mr. Morton.

p. 70. A Mass with several fair Shells in it, of different Kinds. I have a Drawing of it, by Mr. Fairbourn: But since that was made, the Mass was accidentally broke in two, by a Fall, and one or two of the Shells shatter'd and defac'd. Out of a Stone-pit on Cowley Common near Oxford.

p. 71. A Mass of Stone having great Variety and Plenty of Shells, chiefly Bivalves with some turbinated, and Ova of Fishes in it. Found upon the plough'd Lands, on the Brow of a Hill in the Fields, on the West-side of Sherborn, Gloucestershire.
p. 72. Another, as thick fet with Shells, Bivalves, turbinated, Echini, and Ova. Windrush, Gloucestershire.

p. 73. Another. Stawel, Gloucestershire.

p. 74. Another, this was part of a Stone struck out of a Wall near Sir Ralph Dutton's Houfe, Sherborn, Gloucestershire.

p. 75. Another, with Ova of Fishes, and several very fair and beautiful Shells, both Bivalve, and Turbinate. From a Quarry near Windrush, Gloucestershire. I have a Drawing of this, by Mr. Faithborn.

p. 76. Another Mafs, thick fet with Shells of the Bivalve kind. Hampnet, Gloucestershire.

p. 77. Another, exhibiting two fair Valves. Northleach, Gloucestershire.

p. 78. A Mafs thick fet with Variety of very fair Shells. Found in Woodstock-Park, Oxfordshire.

[A] p. 79. A Pyrites, very thick fet with small or young Shells of that sort of Bivalve that Dr. Lifer, Hist. Animal. Anglia. p. 173, calls Choncha à maximis, admodum crassa, rotunda, ex nigro rufescens. And large grown Shells of this Kind are found plentifully in the fame Pits. Conf. N° f. 433 & seq. Those contain'd in this Pyrites, are all of much the fame Bignefs; and something exceed a large Pea: To which Size Mr. Hastings affures me, the young of this Species of Shell-fish naturally arrives at the End of May. So that there were kill'd, and a Stop put to their Growth at that time of the Year; which is the time assign'd by Moses for the breaking forth of the Deluge. This Mafs was found in the great Clay-pit by Richmond-Wells, Surrey. Mr. Doody. All that I have ever seen of this Species that are, under a Year's Growth, are of the Size of these. I have met with great Numbers of such in these Pits.

p. 80. A gritty Mafs, having in it a fair Pectunculus, and part of another. This, and the following, to p. 86 inclusive, were given me by Mr. Jackson. vid. c. 29. supra.

p. 87. Found in linking a Well at Bromly in Kent. Mr. Emmet.

p. 88. A Mafs of grey Stone, part of a Stratum near the Road, at the West-end of Stifford, a little of this side the Rivulet, Essex. The following Mafles to p. 102 inclusive, were all parts of the fame Stratum, and contain in them a great Variety of Shells, both Bivalves and Turbinate, generally well preferv'd, this Stone being ordinarily very firm and hard: and in breaking this Stone, I once observ'd a Shark's Tooth very fair and entire.

p. 89. Ibid. p. 90. Ibid. p. 91. Ibid. p. 92. Ibid.

p. 93. Ibid. In this, one or two of the Shells have Delineations of Shrubs, made on them by the ascent of fuliginous Steams.

p. 94. Other like Delineations very fair. Ibid.

p. 95. Ibid. p. 96. Ibid. p. 97. Ibid.

p. 98. Ibid. There are fuliginous Delineations on the Shells of this likewise.
This has in it several large flat Shells which lie parallel one to another, and to the Grain, and Horizontal Situation of the Stone. The same is observable in several of the preceding, and in the 3 following Masses.

p. 100. Ibid.

p. 101, 102. These, tho' very large, cohered to each other, till broken asunder, and parted. Ibid. I have observ'd of the same sorts of Shells with those in this Stifford Stone, in the great Sand-pit near Woolwich; and in another Sand-pit at the Foot of Shooter's-Hill, as also in several parts of Black-Heath. And Mr. Derham sent me several pieces of Stone, not unlike this; in which also were of the very same sorts of Shells, found five or six Foot deep, in digging a Ditch at Orset, which is about 3 Miles East of Stifford. So that 'tis very likely they were in so great Numbers diffused over all that Tract of Land from Woolwich and Black-Heath to Orset, for almost 20 Miles in length.

p. 102x. A piece of the harden'd Marl, as it is called by Dr. Hatley. He has given an Account of it, Philos. Trans. No 155. p. 463. as composing a Floor or Layer, about an Inch in thickness; having in it Shells and Impressions of both the bivalve and turbinate Kind.

Hunton, Kent.
De ingenti Rerum Marinorum, in codem Loco, Telluris Visceribus commissarum, Numero, & Diversitate,

MANTISSA PRIMA.
Sive Conchyliorum quorumdam in Agro Hantonensi erutorum,

CATALOGUS.

PRAEFATIO.

Exhibet brevis iste Catalogus amplam Conchyliorum; Telluris Visceribus commissa, tot Species, imo & Germinera tam longe diversa, omnia, si non in eodem Loco, Numero, in eadem certe Vicinia congejia, aliquam primo rus, & Variae faltam intuitu Admiracionem incitant: eoque majostas.

rem quod Numero adeo ingenti Species singula tantas, Copias eruntur. In omnibus etenim Stratis in abundant ut an Materiam Terrefterm, cui committuntur, mole non superent, merito dubitandum videatur. Quatamen Admiratio cessabit prorsus & evanescent quam Conchylia, non solum in hac nostrâ Insula, sed in omni alia Telluris Regione, esse reperta, idq; non minori Copia, etiam in Locis Mediterraneis & a Mari longissime diffusis, notum fit.

Quouf; in Telluris Viscera pertigerunt hae cetera; Mari Spolia, nondum est compersrum. Ea verum reperiri ad maximam usq; Profunditatem, quo uspiam soiendo pervenitur, certum est. Neg; in Terra, in Marge, autarena Stratis frequentiora sunt quam in saxi, etiam durissimi. Hujus Rei Documenta Plura, & Exempla, alio Loco * proposui. Et quam Stratis saxcis, aliis; etiam durissimis, eodem plane modo commissa sunt, atq; arenaceis & relinquis laxisoribus, Saxa illa, cetera; itidem olime laxa fusse atque soluta liquido constat. Reperimus ur quoq; Conchylia in Montibus, & ad Summa, etiam alissimorum, Fafiglia atq; Vertices; idq; per totum Telluris Orhem; certo Indicio Conchylia hae omnia fusse allata, stratis; compilata, à Diluvio universalis.

Inveniuntur in Fodinis profundissimis, eq; ac in Summis Montibus. Strata, quibus committuntur, tum Terreftria, tum Saxea, congefta Diduio.

Vid. g. 4, 12, 13, 14, 15, in the Catalogue of the additional extraneous English Fossils.

Horum
De Hantonensis- 

Horum nosterorum Hantonensium Pars maxima è 

fibus Relatio 

Clivi: Milfordianis & Hordwellianis ernebantur. 

particularis. 

Reperientur quoq; exinde perplura Stalix versus 

Christ-Church; quam longe ulterius, aut per Lit- 

tora, aut per Media Regionis Viscera, diligentiorde saepe ferminio pa-

zetit. Hec certum efi Conchylia in aliis Regionibus, pari numero, 

& varietate, deducta esse per multa ubiœ, Paffum Nullia. Clivi 

ìfi Hantonenses in locis nonnullis editissimi sunt: eorum; stratis 

commifsa visitantur Conchylia per plures deorsum Orgy&s ad usq; Ma-

ris superficiem; profundiiss inquiriti nulla sefe obtulit occasio. Stra-

ta hac, tum saxa, tum quoq; arenacea, ceteraq; omnia, sibi in-

vicem parallela jacent, & ab horizontali Situ parium declinaria. 

Ex stratis, Maris Æthiopum & Procellarum Vi, pulsä, quo modo de 

succino alibi* notavi, Conchylia impass in Littore dispersa comparent. 

Conchylia 

quomodo 

tam diu con-

cervata. 

Conchylia animantium exuvias, per tam multa facula, ad 

nostra usq; Tempora, integras & illasq; suae con-

servatas, si stratorum quibus indantur natura & 

indoles penitus aliquantum conferentur. Arena 

enim, & Marga, cum tenuissima sunt, ita se ad 

Conchylia accommodant & applicantur, ut hac muniant, contra 

externas injurias omnes protegent, tutaq; reddant. Saxum autem 

beic firmissimüs efc; omnemque, ut alienum Rerum nocentium & 

corrumpentium, ita Aeris & Pluviarum accessum omnino prohibet. 

Ex bis Hantonensium Conchylis varia Anglicana 

funt, tum marina, tum quoq; fluviaitilia. Nonnulla 

vero sunt ignote Originis; quippe que Pelagia sunt, & 

intima profundissimorum Marium loca incolunt, nun-

quam Littora aut Telluris Viciniam approquin-

tia; de quibus fuisse egì in mea Responsione ad H. 

Camerarium, p.10. & seq. Multa denci, sunt A-

mericana; nec ullibä marium hodie viva reperin-

tur nisi in iis qua Americanorum Oras alluunt. 

Nulla autem inter hac extant ab Oriente prolata: 

Hac magis notati digam censéo, quod inde Ex-

undationem, que haec nostram insulam submersi & 

operuit, cenisse ab Occidente maniféstum sit. Hand 

equidem me latet, inter has tam varias Conchylorum Species, u-

nam supereffe, No.53. Notatiun, que ab illa quam Dolfissimus 

Rumphius in Historia Naturali Amboyna + exhibitus, parum ablu-

dit. Sed hac nostra, quantamvis similis, non ejuodem omnino Spe-

ciei eft cum Ambonyensi illa. Nec e quidem sì ejuadem suifser Spec-

ciei quidquam cerè inde revera circa hujus nostra Originem erad 

concludendum, quam aliquae sunt Téfie & America & simul India 

orientali communes: atq; in utraq; illa quantumvis distanti Regione, 

bodie viventes observantur.

* Nat. Hist. of the Earth. Part IV. sub finem. 
† Pag. 96. Tab. XXIX. F.
Turpura Pisces Lingua habet, in Aculeum Os-
sum durum acutum desinentem. Hoc autem Acu-
leo, tanquam Terebra quadam, Conchyliorum Tef-
ras perforare solet, & Pisces inclusi ser Foramina
ita facta extraestis, uelci * Inter hae Tefias Han-
tonenfes quasdam ita perforatas observavi; eujus
Rei Exemplum habemus in Sphondylno, N° 7. Et,
quod obiter notandum duxi, ejusdem Speciei Sphon-
dylum habeo, cum plurimis aliis Conchyliis, mediis
Virginiâ, America Regione, Esfœsum. Frequens est Turpura in A-
mericanorum Mari: & ab hoc Pisces perforata Tefsa passim com-
parent in eorum Litteribus. Sed neq; ipse Pisces in Mari Bri-
tannico, nec ab eo perforata Tefsa in Littore, unquam visuntur;
quo ligue tales origine Americanas esse posse, nequaquam Britannii-
cas, ad quanamunc; in Tellure Britannica Profunditatem jam se-
pulsa lateant & reconduntur.

Unum adhuc monendum refet, ut si quid in se-
quenti horum Conchyliorum Descriptione, & Cha-
rariteribus concinnandis peccatum censeant elegant-
tiorum Literarum studio, a me, Vestigia Listeriana †
præse nimis insistendo, hoc non mihi vitio vertendum;
quum hujus Viri, tam docti, & Naturalis Historia
Conchyliorum Indagatoris tam diligentis, scripta ab
Eruditis omnibus probentur, ejusq; de his Rebus Authoritas adeo
rata sit & sancta ut quasi Veri & Recti Norma ab omnibus jam
denuo recipitur.

P.S. Pers media Regionis Visera, &c.] Per totam hanc Regionem,
circa Limington, imo in omnibus ferè Locis Novi Saltus, [the
New-Forrest] passim visuntur Fodina æ quibus Marga eruitur.
In his ferè omnibus, simul cum Marga, Conchylia Marina Copiose
Essoluntur.
Une cum Conchyliis in Agro Hantonensi, reperiuntur etiam Verte-
bras, & Dentes Pisces Marinorum; de quibus, Vide n. 9° supra,
& N° 64. infra.

* Vid. quæ de hac re scripsi in Respon. ad Camerar. p. 88, 99.
and in the Catalogue of the foreign extraneous Fossilis, pag. 88.
N° 8. 121.
Conchyliorum quorundam Marinorum, è Terræ Visceribus, in Agro Hantonensi, erutorum, CATALOGUS.

C A P. I. Bivalvia.

1. Pecten, parvus, Auriculis ex altera parte majoribus.
2. Ostreï fulcati, Arborei vulgo diëti, Species.
3. Ostreum arboreum alterum, crebrius fulcatum.
4. Ostreum parvum, laxe, minime fulcatum.
5. Ostreï cujusdam oblongi testa inferior feu plana, superficie exterio ad taëtum asperâ.
8. Pectunculus, è Polyleptoginglimis Listeri, ambitu rotundo, creberrime striatus.
9. Alter ejusdem generis minor, striis rarioribus.
10. Alter minor, striis crebrioribus.
11. Pectunculus Polyleptoginglimos, formâ oblongâ, Musculus Matthiolo cùfius, tenuiter striatus.
12. Pectunculus laxis, parvus admodum, ambitu rotundo.
13. Pectunculus laevis alius, parvus, ex alterâ Parte paulò productior.
14. Pectunculus tenuiter fasciatus, vertice multum recurvo.
15. Pectunculus minimus fasciatus.
16. Pectunculus, exiguus, profundius fulcatus, asper.
17. Lapis Telliniformis, cujus superficië Reliquiæ quadrâm Testæ nitidæ adhaërent.
18. Tellina, parva, laevis.
19. Tellina altera, minuta, tenuiter fasciata.
20. Tellina fasciatim profunde fulcata, altera parte in Angulum excurrente.

C A P. II. Conchylia, Testa simplici, non tortilia.

22. Patella Ambitu rotundo, septo quodam intus sinum exiguum includente.
23. Patella quadrâm, ut videtur, admodum compresâ.

C A P. III. Tortilia, seu Turbinata.

24. Cochlea umbilicata, Claviculâ brevi.
27. Cochlea striata, Claviculâ longissimâ, Orbibus tumidioribus, seu pulvinatis.
28. Cochlea striata, Claviculâ longissimâ, Orbibus planis seu minus eminensibus.
29. Cochlea minima, laevis, Claviculâ longissimâ.
30. Cochlea laevis, Claviculâ longâ, Oribus pyriformis, Teftâ tenuissimâ. Tenuitas, cæteraque; hujus Teftæ Indoles, arguit eam esse ex fluviatilium vel lacustrium Clase oriundam.
31. Cochlea parva, striata, Clavicula longissima.
32. Trochus Pyramidalis, Basi planâ, Tuberculis minimis obstitutus.
33. Concha Veneris, ore angusto, utrinqœ dentato.
34. Rhombus, Cylindræcuss, tenuis.
35. Rhombus CylindroPyramidalis, parvus, asper, Claviculâ modicè producètæ.
36. Buccinum, Musìcum dictum, Columellâ dentatâ, ad Claviculam muricatum.
37. Buccinum, Musìcum minus, non muricatum, labro dentato.
38. Buccinum Claviculâ longissimâ, Tuberculis obstitatæ, ore subrotundo.
39. Buccinum, minimum, asperum, Claviculâ longissimâ, ore angusto.
40. Buccinum Claviculâ longâ, striatum, ore oblongo angusto.
41. Buccinum cancellatim tuberculatum, Claviculâ & Roströ modicè producès.
42. Buccinum lave, Claviculâ longissimâ, Orbibus planis.
43. Buccinum lave, Claviculâ modicè producètæ, orbibus tumidioribus.
44. Buccinum parvum, secundum Orbès striatum, Roströ brevi, ore subrotundo.
45. Buccinum, parvum, tenuiter striatum, ore angusto.
46. Buccinum, parvum, secundum Orbès striatum, transversim fulcatum, Roströ brevi.
46x. Buccinum, parvum, Roströ & Claviculâ brevibus, primo Orbæ transversim leviter fulcatum, & ad Claviculum depressum.
47. Buccinum lave, Claviculâ & Roströ brevibus, primo Orbe ad Claviculam depressâ.
49. Buccinum lave, Claviculâ & Roströ longis, ad Claviculam muricatum.
50. Buccinum, striatum, Claviculâ longâ, inconcinna, seu Orbibus inæqualibus.
51. Buccinum Claviculâ & Roströ longis, secundum Orbès striatum, transversim fulcatum.
52. Buccinum, crassum, lave, Claviculâ & Roströ longis, Orbibus singulis ad Claviculam in Angulos acutos depressis.
53. Buccinum Claviculâ & Roströ longissimis, striatum, Tuberculis in medio quoq; Orbe asperum.
54. Buccinum Clavicula & Rostro longissimis, minus, cancellatim striatum.
55. Buccinum Clavicula & Rostro longis, parvum, secundum Orbis striatum, transversim fulcatum.
56. Buccinum, parvum, Clavicula longissima, ore longo angusto, secundum Orbis tenuissime striatum, transversim fulcatum.
57. Buccinum, parvum, Clavicula longa, tenuissime secundum Orbis striatum.
58. Buccinum, parvum, Clavicula & Rostro longis, Orbibus ad Claviculum tuberculatis.
59. Buccinum magnum, Clavicula longa, cucus Orbis plani sunt, & minime pulvinati, labro latissimo, & usque ad Apicem Claviculae produci.to.
60. Buccinum Clavicula & Rostro longis, primo Orbe in Limbum acutum, juxta Claviculam, excurrente.

**Appendix. 1722.**
61. Buccinum juxta Orbium Ducum striatum, & muricatum, Clavicula & Rostro brevibus.
63. Buccinum Echinatum.
64. 3 Glypticæ, 5 Canum Marinorum Dentes.

**Appendix alter. 1724.**
65. Ostrei cujusdam Valvula superior.
66. Ostrei forfán Anglici, Valvula inferior.
67. Pepticulus.
68. Testudinis, alicujus Americani, Testa Segmentum, Effossa ex Clivo Hordelliano.
Rerum aliquot Fossilium in Itinere Septentrionali D. Groome & D. Meulis Anni 1700. Collectarum,

Mantissa Altera.


p. 103. A Piece of grey Stone, with several Impressions of striated Concha Anomia in it. Found on the very Top of Pendle-Hill, about 20 Yards North of the Beacon. This is the common Stone of the Hill; in all which there are like Impressions in great Numbers.

p. 104 & 105. Two Pieces of Stone, each having the Impression of a pretty large Bivalve upon it. These were taken, from amongst many more with such Impressions, out of Stone, within a few Yards of the Top of Pendle-Hill.

p. 106. A Piece of Stone, with the Shell of a pretty large Bivalve upon it, and Joints of many small Enterochi in it. Struck out of the Rock, within 60 Yards of the Top of Ingleborow-Hill; in which these Marine Bodies are pretty plentiful.

p. 107 & 108. Two small Pieces of the same Stone, each with the Impression of a Bivalve upon it. From the same Rock.

p. 108 x. A Piece of Stone, from still the same Rock, with a great many Enterochi in it, and the Impression of a Shell of a Bivalve upon it.

p. 109 & 110. Two Masses of Stone, very thick set with Shells, and Enterochi, broke off the very Top of a Rock, about 20 Yards in perpendicular Height, near Engleton in Yorkshire. All the Rocks thereabouts are pretty thick set with Shells; but few of them fair, or so well preserv'd as they are commonly found in some other Countries.

p. 110 x. Another like Mass; from the Top of the same Rock.

p. 111. A Mass with several Shells, and two very large, in it. Found, amongst many more of like sort, on a Hill by the Allum-Mines, at Kirby on the Brow, Yorkshire.

p. 112. Another, with Shells and Impressions. Found on the side of Hildern-Hill, near Scarborough, Yorkshire.
100

p. 113. Impressions of several fulcated Concha Anomia, on Stone; found on the East-side of Hackness-Head, a high Hill, near Scarborough, Yorkshire.

p. 114. Impressions of Escalop-Shells. Found near the former.

p. 115 & 116. Two Mafles, very thick set with Shells, out of a Stone-pit at the top of Hackness-Head. All the Stone in this Pit, and about the Hill, is very full of Impressions, and of Shells, tho’ few fair, or well preferred.

p. 117. A Piece of Stone, with the common Oyster-Shell in it, taken out of a Stone-pit at the Top of a high Hill near Silsoe, Yorkshire.


p. 119. A Maf of Stone, full of Shells. Found under the Mofs-Earth, amongst others of like sort, at the very Top of Suffield-Hill, which is very steep and high. ’Tis not far from Hackness, Yorkshire.

p. 120, 121. Two Mafles, very full of Shells. Found on the Top of a high Hill, near Silsoe, Yorkshire. There lie of these loose Mafles of Stone, immediately under the Turf-Earth, great Numbers. They are laid bare by the Diggers in the Turf-pits.


p. 123. Found at the bottom of Nunnington-Quarry, Yorkshire. A Nautiloides.

p. 124. A Stone, thick set with Ova of Fishes; having likewise part of the Shell of a Pecten adhering to it; but neither so fair as commonly they are found in many other Countries. From the bottom of the same Quarry.

p. 125. An Impression of a Bivalve, on Stone. From the same Quarry.

p. 126. Part of an Ammonites. From the Bank of the River, near Bugthorpe, Yorkshire.


p. 128. A Maf of Stone, having had several Shells in it, which are now perished and gone: but their Impressions, and the void Spaces they heretofore fill’d, are very observable. Found near the Top of a high Hill, two Miles West of Stokesley, Yorkshire.

p. 129. The Impression of a large Shell, on Stone, very thick set with Entrochi. From Thorp-Edge, Richmondshire.


p. 132. A Maf of Stone, with Shells and Impressions. Found near Newcastle upon Tyne.
Impressions of two Bivalves, on a Piece of black Stone, with small Sparks of Mica in it, being Part of a Stratum of Chiver that lay 71 Yards deep, at the bottom of a Lead-Mine, (form'd by Mr. Langstaff,) on Maulderside-Hill, Arkendale, Yorkshire. p. 134. A Piece of the same sort of Stone, with the Impression of a large Bivalve upon it. Found at the same Depth, in the same Mine.

p. 135. Part of a blackish Stone Nodule, with Impressions of several Bivalves upon it. It lay 40 Fathom deep in a Coal-pit at Benwell Coalery, near Newcastle.

p. 136. Part of Stone of an Iron-grey Colour, with extreme small Sparks of Mica in it, and an Impression of two small Bivalves upon it. Found likewise 40 Fathom deep, in the same Coal-pit.

p. 136*. An Impression of a Bivalve upon a very hard brown Stone, being part of a Stratum that lay 40 Fathom deep, in a Coal-pit in Benwell Coalery, by Newcastle.

p. 136*. An Impression of a Bivalve, of a Species different from the foregoing, upon a dark grey Stone; the Stratum of which lay somewhat deeper than the former, in the same Pit. There were many more Impressions, in both this and the above-mention'd Stratum.

De Testis aliQI, Animalium Marinorum Partibus incerti Generis,

MANTISSA TERTIA.

p. 137. Part of a testaceous Body, with Fibres running diametrically cross it, in manner of the Pima Marina. From the great Chalk-pit at Greenhithe, Kent.
p. 138. Another. From the great Chalk-pit at Northfleet, Kent.
p. 139. Another. Greenhithe, Kent.
p. 141. Another. From a Chalk-pit, not far from Epsom, Surrey.
p. 142. Another. From a Chalk-pit near Croydon, Surrey.
p. 143. Another. From a Chalk-pit near Charleton, Kent.

p. 144, 145. Two others. From a Chalk-pit near Rygate, Surrey.
p. 148*. A large Piece of a Body of the same Kind, as also several smaller Pieces, immers'd in a black Flint. Found betwixt Northfleet and Greenhithe, Kent.

p. 149. A Piece of another. From a Stone-pit on Bullington Green, near Oxford. Mr. Lhwyd sent it with the Name of Tributes Plotij Hist. Oxon. Veneris Crimes forsan Plinio. These two Writers, Dr. Plot, of meer Simplicity, and Mr. Lhwyd, of Design, darken Council by Words; Job xxxviii. 2.

Aa 3

p. 150.

p. 151. A Piece, less, and thinner; out of a Stone-pit, near Risington, Gloucestershire.

p. 152. An Impression of a Fragment of this Body, in a grey Flint, Hampstead-Heath.

p. 153. An Impression, seeming to be of that part of this sort of Body where the Valves are, on a Flint. Found near Dulwich, Surrey.

p. 154. A Piece of a Shell, thick set with small Papilla all over the Outside of it. From the great Chalk-pit at Greenhithe, Kent.

p. 155. Three or four small oblong boney Bodies, lying parallel to each other, on a Piece of Chalk. Northfleet, Kent.

p. 156, 157, 158. Three Bodies, with Sulci and Ridges alternately on the Surfaces, so as very much to resemble Segments of Ammonite, only one of them is straight; and the other two, tho' somewhat inflected, not near so much as the Volute of the Ammonite. The straight one is parted at a Suture, and exhibits a Diaphragm, unequal, and like those of that Body. Falkstone-Cliffs, Kent.

p. 159. An oblong round Body, incircled with annular Ridges and Furrows alternately. This is one of those Bodies that are call'd, tho' improperly, Screw-Stones. From a Lead-Mine, near Workworth, in the Peak, Derbyshire.

p. 160. Six, lesser. From the same Mine.

p. 161. A Mafs of Stone, with several of these Screws, and a pretty large Shell of a Bivalve in it. From the same Mine.

p. 162. From the same Mine.

p. 163. From the same Mine.


p. 165, to 171, Inclusive. Seven Masses of Stone, with Screws in them. Ibid.

p. 172. Another, with the Screw in it, seeming to be comprest by some external Force. Ibid.

p. 173, 174. Two Screws, taken out of the Stone of the eleventh Stratum of one of Col. Byerly's Lead-Mines, on Richmond-Moore. They were pretty thick in the Stone of this Stratum, which lay about 30 Foot deep.

p. 175. A Piece of the Stone of this Stratum, with Screws in it.

p. 176. A Lime-stone, of a grey Colour, and very hard; having in it some small Entrochi, and several Screw-Stones. From Overyton, in Scarjdale, Derbyshire.

p. 176X. A Screw-Stone; found, along with Entrochi, at Moreland, in Wistmorland. Dr. Nicholson, now Lord Bishop of Carlisle.
De Conchylis Fossilibus aliqua Injuria aectis, quippe attritis, erosis, compressis;

MANTISSA QUARTA.

Sectio I.
Conchylia Maris asu & agitatione antequam Massa Saxeæ mandarentur abrasa attritque.

p. 177. This, and the four following, were given me by Mr. Jackson. Vid. c. 29. supra.


p. 181. Mr. Jackson.

p. 182. Out of a Mass of Stone, in a Quarry near Burford, Oxfordshire.


p. 184. Found in a Stratum, consisting chiefly of Sea-Shells of various Kinds; some of which were worn, as this is, underneath a Stratum of solid Stone, above 40 Foot deep, in the great Quarry at Barrington, Gloucestershire.

p. 184*. From a Stone-pit, near Abbington, Berkshire.

p. 184*. Out of a Mass of shatter'd lax Stone, in a Quarry in Tangly-Fields, Oxfordshire.

Sectio II.
Conchylia antequam Saxo committerentur à Vermibus erosæ.

p. 185. This Mass was very large, and had many Shells in it, of which none had the least Sign of being eroded, besides this Patella. Mr. Jackson. Conf. No c. 29. supra.

p. 186. Barrington. Found in the same Bed of Shells with p. 184. supra. I saw but one, besides this, that had any Marks of these Depredations upon it; tho' I examin'd great numbers of them.

p. 186*. Out of a Mass of Stone, very close and compact, but with Vitriolic Salts in it, which began a little to yield and shoot, so that the Stone shatter'd to pieces in breaking, and the Shell was easily got forth and clear of it. These Salts would annoy and offend any Insect that should attempt preying upon the Shell whilst in it: besides 'twas so closely beset with Stone, that none could well come at it. So that the Erosions that are in this Stone were made before the Shell was reposited in the Stone. Gatacomb, Gloucestershire.

Sectio III.
Conchylia a vi quadam externa compressæ & distorta.


p. 188. Concha anomia. Out of a Mass of Stone in Randcomb-Park, Gloucestershire.

p. 189. Out of a Stratum, made up chiefly of Ova of Fishes, and various Sea-Shells, lying 12 Foot deep. Sherborn, Gloucestershire.
CLASSIS XIII.

Fossilia incognita.

Most of the Bodies of this Class were collected when first I entered upon these Searches: and the following Description of them, drawn up when I was not much vers'd in these Studies. Since that, Observations that I have made on other like Bodies, that I have found, have convinced me that several of these belong to the vegetable Kingdom. Those Observations are set forth in the Descriptions of the Bodies in the Catalogue of the additional extraneous English Fossils. No. 24. & seq.

q. 1. A Stone of a very dark brown Colour, 6 Foot 1/2 in length, of a roundish Figure, but somewhat flat, being 4 Inches in breadth, and 2 in Perpendicular. It is not freight, but undulated or flexuous, and with large Flexus, there being but one entire and part of another in this whole Length. It rifes into Tubercles over the greatest part of its Surface. 'Tis broken into 10 pieces, and was originally longer, the rest being not to be got out of the Stone of the Stratum in which it lay. There are also two pieces more, but flatter and broader than these: and likewise two pieces of that Stone in which this Body lay. From a Quarry at Haigh, Lancashire.

q. 2. A Cylindric Body three Inches in length: and half as much in Diameter. 'Tis of a ferruginous Colour, striated longways, and surrounded with six circular Sulci, placed at near equal Distances from each other. Found loose on St. Vincent's Rock near Bristol.

q. 3. Another Body, of like figure, but thicker: and compos'd of a brassily shining Pyrites. From the Canal Coal-pits at Haigh, Lancashire.

q. 4. Another Pyrites, not so thick, nor so round, appearing as somewhat compress'd. Out of the same Coal-pits.

q. 5. A long Body round and striated. This is made up of a pale brown gritty Stone with very small Sparks of Mica amongst it. From a Stone-pit, near Haigh, Lancashire.

q. 6. Another of a darker brown Colour and a more flat or compress'd Figure. From another Stone-pit, near Haigh. There appear on several parts of the Surface of this, and the two following, Flakes of a Matter that is black, glossy, and much resembling Pitch; but they are only Remains of a Skin or Cortex with which these
these Bodies have been apparently entirely invested, tho' now broken and flhook off.

* q. 7. 8. Two pieces of another of the same sort and from the same Pit.

* q. 9. Another less, but rounder. From another Pit near the same Town.

* q. 9*. A Segment of a Body 7 Inches long and 3 in Diameter, a little flat and tapering, with Stria very thick, running parallel to the length of it, and 4 annular Striae surrounding it. These Annuli refemble Joints of the Stem of some Plant of the Cane-
kind: and the Body appears like part of the Stem of some Plant, tho' it be composed of a coarse gritty brown Stone, with Mica in it, of the very same sort with the Stone of the Quarry in which it lay. Whitehaven, Cumberland.

* q. 10, 11, 12. Three others, less, and flatter. From a Stone-
pit, near Haigh, Lancashire.

* q. 13. From the same Pit with q. 7, 8.

* q. 14. Part of another, with a piece of the Stone in which it was lodg'd. From a Coal-pit near Haigh, Lancashire.

* q. 14 O. Another, found, in Shiver, lying over the Coal, at Lancisby, Wales.

* q. 14*. Another, less, but rounder. Out of a Quarry near Whitehaven, Cumberland.

* q. 14*. Another, with part of the Stone in which 'twas lodg'd. Found near Whitehaven, in the same Quarry with q. 9*. supra.

* q. 14 t. Another, found in a Stratum of Stone of another Quarry near Whitehaven.

* q. 14 t. Another. A Body in Figure approaching a Cylinder, only somewhat compressed; being 1 Inch | Diam. one Way, and only 1 Inch the other. 'Tis striated lengthways, and sur-
rounded with a Ring, crossing those Striae after the manner of a Joint. The Body was originally 2 Foot long: and had several like Joints, each about 2 Inches distant from other. Found in a Stratum of gritty Stone**, near Asburrow in Scarisdale, Derbyshire. 'Tis remarkable that several of the Bodies in this Class, tho' found in Places so distant from each other, are, besides their exterior Figure, composed of much the same sort of Matter; which is a brown gritty Stone, with small Spangles of a white silvery Talc in it.

* q. 14 S. Found above the Coal in the Coal-pits of Houghton le Spring, in the Bishoprick of Durham.

* q. 14 Thi. Out of the same Coal-pit.

* q. 14 r. Out of still the same Coal-Pit.

* q. 15. A grey Stone, flat; sulcated with parallel Furrows long-ways of it. From a Quarry near Haigh, Lancashire.

** See a Sample of it in the Catalogue of Addit. English Fos.

* q. 16.
q. 16. Another, that was contiguous to the former; and
tallies with it.

q. 16 a. Another, the Surface not quite so plain, but some-
what rounded; with Remains of a black, shining, thin Cortex;
with which the whole Surface, seems to have been cover'd.
Lanefby-Coaleryes, Wales.

q. 17. An Iron Stone; black, flat, and wrought over one
Surface very finely, with a strange cancellated Work. Mr. Chet-
wy, Staffordshire.

q. 17 a. A pale brown Stone, with small Micae of Tale in it,
and a cancellated Work upon it; not much different from that
of the foregoing, q. 17. This was found in the side of a deep
Way on Boulton-Moor, Yorkshire.

q. 18. A Piece of grey Stone, having somewhat like a Can-
celled, or Net-work upon it; but smaller and finer. From a
Quarry in Haigh, Lancashire.

q. 19. Another with like Work upon it. This was Part of
the former, till broke off from it.

q. 20. A Piece of grey Stone, with a black Film upon it,
pretty thick set with small Studs, rank'd in a kind of Quin-
cunx Order; and two larger, appearing in manner of Breafts,
each having a Cavity in the middle of it. From the same Quarry
with the foregoing.

q. 21. A Piece struck off the former, bearing the Impressi-
on of it, and tallying with it.

q. 22. Another Piece, the Surface rising into Rhomboid
Studs, placed in a Quincunx Order. From a Stone-pit, near the
former. I have seen Fruits of the Fir-kind, from our West-India
Plantations, that this Body nearly resembles.

q. 23. A Piece struck off the precedent, and tallying with it.

q. 24. A black Flint, cover'd with a thin grey Curft. 'Tis
broken, and within there appear several oblong Protuberances,
standing pretty regularly in a Quincunx Order: There are 7 or 8
of them in a Line, and 8 or 9 Lines. They stand all upon the
same Plane, which rises and swells up a little in the Middle, and
seems to extend further into the Body of the Flint. The Pro-
tuberances, are grey; the Plane, or Ground on which they stand,
whither: They are near as big as a Grain of Barley; and thofe
of the same Row are placed at about \( \frac{2}{3} \) of an Inch distant
from one another. There seems to have been some extraneous
Body inclosed in the Flint to which this Signature is probably
owing; but what that is, whether the Skin of some Fifth, or
what else, I have not yet been able to discover. 'Twas found
in the Road betwixt Greenhithe and Northfleet, Kent. The Studs
appear manifestly to have been broken; and thofe of one Plate
tally, and have been continuous with thofe of the other.

q. 25. A Piece of Chalk, having one Surface flat, of a brown
Colour, with small Cavities ranked in near a Quincunx Order
upon it: In the midst of each Cavity is a Tubercle, or Stud. This was from Greenhithe, Kent.

q. 26. Another from the same Place. Part of the Surface of this rises into smaller Studs, and is without any Cavities.

q. 27, 28. A Piece of Chalk, split in two. The Surface of one rising into large round Tubercles, standing close to one another; and that of the other, having Cavities answering them. From Northfleet in Kent.

q. 29. A brown Stone, having in it many Silvery Mica, or Talky Sparks. On one Surface of it are Cavities, placed in a Quincunx Order; in each whereof, stands a Papilla, with a small Cavity in the middle of it. Found on the side of a Hill near the River, by Sherborn, Gloucestershire. See what I have noted concerning the Origin of these Bodies [q. 29, 30, 30 x.] in the Catalogue of the additional extraneous English Fossils, No b. 31. c\textsuperscript{b} seq.

q. 30. Another, with like Cavities and Papillæ upon it. Ensign, Oxfordshire.

q. 30 x. Another, found in a Gravel-pit near Cambridge.

q. 31. A grey Spar, with shallow round Cavities on one Surface of it. Part of the Intervals are plain; the rest wrought, with a kind of Net-work. From the great Limestone-pit, near Dudley, Staffordshire.

q. 32. A Quincunx, or Reticulum, on a grey Stone. Found in the Highway, near Haigh, Lancashire.

q. 33. Found together with the former.

q. 34. A Fasciculus of Bodies, round, about \( \frac{1}{2} \) of an Inch in Diameter, hollow, and parted into numerous Cells by means of Diaphragms, thick set throughout the whole Length of the Body. Some of these Bodies are sub-divided, or branched. As I remember, the Twigs of the Walnut-Tree are of this very Constitution. This was found in a Gravel-pit near Farringdon in Berkshire, and given me by Mr. Stoughton; who says, 'tis the same with that which Mr. Lhwyd calls Alyconium Fossile pertusum rubiginosum. Lythophyl. p. 6. No 99.

q. 34 x. Another like Body. Witney, Oxfordshire.

q. 35. A Piece of Stone, Part of a dark ferruginous Colour, appearing to hold Iron: the rest of a dark grey. This last is composed of Flakes, that part from each other without much difficulty, and are placed edgeway, and parallel to each other: They are thick set with undulated Lines running a-crosst them on both sides each Flake. The Body appears to have been a Nodule, and the Iron-Stone to have been the Center; the Flakes arising from it, and rendering all round to the Surface, which is of a dusky yellow Colour. Found in a Brook near the River Duglas, in Lancashire.

CLASSIS XIV.

Cochlea Terrestres ex Telluris Visceribus erutæ.

[A] r. t. Two Snail-Shells, found, amongst several others, in grey Marl, about 10 Foot deep, in a Field near the Church, at Northleauch, Gloucestershire. They are of that sort that Dr. Lifter exhibits, Hist. Conchyl. No. 54. and are found at this Day living in most Parts of England.

CLASSIS XV.

Musculi fluviatiles ex Telluris Visceribus erutæ.

There are frequently found a sort of Muscle in the Allum-Mines at Whitby in Yorkshire. Several of them are exhibited, No. f. 567, to f. 571. supra. They are very like one sort of the English River Muscles.

Of the Cochlea faciata vivipara fluviatilis. Conf. No p. 57. supra.

[A] f. 1. This is a common English Muscle; and is exhibited by Dr. Lifter, Hist. Conchyl. L. 2. No. xi. under the Title of Musculus latus maximus & tenuissimus à viride fere palus-tris. 'Twas dug up in a Marl-pit, at Hunton, in Kent, along with several Sea-shells, mention'd Philosop. Trans. No. 157. and sent me by Dr. Hatley. I wrote to him to know whether he was positive it was dug up there. And by Letter, January 20, 1708, he assures me it was dug up with the rest, upon his certain Knowledge.

APPENDIX.

Various Bodies, recent, and of modern Growth, serving to match and compare with, or some other way to explain and illustrate the Antediluvian; digg'd out of the Earth, and preserv'd in my Collections, chiefly of extraneous Fossils.

PREFACE.

From the Time that I began first to collect and make Observations upon the Shells, and other adventitious Bodies, that are digg'd up at Land, I took great pains carefully to compare them with those at this Day produced at Sea; and to preserve all such of these latter, as match'd the Fossil ones. They are amongst the rest of my Collection of Sea-Shells, English and Foreign: and there are besides, in my Repository, various Jaws of Sharks, and other Sea-Fishes, having the Teeth in them, that exactly match those found in the Earth: and serve to demonstrate that those likewise are genuine, and the real Teeth of once living Fish.

In like manner there are, in my Collection of dry'd Plants, many that match those inclos'd in Stone, particularly of the most common, the Fern-kind; of which I dry'd and preserv'd many Samples collected about the End of May, the Time that the Deluge, coming
coming on, put a stop to the Growth of the Vegetables then in being *; some Remains of which we now find inclos'd in Stone. My Design was to shew the Agreement of the Vegetables growing in that Season now, in our Times, with those so found lodg'd in the Earth; as to their Growth, Condition, Constitution, and all other Respects: and any one who shall, as I have done, make an accurate Collection of them, will find these and those perfectly alike, allowance being made for the Change that some of the Fossil, particularly the Leaves, have undergone, either during the Time that they were sustaine'd in the Water of the Deluge, or since they have been reposited, for so many thousands of Years, in the Earth. I am most inclinable to believe, that the greater of the Leaves underwent the Change, they now shew, in the Deluge; after the manner of some other Bodies, of which an account is given above, in the Preface to the Catalogue of the extraneous English Fossils: And this may serve to explain why the Leaves of the Fern-kind are, above all others, so frequent and obvious; some sorts of Leaves being, doubtless, more susceptible than others of such Alteration, whereby they were fortify'd and strengthen'd; without which, Bodies so tender, as Leaves of Plants are, would scarcely have endur'd and been preserve'd, through so many Ages, down to our Times.

As to the Bodies in this Appendix, they are only a few, of such as I judg'd proper to have at hand, and ready to shew to any one that might happen to have some Dissatisfaction, or Doubt, of the Reality of the like Bodies digg'd up at Land. Which indeed most of the Virtuosi had, when I first enter'd upon these Studies †; till the Bodies in my Collection convince'd them, by giving ocular Proof of their true Origin and Constitution, and demonstrating the Vaniety of the late Speculations, and Notions, that these were not of Marine Extract, but were Stones, and Natives of the Earth.

Appendix.

The extraneous Fossils, Shells, and the rest, compar'd with those produced at this Day.

1, 2. Two Cones that grew, together, on the same Branch of the Pinus Sylv. Raig, or Scotch Fir, in Trinity-College Walks, in Cambridge. They were gather'd in the beginning of June 1697 ‡. They are of different Years: and exactly match those digg'd out of the Peat-Marshes, Cheshire. See the English Catalogue, b. 70,

‡ The Deluge, which put an end to the Growth of these and all other Vegetables, came on near this Time, viz. towards the End of May. Nat. Hift. Earth. Part 3. Sec. II. Confcft. 5.
The younger, being succulent and tender, is found in the Marshes, commonly somewhat perish'd and decay'd; this here, being kept dry, is well preserv'd.

3, 4. Two other like Cones, gather'd off the Tree in the Physick-Garden at Chelsea, 23 June 1711.

5. A Piece of Fir, with the Knots in a Quincunx Order. Petworth, Sussex. This Order is observ'd in many Plants, and particularly the Fossil. See The Catalogue of the additional, extraneous English Fossils, h. 29. & seq.

6. Pinus domestica, vera, with the Knots in a Quincunx Order.

7. A Piece of Spray Wood, shrunk, and crack'd in the charring, much in the manner of the Ludus Helmontij; and serving to illustrate what is deliver'd concerning the Origin of the Cracks in that Body, in the Catalogue of the English native Fossils, e. d. 40.

8, 9. Common Brick, broken into two Pieces, discovering, on the one, part of the Leaf of the Filix femina vulg. On the other, the Impression of it, after the manner that the Leaves of Fern, and other Plants, are found, in breaking some kinds of flaty Stones. See the Catalogue of the English extraneous Fossils, Clas 1: There might be much better Impressions of Leaves taken in finer Clay, to be afterwards bak'd: and better still in Plaister of Paris.

10. A Branch of a Stellar Porus, of the same Species with that dig'd up at Harborough, Leicestershire; in the Catalogue of the native English Fossils, e. 12.

11. A Coralline Afroites, resembling that Fossil Afroite, in the Catalogue of the English native Fossils. e. 94. but having the stellar Cavities, on the Surface, somewhat deeper. Drawn up out of the Sea near - - - -

12. A Coralline Body, radiated, and fleck'd, the Stars prominent, and rising into Points, or Apices, in manner of that Fossil Coralloid Body in the Catalogue of the native English Fossils, e. 84.

13. A white Coralline Body, with parallel stellar Pores running through it. Found at Pyrton-Passage, on the Severn, and probably was part of some Coral flung out of Ships with Ballast. Given by Mr. Edward Lhwyd, who, in his Lithophyl. N° 160. p. 21. T. 2: takes this to be the Millepora of Imperatus, but erroneously. It may serve to confirm and illustrate what is deliver'd of the Fossil Coralloid Afroite, Catalogue of the English native Fossils, Clas 5. Part 5.

14. A Coralline Body, compos'd of a Fasciculus of Fissula, or Pipes; in some Parts stellar, in others only striated. 'Tis of a Constitution nearly approaching that of Spar. From the Coasts of Barbadoes. This is the very same Species with that in the Catalogue of the English native Fossils, e. 113. only the Pores of that are larger.

15, 16. Two Coralline Fungi; from the Shores of Guernsey. They nearly resemble the Coralline Bodies found in the Chalk-pits of
of Kent, Essex, &c. See The Catalogue of the English native Fossil,
e. 49.

17. An Retepora, S. Echara Marina Fer. Imperati?

18. That call'd the Coffin-Bone, in the Hoof of a Horse. There is
one of these Bones, digg'd up at Wirtemberg, in the Catalogue
of the foreign extraneous Fossils, v. 1.

19. Five Vertebres, of some kind of Fishe, cohering, and join'd.

20. One single Vertebra, of some Fishe, found on the Shores
near Manchester, Cumberland.

21. Another; found along with the former.

22. Another. 23, 24. Two others.

25. The boney Palate, of some sort of Fishe, probably related to the
Passinaca Marina, of which there's an account given, by Dr. Sloane,
Phil. Trans. No 232. p. 674. This Palate was found on the Shores
of Barbadoes. It conflits of numerous Parts, somewhat inflected,
join'd to each other in manner of a Suture. 'Tis much worn in one
place, by grinding of the Food, probably Shell-Fishe, that the Creature
eats. I have observ'd something of like sort, in boney Palates, found
in the Chalk-pits of Kent and Surrey, describ'd in the Catalogue of
the English extraneous Fossils, No 100. & seq. Dr. Sloane, there,
mentions Parts of the Tongue of the Passinaca Marina, digg'd up in Maryland. I have receiv'd several like Parts that were digg'd up, together with those, and are describ'd in the Catalogue of the
extraneous foreign Fossils, p. 107 & 106. that, trusting too con-
fidently to him, I took to be of the Passinaca Marina. But, upon
a Review, I now rather judge them to be Parts of a Palate, of the
Kind of this here describ'd.

26. The under Jaw of the Drum-Fishe from Virginia. See
Josselyn's New-England Rarities, p. 25. The single Teeth of this
Fishe are sometimes found in Stone-pits, along with those of the
Lupus Marinus; both passing under the Name of Bufonites, or
Toad-Stones. See great Variety of these in the Catalogue of the
extraneous English Fossils, Clas 10.

27. This was sent me for the lower Jaw of the Lupus Pisces, or
Sea-Wolf. Teeth of these sorts are common in the Quarries of
Oxfordshire and Northamptonshire. See the just now cited Cata-
logue, Clas 10.

28. Teeth, out of another like Jaw.

29. 31, 32, 33, 34, 35, 36, 37. Several like Jaws, sent by
Agost. Scilla. Some of them he has grav'd, Tab. 2. of his Let-
tera circa i Corpi Marini, petreascati. 4°.

38, 39, 40. Sent by Agost. Scilla. The Teeth in these Jaws are
not unlike those call'd by Mr. Lhwyd Plectronites, but are lefs.

41. Fifhes Teeth, some like the Plectronites; others of the Wolf-

42. Part of the Jaw of a young Shark, thick set with small
Teeth. Taken on the Coasts, near Minehead, Somersetshire.

43. Part of the Jaw of a Shark, or Dog-Fishe. Sent by Agost.
Scilla.
44. Teeth of various Kinds of Sharks, or Dog-Fish. Sent by Agost. Scilla. See his Lettera circa i Corpi Marini, petreficiati, Tab. 1, 3, 6, 7, 14, 28.

45. Other Teeth of Sharks, taken, I think, on the Coasts of England.

46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56. Part of a Jaw of the Peuce Vacca, and several separate Teeth; sent by Agost. Scilla. See his Lettera circa i Corpi Marini, petreficiati. Tab. 1, 4, & 27.

57. An Echinus Ovarius, from Sea, very fair. There are of this sort digg'd up in England, in the Chalk-pits at Greenhithe, Purfleet, Croydon, and in the Quarries of Clipfon, in Northamptonshire, and elsewhere. See The Catalogue of the English extraneous Fossils, n. 207, to 210. There are of the same digg'd up at Messina, Malta, and other Parts abroad. See The Catalogue of the extraneous foreign Fossils, § 65. & seq.

58. Another Species of Echinus Ovarius; found on the Isle of Sheppey, Kent.

59. Another, exhibiting the Teeth, very fair. This Kind is found on the Coasts of Jamaica, Barbadoes, and other Parts of the West-Indies.

60. Great Variety of the Teeth of the Echini Ovarij; taken out of several of the Shells.

61. Aculei, or Spikes of the Echinus Ovarius; sent by Agost. Scilla. See his Lettera circa i Corpi Marini, petreficiati, Tab. xxii. There are of this Sort found in the Chalk-pits in England. See the Catalogue of the English extraneous Fossils, b. 224.

62. Three short Spikes, of an Echinus Ovarius, found on the Shores of Barbadoes. There are of this Sort found commonly in the Chalk-pits and Quarries in England. See the Catalogue of the extraneous English Fossils. b. 217, 218, 223. & seq.

63. Another, larger, from Sea.

64. Another, out of the Sinus Persicis, or Red-Sea.

65. Another, near 4 Inches long,likewise from the Red-Sea.

66. An Echinus Spatagus. This Kind is found commonly on the Western Coasts of England, Wales, and the Isle of Man.

67. Another, younger, and lefs, but of the same Species.

68. Another, of a different Species.

69. Another, very large, West-Indies. There is one of this Species, somewhat lefs, sent by Agost. Scilla. See his Book, Tab. 10. Fig. 3. and the Catalogue of the extraneous foreign Fossils, § 42.

70. Another Species, flat, and thin. It seems to be of the same Species with that digg'd up at Maryland in the Catalogue of Foreign extraneous Fossils, § 57.

71. Two Opercula, commonly called Umbilici Marini. Sent by Agost. Scilla. He found of these, in the Earth, near the City of Milazzo. See the Catalogue of the extraneous foreign Fossils, 7. 116. The Tops of these are hollow'd.

72. Two others, with the Tops convex. Sent likewise by Agost. Scilla.
73. Tubular Shells, of the *Vermiculi* Marini, of several Sizes. See, in the *Catalogue of extraneous English Fossils*, Class 1. Part 1. Sect. 1. several digg'd up at Land.

74. Six small *Dentalia*, of which two are striated, the rest plain. Sent from *Sticly* by *Agost. Stella*. See his Books. Tab. 18. Fig. 6, 7, 8. There are several in the *English extraneous Cetacei*, Class 1. Part 11. Sect. 2. and amongst the *Hampshire Fossils*, No. 21.

75. The common *Nautilus*, or *Nautilus Gracorum*, figurd' by Dr. *Lifler*, Tab. 55. This is broke, so as to shew the inward Fabrick of it, and the Partitions. 'Tis commonly digg'd up at Land. See the *Catalogue of the English extraneous Fossils*, d. 1. & seq.

76. *Nautilus, exiguis, albus, pellucidus, teres, Lif*.*Hist. Conchyl.* Sect. 4. c. 1. No. 2. From Barbadoes. This is the only Sea-Shell, yet discover'd, of the *Ammonites* kind: and is commonly found on the Coast of Jamaica, and the Bahamas. There are some of this Genus, among the Fresh-Water Shells, figurd' by Dr. *Lifler*, *Hist. Conchyl.* Lib. 2. Sect. 3. But none of them are divided into Cells, by Diaphragms, which the greatest part of the Fossil are.

77. *Nautilus, vacans, f. non tabulatus, stiris paucioribus distinctus, Lifteri Hist. Conchyl.* L. 4. c. 2. There is a Species, not very unlike this, in the *Catalogue of the extraneous English Fossils*, d. 21. 22.


80. *Cochlea Clavicula productior*. Shores near Scarborough. There are in the *Catalogue of the extraneous English Fossils*, e. 75. four of this Species, digg'd up in a Marl-pit, near Wiggan, Lancashire.

81. *The PeUen maximus, Lifteri Hist. Animal. Anglia*, p. 184. or Scallop-Shell. This was sent by *Agost. Stella*. If it be amongst the Things grav'd in his Book, it must be that Tab. 15. It appears recent, as if found on the Shores, and not as if digg'd up at Land; tho' he sent it with the Fossil Shells.

82. A Pair of Scallop's, *Engliß*. 'Tis of the same Kind with those digg'd up in England, in the *Catalogue of the English extraneous Fossils*, f. 37. & seq. We have commonly of the same Kind, or very near, from Barbadoes.

83. A Scallop, exactly like that in the *Catalogue of the English extraneous Fossils*, f. 37 x. This was found on the Shores of England.

84. Another, *Engliß*, of the same Kind with those in the *Catalogue of the English extraneous Fossils*, f. 90. & seq.

85. Tree-Oylers; from the *Mangrove-Trees*, on the Shores of Jamaica. There are found Shells, not unlike these, in the Quarries.
ties of Oxfordshire, Gloucestershire, and Northamptonshire. See the Catalogue of the extraneous English Fossils. f. 149. & seq.

88. Ostrea Arborea Marginibus dentatis. From the Shores of Barbadoes. There are digg'd up, in several Parts of England, Shells of this Kind, or nearly related to it. See the Catalogue of the extraneous English Fossils. f. 172. & seq.

87. One of the Leptopolyglinglimi; from Barbadoes. There are of the same Species found on the Shores of England; and also digg'd up at Land. See the Catalogue of the extraneous English Fossils, f. 418. & seq.

88. Another of the Leptopolyglinglimi; found on the Shores near Plymouth. This is exactly like that in the Catalogue of the extraneous English Fossils. f. 419.

89. Peclunciulus maximus: subfuscus, valde gravis. Liferi Hift. Conchyl. No. 108. Found near the Mouth of the River Tees, on the Shores of Yorkshire. This Species is commonly digg'd up at Richmond, in Surrey. See the Catalogue of the extraneous English Fossils, f. 433. & seq.

90. A Pair of Peclunci, from New-England; where they are called Clams. This Species, or one very like it, is digg'd up commonly in England. See the Catalogue of the English extraneous Fossils, f. 447. & seq.

91. A Pair, less, from Barbadoes.

92. A Pair of Peclunci fasciati; from Jamaica. I have seen of the same sort from Barbadoes: and there are of the very same digg'd up in England. See the Catalogue of the extraneous English Fossils, f. 480.

93. Another, lessler. Barbadoes. This is little, if at all, different from those in the Catalogue of the extraneous English Fossils, f. 482. & seq.


95. Peclunciulus aditus admodum crassus, sinu, sine sulco, consti-

96. Another, less; from Barbadoes.

97. The common Cockle of Dr. Lifer, Hift. Conchyl. No. 171. There are of this sort digg'd up in several Parts of England. See the Catalogue of the extraneous English Fossils, f. 562. & seq.


99. A Caneus, from Barbadoes. This has a Hole bored through it by the Purpura. See the Preface to the Catalogue of the Hampshire Fossils: and the Catalogue of the foreign extraneous Fossils. f. 121.

100. Another, from Barbadoes. This Species is also found on the Coast of England; and likewise digg'd up at Land, in various Places. See the Catalogue of the extraneous English Fossils, f. 594. & seq.

101. Another, also from Barbadoes. This seems to be of the same Species with them digg'd up near Woolwich, in the Catalogue of the extraneous English Fossils, f. 587.
A Pair, English. There is, somewhere, in my English Collection of extraneous Fossils, a Shell of the same Kind.


Shells, found on the Shores near Minster, Sheppey-Island, worn, and plain'd, by the Agitation of the Sea by Tides and Winds. This may serve to illustrate what is set forth in the Catalogue of the extraneous English Fossils, Mantissa 3. Sect. 1.

An Oyster-Shell, with numerous Perforations made by Worms. Found on the Shores near --- --- - Sussex. This may serve to illustrate what is set forth in the Catalogue of the extraneous English Fossils. Mantissa 3. Sect. 2.


An Impression of a Concha Anomia fulcata, in the Catalogue of the extraneous English Fossils, f. 337. taken off in Sealing-Wax.

An Impression of a Lapis Judaeus, or tumid Aculens of an Echinus Ovarius, in a greyish Flint; in the Catalogue of the extraneous English Fossils, h. 250. Taken off in red Sealing-Wax.

An Impression of that in Flint. Ibid. h. 251.

Lead, cast in a turbinated Shell, I think, that of Dr. Linser, Hist. Animal. Angl. Tab. 3. Fig. 1. This, and the following were cast with design to shew the Manner of the Formation of the Cochlitae, Conchitae, &c. in the Shells at the Deluge.

Another like leaden Cast, I think, in the Shell, Fig. 2. Ibid. h. 252.


Lead, cast in the Pedunculus maximus, of the same Species with No 89. supra.

Lead, cast in an Echinus Spatagus, of the same Species with those in the Catalogue of the extraneous English Fossils, h. 9. & seq.

Lead, cast in an Echinus Galeatus, of the same Species with those in the Catalogue of the extraneous English Fossils, h. 62 & seq.
A CATALOGUE
OF THE
Additional English Native Fossils,
IN THE
COLLECTION
OF
J. WOODWARD M.D.
TOME II.

LONDON,
Printed in the Year M.DCC.XXVIII.
PREFACE

It was not without great difficulty that I got so much Time, from my Business, as to put the Bodies, set forth in this Catalogue, into any Method, and range them in the Classes specified in the next Page. Had I had Leisure and Time in my power, that had been done with greater Exactness than it is, or indeed was possible in so great a hurry as I ever am.

Many of these Bodies are very considerable, and some exhibit Phenomena really instructive, and of great Signification. There are Remarks of some of these in the Descriptions which I have here drawn up. I had given many more, and been more full and particular in all, had my Affairs comported with that; but this they would not by any means: nor indeed permit me to give any Descriptions at all of several of the Bodies in this Catalogue.

But that is a Defect not difficult to be supply'd by any one who shall have Skill in those things. They are here placed in order, each with those of its own Kind or Tribe; and the Places where all were found, are carefully noted. The Bodies themselves being thus forthcoming, nothing more is needful than an accurate Inspection and Survey of every thing observable in each, for the finishing their Description. Nor is any thing more needful for perfecting the natural History of these Bodies, a Thing of high Importance, many of them being of great Worth, and Use, than the subjecting them to Experiments, and particularly of the Fire, to which end, I have reserved and set apart Duplicates of all the most considerable.

For several of the following Fossils I thankfully own myself obliged to Mr. Scobell; for others to Mr. Hicks; for others to Major Hanbury, Mr. Lewis, and some other curious and intelligent Gentlemen, likewise my Friends, who having Mines of their own, had great Opportunities of supplying me with Samples; which they all did with great Forwardness and Humanity, contributing thereby very liberally to the promoting and encrease of this excellent and useful Part of Natural History.
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EARTHS and EARTHY SUBSTANCES.

UMBRES.

a. 1. A Light earthy Substance, seeming to be compos'd of rotten Wood, found in the Cliffs beyond Limington, Hampshire.

a. 2. Earth, of a dusky brown Colour, like Umbre; found in one of the Company's Mines in Wales, call'd Caninog. It lay in a Lead-Vein, at the Top, near the Surface.

YELLOW-OCHRES.

a. 3. An Earth, very fine, yellow; only there are some few Specks of red in it. Found, as this sort commonly is, in the Fif- fure of an Iron-Mine, in the Forest of Dean, near the Ore.

a. 4. Yellow Earth; from Eslemtean, one of the Company's Works, in Wales. This was found, hanging down in Form of a Scalaflies, from the Top of an antiently-work'd Lead-Vein there. There were more at the Top, and on the Sides of this Work.

a. 5. Brown Earth, seeming to have amongst it black Tale. Eslemtean. Found in the same Place, and Manner, with the foregoing.
2. A light, friable, ochrous Body; from a Coal-Work of Billymill-Moore-Level, in Northumberland. Form'd by Water flung forth from an Adit, on the Sides of the Water-Course, on the Surface. 'Tis found commonly incrusted on Sticks, Rushes, &c. in vast Quantities.

Red-Ochres.

a. 7. A red Earth, very fine; found in an Iron-Mine in the Forest of Dean. This sort is found generally near the Ore, in the inclining Fissures. The Workmen gave it, and call it Red-Ochre.

a. 8. Another, of a deeper Colour; from the same Mine.


Boles, Clays, Earths.

a. 10. Clay, Ash-colour'd, Part of a Stratum, which lay above the Strata of Stone at St. Agnes-Ball, Cornwall.

a. 11. Another sort, white, very fine; found in the same Place.

a. 12. Another sort, reddish, and very fine; found still in the same Place. All the three sorts are very plentiful there.

a. 13. A fine white Clay; found, lying confusedly in a Sinus of a Rocky-Cliff, betwixt Tenby and Milford, Wales.

a. 14. White Killas, being the Side of a Vein, in St. Agnes-Ball, Cornwall. The Stratum is of a considerable Thickness: and, I think, the same on each Side of the Vein.

a. 15. A grey, unctuous, clayey Matter, seeming to have also Flakes of Talc in it. This sort is found, soft, in small Quantities, in Holes of the Antimony-Vein, Endellion, out of which this Sample was taken.

a. 16. Earth, with little white Sparry Stones in it. Found in a Vein, in St. Agnes-Ball, Cornwall. The Miners call this Flaken. 'Tis probable these Stones are only Bits of Spar, broke, and worn thus by the Fall and Motion of Water there. See what I have said on that Subject, treating of Spar; found, with the Iron-Ore, in the Forest of Dean.

a. 17. Earth, of an Ash-Colour. Found with a. 22. infra, in the Road, midway betwixt Stainton and Hereford.

a. 18. Blue Clay, part of a Stratum; out of the Pit whence the Marble is got, at Petworth.

a. 19. Earth, grey, with a Cast of Green, very flippick, being Part of a Stratum near the bottom of Hordell-Cliff, between Limington and Chrift-Church, Hampshire.

a. 20. A Piece of a grey Clay; from Polmore-Cliff, in Mr. Scobell's Estate, Cornwall.

a. 21. Earth, green, with some Spots of yellow; out of a Vein of Calamin, in Shippin Liberty, Mendip, Somersetshire.

a. 22. Earth, variegated with grey, and brown. This was originally all red; but the Water pervading the Cracks, draws off the red that is near them. Found, with a. 17. supra, in the Road, midway between Stainton and Hereford.
a. 23. A Sample of the Soap-Rock, which lies in the Sea-Cliffs, about a Mile South-West from the Lizard-Point. The
Red is soft as Clay, as a great Part of this Matter is. 'Tis all
found in Loads, or Veins, of a clayey Stone; much like that,
No. 6. 60. infra.
a. 24. A brown Earth. Found, lying confusedly in a Sinus of
a rocky Cliff, betwixt Tenby and Milford, Wales.
a. 25. A black Earth. Found in the same Place.
a. 26. A black Earth, made into Form of a Ball, and called
Killow. Collow is the Word by which they denote black Grime
of burnt Coals, or Wood. Mr. Cotton uses the Word in his
Lucian's Dialogues----. Being put into the Fire, this emits a
slight sulphurous Exhalation. There were several of these Balls,
and all had Granules of a white Matter interspersed. From
Dennis-Mouthy----. Wales.
a. 27. Killow, dig'd up in great Quantities like Clay; eight
Miles from Dolgadwin, Northward, near Dennismouthy. [Perish'd
and gone.]
a. 30. A light earthy Substance, seeming to be composed of
rotten Wood. 'Tis black and flaky, holding Vitriol. From
the Cliffs beyond Limington, Hampshire.
a. 29. Another like black Substance. Found near the for-
mer. 

S A N D S.

a. 30. Sand, of a yellowish Colour, part of a Stratum, lying
above the Strata of Stone. At St. Agnes Ball, Cornwall.
a. 31. Grey Sand, with a Species of small Bivalves found in it.
'Tis part of a Stratum wash'd, and cleaned. From the Cliffs be-
yond Limington.
a. 32. There is a Stratum of Quarry-Stone, upon Shotover-Hill
near Oxford, that lies about 3 Yards deep, and is a Foot thick,
with Stone of another Sort, above and below. This very Strati-
tum is in some Parts lax, and in Form of Sand; of which this
is a Sample. Out of the solid Part of this Stratum, I broke a
Piece of Stone which is mentioned below, b. 1. That Piece of
Stone lay but at the Distance of 2 Yards from this Mafs of
Sand.
a. 33. Sand, driven off the Sea-Shore by the Winds up into
the Country, and concreted there into this Form and Hardness.
The Inhabitants call it Kerm'd Stone. This was taken up on the
side of a Hill, near half a Mile from the Sea: The Place is cal-
called Pyran Sands. The Sand is held together by a kind of Spar-
ry Matter. I observ'd at the bottom of the Rocks therabouts,
Masts of Rubble Stones cemented together by such Spar. I
saw of the same sort of Spar, amongst Rubble Stones upon the
Rocks in Chaldey-Island, Wales. This Spar, both there and in
Cornwall, is drain'd forth of the Rocks. Pyran Sands cover
and lay waste a great Tract of Country. There are like Sands
in several other Parts of Cornwall. The Corporation Town of St. is almost half cover'd by these Sands.

**STONES.**

**Stone of Strata.**

* b. 1. A Piece of Quarry-Stone, from Shotover-Hill. There is an Account of it, a. 32. supra.
* b. 2. Free-Stone, of a pale brown Colour; with very small Talky Mica in it. 'Tis Part of a Stratum, about 3 Foot thick. From Polriddon, Cornwall.
* b. 3. Another Sample, partly of the same, and partly of an Iron Colour, full of Mica. Part of a Stratum, lying deeper than the former. From the same Place.
* b. 4. A Piece of a pale brown Stone, holding Iron; part of a Stratum near a Foot thick, extending for several Miles, and lying above the Shells in Hordell Cliff; betwixt Limington and Chrift Church in Hampshire.
* b. 5. A reddish Stone, gritty; with Micae in it. All the Strata are of this Sort; but there are small Cracks in several Parts of them: and near the Cracks, the Stone is rendred white by Inftitution of the Water; this possibely drawing off some of the ferruginous Matter that colour'd the Stone. This may afford a Hint for investigating the Caufe of the Variegation of some Sorts of Stone and Marble. Found in the Cliffs, on the farther side of the Severn, near Pyrton Passage.
* b. 6. A red Stone, with a coarser Grain. Caldy Island. A considerable Part of the Island consists of this.
* b. 7. Stone, grey, with a Blufh of Red; from the Mountain Stix, in Cumberland. 'Tis found in Quantity.
* b. 8. Stones of a dusky red Colour, from the same Mountain. Found also in Quantity.
* b. 9. Stone, from a vast Quarry near Exeter. All the Stone in this Quarry is of the same Sort.
* b. 10. A Talky Stone, very like Emery; ponderous and feeming to hold Metal. From the Mountain Skiddaw, in Cumberland. [Mr. H. has this and the following for Tryal, for Emery.]
* b. 11. A Stone, very like Emery, found plentifully upon the Moors, North-East from Skiddaw Mountain, at the Diftance of about 2 Miles. Cumberland.
* b. 12. A Stony Mafs, of a grey Colour, near white*. This is of that Sort, that the Tinners call Growan. It lies on one Side of the Vein in which the Tin-Ore was found, m. 90. infra: and is the common Stone on that Side. They have three Sorts of Stone in Strata in Cornwall; Free-Stone, which they call

---

* There are several little Hollows in it filled; some with a white extreame Matter, and some with Spar. Moor-Stone,
Moor-stone, a gritty Stone of various Colours, which they call Growan; and a talky Fissil Stone, which they call Killas. I neither saw or heard of Pebble, Flint, or Fossil-Shell in all the whole County of Cornwall.

b.13. Killas, a talky fissil grey Stone, being the common Stone on that side the Vein, in which [-----] was found. In the Interfices of the Flakes, is a grey, chalky, or ochrous Matter, as in the Hollows of the foregoing. This probably is conveyed about, and flung into all the Vacancies capable of receiving it, by the Water; being loose, light, and easily movable, as we find in earthy, ochrey, and other loose Matter in all Mines.

b.14. A grey, slaty, talky Killas; out of a Breast in a hollow Road near Plymouth, where there are great Quantities of it; and indeed the whole Country abounds in it.

b.15. Killas, or Delvin: 'Tis the common Stone of the Rock in which the Tin Vein, at Zowau-Coniggan, lies. 'Tis very hard.

SLATE.

b.16. Slate, from Denyball, Cornwall. This Piece, on three sides, shews the natural Breaches, or Fissures, of the Strata of this Stone.

b.17. Slate, blue; perhaps the finest in the World. From Denyball, Cornwall; where it is got in great Quantity.

b.18. A Slip of Slate; shewing the Partitions or perpendicular Fissures of the Strata it constitutes. From Denyball, Cornwall.

b.19. A dark grey Slate, used for Coverture of Houses; from Mr. Hicks's Slate-Quarry at Mullinecke. The Strata of the Slate here lie pretty much inclining, and are of considerable Extent. The Slate lies from near the Surface down to the Level of the Tide that flows up the River, in the Cliffs of which it lies. What lies underneath is uncertain, they not sinking to the bottom of the Slate. There is a Flexure in this Piece; and there are such in several Parts of the Work, tho' not frequent. Where they are, they run from the Top downwards, as far as I observed. There were several of the perpendicular Fissures in this Slate, but narrow like Cracks, and empty. I imagine, that at the same time that the Slate crack'd in one Part, 'twas in others so tough as to abide being bent; by which means these Flexures were probably form'd. I have seen Strata of Coal, near Lanelshy, in ------- Wales, with like Flexures, but larger. Sometimes they were crack'd at the Angles of the Flexures; the intermediate Mafs, tho' parted from the rest, lying obliquely, as in this Specimen. I have observed Slate crack'd, with the intermediate Part lying obliquely in this manner, in several Parts of Wales, and of Cumberland.

b.20. Another like Sample, from a distant Part of the same Quarry.
b. 21. Slate, blue and white; the latter Colour seeming to be brought on by the Water that pervades it. From the Sea-Cliffs, near Fowey, Cornwall. These Cliffs consist of this for a considerable Extent. The Miners and People call this Killas; as they do any Stone that splits with a Grain. The Backs, Jointings, or cross Partitions [that intersect the Plates of the Slate, some at right and some at oblique Angles; and in all Bearings and Directions] are very thick and frequent.


b. 23. A gritty Flag-Stone, brown, with a Cast of red, thicker, with a very small Mica of a white silvery Talc. Pyton Passage, over the Severn. Found upon the Shore.

b. 24. Part of a Stratum, grey, lying not far from the Surface; in Mr. Marriott's Lead-Mines at the How, near Grinton in Yorkshire. The Stratum consists of a Slatey Stone. This is composed of several parallel Plates, very thin, hardly exceeding common Writing-Paper in Thickness: There are about 10 in this, and it is not above \( \frac{1}{2} \) of an Inch in Thickness. There are several Micæ, or Flakes of Talc lying chiefly at the Surface of the Plates. I have observed sometimes upon parting the Plates, great Numbers of them loose, lying betwixt the Plates. In breaking of the Strata, I have observed that the Plates are gradually thicker, descending from the Top to the Bottom. In a Stratum of 10 Foot in Diameter, the Plates near the Top were as thin as can be conceived. Those at 3 Foot deep were 2 Inches thick; those at 6, half a Foot: The lowest, near a Foot.

b. 25. Brown Slate, composed of numerous infinitely thin Plates. Out of a Trench, in a Wood of Mr. Harley's, near his House, by Aywood, Wales. Like Mafles, but softer, are commonly found upon the Sea-Shores.

b. 26. A red Slate, soft, friable, and of scarcely greater Consistency than Earth. There are numerous small Micæ in it: 'Twas Part of a Stratum about half an Inch thick, extending for a vast way. Above and below were Strata of common Clay, In the Road, 5 Miles beyond Hereford.

**Chert, Marble, Alabaster.**

b. 27. Chert, a sort of Flint, lying in and constituting a Stratum of several Yards thick. Swadlade, Yorkshire.

b. 28. Chert, out of a Stratum half a Mile distant from the former.

b. 29. A dusky red Granite. Caldy Island, Wales. There are several considerable Strata of this.


b. 32. A soft Stone, speckled, with a faint red and white: It seems to be an Alabaster; got in Quantity, near Whitehaven, Cumberland.
Pebles, Flints, Agates.

b. 33. A white Sparry Peble. Found in Lime-Road, betwixt Bishop-Cliff and Newton.

b. 34. A brown Sparry Peble. Found near the former.

b. 35. An Agate, of a very observable Constitution. Found near Beer in Devonshire.


b. 55. b. 56. infra.

b. 37. A small Flint. Found near Petworth in Sussex. 'Tis finely lineated, and wrought on the Surface; after the Manner of the Callimus of some Æsita.


b. 39. Small Nodules, cemented together by a brown stony Matter. Found betwixt Huntley and Norleach, Gloucestershire. There are vast Numbers of them along the Road for several Miles together. These, when smaller, are called Piolithi by Writers.

b. 40. A cancelled Peble. I observ'd in the Holes of this several small Bivalves living. Found on the Shores of St.---= a small Island near Caldy, Wales.

b. 41. Another, perforated by Pholades; some small, others pretty large. Found with the Precedent.

Talcs.
Talcs striated.

b. 42. Gypsum striatum album. This with the two following lay in the perpendicular Fissures of the Strata of brown Stone; the Fibres running horizontally directly cross the Fissures. Watchet, Somersetshire.

b. 43. Another. From the same Place.

b. 44. Another. From the same Place.

b. 45. Spar; out of a Fissure in a Cliff near the Lizard, Cornwall.

b. 46. A Piece of Stone, from the upper Part of a Stratum of shivery Stone. That Stratum lay horizontally; and this Mass, which was of considerable Extent, lay flat upon it. 'Tis composed of Fibres parallel, and transverse to the Plane of the Body: It seems to be of a talky Constitution, and form'd in the horizontal Interval, since the Stratum. From a Cliff of the Sea, about a Mile West of Lime in Devonshire.

b. 47. A talky Spar, out of a Fissure in a Cliff near the Lizard, Cornwall.

C. C 4
Talcs not striated.

b. 48. A friable Substance, grey with a Cast of green; seeming to be Talc. From a String, or small Vein. In Cleggo Cliff, near St. Agnes, Cornwall.

b. 49. A Talky Earth, very fine grey, with a Cast of Green. Found in the Road near Gwendroth, not far from the Lizard Point, Cornwall.

b. 50. A Talc, near as fine as the Venetian, but of a reddish Cast; out of a Vein in a Cliff about two Miles North of the Lizard Point, Cornwall. A Quarter of a Mile from, No. 1.


b. 52. A Sample of the Soap-Rock, which lies in the Sea-Cliffs about a Mile South-West from the Lizard Point. The Red is soft as Clay; as a great Part of this Matter is. 'Tis all found in Loads, or Veins of a Cherty Stone.

b. 53. Gypsum, red, not striated. Watchet. Found about a Mile from the following. No b. 54.

b. 54. Gypsum, white, not striated. Watchet. Found about a Mile from b. 42 supra, in an Hollow of a Stratum.

b. 55. A Talky Mass, of a pale or yellow brown, very glossy and shining. From the Shores near Minehead, Somersetshire. Conf. b. 36 supra.

b. 56. Another, of a deeper brown. Shores near Minehead.

b. 57. Part of a Mass that had been worn and rounded upon the Shores. 'Tis a white Spar, thick-set with Spangles of a white silvery Talc. Pyton-Passage, Severn.

b. 58. A Mass of Stone, grey, talky, worn. Found on the Shores near the Lizard-Point, Cornwall.


b. 60. A Sample of a Rock, black, with Mica in it. About 2 Miles North of the Lizard-Point, Cornwall.

b. 61. Mica, silvery and black. Found upon the Sea-Shores about a Mile West of Lyme, in Devonshire.

b. 62. Mica nigra. From the Banks of the River Derwent, near Cockermouth Castle, Cumberland.

LUDUS HELMONTIJ.

b. 63. Ludus Helmontij. Pyton-Passage. These Bodies were found in great numbers, here, upon the Shores of the Severn.

b. 64. Ludus Helmontij, found, tho' not very plentifully, by the Cross Lanes near Spinythorne in Yorkshire.

b. 65. Ludus Helmontij, broke off a Nodule twice the Bigness of a Man's Fift; near Grinton in Swaledale, Yorkshire.

b. 66. Ludus Helmontij, found in the Street of Spinythorne, Yorkshire.
b. 67. A Piece of a Stratum, divided into Partitions, after the manner of the Ludus Helmontij. There are several like Strata, lying all near horizontally, and being of all Thicknesses, from \(\frac{1}{4}\) of an Inch to a Foot, in the Cliffs of the Sea, about two Miles from Tenby, Wales. I traced them in the Fronts of the Cliffs for about half a Mile on end, and observed the same Stratum ever of the same Thickness in all Parts. They were distanced by Strata of Shiver, of which chiefly the Cliffs consist. Underneath there appear several Strata of Coal; and indeed some interposed betwixt the Strata of Ludus Helmontij. It seems to hold Iron.

b. 68. Ludus Helmontij, seeming to hold Iron. It lies in Nodules to the Bigness of an Horse’s Head, in Strata of grey Stone, in the Cliffs of the Ostium of the River, about three Miles from Tenby. There are vast Numbers of them.

b. 69. b. 70. A Talus, with part of a Stratum having Partitions or Septa after the manner of the Ludus Helmontij, from Tenby. The Length of it is the Thickness of the Stratum, which is composed entirely of such Talis, of this Size, and bigger, to about one Inch in Diameter. There are various other Strata, parted, in like manner, by Cracks, into Talis. Some of the Strata are thicker, to a Foot or a little more in Thickness. And in these, the Talis are larger, to about ten Inches, or a Foot, in Diameter. In these larger some of the Cracks are fill’d with white Spar. They were exposed on a Cliff of the River ______ within a Mile of the Sea; and appear’d naked, with Strata, sometimes of black Shiver, and sometimes of Coal, interposed. The Strata were near horizontal, parallel; and each Stratum of equal Thickness in all parts.

b. 71. A Talus, invested with a ferruginous Crust, after the manner of Ludus Helmontij; being part of a Stratum, near three Inches thick, in the Brow of a deep hollow way, amidst Shiver, not far from Brough, upon Stanmore, in Westmorland. The whole Stratum is of this sort and thickness. I had opportunity of observing it for twenty or thirty Yards on end.

Bezoar Minerale, and Geodes.

b. 72. Bezoar Minerale, holding Iron. I suppose, some of them are invested with eight or ten Crusts, but they shiver and fall off when exposed to the Air, as these were. Cliffs near Tenby. [This seems rather to be a Talus of some Ludus Helmontij.]

b. 73. Four small Nodules. There were others in vast numbers, of which I broke many, and found all, like these, with Marcalite in the Center. They seem to hold Iron; and were found in the Beds of Shiver, mention’d in the Account of b. 69, and 70. supra. Tenby, Wales.

b. 74. A Geodes, being a coarse brown Nodule, and having a Black Powder, like that of Coal, and small crystallized Bodies in its Center. These, if not Diamonds, are so hard, that they cut Glass. Found in Shiver, in a Lime-stone Quarry, near Pessign, in Wales.

b. 75.
b. 75. Bezoar Minerale, seeming to hold Iron. There were some, found together with this, invested with eight or ten Crufts; but they fliver, and fall off, when expos'd to the Air; as this was. In the Cliffs near Tenby.

b. 76. Part of a Geodes, round, tending towards a globose Figure; and so large, that it held a Buful and an half of Sand. It lay in a Bed of like Sand, ten Foot deep, about a Mile Weft from Petworth, in Sussex. It lay in the side of the Bank of a hollow Road, where were many others of various sizes, from one to three foot in Diameter. The Coats of all of them are very thin. The thickest I broke did hardly exceed half an Inch.

b. 77. The Cruft of a Geodes, found upon the Moors call'd the Hind-Head, about five Miles from Godalmin, in Portsmouth Road. There were great numbers of them; of all sizes, from the bigness of a Walnut to such a size that they would contain ten Gallons. They were generally round, but of very different shapes. I faw none that had more than one Cruft; nor did any of the Crufts much exceed half an Inch in thicknes. All that I broke were full of a yellowith Sand, and lay in a Stratum of Sand of like Colour and Constitution.

b. 78. A Body consisting of several white transparent Sands, or very small Pebles, contain'd in Cases, or Crufts, of a ferruginous ochreous Substance. Taken up in the Quarry in Petworth-Garden, Sussex.

b. 79. A Piece of the Cruft of the Geodes, found in great numbers in the Ochre-Pit, on Shotover-Hill, Oxfordshire.

Selenites.

b. 80. Selenita, found in a Stratum of blue Clay about eight Foot thick, above the Free-stone Quarries, at the Foot of Shotover-Hill.


b. 82. Selenites, very transparent, found on the Shores, on the East-side of a Creek, about a Mile above Weymouth-Bridge.

Blemnites.

b. 83. A Blemnites, seam'd, striated, and with jointed Bodies in the conick Cavity; out of the Cliffs near the River's Mouth, by Bridport, Dorsetshire. There were others that had the Joints fairer, They are found there in great numbers.

b. 84. Another, from the same Place.

b. 85. Another, from the same Place.

Coralloidea:

b. 86. Lithostroton. Some of the Samples have had the Columns crack'd since they were form'd; and the Cracks fill'd up with white Spar. The Lithostroton is all found on the Tops of the Rocky-Cliffs about two Miles from Tenby, towards Milford. 'Tis found
found in Mafles of different sizes, immers'd in a grey Stone. It
lies in several Postures; but chiefly erect, or a little inclining, but
never horizontal. 'Twas probably white at first; and since grad-
ually tinctured with parts of the Stone in which it lies.


b. 89. Lithoftration. Ibidem. The Columns of this are near
round, or cylindric. There were, in the fame Maf, some, that
were flat and compressed; but they are broke off: as are also seve-
ral angular Columns. Ibidem


b. 91. Lithoftration, a single Column with seven sides. Ibidem.

b. 92. Lithoftration, single Columns, with each six sides, but un-
equal Ibidem.

b. 93. Lithoftration. A Phalanx single of three Columns in a Row.
Ibidem.

b. 94. —— A Phalanx also single of four Columns, of a flat-
ed Figure. Ibidem.


b. 96. —— Two Phalanges, crack'd since they were form'd,
and the Cracks fill'd up with a coarse brown sparry Matter. I-

b. 97. —— Two Phalanges, crack'd; and the Cracks fill'd with
white Spar. This was broke off the biggest Piece, of which the
Columns were thirteen Inches in length. As to the Diameter of
the Columns, the largest I saw was not half an Inch in Diameter,
and the least, near a quarter of an Inch; they being generally pretty
nearly of the fame thickness. Indeed, the sides being unequal, the
fame Column is frequently of a greater Diameter, measured one
way, than another. And for the number of the Columns, there
were in this Collection several Mafles, about a Foot thick; I mean,

b. 98. —— A Maf, crack'd; and the Cracks also fill'd with

b. 99. —— Another, with a Crack, fill'd with white Spar.
The Columns of this are inflect'd or bent; of which I observed se-
veral other Instances. Ibidem.

b. 100. —— A Maf, shewing the Junctures of the Columns.
Ibidem.

b. 101. —— A Maf, with an Entrochus immersed in one of

b. 102. —— A Maf, having affixed to one end of the Co-

b. 103. Lithoftration. A Maf cut and polish'd. 'Tis about the


b. 108. A very soft sandy Stone, of a greenish Colour, having in


about
about the eighth of an Inch in Diameter. These must have been form'd before the main Mafs, wherein they are contain'd. There are, in this Mafs, also dispersedly, several white Sands, of the like sort. A great part of the Stone of this Quarry is much harder; and made use of in building Petworth-House. The Quarry is in Petworth-Garden.

b. 109. Another Mafs, in which the Bodies are branch'd; of which sort I saw some other instances. Ibidem.


b. 111. A Body, nearly resembling the coralloid Mushroom of the Red-Sea; immers'd, together with numerous small Sea-shells, in a grey Stone. Found in a Quarry near Charterhouse, Mendip, Somersetshire.

b. 112. A coralloid Body, excepting the Colour which is grey, resembling the Tubulare Purpurea of Ferrante Imperato. Found in the Rubble of a Lead-Mine near the former, Mendip.

b. 113. An Entrochus, conic Mycetites, and part of a coralloid Sea-Fan; in a brown Stone; out of a Quarry near Charterhouse, Mendip. Tho' the Sea-Fan be no where found in any of our Seas; yet I have observed Pieces of it in Stone in several Parts of England. 'Tis found in the Seas about Jamaica, and Barbadoes.

b. 114. Part of a coralloid Body, out of one of Mr. Marriot's Lead-Mines, at the How near Grinton, in Yorkshire.

b. 115. A Mafs, out of a Vein of the same Mine, consisting of an earthy Matter, Spar, and Lead. What is most remarkable, is, that there are in it several coralloid Bodies, very fair.


b. 117. Coralloids, in a blackish Stone. I caused a Piece of this to be ground, and polished; and 'tis somewhat harder than the white Genoa Marble. Caldy-Island.


b. 129. Coralloids, in a red Stone, much harder than the white Genoa Marble. Caldy-Island, Wales.

b. 130. Worn and rounded by the Sea. 'Tis polished on one side; and proves as hard as black Marble, which is of double the Hardness of the white. Caldy-Island.


b. 132. A coralloid Body, found near Bride-Church, three Miles from Cocker-mouth, in Cumberland.

b. 133.
b. 133. A Coralloid; found on the Shore near Aylemouth, Nor-
thernberland.

b. 134. A Mass of brown Stone, thick set with Coralloids; be-
ing cut on one side, and polished; it proves rather harder than
the white Genoa Marble. Near Bristol.


b. 137. A Coralloid; found near Preston, in Tinmouthshire, Nor-
thernberland.

b. 138. A Coralloid; found near Rorey, betwixt Cockermouth
and Eggermond, in Cumberland.

b. 139. A Coralloid; found near Rorey, about a quarter of a Mile
from the former.

b. 140. A Coralloid Body, of that sort call'd the Honey-Comb-
Stone; found in the Fields near Heddington, Oxfordshire.

b. 141. A Coralloid Aftroites; found in the Road betwixt Ox-
ford and Eynsham.

S P A R S.

b. 142. White shivery Spar; from a Vein about 20 Foot over.
'Twas nearly of the same Thickness in all Parts, for two hundred
Foot in height. It stood near perpendicular, and was compos'd
of several Ribs, in which the Spar was of various Colours. In a
Cliff by Musleridge, near Tenby, Wales.

b. 143. Glossy, brown, ponderous Spar. Out of a Fissure near
Lanelthy, Wales.

b. 145. White, glossy Spar, with some Spots of green; found
upon the Surface of the Earth near Dolgadwin, in Montgomer-
shire. There are vast Quantities of this upon the Surface, both
here, and indeed all the Country round. There are great num-
bers of Veins under Ground of like sort of Spar there. Those on
the Surface seem to have been forced from these Veins by Water,
as the Shoad-stones were.

b. 146. A Piece of white Spar; out of a Fissure near Lanelthy.
Wales. I have seen white Pebles, or Fragments, rounded, and
worn, of the very same Constitution.

b. 147. Spar, white, with a Cast of green; out of Mr. Marriott's
Lead-Mines at the How, near Grinton, in Yorkshire. There are,
in all Parts of it, Veins, branched, consisting of Matter not so
transparent as the rest of the Body. This is ponderous, and per-
haps may hold some Lead.

b. 148. Another Sample, with Lead-Ore incorporated with it,
from the same Vein.

b. 150. Spar, white, with a Blush of a dusky Purple; breaking
into Rhomboid Squares. Taken out of a Fissure of a Stratum
near Newtown. They are trying here for Lead. Conf. b. 154.
infra.

b. 151. Spar, glossy, and talky, white, with a Cast of green.
From Redruth, out of a Vein mix'd with Copper and Tin.

b. 152. A brown Spar; out of a Limestone-Quarry in Care-
marthen Road, about four Miles short of Tenby. It lay in a Fissure.

b. 153.
b. 153. Spar, red, and holding Iron, vein'd with white. Found in a Fissure of a Rock, over-against the Hot-Well, but on the other Side of the River, by Bristol.

b. 154. A white Sparry, or Coralline Incrustation, with Corallina growing upon it. Out of the Sea near Low-island. ’Twas struck off a loose Stone: and several of the Stones thereabouts had Crusts and Precipitations of the like upon them.

b. 155. A grey sparly Incrustation, compos'd of several Cortices one upon another, broke off a Mass on the Floor; form'd by Water falling from the Roof above, in Wookey-Hole, near Wells, Somersetshire.

b. 156. A coarse marley Spar; from an incrusting Rill, on the Side of a Mountain, in Oxford-Road, five Miles short of Gloucester.

b. 157. Spar, form'd successively, Crust upon Crust, and made round by being beat about, and mov'd by Drops of Water falling from the Top of a Grotto, by an Iron-Work, near Clourwall, in the Forest of Dean, Gloucestershire. These two Samples were found among several others immers'd; and, as it were, frozen in a sparry Crust of the Floor, form'd by Spar precipitated out of the falling Water, after they were too ponderous to be mov'd any longer. This affords us plain proof of the Growth of Spar at this day. Other Proofs there are, in great abundance in the Stalactite hanging from the Roofs, and the Sparry Incrustations on the Sides of the Mines wrought anciently, and deserted after the Ore was got out.

b. 158. Spar, in Squares, fallen off from a Body of shattery Spar, in an Iron-Work near Clourwall: agitated, and somewhat fretted and worn by the Water, dropping from the Roof above, and beating them about. The same Water bringing Sparry Particles along with it, incrusts and incloses some of them, that lie where the Force of the Water is least. Tho' b. 157. are Instances of these Bodies so incrust'd. Confer. b. 197. infra.

b. 159. White Spar, crusted upon Coal, very fine, with Stalactite falling from it. From Tenby-Cliffs, Wales.

b. 160. A red sparly Plate; found with the Stalactite, b. 161. infra.

b. 161. A Stalactite; out of an Iron-Mine, in the Forest of Dean. Such are commonly found in Grotto's and Fissures in the Mines, and the Tops of old deserted Works about Clourwall. I observ'd great Numbers of these there; and most of them fiftulous, or hollow.


b. 166. Light, fistulous, white, friable, Sparry Stalactite. Found hanging down from the Arches of a Stone-Bridge, over a River between Eliphone and Caermarthen. There are vast Numbers of them there, of all Sizes, to a Foot in Length. This gives undeniable Evidence of the present Growth of Spar.

b. 167.
b. 167. Sparry Concretions, on a blue slatey Stone; out of Mr. Waller's Slate-Quarries at Ynysgure, Wales.

b. 168. Spar; from a Fissure of one of the Quarries in Portland.

b. 169. Spar, tuberous, and cavernous. From one of the Quarries in Portland.

b. 170. Spar, in Shoots or Columns; found in an horizontal Interval, betwixt two Strata, in an erect Posture, about 10 Foot deep, in a Lead-Mine near Charterhouse. The Strata seem'd to have been dislocated, borne from their original Site, and distanc'd by some external Power: To which they were the more obnoxious, by reason of two perpendicular Fissures that run near parallel to each other, at about 15 Foot distance. There are Sparks of blue Lead-Ore, incorporated with the sparry Columns; and the Miners say they found a pretty deal of the same Kind of blue Ore in that Interval, which is the only Case in which Lead is found lying horizontally. And this is very uncommon. I never saw but this Instance of it, and one in Arkendale. This Interval was about half a Foot in Diameter, and the other in Arkendale about two Inches. Tho' the Lead in these was not originally formed in the Manner of a Stratum: but run after the Dislocation of the Strata, into the Intervals, as that in the perpendicular Fissures did. The Spar being thus form'd, in these Intervals, into Columns, gives me a Suspicion, that the Columnar Coralloid Bodies in Cumberland, in the English Catalogue, Part the First, Page 282. e. 17 & 18. were form'd by the same Means; they standing parallel, erect, and in the horizontal Intervals of the Strata of Stone. I have observ'd, in some Stone-pits near Oxford, the Honey-Comb-Stone, with the Hollows erect, lying in the horizontal Intervals of the Stone. Confer. b. 157. infra.

b. 171. More like sparry Columns. From the same Interval.

b. 172. More likewise. From the same Interval.

b. 173. White Spar; out of a Vein of Lead-Ore, in the Charterhouse Liberty, Mendip, Somersetshire.

b. 174. A crystaliz'd Spar; out of a Vein of Manganeous. In Mr. Ingram's Mine at Brumstye, near Llanedloes, in Montgomeryshire.

b. 175. Spar, adhering to Stone, with Shoots of White-Lead-Ore crystaliz'd on its Surface. From Mr. Harley's Mine, in Eskagallid, North-Wales.

b. 176. Spar, with white Lead-Ore. From Barrow-Work, the Duke of Somerset's Mine in Cumberland. It lies in a Vein amongst blue Lead-Ore.

b. 177. Tin-Grains, Tin-Ore, and Cornish Diamonds, being Part of a Vein, and adhering to a Piece of the Stone of the Side; from Wallwork, Cornwall.

b. 178. Spar, with Cornish Diamonds; from the side of a Cavity, in a Squat, at Henas-Work, not far from Polgounth, in St. Stephen's Liberty, Cornwall.
b. 179. Spar, with Cornish Diamonds; out of a Squat near the precedent.

b. 180. Spar, with Cornish Diamonds; from a Cavity in a Tin-Vein, in St. Stephen's Liberty, Cornwall.

b. 181. A friable Mineral, grey, with a Cast of green and yellow, seeming to consist of Spar, and Sulphur. 'Tis plated, and cavernous; very halituous, and flinking. From a Tin-Vein, in St. Stephen's Liberty, Cornwall.

b. 182. A like Mineral, shot into small crystalline Columns. From a Vein of a Mine near the precedent.

b. 183. Another; from a neighbouring Vein.

b. 184. Spar, white, part of it crystalliz'd. Taken near b. 150. supra, out of a Fissure of a Stratum near Newtown.

b. 185. White Spar, shot upon a dark grey Stone, into triangular Crystals. Pyron-Passage. Broke out of a Stratum of Stone at the bottom of the Cliff.

b. 186. A radiated Spar. I have an Ore of Antimony radiated like it. Out of a Rock in Caldy Island.

b. 187. Spar, clear, and crystalline, with a talky Glofs. 'Tis shot into Rhomboid Figures, which are placed in Rows. Found in a Vein among Iron-Ore, near Clourwall, Forest of Dean, Gloucestershire.

b. 188. A talky Spar, of a Rhomboid Figure; out of a perpendiccular Fissure, in one of the great Quarries in Portland-Island.

b. 189. ibidem.

b. 190. Hexagonal Shoots of Spar; from a Fissure of a Rock near Radnor, in Radnorshire.

b. 191. Spar, white and red, crystalliz'd. Found in a Rock near the Lead-Ore, No l. 36. infra, in a Mine near Estrophene, Wales.

b. 192. Spar, internally white, and red on the Surface; shot into large hexagonal Pyramids. Found in a Rock in Caldy-Island, on the Side towards Tenby, Wales.

b. 193. ibidem. b. 194. ibidem.


b. 196. A Shoot of an hexagonal Crystal; out of a Vein of the Iron-Ore, in Hartry Liberty, Mendip. The Constitution of it is remarkable, it appearing to be composed of several hexagonal Cases, one within another: and by that means shewing the Method and Order in which the crystalline Matter succeeded in the Formation of this Body.

b. 197. Flores Martis; found, cover'd with fragrant Water, in an Iron-Mine near Clourwall. There is of it, in Sprigs, near two Inches long, growing upright, on the Floor of the Grotto mention'd b. 157, & b. 158. supra: and form'd there by Spar brought with the Water falling from the Top of the Grotto.

b. 198 Out of a Fissure of the same Work.

b. 199.

n. 52, 53, to 68. infra, betwixt Lanelthy and Pontipool, Wales. 

Mr. Lewis, the Master of tho'c Iron-Mines, has of them that are 

very fine. See the Manner how they grow in. 

b. 200. Spar, crystalliz'd, with Grains of sulphurous Copper; 

out of a Copper-Vein. Wheal-Gilbert, Cornwall. 

b. 201. Spar, in hexagonal Shoots, along with Masses of Blende, 

and small Efflorescencies of the same. Under each of these is a 

Pore in the Spar. There are vast Masses of it in the Lead-Veins of 

the Mines of Eskergallid, Mr. Harley's Mine in North-Wales. 


S A L T S. 

c. 1. Nitre-Earth. From a Place call'd Pidgeon-Hill, from the 

Resort of Pidgeons thither to pick the Nitre. 'Tis about a Mile 

from Llangothley, in Wales, and fifteen Miles beyond Shrewsbury. 

'Twas given me by Mr. Casebrook of Bristol, who is Proprietor of 

the Soil where it is found. 

c. 2. From the same Place. 

c. 3. This has been wash'd; but was found with the former. 

c. 4. A yellow Substance, saline, mix'd, but chiefly vitriolick; 

found pretty plentifully on the Cliffs beyond Limington. 

c. 5. Another, of a deeper yellow, saline; from the same Cliffs, 

c. 6. Another, paler, saline; also from the same Cliffs. 

B I T U M I N O U S B O D I E S. 


d. 2. Another sort of Canal-Coal; from the same Pit. The 

lower Part of the same Stratum is of common Coal. 

; d. 3. A flatac Stone, very light, of a dark grey Colour; broke 

out of a Stratum of about a Foot in thickness. They call it Coal-

flone. It flames easily, and burns freely; but holds and endures 

the Fire much longer than Coal. They use it for heating of Ovens. 

Portland-Island. There is a Cornu Ammonis, and various other Shells 
in it. 

S U L P H U R S. 

e. 1. Sulphur-Ore. Redruth, Cornwall. 

P Y R I T À. 

e. 2. A Piece of Slate; from Mr. Hicker's Slate-Quarry at Mul- 
lincxck, with Grains of Marcasite in it, Cornwall. 

e. 3. Pyrite; found in great Numbers near Cockermouth, Cum-

berland. See e. 5. infra. 

M A R C A S I T À. 

e. 4. A Piece of Mundick, crystalliz'd; out of a Tin-Vein, Go-
dolphin-Ball, Cornwall.

Dd
e. 5. A Pyrites, crystaliz'd, and shot into cubick Figures. Out of the Cliffs near the River's Mouth by Brid-Port, Dorsetshire. There are great Numbers of Pyrites, of this, and other Kinds, beat out of these Cliffs by the Sea, and cast on the Shores there.

e. 6. A Marcasite; from Gamp, Cornwall.

e. 7. A Marcasite; from a Tin-Load, in another Work, in St. Stephen's Liberty. The Cornish Miners call all Marcasite, whether they be red, silvery, or yellow Mundick.

e. 8. Marcasite. Eftemean, Wales. There is incorporated with it a little Lead-Ore. There is a vast Quantity of this Marcasite, in the Vein with the Lead-Ore. Vid. e. 26. infra.

e. 9. A cavernous Marcasite, of that sort that Monsieur Schonberg, and the Saxon Mineralists, call Mater Metallorum. [See the Catalogue of the foreign Fossils; No. 1. 0. 18.] From St. Stephen's Liberty, in Cornwall.

e. 10. Marcasite, with a little Blende, and Spar. 'Tis florid, grumous, and much like that which the Germans call Mater Metallorum. From St. Stephen's Liberty, Cornwall.

e. 11. A vitriolick Mundick. Key-Parifh, Cornwall.

e. 12. Shoad-Stones *, of several sizes; from St. Agnes-Ball. These, and those No. m. 1. and m. 41. were all taken fresh out of the Shoads; and yet, by the Smoothnees of their Surfaces, they appear to have been worn by Water, which must have been before they were lodg'd there.

e. 13. White Mundick. Relifion, Cornwall. 'Tis of so great Gravity, that there must be something extraordinary in it.


 e. 15. White Mundick. Relifion. This is a very poisonous Mineral, and doubtless holds Arfenick.

 e. 16. Mundick. Baldice, in Key-Parifh, Cornwall.

 e. 17. Out of a Vein, or Load of Copper-Ore, in Guallen-Parifh, Cornwall. It looks like Bifinuth.

 e. 18. White Mundick, very rare; from a Vein in Cleggo-Cliffs, by St. Agnes, Cornwall. It probably holds Arfenick.

 e. 19. Yellow Mundick, with Mock-Lead. Guinop, near Poldice, Cornwall.

 e. 20. Mundick, out of a Tin-Vein. Godolphin-Ball, Cornwall.

 e. 21. A Marcasite, that runs to a Regulus, that no Method is found yet to reduce to a Metal. From Mr. Raw's Works, near Marzion, or Market-Jew, Cornwall.

 e. 22. Mundick. Thrown up from a Work near Fatwork, Cornwall. There are a few Cornish Diamonds in it.

 e. 23. Marcasite, and Spar; out of a Tin-Vein. From Poldice, Cornwall.

* These, abounding in Vitriol, this has shot, and the Bodies are fallen to pieces. These may be seen in his Letters. The Descriptions of the Bodies in this Catalogue, are generally drawn by myself.

 e. 24.
e. 24. Mundick, with Spar, out of a Tin-Vein. Godolphin-Ball.

e. 26. Marcasite. Essemeean. There's Lead-Ore with it; and there is a vast Quantity of it in the Vein with the Lead. Vid e. 8. supra.

e. 27. Mundick, with Iron-Ore. Gwendron, near Helston, Cornwall.

e. 28. Mock-Lead and Mundick. Gwendron, near Helston, Cornwall.

CALAMIN.

f. 1. Calamin, cellular, cavernous, and very much resembling the interior Constitution of Bones. The Workmen reckon that the best, which nearest approaches dried Bones both in Texture, and Colour, viz. a pale brown. From Shipham-Liberty, Mendip, Somersetshire. There are several Mines of this Mineral thereabouts. It lies in Mafles in the perpendicular Fissures, from near the Day to ten Fathom deep, among Clay, coarse Spar, and Riders of Stone. This Mineral appears very much like the Samples of some of the Lead-Veins, in Arkendale; and the North of England: and at Shipham the Calamin has frequently Sparks of Lead concreted with it. Nay, they have sometimes found here a considerable Quantity of Lead at the bottom of some of their Calamin Veins; and probably would find it in the rest, did they expect it, mine, and search in pursuit of it. There is found frequently a great Quantity of common Spar, in the Veins along with the Calamin; in some, in form of Riders; in others in form of Ribs.

f. 2, 3, 4. Calamin, three Samples of the best sort, from the same Mine, with Lead concreted with it. In the Preparation of this Mineral, the Lead-Ore calcines along with it. Lead no ways commodes the Workers of Brass; so far from it, that it mixes and incorporates very kindly with Copper: and the Workers ever use some Lead in the making of Copper.

f. 5. Calamin, with Lead, from another Mine, in this Liberty.

f. 6. Another Sample, from a different Mine there.

f. 7. Another, from a still different.

f. 8. Another, with Lead-Ore, and white Spar incorporated with it, from the same Mine with f. 7.

f. 9. Another, from a yet different Mine.

f. 10. Another, from a still different Mine. This has a pretty deal of Ochre with it; as also of Lead-Ore.

f. 11. A Mineral of a red Colour; out of one of these Calamin Mines: and probably holding some very small proportion of Calamin.

* This Piece is of the better sort; the Miners reckon it the very best. The greenish grey is the native Colour of the Calamin. The red and brown are adventitious; and owing to the Soil, or Ochre of the Vein.
f. ii. A Mafs composed partly of Blend, and partly of Calamin; vein'd, or rather crufled, alternately, in a very beautiful manner.

Antimony, and Sulphur.

g. 1. Antimony, from St. Cue, Cornwall. The Mine is now not wrought.

g. 2. Another Sample, from the fame Mine.

g. 3. A Mafs of Antimony with native Sulphur, and Spar, as also an hexagonal Column of white Spar. From the fame Mine.


g. 5. An hexagonal Column of Spar, white, with a Caft of purple. Ibidem.


g. 7. Another Mafs, with native Sulphur, and white Spar. Ibidem.


g. 10. Part of a Shoad, of several hundred Weight; confisting chiefly of white Spar, with a little Antimony. It lay within a Foot or two of the Day amongst many Fragments, within three or four Foot of the Vein. From Endellion-Parifh, Cornwall.

g. 11. Antimony, out of a Vein. Endellion.

g. 12. Antimony, out of a Vein, at Endellion. These Mines are work'd only for Antimony; of which many Tons have been raised here. It lies only in Fiffsures or Veins, that are irregular, both as to their Capacity, and Tendency; from the very Surface of the Rock, which is within four or five Foot of the Day, to ten or twelve Fathom deep. The yellow Matter that 'tis cover'd with, is Sulphur. 'Twas more unctuous; and burns freely with a blue Flame, at the Mines. This Coat is additional; the Vein of Antimony having crack'd and parted, fo that the Parts fit and tally one to another; and the Sulphur introduced since by Water, paffing, hath fill'd up the Cracks, coated and cover'd over the Talis, or Parted-Mafsies, of Antimony. Confer. l. 60. infra.

g. 13. Antimony, out of a Vein. Endellion.


g. 14*. Out of the fame Vein.

g. 15. Antimony in white Spar. Out of another Mine in the fame Tract.


g. 17. Native Sulphur, out of an Antimony-Vein. Endellion.

g. 18. Another Sample of native Sulphur. Out of the fame Vein.

g. 19. Antimony. Endellion. It seems both by the Weight, and by the Hue, and Complexion of the Mafs, to contain likewife Lead.
(21)

Manganese.

b. 1. A Mafs, white, semidiaphanous, glossy, and very ponderous; doubtless holding Lead. On one side is a Cruft of Manganeſe; on the other a yellow Acretion, appearing to be Sulphur. Found but pretty rarely, in a Vein of Manganese in Hartry-Liberty, Mendip, Šomerſetſhire.

b. 2, 3, 4, 5. Other Varieties of the fame. The Manganese upon some of them is cryſtalliz'd. Ibidem.

b. 6. A Mafs of the fame, whiter and less transparent; cover'd over with a Cruft of Manganese. Ibidem.

b. 7. Another, with the Surface thick set with Šmall Caverns. Ibidem.

b. 8, 9. Two Samples, from another of these Manganese-Mines. They appear like Talc; but are very ponderous, and doubtless hold Lead.

b. 10, 11. Two others, fiatried, and fibrous, crufted about with Manganese. Ibidem. The Manganese is compofed of various parallel Criftals; as is that No. 16. infra.

b. 12. Another, compofed partly of white Lead-Ore, and partly of Manganese; both not very curiously into small Criftals.

b. 13. Manganese, black with a Cast of grey, or rather of blue; which the miners reckon the richest and neat; out of a perpendicularly Fiſſure or Vein. Hartry-Liberty, Mendip. The Veins were of all Dimensions to about three Foot in width. The Miners frequently come at the Manganese at the Depth of two or three Feet, ſometimes Šallower; and prosecute it down to five or Šix. One I ſaw, that was wrought to twelve Fathom. Underneath they ūsually find hard Iron-Ore, and ſometimes of the fiatried crufted Oref, call'd Hematites. Manganese is rarely found but in an Iron Vein; the upper part of which Vein it ſometimes fills. In some places it is found quite up to the top of the Vein; ſay, loose likewise ſometimes among Rubble at the top of the Rock. And the Iron Miners of other Countries would term Manganese no other than the Ŝample of an Iron Vein. The Manganese lies in the Vein in Lumps wrack'd, in an irregular manner, among Clay, coarse Spar, and Chips of Stone. It has ordinarily the appearance of Iron Slags; and this, like ſome of ſeſe, and indeed to the common Hematites, is run into Tubera, or Bubbles on one side.

b. 14. A Ŝample, not much inferior; from another Mine in that Neighbourhood.

b. 15. Another, harder, and not fo good; having Tubera on one Surface, and Crifts one within another, not unlike thoſe of the Hæmatites. From another of these Mines.


b. 17. Another, with Mafs, either of the fame Ore, or Spar, lodg'd in it. From another of these Mines.
b. 18. A Mafs of Manganele, enclosing in its Center a Mafs of a blackish talky Spar. *Ibidem.*

Mock-Ores, and Samples of Veins.

i. 1. Blend, or Mock-Lead; with Potters Lead-Ore; cover'd with a Crust of crystalliz'd Spar. *Cumuswith,* one of the Company's Mines, in Montgomeryshire.

i. 2. Blend, out of a Lead-Mine, at Estropheæ; which, I think, is in Radnorshire, Wales.

i. 3. A Marcallite, with Blend incorporated with it. From Polmore-Cliff, in Mr. Scobel's Eftate, Cornwall.

i. 4. Another Marcallite, with Blend, and Spar, also in it. *Ibidem.*

i. 5. A metallic Body with some Efflorescencies of green Copper; the greatest part of it appearing somewhat like the Potters Lead-Ore: tho' it is not that, but probably Blend. Found in a Vein of the Sea-Cliff in Cleggo, Cornwall.

i. 6. A Sample of a Vein, from the fame Cliffs.

i. 7. Mock-Lead, from Mr. Tonquin's Works at *Gamp.* 'Tis a Rib that fill'd a Vein, and has in it several Cross Veins of Spar.

i. 8. Mock-Lead, or Blend, with an Accretion of white crystalliz'd Spar; from *Polliven,* near *Helfion,* Cornwall.

i. 9. Blend, with several Veins of white Spar in it. *Cumuswith* Lead-Vein, *Wales.*

i. 10. A blue Mafs, very glossy and shining. In one part of the Vein of this there is Blend; in another Spar, crystalliz'd upon, and growing from each side of the Vein, and shooting towards the middle of the Vein. From *Cumuswith,* *Wales.*


i. 12. A Marcallite, with Blend incorporated with it, as also some Spar. From Polmore, in Mr. Scobel's Eftate.

i. 13. A Mafs seeming to hold Metal, probably Iron; and referable to the Haematites: with Mundic in it, as also Steatites. Found in a Shoad in Mr. Robinson's Land, two or three Miles from the *Lizard Point,* Cornwall.

i. 14. A mineral Substance, of a dusky ferruginous Hue; having in it some green Efflorescencies of Copper and various Shoots of a Mineral, of the Complexion of Antimony, in a stellar Form, very beautiful. Found with the three following, and the precedent, in Mr. Robinson's Land, among Fragments and Rubble, in a Shoad, above the Rock, or firm Strata. The Tinner say there is found of the very fame Mineral. In the Strings or small Veins, of the said Rock underneath. *Confer.* i. 52. *infra.*


i. 18. A Mafs of Blend, from a Shoad or Stream-Work at *Whole,* Cornwall. *Confer.* m. 8. 12, 88. *infra.*

i. 19. A metallic Body, part of a Load; found about three hundred Yards from the Tin-Work of *Trowa,* in *Breag-Parish,* Cornwall.
wall. There are in it Shoots of a native Metal, exactly of the Complexion of Brass. It emits no Fumes in the Fire.

i. 20. A Mineral, found in great Quantities in a Tin-Vein. From Hard-head, in Cornwall.

i. 21. Lead-Ore, with a little white Spar, in Blend, brown, glossy and shining like Talc. Out of a Mine near Efirophe, Wales. 'Tis judged to hold Copper.

i. 22. Call. It holds Iron. From Peran-Well, near Penrith, Cornwall.

i. 23. An Ore, seeming to be of Tin; but none has been yet got out of it. From a neighbouring Mine of Mr. Emmick, near St. Just, Cornwall.

i. 24. Part of a Vein, grey, and glossy; consisting of white Spar and Blend. It has been asay'd for Tin; but yields none. From a Work near Roche, Cornwall.

i. 25. A Mineral, very ponderous, and probably holding Tin. 'Tis full of what they call Cockle, which is a black, thready Mineral, seeming to be a fibrous Talc. 'Twas part of a Squat, at Hewas-Work, not far from Polgooth, in St. Stephen's Liberty, Cornwall.


i. 27. Call. Trevisc-wood, near Pollice, Cornwall.

i. 28. A Sample of a Vein, holding Tin, Spar and talky Mice; out of a Vein in that Stone which the Tanners call Growan. From a small Tin-Work, a Mile South-West of St. Agnes, Cornwall.

i. 29. A Mass, composed chiefly of Talc and Spar, from Mur-vey-Cliffs, Cornwall; found amongst Strings of Mundick and Copper.


i. 31. A Vein-Stone, from Three-Burroughs, in Mr. Scobel's Estate. It was tried for Tin, but yielded little or none.

i. 32. Part of a Vein, black, flakey, thready, and grumous. From a Load in St. Stephen's Liberty, Cornwall. It holds Sulphur, and flinks when wet. Part of the same Vein, moulder'd and liquared, when exposed to the Weather. Underneath this was Tin-Ore.

i. 33. A talky Stone, of the same sort with that in which the Vein of Tin lies. From Treviddo-Ball, Cornwall.

i. 34. A mineral Mass, by means of Veins and Partitions, divided into various Cells. The Partitions are hard, and of a dusky brown, near a Ruft-Colour. The Cells are fill'd with a friable, yellow Ochre. Digg'd up near the Road betwixt Shipham and Charter-house, Mendip. They had rais'd a considerable Quantity of it; but, whether for the Ochre, or in expectation of Calamin in it, I cannot tell.

i. 35. A Mineral out of Mr. Marriot's Lead-Mines at the How, near Grinton, in Yorkshire.

i. 36. A Sample of a Vein, part of a Load, from a Cliff about half a mile North of the Lizard-Point, Cornwall.
i. 37. A white Stone, with Pores fill’d with a dusky grey Earth, part of a Mafs, of about fifty Pounds Weight; found amongst some others on the Road, about two miles from Radnor, in the way to Etiophone, Wales.

i. 38. A Sample of a Vein, part of a Load, from a Cliff about half a mile North of the Lizard-Point, Cornwall.

i. 39. A fort of Rust-colour’d Stone, frequent in the Rocks by Minehead, vein’d with a yellowish, gloify, talky Spar. The stony Maffes, b. 36, 55, 56. supra, are Pieces out of the Fissures or Veins of the said Stone, forced off, and afterwards rounded by the Sea.

i. 40. Grey Stone with whitish Spots in it, very numerous, seeming to be Fragments of whitish Stone inclosed in it. From St. Agnes-Ball, Cornwall. The Miners there call this Vein-stone.

i. 41. Vein-stone, green and yellow; the latter very friable, and soft. From a Tin-Load, in St. Stephen’s Liberty, Cornwall. There were found some small Pieces of Copper-Ore in the same Load.

i. 42, to 51, inclusive. Samples out of various Veins, all near Redruth. The Miners call them Goffens. They shew a Variety of mixed Matter; and amongst the rest, Spar, tinged blue and green, by Copper.


i. 52. This Mineral was found in Mr. Ball’s Estate at Minehead, Devonshire, ten miles South of Exeter. This is of the same kind with that i. 14. supra.

Copper-Ores.

k. 1. A Mafs of Copper, native, from Ros-Common, (near Trevellet) in Mr. John Eswick’s Estate, Cornwall. Such is very rarely found.

k. 2. Native Copper. From Trevescas-Hork, Cornwall. This Mine was recover’d at a vast Expence, but very little Copper was got; Water bearing so hard upon them and finally drowning them out.


k. 6. Native Copper, with a white gritty Spar. From Cornwall. Sent by Mr. Causter of Redbrook.

k. 7. Out of the same Vein. k. 8. Out of the same Vein.

k. 9. Native Copper in very thin Plates; out of the firm Load or Vein at Trevellet: with a Sample of the Matter of the Load in which ’twas found. Some of it grew also in the Cracks of the Rock at the sides of the Vein, at 12 or 15 Fathom deep.

k. 10. Grains and Flakes of Copper from another Part of the same Vein.

k. 11. Copper Ore, green, with Grains of native Copper in it. From Zowan Coniggin, Cornwall.

k. 12.
k. 12. Copper Ore, with a Vein of Spar; amongst which are various Masses of Native Copper. Out of a Vein (now not wrought) in Trevellot Cliff, near St. Twiff, Cornwall.

k. 13. Another Sample, with much Native Copper. From the same Vein.

k. 14. Another, likewise, with Native Copper, incorporated with Iron-Ore. From still the same Vein.

k. 15. Another, adhering to a Piece of red Stone; being Part of the side of the same Vein. There is upon it a whitish Clay, of which there was a considerable Quantity in this Vein; and I observ'd small Masses of Native Copper frequently amongst it.

k. 16. Another, out of the same Vein. Attempting to break it, a Mass of Copper discover'd it self, so tough and flexil as not easily to be broke, or suffer the Pieces to part.

k. 17. Another, out of still the same Vein, with much Native Copper upon it. It seems also to hold Iron; and there are small Rhomboides upon it, as sometimes happens in Iron-Ore.

k. 18. Another, from the same Vein; with a Sprig of Native Copper upon it.

k. 19. Another, from the same Vein; with a like Sprig, and much Spar.

k. 20. Another, from the same Vein, with numerous Grains of Native Copper in it.

k. 21. Another, with Native Copper, growing in a Thread or small Vein, from still the same Vein.

k. 22. Another, from still the same Vein, with a considerable large Plate of Native Copper.

k. 22. † A Piece of grey Stone, having in it a Vein, fill'd partly with Copper-Ore, and partly with Native Copper. Found among the Wafles anciently digg'd out of the same Vein.

k. 23. Copper-Ore, of a Lead-Colour, much resembling what the Smelters call White Copper. This is the last Colour that Copper assumes in Fusion before it becomes red. This Ore is so very fine and free from flony Matter, that it will cut with a Knife. Out of a small Tin-Mine near the Land's-End, Cornwall.

k. 24. Another Sample of the same, with green Ore along with it. Found in a small Tin-work near the precedent. In several of the Tin-works in Cornwall, there is Copper-Ore of almost all sorts, as well as Mundick in the Tin Veins.

k. 25. Blue Copper-Ore. Found in small Quantities at Addison-Moor. It may serve for a Blue for Painters.

k. 26. Copper-Ore, appearing to hold near half Copper. From Feldum near Richmond. 'Tis found in Quantity, and wrought by Mr. John Wardle. 'Tis in Colonel Byerley's Lordship, Yorkshire.

k. 27. This seems to be a green Copper-Ore. Out of a Vein of a Rock near Eskirher----Wales.

k. 28. Copper-Ore. From a Load in Tolvern-Work, Cornwall.

k. 29. Copper-Ore. Chefswater, Cornwall.
k. 30. Copper-Ore. From Trelawood. Mr. Pollard's Work, Cornwall.
k. 31. Copper-Ore. Out of a Tin-vein from Poldice, Cornwall.
k. 32. Copper-Ore, holding a little Tin. 'Tis wrought for Copper; from Gamp, Cornwall.
k. 33. Copper-Ore. From Chelfwater, Cornwall.
k. 34. Copper-Ore. From Chelfwater.
k. 35. Copper-Ore. From Chelfwater.
k. 36. Copper-Ore. From Chelfwater.
k. 37. Copper-Ore. From Chelfwater.
k. 38. Copper-Ore, poor, hardly worth working; called Gof- fens. From Redruth, Cornwall.
k. 39. Copper-Ore, with Mock-Lead in it. From Wheal Gilbert, Cornwall.
k. 40. Copper-Ore, somewhat differing. From a Mine near the former, Cornwall.
k. 41. Copper-Ore, still a little different. From another Mine in the same Place.
k. 42. Copper-Ore, having a little Mock-Lead in it. From another Vein in the same Place.
k. 43. Copper-Ore. From Wheel-Rose. Mr. Tonquin's Work, Cornwall.
k. 44. Copper-Ore. From Tolgash-Downs, Cornwall.
k. 45. Copper-Ore, out of several Mines, belonging to Mr. Henry Emstuck, near St. Just, Cornwall. In some of the old Works here, work'd by Sir Clement Clarke, are numerous Plates of pure native Copper, lying in the common Copper-Ore, in solid Iron Ore. Found in the same Load, and in the Stone, on each side of the Load, or Vein.
k. 49. Copper-Ore. Relision, Cornwall.
k. 50. Copper-Ore. Trevescas, Cornwall.
k. 51. Copper-Ore. Wheal Rose, near Redruth, Cornwall.
k. 52. Ibidem.
k. 53. Copper-Ore, said to be rich. From Relision-Work, Cornwall.
k. 54. Copper-Ore, pretty good. From Trevescas-work, Cornwall.
k. 55. Copper-Ore. From Treferton, Cornwall. The Sals shooting, 'tis dissolved.
k. 56. Copper-Ore. Redruth, Cornwall.
k. 58. Copper-Ore, with Tin. Mr. Hill's Wood, near Helslo, Cornwall.
k 60. Copper-Ore. From a Mine formerly wrought at Ash- burnon in Devonshire.
k. 61. Copper-Ore, gather'd out of Mr. Trevenion's Deads, or Waisies, in St. Stephen's Liberty: 'Tis work'd by Mr. Wayn. It had
lain long among the Rubbish of that Mine in great Quantity, Cornwall.

k. 62. A Marcasite, with white Spar, out of the same Rubbish, and likewise wrought for Copper.

k. 63. Copper-Ore, red, with green, very rich; out of a Load in Gwallin Parish, Cornwall.

k. 64. Copper-Ore, black, very rich. Out of a neighbouring Load, in Gwallin Parish, Cornwall.

k. 65. Copper-Ore, very poor, with much Spar. Eskirher, Wales.

k. 66. Copper-Ore, from Tolvern. They sold it for —— a Ton. Cornwall.

k. 67. Somewhat better Copper-Ore. From another Vein of the same Work.

k. 68. A green Ore, seeming to have a little Copper. From a Vein in Cleggo-Cliffs, Cornwall.

k. 69. Copper-Ore. Northmouton, Devonshire. This Ore, with the shivery Slate in which 'tis found, constitutes a Stratum of about 3 Foot thick. The Strata on each side it, are of much like Slate. All the Strata stand edge-ways, or perpendicular. The Work is at present overflow'd with Water.


Lead-Ores.

l. 1. Lead-Ore, white and fibrous from Barrow-Work; the Duke of Somerset's Mine in Cumberland. It lies in a Vein amongst blue Lead-Ore, and yields upon the Assay somewhat above three fourths of Lead.

l. 2. White-Lead-Ore. From the same Vein.

l. 3. White-Ore. From still the same Vein.

l. 4. White-Lead-Ore, partly flaky, and partly fibrous. From a Mine of Mr. Edward Harley's at Eskergallid in Montgomeryshire.

l. 5. Ibidem.


l. 7. l. 8. Two more, of a brown Colour. Ibid.

l. 9. A white Mineral, appearing very much like Tincall, having a pungent or saline Taste when first taken up; given me by one of Mr. Ingram's Miners. Mr. Pigg, Mr. Harley's Steward, promised me to get more of it. In Complexion, it very much resembles the following Lead-Ore.

l. 10, 11, 12. The Pieces of white, flaky Lead-Ore, very glossy. Found in a perpendicular Fissure amongst blue or Potters Lead-Ore, about 14 Fathom deep; in a Mine of Mr. Edward Harley's at Eskergallid in Montgomeryshire.


l. 17. Lead-Ore. Guarnock near Truro, Cornwall.

l. 18. Lead-Ore, of a greenish yellow Colour, cavernous and porous; found partly in Ribs and partly in Lumps, after the Manner of Boos-work; in a Vein in Green-hill, near Charter-house, Mendip,
Mendip, Somersetshire. There was a considerable Vein of it, and several Pits, near 20 funk in it; but it is now deferted.


l.20. Another Sample, green with a Cast of brown, owing to the Clay in which 'twas lodg'd. Ibidem.

l.21. Green Lead-Ore concreted, in a thin Plate to a reddish Stone*, being part of one side of the Vein. The Stone on the other side is of the same Colour and Constitution. The Lead-Ore on this Sample is shot into little green Crystals. Ibidem.

l.22. Yellow Lead-Ore, Penrose Work. By Helston, Cornwall. This is stampt; but seems to be of the same sort with that from Mendip.

l.23. Native-Lead. 'Tis soft, flexible, and cuts with a Knife like melted Lead. This is the only Sample of the Kind I ever saw. Found in a Vein amongst Manganeæ, in a Mine of that Mineral in Hartry Liberty, Mendip, Somersetshire. Purum autem sape invenitur Aurum, Argentum, Æs, Argentum vicrum, minus sape Ferrum, & Plumbum cinereum: vix unquam Plumbum candidum & nigrum. Agricola de re Metal. Lib. 5. p.76. c.


l.25. Diced Lead-Ore, very ponderous and rich; found about 3 Fathom deep in Clay, in Mr. Ingram's Mine at Bruntyle near Llanidloes in Montgomeryshire. The Mine is but just opened; but the Part where this lay appeared to be the Top of a Vein, and there is a Rib of blue Lead-Ore underneath.

l.26. Another Piece of Diced-Ore, with course white Spar. The Cubes on one flat are generally small; on the other generally large. Ibidem.


l.32. A Lump of blue Lead-Ore, out of a Vein in Hartry, on Mendip. 'Twas found lying loose and independent about 15 Fathom deep. The common blue Lead-Ore of Mendip, lies in Veins or perpendicular Figures of the Stone, which are short, irregular and no other than Bellies. The Miners here call them Cour-fes†. Into these, several Threads or crofs Figures terminate.

l.33. Another; from a Vein of a neighbouring Mine.

l.34. Another; from another of these Mines.

l.35. Another; from a still different Mine in this Tract.

l.36. Ore of Lead. with Copper, both very fine. Found, filling a small Figure of a grey Stone, in a Mine of my Lady Cambell's, near Eftsphene, Wales.


* Mr. Kemp try'd a Stone of a like Colour and Constitution, and obtained Gold out of it. He had it from one, who would not tell him from what Part of England it came.

† Where the Ore lies soft, they call it Country.
1. 38. Lead-Ore, in Veins of Stone. Goginjon, one of the Company's Works in Montgomeryshire, Wales.


1. 40. A blue Stone, crack'd much after the manner of the Ludus Helmontij: and the Cracks partly fill'd with white Spar, striated a-crofs, after the manner of the Septa of that Body, and partly with Lead-Ore. From Cumnswith. 'Tis pretty uncommon. These are only Strings of Ore, and were beat off the Side of a Gill, near the Bottom.

1. 41. Another Piece of like Stone, with large Septa Strings, or Veins of Lead-Ore, and Spar. The main Crack here was not pass'd quite thro' the Stone. So that those Veins were made by shrinking of the Stone, after the Manner of the Ludus Helmontij. Ibidem.

1. 42. Another. Found along with the two foregoing.


1. 44. Another. The Septa chiefly of Lead, and very large. Ibidem.

1. 45. Another. Ibidem. In this Vein, with Lead-Ore and Spar, are some few Sparks of a yellow shining Marcajnite.

1. 46. Another, with a large Vein of Lead-Ore on one Side, terminating in a much lesser Vein of Spar on the opposite Side. Ibidem.


1. 48. Lead-Ore, small grain'd. Cumsumlurc, one of the Company's Mines, in Montgomeryshire, Wales.

1. 49. Lead-Ore, with Copper, and Marcajnite. Cumsulmuck.

1. 50. Lead-Ore, with white Spar. Cumsulmuck.

1. 51. Talky Lead-Ore. Goginjon, Cornwall.

1. 52. Steel-grained Lead-Ore. Goginjon, Cornwall.

1. 53. Steel-grained Lead-Ore. Eskirher, Wales. This Mine they call the Welsh-Potosi: and a vast Quantity of Lead-Ore hath been rais'd out of it.

1. 54. Potters Lead-Ore. Eskirher, Wales.

1. 55. Lead-Ore. Eftomtean, Wales.

1. 56. Lead-Ore, with Marcajnite. Eftmtean. [Dispolv'd.]

1. 57. Lead-Ore. Goginjon, Cornwall.

1. 58. Lead-Ore, partly steel-grain'd, and partly flakey. Goginjon.

1. 59. Lead-Ore, with some Sparks of the steel-grain'd Kind: but chiefly flakey, some of the Flakes having a Gloss of Blue. Goginjon.

1. 60. Blue Lead-Ore, very fine and clean. This is only a Lump of Boos-Work, out of a Vein; but the greater Part of the Vein was crack'd, and parted, in such fort, that the Parts answer and fit, and tally to one another, like those of the Antimony-Vein at Endellung, Confer. g. 12. Septa. This is very rich in Silver; perhaps beyond any in all England besides. This Ore, when only dress'd, sells for 8 l. a Ton, which is about the Value of Lead it-
self. One of the Proprietors, and some of the Workmen, aver'd that a Ton of this Lead yields 140 Ounces of Silver. From Guar-nock, near Truro, Cornwall. The Vein of Ore was about a Foot over; The Miners say, in some parts they found the Ore near three Foot in Diameter. This lay about 15 Fathom deep.

l. 61. Lead-Ore. Guarnock, by Truro, Cornwall.
l. 62. Lead-Ore. Penrose Works, Cornwall.
l. 63. Lead-Ore. St. Myran, near Padflow.
l. 64. Lead-Ore. By Pyran-Downs, near Penvin, Cornwall.
l. 65. Lead-Ore. Towan-Cliff, near Pyran-Sand, Cornwall.
l. 66. Lead-Ore. From Lord Mohun's Park at Bowconick.
l. 67. Lead-Ore. Crowan-Parish, Sir John St. Aubin, Cornwall.
l. 68. Lead-Ore. Penwortey, near Truro, Cornwall.
l. 69. Remov'd to its proper Clafs.
l. 70. Blue Lead-Ore, veins'd with white Spar. From Esker- gallid in Montgomeryshire. Mr. Harley's Lead-Mine.
l. 71. Blue Lead-Ore; found near Dolgadawin, in Montgomery- shire. 'Twas turn'd up by the Plough: and suppos'd to have been formerly dropt. The Crust was superinduced by the Weath-er: at least, I have seen a like Crust induced upon Pieces that had so lain long expos'd.
l. 72. A Lump of blue Lead-Ore, compos'd of two or three Crufis of a sparkling Lead-Ore, broken, and exhibiting a Cavity within, in which are some tallky crystalline Shoots; out of a Vein in Hartry, on Mendip, Somersetshire. 'Tis hollow, after the manner of the Geodes, and the echinated crystalline Balls.
l. 73. Lead-Ore. Relification Works, Cornwall.
l. 74. Potters Lead-Ore. Mr. Peck's Mine, at Delivy, North- Wales.

Tin-Ores.

Of Tin Ores m. 1. Shoad-Stones, found several Fathoms deep, in general, but above the Rock, or solid Stone, on St. Agnes-Vid. m. 58. Ball, of several Sizes. These, and those N° e. 12, infra. and m. 41. were taken fresh out of the Shoad; and yet by the smoothnefs of their Surfaces, appear to have been worn by Water; which must have been before they were lodged in this Shoad.
m. 2. Tin-Grains, from several Veins of the Mines near St. Agnes, Cornwall. The Crystallizations of these are not so distinct, that a certain Judgment can be pass'd of their Figure.
m. 2 x. A Mafs of Tin-Grains, several seeming to be concreted into one; so that nothing can be ascertain'd as to their natural Figure. From the same Mine.
m. 3. Tin-Grains, from Cleggo-Cliffs, and the Sands at the Foot of them, Cornwall. Among these there are several Infances of the Tin, incorporated with Crystal, shooting into a quadrilateral pyramidal Figure.
m. 4. Ibidem. All these Grains, that are distinct, and fair, are in form of quadrilateral Pyramids.

m. 5. Tin-Grains; from Zonner-Work, Cornwall, near St. Ives. The Tin-Ore, got in these Mines, is more considerable for its Richness, than its Quantity. The Zonner Tin-Ore is the richest in Cornwall.

m. 6. Tin-Grains; from Polgouth, Cornwall.

m. 7. A Piece of Tin-Ore, ponderous, and very rich. Out of a Mine, near St. Agnes, Cornwall.

m. 8. Green Tin, very rich, and fine; out of a Shoad, or Stream-Work, at Whole, Cornwall. Confer. i. 18. supra, & m. 12. & m. 83. infra.

m. 9. Tin-Grains, of a Figure more oblong than any I ever saw; and not unlike the Cornish Diamonds in shape. From Vellanuraine, Cornwall.

m. 10. Tin-Grains. Cornwall. Mr. Causer of Redbrook. There are, in this, several Grains distinct, and of a quadrilateral pyramidal Figure.

m. 11. Tin-Grains; from Vellanuraine.

m. 12. Grain-Tin, very rich, and fine; out of a Shoad, or Stream-Work, at Whole, Cornwall. Conf. i. 18. and m. S. supra, and m. 88. infra.


m. 14. Tin-Ore, very rich; from Trevan.

m. 15. Tin-Grains, very fine; from a Vein of a Mine in Vellanuraine, Cornwall.

m. 16. Tin-Grains, the Soil of the Vein red; from Vellanuraine. Those Grains are in quadrilateral Pyramids.

m. 17. Tin-Grains, with Spar, white, purplish, and one Spark of a bright Smaragdine Green; out of a Tin-Mine near St. Agnes.

m. 18. Tin-Grains, very fine; out of a Vein near the precedent St. Agnes.

m. 19. A Mass, with transparent Shoots, that by their Complexion, seem to hold Tin; which, if they do, is a great Curiosity. From a Mine near St. Agnes.

m. 20. Tin-Ore, with Grains, and Spar. From Zonner-Work, Vid. m. 27. infra.

m. 21. Tin-Ore, very rich, with a Vein of Spar, and Tin-Grains; from Vellanuraine.

m. 22. Tin-Grains; from St. Agnes. Those that appear distinct, are quadrangular and pyramidal.

m. 23. Tin-Ore, with Grains; from Guizer-Work, Cornwall.

m. 24. Tin-Grains, black, very bright and shining, with white Spar. Relifion, Cornwall.

m. 25. Grey Stone, with Tin, Spar, and Marcasite crystalliz'd upon it; from Camb. Mr. Tonquin's Work, Cornwall.

m. 26. Tin-Ore, from Trevan, very rich. Indeed the black Tin is ever all of the same Richness, and yields alike.
m. 27. Tin-Ore, from Zonner; out of the same Shaft with No. m. 20. supra.

m. 28. Tin-Grains; from St. Agnes.

m. 29. Tin-Grains; from St. Agnes.

m. 30. Tin-Ore, with Grains, and Spar, very rich. It adher'd to the Stone of the side of the Vein. This is of a pale Colour, near white, having in it several extremely small Veins of Tin-Ore. From Zonner-Work.

m. 31. Another, still somewhat more clear, and free; being as rich as the Tin-Grains. From Zonner. All that is glossy, and shines in it, is of the same Constitution with the Tin-Grains.

m. 32. Another Sample, with Spar, and Grains. From the same Mine.

m. 33. Tin-Ore, of a rusty brown, very rich; from Fatwork.

m. 34. Tin-Ore, rich; from St. Agnes-Ball.

m. 35. Another Sample, very rich, with Sulphur in it; from the same Place.

m. 36. Rich Tin-Ore, grey, intermingled with white Spar; from the side of a Vein, or Load, at Fatwork.

m. 37. Tin-Ore, very rich. Creekbrans, by Poldice.

m. 38. Tin-Ore, very rich; from Woodyate. Mr. Pollard's Works.

m. 39. Tin-Ore, extreme rich; from near Redruth.

m. 40. Tin-Ore, very rich; from St. Agnes-Ball.

m. 41. A Shoad-Stone, rich, in Tin: and having Tin-Grains crystalliz'd in a Sinus of it. Found on St. Agnes-Ball, along with c. 12. supra, and m. 1.

m. 42. Tin-Ore, very rich, Part of a Vein; from St. Agnes-Ball.

m. 43. Tin-Ore, of a brownish grey, with a Vein of white Spar; from Fatwork.

m. 44. Tin-Ore, very rich. The richest Part is of a dusky Colour, with a Blush of red. From St. Twiss-Ball.

m. 45. Tin-Ore, not so rich. From another Shaft on the same Ball.

m. 46. Tin-Ore, very rich. From a Load, Polgouth. This vast Mine is now under Water; but they are in hopes of draining it.

m. 47. Tin-Ore, grey, rich, with white Spar. From a Work near Fatwork.

m. 48. Tin-Ore, of a dusky brown, near black; with small Tin Grains. From a Work near Fatwork.

m. 49. Tin-Ore, pretty rich. From Zoon-Coniggen.

m. 50. A Piece of glossy Tin-Ore, very rich, and near as fine as the Tin-Grains. Fatwork.

m. 51. Tin-Ore, of a dusky Hue, very rich. From Yellanuraine.

m. 52. Tin-Ore, with Cockle, pretty rich in Tin. From Treviddle Ball near St. Ives.

m. 53. Another, with small Tin-Grains. From the same Place.

m. 54. Tin-Ore. From Redruth.

m. 55.
(33)

§. 55. Tin-Ore, with Cockle, i. e. Talc, striated or fibrous. From Treviddo-Ball, near St. Ives.
§. 56. Tin-Ore, poor and talky. From a Shaft on St. Twist's-Ball.
§. 57. Tin-Ore, abounding in Talc. From Zowan-Coniggan.
§. 58. Tin-Ore, with Grains finely crystalliz'd. From St. Agnes-Ball.
§. 59. Tin-Ore, grey; of the midling sort. From a Mine near Mervia-Ball.
§. 60. Tin-Ore, of the better sort; from a Vein in Cleggo-Cliffs, Cornwall.
§. 61. Tin-Ore; from Port-kellis.
§. 62. Tin-Ore, with Mundick; Fus-Hill, near Wakehampton; in Devonshire.
§. 63. Tin-Ore, very rich, of a glossy brown Colour, with a small Intermixture of Sparks of Marcallite; from a Work near Farwork, Cornwall.
§. 64. Tin-Ore, rich; from a Load in St. Stephen's Liberty, Cornwall.
§. 65. Tin-Ore, a flat Piece, that fill'd the Vein; from St. Agnes-Ball, Cornwall.
§. 66. A Piece of talky Stone, with part of the Vein of Tin adhering to it; from Treviddo-Ball. In this the Talc of the Stone is flakey, that of the Vein fibrous.
§. 67. Tin-Ore, from St. Twist's-Ball.
§. 68. Tin-Ore; from the side of a Cavity of a Vein shot into grumose Efflorescences. Farwork.
§. 69. White Tin-Ore; Carénky-Works, Cornwall.
§. 70. Blue Tin-Ore; Portkellis, Guindon-Parish.
§. 71. Tin-Ore; from Hard-head, near Mr. Nancy's, Cornwall.
§. 73. Another sort, with a Vein of Tin-Grains; from Godolphin-Ball.
§. 74. Tin-Ore, from Gamp, Mr. Tonquin's Work.
§. 75. Tin-Ore, from Gamp, Mr. Tonquin's Work.
§. 76. Tin-Ore, with Marcallite. From Godolphin-Ball.
§. 77. Tin-Ore, from Zomer-Work; with Tin-Grains, small, but very fine.
§. 78. Tin-Ore, with Tin-Grains, finely crystalliz'd; from St. Agnes-Ball.
§. 79. Tin, Copper, Mundick, Spar, and Mock-Lead, in one Stone; Trevescas-Works.
§. 80. Tin-Ore; Lannar, in Guinop.
§. 81. Tin-Ore, rich; from St. Agnes-Ball.
§. 82. Tin-Ore, of a brownish grey Colour, rich vein'd and intermix'd with white Spar; from a Work near Farwork.
§. 83. Tin-Ore, extremely rich; from Polgouth.
§. 84. Tin-Ore, sparre; from Godolphin-Ball.
§. 85. Tin-Ore, pretty rich; from Godolphin-Ball.

E e
m. 86. Tin-Ore, with Cornish Diamonds crystalliz'd along with it; from a Work near St. Agnes-Ball.

m. 87. Tin-Ore, lying in dusky red Spots, very rich; with Coke, and white Spar. It shews the full breadth of the Load or String. From -- -- -- -- near Rochel, Cornwall.

m. 88. Tin-Ore, very good, in white Spar; being a Piece of a Squat, at Hewas-Work; not far from Polgouth, in St. Stephen's Liberty. 'Tis broke off near the Edge of the Squat; and has adhering some of the cretaceous Matter of the Killas to each Surface. Tin-Ore is found lying in four several Methods: 1°. In Fissures, Veins, or Loads. 2°. In Shoads, which are Trains of Matter, driven by Water from the Loads, and lying above the Rocks, or near the Surface, sometimes bare to the Day; and sometimes cover'd with Earth and Rubble, to three, six, or ten Foot deep. That at Whole*, is the only fresh Shoad-Work, or Stream-Work, at this day in Working in all these Parts. 3°. Pedainkarn, which is Tin-Ore interspers'd in Sparks in the Strata of Grown. It is rarely found in this Form; there are only two small Works of this sort now a going in all Cornwall; the one at -- -- , the other at -- -- -- --, both near Godolphin-Ball. 4°. Squat, or Flat-Work. This also is very rare. I know no Work now going forward in Cornwall of this sort, except three or four Shafts at Hewas. The Squat consists of Tin-Ore and Spar, incorporated in much the same manner as in the Loads. The Squat is of a flat Form, thickest in the middle, and gradually lessening all round, so as to terminate in Edges. It is not round; but generally extended in length farther one way than another. I saw none above a Foot thick in the middle; but am told they find them to three Foot thicknesses. The largest extend to ten or twelve Foot in breadth, and eighteen or twenty in length. Some are small: I observ'd one but about two Foot long. They are commonly broke and parted by Fissures, after the manner of the Ludus Helmondij, tho' not near so regularly; and the Fissures are at two, three, or four Foot distance. I observ'd Cavities in several of them; there is indeed a small one in this Sample, m. 88. with Spar, Cornish Diamonds, or Crystals, shot in them. Those I saw lay about twelve Fathom deep, but they are found, uncertainly, at several Depths, even in the same Work, lying under one another. They are found only in Killas, and lie parallel to the Grain of the Stratum of the Killas, which is a fissil Stone. Those I observ'd lay with their Length stretching to the Rise and Dip of the Killas. In these Works of Hewas there was a Stratum of Grown lay above the Stratum of Killas; a thing rarely observed elsewhere.

m. 89. Tin-Ore, from Nuns, Dartmore, in Devonshire.

* See Samples out of this Shoad, i. 18. supra; also m. 8. and 12. supra.
m. 90. Tin-Ore, the best which that Vein affords, tho' poor; grey, vein'd with red; from Hewas-Work, not far from Polgouth. Vid. m. 93. infra.

m. 91. Burnt Tin, from the great Melting-house by Truro. This has undergone a previous Calcination to pass off the Copper and Sulphur; and fit it for Fusion.

m. 92. Tin-Ore, from Trevan, very rich.

m. 93. Poor Tin-Ore, grey with Blend; from the top of the Vein in which m. 90. supra, was found.

m. 94. Pedonkarn, a sort of Tin-stone. The Tins lodg'd in dusky grey Specks in a pale grey Stone, part of a Stratum. There are Micas, as also white Spar amongst it. From Trowa, in Breag-Parish, Cornwall.

m. 95. Part of a Shoad born off the same Stratum, and lying, amidst many others, near the Quarry, for such indeed it is, or Mine, out of which the preceding was got.

m. 96. Growan, part of a Stratum, with Micas in it. Found near the former, at Trowa, in Breag-Parish.

m. 97. Part of the same Stratum, holding a little Tin.

m. 98. Tin-Ore, white; from Morva-Ball. The Tin is in black Grains; and there are Micas in it. This is of their midling Ore.

m. 99. Killas, grey; with Micas and Veins of Tin in it. From St. Agnes-Ball.

m. 100. Tin-Ore. From Fatwork.

m. 101. Tin-Ore, variegated with black, red, and pale brown. Part of the Mafs is concreted into Grumuli. From Crowder, about a mile from Fatwork. ’Tis pretty rich of Tin.

m. 102. Another Sample, as rich, black and red; from another Vein, in Crowder.

m. 103. Tin-Ore, red, very rich; from Vellanuraine.

m. 104. Tin-Ore, in a dusky red Mineral; from near Redruth.

m. 105. Tin-Ore, of a red Colour; with Tin-Grains, black. It is very rich. Found in considerable Quantity in a Load in Gwalen-Parish.

m. 106. Red Tin-Ore, pretty rich, out of the same Vein.

m. 107. Red Tin-Ore. This is a poor Ore. From Morva-Ball.

m. 108. Tin-Ore. Welred, in Lelant-Parish.

m. 109. Tin-Ore, pretty rich; from Trelawood, Mr. Pollard's Work.

m. 110. Tin-Ore, of a poorer sort; from Tolvern.

m. 111. Tin-Ore pretty good; from the same Place.

m. 112. Red Tin-Ore. Carekny Works.

m. 113. A Body, porous and cavernous; holding some small Quantity of Tin, for which it is work'd. St. Agnes-Ball.

m. 114. Tin-Ore, with some shew of Copper; from Trewellos. The same Vein yields in some parts Tin, in others Copper.

m. 115. Tin-Ore; from a Vein of Crowther Work.
Another, paler, but as rich; from a Vein in the same Liberty.

**Iron Ores.**


2. Two Pieces of white, friable, crisply Spar, with Iron Cylinders in them. There were more. The Cylinders lay in the Spar, generally parallel; and only a very few cross-ways. Found with the former.


6. Stalactitae composed of Iron-Ore, with a Congeries of Rhomboid Crystals, transparent with a Cast of Yellow. Out of the Iron Veins. Breaking and examining a vast deal of this Ore, I observed all the Crystals and crystalliz'd Spars, and every thing that was shot, had, generally, a Tendency to a Rhomboid Figure.

7. More, Rhomboid, and crusted round small Iron Stalactite.

8. More, very small. In this Mass are several Iron Rhombs.

9. Rough Spar, brown, form'd into Rhombs, and affix'd upon Iron Stalactite.

10. Iron Rhombs, found amongst the Ore in the Iron Veins, Clouterwall. I observed some of them of a red Colour, others black, others brown.


18. Besides the Rhombs, there are in this several Cylinders, striated like the Hæmatites.


20. Brufty Iron-Ore, or Iron Stalactite. Several of the Stalactitæ are striated, like the Cruts of the Hæmatites, from their Surface towards their Axis. I examin'd a vast many others, and found them striated in like manner.


26. Iron-Ore, with small Bits of a white semi-diaphanous Spar scatter'd in it.

27. Brufty Iron-Ore.


29. Small Iron Columns, fretted over with Spar. They are parallel to each other; but intercepted by various tranverse Iron Plates.

30. This and the following Iron-Ores, to n. 39. inclusive, from Grotto's in the Mines; and the Tops of the old deferred Works; about Clouterwall.

n. 40. Haematites, out of the Top of a Manganese Vein, about three Fathoms from the Surface. Hartry-Liberty, Mendip.

n. 41. Another Sample; from the same Vein.

n. 42. A Piece of very hard Iron-Ore; found about twelve Fathom deep, at the bottom of a Manganese Vein, in one of those Mines. It appears to be pretty rich in Iron.


n. 44. A Mass of Iron-Ore, with Spar crystalliz'd upon it, very much like that of the Langron-Ore. Ibidem.

n. 45. Iron-Ore, poor; from Merv-a-Cliff, Cornwall.

n. 46. Iron-Ore, part resembling the Haematites. From a Load or Vein near Pyran-Sands, Cornwall. The Vein has been work'd formerly, and is vastly large.

n. 47. Iron; from Leneves-Parish, Cornwall.


n. 49. Iron-Ore, Reliflion, very rare, Cornwall.

n. 50. Iron-Ore, Lizard-Point, Cornwall.

n. 51. Iron-Ore, Poldice, Cornwall.

n. 52. Iron-Ore, in form of the Ludus Helmontij; only the Cracks are empty, excepting that there are a few Grains of Crystal or Spar in some of them. There are Samples of these Grains loose, 6. 199. supra. Iron Mines betwixt Laneshly and Pontipool. This sort is call'd there Pin-Ore. See more of it, infra, n. 53, & seq.

n. 53. A Body appearing to be of the same Constitution with the Ludus Helmontij, only the Septa are very numerous, so that it must have been much shatter'd. They consist of Iron-Ore; the Tali of a fine soft red Ochre, that would be very apt to crack, part and shatter. From the same Mines.

n. 54. A Piece broke off the precedent Body.

n. 55. Two small Pieces of a Ludus Helmontij. The Septa Iron-Ore very fine, of a dusky brown Colour; the Tali of a grey soft Stone. From the same Mines.

n. 56. Septa, of the Pin-Ore, composed of several Plates. From the same Mines.


n. 58. This, and the six following Iron-Ores, to n. 68. inclusive, from Major Hanbury's Works near Pontipool. They call this sort Pin-Ore. 'Tis in Nodules of the Ludus Helmontij Kind, and lies in Strata of Shiver over the Coal. See more of this, n. 52. supra. It seems to shrink and crack more when brought up into the Air; as the Ludus Helmontij also does. I observed the Ludus Helmontij near Highgate, when exposed to the Air, shiver'd all to pieces.


n. 65. This seems to be rich, but runs difficultly, so that the Miners do not much value it. 'Tis ever found in flat Masses, in form of Cakes. Pontipool.

n. 66. Another, of like kind, from the same Mine.

n. 67. A brownish grey Iron-Stone, lying in thin Strata, crack'd, and parted into Tali. These Strata lie, some above, others under the Coal. 'Tis poor, but runs freely. Pontipool.

n. 68. A Sample, of another Stratum, of the same Mine.

The Iron-Ore, at Major Hanbury's Works, at Pontipool, is of two sorts. The first is form'd into Masses, after the manner of the Ludus Helmontij. These lie, irregularly, above the Bed of Coal there, and is call'd Pin-Ore. Some of them have shrunk so much, and consequently the Partitions are so wide, that there is near as much void Space as Substance in the Body. Where those Spaces are fill'd, or Septra found, they are ordinarily of Iron-Ore; as those of the common Ludus Helmontij are of Spar. The other sort of Iron-Ore, here, lies in Strata, about nine Inches thick, all crack'd into Squares, and oblong Figures, so as to appear like a Pavement.
A CATALOGUE of the Additional Extraneous English Fossils; viz. Shells, Teeth, Bones, and other Parts of Animals, chiefly Marine.

As also of VEGETABLES, dug up in England.

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Additional Extraneous English Fossils.

**Pectines.**

**a.1.** A Pecten, out of the Cliffs near the River's Mouth, by Bridport, Dorsetshire.

**a.2.** A Pecten, found at a considerable Depth in the Earth below three Strata of Stone, at Stoke, twenty-four Miles from Sea, in the Manor of Castle Cary, Somersetshire.

**a.3.** A Bivalve, from the West-side of Portland.

**a.4.** A very fair Pectunculus, one Valve echinated, or spiked. Out of a Chalk-pit near Carshalton, Surrey.

**a.5.** A Scallop. Out of a Chalk-pit, near Croydon.

**a.6.** An echinated Pectunculus, found 2½ Foot deep, in the great Chalk-pit beyond Croydon, Surrey.

**a.7.** A Pecten, out of a Chalk-pit on Barkhamstead-Common, Hertfordshire.

**a.8.** Impression, of a Scallop, on a grey Flint. *Ibid.*

**a.9.** A Pecten. This appears about the Margin, not unlike the bottom of a Balanus; from a Chalk-pit near Croydon.


**a.11.** Another, less. *Ibid.* The same Pit.


**a.13.** Impressions of two very small Pectens, in a grey Flint. Barkhamstead-Common.

**a.14.** An Impression of a small Pecten, upon an Achaté. Found upon a Hill near Croydon.

**a.15.** A brown Flint, having upon it the Impression of one Valve of a Shell, that appears to be of the common Cockle-kind. Found near Croydon.

**a.16.** A Pecten, from the West-side of Portland.

**a.17.** An Impression of a Pecten upon a flinty Pebble; found in a Field near Keslon, by Bromley Kent.

**a.18.** A Pectunculus, Pirton-Passage. We find of this Kind at Whiston, in Lincolnshire.

**a.19.** Found in a Chalk-pit, near Croydon, Surrey.

**a.20.** A Pecten; from Honeycomb-Lays, a great Quarry in Maish-Hampton-Parish, Gloucestershire.

**Ostrea.**

**a.21.** A Pair of Oyster-Shells, of the common sort, digg'd up, among great Numbers of others, about 14 Foot deep, in a Bed of brown Sand, that lay over a Stratum of Chalk. In a Valley about a Mile from Hertford.

**a.22.**
a. 22. A Pair of Oyster-Shells; from Castgrove, half a Mile North, of Reading. There were vast numbers of them, in a Stratum of Sand, of about a Foot thick, and lying about 25 Foot underneath the Surface. The Pit is very large: and wrought for Chalk, and for Brick-Clay. 'Tis upon the Top of a Hill. The uppermost Stratum is of Gravel, about two Foot thick. Then Clay of various Colours, purple, blue, red, liver-colour, 33 Foot. Next the Sand, with the Oyster-Shells, composed of Grains, greenish, black, and white, one Foot thick. Under this a dusky Clay, with some Oyster-Shells in it, but very tender and rotten, a Foot thick. Underneath Chalk, in which the Workmen have sunk near 20 Foot without finding the Bottom. In this I observed only Fragments of the Pinna Marina; and one pilled Echinus. I observed in other Pits work'd for Chalk, Gravel, &c. the like Oyster-Shells, in a Bed of Sand, of the same sort with that set forth above, and of much the same Thickness; in some Places 15, in others 20 or 25 Foot deep, for two Miles on every side. Reading. Mr. Steele.

a. 23. A Pair of Shells, of the common Oyster-kind. Beckingham, betwixt Bromley and Croydon. Out of a Marl-Pit.

a. 24. A Pair of Oyster-shells, parted so as to shew a Stone cast in the Cavity of them, very fair and curious. Found at a considerable Depth in the Earth, below 3 Strata of Stone; at Stoke, 24 Miles from Sea, in the Manner of Castle-Cary, Somersetshire. Sent by Mr. Player.

a. 25. Several Shells, and particularly the flat Valve of a large Oyster, in Stone. Found in digging Clay for Tiles, near New-Cresf, by Deptford in Kent.


a. 27. One Valve of an Oyster-shell. Found, in great Numbers, on the plough'd Lands, with other Bivalves, near Ailesbury. They are found in all Parts round the Town.

a. 28. The upper Shell of an Oyster. Found in a Chalk-Pit, near Croydon, Surrey.

a. 29. A Mals of Stone, having in it an American The-Oyster, and several Belemnite. Found at a considerable Depth in the Earth, below 3 Strata of Stone; at Stoke, 24 Miles from Sea, in the Manner of Castle-Cary, Somersetshire. Mr. Player.

a. 30. Otites Plotij. Fairford-Field, Gloucestershire. This is the upper, or flat Valve, of a kind of small Oyster; and is found here very commonly. But the other, or concave Valve, being more tender and brittle, is rarely found whole.

a. 31. The upper Valve of a small Oyster. Found near Biffer, in a Stone-Pit, near Blackthorn-Hill.

a. 32. A small Pair of Oysters; found, on the Shores, on the East-side of Creek, about a Mile above Heymouth-Bridge.
a. 33. *A Pedunculus rostratus*. Found, amongst great Numbers of the same, and other Sorts, in the Gravel on Wickball, an high Hill near Mr. Windam’s House, about 4 Miles from Wilton, Wilts.

a. 34. A *Concha rostrata*. Wooton, Oxfordshire.


a. 36. One Valve of a large *Concha*; from a Hill near Einfham-Ferry, Oxfordshire.

a. 37. Small Bivalves; from the West-side of Portland.

a. 38. Five Shells; found, about 50 Foot deep, in the great Chalk-Pit on the South-East of Croydon.

Concha rugosa, *Rostrro recurvo*.


a. 40. *Concha rugosa*; from Charleton, 8 or 10 Miles from Lincoln, in Lincolnshire.

a. 41. *Concha rugosa*; found in a Gravel-Pit on Hampstead-Heath.

Concha Anomia laves.


a. 43. A *Concha Anomia*; found in digging a Ditch near Biffter, Oxfordshire.

a. 44. *Concha Anomia*; found in a Chalk-Pit near Depford.


a. 46. *Concha Anomia laves*. From a Chalk-pit near Guildford.

Dr. Sheppard.

a. 47. A *Concha Anomia*; found, among several others, in a Chalk-pit near Chatham.

a. 48. A *Concha Anomia*; found in digging of a Ditch, near Biffter, Oxfordshire.


a. 50. A *Concha Anomia*; out of a Quarry at Womandham, in Leiceshshire, upon the Borders of Rutland.

a. 51. *Conchites Anomius*, form’d of Flint, the Shell being perished, but the Impression of the Outside of it preserv’d; in a grey Flint, found near Wickham, Kent.

a. 52. A *Concha Anomia*, fill’d with a white crystalliz’d Spar, and lodg’d in a grey Flint. Found near Caesar’s-Camp, beyond Bromley, Kent.

Concha Anomia striata.

a. 53. *Concha Anomia*. Found near Worksworth, in the Peak; in Derbyshire.

*This Species is common on the Shores of Yorkshire, near the Mouth of the River Tees.*
A striated Concha Anomia. From Chiselhurst, betwixt Bromley and Dartford, in Kent.

Peblunculus Anomius; found in a Chalk-pit, in the great Field near Epsom-Church, Surrey. There are found Echini Ovarij, Cordati, & Galeati, in the same Pit.

Concha Striata. Coln St. Allens, Gloucestershire.


A Concha Anomia, sulcated; found in a Chalk-pit, near Chatham.

Peblunculus Anomius, fill’d with crystalline Spar. Fairford-Quarry.

A Flint, found in a small striated Concha Anomia. Out of the middle of a large Flint, near Barkhamstead.

A Concha Anomia striata, in black Flint; out of a large Chalk-pit, near Wellow-Hill, Hertfordshire. The Place is call’d Cross of the Oak, 2 Miles from Barkhamstead.

POLYLEPTOGINGLYMI:

Out of a Stone-pit, near Dinton-Mill, about 3 Miles from Ailesbury.

Found near Ailesbury.

Out of a Quarry near the Church of Melbury-Abbas, Dorsetshire.

Peblunculi leves.

A Bivalve, seeming to be of the same Species with that commonly dug up at Richmond. English Catalogue, Part 2. f. 433. This was found upon the very Top of a very high Mountain call’d Wimble, near Radnor, in Radnorshire, on the Borders of Herefordshire.

The Peblunculus maximus subsusus. Hist. Hist. Conchyl. No. 108. compris’d by some external Force. There is of the Pyrites, concreted upon the Outside, and probably likewise the Inside of it. From the great Clay-pit near Richmond.

A Peblunculus, out of a Chalk-pit, near Croydon, Surrey.

Spar, in Form of a Peblunculus; out of the Sea-Cliffs, near Bridport, Dorsetshire.

Another Specimen. Ibid.

Out of a Stone-pit, near Dinton-Mill, about three Miles from Ailesbury, Buckinghamshire.

Found near Ailesbury.

Two Pair. Found near Bromley, Kent.

A large Peblunculus. Out of the Cliffs near Bridport, Dorsetshire.

Peblunculi fasciati.

Out of a Stone-pit, near Dinton-Mill, Buckinghamshire.

Found at Stotke, in the Mannor of Castle-Cary, Somersetshire.
a. 75. Found, amongst a vast Number of the same sort, and others, at the Depth of 4 Foot, in digging a Ditch, at Orsett, near Tilbury, in Essex.

Peďunculi striati.

a. 76. Found near 60 Foot deep, in the great Clay-pit, Richmond, Surrey.

a. 77. A Peďunculus, found in a Stone-pit in a Field call’d Hawkstone, in the Parish of Can, near Shaston, Dorsetshire.

a. 78. Found, near a. 74. supra, at Stoke, Somersetshire.

a. 79. An Impression of a Peďten, upon a flinty Peble; found in a Gravel-pit, near Bromley, in Kent.

Tellinae.

a. 80. Tellina; found at Stoke, Somersetshire.

a. 81. From the great Quarry, Portland.

a. 82. Found at Lansdown, near Bath.

Cunei.

a. 83. Out of a Tile Clay-pit, in Childrens-Field, in the Parish of Thurnham, 3 Miles from Maidstone, Kent.

a. 84. A Bivalve, with a most beautiful pearly Coat; covering a very fine Brafs-like Pyrites. Found in a Clay-Pit behind Trinity-Chapel, at the End of Bond-street, Piccadilly.

a. 85 & 86. Two Pair of Bivalves, of the same Species with those f. 586. in the English Catalogue; found near Woolwich.


a. 88. A Bivalve, from the Top of Wolston-Hill, in Gloucestershire, four Miles from Tewksbury. All the Stone is vastly full of Shells. Mr. Derham took the Height of this Hill by a Quadrant, and found it 3 Furlongs perpendicular.

a. 89. Out of a Stratum, 9 Foot deep, at Edgecomb, near Croydon. This Stratum was thick set with Shells of the same sorts with those found at Stifford, in Essex, in several Places on Black-Heath and in various other Parts of Kent, Essex, and Surrey.

a. 90 & 91. Two; found on the Sea-Shores, about 4 Miles on this Side Weymouth.

a. 92. From Stoke, Somersetshire.

a. 93. Found near Wotton, Oxfordshire.

a. 94. Found upon a Hill on the West-side of Bath. They are very numerous there.

a. 95. Spar form’d in the room of a Shell. Found near Aylesbury.

a. 96. A Vitriolick, or Sulphureo-Metallic Body, in form of the Shell. No. 606. in the Catalogue of the English extraneous Bodies. ’Twas dig’d up at —— in the Estate of Sir Cecil Bop, about a Mile from Abbington. ’Twas found about 50 Yards deep, along with other like Bodies, in Form of Shells, and other
others in Form of Sticks, or Parts of Trees, but of like vitriolic Constitution. These vitriolico-metallic Principles, in State of Solution, in Water, dissolved the Shell gradually, and concreted successively, in the same Manner and Form. There's something like this in the Solution of Iron, and Concretion of Copper, in a Spring in Hungary. See the Catalogue of the Foreign Native Pofils. And nothing is more common than Spar in Form of Shells; of which the precedent is an Instance, and there are many others in my Cabinet. Vitriol, and Spar, being in the same Water, passing the Strata, in which Shells are lodg'd, the Vitriol dissolves the Shells, the Water washes the dissolved Parts away, and precipitates Spar in their room, till this, having fill'd the Cavity, formerly fill'd by the Shell, of Course resembles the Shell, being moulded and cast in the Cavity whereout that Shell deserted. Where there happens to be no Spar, the Vitriol affixes any other Matter that it has dissolved, as Metal, and frequently also concretes it self, as in this present Instance, and many more that I have seen. See a Sparry Body, in Form of the very same Species of Shell, g. 9. infra.

a.96. A grey Stone, form'd in a Bivalve, of that Kind called by Dr. Plot, Hippoccephaloïdes. Found in digging for Marle, near Ailebury. 'Tis observab:le, that the Shell being perish'd and gone, there are in the room of it many small Crystalizalions of a yellow brassy Marcalite.

a.97. Another Hippoccephaloïdes, out of a Stratum 10 Foot deep, in a Stone-pit near Dinton-Mill, Bucks.

a.98. Another, with Marcalfite, crystalliz'd upon the Surface, in room of the Shell from the same Pit, at Dinton-Mill: Likewise I have observ'd, in room of the Shell, in the Hippoccephaloïdes of Portland, Selenites crystallized; in manner not very un-like, that of this Marcalite.

Musculi.


Pholas.

a.102. A brown Flint, in which was the Shell of a Pholas, now perish'd; but the Flint has preferv'd the Impression, both inside and outside of that Shell. Gravel-pit, near Streatham, Surry.

Concha anomala, seu incerti Generis.

a.103. Parts of a Bivalve, in its Texture striated a-cross, after the Manner of a Pinna Marina. Out of a Chalk-pit near Guildford, Surry.

a.104. A Bivalve in Maum, a harder sort of Chalk, used chiefly for Lime. White-Down, near Wotton, Surry. This lay 25 Foot
Foot deep; but the whole Bed, to the very Surface, is full of these Shells, and of Pyrites.

a. 106. Part of a Shell, with the Texture of the Pinna Marina. Chalk-pit on Barkhamstead Common, Hertfordshire.
a. 107. Fragments of Shells; out of a Chalk-pit on Detling-Hill, within 2 or 3 Miles of Maidstone.
a. 108. Other Fragments of Shells, seeming to be of the same Kind; out of a Chalk-pit on Boxley-Hill.
a. 109. Shells, seeming to be Part of that from which the Enterochus arises; from a very large Chalk-pit, above 50 Foot deep, near Tongum, betwixt Guildford and Farnham, in Surrey. There were vast Numbers of Fragments of this sort of Shell in the Chalk; as also of the Echini, and several other Shells.

Patellæ.
b. 1. A flinty Peble. Found on a Hill betwixt Adington and Croydon, with either the Shell, or the Impression of a Patella in it.
b. 2. A Patella. From a Chalk-pit near Epsom.
b. 3. 4. These two Bodies, and the following (No. 5.) Mr. Stone street judges to be Patelle: I am in doubt of that. These two were found in a Chalk-pit by Busby, about a Mile from Watford, Hertfordshire; where these Bodies are found in great Quantities.
b. 5. Out of a Chalk-pit near Deptford.

Vermiculi.
b. 6. A Vermiculus adhering to part of the Shell of a conic Echinus. Out of a Chalk-pit, near Croydon.
b. 7. Part of a Shell of Texture like that of the Pinna Marina, with the Shell of a Vermiculus, and several other Shells of some kind of Bivalve, affix'd upon it. From a Chalk-pit, on Whelpley-Hill.

Nautili.
c. 1. A Nautilus Gracorum, having a glittering brassly Pyrites adhering to it externally. 'Tis broke; and the Inside is lined with a Crust of a like Pyrites, striated a-crofs, after the manner of the talky plated Spars. There are also Plates of Pyrites, striated in like manner, running crofs the Cavity of the Volutæ, in room of the Diaphragms which are broken, and the Fragments lie dispersed in several places, being incorporated with the Mafs of the Pyrites. Found in the great Clay-pit at Richmond, Surrey.
c. 2. Three Joints of Nautiloides. Found near Bath.
**AMMONITÆ.**

c. 3. An Ammonites, from Stoke, Somersetshire.
c. 6. Ammonites. Found amongst Multitudes of others, in a vast Pit of Maum, used for Lime, at the bottom of Box-hill, near a Mile from Darkimg, in Surrey.
c. 7. A Segment of a *Corna Ammonis*. Found amongst several others, in a Chalk-pit, at Worton, three Miles beyond Darkimg, Surrey. They were much of one size, and about three Inches broad, but very tender. There were several other Shells with them.
c. 8. Whitby, Yorkshire.  
c. 9. Pyrton-Passage, Gloucestershire.  
c. 10. Whitby Alum-Mines.
c. 13. Mr. Squire's Alum-Mines, at Blackhead, near Whitby; Yorkshire.
c. 15. Stoke, Somersetshire.  
c. 16. Weymouth.
c. 17. An Impression of an Ammonites upon a flinty Pebble, found near Shooters-Hill, Kent.
c. 18. A very small *Corna Ammonis*, found in the middle of a Pebble, near Bromley, in Kent.
c. 19. A Segment of a *Corna Ammonis*, found near Beer, Devonshire.
c. 20. A Segment of the two contiguous Shells of the inner part of the Voluæ of a large Ammonites. There are Ammonitæ of this Species found here vastly big. Mr. Hutchinson sent, in this Parcel, a Segment of a Voluta that was eighteen Inches about. *Pynton-Passage.*
c. 21. Part of the outside Shell of another, very crafj. *Pyront-Passage.*
c. 22. Three Bodies, round, and environ'd with Ridges and Furrows alternately. There were found various Shells, and Sharks Teeth, along with these. *Pilkston-Cliffs, Kent.* There are of these in the *Catalogue of the English Extraneous Fossils*, No. p. 156, 157, 158.

**COCHLEÆ.**

c. 23. A River Snail-Shell; and several turbinated Stones, form'd in like Shells, variously comprefs'd. From the Marble-Quarry, four or five Miles from Petworth, Sussex.

[A.] c. 24*. A River Snail-shell decay'd, and shewing Spar within. Found near Camberwell, with No. c. 36. infra.
c. 25. Cochlites. Found near Alesbury.
c. 26. A Stone form'd in a turbinated Shell, found in the Highway at the hither end of Ailesbury Town.

c. 27. A turbinated Shell, from the great Clay-pit, near Richmond.

c. 28. A turbinated Shell, found along with that in the English Catalogue, No. e. 124.* in sinking a Well at Pinner-Hill, Middlesex.

c. 29. Great Clay-pit. Richmond, Surrey.

Trochi.


c. 32. Trochus, Bridport, Dorsetshire. The Body being broke, the interior Frame of it is laid open. The Shell is perish'd, and succeeded by a Spar.

Rhomby.

c. 33. Four Rhomboid Shells, found in digging a Ditch, near Bifeter, Oxfordshire.

c. 34. Found with the precedent Rhomboides, near Bifeter.

Buccina.

c. 35. A very elegant Buccinum, found amongst great Variety of Shells, Sharks Teeth, and other marine Bodies, about sixty Foot deep, in the great Clay-pit at Richmond, Surrey.

c. 36. A Buccinum, found, in digging a Ditch, at the South-End of Camberwell, Surrey. There were found, with this, several other kinds of Shells, of the same sorts with those found on Blackheath, also near Woolwich; and at Stifford in Essex.

c. 37. A Shell of the same Species with those dug up near Woolwich, e. 77. English Catalogue, Part 2. This was dug up at Sundridge, near Bromley.

c. 38. A Buccinum, of the same Species with those dug up near Woolwich, e. 112. Catalogue of the English Fossils, Part 2. Found with the former at Sundridge.

c. 39. A turbinated Shell, found, about two Foot deep, in a very high Ground, near that call'd Caesar's Camp, three Miles from Bromley, Kent. 'Tis of the same Species with those found at Woolwich. English Catalogue, e. 77.

c. 40. A Stone, red, form'd in a turbinated Shell, found, with Entrochi, at Bothel, in Cumberland, in a Bank on the high Road side, leading from Carlisle to Cockermouth.

c. 41. A Pyrites, found in a turbinated Shell; from the great Clay-pit, near Richmond.

Echini Spatagi Cordiformes.

d. 1. Echinutes Cord. The greatest part of it was immersed in a large Flint; and almost cover'd by it. Found by Barkhamstead.

d. 2. Echinutes Cord. much sulcated, or chop'd. Downs near Carshalton, Surrey.
d. 3. Echinites Cordiformis. Found in a Gravel-pit near Croydon, Surrey. This Shell seems to have been broken on one side; and the flinty Matter to have enter'd at the Breach, where likewise a great Appendage of Flint was form'd.

d. 4. Impression of an Echin. Spat. Cord. on Flint. Amerson-Common, Buckinghamshire.

d. 5. A corded Echinite. Found by Raidsbury in Buckinghamshire, near Stains.

d. 6. Another, found in a Gravel-pit on the Backside of Trinity-Chapel, at the end of Bondstreet, Piccadilly. There seems to have been the Base of a Balanus on the inside of the Echinus in which this Body was formed.

d. 7. Echinites Cordiformis. Found near Barkhamstead.


d. 9. A Flint form'd in the Shell of a corded Echinus Spatagus; by the Impressions, apparent on the Stone, 'tis evident the Shell was compress'd by some external Force before the Stone had attain'd its present Hardness. Found near Croydon, Surrey.

Echini Spat. Galeati.

d. 10. A galeated Echinus, the largest I ever saw. Out of a Chalk-pit near Sutton, in Surrey.

d. 11. A very fair galeated Echinides, found near Malden.

d. 12. A galeated Echinus, found on the Top of high Hill, in Mr. William Collins's Estate, in the Parish of Exminster, three Miles from Exeter.

d. 13. A galeated Echinite, of a Species somewhat differing from the common. Found in a Field near Little-Hallingbury in Essex; not far from Bishop-Stratford.


d. 15. Echinides galeatus, much compress'd. Carshalton, Surrey.

d. 16. A galeated Echinite, consisting of a grey Flint, very perfect and fair. Found near Marlow, Buckinghamshire.


d. 18. Another, more copp'd, or tending to a conoid Shape. Downs near Carshalton, Surrey. In this the Sutures or Partitions of the Plates of the Shell are finely exhibited.


- d. 22. A dark brown Flint, form'd in the Shell of a galeated Echinus Spatagus. Found near Carshalton, in Surrey. It represents the whole Inside of the empty Shell very exactly.

- d. 23. Another like Flint, form'd in the Shell of an Echinus of the same Genus, but of a somewhat different Species. From the
fame Place. This exhibits the Impression of the lower part of the Shell; but has a Cavity at the Top, form’d by the Fifth, or some part of it, which happen’d to be remaining in this Shell when the flinty Matter enter’d.

d. 24. An Echinite found on the Shores under Haudle-Cliff, near Hurst-Beach, betwixt Christ-Church and Limington.

d. 25. Echinites Galeatus. White-Down, near Wotton, Surrey.

d. 26. An Echinus, found by the Road near Penington-Green, by Lambeth. There are some Remains of the denser and firmer Parts of the Shell yet adhering to the Surface of the Stone.

**Echini Spat. Conoides, seu Pileati.**

d. 27. Echinus Spat. Pileiformis, seu Conoides. Found in the same Pit where the Oyster-shell, a. 22. was found, at Catsgrove, near Reading.


d. 29. Echinus pileatus, out of a Chalk-pit at the very Top of Wolpley-Hill, near Barkhamstead, Hertfordshire. This Hill is of a considerable Height.

d. 30. An Echinus pileatus. From the great Chalk-pit near Chiselhurst, Kent. There is a Mass of Flint adhering to it externally.


d. 32. Echinites pileatus. Found among several others, near Reading, in Berkshire.

d. 33. A conic flinty Echinus, found in the great Gravel-pit on the East-side of Hyde-Park, without. ’Twas found, in the midst of a large Flint, in the middle on every side with flinty Matter; and yet the Shell was perish’d, and gone. There was an Impression of the Outside of the Shell upon the invironing Flint. Water will infinuate itself into Flints through certain imperceptible Cracks. This is most evident in those Flints that have Dendrite in them. By Water thus infinuating itself, and carrying Salts, the Shells in Flints are sometimes dissolved and destroy’d.

d. 34. Echinites Conoides. Found near Sandercstead, Surrey.

d. 35. A small Echinus, found inclosed near the Center of a pretty large Flint; near Croydon, Surrey.

**Echini Ovarijs.**

d. 36. An Echinus Ovarijs. Chalk-pit at the End of Deptford.


d. 39. An Echinum, or Flint, cast in the Shell of an Echinus Ovarijs; in which are, I think, Impressions of the Teeth. Found near the Road a little on this side Watford, Hertfordshire.

d. 40;
An Echinus Ovar. in a brown Flint, in which is a fair Impression of the Outside of the Shell. Gravel-pit, on Egham-Heath, Berkshire.

An Impression of two Plates of an Echinus Ovarius on a Flint. Found in the great Gravel-pit near Nibbs-Pond, St. Giles's.

Impression of an Echin. Ovar. on a flinty Pebble. Peck-ham, Surrey.

Impressions of Plates of the Shell, and Spinæ, of Echinus; out of a Gravel-pit near Caffobury-Park, Hertfordshire. The Flints hereabouts have commonly like Impressions.

An Impression of the Spinæ of an Echin. Ovar. in a grey Flint. Found in Gravel, near Hatfield, Hertfordshire.

Lapis Judaicus. The clavated Spike of an Echinus; part of it isimmered in a black Flint. Found in a Chalk-pit, near Smitham-Bottom. Entrochus.

A concavo-convex pentangular Plate, part of a Shell; seeming to be of that sort that belongs to the Entrochus; and supposed by Dr. Beaumont, and those who call this Body a Rock-Plant, to be the Bulb or Root from which it arises. Whereas this Entrochus is only an Appendage, or Train to that Shell. From a Chalk-pit on Epsom-Common.

Another, from the same Chalk-pit.

An Entrochus, from Laffington, in Gloucestershire. Found with the Star-Stones.

Entrochi, found (on a Bank in the High-Road-side leading from Carlifie to Cockermouth) at Bothel, in Cumberland.

Entrochi, from Moreland, in Westmorland. Found upon the Banks of the River, at the upper end of the Town.

Entrochi, found at about a Mile and half’s distance from the River, near King’s-Meaburn, Westmorland.

Entrochi, out of a Lime-stone Ground at Bothel, in Cumberland.

Entrochi, found in the Tile Clay-pit behind Trinity-Chapel, at the end of Bondstreet, St. James’s.

An Impression of an Entrocho-Asteria on a Flint. New-Cross, near Deptford.

Appendix 1. Entrochi.

Appendix 2. Entrocho-Asteria.
Appendix 3. Afteria.

*d. 62. An Afteria, found near the Top of Breeden, an high Hill, in Worcestershire.

*d. 63. Afteriae, from a Brook in the Forest of Blackmoor, near Melbury, Somersetshire.

*d. 64. Afteria, found in a Gullet in the Street in the lower part of Leppington-Town, Yorkshire.

*d. 65. Afteriae, found, in great Numbers, in a Brook, at Levison, near Sherburn, Gloucestershire.

*d. 66. Two Joints of an Afteria in a black Flint. From a Chalk-pit near Guildford, Surrey. Dr. Sheppard.

*d. 67. A flinty Peble, with the Impression of a short Column of an Afteria on it. Found near Bromley-Church, Kent.

Partes Piscium.

e. 1. Part of a Bone found in a Quarry upon Coln-Breach, in Coln-St. Allens-Fields, Gloucestershire.

e. 2. A large Vertebra, five Inches over, one Inch and \( \frac{1}{2} \) high, found in a black Grit-stone, forty Foot deep, on occasion of trying for Coal, in a Ground call'd Richmonds, near Whiteings-Water, in Melbury-Abbas Parifh, near Shafston, in the County of Dorset. There were other Vertebrae found with it; as also Sea-shells.

e. 3. A large Vertebra, found two Foot deep near Ashley, Northamptonshire.

e. 4, 5. Part of two Vertebrae of some Fish. Found about forty Foot deep in the great Chalk-pit at the West-end of Greenhithe.

e. 6. A Vertebra, small, found in Marl, in Bewly-Parifh, by Limington, Hampshire.

e. 7. A Body seeming to be the Head of a small Bone. Chalk-pit, by Deptford.

e. 8. A Piece of the upper part of the Skull of some kind of Fish, found, with Bufonitae, in a Quarry a Mile from Fairford, Gloucestershire.

e. 9. Three boney Substances. Found near Witney, Oxfordshire.

e. 10. A Gloosopetra, or Shark's-Tooth, found, among many others, and small Fragments of Bones, as also Oyster-shells, in a Bed of Sand, at Castgrove, near Reading.

e. 11. A small Gloosopetra, dugged up, with several others, in a Brick Clay-pit, near Illington, Middlesex.


e. 13. Four Teeth. Witney.


e. 15. A Body of a dark brown Colour somewhat inflected; in some parts striated, in others studded on the Surface; with a me-
dullar Substance, of a very pale brown Colour, running length-ways of it; it lies in Stone. Found in a Quarry near Stonesfield, Oxfordshire.

e. 16. Witney.  
e. 17. Witney.

e. 18. A Tooth, conic, somewhat inflected; found, in Marl, in Bewley-Parish, by Limington, Hampshire.

e. 19. Witney.

e. 20. Befonite, or Teeth of the Lupus Marinus; found, in a flatey Stone, in a Quarry call'd Honeycomb-Layes, in Mazy-Hampton Parish, near Fairford, in Gloucestershire. There are like Bodies found also in a Quarry in Fairford-Fields, about half a Mile North-East of the Town; and at Stunsfield in Oxfordshire, in a Stone-Quarry. Mr. Eeleyplace Bellers.

e. 21. Stunsfield-Quarry, Oxfordshire.

e. 22. Siliquastra, of various Figures, and Sizes. Stunsfield-Quarry, Oxfordshire. As these Bodies seem to have serv'd for the Coverture or Paving of the Mouth of some kind of Fish, so some of them appear to have lain in the midst: others to the sides; and they are so form'd, that those that have lain to the right side, have the Angle rounded off on that side; as the other, Antagonists, have it rounded off the left; the two Oppolites usually pairing. Some of them appear to be worn by grinding or chewing; and one or two, by the agitation of the Sea. Of these last, I have seen several, tho' they are not near so common as the others.

e. 23. Witney.

e. 24. One rhomboidal boney Scale of the Needle-Fish, out of Stunsfield-Quarry, two Miles from Woodstock. The Mals off which this was broke, Thomas Wells, the Quarry-Man, assered me was flat, cover'd over with Scales, and above three Foot long.

e. 25, 26. Coalslate, with Impressions, which seem to be of the Scales of some Fish*. It lay about forty Foot deep, just over the Bed of Coal, in an old deserted Coal-pit at Merackjon, about three Miles from Tenby.

e. 27. A round Bone, with a Hollow on one side, and a Spine arising out of it, as usual, either in the Thornback, or some other Fishes of that kind; immered in a small Pebble. Found in Gravel near Croydon.

e. 28. A boney or horney Body, slender, round, long; lying in an hard Stone, in which are Impressions of various Shells. Witney.

Partes Quadrupedum.

f. 1. A very extraordinary boney Body; dug up with the Elephant's Tusk mention'd in English Catalogue, Part. 2. o. 2. at Bowsden Parva, in Northamptonshire. Sent by Mr. Morton, who imagines it to be part of the Probosscis of that Elephant.

*I much doubt whether this be not rather to be referred to the Class of Vegetables, p. ——, infra.
f. 2. Part of the Grinder-Tooth of an Elephant, digged up near the same Place where the Elephant's Tusk, English Catalogue, Part 2. No. 2. was digged up. Bowden, Northamptonshire.

Shells, and other Bodies, in Stone.

g. 1. A Mass of brown Stone, that has lain exposed to the Rain and Weather, by means of which it is much worn, and the Sand beat away, so as to discover very numerous Sea-shells within, chiefly of the two kinds of Conchæ anomia. Taken off the Top of a loose Wall, in Brisol Road, near Bath.

g. 2. Great Numbers of the Concha anomia striata, in a Red-flone, part of a Stratum nine Foot deep, out of a Quarry at Womandham, in Leicestershire, upon the Borders of Rutland. Some of these, being broken, shew a white transparent crystallized Spar in the Cavities of them.

g. 3. Several Conchæ anomia, in Stone. Lansdown, near Bath.

g. 4. A fine grey Sand, thick set with Species of small Bivalves, part of a Stratum of a Cliff. Midway betwixt Limington and Christchurch, Hampshire.

g. 5. Small Shells, in great Numbers, all near of the same Size and Growth, seeming to be Vernal, and young Shells, of some kind of large Bivalve, found on the Shores, on the East-side of a Creek, about a Mile above Weymouth Bridge.

g. 6. Stone, with various Shells in it. Tyrton-Passage.

g. 7. A Mass of marly Clay, now dry'd and harden'd, from Sunridge, near Bromley, in Kent, so thick set with Shells, that it seems to have more teitaceous than earthy Matter in it. They lay from near the Surface to twenty Foot deep. They use this Earth, with the Shells in it, as Marl, for Manure. In the Sand and Gravel-pits, at both ends of Woolwich, and betwixt that Town and Charlton, there are Strata in which, I think, these Shells lie thicker. Indeed so thick in some places, that there seems to be very little terrestrial Matter interpos'd. 'Tis remarkable that they are of the same sorts with these; as are likewise those found at Stifford in Essex, and in several other Parts of that County, Kent, and Surrey.

g. 8. Stone of a dusky brown Colour, very thick set with Bivalves. From a Quarry near Clay-Crofts, in the Parish of North-Wingfield, in Scarisbale, Derbyshire.

g. 9. A quarry Body exactly in form of one Valve of one of the knobb'd Bivalve; being form'd in room of one of the said Valves, that being first corroded, and carry'd off; struck out of a piece of Ludus Helmontij. Found about a Mile above Weymouth-Bridge.

g. 10. Part of a Stratum of Stone of a dark grey Colour, holding Shells, and small Fragments of other marine Bodies in it. Found in Mr. Marriot's Lead-Mines at the Howe, near Grinton, in Yorkshire.

g. 11. A Mass of Stone thick set with turbinated Shells, seeming to be of River-Snails, of that kind call'd by Dr. Lister Cocklers.

g. 12. A Mass of brown Stone, beat from the Strata of the Cliffs, and worn by being shuffled on the Shores to and again by the Water; having great Numbers of Shells in it, both bivalve and turbinated: as also one Dentale, found loose upon the Shore, mid-way betwixt Limington and Christ-Church.

g. 13. A Mass of black Stone, with Shells of the very same Kind in it; found upon the Shore not far from the former.

g. 14. A blackish Marl, now dry’d, and harden’d, with Shells also of the same Kinds in it; from the same Place.

g. 15. A very hard Stone, of a reddish Colour, having in it great Numbers of that sort of River-Shell which Dr. Lister calls Cochlea vivipara fasciata fluviatilis, No. 26. L. Hist. Conchyl. fluv. which Species is now found living in the Thames, and some other Rivers of England. There are two Pieces of this Stone, which were broke from, and so tally to each other. From the same Place.

g. 15 x. The same sort of Stone, found on the Shore under Hor-dell-Cliffs, Hampshire. ’Twas beat, by Storms, and Tides, out of those Cliffs: and shuffled and worn, on those Shores, so as to shew the Shells, in it, in various Sections in a very beautiful manner.

g. 16. A dusky grey Stone, with Shells of the same Kind, and others. in it. From the same Place.

g. 16 x. Another, having in it several of the Cochlea vivipara, several small Buccina, and a compress’d Cochlea, seeming to be all River-Shells. From the same Place.

g. 17. A brown earthy Mass, with numerous Shells in it, out of the Hollow of a large turbinated Shell. Found in the Cliffs beyond Limington.

g. 17 x. Stone so thick set with Shells, that the testaceous seems to exceed the arenaceous Matter of the Mass. From Bossall, Yorkshire.

g. 18. A black Slate, holding in it great Numbers of Spinula of an Echinus spatagus. From the Top of the Mountain Skiddaw, in Cumberland; where like Slate is found in vast Quantities.

g. 18 x. Shells of some kind of Tellina, in black Slate; found with great Numbers of Ferns, and other Plants, in a Coal-pit at Houghton le Spring, in the Bishoprick of Durham.

g. 19. Chert, a sort of flinty Stone, with a grey hard Stone joining it. They together constitute a Stratum, and meet in near a Line, by that means dividing it into two Parts. This Stratum over-plies the Lead-Works. There are Impressions of Shells in it. In Mr. Marriot’s Lead-Mines at the Howe, near Grinton, Yorkshire.

g. 20. A Piece of Stone, with Ova of Fishes, and Fragments of Shells in it. Northleach, Gloucestershire.

g. 21, 22, 23, 24. Stone, corroded by Marine Steams. It hath in it Shells, and Entrochi, that have escaped, and remain intire. So that these abide those Steams better than the Stone; which yet
I find to be harder than the common Genoese Marble. From the Cliffs of Caldy-Island, Wales.

\[g.25\]. From the same Cliffs. 'Tis cut, and part of it polished; in doing which, on this, and several others, Judgment was made of the Hardness of this Stone.

\[g.26\]. From the same Cliffs. This, besides Shells, Entrochi, and other Bodies, has in it fair Pieces of Corallina reticulata, or Planta Marina retiformis, \[fob. Baubini \& Clusij, commonly call'd the Sea-Fan.\]

\[g.27\]. This has in it Part of a Sea-Fan, of an inflected Body, seeming to be an Entrochus; and a Ray of one Species of English Star-Fish, with Cirrhi, very conspicuous, on one side. From the same Cliffs.

\[g.28\]. Black Marble, vein'd with white Spar. 'Tis full of Entrochi. One is very large, broke, and parted; and a Vein of Spar intercets or paffes betwixt the Pieces or Parts. This shews that the Stone was crack'd and broke; and that that Spar was introduced into the Fissures since the Compilation of the Stratum of Marble; which may serve to give a Hint of the Origin of at least one sort of the Veins in Stone and Marble. From Caldy-Island, Wales.

\[g.29\]. From the Cliffs of Caldy-Island.

\[g.30\]. Entrochi, in a soft Stone, grey, and red. Caldy-Island.

\[g.31\]. A Stone, with vast Numbers of Entrochi and Bivalves in it; found in the Rubble of a Lead-Mine, in Charterhouse Liberty, Mendip.

\[g.32\]. Aferia, very fair, in Stone. Pyrton-Passage.

\[g.33\]. Aferia, in a very fine hard Stone. Pyrton-Passage.

\[g.34\]. A Mafs of Stone, with Shells and Aferia in it. Pyrton-Passage.

\[g.35\]. A dusky grey Stone, having in it Shells, Spikes of Echiné mar. and several Entrocho-Aferia. Pyrton-Passage.

\[g.36\]. A Mafs of yellow shining mineral Matter, much like that of the Pyrites, with numerous Shells, Aferia, and Joints of the Wires of the Aferia in it; all of a yellow, shining, brass-like Complexion. Pyrton-Passage.

**Parts of Vegetables, digg'd up out of the Earth.**

\[b.1\]. A Piece of an Oak that was 31 Foot in Length, and 7 in Girt, near the Root. There were Stumps of the Root on, about 2 Foot in Length, and of the Branches to 5 or 6 Foot. Found, about 3 Foot deep, in Sunning-Hill-Park, 4 Miles from Windsor. They are very numerous, both here, and in the neighbouring Peat-Moors. In some they find Hazle-Shrubs, and Nuts. They split the Oaks, and use them for Pales; in which they abide the Weather and last longer than the common Oak.

\[b.2\]. Wood, broke off a Stump of a Tree that was in a growing Pottage, erect, and the Roots extended horizontally in every Direction. There were some hundreds in the like Pottage, stand-
ing about a Foot above the Surface. They were much perish'd and rotted. I saw no Mark of an Ax, or other Tool, upon any, nor were there any of the Bodies of the Trees remaining. They stood all in a Peat-Marsh that was very boggy. They were all of a sort; and I took them to be Firs. Three Miles from Llanedloes, in Montgomeryshire, betwixt that Town and Eskerghalid-Mines. This Marsh, or Bog, is at the Top of a high Mountain.

b. 3. A Bit of Wood, satureted with Bitumen; from Honeycomb Lays, a great Quarry in Mazy-Hampton Parish, Gloucestershire.

b. 4. A grey floney Mass, part of a very large one, that had in it what appear'd very much like the Branches of a Tree very much rotted. There were in the same Mass great Numbers of Sea-Shells, both Bivalves, and turbinated. There appear'd, in various Parts of it, a talty Spar, grey, with a Coat of yellow. There were Veins of it likewise diffused through the Wood. Found upon the Shores of the Creek, about half a Mile above Weymouth-Bridge. In a Stratum of hard Stone, in a Quarry near Bridport, Dorsetshire. I likewise observ'd Wood, and Sea-Shells.

b. 5. A Piece of Wood, out of the same Stone.

b. 6. A brown friable Substance, which Mr. Player takes to be Wood. There is a Vein of white Spar in it. Out of a Quarry near Stoke, Somersetshire.

b. 7. A Body with the appearance of Wood, but having in it Veins, or rather Diaphragms of Spar; from Honeycomb-Lays, a great Quarry in Mazy-Hampton Parish, Gloucestershire.

b. 8. Part of a floney Body, of a Cylindric Form, somewhat resembling Part of a Branch of a Tree. In the Middle is a white Substance, of somewhat harder Consistence than that of the compact Chalk. This answers to the Pith, and is surroundid with numerous thin Coats, compos'd of a Matter more hard and floney, of a brown Colour, and not unaptly resembling some Wood. Dug up in the great Tile Clay-pit, near Richmond, Surrey.

b. 9. Petrify'd Wood, of a deep brown Colour, near black; and having a Vein of a very pale or yellowish brown talty Spar running length-ways of it. This Body is very hard, and ponderous; but has much of the Grain of Wood. 'Twas given me by Monsieur Miffon, who broke it off the Trunk of a Tree, petrify'd, and of the same Constitution and Colour throughout; in Length about 14 Feet, in Diameter above a Foot at one End, tapering, and somewhat less at the other, where there were some small Remains of Branches. It lay on the Shore, near Harwich, underneath the Cliff, out of which doubtles it had been beaten by the Agitation of the Sea. Sir Anthony Dean saw the Piece that is polish'd, [b. 10.] as also the Tree under the Cliff; and attests this Account. When he saw the Tree, it was yet actually lying in the Cliff: but a great part of it uncover'd and bare. He judg'd by the Shape that 'twas a Tree. This was in the Year 1666.

b. 10. A Piece of the same Wood, polish'd. 'Tis not very hard.
b. 11. A Body, having very much of the Grain and Appearance of Oak; but is ponderous, and much saturated with the Matter of the Pyrites. From the Cliffs of Sheppey-Island.

b. 12. Suppos'd to be petrify'd Wood. Found, near the Sea, in a Sinus of Maidstone River, Kent.


b. 16. A Body suppos'd to be Wood petrify'd. It lay in a Bed of Sand, 15 Foot deep, on Amerfon-Common, Buckinghamshire.

b. 17. A Piece of grey Stone, part of a Stratum, lying above the Coal, in the Pits near Kirthleygear, Wales, having in it an Equisetum palustre. In the same Stone are found various Kinds of Fern, and particularly the Osmunda Reg.


b. 20. Part of an Iron-stone Nodule, having upon it Leaves, and Impressions of the Fern-kind, particularly the common Female-Fern, and Osmunda regalis; from a Coal-pit near Little-Dean, in the Forest of Dean, Gloucestershire. These Bodies are of the same sort with those call'd in the North Cats-Heads. These here are of various Sizes, from 3 Inches over, to 6 or 7; and generally of a flattish Shape. They lie all flat-ways, in the same Stratum, single, in the same horizontal Plane, and not one upon another. This Stratum is of Earth, as I remember, of a rust Colour; and 2 or 3 Foot thick. It lies immediately above the Stratum of Coal, under a Stratum of Stone, that was, in this Pit, solid, though, in some of the rest, 'twas broken, and rubley. These Bodies lie about 12 or 14 Foot below the Surface.

b. 21. Part of another, from the same Stratum, but from another Pit: This Stratum being found much at the same Depth in all the Pits of this Gang. There are, in this, Fern of three Kinds; of which the Leaves of two are preserv'd in Subsance, by the Intrusion of mineral Matter. But the third Kind, both in this, and all the other Nodules that I broke, was found in Form of a fine dusky brown Powder; after having made Impressions, of both its Surfaces, on the two opposite contiguous Parts of the Stone.

b. 22. Part of the Powder of those Leaves, out of the foregoing Nodule.

b. 23. Sir George Wheeler, who sent this from the Coal-pits of Houghton, takes it for a Dryopteris. But it seems to me to be one of the American Female-Ferns.
b. 24. Sent, by the same Gentleman, from the same Pits, with the Title of Frumenti spica. It seems to me like the top Branch of some Pine.

b. 25, 26. These are parted from each other, and exhibit some Fruit, probably of the Pine-kind. Out of the same Coal-pits.

b. 27. Mr. Miller takes this for the exterior Skin of a young vernal Pine Cone. Also from Houghton Coal-Pits.

b. 28. Out of the Duke of Somerset's vast Coal-Work, at Whorlston-Moor, Northumberland. Found about 5 Foot above the Coal. Mr. Miller will have this to have the Aspect of a Virginia Maize, or Indian Wheat, tender, young, vernal, and not ripen'd. The Hazel Nuts, digg'd up in England, are rarely such as appear to be ripen'd. The Pine Cone are in their vernal State; as are all the Vegetables, and the young Shells. The Deluge came on, and a stop was put to their further Growth, at the End of May. Vid. Nat. Hist. of the Earth, Part 3. Sect. 2. Confedt. 5.

b. 29. Found together with the precedent, in a Bed of grey Shiver.

b. 30. Found in a Coal-pit, at Lanelthy, Wales.

b. 31. A Body composed of a grey Sparry Stone, infected with a brown; thick set with large Tubercles, like some I have observ'd upon a Species of Tithymal. 'Tis flat, and appears to have been compres'd by some external Agent, the Tubercles standing thicker, and being more prominent on the Sides than on the Flats. Found, as these Bodies here usually are, in a Bed of Shiver, 5 Fathom deep, at Lanelthy, Wales.

b. 32. Another, found with the precedent, not different, only 'tis less. This hath the Pith. (Conf. b. 41. infra.)

b. 33. A Body composed of a coarse Spar, grey, with small Sparks in it very glittering. 'Tis oblong, and of a compressed Figure, being 2 Inches and ¾ in Diameter, one way, and only 1 Inch and ¼ the other. It belongs to the same Class with those in the Catalogue of the English Fossils, Part 2. p. 266. q. 29, 30, 30. and has little Holes, with Papilla in them, placed in a quincunx Order, as thofe have. This was lodg'd in a Stratum of Stone, at Stubbing-Edge, near Ashover, in Scarisbride, Derbyshire.

b. 34. Another like Body, but near approaching a Cylindric Form, being 3 Inches in Diameter one way, and 2 and ¾ the other. 'Twas five Foot long, taken forth of a Stratum of a Quarry near Higham, in Scarisbride, Derbyshire. 'Tis compos'd of a coarse Spar, of a dusky brown Colour, with a Coaf of red, having numerous small glittering Sparks in it. It has something, analogous to a Pith, (Conf. b. 41. infra.) passing it length-ways; thro' not in the middle of the Cylinder, but somewhat verging towards one Side: as also Papilla, or Studs set in a Quincunx Order. The Arbor Lavendule Folis hath Studs, like these, and set in the same Quincunx Order. These, in this Plant, are only the Vestigia, or Marks left by the fallen Leaves.
b. 35. A Body, oblong, somewhat bent, and flatted, with a Ridge running on one side, and a Creeft or Sinus all along by it. 'Tis compos'd of a sparry Stone, grey, vein'd with blackish. It has all over the Surface, Papilla, or Studs, flattish, about the Bigness of a Vetch; each having [where the Body is not defaced] a small Hollow in the middle, and being set or placed in a Cavity just big enough to contain the Studs. They are ranged pretty regularly in a Quincunx Order. This seems to have been externally crust'd over with a thin black Cortex. How long this was, originally, I cannot tell; but I broke near 2 Foot off this, crested, and flatted as this is: and of the same Colour, and Constitution. 

Lanelthy-Coalery, Wales.

b. 36. Another, of a greyish, brown, sparry Stone, cover'd with a black Crust, very glossy and shining; and having a Pith, attending the Sinus, much as in that. Lanelthy.

b. 37. A Piece of the precedent, thinn'd, or flatted, at one extreme.

b. 38, 39. Two Pieces, very thin, and flat, compos'd of a dark grey Stone, thick set with small Spangles of a white filvery Tale. This was above a Yard long, and had a Root somewhat waved and bifid. Lanelthy.

b. 40. Another, with a Creeft running length-ways of it. There are Papilla also, as in the rest: and Wrinkles, as if the Body had been somewhat compris'd and flatted by some external Force. 'Tis compos'd of a grey sparry Stone. It seems to have had something answering a Medulla, or Pith, running length-ways through it, not in the Middle, or Axis, but somewhat approaching that side on which the Creeft is. This has flight Remains of an external black Cortex. I observ'd like Wrinkles, and Phenomena, on several others of these Bodies. Lanelthy.

b. 41. Another, from Lanelthy, of a pale brown sparry Stone. This has running length-ways of it a pretty deep Creeft, and, in it, a Body that at one End is extant, and appears in the Creeft: but, at the other, is immers'd in the Stone, so as there to resemble what I have mention'd in b. 40. as a Pith: and 'tis, probably, the same with that. This appears as a Branch arising out of the main Trunk: and indeed is no other. At first I judg'd it a Pith. But a more careful View of this Body, b. 41. and b. 42. brought me to think it rather the Commencement or Beginning of a Branch. Confer. b. 45. infra.

b. 42. Another, little different, with a like Body in the Creeft. Lanelthy.

b. 43. Another, of a light grey sparry Stone; tinged in some parts with a yellowish or Ochre Colour, that seems to be adventitious, and introduced by the Weather, to which some of these Bodies had lain expos'd. The Papilla in this are different from those of all the precedent; being flatter, or rising much less, and having in the Hollow a small Point, or Apex, in the Middle. This has a Pith in it. Lanelthy.

b. 44.
h. 44. Another of a round Shape, and nearer approaching a Cylinder than any of the former. The Papilla of this differ little from those of b. 35. & seq. only they are less. It consists of a pale grey sparry Stone, rendered brown by the Weather. It has a Pith, tho' there be no Crevet on the Surface. *Lanelthy.*

h. 45. Another, little different, only the Papilla are somewhat bigger. This has also a Pith appearing at one End, but not at the other; which likewise I took notice of in several others of these Bodies, so that it does not pass the whole Length of them. *Lanelthy.*

h. 46. Another, compress'd unequally. These Bodies seem to have been tender and soft, as the Arbor Lavendula Folii is. *Lanelthy.*

h. 47. Another, with a Body like that in h. 41. in the Crevet. This is of a sparry Stone, mix'd with red and yellow. In one of this sort I obser'ved the Papilla passing [as the Knots in Fir-Wood] like so many Pins, from the Surface to the Axis of the Body. *Lanelthy.*

h. 48. Another, compos'd of a grey sparry Stone, with Papilla on the Surface, in a Quincunx Order. It has the interior Body, or Pith, passing the whole Length of it. *Tis broke, so as to shew the Figure and Constitution of the interior Body. This was cover'd over with a thin, black, shining Cortex, that shiver'd and fell into a black Powder. It appear'd to be of a Constitution not different from that wherewith the exterior Body is wont to be invested. Conf. h. 35. This was found in a Bed of Shiver, about 6 Foot deep, in a worn Hollow-Way, in Caermarthen Road, four Miles short of Tenby.

h. 49. Another. Houghton Coaleries, Bishoprick of Durham.

h. 50. Another, much compress'd. Houghton.

h. 51. This is so much flatt'd, as to be reduced to near a Plane. Indeed it appears like the Skin, or Cortex, of the Arbor Lavendula Folii, smooth, and clapt on a flat Piece of Shiver. The various Degrees in which there are flatt'd, some more, some less, shew this Shape to be forc'd, and that they are naturally cylindrick. This is out of a Coal-Pit, near Kirkbygear, Wales.

h. 52. An Impression of a Body, flat, or plane, with undulated Lines on the Surface, and round Marks, ranged in a Quincunx Order, on a dark grey Shiver. Houghton Coalery.

h. 53. A Body, flat, having on it Sulci, parallel at the Distance of somewhat more than an Inch. On the Intervals are Marks, not very unlike those of h. 43. supra, and likewise set in a Quincunx Order. Houghton Coalery. *Tis cover'd with a thin, black, bituminous Crust.*

h. 54. Another, with the Sulci somewhat nearer. Out of the same Coalery.

h. 55. Another. On the Surface of this are very fine small Strie, running parallel to the Sulci. Out of the same Coalery.

h. 56 & 57. Bodies, somewhat resembling the Vesicula of the great English Fucus. Kirkbygear Coal-pits, Wales.
A CATALOGUE of the Second Addition of English Native Fossils.

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OCHRES.

a. 1. A N Ochre, vein'd; from Rose-Park, in Cumberland. 'Tis very light, fine, and impalpable. The like is frequently observ'd in Adits of Coal-pits, in Cumberland, Northumberland, and Yorkshire.

a. 2. An ochreous Matter, found in the midst of a Bed of Chalk, at the Depth of about 50 Foot, in the great Chalk-pit at Greenhithe, Kent. The whole Mafs was near as big as a Man's Head.
a. 5. An ochreous earthy Substance, fibrous, and flakey, with a Grain not unlike Wood, seeming to be a Sample of a Vein; out of a Quarry near Plymouth.

a. 4. Rudle. Quarrying Hill, Durham.

Boles, Clays, Chalk.

a. 5. An Earth, astringent, and of a red Colour; found in a Cavity of a Block of Grit-Stone, on Stubbins-Edge, in Ashover Parish, Scarisbrack. This is what the Germans call Steinsmark: Agricola, Medulla Saxi, and—Marga in Saxis inclusa.


a. 7. Tobacco-Pipe Clay, from the Isle of Wight. They call it Hayers-Clay. This Sort is very fine. ’Tis indeed the finest in England, but apt to shrink in baking: So that they do not work it alone, like that of Pool, but make up \( \frac{1}{4} \) of the following Sort along with it.

a. 8. Another Sample, coarser, from the same Place.

a. 9. Clay, very pale, near white; fine and clean. From Furbeck Island. ’Tis used for the making of Tobacco Pipes. As also for the making of the more ordinary Pots at Fulham; where ’tis call’d, The blue Furbeck-Clay.

a. 10. Clay, paler, and whiter than the former: Also from Furbeck Isle. Used for Tobacco Pipes. Likewise for the finer Pots, at Fulham; where ’tis call’d, The white Furbeck Clay. This, and the former, burn, in their Fire, which is very strong, to Yellow: and not to a White. The Whiteness of their Ware is cause’d by the other Ingredients, which they mingle and work up with their Clays.

a. 11. Pieces of small Scallops, in Brick-Clay, dug up near Pindar of Wakefield, behind Gray’s-Inn.

a. 12. Clay used for the making of Tiles, from the Clay-Pit at Turnham, within 3 Miles of Maidstone, Kent. There are Remains, and Impressions of Scallops on this also.

a. 13. Earth out of a vast Chalk-Pit, in Buckinghamshire, betwixt Blechley and Leighton. ’Twas pitch’d in the Chalk in manner of an erect Cylinder, about 2 Foot in Diameter, and 40 Foot in Length; appearing as if a Shaft had been sunk in the Chalk, and afterwards fill’d up with Earth. The Earth was all of this sort, from the Top to the lowest Part of the Cylinder that was discernible, which was to the Bottom of the Pit. How far deeper it might go down, is uncertain. I have seen several like Cylinders, and some of a greater Diameter, in the Chalk-Pits of Northfleet, and Greenhithe, in Kent: And have sometimes suspected that these were left empty, and that Part of the Water, after the Deluge, return’d by these, into the Abyss; they being afterwards fill’d with Earth. This is certain, the greater Part,
Part, if not all, that vast Mass of Water retir'd by the Chafins; and Apertures, at the Bottom of the Ocean.

a.14. Chalk, compos'd of plain parallel Plates, each about \( \frac{3}{4} \) of an Inch in Thickefnis, alternately white and a pale yellow. This lay near the upper Surface of the Grand-Bed of Chalk: So that there were probably so many Settlements, towards the latter End of the Subsidence of that Bed, when there was but very little cretaceous Matter sustain'd behind in the Water; the main of the Mass being settled down before.

a.15. Chalk out of a vast Chalk-Pit in Buckinghamshire, betwixt Blechly and Leighton.

**SANDS.**

a.16. Sand, from Beadlow, near Maidstone, in Kent.

a.17. Sand, common on the Shores betwixt Minster and Sheerness, in the Isle of Sheppy. There are amongst this, indeed, Fragments of Shells, reduc'd to Powder by the Agitation of the Sea: But the greatest Part of it consists of extremely small Pebles of the very same Kind with those commonly found in Sand-Pits, at Land, in various Parts of England; particularly in several Parts of Kent: and doubtless in the Mediterranean Parts of Sheppy Island, were due Search made. Indeed there is no question but this very Sand is wash'd out of the Cliffs there, as the Ludus Helmontij, and other Bodies found with it certainly are; which I the rather mention, because some Medlers with natural History speak of Sea-Sand as a Thing different from Land-Sand.

a.18. Loom, out of the great Sand-Pit near Woolwich. It lies underneath the Earth in which the Shells are found. 'Tis good: and used in the Iron Foundery there, for casting of Cannon Balls, Bombs, &c. 'Tis also used in other Iron Founderies about the Town.

a.19. Sand out of a Stratum, underneath the Loom, at Woolwich. This Stratum is clear'd to 20 Foot in Depth; how far deeper it may lie, is uncertain.

a.20. Sand, and Oat, taken up from the Bottom of the Thames, on Taulet-Spit, off the Isle of Grains, not far from the Oflia of the Thames.

**STONE OF STRATA.**

b.1. Part of a Stratum, of Sand-Stone, of a pretty fine Grit, one Inch and \( \frac{3}{4} \) in Thicknes; with Veins alternately grey and brown, running parallel to the Surface of the Stratum. There are in it numerous very small Spangles of a white silvery Tale. Out of a Quarry on Overton Hill, in Ashover Parifh, Scarfdale, Derbyshire.

b.2. A gritty Stone, with small Spangles of a white silvery Tale in it, and much of the same Composition with that of the Body 14 
\( \frac{3}{4} \), in the Catalogue of the English extraneous Fossils, which was found lodg'd in the Stratum, off which this Piece
Piece was struck, only 'tis of a somewhat paler brown Colour.

This Stratum appears above the common Surface, on Overton Hill, in Ashover Parish, in Scarisfile, Derbyshire.

b. 3. Stone of much the same Colour with the foregoing, and with like Spangles in it; but having a larger Grit, consisting chiefly of very small pellucid Pebles, not different from those of the Grit-Sand. Also from Overton Hill.

b. 4. Freestone, i.e. that rives, splits and breaks indifferently in any Direction. 'Tis compos'd of Sand, white and brown; with an Intermixture of small silvery Mica. Got at — — — near Newcastle. 'Tis used for Building. Also for Flas-Furnaces. It abides the Fire well, if kept constantly hot: but cracks when the Fire goes out.

b. 5. A Piece of Stone, of the sort foregoing, that has stood a Year in a Glas-Furnace. When thus impaired by the Force of Fire, they grind it down to Powder: and mixing it with Sturbridge-Clay, employ it for making the Stands or Reifs on which they place the Pots in which they melt Flas.

b. 6. This sort of Rudle Stones lie all over the Ground, about Shotover, for a considerable Space, in the Sand, the Stratum of which is about a Foot thick, as Flint lie in Chalk.

b. 7. Part of the Rock-Stone, from a Cliff about half a Mile North of the Lizard Point, Cornwall.

b. 8. A Stone, brown, with a Caft of Green: thick set with small Holes, some of them fill'd with a blackish stony Matter. Found on Blackberry-Hill, near Stratton, Devonshire. There were many more lying on the Ground thereabouts: And there are also of them in Cornwall. They are call'd Honey-Comb-Stones, in both Counties.


b. 10. A Mass of Stone, brown, with Veins of white Spar in it, very common in the Brooks and Rivers of Cumberland. They are beat out of the Rocks, and worn by the Water.

b. 11. A Piece of Stone, near the Constitution of a Hone, from the Shores of Whityj.

b. 12. A Stone interchangeably variegated with parallel Veins of black and white; with Veins of Spar croffing it obliquely. This was found on the Side of a Vein at Eastwork, Cornwall.

b. 13. A Shoad Stone, with no Tin in it; found in the Shoad amongst others that held Tin, at several Fathoms deep, but above the Rock, or solid Stone, on St. Agnes-Ball.

SLATE.


b. 15.
b. 15. Slate, very fine, got near Broadgate-Park, in the Manor of Greoby, Leicestershire. Lord Stamford.

b. 16. The common Stone of the Mine of Comb-Martin, Devonshire. "Tis found over a great Part of the County, and call'd there Kilns.

b. 17. A thin Slate; grey, with a Caft of Green; having very small Sparks of a white silvery Talc in it. This sort lies immediately over the Pitch Stone, at Bentall, in Shropshire.

MARBLE.

b. 18. Marble, the Ground black, vein'd with red, yellow, and white. From a Quarry near Plymouth.

b. 19. Marble, the Ground white, spotted and vein'd with red. Also near Plymouth.

b. 20. Marble, vein'd, and spotted, with Black, White, Red, and Yellow. From a Quarry near Torbay.

b. 21. Marble, spotted with White, and a dusky Grey, near Black. This Marble is very fine; but mighty full of Flaws. Torbay.

These 4 Sorts of Marble, and indeed all the Marble of Devonshire, burn to a Lime: whereas the Genoese Marble burns to a Grit, or sandy Substance.

b. 22. Dendrites. Found loose, on the North Shores of Caldy-Island.

b. 23. Porphyry. The Spots are probably Fragments of Shells, and other like marine Bodies, incorporated with the Marble. From the Shores of Scarborough, Yorkshire.

b. 24. Granite. From the Shores of Scarborough also. Are not this and the former Ballasts: and brought from abroad?

b. 25. Stone, somewhat resembling Granite, very common in the Brooks of Cumberland.

Pebles, Agats, Flints, Flinty Ætite, & Geodes.

c. 1. Stone, of a yellowish brown Colour, thick set with white Pebles, generally about the Size of Peafe. This is much of the fame Tenor, with one kind of Millstone; only 'tis of a coarser Grain. From Lumms in the Parish of Matlock in the Peak. This Piece was broke off a Stratum that was above Ground, and expos'd to the Air.

c. 2. A Peble, round, seeming to be compos'd of many small ones, chiefly white. Found, near Tamworth, in Staffordshire.

c. 3. Pebles, join'd by a sparry Cement. Very frequent about Barkhamstead; and call'd the Breeding-Stone. The Mafs appears to have been rounded and worn by the Motion of Water. This happen'd to great Numbers of Bodies, at the Surface of the Earth, on the Departure of the Water of the Deluge.

c. 4. Found with the precedent, near Barkhamstead.

c. 5. A Mafs of Pebles, found in the Road betwixt Huckridge and Ware.
c.6. From Aldenham, near Watford, Hertfordshire. Like Mafs are frequent thereabouts: And some very large to near a Tun in Weight. 'Tis call'd there Pudden-Stone.

c.7. Part of a cemented Mafs, found very plentifully in a Field, call'd Starv'd Acre, near Barkhamstead in Hertfordshire.

c.8. A Plate, cut off a Pebble, and polish'd. 'Tis spotted with Red, White, and a dusky Brown near Black. Near Barkhamstead, Hertfordshire.

c.9. Another, on one Side a plain Agat Ground, of a dusky Hue: on the other striped with a greenish Yellow, and White; with some Spots. Found near Stepney.

c.10. A flinty Pebble, having on one Side semicircular Lines, alternately grey and brown. Mr. Miller.

c.11. A Plate, cut off the same, and polish'd.

c.12. A flinty Pebble; cut and polish'd on one Side; striped with As-Colour and Grey, near Charlton, Kent.


c.15. A small Pebble finely lineated. Found upon plow'd Lands in a Field, in Beekenham Parish, near Langley in Kent. It has been broke, and glew'd together again. The Lineations are superfluous, and do not enter the Substance of the Stone.

c.16. A Piece of a variegated flinty Pebble, struck out of a large Mafs of Pebles cemented together with the common natural Cement. This Mafs was 2 or 3 Tun in Weight: and found by Corner-Hall, near Hampstead in Hertfordshire, in which Country there is great Plenty of like Mafs.

c.17. Another, out of the same Mafs.

c.18. Another, likewis'e out of the same Mafs.

c.19. Another, variegated with red, yellow, and corneous: At Cross of the Oak, near Barkhamstead, Hertfordshire.

c.20. A sort of Net-Work, yellow; in a dark grey Flint. Found near Kesling, 2 Miles beyond Bromly, Kent.


c.23. Part of an agaty Flint, that was about 2 Inches in Diameter; the whole cover'd over with a friable cretaceous Cruft. Found near Croydon, Surrey.

c.24. A brown Flint of an oblong Shape, near Cylindrical; seeming as if compos'd of various Plates, set edgeways by each other. From a Gravel-Pit by North-Mimms, Hertfordshire.

c.25. A Flint invari'd with circular Striae. Found in a Gravel-Pit near Upminister, in Essex.

c.26. Another out of the same Gravel-pit.

c.27. Part of a flinty Pebble, that was near as big as a Man's Head; thick set with small round Cavities, each having a Papilla.
pill at the Bottom. Only Part of the Surface was thus mark'd.

*Found on the Common just beyond Epsom.*

c. 28. c. 29. Two small round Flints, with a kind of reticular Work upon their Surface, found in a Gravel-pit, near Mile-End, Middlesex.

c. 30. Part of a flinty Pebble, lineated, and spotted, externally, in a very strange Manner. The rest, that is broken off, was black. Found in a large Gravel-pit, near Beckenham, Kent.

c. 31. A Flint, having somewhat of the Disposition of a Mycetites on it. *Greenhithe great Chalk-pit at the West-end of the Town.*

c. 32. Another, of different Shape, with a circular Work upon it. *Ibid.*

c. 33. A flinty Pebble; the Surface black, finely vein'd with yellow; found in the Field call'd Star'd-Acre, near Barkhamstead, Hertfordshire.

c. 34. A round Flint, having on the Surface several small round Cavities. Found near Mitcham, in Surrey, in Mr. Dubois's Garden; where he says, Flints, not unlike these, are pretty frequently found.

c. 35. Another, globular, having in the Center a Cavity thick set with Crystals. There are of these Globules, of several Bulks, whose Cavities likewise, and their contain'd Crystals, are of different Sizes. Found in *Greenhithe great Chalk-pit at the West-end of the Town.*

c. 36. A Flint, oval, broke, so as to shew within a Cavity thick set with small Crystals. From the Coasts of Sussex, near

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c. 37. A dark grey Flint, broken; with a Cavity in the Center, thick set with pentangular and hexangular Crystals. Found near Chiselhurst, betwixt Bromley and Dartford, Kent.

c. 38. Flint with Crystals in it. Near Barkhamstead.

c. 39. A common grey Flint, with Crystals on one Side of it. Found in a Chalk-pit, by Eridge, near Dartford, Kent.

c. 40. A Cylindric Flint, semipellucid, or of a honey Constitution. The Surface is very tuberous: and frosted over with numerous shining crystalline Sparks. Found in a Chalk-pit, near Croydon, Surrey.

c. 41. A Flint of a Cylindric Figure, having in it a Cylindric Core. Found near Mitcham, in Surrey, in Mr. Dubois's Garden; where he says, Flints, not unlike these, are pretty frequently found.

c. 42. A black Flint, oblong, hollowed, and having in it a cretaceous Matter. *Greenhithe great Chalk-pit at the West-end of the Town.*

c. 43. An oblong black Flint, with a white Crust without, and a white Core within. Out of a Chalk-pit, near Guildford, Surrey.
A Mass compos'd of Chalk and Flint. Greenhithe great Chalk-pit, at the West-end of the Town.

A Geodes, the exterior Crust white: the interior brown. 'Tis an Agate, or concreous Flint. The central Cavity was full of Chalk. Beddington, Surrey.

A Geodes, from Southery, in Norfolk.

A Geodes; being a small round black Flint, having a Cavity with a cretaceous Matter in it. This was taken out of a Chalk-pit near Chatham, Kent. They are pretty common, and of several Sizes, in the Chalk-pits of Surrey, Kent, and Essex.

A small Ætites, broke and perforated, so as to shew the Callimus loose within. Found near Barkhamstead.

An Ætites, found in a Gravel-pit, near Upminster, in Essex.

Ætites. Found in a Field near Mr. Evelin’s House at Wotton, Surrey.

A Flint, brown, with a Cast of Green, of an oblong cylindric Figure, hollow within, and having one large, and many lesser Holes, passing from the Surface into the said Hollow. This Sort seems to be nearly related to that call’d Ætites, of which I have seen several of this Constitution, and Complexion. All the Difference is, that these have Holes passing to the Surface: which those have not. These, when first taken forth of the Earth, have sometimes Stones, and sometimes Sand, in them; which are what rattle and make a Noise, when shook, in those. Found in a Gravel-pit on the South-side of Marybone.

Three others of like Constitution, and Complexion: and having Holes passing into them in like manner. Found in the same Gravel-pit. These are of a triangular Form, to which this Body has a great Tendency and Disposition: and I have observ’d great Numbers of these Bodies in the Gravel-pits all round this Town.

Another Flint, white without, but of much the same Colour with the precedent within: of the same Shape also, and having like Holes into it. Found in the same Gravel-pit.

A yellow Flint, with 3 Prominencies, hollow. This Sort is common, and of several Sizes, and Colours, in the Gravel-pits about London.

An oblong, whitish, hollow Flint. Downs, near Hendon, Wiltshire.

Flint, flat, out of a perpendicular Fissure, in the great Chalk-pit at the East-end of Greenhithe. This Flint has been run, and form’d since the Settlement of the Chalk. See an Account of it drawn up in a Paper apart.

The common Grey-Flint, broken so as to shew a Mass of a yellow shining Pyrites in the Center of it. Mr. Rand.

Two Flints, with Pyrites adhering to each. Found in a Heap of Stones near Adgecomb House, by Croydon, Surrey.
e. 63. A Flint somewhat resembling a Horse's Hoof; found by Col. Hatley's House, near the River Medway, Kent.

c. 64. A Stone of a dark brown Colour; and environ'd with a thin Crust of lighter brown. Found under Harwich Cliff, by Mr. Groome; who fancies this of the Size and Form of a Magpye's or Crow's Egg. There were more found there of like Size and Form: and he will have it, that these were antediluvian Eggs fill'd with stony Matter; observing that these Eggs are frequent in Spring Season, when the Deluge began.

c. 65. A small black smooth Peble. Lowesther River, Wessmornland. These are found there in great Numbers.

c. 66. A small Mass of Stone, of a Grain very fine. 'Tis near black: and may serve for a Touch-stone. From Portland Beach; where are great Numbers of like Masses.

c. 67. A perforated Stone; from the Shores near Weymouth.

**Talcs** friated.

d. 1. White Talc, stringy or fibrous; from Culgaith in Cumberland. Lord Bishop of Carlisle.

d. 2. A small Piece of Talc, that appears to have been flat, and contain'd in a Vein, compos'd of parallel transverse Fibres, white, of a glossy talky Constitution. From Culgaith, Cumberland.

d. 3. Found likewise at Culgaith, with the two foregoing, but in a narrower Vein.

d. 4. A Piece of fibrous Talc, found near the Surface, in Masses, some near 20 Foot over, and half a Foot thick, lying in Earth horizontally, and the Fibres perpendicular. Near Miles on this Side Weymouth.

**Talcs** foliated.

d. 5. Spangles of the Mica Argentea, very thick and numerous, in a red flaty friable Stone. From the Banks of the River Caledon, in Cumberland.

d. 6. Talc of a brown Colour. From St. Colomb major, Cornwall.

d. 7. Talcum argenteum, digg'd up, in a Yard, in Lowth (I think) near Stamford.

d. 8. A Mass, compos'd partly of a coarse white Spar, and partly of a black shining Talc. From - - - in Devonshire, Mr. Baden.

d. 9. Part of the Eddy-Stone, on which Mr. Winstanley's Light-House was built. 'Tis compos'd partly of white Spar: partly of Flakes of black, and partly of filvery Talc.

d. 10. Lapis specularis, rais'd, in great Quantity, at considerable Depth, in a Tin Mine, near Trewithick, Cornwall. Mr. Hickes.

d. 11. Mica rubra. Found in vast Quantity, the Stratum 30 Foot thick, at Ansty, in Devonshire.
Ludus Helmontij.

e.1. Ludus Helmontij, from the Shore of Sheppey, near Minster. There are some Shells in the Mafs of the Tali of this.


There were some flat Mafles of Ludus Helmontij 3 Foot in Diameter: and near a Foot in Thickness.

In this Voyage I observ'd some here with a Cortex or Crust investing of them; which is common in those found in other Parts, tho' I did not observe it here in my former Voyage: and I am persuaded I then saw some naked, and without any such Crust upon them, actually lying in the Cliffs, where the Crust could not be worn off, as it might be of those on the Shores, by the Agitation of the Sea.

In some the Septa do not pass directly through: but are intercepted in the Midst with a tranverse Septum in manner of a Diaphragm, running thro' the Midst, horizontally, and parallel to the Flat of the Stone, so as to intercept all immediate Communication betwixt the erect Septa above, and those below.

I observ'd the Ludus Helmontij in various Parts, and even in the Middle, of the Isle of Sheppey.

e.2, 3. Ludus Helmontij. Out of a Clay-pit, at the East-end of Highgate. They are ground and polifh'd on one Side. The Workman tells me the Tali are near as hard as the white Ge-nœfe Marble, and the Septa rather harder than that Marble.

e.4. Pieces * of a Lapis Syringoides that were incorporated with a Mafs of the Ludus Helmontij; only the Pipes are ever in a brown fibrous Substance, much refembling Wood, and never in the common Stone; which may cause a Suspicion that this was originally Wood, perforated by Eruce, or other Infests. and the Perforations afterwards lin'd or fill'd with Spar, Pyrites, Grey-Sand, &c. But, if this was done, it must have been before the Wood was lodg'd in the Mafs of Stone. For I have observ'd of these brown Mafles, with the Pipes in them, in the very Center or Midst of a large Mafs of Ludus Helmontij: and so invested and cover'd with a ftony Mafs on all Sides, as to bar any Access from without to Infests. That Wood should be incorporated with the Ludus Helmontij, and now found immers'd in the Substance of it; is not more strange, than that Shells should be so found; which they frequently are. Shores near Minster, Sheppey-Island.

* Here is but one; the other Pieces are recounted. c. 10. § f. 5.
6. infra.
...Miles, which. 'Tis the present constitution of it. 'Tis of the Ludus Helmontij Kind; the Tali consisting of a brown stone, the Septa of a brass-like shining Pyrites. From the Cliffs of Sheppey-Island. This is of the same sort with those in the first Part of the Catalogue of English Fossils, p. - - b. 28, and 29. so that those ought to be removed out of the Class of Pyrites, to the Class of Ludus Helmontij. Those in that Class, p. -.-., 2 d. 17, 1 S and 19. seem not to differ from these, only that the Septa, or thinner, terminate at the Surface of the Stone, and are not so prominent as in these.

e. S. Sheppey-Island, near Minster.

e. 9. Broke off of a large Ludus Helmontij, that had the Septa throughout very fair and plain; of which indeed there are Remains yet upon this Body. Near Minster, Sheppey-Island.

e. 10. Broke off e. 4. supra. Sheppey.

e. 11. Ludus Helmontij, with the Septa much of the Colour and Constitution of the common Belemnites; found in sinking a Pond for Water, in a Close of Mr. Norie, in the Parish of Stanstead Mount-Fitchet, 3 Miles beyond Bishop-Stortford, Essex. There were found several Masses of the same.


e. 13. A Mass of Ludus Helmontij, whole, but seeming to be worn by the Action of the Water, at the Departure of it at the latter End of the Deluge; which Action the Sparry Septa appear more firmly to have withstanded than the intermediate Tali, which indeed are not of a Stoney, but a pretty dense clayey Constitution. Found in the Stratum of Clay, in the Tile Clay-pit near Richmond-Wells, Surrey.

Lapis Syringoides, or the Piped Waxen-Vein.

f. 1. Lapis Syringoides. In these some of the Pipes have Sparry Diaphragms. Shores near Minster, Sheppey-Island.

f. 2. Another, with like Diaphragms. ibid.

f. 3. Another Piece. Sheppey-Island.

f. 4. Sheppey-Island.

f. 5 & 6. Broke off e. 4. supra. Sheppey.

f. 7. Lapis Syringoides. From the Cliffs of Sheppey-Island.

Bezoar Minerale Geodes.

g. 1. Bezoar Minerale. Carshalton, Surrey.

g. 2. Bezoar Minerale. Out of the great Sand-Pit, at the West End of Woolwich; in which these are very numerous.

g. 3. Bezoar Minerale. kepi-er-Wood, near Durham. This was flat; and somewhat larger than the Palm of a Man's Hand. 'Twaes caved all over with the Crafts.
g. 4. Geodes. Ibid.

g. 5. Part of the exterior Crust of a Geodes, holding Iron, and wrought for that Metal at Birchdon-Forge; got out of a Hill near by, about 2 Miles from Tunbridge-Wells.

g. 6. A yellowish, brown, ochreous, sandy Earth, with Veins in it very thick, seeming to be of Iron. The Mails off which this was broke, must be above a Ton in Weight. It fell down from the upper Part of the great Sand-Pit at the hither End of Woolwich. The whole Mails had like Veins running through it; consequently it could not be a Nodule: and the Veins must have been form'd after the Matter was settled into this Stratum.

g. 7. A Mineral Substance, of the Nature of the Bezoor Minerales, running strangely in Veins, or Plates, to and again, so as to form Cells of various Sizes, that are fill'd commonly with an ochreous Matter, of much the same Kind also with that found in the Bezoor Minerales. There are Masses thus run to a vast Bulk; indeed the Stratum seems to be wholly compos'd of them, sometimes for 10 or 12 Foot in Length. Mr. Hutchinson says they are common in Suffex, near Petworth: and that the Body, No. 77. in his Catalogue, p. --. was Part of one. This was taken forth of a Stratum lying over the Sand, in the great Pit at the West-End of Woolwich.

g. 8. An ochreous Substance, taken out of a Cell of the same Mails; i.e. of g. 7. preceding.

Selenites.

b. 1. A Selenites, having in it Flaws, Lincs, and Flakes of blue Clay, shewing that the Progress of the Formation of the Body was all Cells in a Rhomboid-Figure: and that it is every way compos'd of Plates, parallel to those of the several Planes of the exterior Surface. Tho' they seem to be separable, and dispos'd to part and split chiefly in Parallels to the broadest Planes. Whenton, Buckinghamshire.

b. 2. Selenites, either of a shatter'd Constitution originally, or brought into this broken State in Traet of Time. Many of the Parts appear to be of a Rhomboid-Figure. Out of Mr. Watts's Tile-Ground, call'd Childrens-Field, in the Parish of Thurnham, within 3 Miles of Maidstone, Kent.

b. 3. Selenites; found in digging the Purging-Well at Stanford le Hope, in Essex. They there suppose it to be the Mineral that impregnates that Water.

b. 4. Selenites; from Wootrop-Lane, nigh Stamford, a Seat belonging to the Earl of Exeter, where there is plenty of it.

b. 5. Selenites; out of the Cliffs betwixt Limington and Christ Church, Hampshire.

b. 7. A Body, of like Substance and Matter with the Selenites, crystalliz'd in a very observable manner. Out of a Potters Clay-Pit at New-Cross, near Deptford, in Kent, on the Right-Hand of the Road from New-Cross to Lewisham.

b. 8. A Body of like Matter and Substance with the Selenites, but compos'd of small round Plates, createn on the Brims, and fet edgewise in various Postures. From a Brick Clay-pit on the South-Side of Islington.

b. 9. Another; from the same Pit.

**BELEMNITES.**

i. 1. A Belemnites; found, with Ammonite, and various Sea-Shells, at a considerable Depth in the Earth, below 3 Strata of Stone, at Stoke, 24 Miles from Sea, in the Manor of Castle-Cary, Somersetshire. Sent by Mr. Player. See his Letter Sept. 21, 1708.

i. 2. Belemnites; found in a Field near Lillington-Dorill, Buckinghamshire.

i. 3. A Belemnites, in a Marcsite; from the Shores of Whitby, in Yorkshire.

i. 4. Belemnites, the outer Cortex wholly off. Out of a Chalk-Pit near Sturminster-Marshal, Dorsetshire. This is, in Colour, tending towards Amber: and has some small degree of Diaphaneity.

i. 5. Belemnites. Wotton, Oxfordshire.

i. 6. A Belemnites, with part of the outer Cortex, which is very thin, stripp'd off. Out of a Chalk-pit near Sturminster, Dorsetshire.

i. 7. A grey Flint, with a Hollow in it, in Form of the Belemnites: as also a jointed Cone, like those of that Body. Found near Bromley Church, Kent.

i. 8. Another Flint with a like Cavity and Cone in it; found in Kent, near Bexly, about three Miles from Dartford.

i. 9. A grey Flinty-Pebble; found in a Field in Beckenham Parish, near Addington-Common. 'Twas perfectly intire when found: but being broke, shews a Belemnites, and several Fragments of the Shells of Echinize, within, immers'd in the Mass of it. The Surface of the Belemnites is every where contiguous to the Mass of the Flint; so that it was not invested with any Shell when 'twas lodg'd in this Flint: and there is no Room or Space void betwixt them, as we ordinarily see where there are Echinze, or other like Bodies found in Flints, the Shell, in which they were form'd, being perifh'd and gone. See the Catalogue of the extraneous English Fossils, b. 33. I note this, because some lately have fancy'd the Belemnites cast in a Shell.

**CORALLOIDEA.**

k. 1. A Piece of black Flint. Found in the great Chalk-pit at Cross-of-the-Oak, near Barkhamstead, Hertfordshire, with a small Sprig upon it seeming to be of a Nature mix'd, and compos'd partly
partly of a coralline, and partly of a flinty Matter. The Sprig is
of a reddish Colour; and the red Coral, of which Mr. Steel made
the Delineation, was found in this Pit. 'Tis indeed he says most of
the Flints in this vast Chalk-pit have more or less of coralline Mat-
ter upon them, or incorporated with them.

k. 2. Branched coralloid Bodies, from a Quarry in Fairford-Field,
North-east of the Town, Gloucefhershire.

k. 3. A Coralloid, out of a Chalk-pit, Deptford. There are De-
lineations of stellar Rays on the Surface.

k. 4. A Piece of black Flint, having incorporated with it a Piece of
the Shell of a Pinna Marina, with a small Sprig of a white porous
Coralloides growing upon it. 'Tis very beautiful; and the Pores
in a Quincunx-Order. Found in the great Chalk-pit at Crofs-of-
the-Oak, near Barkhamstead, Hertfhorshire.

k. 5. A Mycetites concreted on part of the Shell of an Echinus.
Croydon Chalk-pit. As there were Shells in the Diluvian Waters,
so the coralloid Matter affix'd and concreted upon them as in the
Water of the Sea.


k. 7. A flinty Mycetites. found near Bromley, in Kent.

k. 8. A Mycetites, found upon the Banks of a Brook, call'd El-
lerbeck, near Torpenhow, Cumberland.

k. 9. Mycetites, out of the Brook call'd the Fairyfthough-Brook, at
Strickland-Head, Westmerland.

k. 10. A Mycetites, in a yellowish flinty Pebble. Found near
Bromley, in Kent; on the Surface of the Earth.

k. 11. A coralloid Body, confisting of a grey Spar, but exter-
nally infected with a brown Colour, by means of the Clay in
which 'twas lodg'd. There are in it several conoid Cavities, ridg'd
and striated length-ways. Found in a Field, near the Road to-
wards Kingston, a little beyond Shippon, Berkshire.

k. 12. A coralloid Body, of a conoid Shape; composed of a grey
Spar, of like fort with that of the foregoing Body, near which
this was found. It is composed of several white Sparry Plates,
passing, for the whole length of the Body, from the Surface to the
Axis of it. These seem also to be intercepted by many conical
Plates, that pass the Body in a Direction parallel to the Surface of
it. This conoid Body was originally contain'd in one of the co-
noid Cells of a Body of the same fort with the foregoing. And
I observe in the Fields of Wolvecot, near Oxford, several of the
foregoing, with this latter fort actually contain'd in them. This
is nearly related to that delineated by Dr. Plot, Nat. Hif. of Oxfor-
dshire, Tab. vi. Fig. 2.

k. 13. A Flint, hollow'd and lineated in such manner, as if it
had had in it a Mycetites, of the same fort with those about Ox-
ford. This here was found in a Gravel-pit, near Mile-End, Mid-
dlesex.

k. 14. A grey Flint, having in it a conic Body much resembling
that No. k. 12. supra. Found upon a Hill, near Sanderfhead, in
Surrey.

k. 15.
k. 15. A grey Flint, part of it of the Texture of the coralloid Mycetites. Found near Croydon, Surrey.

k. 16. A Mycetites, in a white Pebble; found near Bromley, Kent.

k. 17. A Stone of an Ash-colour, very hard and dense, and capable of a good Polish*, having in it great Numbers of ramose coralloid Pori, of a sparry Constitution. Several of them, being cut, appear to be composed of white sparry Plates, running longways of the Body, and passing from the Surface to the Axis of it; as likewise of others that intercept the foregoing, and are set pretty close, tranverse, like so many Diaphragms, for the whole length of the Body. The Interfaces of the Plates are fill'd with a pellucid crystalline Matter. On one side, the Stone having been exposed to the Weather, is worn, and the Bodies laid bare. Some of them here are externally black, thick set with annular Ridges; and terminate in Points; in such sort that, at first view, they appear not unlike Earth-Worms. Indeed 'twas some time before I could convince Mr. John Hutchinson, who found this Stone, that they were not Worms petrify'd. This was taken off the brow of Scatter-Scarf-Gill, in Arkendale, Yorkshire. There is in the same part of the Hill a considerable Quantity more of the same Stone, with like Bodies in it. This Piece has in it several Sea-shells and Impressions. They are chiefly Bivalves.

k. 18. A Mass of Stone found, along with great Quantity of like sort, about 600 Foot from the former, on the Surface, at the brow of that Hill. This is of a light brown Colour, approaching a yellow; and is light, porous and friable. In breaking of it, I observ'd several Bivalves in it, of the same Species with those in the foregoing. It is very thick set in all parts with small coralloid Bodies, many of them ramose; intercepted with transverse Plates within, like the former: but externally striated lengthways of the Body. They are composed of a white Spar; but are both externally tinged with the Colour of the Stone in which they are, and have also in the Interfaces of the transverse Plates, a light brown Powder, seeming to be of like sort with that which composes the Mass in which they are reposited.

k. 19. A coralloid Body, found near the River Lowther, in Westmorland. The following, to k. 33. inclusive, were found in the same Place. Lord Lonfdale.


* I have since caused it to be polish'd on some Parts; by which means the coralloid Bodies within are shown. Some of them are branch'd. The Stone is of about the Hardness of the white Genoese Marble.
k. 34. Found in the Bank of a Ditch, near Hedington, by Oxford.

k. 35. Astroides. This and the following, to k. 39. inclusive, were found in the Cheffels-Field, Coln St. Allens, Gloucestershire. Where these Bodies are found in great Numbers.

k. 36. Ibid. This is branch'd after the manner of some coralloid Pori; as is also k. 38. and k. 39.

k. 37. Ibid. k. 38. Ibid. k. 39. Ibid.


k. 41. A Piece of stellar Honeycomb-Stone. Found along with the former.

k. 42. Honeycomb-Stone, found at the Foot of Shotover-Hill, near the Road to Oxford.

k. 43. A flat flinty Body, thick set on one side with small Cavernula, so placed that the edges of them make a kind of Reticular-Work. Found near Stretham, Surrey.

k. 44. A star'd Agate very beautiful; it is chanel'd on that part of the Outside which is remaining, exactly after the manner of a star'd Honeycomb-Stone: and I have seen several others, that have had Stars on the Outside [as indeed this has in one part, tho' not so fair as some I have seen] like those of the Honeycomb-Stone exactly. This was found, amongst several others, lying on Floors, like the common black Flints, amongst Chalk; and indeed like the Honeycomb-Stone about Oxford. Underneath these Floors of star'd Flints lay Strata of Sand-Stone, in a Quarry in Tisbury-Parish, about five Miles from Shaftesbury. I observ'd some of the Flints from this Place had but very few Stars in them: and those in Spots; part of the Flints being free, and without any Stars at all.

k. 45. Another from the same Place. The star'd Columns in this terminate at the part of the original Surface that is remaining, in porous Stars, after the manner of Sparry Astroidæ; found about Oxford, and elsewhere.

k. 46. A Flint, or rather an Agate, on one side shot into coralloid cylindric Stems, having their Surfaces beset with very small Tubercles, in an elegant manner. Found near Limington, Hampshire.

Cryftals, Spars, Incrufations.

i. 1. A Crystal Column hexangular, terminating in a Point at each end. From Cornwall. This is properly a Nodule; and was form'd in the Water of the Deluge, when the Selenitæ and other like angular Nodules were. Vid. Natural History of the Earth, Part iv. Conf. 2. These cryftalline Nodules are very rare.

i. 2. An hexagonal Shoot, Sprig, or Column of Crystal. From the Duke of Somerset's Mine, near Keswick, in Cumberland.

i. 3. An hexagonal Shoot of Crystal, or Spar, out of Shillforsfh-Groove, Northumberland.
l. 4. Part of a Sprig or Shoot of Crystal, in which there is a Vein, of a purple or amethystine Colour, running parallel to the Axis of the Body. From Alston-Moor, in Cumberland. Some of the Crystals of the same Fissure were tinged throughout with an amethystine Hue.

l. 5. Purple Spar, with a Crust of Lead-Ore upon it, a Crust of Mock-Lead upon that, and a Crust of white crystalliz'd Spar without all. From the Yemen-Tree Grove, two Miles South of Stanhope, Durham.

l. 6, 7, 8. Out of the same Mine.

l. 9. Blend, or Mock-Lead, with crystalliz'd Spar; from Cymmyswith Mine, Cardiganshine.

l. 10. A Tubercle of a pale brown Spar, having the exterior Surface cover'd with small polyhedros Crystals, pellucid, with a Cast of yellow. This was broke off a large Mass, composed of various Tubercles and Bunches; found in the sinking for Lead at Overton, Scarifdale.

l. 11. Spar of a pale brown Colour, near white; breaking naturally into Angles and Inequalities; or, as they speak in the Country, Snaggs, in such manner as in their Fancy, to resemble the Teeth of a Dog; for which reason they call it Dog-Tooth-Spar. 'Tis mention'd by Dr. Merret, in his Pinax, p.---. Overton, Scarifdale.


l. 13. A Piece of Stone, having upon it two Orders of Spar; the first clear and crystalliz'd; the other with an undulated Surface, incrusted afterwards upon the former, by means of Water gently trickling over and depositing the Sparry Particles it carry'd upon it; of which I have seen various Instances in the Quarries of the same Country. From the South-side of Ebworth-Wood, near Painwick, Gloucestershire.

l. 14. A white spar cryfixation consisting of several Crufts. From Yemen-Tree Grove, two Miles South of Stanhope, Durham.


l. 16. Spar, white, glossy, and breaking into oblique rhomboid Squares. Out of a Vein of Lead-Ore, in a Mine in the Parish of Ashover, Scarifdale.


l. 18. Spar, out of the Mine of Comb-Martin, Devonshire. The Vein of Spar and Lead, or, as it is call'd, Silver-Ore, is about 8 Inches wide; perpendicular, but shelving, and declines one Foot in three towards the South; it runs near East and West. 'Tis found from near the Day, to 84 Foot in depth. How far further is not known. Conf. u. 15. infra.

l. 19. Spar striated and frittolofe; out of a Quarry upon Strickland, Westmorland. 'Tis found very commonly, and in great Masses, in the Fissures of the Quarries there.

l. 20.
1.20. A coarse brown stoney Matter; concreted after the manner of Spar, near the top of the Cliff, 50 Fathom above the Sea. Caldy-Island.

1.21. Fragments of Stone cemented together by the Intervention of sparry Matter. Portland-Island. 'Tis not uncommon, both here and elsewhere, to see Fragments of Stone, of all sizes, to the bigness of a Horie's Head, cemented thus together. But the moft that ever I saw was in the Cliffs at Piran-Sands, Cornwall. I observ'd the like also in Caldy-Island. These Stones seem to have been shatter'd antiently, probably at the Deluge; and to have been cemented since.

1.22. Triangular Spar; from a Lime-stone Quarry, near Haswell, not far from Easington, Durham.

1.23. Spar, shot into small triangular Shoots; out of the Quarry in Lowther-Garden, Westmorland.


1.25. A talky Spar; from a Lime-stone Quarry, near Sedgfield, Durham.

1.26. Mofs, incrusted over with Spar; from the Petrefying-Well at Knaresborough, in Yorkshire.

1.27. White Spar, form'd by the dropping of Water, so as somewhat to resemble one fort of Coral. From a Grotto in Charford-Bottom, about two Miles from Stroud, in Gloucefiershire.

1.28. A coarse, grey, sparly Incrustation; taken up near the Warm-Bath, at Matlock in the Peak. This Bath is near the River Derwent; is of much the fame Tenor of Heat as the Bath at Buxtons; and began to be ufed and frequented about the Year 1702. There are Lead-Mines all round that Town.

1.29. Found in great plenty, by Stretton-Ardely, near Biffter, in Oxfordshire.

1.30. A Bunch of Rufhes, incrusted over with a coarse brown Spar. This Incrustation was made in a running Spring, in the Lordship of Pitchley, near that Town, in the Foot-Road to Ket-tering. The Source is pretty large, and the Stream quick. Mr. Daniel Markes, who communicated this to me, put it, with Sticks and several other Bodies, into the Rill, at the diftance of 200 Yards from the Source, Jan. 3. 1704. The very next day he observ'd a flight Precipitation upon the Sticks, over the whole Surface of fo much of them as the Water cover'd. July the 25th following, he took this Bunch of Rufhes forth, fo that it had lain in the Spring near seven Months. When first he took it forth, it had a frong licivious Smell, not unlike that of Lime flaked; which it retain'd for fome days. He flung it, with his whole Strength, againft an hard Stone twice or thrice, without being able to break it. The Rufhes being feveral of them broke, the interior Texture of them appear; and the Laminae and Shells fhowd themselves as in the natural Cofitution of this Plant.

SALTS;
Vitriol, native; of a pale brown Colour. From in Wales. Mr. Baden.

m. 2. Native Vitriol, green and crystalliz'd; affix'd and concentered on bits of Coal, in an Hollow of a Cannel Coal-pit, at Haigh in Lancashire. 'Tis composed of parallel Fibres, running crofs the small Fissures of the Coal. There was a considerable Quantity of it.

m. 3. A bit of Basf, a blackish Stone, that lies above and below the Cannel-Coal. It continually attends the Cannel; and the Stratum above and below are each about half a Foot thick. The recent Basf has never any the least appearance of Vitriol in it. But this, which they work for Vitriol, is only the Refufe or loose Rubble of the old-wrought Pits. They are dry, and without Water, excepting a flight Humidity, Winter or Summer. Haigh, Lancashire. They boil the Basf, just as raifed out of the Pit, about an hour and half, in Leaden Vefles, with River-Water. Drawing it off, they boil it a second time 24 hours, after which they draw it off into Leaden Cifterns, to stand to cool and crystallize to the fides of the Cifterns, and upon Sticks. The Basf yields about \( \frac{1}{28} \) or \( \frac{1}{35} \) Vitriol.

m. 4. Alum-Rock, the Mineral out of which Alum is extracted. The browner fort. From Mr. Squire's Works, at Block-head, near Whitby, Yorkshire.

m. 5. Alum-Rock, the grey fort, which I take to abound more in that Mineral than the foregoing. From Mr. Cholmley's Works, in the fame Neighbourhood.

Pyrifte.

n. 1. An echinated Pyrites, in shape approaching the echinated cryftalline Balls; only the pyramidal Shoots are quadrangular. See that defcribed by Dr. Schenckzer, Iter Alpinum, I. p. 2, 3. Tab. 1. Fig. 1. From a Chalk-pit near Deptford, on the South-West-side of the Road to Black-Heath, near the Foot of the Heath. They are very rare.

n. 2. Two, somewhat lefs, join'd. Out of the fame Pit. Break- ing another of these Bodies, 'twas striated within like the common Pyrites.

n. 3. Another larger. Out of a Chalk-pit about half a Mile South-West of Croydon, Surrey.

n. 4. Another, not round, having a kind of flat Basis. Out of the fame Chalk-pit.

n. 5. Pyrites having the Surface fet thick over with quadrilateral pyramidal Shoots; excepting only on one fide, to which was conjoin'd a large Agaty-Flint. Chalk-pit on the South-East-side of Deptford.

n. 6. A Pyrites, the Surface fet thick with quadrilateral pyramidal Shoots. 'Tis of a Ruff-colour without, but fhining and yel-
low within; and striated. Sutton, Surrey. There is in the Center of it a small Mafs of Selenites.

7. A Pyrites, beft with quadrilateral Pyramids. From the great Chalk-pit, on the South-side of the Road, just beyond Depsford.

8. Another. Found with the foregoing.

9. A Pyrites, found at Melbury-Abbas, near Shaftesbury, in Dorsetshire; where Pyrites are pretty plentiful at and near the Surface. I broke one of these Pyrites, and found it brassy and shining within; with Strix all tending to a Center. On the Shores, somewhere about Limington, they collect like Pyrites; and make Copperas out of them.

10. A Pyrites, with various observable Efflorescencies, and some Crystallizations. Out of Chalk, near Croydon, Surrey.

11. Another given me by Mr. Steel, who takes the Plate in the middle to be part of a Pimna Marina. Found upon plough'd Lands in a Field in Beckenham-Parish, near Langley, in Kent.

12. A Pyrites, hollow; from the great Chalk-pit at the West-end of Greenhithe.

13. Another. This has a Mafs of black Flint concreted along with it. Breaking of it, I found in the Center a Pyrites moulded in the Shell of an Echinus cordatus. The Shell is perifli'd; but there remains the Room where the Shell originally was. From the same Chalk-pit.

14. Part of a Pyrites that seems to hold a considerable Quantity of Iron; found amongst some others of like fort in the Road betwixt Petworth and Marlborough, as I remember, near Alsford.

15. Small Pyrite; found in the Mud of a Rill at Brinkhill, near Alsford.

16. A flatey Stone, grey, with a Cast of Green; having in it a cubic Pyrites. From Rydale, in Westmorland.


18. Pyrites aureus tessellatus, of various sizes, immersed in a fort of Slate, grey, with a Cast of green. There runs thro' it a Vein of white Spar, with an Intermixture of Marcaite, of like Constitution with the Pyrites. From Kentmire, in Westmorland, Lord Bishop of Carlisle.

19. Part of a Pyrites very elegantly crystalliz'd; from the Sea-shore near Lime, in Dorsetshire.

Marcasites.

1. A Marcafe. left by the Old-Men. That is the Term they give the antient Miners. This was taken out of Orchard-Mine, Comartin, Devonshire.

2. A Marcafe very curiously crystalliz'd; from Camp, Cornwall. Mr. Huschingon.
0.3. A grey Stone, having in it numerous small Spangles of a white silvery Talc; and on one Surface are Crystallizations of a yellow golden Marcasite. Stubbin-Edge, near Ashover, Scariscliffe.

0.4. A Marcasite, holding a little Copper, out of a Vein or Load. St. Columb-major, Cornwall. Deeper in the same Vein was found Lead-Ore.

0.5. A Piece of Marcasite, out of the Sea-Ciffs near Cheal, in the Isle of Wight; where there are vast Quantities of it.

0.6. Mundick, of a bright yellow Colour, and the most shining metallic Complexion of any I ever saw. It is concreted upon a white Spar. Poldice Tin-Mine, Cornwall.

0.7. A Marcasite; from a Vein in the Mine of Comb-Martin, Devonshire.

Mock-Lead.

P.1. Mock-Lead, or Blend, found in small Quantities in the Veins of Lead, at Eskergallid, in Montgomeryshire. Mr. Harley's Lead-Mine. They call it black Jack. Mock-Lead appears to be a sort of Talc, or talky Spar.

P.2. Black Talc, from the Strings in Breay, Cornwall.

P.3. Blend, or Mock-Lead. Out of a Vein or Load, St. Columb-major, Cornwall.

Manganese.

q.1. Manganese, out of a Vein in Charterhouse-Liberty, Mendip. 'Tis found from within two Fathoms of the Surface, down to 28 Fathom. The Vein is from half a Foot to two Foot over. It lies in the manner of the Lead-Ore; of which there is sometimes some found amongst it. Sinking deeper, they now and then light of a Vein of Lead. It has some small Admixture of Iron. Being washed, calcined, and ground, the Glass-makers run it down with the Ingredients to clear their Glass, by taking off the green Colour; and the Potters use it for the glazing their earthen Ware black: as they do Zaffer for their blue Glazing.

Calamin.

r.1. Calamin, out of a Vein. It lies from two to about eight Fathom deep. The Veins from half a Foot to three Foot in Diameter. Underneath they frequently find a Vein of Lead. Mendip.

r.2. Another Sample of the same Vein. This is of Texture very porous and lax; not unlike that of the Pumice, and of some of the Cornish Vein-Stones. See the English Catalogue, Part. 1. 4.5. & seq. This Body frequently holds Lead; but I could never obtain any Copper out of it. This has in it some vitriolic Salts, which begin to shoot.

Spelter-Ore.

s.1. Spelter-Ore, from Merwin, near Padlow. Mr. Heydon.漫.2.8. infra.

Cop-
(83)

Copper-Ores.

1. Copper, native, very fine, in thin Plates, amongst white Spar, and a blackish stoney Substance. From ---- in Cornwall.


4. Another sort, gritty, with blue Spar. Mr. Tenison.

5. Copper-Ore, probably the richest in England. Found at Dodington, on Quantock-Hills, in Somersetshire. It is said to yield half Copper. The Mine is but newly open'd, and none discover'd there before.

6. A Piece of Copper-Ore, appearing to be pretty good. 'Tis of a dusky Copper-Colour, with Veins of green and blue. 'Tis pretty thick set with small Caverns, cross'd by Fibres of a talty Spar, of a bright green Colour. To one Side of it adheres a Mass of blue Lead-Ore. Ekstone, Staffordshire. Sir Thomas Aflon.


10. An Efflorescence of Copper, green; from ---- Austin-Moor, Cumberland.

11. Poor Copper. From Tolvern, Cornwall. The Spar tinged green.

12. Spar, very curious; variegated with White, Green, and Blue. The Blue, which is a deep Cyanus, is crystalliz'd: and the Shoots very nearly approach the Saphire. There is also a brownish stoney Matter in the Mass; and some Metal, as may be collected by the Weight of the Body. By the blue and green Colours 'tis manifest, that Metal is Copper. From the Duke of Somerset's Iron-Mine, near Egremont, in Cumberland.

13. Copper-Ore, black, seeming to be very rich. Chefwater, not far from Truro, Cornwall. Mr. Hugh Boscawen's Mine.


15. Copper-Ore, holding about ½ Copper. Broadwayes-Down, near Mendip.


17. Lead, and Copper. Caldbeck, Cumberland.


Lead-Ores.


2. Lead-Ore, tuberous, and unequal. It seems to be of that sort that is call'd in Yorkshire Boofe-Mork. From a Mine near Caffleton, in the Peak.

Hh 2
u. 3. Lead-Ore; from Bonisal Mines, in the Peak, Derbyshire, betwixt Bakewell and Worksworth.

u. 4. Lead-Ore; from Caileton in the Peak.

u. 5. Blue Lead-Ore, very clean: but glossy, and appearing to be of difficult Fusion. Eckston, Staffordshire. Sir Thomas Aston.

u. 6. Cross-grain'd Lead-Ore. Kentingoo Mine, in Cardiganshire. Mr. Shears says it yields \( \frac{4}{5} \) of Lead.

u. 7. Lead-Ore. Guarnick, Cornwall.

u. 8. Lead-Ore; from Caminogg, Cardiganshire. The Vein pretended to be 7 Foot and \( \frac{4}{5} \) in Diameter, and 60 Foot deep.

u. 9. The best Potters Lead-Ore of the Mine-Adventure, Wales. 'Tis of the cross-grain'd Kind: and, in some Parts, has a Gloss of Purple.

u. 10. Broad-grain'd Lead-Ore; from Sir Humphry Mackworth's Mine, North-Wales. There are in some parts of it Speeks of Purple; and of blue, like a seed of Lead-Ore in the Foreign Catalogue, p. -- From ----- in Germany. Lead-Ore with these glaring Colours, is sometimes met with in considerable Quantity in the Mines in the North of Yorkshire. It runs difficultly in the Fire; and does not yield so much Lead as other like Ore without these Colours, which probably arise from Arsenick.

u. 11. Fine-grain'd, streak'd Lead-Ore. Peneraigddy Mine, Cardiganshire. Mr. Shears says it yields \( \frac{11}{12} \) of Lead; and a Ton of that, 44 Ounces of Silver.

u. 12. Lead-Ore of the Steel-grain'd Kind, striated, and seeming to hold Antimony. From a Mine near Mam-Tor, in the Peak.

u. 13. Steel-grain'd Lead-Ore, having in several Parts a Gloss of Yellow, and of Purple. From an ancient Roman Work, as 'tis commonly believe'd, at Newton St. Cyres, near Exeter, Devonshire. 'Tis now not wrought. This Ore is of difficult Fusion; but holds eighteen Grains of Silver in a Pound of Lead.

u. 14. Steel-grain'd Lead-Ore, very bright, and sparkling. From Bwlchyr-Eskyrhyr Mine, Cardiganshire. Mr. Shears says it holds 15 Ounces in the Ton.

u. 15. Killuss, with a Vein of Spar, and Silver-Ore affix'd to it. From the Mine of Comb-Martir, Devonshire. Conf. l. 18. supra.

u. 16. Comsfolluck Ore, Cardigan'shire, an ancient Roman Work. It yields \( \frac{3}{5} \) Lead, of which a Ton yields 74 Ounces of Silver.

u. 17. Lead-Ore. Bwlchyr-Eskyrhyr, in Cardiganshire. This is the grand Mine, formerly Sir Garbery Price's.

u. 18. Steel-grain'd Lead-Ore. Comsfolluck Mine, Cardiganshire. Mr. Shears says this yields \( \frac{3}{5} \) of Lead; and the Lead yields 72 Ounces of Silver per Ton. This is much more than I have extracted, or heard of from any other Mine: and yet he avers all the Ore of this Vein yields so much Silver one with another. The Lead run out of the Ore got at ---- in Northumberland, brought to Newcastle upon Tyne, and work'd there, yields betwixt 20 or 30 Ounces of Silver in the Ton; which is the richest that I know of in England.
u. 19. Grey Lead-Ore, with small Sparks, and some white Spar concreted with it. Comb-Marten, Devonshire.

u. 20. Lead-Ore, with larger Sparks, or rather Flakes, seeming to be of talky Constitution. From another Shaft in the same Place.

u. 21. Lead-Ore, very fine, ponderous, and so rich, that in some parts it will cut like Lead. It has a Gloss somewhat resembling that of Talc in some parts: in others, there are Sparks not unlike those in some sorts of native Antimony. The Vein of it is very large. 'Tis in Sir H. Northcote's Estate, in the Parish of Newton, about three Miles West of Exeter. The Bristol Smelters give 16 l. per Ton for it.


u. 23. Lead-Ore; from the Tew-Tree-Grove, 2 Miles South of Stanhope, Durham.


u. 25. Stone, with Lead-Ore concreted upon it, and Spar upon that. From Shildon, near Blanchland, Northumberland.

u. 26. Lead-Ore, with Spar; also from Shildon.

u. 27. Lead-Ore, holding Silver, incorporated with Spar, white, with a Coat of Green. Comartia, Devonshire.

u. 28. A Mass of Lead-Ore. Out of Ekstone-Mine, Staffordshire. Sir Thomas Aiston. 'Tis compos'd partly of blue Lead-Ore, and partly of Copper-Ore. The latter appears, in some parts, like the piped Waxen-Vein, and is yellow and shining: in others 'tis vein'd with green, and with a blue, very bright, and not inferior to that of the Lapis Lazuli. On one part is a Mass of a pale brown Spar, somewhat like Lapis Calaminaris: and, in Texture, cavernous, fibrous, and much resembling some Sea-Coraline Masses. There seems to be Calamine upon it; and that too very good, and fine.

u. 29. Another Mass, compos'd of Lead-Ore, with Spar, and a flately Copper-Ore, with Veins of Marcasite. From the same Mine.

u. 30. Lead-Ore, with Mock-lead, or Blende, and a greenish Marcasite incorporated along with it. From Caerlon, Monmouthshire.

u. 31. Lead-Ore, with Marcasite and Blende; out of the Mine Haugh, in K. Chriff-Ryben, in the Isle of Man; near the Cliffs out of which the Lead-Ore, and the Copper, English Catalogue, l. 45. Of seq. was got.

T I N - O R E S.

w. 1. Tin-Ore, with several Tin-Grains in it; from Mr. Boscawen's Mine, near Truro, Cornwall.

w. 2. Tin-Ore, of the belt sort; from Polgoth, Cornwall. There are in it several hexagonal Crystals, small, but, otherwise, of the
same Constitutions with those commonly call'd in that Country Cornish-Diamonds.

w. 3. Tin-Ore. Comartin, Devonshire.
w. 4. Tin-Ore; from Mr. Cosler's Work, near North Moulton, Devonshire. 'Tis of that sort that, in Cornwall, they burn [coal] to drive off the Sulphur.

IRON-ORES.
x. 4. Iron-Stone; from Mr. Pitt's Works, by Bridgnorth, Shropshire. It lies in a Strata: some over, but chiefly under Strata of Coal.
x. 5. A Piece of the richest Iron-stone, part of a Stratum, half a Foot in thickness, lying immediately under a Stratum of Coal; of which there are, of one flat: some Vestigia. 'Tis of a very dark grey Colour, near black. Dudley, Staffordshire.
x. 6. Another Piece of the same Stratum, with a small Nodule, little different in Colour, or Constitution, immers'd in it.
x. 7. Part of a Nodule of somewhat darker Colour, thick set with Veins of white; from the same Mine. This is of the richest of this Ore, which seems to be of the Frame and Constitution of the Ludus Helmontij, tho' the Partitions be not so regular as is sometimes observ'd in this Body.
x. 8. Iron-Ore, compos'd of parallel Plates; which, where broken, are very glody and shining. From ——— near Truro, Cornwall.
x. 9. Iron-stone, of a light brown Colour. From Mr. Baker's Work, near Fair-Crouch, Sussex. It yields 4 Iron. There is a poorer sort that yields about 5. This they mingle with the former, to promote its Fussion: and, besides, to absorb the Sulphur, and separate the Sag; they usually put in Lime made of the grey Rag-stone. They run the Ore with Charcoal, in a common Blast-Furnace.
x. 10. A small flat Nodule, of a dusky red Colour, ponderous, and seeming to hold Iron. Found on a plough'd Land near Brelford, Scarisale. There are of this sort found, plentifully, of all Sizes, to the Bignefs of a Man's Fift, betwixt Higham and Sherd- land, in Scarisale. Thofe likewise are commonly of a flat Figure; and are call'd there Loadstones. Is there not Mercury in this?

Dubita Incognita.
y. 1. Impression on a Flint. Barkhamstead.
y. 2. An Impression on a Flint. Near Barkhamstead.
y. 3. A flinty Peble, having in it an Hollow, thick set with small Stubs; found near Mr. Styles's House at Langley, in Beckenham-Parish.
Parish, Kent. There were several other like Impressions on other Pebbles.

y. 4. Out of a Bed of Chalk, in a Pit on Barkhamstead-Common, Hertfordshire.

y. 5. Out of the same Chalk-pit.

y. 6. A reticular Work, very curious, upon Chalk. Out of a Chalk-pit near Guildford, Surrey. This seems to be made either by Part of a Sea-Fan, or some other like Coraline Body.

y. 6*. A Conical Body, somewhat inflected, having the Surface every where thick set with small Foramina: in each of which is placed a small white Papilla. At the larger End of it is a conical Cavity, plain and smooth, of about half the Length of the Stone. The Stone is three Inches and a half in Length, and one Inch and a half in Diameter at the larger End. This is parted from another Body that cover'd the Apex, or smaller End of it; the interior Cavity whereof is set with Studs, that seem to have been continuous with those of the exterior. It appears to have been bigger, and perhaps to have cover'd the whole; it being broken, and only a Piece. They were found in a Lime-Kiln of Mr. Hart's of Lullingstone, in Kent: and having passed the Fire, each is a little vitrify'd.

y. 7. A Conic Body, thick set with small Cavities, in a Quincunx Order, but not very regular. 'Tis of Chalk. From a Chalk-pit, near Guildford. Dr. Sheppard.

y. 8. A Piece of Chalk that was contiguous to the precedent, and has taken the Impression of part of it.

y. 9. Another Body of the same with that y. 7. supra. From the same Pit. Dr. Sheppard.

y. 9*. Another, from a Chalk-pit near Croydon, Surrey. This, and all the foregoing, y. 6*. y. 7. and y. 9. are all inflected a little near the Apex.

y. 9 †. A Body of a pale brown Colour, near white, soft and friable, but harder than Chalk, thick set on one side with small Tubercles. Out of a Limestone-Quarry, at Tunbail, four Miles from Sunderland. Sent by Dr. Hunter, who supposes it to be Astrophes Congener Radularia cretacea, Luidij, N° 176.

y. 10. A flat flinty Body, thick set with small Studs, placed in a Quincunx Order. Found within 2 Miles of Uxbridge, in the Garden at Denham-Court.

y. 11. A Body striated externally, and not unlike what is commonly call'd Petrified Wood. It is channel'd, and seems to be related to the Lapis Syringoides. Found on the Bank of a Pit, near Wheatley-Bridge, five Miles from Oxford.

y. 12. A Flint, grey, with a Coaf of yellow, found in a Field in Beckenham-Parish, near Addington-Common. There are several Bodies in it, cylindric, but inflected, and flakey or scaley, about of an Inch in Diameter. Mr. Steel, who broke the Stone, which was near as big as a Man's Head, thinks them only parts of the same Body, which he imagines to have been spiral, or in Form Hh 4.
of a Screw. There are also in it Impressions of Fragments of the Shell of the *Pinna-Minoa*.

*13. A Spiral Body, lodg'd in a yellowish Clay-Stone. There were others found in great Numbers; some both larger in Diameter, and likewise of greater Length. There were some above a Foot long. Found amongst the Clay flung forth of a Pit at the Half-way House to Hampstead, in Middlesex. Mr. Steel.*

*14. A Piece of the same Clay-Stone, in which was lodg'd one of the foregoing mentioned Spires, having in it a Vein of talky Spar, after the manner of the *Ludus Helmontij*; of which Kind this Stone is, as I saw by several other Samples of it. *Ibidem.*

*15. A Mass of grey Stone, having, in one part, a Cavity in which are several round, long, flender Bodies, appearing not unlike Earth-Worms, lying in several Postures, and being all of them twisted, or inflected. These probably are the *Lapides Vermiculari* of Dr. Plot, *Oxfordshire*, p. 126. Tab. vi. Fig. 13. In the same Cavity are four small oval Bodies, of much the Figure and Bigness of *Luca Olives*. Both these, and the vermicular Bodies, are of much the same Substance and Constitution with that of the Stone in which they are. From a Stone-Pit near *Oxford*; I think, on *Cowley-Common.*

*16. An oval Body; from the same Stone-pit, and of the same sort with those in the precedent Stone, but somewhat larger. This lents gradually at one End, terminating in a kind of Stalk, and has in some Parts of its Surface Ridges, and Striae, drawn in an irregular manner, and seeming to form'd after the Body of the Stone, and to be only Accretions upon it.*

*17. A Stone, having in it like oval Bodies, and a Shell, seeming to be a sort of a *Balanus*. Found in a Stone-pit, at the Bottom of *Shoever-Hill*, near *Oxford.*

*Bodies that have pass'd the Fire; viz. Slags, Regulus's, Glasses.*

*1. Iron-Slag. From the *Forest of Dean*, near *Staunton*. Of this sort there are incredible Quantities, in various parts of the *Forest*. They are Remains of the ancient Works; and hold so much Iron, that they melt them again to good Profit, mixing them only with ¾ of the Iron-stone. Consequently there is, thro' this whole Tract, run down three times as much of these Slags, or Cynders, as they are here call'd, as there is of Iron-Ore. Having been once run before, they melt down again very freely and easily.*

*2. The Iron as first run, and fit for the Hammering-Forge. From Major *Hanbury's Works*, near *Pontipool*, *Wales.*

*3. Iron, struck off the outer Gate of the Castle of St. *Michael's-Mount*, *Cornwall*. 'Tis friable, and very light, its specific Gravity being only 3 ½. 'Twas brought into this Condition by Lightning, 30 or 40 Years ago. Given me by Mr. *Stampeel*, who tells me there is much Iron-Work about the Gate; and most of it in this State.*

*4.*
z. 4. Bottom-Tin, a Regulus of Tin, with Iron.

z. 5. A Regulus of Tin, with Copper.

z. 6. A porous, friable Body, of a green Colour, like Erugo. Twas found adhering to the Sides of the Flewes of the Copper Cupoloes, at Redbrook.

z. 7. A Lead-Slag, with a Piece of Charcoal in it. From New- ton St. Cyres, Devonshire. That Ore is a small-grain'd feedy Ore. Reduced to Lead, a Pound yields 16 Grains of Silver. The Ore has much Sulphur in it: and, without previous roasting to carry off the Sulphur, or some other Method to absorb it, the Lead will not quit the Slag. Of which this Slag is a Proof; and an Instance of the Unskilfulness of those that run it; it holding, upon tryal, $\frac{3}{4}$ Lead. The Ore yields $\frac{1}{4}$ Lead.

z. 8. Part of a Regulus of the Ore of Spelter, [f. 1. supra.] From Mervin, Cornwall. Mr. Heydon.

z. 9. A Regulus like that of Tin-Glafs. Given me by Mr. --- a Sharer in the Antimony-Mines at Endellion, who said it was run from a Piece of this Endellion Ore.

z. 10. Glafs, pretty opake, blue, and streak'd with Sky-Colour, in such manner as to re semble the Constitution of the crusted Agats. This Glafs, in a Month or two, the Pots seldom lasting longer, sets down to the Bottom of the Pot, used for running the Glafs that makes the common green Glafs-Bottles: and proceeds only from the Fern-Ashes, employ'd in the making this Glafs; for where Straw, or Wood-Ashes are used, what sets to the Bottom is of a green Colour.

z. 11. Glafs made thus, by turning the Puny round as many times as there are Cortices.

z. 12. Iron-Slag, vitrified, having in it Veins, or rather Cortices incompalling one another, like those in some Parts of Agats. From Mr. Gott's Iron-Furnaces at Horsemam-Dean, Kent. The Agreement in Constitution betwixt the Glafs and Agats, thew there was at least as perfect and thorough a Solution of the Parts of the Agats, before their Formation, as there was of the Glafs.


Miscellanea Artificialia.


aa. 2. Spar of various Kinds, from the Tea-Boylers of St. Dunstan's Coffee-House, Fleetstreet. Mr. George informs me that Hare-Court-Water will call a Crust of half an Inch, in Thickness, upon the Sides of the Boyler, in a Month; whereas the Thames and New-River-Water will hardly yield any Crust at all.

aa. 3. A Body, black, round, with small Grain-like Tubercles on the Surface: and not very unlike a Mulberry. It was affix'd to the
the Extremity of one of the Branches of a Sea-Shrub, upon the Top of the Coffee-Room, in Brown's Coffee-House in Kingstreet, Westminster. There were several other Bodies, of much the same Shape, and Size, affix'd, in like manner, to the Extremities of several of the other Branches. I took them at first for natural Fruits of that Shrub, till the Coffee-Man affur'd me that, when they were first put up, there were none of them upon it, and that they were all form'd since. Being laid in a Window in Wet-Weather, this began to liqueate and run; which has somewhat lessen'd it, and alter'd the Shape of it. It has a fuliginous Tafte, with a considerable Pungency. This Coffee-Room is much frequented: and there are generally several Pots and Boylers before the Fire. Out of the Dufb that arifes, the Steam of the Coffee, and other Liquors, Smoak of Tobacco, and the Halitus from the Breath of the People, these Bodies are form'd. This sets forth something of the Constitution of the Air of a Coffee-Houfe. It may also serve to illustrate the Manner of the Formation of Corals, and other like Bodies, that owe their Origin to a Mechanism, that is accidental, and not to Seed.

aa. 4. Water out of the Hollow of a Canal Coal-pit, at Haigh, in Lancashire. 'Tis of a green Colour, with a light Caft of yellow: and has a pretty strong four Tafte, with an atramentous Smatch. Both the Colour and Tafte arife from the Vitriol it has taken up into it. I dissolved some of this very Vitriol in common Spring-Water: and it gave it exactly the same Colour and Tafte. This may serve to determine the Controversy between Dr. Lifter and Dr. Leigh, concerning this Vitriol, and this Water. This vitriolic Water comes out of an Aperture of about 2 Inches in Diameter.

aa. 5. Vitriol drawn out of the Pyrites, brought from the Lime-Shores in the Copperas-House at Rotherhithe, Surrey.

aa. 6. English Allum, crystalliz'd after a Solution of it in Water, and boiling. All the Parts shot into Figures like thefe.

aa. 7. The Cheshire Rock-Salt, with a little Nitre, Allum, and Pot-AfF, is the common Flux used for the running the Plate-Glafs, or Looking-Glafs. Dissolving some of this Flux in Water, boiling, and setting it into Lead-Veffels to fhoot, all the Crystals were form'd into angular Figures, placed in Layers one upon another, in fuch fort, that the upper being gradually left, the whole attain'd a Figure with four equal Sides, pyramidal, and like thefe two Bodies.

aa. 8. A Piece of Bone, found, on the Surface, in the Current of an Adit of the Copper-Mine, call'd Gold-Scalp, in Newlands, Cumberland. This may serve to illustrate the Origin of the Turcois Stone. See the Catalogue of the additional extraneous foreign Fossils, No. 2. 3.
Marble, wrongly judg'd facitious.

bb. 1. Part of one of those round Pillars that are commonly suppos'd to be full Marble: but not truly; this being of the common Sussex Marble, full of Sea-Shells. Broke off a Pillar that was fallen down in the Choir of the Cathedral Church of Rochester, and given me by Monfieur Mission.

bb. 2. Part of another, of the same sort of Stone, but more decay'd, and impair'd by Time. Monfieur Mission.

bb. 3. A Piece of Marble, thick set with small Shells; broke off a Pillar in Ely Minster. The People there suppose it to be facitious.

Cornish Sea-Sand used for Manure.

cc. 1. Fragments of Shells, reduced, by the Agitation of the Sea to Powder, and used for the manuring of Land. Sent by the Name of Sea-Sand, from the Shores by Truro, Cornwall.
A CATALOGUE of the Second Addition of English extraneous Fossils; viz. Parts of Vegetables, and of Animals, digg'd up out of the Earth.

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Vegetable Bodies, a. 1. &c.  
Crustacea, c. 1.  
Turbinata, b. 1. &c.  
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Bivalvia, c. i.  
Conchylia Massa Saxea indita,  
Echini & Corpora affinia, d. i,  
g. 1. &c.

1. Vegetable Bodies.


a. 2. Pine Cones, some young, of the current, others mature, of the past Year, in such manner as I have observ'd them on the Pine-Tree at the End of May. Out of a Moss, or Peat-Marsh, Delamere Forest in Cheshire.

a. 3. Found in a Coal-Grove, near Witton-Gilbert; and sent by Dr. Hunter, with the Inscription, Abietis, aut Pini Ramulus, cum Foliorum Vestigiis.

a. 4. Hazle-Nuts, found in digging in a Moss-pit, near Beerston-Castle, Cheshire. The Deluge came forth at the End of May, when Nuts are not ripe. These are in that State. I broke several, that were the best preserv'd, and most found, but found no Remains of a Kernel in any: and yet these were somewhat larger, and firmer than several of the rest sent. There are frequently digg'd up, in the Moss-pits, in Cheshire, on Tylstone-Heath, in the Forest of Delamere, and elsewhere, Oak, Fir, and Birch-Trees, Pine-Apples, and Hazle-Nuts, tho' there be no Hazle-Nut-Trees growing near. Mr. Farrell.

a. 5. This found, with other like round jointed Bodies, in the Rocks, on the Shore, about 6 Miles from Tynemouth, Northumber-land.
a. 7. A Cylindric Body, thick set with Hollows, in a quincunx Order; found in the River Brown, near Lanchejier; I think in the County of Durham.
a. 8. A dark gritty Stone, full of Talc, having on one Side Remains seeming to be of some Leaf, or vegetable Body, ribb'd; the Ribs thick set with Tubercles; found in the River Derwent, at Shortby-Bridge, Durham.
a. 9. These 3 sulcated Bodies, from Brunton Colliery, about 3 Miles from Newcastle. They lie in a sort of black brittle Slate, over the Coal. There are commonly found Leaves of Fern, and of some other Plants, along with these sulcated Bodies, in the same Slate.
a. 10. From Sir Roger Bradshaw's Coal-pits at Haigh, in Lancahsire.

2. TURBINATA.

b. 1. Ammonites out of a Stone-pit, near Elsborough, Buckinghamshire.
b. 2. An Impression of an Ammonita, from Keynsham betwixt Bath and Bristol. There are found, of these Bodies, hereabouts, great Numbers, of various, Kinds, and Sizes. I saw one above 2 Foot in Diameter.
b. 3. An Ammonita, in Stone. _Ibid._
b. 4. A Segment of an Ammonita. _Ibid._
b. 5. An Ammonita, found on the plow'd Lands, on the Edge of Lansdown, near Bath.
b. 6. A Nautilus, Kedington, near Luton, Bedfordshire, out of a Chalk-pit. 'Twas 22 Inches in Diameter, when whole. There were found various other Shells, chiefly Bivalves: and several other Nautilii, in this Chalk-pit.
b. 7. An Impression of the external Surface of a _Cornu Ammonis_, found in Town Sutton, 6 Miles from Maidstone, Kent.
b. 8. An Impression of a _Cornu Ammonis_, Part of the Shell seeming to be yet remaining. Out of a Clay-pit, at Boxley, near Maidstone, Kent.
b. 9. A Cylindric Body environ'd with circular Ridges and Furrows alternately. _Ibid._
b. 10. Two Cylindric Bodies, with annular Sulci, found, with Sharks-Teeth, Ammonite, and other Shells, in a light-colour'd Clay, near Laighton, in Bedfordshire.
b. 11. Ammonites. _Ibid._
b. 13. A Fragment of a Nautilus, digg'd up with the Brick-Clay near Islington, along with the Sharks-Teeth.
b. 14. A piece of Stone cast in a very elegant Nautilus; the Shell appearing to have been compr'sd by some external Force, before the Stone was harden'd. Witney, Oxfordshire.

b. 15. A turbinated Shell, Richmond, Surrey.

b. 16. Another. Great Clay-pit, Richmond, Surrey.


b. 18. Another of different Shape. Ibid.

b. 19. Another of still a different Shape. Ibid.

b. 20. Richmond Clay-pit, Surrey.

**Bivalvia.**

c. 1. A large Bivalve, found, on the plow'd Lands, in Weston Fields, about a Mile from Bath. There are, as usual in the Sea, other lesser Shells, seeming to be of Balani, affîx'd to this.

c. 2. A Peçten out of a Stone Quarry at Melbury-Abbas, Dorsetshire.

c. 3. Stone cast and moulded in another like Peçten. 'Tis of the same sort with that of the common Mâs of the Stratum in which it was found. Out of the same Quarry with the precedent.

c. 4. A Mâs of Stone thick set with Ova of Fishes, Fragments of Shells, and having on it a Peçten very fair, intire, and perfect. Witney Fields, Oxfordshire.

c. 5. A Peçten. Out of a Chalk-pit, near Croydon, Surrey.

c. 6. A Pair of Oyster-Shells; from Reading, Berkshire.

c. 7. A Pair of Oyster-Shells, with Part of a Balanus adhering to each. From the Sand-pit, beyond Woolwich.


c. 9. Concha rugosa. Out of a large Stone-pit, near Bath. These are found in great Numbers, in the Stone there.

b. 12. suprâ, in a Clay-pit, at Boxley, near Maidstone, in Kent.

c. 11. Another. Out of a Clay-pit, near Maidstone, Kent. Mr. Drayton.

c. 12. Four others, found at ——— near Wilton, Wiltshire.

Lord Pembroke.


c. 15. Another. Witney, Oxfordshire.

c. 16. Another; out of a Quarry, near Melbury-Abbas, Dorsetshire.

c. 17. Concha Anomia sulcata; Witney, Oxfordshire.

c. 18. One of this kind from Mynehead, Somersetshire.

c. 19. Another, from Gravefend.

c. 20. Another, from the Chalk-pit, near Croydon, Surrey.
c. 21 x. Three, found near Barton, Durham.
c. 22. Two uncommon Concha Anomia Siriana. Low-Barns, Durham.
c. 23 x. Found with b. 10. supra.
c. 24. This was found at the Entry of the Grotto, call'd the Devil's Arfe in the Peak.
c. 25. Two others. Ibid.
c. 27. This Shell, found, among many others, moulder'd out of the Sides of the Grotto, beyond the first Rivulet, in the Devil's Arfe of the Peak, Derbyshire.
c. 28. A Bivalve; found near Barton, Yorkshire.
c. 29. Another, out of the same Quarry.
c. 30. Another, Low-Barns, Durham.
c. 31. This was found with c. 27. supra.
c. 32. A Stone cast in a Bivalve; Witney, Oxfordshire.
c. 33. Conchites. Found on the Brow of Yenjon Hill, in Hinksfidge Parish, about 3 Miles from Milbourn, Somersetshire.
c. 34, 35. Two cast in Bivalves. Found with the preceding.
c. 36. Conchites, out of a Slate Quarry, near Hutton Locris, about a Mile from Gisborow, Yorkshire.
c. 38. Another. Maidstone, Kent.
c. 41. Another. Witney, Oxfordshire.
c. 42. Two Stones, form'd in a sort of Bivalve. Found with b. 12. supra.
c. 43. A Stone, form'd in species of that sort of Pectunculus, that passes by the Name of Cuneus. Out of the same Clay-pit, with b. 12. supra.
c. 44. A Bivalve from the Coast of Yorkshire, near the Mouth of the River Tees.
c. 45. A Cuneus, from Bossal, Yorkshire.
c. 46. A Stone form'd in a Bivalve. Witney. 'Tis of that kind call'd by Dr. Plot, Hippoccephaloides.
c. 47. Two Pair of small Mufcle Shells; found in a Limestone Quarry, near Tunstal, 3 Miles from Sunderland.

Echini: & Corpora affinia.

d. 1, 2, 3. Three Echini Galeati. Greenhithe.
d. 5. A flinty galeated Echinites. Downs, near Epsom. The Shell in which it was form'd, is disappear'd; but, in the room of Part of it, is a kind of a semidiaphanous flinty Matter, that succeeded the Shell, and concreted upon the Stone.

d. 6. Echinus pileatus; Chalk-pit near Gravesend.

d. 7. A cordated Echinites, with, either, Part of the Shell remaining, or a flinty Matter concreted in lieu of it. Found among Gravel in the Town of Harrow, Middlesex.

d. 8. A Species of Echinus spatagus, very uncommon. Witney, Oxfordshire. This has not the Filiure, or Sulcus, that those have in the Catalogue of the English extraneous Fossils, Class 5.

d. 9. An Echinus Ovarius. Witney, Oxfordshire.

d. 10. Aculei of some sort of Echini Ovarij. Ibid.

d. 11. Others, larger. Ibid.

d. 12. Entrochi; Holy-Island, on the Coast near Berwick; found on the Shores, wash'd out by the Sea. Sir George Wheeler.

d. 13. Entrochi; some of them found on the Shores near Holy Island, others near Boffal, in Yorkshire; call'd there, St. Cuthbert's-Beads.

d. 14. Afteriæ; found in the Brook Nipton, about a Quarter of a Mile from a Town of the same Name, and 40 Yards below the Bridge. The Place is about a Mile South of Belvoir Castle, Lincolnshire.

d. 15. Others. Boffal, Yorkshire, 6 Miles from York.

Crustacea.

e. 1. These Bodies, appearing to be Fragments of the Shell of some crustaceous Fish, found in a bluish Clay, about 30 Foot deep, in the Tile-Clay-pit, near Islington.

Piscium Partes.


Conchylia Masse Saxea indita.

g. 1. Peécines in Stone. From the Top of an Hill, near 1000 Foot in perpendicular Height, in Oneberry-Parish, not far from Ludlow, in Shropshire. The Stone is commonly burnt for Lime; and all of it abounds with these Shells.

f. 2. A Mufcle, Peécines, and other Shells, in a Mafs of Stone, not fair and plain, but as usually in this Country, immediately under the Surface at Hutton-Locris, near Gisborough, Yorkshire. There is Alum-Stone about 20 Foot underneath.


f. 4. A sort of friable Stone, having in it various Shells, very numerous and thick, chiefly Bivalves. Out of Oxendon Gravel-pit, Northamptonshire.

f. 5. Stone thick set with Concha Anomia striata, that have been bruised and compressed. Witney, Oxfordshire.
g. 6. A Stone having on it a large Piece of Corallina reticulata or Sea-Fan. Out of a Lime-stone Quarry at Low-Barns, near Sunderland.

g. 7. A Piece of Stone having in it several Pieces of the Sea-Fan, and small Sea-Shells of the Bivalve Kind; out of the same Quarry near Low-Barns.

g. 8. Vast Numbers of Shells in Marl. Hordel-Cliffs, Hampshire.
A CATALOGUE of the third Addition of English Native Fossils.

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**Earth**s, and Earthy Substances.

a. 1. **E**arth, native, and as taken up. Lancaster, Sir R. Brad-
- shaw.

a. 2. The same sort depurated.

a. 3. Potters-Earth found in great Quantity on the East-Banks of the River Medway, byt wixt Maidstone and Rochester; used at Fox-Hall for making the common white Pots.

a. 4. The Clay made use of for the Gally-pots at Fox-Hall. Tis brought from the Banks of the River Medway, on this side Maid-
- stone, Kent.

a. 5. Earth of a deep Ash-colour; from the Brow of an Hill near Green-House-Lane, by Painswick, Gloucestershire.

a. 6. Fullers-Earth; out of a Coal-pit, on Broad-Moor-Green, near Little-Dean, Forest of Dean, Gloucestershire.

a. 7. Earth; from an Iron-Mine on the North-side of Little-
- Dean-Forest.

a. 8. A brownish Earth; from an Iron-Mine on the North-side of Little-Dean-Forest.

a. 9.
a. 9. Earth of a light brown Colour; from the Brow of an Hill near Green-Houfe-Lane, by Painfwick, Glouceftershire.

a. 10. A yellowifh Earth; from an Hollow-way on the North-side of the Mine, near Little-Dean, Forest of Dean.

a. 11. A whitifh Earth; from the fame Hollow-way. Forest of Dean.

a. 12. Earth of a paleifh Colour, near white; from the Top of an Hill near Little-Dean, Forest.


a. 14. Earth of a reddifh brown Colour; from the Top of an Hill near Little-Dean, Forest.

a. 15. The Clay of which the Tiles are made at Richmond. It was got on the Hill near the Medical Wells there, by the Thames-side. This sort of Clay is found from 3 to 14 or 15 Foot deep, in the Place where they were working. Oct. 15. 1725.

a. 16. This Clay, part brown, and part grey, was taken up about 20 Foot deep, in Lambs-Conduit-Fields. 'Tis used by the Brewers for stopping up the Bungs of their Barrels.

a. 17. A dusky, yellowifh, ochreous Earth; out of Yellow-Shroft-Hole, near Little-Dean, Forest.

a. 18. Yellow ochreous Earth; Isle of Man, Lord Derby.

a. 19. Yellowifh ochreous Earth; Isle of Wight.

a. 20. Ochreous Earth, of a red Colour, somewhat approaching a Pink; Isle of Wight.


a. 22. Found in a small Cavity, in the middle of a grey Flint, in Major General Pepper's Garden, Enfield-Chace. There were in this Flint three other like Cavities, with like Matter in them. The Cavities had no Communication with each other, nor Patifice out.

a. 23. Clay-Stone; from Twiford, near Shaftesbury, Dorfshire: taken up about 80 Foot deep in sinking for Coal. It burns, tho' slowly, and emits a strong sulphurous Smell.

a. 24. Chiver; from the Coal-pits on Broad-Moor-Green, near Little-Dean, Forest.

a. 25. Chalk; out of a Chalk-pit, near Pharey, betwixt Newberry and Hungerford.

S a n d s.

a. 26. Sand, white; Berfhead, Kent.

a. 27. Sand, pale, near white; Goonlace, St. Agnes, Cornwall.

a. 28. Sand, of a very pale brown Colour; Hollingbourn, Kent.

a. 29. Sand, grey, with a Cast of green; St. Stephen's, near Canterbury.

a. 30. Sand, out of a Sand-pit near Fale, betwixt Newberry and Reading.

a. 31. Sand, out of a Pit on Knowl-Hill, about two Miles on this fide Twiford, Berkshire.
a. 32. Sand, of a bright brown Colour, with Sparks of Talc among it; from a Gravel-pit near the Bowling-Green, Hampstead-Heath. April 2. 1716.

a. 33. Reddish Sand, found, for near two Miles an end, in a waved Layer of about an Inch thick, in Moreham's-Court-Hill, near Seven-Oak, Kent. It lies so shallow, that the Carriages turn up and discover it.

a. 34. A reddish gritty Sand; from the same Hollow with the Earth, a. 10. supra. Forest of Dean, Gloucestershire.

a. 35. Sand, of a pale red Colour, approaching a Pink; Isle of Wight.

a. 36. A reddish brown Sand; from the Isle of Wight.

a. 37. This, and the 16 Samples of Sand that follow, to N. a. 53. inclusive, some coarser, others finer, of very different Colours, and shewing in them some extremely fine Fragments of a white silvery Talc, and others of Spar, were taken out of several Layers of a large Bank near Sandling in Boxley-Parish, Kent. Mr. Drayton. At the Departure of the Water, at the end of the Deluge, great Quantities of the uppermost parts of the Globe, were born off, and with it sometimes a very great way; and in the Hurry and Agitation of the Water, Bodies, hard, were wash'd, clear'd and separated from the soft Sand and Pebles, from Clay and Earth: and so projected and cast into Layers, as the Water, becoming more quiet, deferted them. 'Twas owing to this Action of the Water that the Sand and Gravel, now found near the Surface of the Earth, were clear'd, separated and cast into Layers, as we now find them; these shewing plainly that they owe their Compilation to such an Hurry and Action of the Water, and not to a regular Settlement made, according to the Laws of Graviy, from a Water quiet and stagnant, as the regular original Strata all round the Globe did. The Force of the Water departing was so great in some parts, as to tear up even the Strata of the most firm and solid Stone, bear away vast Masses of it, beat them to pieces, and sometimes reduce them even to a very small Grit; such as is a great deal of that which we now call Sand, and find thus cast into Layers. Other sorts of Sands there are that consist, some of broken Marble, others of Spar, Talc, and the like. Much of the Sand about London consists entirely of extremely small Pebles. But of this Action of the Water, more in its place.

a. 38. Sandling, Kent. a. 39. Ibid. a. 40. Ibid.

b. 1. Elvin-Stone. Stibbax, Cornwall.

b. 2. Stone, having in it small Pebles, part of a Stratum; out of a Stone-pit by Sandy-Lane, midway betwixt Bath and Marlborough. Some
Some Strata that I observ’d here, were made up of extreme small Pebles, such as pass ordinarily by the Name of Sand; and of such Strata, dissolv’d, the Sand in the Lane consists.

b. 3. Part of one of the thin Strata of Iron-stone; found in the Cliffs near the Hot-Well, Bristol. This is mention’d in the Account of those Cliffs.

b. 4, 5, 6, 7. Plates, or thin Strata of Stone, used as Slate, for covering the Houfes at and about Bath. These were taken out of the Slate-Quarries, in Charlwood, in the Parish of Box, about five Miles from Bath, and about a Mile from London Road. They lay each under other, in the Order as they are number’d here, the thinnest uppermost.

b. 8. Slate of the fame fort, out of a Quarry near the former. This has a thin Crust of reddish Spar on its Surface.

b. 9. Slate out of the side of a deep Hollow’d-Way, in Bath Road, betwixt Box and Caufum. This has concreted on one Surface a thin Crust of a brownish Spar.

b. 10. Part of a thin Stratum, found on the plough’d Lands by Clarken-Down. I observ’d the uppermost Strata in several parts of these Downs, and of Lansdown, and other Places about Bath, were thus thin, and of much the like Constitution with this.

b. 11. A grey Stone with efflorescent Tubera, seeming to have been originally in a Cavity of it. From -------- near Maidstone, in Kent.


b. 15. Red Slate. St. Agnes, Goonlace, Cornwall.

b. 16. A Stone, purple, spotted with small Mafles of white Spar interpos’d; from the Shores of Sunderland. This, tho’ in the form of a Pebble, is not one, having no exterior investment; but a Fragment broken off a Stratum, worn round and smooth’d, by the Water of the Deluge, departing, and hastening to the Sea, and the Apertures of the great Aby’s at the bottom of it. Conf. a. 37. supra.

b. 17. Another. Ibid.

b. 18. A kind of Marble Maf; beat off, rounded, and smooth’d in like manner; found on the plough’d Lands near Warwick, where such are common.

b. 19. A Sparry Maf; somewhat transparent, so rounded. This fort is call’d a Water-Pebble. Witney, Oxfordshire.

Pebles, Flints.


c. 2. Another; East-side of Hyde-Park. This has a Hole boro’d through it; and perhaps has been worn as a Jewel.

c. 3. Another, brown, plated and Striped. Gravel-pit, St. James’s Park.
c. 5. A flinty Peble, incircled with two Ridges, and two Furrows. Found in Gravel, in the Road a little beyond Lewisham, in Kent.
c. 6. A coarse Flint, with circular Ridges and Channels alternately; from the Shores, near Cornwall.
c. 7. A flinty Peble; found at Stratford, near Bow, Essex. Mr. Clarke, who gave it me, fancy'd it to resemble a Walnut.
c. 8. A small Flint with an Hollow, having in it various Ridges, tending all from the Center of it to the Circumference. Lullingstone-Park, near Ainsford, in Kent.
c. 9. Flint with an Armature on it, but much faded by long Carriage; from a Rivulet near Hoxney, in Norfolk. All the Flints in the Rivulet are so gilded.
c. 10. A grey Flint; found near Beckenham in Kent. There jets out of one side of it a conical Body, of about an Inch in length, resembling a small Belemnites; but of a different Constitution, it consisting of the same Sort of Matter with the Flint: and being indeed continuous with it. There is all round the whole Beginning, or Rise of it, an hollow betwixt the Body and the Flint, seeming to shew that it was form'd in a Conic Shell.
c. 11. A grey Flint having the Surface unequal, and appearing as chipp'd. Witney, Oxfordshire.
c. 12. Another. Ibid.
c. 13. A Body, soft, cretaceous, and that easily cuts with a Knife; found in a blueish Clay, about 30 Foot deep, in the Tile-Clay-pit, near Islington, Middlesex. It seems to be only an harder Sort of Chalk born off, and rounded by the Water of the Deluge departing [Confer. a. 37. supra.] It has no investent Coat, which is the Cafe of many of those commonly call'd Pebles; but is externally rough'd, exactly in manner of some of them.
c. 15. A Nodule, found on the Shores of Sheppey, Kent, greenish, and seeming to have been, only a Bit of broken Glass; but with the Surface roughed, after the Manner of some Pebles; which raises a Suspicion in me, that some of them were only Fragments of hard Strata, broke off, and rough'd on their Surfaces by the Motion of the Water, returning towards the Sea, and the Apertures of the Aysis, in the Conclusion of the Deluge. Confer. a. 37. supra.

ÆTITES GEODES.

d. 1. A small flinty Ætites, found in a Gravel-pit, at Bealing, near Woodbridge, Suffolk.
d. 2. A Geodes, of an orbicular Shape, near 3 Inches in Diameter, the exterior Crust of Flint, fill'd with a pale brown cretaceous Powder, Part of it concreted in a Calimus, from Elsborough, Buckinghamshire.
d. 3. Another, larger, and of somewhat more compress'd Shape: The Cruft is of Iron Stone, with which there are small Pebles, and Grit, incorporated. 'Twas fill'd with the like, and a little yellow Ochre. From Moosal-Hill, near Norwich.

**TALKY BODIES.**

e. 1. *Mica Argentea*, a white flakey Talc, out of Newcastle Coal. It has pas'd the Fire.

e. 2. *Mica*, or Spangles of a white silvery Talc, in a yellowish Sand-stone, from a Gravel-pit on Hampstead-Heath.

e. 3. A white sparry Stone, thick set, partly with a black, partly with a white silvery Mica or Talc. 'Tis commonly call'd Moor-Stone. From ---- Cornwall.

e. 4. Another, with like Talc in it. From the River Derwent, Durham.

e. 5. A brown Stone, thick set with small Spangles of a yellow or golden Talc. Miller Parish, Cornwall.

e. 6. Asbestos, Anglesey.

Mr. Gadlis's Account of the Asbestos in Anglesey.

The Asbestos in Anglesey, stands like a small Skin or Rib between two Rocks of Marble of various Colours, chiefly light and dark green, interspers'd with small Streaks of white. The thickest Rib of it, we ever saw, was between $\frac{1}{10}$ and $\frac{4}{15}$ of an Inch broad, and the Length of the Wool or Thread, is the cross-way of the Vein or Rib, no more than $\frac{1}{5}$ of an Inch long any where, and much the greatest Part of it not above half that Length. So that we found it too difficult for us, either to draw; as the Flatters do their Furs, or to spin it like Flax. The best Use we make of it is in coarse sort of Paper; which I believe with proper Application, might be brought to a tolerable Per- fection. This Asbestos seems to be of a different sort from that mention'd by A. Kircher, in his Description of China, which he says, put into Water, moulders like Clay, and is suddenly consum'd, and that it is a fibrous small Excrefeence, like Hairs growing upon the Stones, and for the hatchelling, spinning, and weaving it, he refers to his Mundus subterraneus, Lib. 12.

e. 7. *Linum Asbestinum*, pick'd out of Cliffs of Rocks, in Anglesey.

e. 8. White, striated, or fibrous Talc. Witney, Oxfordshire.

**Ludus Helmontij.**

f. 1. Ludus Helmontij, found in digging for the purging Spring, on Shooters Hill, Kent. There was found also the Selenites rhombo- boidalis: and the Workmen ascribe the purging Quality of the Waters to these. But both are likewise found, plentifully, in the Tile Clay-pits in several Parts of the Hill.

f. 3. Ludus Helmontij, soft as Clay, when first taken up; with Partitions of a Talky Spar. Out of the great Tile-Clay-pit, Richmond, Surrey.

Lapis Syringoides.

g. 1. Lapis Syringoides. Great Gravel-pit, beyond Woolwich, Kent.
g. 2. Another. Maidstone, Kent.

Rhomboidal Selenitae.

b. 1. Many small rhomboidal Selenitae, found in Clay, near Long Crendon, Buckinghamshire.
b. 2. Two small rhomboidal Selenitae, found, with others in great Numbers, in a Marl-pit, at Bittenden, in the Wild of Kent. Mr. Drayton.
b. 3. Tale, of the Nature of the Selenites. Brick-Clay-pit, near Islington, Middlesex.

Belemnite.
i. 1. A Belemnites, with the Alum Mineral in the Hollow of it. Whitby Alum Works, Yorkshire.
i. 2. Belemnite fusiformes; some of them near transparent. Found in a Bed of Clay, of a pale Colour, near Laighton, Bedfordshire.
i. 3. Two other Bodies, tapering, and somewhat inflected, found, as were also Sea-Shells, and Sharks-Teeth, in the same Clay.

Fossil Coralloid Bodies.

k. 1. A white sparry coralloid Body more branch'd than the Fossil Corals usually are. Chalk-pit near Croydon, Surrey.
k. 2. Lapides ramosi coralloides; out of a Quarry near Witney, Oxfordshire.
k. 3. A Mass of Stone having in it numerous coralloid Bodies of that sort, call'd by the Writers of Fossil, Stelichites; found in the River Tees, near Blackwell, Durham.
k. 4. A Mycetites of a conoid Form, but somewhat inflected, out of a Lime-stone Quarry, near Middleton Fryars, Yorkshire. Sent by Dr. Hunter, with the Name of Branchiæi congener columnellus spirarius. S. Bryonia Radix lapidea Flotij, Luidij, Lymphophylac. N° 120. p. 7.
k. 4*. A coralloid Fungus, having Asteroïtæ, on the Surface, at the Top of it. Found in a Gravel-pit, near Curbridge, by Witney, Oxfordshire.
k. 5. An Astroidites, consisting of a very firm close Spar. Witney, Oxfordshire.
k. 6. Another. Ibid.

Ilores
Fluores, or Spars: and Crystals.


2. Spar, found adhering to the Stone on one Side of a Fissure in a Stone-pit, near Witney, Oxfordshire. 'Twas wetted, by Water gliding over it, by which the sparry Matter was brought, and successively cast and incrusted on the Stone.

3. Spar, white, with a Cast of Yellow. It consists of a Crust, from which several fistulous Stalactitae proceed. Out of a Quarry, near Witney, Oxfordshire. This Crust adhered to the Stone, at the Top of a small Grotto, in the Side of a Fissure. From the Crust the Stalactitae were depending, and Water continually dropping.

4. A Stalactites, with a Cavity perforating it at the Axis. Found in the first Rivulet in the Grotto call'd The Devil's Arse in the Peak.

5. A yellowish Spar, run into Tubercles, having their Surface thick set all over with very small Crystals. Out of the Fissure of a Rock near Easington. Durham. Dr. Hunter.


7. Crystal Shoots, hexagonal, and very fair, but white and not so pellucid as the finest Crystal. Goonlace Tin-Work, St. Agnes Parish, Cornwall.

8. Crystals, hexagonal, but brown, dusky, and not transparent. Found in a Tin-Vein at Carrack-Glose, Cornwall.


Bituminous Bodies.

1. Coal, out of Seridge Coal-pits, Gloucestershire.

2. Coal, from the Pits of Broad-Moor-Green, near Little Dean. Forest of Dean.

3. Petroleum, or Stone-pitch, from off the Well at Pitchford in Shropshire.

4. Stone, resembling char'd Coal, found in the River Brown, near Lanchester, Durham.

5. Earth inflammable, emitting an Electric-Smell. 'Tis us'd instead of Candles, for Light, and lies near the Surface, on the Side of a Peat Marsh, in Lady Mohun's Estate, near Ormskirk, Lancashire. There are, as in other Peat-Earth, numerous vegetable Bodies in it.

6. Amber, from the Shores of Norfolk.

7. Amber, Fossil, from Islington, Mr. Scot's Ground; found 30 Foot deep. 'Tis found commonly in Form of a Cake, leaning towards the Edges. 'Tis strongly electric.

Pyritæ,
PYRITE, MARCASITE.

n.1. A Pyrites, found on the Chalk-Hills, 2 Mile above Newhaven, in Sussex.


n.3. Part of the black Powder taken out of it.


n.5. Another. Out of the Cliffs of Severn, near Westbury, Gloucestershire.

n.6. Mundick, Chefswater, Kenwyn, Cornwall.

Lapis Calaminaris.

o.1. Lapis Calaminaris; from a New-work, at East Hartrey, Mendip, Somersetshire.

o.2. Calamin, found, in Quantity, betwixt Criche and Works-worth, in the Peak. 'Tis rather better than that of Mendip.

o.3. Calamin, with some Sparks of Lead incorporated with it. From Derbyshire. Mr. Jifton.

o.4. Lapis Calaminaris. Peak of Derbyshire. Mr. Robinson.

o.5. Lapis Calaminaris. Ibid.


Copper Ores.


p.2. Copper-Ore. From St. Just, Cornwall. Mr. Ustick.

p.3. A crystalliz'd Marcasite, found in an Hollow of a Piece of Copper-Ore, partly green, partly sulphurous. Such are frequent in this Ore. Isle of Man. Lord Derby.

p.4. Like Copper-Ore, with a Cubic Marcasite in it. Out of the same Mine. Isle of Man. Lord Derby.

p.5. A dusky green Copper-Ore. Blue-Work, Redruth, Cornwall.

p.6. A dusky green Copper-Ore, out of a Mine, near Over-Story, on Quantock-Hills, Somersetshire.

p.7. Copper-Ore, partly blue, partly of a dusky sulphurous. Said to be rich. Mr. Towne's-Work, by Redruth, Cornwall.

p.8. Copper-Ore very sparkling; having in it native Copper. Poldice, Cornwall.

p.9. Copper-Ore, with some little native Copper, flexile, and malleable: Copper crystalliz'd; with small Chips of a grey Stone, a little white Spar: and some things very like small Concretions of Iron. Wheel-Wedden-Key, Cornwall.

p.10. Native Copper, Poldice, Gwenup, Cornwall.

p.11. Native Copper; Isle of Man.
Tin-Ores.

q. 2. Tin-Ore. Chefswater, Kenwyn, Cornwall.
q. 5. Tin-Ore, rich. Gwenup, Lannar, Cornwall.
q. 4. Tin-Ore, very rich. St. Agnes, Cornwall.
q. 5. Tin-Ore. Pelbreen, St. Agnes, Cornwall.
q. 6. Tin-Ore. Wheal-Vean, Gwenup, Cornwall.
q. 7. Tin-Ore. St. Agnes, Cornwall.
q. 8. Tin-Ore, with crystalliz'd Spar. Gwenup, Minear, Cornwall.
q. 10. Tin-Ore, with several Cavities in it; wherein are crystalliz'd Spar, 2 or 3 very small Cornish Diamonds, and very numerous small Tin-Grains. Out of a Vein of a Cliff, to the Sea, St. Agnes, Cornwall.
q. 11. Tin-Grains. Cambron, Cornwall.
q. 12. Tin-Grains. They yield $\frac{2}{3}$ Tin. St. Agnes, Cornwall. There is white Spar incorporated with the Tin-Grains.
q. 14. Tin-Ore, dress'd, for smelting; the Tinters call it Black-Tin. Cornwall.
q. 15. Another sort, not so sparkling as the precedent. Ibid.
q. 16. Another sort, of a reddish brown. Ibid.
q. 17. Another sort, of a lighter Colour. Ibid.

Lead-Ores.

r. 1. Blue, or Potters Lead-Ore, with a little white Spar intermix'd. The two opposite Flats, or Sides, are smooth and unbroke; so that this Piece pass'd from side to side of the Vein: and shews its Breadth to be above two Inches. Isle of Man. Lord Derby.

r. 2. Lead-Ore. Trevascus, Gwinyr, Cornwall.

r. 3. Lead-Ore. Gwinyr, Relisian, Cornwall.

r. 4. Lead-Ore, sparkling. The opposite Flats shew the Breadth of the Vein. Isle of Man. Lord Derby.

r. 5. Lead-Ore, more sparkling. Perran-Sands, Cornwall.

r. 6. A Piece of a grey talky Stone, being the Side of a perpendicular Fissure, having on it a Vein of Lead-Ore, and of a white Spar, shot into very small Crystals. From a Lead-Mine near Blanchland, Northumberland.

r. 7. Spar, crystalliz'd, with a Mass of Lead-Ore incorporated with it. Ibid.

r. 8. Spar, crystalliz'd, of a yellowish Colour, holding in it likewise Masses of a purple Spar, and two small Masses of Lead-Ore. Bishoprick of Durham.

Iron.
IRON-ORES.

f. 1. Samples of a Stratum of Iron-stone Ore, thick set with Entrochi, and Sea-Shells, and rich in Iron. 'Tis somewhat above two Foot thick: and crops out, at the Day, on the North-side of Little-Dean. From this Cropping, it dips into the Hill a great Depth. There is on one Piece of it, a Sample of the Spar, rich in Iron. This Spar was found on the Side of a Pitture.

f. 2. Iron-Ore, very rich, found, in great Quantity, over the Coal, at Broseley, in Shropshire.

f. 3. Iron-Ore. Perran-Sands, Cornwall.

f. 4. Iron-Ore, found, at the Surface, on Quantock-Hills, near Upper-Stoey, about 6 Miles West of Bridgwater, Somersetshire. 'Tis found in great Quantities, tho' there be no Mine wrought, or Forge.

A Third Addition of English Extraneous FOSSILS.

a. 1. A large Bone, found among Rubble, about 14 Foot deep, above the Slate, in a Quarry near Stunsfield, Oxfordshire.

a. 2. Two Pieces of Bone, out of the Rubble of another Quarry, near the former.

a. 3. Another Piece, from a neighbouring Quarry. The outer Part of this is now Spar. There are numerous Bones found in the Rubble over several of these Quarries.

a. 4. Siliquastrum, and four other Bodies; found in the Substance of the Rubble-Stones*, over the Slate of the same Quarries. Stunsfield. The Bufonita are found in the same Stones; as also the Pleuronita.

a. 5. Two Pleuronita, lying in Pieces of Rubble-Stone that lay over another of these Slate Quarries. Stunsfield.

a. 6. This Body seems to be Part of a Jaw paved with grinder Teeth, related to the Bufonita. Out of the Rubble-Stone, over a Slate-Quarry. Stunsfield.

* These thin Strata of Slate were, doubtless, the Top of the original Soney Subsidence at the Deluge. There might be earthy, chaly, or other lighter Matter above, that might be washed away, and carried thence by the departing Water of the Deluge: But the Rubble-Stones, in which these Siliquastrum, and other Marine Bodies are found, many of which Stones are very large, and of great weight, were brought from elsewhere, and cast and left here by the same Water departing; which, from many Observations that I have made, appears to have made great Changes and Transpositions of the first Settlement at and near the Surface of the Earth.
a. 7. Strombites, very thick, and numerous, in Stone. Out of the Quarry near Witney Town End, Oxfordshire.

a. 8. A Piece of common Slate, out of a Quarry near Stunsfield. There are in it Impressions of Bivalves, chiefly in Pairs, opened and expanded. These are chiefly of one Species; but I observ'd of other Species in the same Slate.

a. 9. An Ammonites, with its Impression on part of the Mass of Stone in which it was found, in Haselford Quarry, near Barrington, Oxfordshire.

a. 10. Echinites, found, in sinking a Well, in Witney, Oxfordshire.

a. 11. Two Conche Anomia, found in a Quarry by Hamborow, near Woodstock, Oxfordshire.

a. 12. Two Scales, said to be of the Sword-Fish, found in the midst of a large Piece of hard Rubble-Stone, about 12 Foot deep, over a Slate-Quarry, near Stunsfield. Mr. Smith. He never saw any of these in any other Place. I saw the Piece off which these were broke. 'Twas extended, in a Plane, for near a Foot every way.

a. 13. A Piece of Rubble-stone, out of the same Quarry, having on it the Impression of the Skin, cover'd with Scales, of a Fish of the same kind.

a. 14. The upper Jaw of some Marine Animal, found 24 Foot deep, in a Quarry in the Estate of Sir Thomas Read, at Shipton, in Oxfordshire. 'Twas, when first found, near 2 foot 2 Inches long. 'Tis now in two Pieces; and there was a third, which was the Snout or Termination, and is lost. It was not acute as commonly the Beak of a Bird is, but obtuse, like the Snout of an Hog.

a. 15. Two Pieces of the under Jaw of the same Animal, found together with the other. As along each side of that is a Row of Teeth, so is there likewise in the lower Jaw corresponding to those. The Quarry-Man, who found the Jaws, foolishly broke the Teeth off both. But, by some Remains yet behind in the lower Jaw, it appears that they were of that sort call'd Plectro-nites; which indeed I observ'd to be a boney Substancce, and always judg'd they serv'd for Teeth.


a. 17. An Echinus, found on the Side of an Hollow-Way, near Fulbrook, Oxfordshire, See Dr. Plot's Account of this Body. Nat. Hist. Oxfordshire, Cap. 5. §. 30, 31, 32. He has an Icon of it, ibid. Tab. 2. Fig. 9, 10.

a. 18. Shells, in Stone, some few turbinated, but chiefly Bivalves, very numerous and thick, of the same sort with those found in Stone, at Stifford, in Essex; at Woolwich, in Kent; and on various parts of Black-Heath. Found in Moor-Park, on occasion of digging for making the Level near Mr. Stiles's House.


a. 20.
a. 20. Numerous other Shells, chiefly Bivalves, in Marl; from the same Cliffs.

a. 21. Others, chiefly turbinated, in Clay; from the same Cliff.

a. 22. A Pair of Scallop-Shells, somewhat distanced, with the common black Flint interpos'd in such sort, as to hold them together. Found at Reads-Reef, near Banstead, Surrey.

a. 23. A galeated Echinete, of Flint, very fair, and perfect; found in a Field near Woodstock-Park, Oxfordshire.

a. 24. A small Nautilus Gracorum, Part of the exterior Voluta remaining, and the Edges of the Diaphragms, or Partitions, all of a fine shining pearly Hue, and Constitution. The Intervals of the Partitions are fill'd with the Pyrites. Out of the great Clay-Pit, near Richmond, Surrey.
A CATALOGUE
OF THE
FOREIGN FOSSILS
In the Collection of
J. WOODWARD M. D.

Brought as well from several Parts of Asia, Africa, and America; as from Sweden, Germany, Hungary, and other Parts of Europe.

With a Characteristic Description, and Historical Account of each; as also various Experiments, Observations, and Reflections, in order to the setting forth the Natural History, and the Medicinal, Mechanical, and other Uses of them.

PART I.

Exhibiting the Fossils that are real, and natural, Earths, Stones, Marbles, Talcs, Coralloids, Spurs, Crystals, Gems, Bitumens, Salts, Marcasites, Minerals, and Metals.
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K k 2

N. B.
N.B. There are some flight Irregularities, in the Order here observ'd, which may be easily corrected by comparing this Index with that of the native English Fossils, or with that of the additional native foreign Fossils, in the Catalogues of those Fossils.
Terraæ, & Terris Affiniae.

Earths, and Earthy Substances.

a. 1. Earth, of a light brown Colour, found about 6 Foot deep, at Fort St. George, and sent to me by Mr. Edward Bulkley, an inquisitive Surgeon in the East-Indies.

a. 2. A blackish Earth, looking as if burnt. From the Island of Ascension. Almost the whole Island consists of this sort of Earth. Mr. Cunningham, Surgeon.


a. 4. Earth, with Mica in it. From comminere, about 50 Miles from Fort St. George. Tis found at the Surface of the Ground; and used by Potters to make Gurgalets, or Water Vessels, to drink out of. Mr. Bulkley.

a. 5. Earth, found near the Surface; and used by the Goldsmiths for Cuppels. Fort St. George. Mr. Bulkley.

a. 6. The Earth of which the China Ware is made. Mr. Cunningham.

a. 7. Medulla Saxi alba, Friberger in Saxonia. Steinmark, Stone-marrow. This was sent me by Monfeur de Schonberg, Berghauptman, or Superintendant of all the Mines in Saxony, and free Baron of the Empire. [Marga, Marrow, Medulla Saxi, Plinij.]

a. 8. Terra Lemnia, native, and just as it was dug up in Lemnos, from whence it was brought by Mr. Neighbour.

a. 9. Terra Lemnia, dresses'd and wash'd.

a. 10. Terra Lemnia, rubicunda.


a. 15. Terra Labacensis alba, D. Kilner.


a. 18. Terra Samia, candida.

a. 19. Bolus Armena. This is the true Bole from Armenia; and in all respects like a Sample of it, that Dr. Ball procured from that Country.

a. 20. Venetian Bole.
a. 21. A native Earth, fittripick, and of the Bole-kind, extremely fine, of a Pink-Colour, with some small Variegations of Red and Yellow. From Carolina.
a. 22. Another Sample of the same, not different, only 'tis vein'd with white, and has small Spangles of a white silvery Tale in it.
a. 23. A sort of greyish Earth, seeming to be of the Fullers-kind. Virginia.
a. 24. Sent by the Name of Fullers-Earth, from Fort St. George. Mr. Bulkley.
a. 25. Umbre, native, from Cyprus, found in great Quantity.
a. 27. Earth, of a pale brown Colour, compos'd of several very thin Strata; sent by the Name of Umbre, found 15 Foot deep. Fort St. George. Mr. Bulkley.
a. 28. Gialliolina. an Earth of the brightest Gold Colour of any we have. Indeed it surpasses Orpiment, and all the other Yellows, both for lasting, and the Beauty of the Colour. 'Tis native, and just as it was taken forth of the Earth, at ------- in the Kingdom of Naples. The whole, ground down upon the Stone with Oil, is ready for Use.
a. 29. Ochra Romana. This is wash'd, and freed by that means from the Sand that is found amongst it. It makes a deep or brown Yellow, carries a good Body, and mixes well with other Colours. It is got in great Quantity at ------- near Rome.
a. 30. French Ochre, yellow.
a. 31. Sent by the Name of Ochre. Fort St. George. Mr. Bulkley.
a. 32. Terra Verde, native, and in the very Condition wherein it is found in considerable Quantity, in the Mountain------- in the Pope’s Dominions, not far from Rome. It is somewhat uncruft, and adheres slightly to the Tongue. When scrap'd, and the finer Parts separated, and broken in a Mortar, 'tis ready to be made up with Oil for the Use of Painters, and makes the most true and lasting Green of any simple Body they use.
a. 33. Another Sample, from the same Place. This has a slight Cast of Blue in it. Mr Howard.
a. 34. Berg-Grün Germanis, i. e. Mineral-Green. The Water that proceeds thorough the Drains forth of the Copper-Mines, near Newjof, in Hungary, abounds in Vitriol. This they frequently separate and crystallize, by putting Iron into the Water: and after the Vitriol is crystalliz'd, this Berg-Grün settleth to the Bottom of the Vessels. Mr. Weber. This appears to be little different from the common Terre Verte.
a. 35. A reddish, brown, crusty Earth, used to colour the Walls of their Houses at Fort St. George. Mr. Bulkley.
a. 36. East-Indian red Earth, with Mica of white Tale in it for Painters.
a. 37. Red Earth, used by Painters. East-Indies. Mr. Edward Terry informs me that this Earth is got, in great Quantities, in the Island of Ormuz in the Persian Gulf; and carry’d thence, in great Quan-
Quantities, to Surat, Bengal, and other Parts of India; where 'tis used in painting of Houses, Ships, &c. He observ'd frequently of this Earth adhering to the Sal Gemma brought from Ormuz: and therefore concludes they lay together in the Earth.

a. 38. Stone Colour: the finest red Earth from the East Indies.
a. 40. Another Sample more unctuous, and seeming to consist of Parts somewhat finer, from the same Place.
a. 41. White Tripely. France.
a. 42. Tripely, white with a Blush of Red, from the Streights.
a. 42. Tripely, white; brought with the former.
a. 43. Tripely. Virginia.
a. 44. Tripely. Venice.
'Tis Grey, with a Cast of Green.
a. 47. Another Sample, paler.
a. 48. Another with a Brown Cast.
a. 49. Lac Luna. Hamburgh.

**ARENÆ.**

Various Kinds of Sand: and other like Bodies

† a. 1. Brown Sand from the Isle of St. Thomas, near Guinea.
† a. 2. A yellowish Sand from the Shores of the Sea. Guinea.
† a. 4. Sand of a pale brown Colour. Maryland, Mr. Vernon. There were found in the Stratum of this Sand, a great Variety of Sea-Shells, several whereof are exhibited in the other Part of this Catalogue, vid. § 121. and there are some small Fragments of Shells among this Sand.
† a. 5. Very small Pebbles, Fragments of Coral, and of Shells, smooth'd and worn, by the Agitation of the Sea. Sent by Mr. Cunningham, under the Title of Sand from the Isle of Ascension.
† a. 6. A sandy Mass, found at the Surface of the Earth. Fort St. George. Mr. Bulkley.

**SAXA.**

Stones found in large Masses.

C. 1. A Mass of Stone very close, firm, and compact, sent by the Baron de Schonberg, with the Inscription, Silex antrifimus luteus, cornus Lapis didius. Fribergæ in Saxonia. Gelber Hornstein, i.e. yellow Hornstone. [It lies in Strata, as I am inform'd by Mr. Weber, who is a Native of Hungary, and has been long conversant in the Mines there, as likewise in thofe of Saxony.]

Cryfocola lapides, ex Sutensium Alpibus. D. Scheuchzer.

Oil-Stone, from Luneburgh, Germany.

Polishing Stone. Luneburgh.

Touch-Stone.

M A R M O R A.

Various Kinds of Marble.

1. Marmor atro-Gryseum, rubenci, carneo, & albo pulcherrimè variegatum.

2. Marmor nitidissimum, atro, candido, & viridi intus collu-cido insigniter variegatum.

3. Marble, very hard, variegated with black and white. Fort St. George. Mr. Buthley.

4. Porphyry, found, by Henry Worsey, in Arabia Petraea, at about 2 Miles Distance from the Granite, 5. and 6. There were many vast Strata; and indeed whole Rocks entirely of this Porphyry.

5. Granite, the ground white, with a Caft of Red, spotted with Black. Found in Arabia Petraea, about 50 Miles from Mount Sinai, by Mr. Henry Worsey. There were many vast Rocks of this and the following Granite. He observ'd Strata of it, about 2 Yards in Thickness, lying one upon another. This is the true oriental Granite; and the two Obelisks at Alexandria, and that near Grand Cairo, are all of this sort of Stone: as are also the Obelisks at Rome, and all the rest he ever saw. The Tomb, or sepulchral Chelf (of which he has a Piece) in the great Pyramid in Egypt, is of the same. He was told there were Quarries of it in the Upper Egypt.

6. Granite, the Ground white, spotted with a bright shining Black. From Arabia Petraea. Mr. Henry Worsey.


Alabaster. All-Plaister.


2. Lapis Gypseus, ex sudinis Oierodensibus, Ducatus Hannover viensis. Dr. Leopold of Lubeck.

C A L C U L I: & S I L I C E S.

Pebles and Flints.

1. Several Pebles, black, white, grey, and brown, cemented together into the same Mass, by means of Sand that is interposed betwixt them. There is of like sort in several Parts of England. This was sent me by M. Valkenier, from Switzerland, where there are many very vast Mountains constituted entirely of the like: as there are also in this Island.
§ 2. A Pebble from the Shores of Mesina in Sicily, grey, with small Holes in it, as if eroded by some Insect.

§ 3. A Pebble, White and Brick-Colour. Newfoundland.

§ 4. A Piece of a greyish white Pebble, sent by the Name of a Firestone, from Fort St. George. Mr. Bulkley.

§ 5. A white Pebble, Guinea.

§ 6. Another from the same Place in Guinea. 'Tis wont to be powdered and used there instead of Emery.

§ 7. A small brown plated Pebble, brought from some Part of the East Indies.


§ 9. Small white Pebbles, from the very Top of the Table-Mountain, at the Cape of Good Hope. Mr. Cunningham.

§ 10. A grey Pebble with sparly parallel Veins. Newfoundland. Mr. Newman. [This is no Pebble; it seems to have been worn and ground into this Form by the Motion of Water.]

§ 11. A semipellucid Pebble, found (with many more) near Hecla, Islandia. Sir Thomas Brown.

† § 1. A Piece of a crystalline Flint. Virginia.

† § 2. A blackish grey Flint, little different: from the English, sent for petrified Wood, from Virginia. Mr. Bird.

† § 3. A brown Flint sent by Dr. Kifæer, with the Inscription, Lignum petrefaciens ex Sylva Budingenis.

TALCUM FIBROSUM.

§ 1. The fibrous talcy Bodies.

§ 1. Gypsum Striatum. Mr. Weber, who is an Hungarian and has been long conversant in the Mines of that Country, and of Saxony, affurres me, that this Kind is commonly found in the perpendicular Fissures of the Strata: and that it is the true white Spaad of the Germans. The same Sort is found in several Parts of England, and is used by our Silver-Smiths for casting. They likewise call it Spaad. This Specimen was sent by the Baron de Schönberg, with the Inscription, Marmor metallicum album petrificatum. Marieberg in Saxonia. Weifer durchsichtiger Spaad, i. e. White transparent Spaad.

§ 2. Another Sample, not differing from the former. Sent me from Lubeck by the very learned M. a Mellen, by the Name of Spatnum.

§ 3. A fibrous talcy Body sent by Dr. Scheuchzer of Zurich, with the Inscription, Amianthus subviridis ex Rupibus Clavemen.


§ 5. Lapis Amianthus, seu Asbestos, una cum Lino Asbestos, ex Cyprio Infus. There are 3 Samples of the Stone, with the Linum in it; that were all brought from Cyprus, and presented me by three several Hands.

§ 2. The flakey or plated Talky Bodies.

Talcum squamosum, seu foliaceum.

1. Lapis specularis Plinii. Ishinglas, or Muscovy Glass; from Russia.
2. Another Specimen of the same Sort, from Schneeberg. Sent by the Baron Schönberg, with the Inscription, Talcum Kalg, i.e. Kauk.
3. Another of still the same Sort, from East India. Sent by Mr. Bulkley, with the following Account. Tella Aburrumum. It is found by the Sea-Shore, and is a Sort of Selenites, and as'd commonly for such Purposes, as we do that.
4. Lapis Specularis. Annaberga in Saxonia. Katzen Silber, i.e. Cat-Silver. M.de Schönberg. [It is not quite so clean as the former.]
5. Talc, white with a Cast of Green, from Carinthia. Dr. Edward Brown.
6. Talcum Venetum, foliatum, ex candido Viridefescens.
7. Talcum album, foliaceum, in fluore siliceo candide à Göttingburga Suecia.
8. Talcum album foliaceum, in fluore candido. Virginia. Mr. Bird. There adheres to it Fragments of the Pyrites.
10. Talc, grey. Sent by the Name of petrified Walnut-Tree from Virginia.
11. Talky, grey; found in Mount St. Thomas, Fort St. George, and call'd there Collinara.
13. Talc, sparkling; of a grey Complexion, in a reddish Stone. There is a Vein of a white striated, or fibrous talky Spar in it. From the Rechen Mountain, near Franzendorf, in Bohemia.
14. A brown Stone, thick set with small Spangles of silvery Talc. This is Emery, of the softer kind, us'd chiefly in grinding the Looking-Glass Plates: as likewise by Lapidaries, for setting and cutting Crystal, and the softer Stones.
15. A Talky Stone, flakey: and of a grey, glossy, Complexion. This is the Emery of the harder kind; us'd for polishing of Iron.
16. Emery, from Smyrna.
17. Nella Corivindum is found in Fields where the Rice grows. It is commonly thrown up by Field Rats, and us'd as we do Emery, to polish Iron.
x 7. 19. A black foliaceous Talc, found at the Bottoms of Rivers. Fort St. George. Call’d there, Abdara Com. Mr. Bulkley.


x 7. 21. A black, shining, stringy Talc; with one large Vein, and several lesser, of white Spar in it. Maryland. Mr. Vernon.

x 7. 22. Mica Negra, found in a River near Fort St. George. Mr. Bulkley.

x 7. 23. Mica nigra. Found in Arabia Deserta. Mr. Worsley. Indeed the Granite found in this Country is a Mica, vid. γ. 5. and 6. supra.

x 7. 24. A brown sparry Body, thick set with Flakes of black Talc. From _______ in France. ’Tis used for the casting the Brass Plates of which the Wire is made; and abides the Fire better than any other Stone yet applied to that Purpose. ’Tis Part of a Stratum; and much refin lies the Granite Marble.

x 7. 25. Hema Aburracum. ’Tis a Copper-Coloured Shivery Talc. It is variously prepar’d and us’d in Vertigos and Arthritic Pains. They dig 15 or 16 Foot deep for it. Mr. Bulkley. Fort. St. George.


x 7. 27. Another like Sort, from a Hill above the Freshes of St. James’s River in Virginia. ’Tis found in vast Quantity underneath a Bed of white Clay. Mr. Wager.

x 7. 28. Another harder. Dr. Leopold. Lapis Mica non multum dissimilis, Grunstein incolis dictus, non procul ab officinis ferrarijs Hasebyensibus in silva effoditum, & ad depurandam Venam Mariis pisiformem incolis infervit. Glimmer.


x 7. 30. Grey Talc, with a Cast of yellow. From the Shores of Messina, Sicily.

x 7. 31. Mica in Silice arenario, ex Sila Flurio. Dr. Scheuchzer.

x 7. 32. A shining foliaceous yellow Talc. Virginia.

x 7. 33. A yellow mafly Talc, very ponderous. Fort St. George. Mr. Bulkley.

Appendix.

Selenites, &c. Affiniae.

Taky plated Bodies, somewhat approaching the Constitution of the Lapis Specularis

† x. 1. Lapis Specularis Luneburgicus. Dr. Kipser.


† x. 3. Excrecentia Fribergae in Saxonia. M. de Schonberg. [Mr. Weber assures me, this is one Sort of that Body that the Germans call Spaat or Spaad.]

§. 3. The Rhomboid Selenites.

† x. 1. A Mafs compos’d of transparent parallel Plates, exactly of the Constitution of the Selenites: and breaking into Rhom-
boid Plates. Found in Clay near the Surface of the Earth. *Fort St. George. * Mr. Bulkle; and call'd there *Corporé Saluifu.


**Ludus Helmontii.**

*The Waxen-Vein.*

* 1. A piece of the true *Ludus Helmontij*, found in the Place mention'd by that Author *, near *Antwerp;* and brought thence by his Son, Fr. Merc. Van Helmont, into England. He gave it to - - - and he to Mr. *Kemp:* of whom I had this Piece. 'Tis of the Colour mention'd by *Wormius* †; viz. a dusky brown. The Colour of it is somewhat darker than that of those found in England ordinarily is; otherwise the Stone is exactly of the same Constitution: and parted into *Tali,* by means of *Septa,* as ours are. *Septa* also consist of a talky Spar: and are compos'd of Plates striated acros, like those of England. *See the Catalogue of the English Fossils, Vol. I. Class IV. Part III.*

* 2. Another Piece, not different from the former; only the *Tali* are of a grey Colour: and the *Septa* of a paler talky Spar; so that this is in all respects exactly like those we commonly find in England. 'Twas found at - - - in Germany: brought over by Fr. M. Van Helmont: and given as his Father's *Ludus,* to Mr. *Foxcraft,* Fellow of King's-College in Cambridge. The latter gave it to Sir *Ifane Newton,* and he to me.

**Belemnites.**

*The Thunder-Stone.*

* 1. *Belemnites ex Agro propri pagum Bleislorp in Distriictu Neo-statusiens.* Dr. *Leopold of Lubeck.*


* 4. Two conic *Belemnites,* with *Striae* tending from the Surface to the Axis of the Body, of the same Constitution, and in all other respects like those of England. *See the 1st Vol. of the Catalogue of the English Fossils, p. -- -- & seqq.*


**Lapides crustatii.**

*The various Kinds of coated Stones.*

* 1. *Alites Ochreo-serrens.* 'Tis of a pale brown Colour. From Basel, Switzerland. * M. Valkenier.*

2. _Æristes Ochro-ferreus._ 'Tis of a dusky brown Colour, near black. From - - - in France.

3. Geodes, found near Ferrara, in Italy. Agostino Scilla sent it me.

4. Geodes. From - - - in Germany.

5. This is of the very same Kind and Constitution with that commonly found about London, lodged in the Clay us'd for making of Bricks. The Workmen call it Race or Rance. See the 1st Vol. of the Catalogue of the English Fossils, 4 o. 18. 'Twas sent by Dr. Kipfer with the Inscription, Ostecolla, ex Agro Hambergenfi, duobus circiter milliariibus à Francofurto. Germanico Erdmannsen, i.e. Terra homunculus.

5. Geodes found in Clay, by Sellbold, a Town near Hanover. It differs not from the Rance found in the Brick-Clay-Pits about London: only 'tis somewhat more white, and of a finer Constitution. Dr. Kipfer.

7. A Cylindrick Body, externally of a pale brown Colour, compos'd of numerous very thin Crusts, alternately of a paler and deeper Brown. In the middle is a Cylinder of a coarse cretaceous Matter, white, with a blush of red. This is the Phallus or Priapus Lapidicus of the Germans. Mr. Doody.

**CORALLOIDEA.**

**Fossil Coralloid-Bodies.**

1. Several Joints of a Coralloid-Body, having its Surface thick set with Striae running all parallel and longways. Sent by Agostino Scilla from Sicily, with this Inscription, Corallo articulato, co-piissimo, per tutte le Rocche e Colline di Messina. He has publish'd an Icon of it in his Lettera circa i Corpi marini petrificati, 4º. Tab. 21. Fig. 1. 'Tis the same with that delineated by S. Ferrante Imperato. Histor. Natural. pag. 628. under the Title of Corallo articulato; which he procur'd from the Island Majorca.

2. A large Piece of the same sort, appearing like the Base or Root of a Coral. Agostino Scilla, Tab. 21. Fig. 2.

3. Corallo fistoloso, che in Abondanza si vede nella Colline di Messina. Agostino Scilla, Tab. 20. Fig. 2. 'Tis a Coral of the Porrect kind: and seems to be describ'd by J. Bauhin under the Name of Corallium geniculatum album, L. 39. l. 24. Vide S. Ferrante Imperato, p. 628.


5. Porus coralloides Fossilis, somewhat different. From Maryland.

6. Porus coralloides Fossilis. Another Species having the star'd Porri larger, more cavernous, and standing closer together. Maryland.

7. Sent by Agostino Scilla, with the Inscription, Milleporus petrificati delle quale si fa Pietre Stellari. 'Tis not describ'd in his Book, he having not found this Body, till after that was printed.
x. 8. The Honey-Comb-Stone. Dug up in the Island of Barbados, and given me by Benjamin Middleton.

x. 9. Millepore, trovati con infiniti altri corpi di Mare fra Terra nel Capo della Città di Millazzo. Agostino Scilla, Tab. 17. B.

x. 10. This beautiful Corallin Africites was sent me by Agostino Scilla, with the Inscription, Millepore trovato nella Colline di Messina. This was found since he wrote his Book: and is not described there.


x. 12. Another, from the same Rocks. By — — — Surgeon.

x. 13. Sent by Dr. Scheuchzer, with the Inscription, Rhizoides, feu Radicem referens Lapis nondum descriptus ex Comitat Hesepo.'


x. 16. Alcyonium Fossilis ex Monte Randio Scaphusianorum. Dr. Scheuchzer.

x. 17. Alcyonium Stupposum Imperati. Dr. Scheuchzer. Lithographia, p. 15. f. 19.


x. 19. Mycitites. Sent me by Agostino Scilla, it is not describ'd in his Book.

x. 20. Mycitites ex Agro Mantuano Italia.

x. 21. Mycitites ex Agro Bononieni. 'Tis the Fungites of Dr. Plot, in his Natural History of Staffordshire. Tab. 12. f. 4.

x. 22. This curious mineral Mycitites was sent me by Agostino Scilla. It seems to be his 2d Fobo. Tab. 14.

Crystalli & Fluores.

Incrustations, Stalactite, Stalagmite, Crystals, and Spars.

a. 1. A sparrey Incrustation made by the Water of the Baths of Eisenbach, near Schemnitz, in Hungary, upon the wooden Planks on the Sides of the Baths. It grows so fast, that they are constrain'd to change and renew the Planks yearly.

a. 2. A sparrey Incrustation, somewhat coarser than the former; ex Thermis Badensisbus. Dr. Kifuer.

a. 3. An Incrustation, out of the Pipes that convey the Water into the Baths of Buda, brought thence by Dr. E. Brown.

a. 5. Fluores Selenitici, ollaedri, &c. caedri, lenticulae, quorum bedra tres in Pyramide oppositas eunt, reliquis latera claudit. In marmore nigro ad Thermas Fabriani, Dr. Scheuchzer.

a. 6. In Marmore nigro Fabriano, Frumentalis Lapidis, Imperati Vestigia. Dr. Scheuchzer.


a. 9. A Spar sent by Dr. Scheuchzer, with the Inscription Selenites Rhomboidalis cuius fundo ascendit nebula, Lithographiae Helvetica, p. 49. 53. Fig. 73. Ex Crypta Montis Gamor. This, and the following, are of the same sort of Spar, and 'tis common all in the Peak, and in the Yorkshire Lead-Mines. They call it Spiegel Spalte. 

a. 10. Selenites Rhomboidalis venis nigricantibus. Dr. Scheuchzer, Lithographiae Helvetica. p. 49. f. 71, 72.

a. 11. Selenites Rhomboidalis, in Lapid calcario juxta Moguntium reperiundus. Dr. Kifuer.

a. 12. A Spar, in some parts flakey, in others stringy; white, with a Cast of yellow. From a Mountain in the Territory of Zurich. M. Valkenier.

a. 13. Tella Convindum. Fort St. George. Mr. Bulkley. 'Tis a talky Spar, grey, with a Cast of green. It is used to polish Rubies and Diamonds.


a. 14. Part of another Bononian Stone, that was round, and compeofed of Fibres pafling from the Surface to the Center, much like some of the vitriolick Pyrites. From the fame River.

a. 14+. Another, glossy and shining, as the two former are, but not seeming to be so fibrous. Out of the same River, and indeed it seems to have been worn by the Agitation of the Water.

a. 15. Coppoora Sillagittoa, is good against the Stone, Gravel, and Stopage of Urine; but it must first pass a difficult and tedious Preparation. Mr. Bulkley. 'Tis only a white talky Spar.

a. 16. Stalagmites ex albo rubens, a Metallic folidis Rhetia, Siler Fosforibus Germanis vocatur. Dr. Scheuchzer.
A. 17. A white sparry Stalactites, compos'd of Crusts one upon another; \textit{ex agro Tigrino. M. Valkenier.} 'Tis in Constitution, and all other respects, exactly like ours in \textit{England.} See the \textit{Catalogue of English Fossils, f. No.-- Dropstein.}

A. 18. Stalactites. 'Tis of the Colour and Constitution of the Pumices, as they are call'd, that are very common all over the Island of Tenarife, where this was found hanging down from the Vault of a Grotto.

A. 19. \textit{Un Sasso, che un tempo si stanza di Vermine marine di Calabria,} Agostino Scilla, Tab. 15. This Gentleman was very fond of having almost all the figured Fossils he met with of Marine Origin. This he thinks a Cluster of marine Vermiculi. 'Tis certain it is not such; nor are there any Vermiculi that resemble these. Indeed 'tis apparently no tefteaceous, but a stoney or coarse sparry Substance, not unlike the former; and seems to have hung or grown sideways to a Rock, like the Stalactite, and other analogous Bodies.

A. 20. A Stalactite, consisting of several Incrustations of a coarse white Spar. Found, with many more, hanging down from an Arch of a Coffer lately built in Lisbon. Mr. Francis Taylour. There are frequently found like Bodies hanging down from Arches of Stone-Bridges all over \textit{England.}

A. 21. A sparry Incrustation upon some vegetable Stems, sent by Dr. Leopold, with the Inscription, \textit{Osteocolla Hassiaca, prope Gieffam, Academiam celebrem, reperitur.}

A. 22. A florid, sparry Incrustation upon some vegetable Bodies. Sent by Dr. Leopold, with the Inscription, \textit{Stalactites \textit{ex specie Baumanniana in Ducatu Lunenburgenfis.}}

A. 23. A white sparry Incrustation upon Moss, with Stalactite, very fine, hanging down from it. \textit{Ex agro Tigrino. M. Valkenier.}

A. 24. \textit{Museus petrificatus prope Brambacinum reperiundus, non procul a Thermis Emesijibus.} Dr. Kipfer.

A. 25. A sparry Incrustation upon Moss, very much like that found in the Dropping-Well at Knaresborough in Yorkshire, in the Springs in some Parts of Oxfordshire, Northamptonshire, &c. Sent by Dr. Leopold, with the Inscription, \textit{Museus Lapidem prope Fenam reperitus in Rivulo qui ex fonte Principis vulgo dicto derivatur, Germanicè der Fürstenbraumen.}

A. 26. A sparry Incrustation upon Leaves, sent by Dr. Scheucherzer, with the Inscription, \textit{Tofus cui folia Quercus, Fagi, Alni, &c. sunt impressa, à Pago Stallcon, Ditionis Tigrina. Vide Miscellanea curiosa, An. 1697. Append. p. 66.}

A. 27. Another like Incrustation. From the same Place. M. Valkenier.

A. 28. \textit{Osteocolla Officinarum.} From Hamburg. All the \textit{Osteocolla} of the Shops is fiftulous, and a mere marley Incrustation.

A. 29. Sent by Agostino Scilla, with the Inscription, \textit{Animale marino curiosissime petrificato.} \textit{Anfilla.} It is not described in his Book.

A. 30.
A. 30. Sent by Agostino Scilla. 'Tis an Incrustation upon a turbinated Shell; the like frequently happens upon Shells, Sticks, &c. in petrifying Springs, Rivulets, &c. Vide The Natural History of the Earth, p. ---

A. 31. Stalagmites. From a Spring in ------- one of the Canary Islands.

A. 32. Confetti di Tivoli.


A. 35. Fluor Crystallinus trigonus. Ex eadem Lapicidina. Dr. Scheuchzer.

A. 36. Sent by Dr. Scheuchzer, with the Inscription, Fluor crystallinus trigonus, striitlateribus pyramidis cujusq; parallelis pulchre notatus. Repertus prope Lithopolim. Vid. Specimen Lithographiae Helvetica, p. 29. f. 41.


A. 38. Crystals, small, growing in the Intide of a concave flinty Nodule, sent by Agostino Scilla, with the Inscription, Ingemmatione in un Diafrro cavato nelle Miniere di Trapani in Sicilia.


A. 42. Crystals, ex Alpibus Tigrinis, Sprig-Cryftal. Dr. Scheuchzer.

A. 43. Crystalli candida, Ebenslock in Saxonia. Dürschtige Weife Quartz Strahlen; i.e. transparent, white, radiated Quartz. M. de Schönberg.

A. 44. Crystallus marmore Metallico albo circumdata. Ehrenfreidersdorf, in Saxonia. Strahlchter Quartz Cristall mit umbwachsenen weifen Spad; i.e. radiated Quartz-Crystal, environ'd with white Spad. M. de Schönberg.

A. 45. Crystals in a Clufiter, as ariling from the Stone of a Fissure, in which they grew. One of the Shoots has a moftly Appearance in it. Newfoundland. Mr. Newman.


A. 48. Two small transparent Crystal Shoots. One of them has a slight Cast of green. From Newfoundland. Mr. Newman.


A. 50. An hexangular Column of Crystall, 3 Inches in Length, and 4 of an Inch in Diameter; terminating at each end in an hexangular Pyramid. Dug up near Turin. Mr. Jackson.

A. 51.

A. 52. Cryflalli exiguae, ex Alpibus Tigurinis. These were sent me by the learned and ingenious J. H. Hottinger, M. D. of Zurich, Author of the *Dissertatio de Cryflallis*, 4o. Tiguri 1698, which he presented me along with these.


A. 54. Cryflalli, *sphaerius* puriores; sine Pseudadamantites, ex Albrig Monte excelso. Dr. Scheuchzer.

A. 55. Four Pieces of Peble-Cryftal, with mossy Appearances in them.

A. 56. Adamas Bohemicus, ex ipso fonte Albis. Dr. Kifner.

**Appendix I.**

Cryflalls and Spars tinged with various Colours, by means of metallick and mineral Matter that is incorporated with them.

Cryflalli & Fluores Coloribus tinti.

A. 1. Marmor Metallicum rubicundum *pellucidum*. Marieberga in Saxonia. Rocher durchsichtiger Spaad. M. de Schoenbarg; i.e. red transparent Spaad. [They ufe both this, and the white Spaad, or common Lime, where Spaad is not to be got, as an Abtorbet of Sulphurs, in running the Silver and Copper-Ores, all over Germany and Hungary, at the great Smelting-Works. It grows in Veins. This is the true red Spaad. Mr. Weber.]

A. 2. *Lapis calcarius Luneburgicus ex albo & rubro ingemmatus*. Dr. Kifner. 'Tis a pale red Spar.


**Appendix II.**

Cryflalls and Spars, having various metallick and mineral Effiorescencies concreted together with them.

Metalla & Mineralia Fluoribus & Cryflallis adnata.

* A. 1. A Spar, white, compos'd of trigonal Shoots, striated as if compos'd of other less subordinate Shoots, very glossy, arising out of a yellow trasly Marcaflite, which is affix'd upon a Plate of grey Spar, that appears to be parted from the Stone of a Fissure of a Stratum. 'Tis a very wonderful beautiful Body. From Hannover. M. Valkenier.

* A. 2.
*\*\* 2. A white Spar, compos'd of parallel Plates, bright, shining and glossy, with Efflorescencies of yellow shining Marcafite upon it. 'Tis a Body extremely beautiful and fine. From Hannover. M. Valkenier.

*\*\* 3. Another like Body, sent by Dr. Kipper, with the Title of Flores Cupri aepfesi [Germanis Angeslogen] ad Spadum ex albo ru-defcentem.


*\*\* 5. Excrefcentia Crystalllum parvarum rubri Coloris, cum particulis Pyritis. Fribergae in Saxonia. Rothe Quarz-fraählen mit Kies; i.e. red radiated Quartz, with Marcafite. M. de Schonberg.


*\*\* 7. Excrefcentia Silicium, cum particulis Lapidis sulphuros. Fribergae in Saxonia. Quarzgewachsen mit unterwachsenen gelben Kies; i.e. Quartz-Excrefence, with yellow Marcafite grown under it. M. de Schonberg.

*\*\* 8. White Spar, with Efflorescencies of a yellow shining Marcafite upon it. Trouvé proche de la source du Rhin, dans le Rhinvalde, qu'on appelle Rhenus posterior. M. Valkenier.


*\*\* 10. Excrefcentia Silicium cum Minera Arifenici, argentei Coloris. Quarzstrahlen mit eingewachsenen Arsenicalichen Kies; i.e. radiated Quartz, with Arsenical Marcafite grown in it. M. de Schonberg.

*\*\* 11. Spar, pretty transparent, and crystalliz'd, with some Fragments of Lead-Ore adhering to it; found in a perpendicular Fissure, about 300 Foot deep, in the Lead-Mine at Clausthal, Hannover. Mr. Belchior.

GEMMÆ.

Gems, and other Stones commonly ranked along with them.

\mu. 1. Lapis Lazuli. From Gomroon, in Persia. The Ground a white Spar, with Veins and Spots of a fine high ultra-marine Blue. There are in it also very numerous Mice, of white silvery Talc: others of a yellow bratly Hue, and others of a reddish or copper Colour: these last being either a sort of golden Talc, or else a Marcafite. This was cut off of a larger Mais; the whole weigh'd near two Pounds. 'Twas of a roundish Shape, somewhat flatted; and not invested with any Crust. It had been rubb'd and smooth'd externally; the Surface, as this Sample shews, exactly resembling that of those Fragments of Marble, and other like Bodies, that have been worn round, and smooth'd, by the Agitation of the Sea and Rivers.

\mu. 2. Lapis Lazuli. 'Tis very hard and compact, having in it, besides the Blue, Veins and Spots of Green. This was brought from Ispahan in Persia, but supposed to be got in Tartary.
μ. 3. *Lapis Lazuli.* The Ground Spar, of a pale brown Colour; near white, spotted with a bright ultramarine Blue; and having in it several Grains of Marcafte, of a reddish or copper Colour.

μ. 4. *Lapis Nephriticus ex Septimo Monte Rhetia.* Dr. Scheuchzer.


μ. 6. An Agat, cut so as to shew the interior Parts, where the Ground appears to be of a fine, transparent, conicous Grey, having various white Crusts, one within another: *'Tis cover’d outwardly with a Cortex of a red Colour; the exterior Surface of which is scabrous and rough, exactly like the Surface of the Flint: of which kind this Body is. From ——— in the East-Indies.

μ. 7. A Plate of an Agate, large, and finely variegated.


μ. 10. *Chelidonius mineralis, ex Monte Doronaz, Ditionis Bernensis.* Dr. Scheuchzer.


μ. 13. *Molochites purpurea cum Crysfallis echis.* Ehrenfreidersdorff in Saxonia. Brauner Molochit mit durchwachsenen weifen Quarz-strahlen; i.e. brown Molochite, with thorough-grown white radiated Quartz. M. de Schonberg. This, in some parts, has a Caft of Green; in others, of Purple.


μ. 15. *Molochites lutea, cum Cryfyllis minitis obducta.* Ehrenfreidersdorff in Saxonia. Gelber Molochit mit durwachften weifen Quarz-strahlen; i.e. yellow Molochite, with thorough-grown, white, radiated Quartz. M. de Schonberg. This has, on one side, a slight Caft of Green; but the greater part is Yellow.

μ. 16. *Molochites canula.* Ehrenfreidersdorff. Blauer Molochit; i.e. blue Molochite. M. de Schonberg. This is chiefly of a Purple-Colour; but, in some parts, has a faint Caft of Green.


μ. 18. *Molochita Tyrolensis.* Dr. Scheuchzer.


μ. 22. An Emerald and Amethyst, in one Stone.


μ. 24. Oriental Amethysts, native, only drill’d.

μ. 25. Oriental Granates, native, only drill’d.

Lapides Venarum; seu materia lapidea varia in Venis Metallicis alijsque stratorum Saxorum Fissuris, reperta.

Vein-Stones.

Sales, Salts.


v. 2. Tincal Persarum, ex quo Borax conjicitur.

v. 2*. Tincal native, as digged up, in the Island of Borneo. The Indians of Bengal call the Mineral, out of which Tincal is refin'd, Swagar. There are great Quantities brought down the Ganges; but from what Country I cannot learn.

v. 3. Rock-Salt of a dusky grey Colour, dug up not far from the Euxine Sea: and brought thence by Mr. Clarke a Surgeon.

v. 4. A brown Earth, out of which Nitre is extracted by the Natives. It lies at the Surface. Fort St. George. Mr. Bulkley.

v. 5. Flos Ferri nativi, out of an Iron Mine in Carinthia. Dr. Edward Brown. 'Tis a Salt, very fine and white: Part of it of a flakey, and Part of a fibrous Constitution. Applied to the Tongue, it chills it like Sal Prunella, and has a Smatch of bitter; so that there seems to be Nitre in it.

v. 6. Lapis fijillos ex quo Alumen, Sulphur, & Vitriolum excoquitur à Reichenbach in Saxonia. Scieter, 1o Alaune, Schwefel und Vitriol gibr, i.e. Shiver that yields Alum, Sulphur and Vitriol. M. de Schonberg.

v. 7. Lapis fijillos nigricans, Alumine pragnans. Inventitur in Scania propè Eliarid, duo milliaria cum divisofo Tfladio distantem pagum. Rupicida illud non ex concameratis cuniculis, ut in Metallici fodicis fieri solet, sed ipsius montis lateribus, aperto unique celo, macronatis ligonibus, vel aliis instrumentis, excidunt. Hie Lapides ita excisi, ac in conicos accertos super linea congeseli valida aluminis vi subiguntur, usque dum magis friables redduntur. Postquam vero reflexerunt, in amplissima vasa lignea quadrata fermentur, ubi aque frigida affusione debita consque macernatur, donec lixivium ita quoddam ex ijs extrahatur. Hoc lixivium ita paratum ingentiis lebetibus in officinis aluminariis extabantibus infunditur, ubi magna aluminis vi uteri us cafigatur donec maxi-
vitriolum effervescat. Deinde vero per canales in hunc usum adornatos in receptacula quodam ex lignis confoeta deductur; in quibus posita in alumen minaturum, quod Aluminiij Saffian vacant, con- gelatit et concrecit. Ultimo vero, secunda vice hoc minaturum a- lumen collectum lebetibus infertur, ac denno coquitur; tandemque perapecta colligne resolutum deductur natus per canales in ampli- ora vasta lignea rotunda, in quibus tandem reliquorum frigesfacium confistantiam debitam nancisatur. Ex hie est usitatus in Scania Alumen preparandi modus. Dr. Leopold.

v. 8. Lapis aluminarius calcinatus. Dr. Leopold.

v. 9. A Salt of a very pale brown Colour, near white, found in scabrous Masles, some of the Bignets of a Cineanut, others larger; having a very sharp flyptick Taste, in some Parts like that of Alum, in others like that of white Vitriol. Dug up in Virginis.

Mr. Byrd.

v. 10. Vitriolum album nativum, à montibus circa Sylvanam Agri Romani. Hujus salis varias passim Naphus ex Rivalorum Aquis, folis exiunt elicitas observarit M. Ol. du Mont. Who gave me this.

v. 11. Vitriolum album nativum. From the East-Indies, where it is commonly call'd by the Natives, Moordar Singy. Fort St. George. Mr. Bukley.

v. 12. Vitriolum album nativum Goslarie. Dr. Scheuchzer.

v. 13. Vitriolum nativum album sriatum. From the Gold Mine of Cremnitz in Hungary. Tis found along with the striated Anti- mony and the Gold-Ore, about 300 Fathom deep. 'Tis very white when first taken forth: and the Strix, or rather Threads, run a-cross the Veins.


v. 15. Vitriolum nativum viride Haffacum. Dr. Leopold.

v. 16. Vitriolum nativum viride. Ex Aurifolinis Hungarie juxta Cremnitz. 'Tis found thus in great Quantities in the Veins: sometimes shot into angular Figures: and frequently hanging down in Form of Stalactites. This Vitriol, that is green, is only found in those Veins where the Ore has in it Iron together with the Gold. Whereas the native white Vitriol of the Gold- Mines near Cremnitz, is found only in those Veins that contain no other Metal besides Gold. In the Copper-Mines of Neijfoil in Hungary, in the Veins along with the Copper-Ore is found blue Vitriol in Form like this: and sometimes shot into angulated Fig- ures, and into Stalactites; both of a fine Sapharine blue Colour.

v. 17. The Stone on which the natural Vitriol shoots in the Mines of Schemnitz in Hungary. Dr. Edward Brown. 'Tis of a dusky grey Colour: and has in some Parts, green Vitriol, in oth- ers a yellow sulphureous Efflorescence concreted upon it.


v. 20.
v. 20. *Vitriolium ex vena juxta Lacum Tigrinum.* 'Tis green in some Parts, in others blue; and shot into angulated Figure of different Forms. Dr. Scheuchzer.


v. 22. *Vena Vitrioli, ex Alpibus in Ditione Suiusenji.* Dr. Scheuchzer.

Bituminosa. *The Bituminous Fossils.*

§ 1. The true Bitumen of Judaea, brought from the *Locus Asphaltites, or the Dead Sea,* by Mr. Henry Worsley. *On the Shore of the Lake Asphaltites, or the Dead Sea,* we found a *black Sort* of Pebles, which, held to a Candle, burns and yields a *Smoke of an intolerable Stench.* They lose of their Weight, but not of their Bulk, by burning. *The Hills bordering on the Lake abound with this sort of fulphureous Stones.* I saw Pieces of it *2 Foot square,* black, and taking a Polish like Marble. *The Bitumen is gather'd near the Mountains in great Plenty.* It exactly resembles but has a fulphureous Smell and Taste. *Maundrell's Journey from Aleppo to Jerusalem.* p. 82, 83.

§ 2. The yellow Prussian Amber, having Flies in it.

§ 3. Amber with a greenish Cast, from the Shores of the Island of Jamaica.

§ 4. Several small Nodules of Amber, found amongst a great Number of others, and some larger, upon the Shores near Tangier. I remember, Sir Henry Sheers told me, that at the demolishing the Mole there, several Rocks were torn and blown up: in which he observed Pieces of Amber lodged. Mr. Robert Ball has a Piece of it; and as I remember, actually lodged in a Piece of Stone. This is an additional Proof that Amber is as much a real Fossil as Flints, and the other Nodules are: and that the Sea serves, by its Agitation, only to fetch it forth of the Cliffs, and uncover it. See *The natural History of the Earth,* 2d Edit. Part IV. p. 217. and fig. Those of them which are cut, appear to be of a yellow Colour, with a Cast of Green. But they are invested outwardly with a Crust, scabrous, and rugged: of a dusky brown Colour externally, and red within; which makes those, that have it yet on, appear to be of a reddish Colour.

§ 5. *Carbo Petrae Hallae Magdeburgensis.* Stein Kohlen, *i.e.* Stone Cole. [*It lies in Beds, Stratum super stratum,* in great Plenty 20 Fathom deep. They burn it commonly. There are other Coal-pits at Ileb, at the Distance of 4 Miles from Hall. Mr. Weber.*] 'Twas sent me by *M. de Schonberg.*

**Mineralia Metallis affinis, Metallick Minerals.**

*Section I. Cinnabaris, seu Minium verum nativum.* Cinnabar.

§ 1. Cinnabar of a brown or tawney Colour, thick set with very small shining Sparks. From *Augsburg.* Sir Isaac Newton. It has but little Quick-Silver in it: but may hold about *1/8* Silver, with a little Gold.
0.2. Cinnabar of a black Colour, holding Quick-Silver and Silver. From Georgenfalt in Saxony.
0.3. Vena Mercurij Carinthiaca. Dr. Scheuchzer.
0.4. Vena Cinnabaris, cum fluore atro-rubente. Ex Hungaria. M. de Schonberg.
0.6. Anthrax, sive Vena Minuji Scheuemnicifis Hungarica, cum Fluore & Marcalita juncta. Dr. Leopold. There is also in this Mass, Lead-Ore holding a little Silver. About Rosenburg in Hungary, is the most considerable Tract of all Europe for Cinnabar. It is found upon the Sides of great Hills. The poor People collect it after Rains, which clear and uncover it. It lies chiefly in a whitish sparry Stone: and sometimes in Sand-stone. At Bartfeld, and Seben in Upper Hungary, they sink Mines for Silver and Cinnabar. They are incorporated in the same Mass: and lie in Bellies, but run likewise into Strings.
0.7. Cinnabaris cum fluore albo junctâ. Fryberga Misnia. Dr. Kijner.
0.8. Minium nativum, Aurum continens, cum fluore mixtum. Ex vena trium Regum Fodini Schemnitcifis in Hungaria.
0.9. A Body compos'd chiefly of white Spar, but having some Cinnabar, and Marcalite, along with it. Upon Trial, besides Mercury, it yields some Silver: and is a sort of Rotgulden-Ertz. Brought from Hungary by M. Ol. du Mont.
0.10. Cinnaberis atro-fusca cum Scintillis passim micantibus. Out of the Silver-Mine at Schemnitz. The Silver-Ore is found in Veins: and this Cinnabar along with it. This holds some Silver in it, and a little Gold. It has little Quick-silver in it, so that they rarely extract that.
0.11. Rotgulden-Ertz. Brought from Hungary by M. Ol. du Mont.
0.12. Cinnabar, red; with small Masses of white Spar amongst it. From Augsburg. Sir Isaac Newton.
0.13. Cinnabar red, from the same Place, more fine, clear, and sparkling. Sir Isaac Newton.
0.15. Minera Mercurij ex Bohemia. Quicksilver oder Zinober-Ertz, i.e. Quick-silver or Cinnabar-Ore.
0.16. Cinnabar. From the East-Indies. 'Tis rich, yielding 7 in 8 of Mercury.
0.17. Cinnabar. From the East-Indies. Mr. Bulkley.
0.19. Cinnaberis Carinthiae. This is very rich, and will yield a Quick-silver, or perhaps more.
0.21. Another shining Sort of Cinnabar, lying in Plates. From China. Mr. Cunningham.
o. 22. Cinnabar, red, glistly, and glaring. Some few Pieces of it very much resemble the flakey Talc, the rest appears to be composed of parallel Fibres, like the filamentous Talc. China. M. Cunningham, Surgeon. Given to me by Mr. Matthews.

SECT. 2. Arsenieum, Arsenick.

x o. 1. Arsenick, very white. 'Tis a very deadly Poison. The Gentious call it Tellur Phalatinum. Held to the Fire it emits Fumes; but liquates very little.

x o. 2. Minera Arsenici alba. Swartzburgensis. Weifer Arsenic Kies, i. e. a white Arsenick Marcalite. M. de Schönberg.

x o. 3. Auripigmentum. Native yellow Arsenick, with Veins of red Arsenick, and glossy Talc-like Flakes; found near Newjoh, in Hungary, in great Quantity. They dig up Pieces as fine, and some finer than this of two and three hundred Pound Weight. 'Tis soft like Casilie Soap when first dug up. It lies in Mafes in Clay. The Flores of this being melted, become transparent, and of a fine red Colour. There is nothing else got in these Pits; nor is it usually found in any of the Mines of Metal in Hungary or Saxony. 'Tis found from 10 to 30 Fathom deep.

x o. 4. Orpiment, small, in form of Powder, otherwise not different from the precedent. 'Tis found in the same place with that; and generally above it; being mingled with Clay in the Stra-ta, from which 'tis parted by washing.

x o. 5. Yellow Orpiment. From the East-Indies.

x o. 6. Oriental Orpiment, very fine, yellow, both flakey and stringy. From Turkey.

x o. 7. Arsenick of a duller yellow, and without any shining Flakes in it. From Pegu, where 'tis call'd Hartoll*. Being held to the Fire it burns, liquates, and emits arsennical Fumes plentifully. Mr. Bulkeley.

x o. 8. Another like-sort of Arsenick from Pegu. The Gentious call it Taulacum. After it has several times pass'd the Fire, they give it in intermitting Fevers. Held to the Fire it fumes; and liquates, but not so freely as the precedent. It has in it glossy Flakes, like those in the Hungarian Orpiment.

x o. 9. Arideulam used in intermitting Fevers. 'Tis of a yellow Colour. It holds a small proportion of Arsenick.

x o. 10. Arsenick; held to the Fire it liquates, and emits Fumes partly arsennical, and partly fulphureous: Hungary. This is native; and what Agricola, and the other German Mineralists call the red Arsenick. And it is of a Colour much deeper than that of the common Orpiment, tho' not red; but of a yellow very high, with a Cast of red. Dr. Edward Brown.

* Hartoll is the Name by which Arsenick is call'd over the grea-test part of India. Mr. Terry.
*o.11. Arsenick of a deep yellow Colour vein'd with red and white. From Fort St George, where 'tis call'd Goury pashnum. 'Tis found at the bottom of a Mountain. Being calcined, they give it in Afthma's; and use it outwardly for the Itch. Mr. Weaver tells me he has seen some of the same fort, dug out of the same Mine with the yellow, *o.3. supra.

*o.12. Arsenick, of a paler red Colour. From Fort St. George, where 'tis call'd Wolly pashnum.

*o.13. Elica pashnum has the same Virtues with Munny Shella, *o.14. infra; and feems to be of the same kind. Fort St. George, Eaf-t India.

*o.14. Arsenick, red, with very small glossy shining Sparks in it. From Pegu by the name of Munny Shella. They give this in Fevers after Calcination, by which means the venenate Parts are carried off. In burning it liquates, and emits arfencical Fumes plentifully. Is not this the Σανταράχανη of Dioscorides, and of the antient Naturalists?

Sect. 3. Sulphur.

*o.1. Native Sulphur brown, dug up thus in Lumps at ---- in Hungary.

*o.2. Native Sulphur brown, dug up near the Gold-Mines in Hungary.

*o.3. Another fort, with a Caf of Lemon-colour; from the fame Place.

*o.4. A grey hardned Earth with Veins of a bright shining Lemon-colour'd Sulphur. Sent by Dr. Scheuchzer under the Title of Vena Cretacea Sulphurea Scandiana in Italia.

*o.5. Sulphur, native, very fine, of a paler yellow Colour. From the fame Place. Dr. Scheuchzer.


*o.7. Sulphur, native, extremely pure; from Persia. 'Tis of the fame Colour with the precedent: and tranparent likewise.

*o.8. Native Sulphur, very fine; somewhat more tender and friable, otherwise little different from the Persian: found on the Top of the Pico, in the Island of Tenariffe.

*o.9. Native Sulphur of a Lemon-colour, and very fine; found in Nodules in the Gold-Mine in Hungary.

*o.10. Sulphur purum nativum à Foro Vulcanio, agri Neapolitani. 'Tis of a Lemon-colour; and very fine.

*o.11. Sulphur nativum Siculicum purissimun.

*o.12. Sulphur stillatitum nativum ex Monte Rammelsberg dielo, Sylvia Hercinia. Dr. Leopold.

*o.13. Striated Sulphur, and of a pale yellow Colour, near white; very light, tender and friable. From the Stone-Channels that convey the Water from the Springs to the Baths at Aix-la-
Chapelle. The Water precipitates a considerable Quantity of it in a little time, affixing it to the sides of the Channels. There is sometimes found common Salt concreted amongst it. These Waters are rather hotter than those of Bath.
"o. 14. Minera lapidea cui Sulphur nativum sequum peculiari gyp-

Sect. 4. Pyrites.
† o. 1. A Pyrites, externally partly of a pale brown, and partly of a Ruff-colour. Being broken, it appears within of a yellow Colour, bright and shining like Brass. 'Twas, whilst whole, of a globous Form; and striated from the Surface towards the Center. It does not differ in any thing from those commonly found in the Chalk-pits of Kent, Surrey, and Essex. 'Twas sent me by M. de Schönberg with the Inscription, Marcasita globosa, Marie-
berge in Saxonia. Eigliichter Marcasit, i.e. a globular Marcasite.
† o. 2. Marcasita in lapide luteo arenoso. Friburgo in Saxonia. Marcasit in gelben Sandstein, i.e. a Marcaite upon a yellow Sand-
stone. M. de Schönberg.
† o. 3. Pyrites Metalli cum Succi atramentosë parenso in saxo aren-
vio prope Lithopolim. Dr. Schenckzer.
† o. 5. Pyrites ex agro Tübingensi, juxta Metzingen, quatuor ho-
ris à Francofurto. Dr. Rijser.
† o. 6. A Pyrites of an oblong cylindrick Shape; at one end tuber-
ous, and shot into numerous angular Figures. Found near Nieuwchate. M. Valkenier.
† o. 7. A Pyrites, brownish with a Cast of green, and small shi-
ning Brass like Sparks; very like the common Pyritez on the shores of Kent and Essex. Found near Nieuwchate. M. Valkenier.
† o. 8. Marcasita aurum in se continens. Nainburga in Saxonia. Guldischer Marcasit, i.e. a goldish Marcasite.
† o. 9. Black Slate, with very small bright brassi cubick Pyritez lodged in it; found by Bern-Castle, near the Moselle. Dr. Kijser.
† o. 10. A Pyrites. When it was intire it was large, and of a cubick figure. 'Tis in a Stone, gray with a Cast of green. These Pyrites are found immered in the Substance and Mass of the Stone when broken up in the Rocks in Catlane's-Harbour, Newfoundland. Mr. Peigbin.
† o. 11. Two cubick Pyritez, large; from New-England. Mr. Bridger.
† o. 12. One less, from Hamburg, by the name of Marcasita au-
rea. Sir Isaac Newton.
† o. 13. Another from the Gold-Mine of Caunia, about 60 miles Eait-ward of Santa Maria, in the West-Indies.
† o. 14. Teffelated or cubick Pyritez, sent from Fort St. George by Mr. Bulkley. They are found in a great Hill. The Gentons call them,
them Vimmala. After having pafs'd the Fire several times, they give the Powder in intermitting Fevers.

† 0.17. Pyrita metallares Cubici, ex Fontibus Rheni Anterioris in Rhetia. Dr. Scheuchzer.

† 0.16. Pyrita exigui Cubici ex Fluvio Nolla in Rhetia. Dr. Scheuchzer.

† 0.17. Pyrita cubici ex Grifonensium montibus. M. Valkenier. Water-Kis.

† 0.18. Pyrita cubici minuti, in Lapide Gryseo Talcis particulis minante. Ex ijdem montibus. M. Valkenier.

† 0.19. Irregularly polyedrous Pyrite; of a dusky green Colour, with a Cast of yellow. Mr. Bulkley. Fort St. George, East India.

† 0.20. The common tessellated Pyrites, now of a Ruft-colour. From -------- in Saxony; whence twas sent to Sir Isaac Newton, as the Ludus Paracelsi.


† 0.22. Pyrites dodecaedros, ex monte Dair vallis Pragallia in Rhetia. Dr. Scheuchzer.

† 0.23. Pyrite dodecaedros, ex montibus Novocajrensibus Helvetia. M. Valkenier.

† 0.24. Pyrita dodecaedros ex Ditione Bernensis. Dr. Scheuchzer.

† 0.25. Marcasita teffalata Saxonia. Dr. Kifher. 'Tis not cubic, having really 14 Sides.

† 0.26. Vimmala. 'Tis first calcined, then prepared with the Juice of divers Plants, and given in intermitting Fevers. Mr. Bulkley. Fort St. George.

† 0.27. Vimmala. Others, irregularly shot; of a shining yellow brassy Hue. Fort St. George.

† 0.28. A Pyrites, shot into angular Figures, very fine; from the Mountains near Nieuwchatel. M. Valkenier.

Sect. 5. Marcasita.

† 0.1. A Marcasite crystallized in a very observable manner; bright and shining like Brass: from Newfoundland.

† 0.2. Pyrita dodecaedros aureus, ex monte Dair Rhetia. Dr. Scheuchzer.

† 0.3. A Marcasite, yellow, shining, and shot into cubic Figures: Mr. Bulkley sent it from Fort St. George by the name of Vemullay.

† 0.4. Marcasita, Martisburgi in Saxonia. Glantz, i.e. Glofs, or Glitter. M. de Schonberg.

† 0.5. Marcasita spongiosa, qua micat, mixta cum argento rubro; Friherga in Saxonia. Kupfer-Ertz Druse, rothgültig Ertz eingeprengt, i.e. Copper-Ore Drufe, with red goldifh Ore intermixed. M. de Schonberg.

† 0.6. Marcasite; of this there are great Quantities at Schwarzenberg in Saxony. They melt it for Sulphur; and out of the Caps Mortuum, after it has been expo'd some time to the Air, they extract Vitriol. One fort of the Cornifh Mundick is exactly like this.

† 0.7.
.4.0.7. A Marcafit; from Biscay in Spain.

.4.0.8. Lapis sulphurofus in terra nigricante; Swartzzenburger in Saxonia. Gelber Kies mit einer Schwarze, i.e. a Marcafit yellow, with a Blacknes. M. de Schonberg.

.4.0.9. Pyrites Hungaria communis. Brought thence by M. Ol. du Mont.

.4.0.10. Marcafita alba in medulla saxi; Swartzzenburger in Saxonia. Weiβer Marcafit in Steinmarck, i.e. white Marcafit in Stone-marrow. M. de Schonberg.

.4.0.11. Lapis sulphurofus super pellucidum silicem; John-Georgenstadt in Saxonia. Schwefelkies auff durchsichtiger Quartz, i.e. a Sulphur Marcafit upon transparent Quartz, a sort of Spar. M. de Schonberg.

.4.0.12. Lapis sulphurofus, a Geiger Bohemia. M. de Schonberg. ['Tis work'd for Sulphur. Mr. Weber.]

.4.0.13. A grey Spar, with some parts crystallized, and Grains of Marcafit yellow and shining intermixed. From the Gold-mines of Caunia, about 60 miles eastward of Santa Maria, in the West-Indies. It has some Gold in it.

.4.0.14. A white Spar with Marcafit adhering to it; sent by Dr. Leopold with the Inscription, Drusa S. Pyrites dipfcolor Clauſthalensis.

.4.0.15. Stone, grey with a Caft of green; having Marcafit, and a little Spar, adhering to it. Sent from New-England, by Mr. Bridger.

.4.0.16. Isis, a Marcafit brought from Hungary, by M. Ol. du Mont. [Upon Tryal this yielded only a very inconsiderable Proportion of Copper and Lead; but no Silver or Gold.

.4.0.17. Excrefcentia marmoris metallici super Minera. Marieberga in Saxonia. Spadn Gewachs auff Glimmer, i.e. Spadn Excrefcence upon Glimmer. M. de Schonberg. [This is a Marcafit adhering to a Mica. There are upon it several small cubick Crystals, of a yellow Colour very beautiful. These owe that Colour to Lead. Also two Sparry or talky Bodies, white, composed of Plates fet edgeways.

.4.0.18. Pyrites cavernosus, qui à Philosophis pro radice & matre metallorum judicatur. Friburg in Saxonia. Kies Druse, so von Philosophis pro radice & matre metallorum gehalten wind, i.e. a Marcafit Druse which was taken by the Philosophers, for the Root and Mother of Metals. M. de Schonberg. This is what M. Ol. du Mont travelled so long in pursuit of. I have of this very kind of Marcafit from Cornwall.

.4.0.19. Pyrites, Tabulatus vari Coloris. Friburga in Saxonia. Bunde blatterichtie Kies Druse; i.e. a speckled foliaceous Marcafit Druse. M. de Schonberg.

.4.0.20. Cupreus Nicolaus. Sneberga in Saxonia. Kupffer Nicol; i.e. Copper-Nicol. M. de Schonberg.

.4.0.21. A Copper Marcafit, sent by M. de Schonberg with the Inscription, Pyrites ex quo coquitur Cuprum & Vitriol.

+:+ 0. 1. Cobalt, from Marienburg in Saxony, of a yellow brass-like Appearance. There's a Mafs of white Spar in it. One sort of the Cornisb Mundick, found there in vast Quantity, exactly resembles this. This sort yields chiefly Bismuth: about 6 Parts in 10. They do not work it for Smalt, it having none of the purple Spar in it, which alone constitutes the Smalt. It lies in Veins in great Quantities, about 40 or 50 Fathom deep. These Mines are work'd for nothing else.

+:+ 0. 2. Cobalt, more coarse, and gritty. From Saxony.

+:+ 0. 3. Cobalt. Annaber in Mijnia. M. Ol. du Mont.

+:+ 0. 4. Cadnia Metallica Coloris subcarulei. Ex Monte D. Andreæ. Dr. Scheuchzer.

+:+ 0. 5. Cadnia Fossilis cum galena pici similis. Friarege in Saxonia. Geller Kobold mit Schwartzter Blende; i.e. yellow Cobalt, with black Blende. M. de Schonberg.


+:+ 0. 8.
Sect. 7. Lapis Calaminaris, Calamina.

0.1. Cadmia preparata ad confectionem Orichalchi utilis. This is of that Kind, and was sent me also by M. de Schonberg; only it is calcin'd.

Sect. 8. Antimonium, Antimony.

0.1. Antimonium, seu Stimmi Daemon, Liniij, I. 33. c. 6. Ex altifimo Monte ad Origins; Rheni. Dr. Scheuchzer.


0.3. Minera Antimonij partim in lammas fissilis, partim Scintillis conjuncta. Habet infuscr in se Venam Fluoris Candidi. Ex-----fodinis in Germania.

0.4. Minera Antimonij, à Leibfcherfußen in Hungaria.

0.5. Minera Antimonij Hungarica à Leibfcherfußen. It is flat, having a thin Plate of a pale brown Spar, on each of the two opposite Sides: and appears to have been taken forth of a Vein. There is with it a considerable Mixture of Sulphur, yellow, with a Cast of green.

0.6. A Body, grey, glossy, and shining; externally of a fibrous Constitution: and appearing to consist partly of Talc, and partly of Antimony. Within, there are some small Sparks and Grains of Lead. From the great Lead-Mine near Widsfahla in Sweden.

0.7. Native Antimony; from Islandia. Sir Tho. Brown procured this from Theodorus Jonas, a very curious and learned Ecclesiastic in that Island.

0.8. Antimonium Hungaricum crystallizatum in Terra lutea. Dr. Scheuchzer.

0.9. Minera Antimonij Hungarica. Spies-Glas; i.e. Spear-Glass, or Antimony. M.de Schonberg. [It is found in Quantity in the Gold-Mines of Cremnitz, in Veins, 300 or 400 Fathom deep. Mr. Weber.]
† 0.10. *Minera Antimonij Hayenensis*, Saxonia. M.de Schonberg.
† 0.11. Antimony-Ore, taken forth of a Mountain in *Piedmont*.
M. Ol. du Mont.
† 0.12. *Minera Antimonij. Fribergae in Saxonia. Antimonien Ertz.* M.de Schonberg. [This may yield about \( \frac{8}{13} \) of Antimony. The Ore of Antimony usually is found in Veins among the Lead: but lies generally shallow. Mr. Weber.]
† 0.13. White Spar, with a Vein of yellow, shining, brass-like Marcasite in the middle of it: and, on one Surface, Antimony, radiated, or shot into Filaments, very fine. *Ex Agro Mompelgar-
tenfs.* M. Valkenier.
† 0.14. *Minera Antimonij Hungarica, stellaris, & pulchra sri-
ata: cum fluore etiam sriato.* Dr. Kifner. à Leibscheruffen.
† 0.15. Antimony-Ore, yellow. *Cuttembergb, in Germany.* Brought thence by M. Ol. du Mont. The yellow Colour is owing, probably, to an Admixture of Sulphur.

**Sect. 9. Bismuthum, Tin-Glafs.**

† 0.1. *Minera Bismuthi, sive Plumbi cinerei, cum Fluore. Bism-
mut Ertz Agricola. Snebergæ in Saxonia.* Dr. Scheuchzer.

† 0.2. *Minera Bismuthi, cum Fluore, Snebergæ in Saxonia; where much the greatest Quantity of this Ore is got, there being little of it in any other Part of Germany.* Some of it has a fine Glance of Violet: and frequently much semi-transparent Spar in it.

† 0.3. *Cadmia Metallica. Annaberga in Saxonia. Kobold.*
M. de Schonberg. [Cobalt in a white Spar; it holds a little Silver, but chiefly Bismuth, for which 'tis work'd: but never for Smalt or Blue. Mr. Weber.]

† 0.4. *Plumbi cinerei, sive Bismuthi Vena. Snebergæ in Saxonia.*
Dr. Scheuchzer.

† 0.5. *Minera Bismuthi. John-Georgen-stadt, in Saxonia. Bism-
mut Ertz.* M.de Schonberg. [This holds above \( \frac{2}{3} \) Bismuth.]

† 0.6. *Minera Bismuthi; propè Snebergam, in Saxonia.* M.de Schonberg. [This is not so rich in Bismuth as the precedent.]

† 0.7. Bismuth-Ore. From Sneberg, in Saxony. M. Ol. du Mont. [This seems rather to be Zink.]

† 0.8. Bismuth-Ore. From Sneberg in Saxony. M. Ol. du Mont.

**Sect. 10. Speltrum, Spelter, or Zink.**

X: 0.1. Spelter, or Zink. From the *East-Indies.* Mr. Nicholson.
X: 0.2. A glossy, yellow, brass-like Body; sent by the Name of *Ruffgangennum,* from Fort St. George, by Mr. Bulkley, for an Antimony-Ore. I have seen a Tale, ponderous, and very like it in all other respects: as also a sort of Marcasite; but this has little or no Sulphur in it. It may perhaps be a Spelter-Ore. Mr. Weber is of that Opinion also.

X: 0.3. Sent by the Name of *Ruffgangennum.* Found in Mount St. Thomas, Fort St. George. Mr. Bulkley. This also Mr. Weber judges to be a native Zink.

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**X: 0.4.**
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'X. 0. 4. Argentum rude cineraceum in marmore candido Metallico (Spaet) ex Vena Sandii Michaelis, qua est Saalsfeldia in Thuringia. Dr. Leopold. The Ore of this is Zinc, holding some Silver.

'X. 0. 5. Speltre, or Tutanag-Ore, from China, with Veins of Spar in it. Tutanag runs in the Fire: but, if kept long there, it rises wholly in Flores. Copper-Plates, held over the Fumes of it, become throughout of a yellow Brass-Colour: and indeed this is the finest Brass that is made. Tutanag, melted with Copper in equal Quantity, makes an Alchymy, or blanched Brass; but, if held so long in the Fire that part of the Tutanag evaporates, it attains a yellow. Many of the Indian Images are made of this. Some of them are cast extremely fine.

'X. 0. 6. Native Speltre-Ore, got in the Province of ———— in China. Mr. Douglas, then at Canton, caus'd it to be sent for thither on purpose. In China, and all over the Mogul's Country, and in several other Parts of India, they make a sort of Brass of Speltre melted down with Copper, of which there is plenty both in China and Japan, tho' there be no Calamine. Tutanag is the Chinefe Name for Speltre: and we here apply that Name erroneously to that Metal of which the Caniffters are made, that are brought over with the Tea from China. The Chinefe call this Mineral Tutanag: nor indeed hast that Metal any Tutanag or Speltre in it, being only a coarse Pewter made with the Lead, carried by our Merchants from England, and Tin got in the Kingdom of Quidday, betwixt Tanaffary and the Streights of Malacca.

'X. 0. 7. Seeming to be Ore of Tutanag, sent by the Lord Confantine Falcon to Dr. Uvedale.

'X. 0. 8. A Mineral, with numerous grey Sparks, shining, and of a metalick Appearance. Mr. Weber judges it to be Speltre. There is also amongst it a white Spar, with Spots of a fine bright blue, which are owing to an Admixture of Copper. From ———— in Germany. Mr. Valkenier.

Sect. 11. Nigrice Fabrilis, Black-Lead, or Wad.

‡: 0. 1. Lapis Plumbarius flerilis, cum quo scribi poeto. Altenbergae in Saxonie. Waferbly Erz; i. e. Black-Lead-Ore. M. de Schonberg. ('Tis the Nigrice Fabrilis, or Black-Lead.)

Auri Mineræ, Gold-Ores.

‡. 1. Gold, native, from Guinea, and just as wash'd and freed from the Spar, Sand, and Soil. 'Tis very fine, flexible, and malleable: and so pure, that it rarely loses above 1 and 2 or 2 Parts in 100 in Fusion. 'Tis partly in form of Duff; for which Reason this is commonly call'd Duff-Gold: and partly in Lumps or Nodules, of all Sizes, to the bigness of the common Field-Bean. Nay, one Lump there is at least four times that Bigness: and this was indeed the biggest in the whole Parcel. I had of the Royal African Company, and was inform'd they once had a Lump that weigh'd somewhat above 3 Ounces. Mr. Charles Hayes, in his Letter
Letter from Cape-Coafl in Guinea, 9 Febr. 1704, mentions one he saw there that weigh'd 4 Ounces \(\frac{1}{2}\); and that he had Accounts of much larger found in those Parts. These larger Lumps they call Rock-Gold. All the Gold in this Parcel is of a deep yellow Colour. Only one of the Lumps has externally a Calt of Red; which, probably, is owing to the Soil in which it lay: the Gold in that Country, according to the Account that Mr. Hayes obtain'd, being found in a Stratum of red Earth, that lies horizontally. The Country is seven Days Journey from Cape-Coafl. So far Mr. Hayes his Account: but 'tis certain a great part of the Gold of that Country is wash'd out of the Mountains by the Falls of Rains, which there are vastly great, and fall with a mighty Force. The biggest Lump in this Parcel has 3 or 4 Grains of a white semi-pellucid Spar incorporated with it. The Surface of this, and indeed of most of the larger Lumps, is very feabrous and uneven. The Guinea Gold yields ordinarily 97 or 98 per Cent. Mr. Hayes.

\(\pi.2\). Flammula, seu Particula Aurii purissimi, reperta in Flagmine Schwarzia prope Rudelfas, Civitatem Comitum ac Principum Schwarzburticorum. M. de Schonberg. 'Tis native, and found in considerable Quantity. Mr. Weber.

\(\pi.3\). Sand, so very fine as to be almost impalpable, of a very dark grey Colour; but shining and glittering, not much unlike the Filings of Steel. Being viewed with a Microscope, there appear in it numerous small Grains of Gold, shining, and of a yellow Colour: and indeed some of them are so large as to be discern'd by the naked Eye. This was found on the Shores of the Danube, between Presburg and Comorrah in Hungary. The People that collect, wash, and dress it, find the greatest Quantities of it after great Rains, and melting of the Snow upon the Mountains, about Cremnitiz, where the great Gold-Mines \(^*\) are. The Rain, and Snow-Water, falls down from those Mountains by the Waag, Neytra, Gran, and other Rivers, with so great Rapidity, as not to suffer the Gold-Dust to settle and precipitate in them, nor till 'tis brought to the Danube.

\(\pi.4\). Arena Aurifera, ex Ursae amne. Dr. Scheuchzer.

\(\pi.5\). Aurum purum Fossil ex Hungaria. Dr. Scheuchzer.

\(\pi.6\). Gold, native, yielding 98 or 99 per Cent. Got by the Portingale in the Mines of Rio Jeneiro, in Brazil. 'Tis better and finer than the Gold of Guinea. Mr. Hayes.

\(\pi.7\). Gold, native, also from Rio Jeneiro. 'Tis of a somewhat more dusky Hue, but yields as much as the former. Mr. Hayes.

\(\pi.8\). Duft-Gold. From the River \-------- \-------- in Hungary. Mr. Chishull.

\(\pi.9\). Virgin-Gold, very fine, only wash'd. Out of the Vein of a Mine near Hermanflad, [Cibinium] in Hungary. Mr. Chishull.

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* See Dr. Edward Brown's Account of them, in his Travels, p. 62 & seq.
9.10. A grey Stone, part of the Side of a Vein, with Spar adhering to it: as also Gold, yellow, and fine. From the same Vein.

9.11. Aurum, lotum, ex Fluvio Edder; Comitatus Waldeccensis. Dr. Kifner.


9.15. Terra Solis nigricans, ex Monte Eubro, prope Elverfeldam. Dr. Leopold.

9.16. Grains of Gold, in Sand-Stone, grey, variegated with a faint Green and Blue. From the Mine of Costa-Rica, about twenty Miles from Guatamala. This is not reckon'd rich: but every hundred Weight yields about an Ounce of Gold. The Gold is found in certain Parts of the Stone, lying in Tracts, which the Miners call Veins, in much greater Quantity. This is the common Stone. They flamp and beat it to pieces with Water-Mills, wash, and manage it after the same manner as at Cannia. During the Seafort of their great Rains, they expel the Stone to the Weather; which softens it, and renders it easier to be worked upon. This was given me by Mr. Morgan, to Capt. Dampier, in his last Expedition to the South-Seas. He tells me they find very large Grains of Gold in this Mine: sometimes to half an Ounce in weight. The Vice-Roy of Lima has a Mafs of pure Gold, twenty-five Pounds in weight, from the Mines of Sancta Maria, which are the richest in all the Woff-Indies. The Gold lies there in Stone much like this: and is worked after the same manner. They have there lately discover'd a new Mine that is richer than the old.

9.17. Grains of Gold, in Stone, of a somewhat finer Constitution, Grey, with a Cast of Green, and some Spots of Blue. From a Mine about a League from the former.

Argenti Minerae, Silver-Ores:

p.1. Silver, native, pure, flexible, and malleable; arborescent, arising, in Form of a Shrub, out of a grey Spar. 'Tis 3 of an Inch in Height. From the Mines of Koningsberg, in Norway.


p.2. Argentum ut Gramen excrescens. Fribergia in Saxonia. Silber Grafs. M. de Schoenber. [It is found in small Quantities among the Spar of the Veins. 'Tis found in the like manner at Schemnitz in Hungary. Mr. Weber].
p. 2. *Argentum capillare, virgineum, in Fluore albo & cry-
fllino. Freyberg. Dr. Myllins.

p. 2. *Argent. capill. in Fluore albo. Ex Puteo S. Andrea
Schneeberg. Dr. Henckell.

p. 2. Argent. capill. inter Laminas Fluoris crystallini. Frey-
berg.

p. 3. Argentum more capillorum natum Sneberg in Saxonia.
Haar Silber, i.e. Capillary Silber. M. de Schonberg. [It is tinged
yellow with Sulphur. 'Tis found plentifully. Mr. Weber.]

p. 4. Argentum more capillorum natum in albo marmore me-
tallico & fissili cinereo. John-Georgenfadt in Saxonia. Haar Sil-
ber in weitem Spaad, und grauschwarzlichen Schiefer, i.e. Pure
native Silver, capillary, in white Spaad and dark grey Silver. M.
de Schonberg.

p. 4. Argentum nativum capillare Hungaricum. Schemnitz. Dr.
Leopold.

p. 6. Argentum rude purpuroeum Hungary. Schemnitz. Dr. Leo-
pold. This is very rich.

p. 7. Argentum capillare in lapido argentario albo cum micis
Haar Silber auf weigfultigen Silber-Ertz mit etwas Schwefelkies
und kleinen Quarzn Cryftallen, i.e. Capillary Silver upon a fine
white goldish Silver-Ore, with some sulphurous Marcsite and
small Quartz-Cryftals. M. de Schonberg.

p. 8. Lapis Metallicus Argenti niger cum Argento puro capilla-
ri & minutis candidis cryftallis. Fribergæ in Saxonia. Schwarz
Silber Ertz mit durchwachsenen gedigen Haar Silber und gar
kleinen Quarzn Cryftallen, i.e. Black Silver-Ore, with pure,
thorough-grown capillary Silver, and very small Quartz of spar-
ry Cryftals. M. de Schonberg. The Mines of Freyberg and John-
Georgenfadt are the richest in Silver of any in Germany. This
holds about ½ Silver with Sulphur.

p. 9. Argenti puri massula Quarzo innata. Ex Saxonia. Dr.
Scheuchzer.

p. 10. Argentum purum repertum in venis. Gedigen-Silber Agri-
cola. Quarzo, i.e. Fluore misum, ex sodinis de John-Georgenfadt.
Dr. Scheuchzer.

p. 11. Argentum purum capillare Agricola. Dr. Scheuchzer.

p. 12. Argentum nativum super Silicem, prope Fribergam in
Saxonia. Gewachsen Silber auf frallichten Quartz, i.e. Silver-
grown upon radiated Quartz, a sort of Spar. M. de Schonberg.

p. 13. Vena argenti divae ferruginei coloris, e qua feitilla Ar-
genti purissima emicant. John Georgenfadt in Saxonia, sub ti-
sulo, Hornertz. Dr. Scheuchzer. Conferatur Minera Argenti ci-
mera Norvegia, fertilis fatis, qua quadam fui parte luteo tingi-
sur colore, & ferme ferrugineo, in qua Argentum ipsum minutiff-
mis granulis e minera emicat. Wormij Musaum, p. 118.

p. 14. Argentum purum fossile in vena rubra, prope Johann-
Georgenfadt in Saxonia, Gedigen Silber in rothen Geburse, i.e.

Native,
Native, Virgin, or pure Silver, in a red Vein-stone. M. de Schönberg.


p. 16. *Lapis argentarius niger in marmore metallico rubro, cui inherent bracteola argenti nativi.* Friberg in Saxonia. Schwarz Silbern Ertz in rothen Spad mit gedigenen angefloden Silber, i.e. Black-Silver-Ore, in red Spad, with pure native Silver adhering to it, or intermingled with it. M. de Schönberg.

p. 17. *Argentarius cornuus viridis et purpureus cum bracteolis argenti puri.* John-Georgenstadt in Saxonia. Reich gräulich und braun horn Ertz mit angefloden gedigen Silber, i.e. Rich, greyish, and brown Honey-Ore, with pure native Silver adhering to it, or intermingled with it. M. de Schönberg.

p. 18. *Silex fusius cui adheret color caraeles cuo minutis bracteolis argenti radis.* Friberg in Saxonia. Blauer Feuerstein mit einer blauen Drüfe, darüber gedigen Blätten Silber leigt, i.e. Blue Firestone, with a blue Dros or Efflorescence, upon which there lies pure, native, foliaceous Silver. M. de Schönberg.

p. 19. *Argentum rubrum tellucidum in vena argenti nigra.* Ehrenfreidendorff in Saxonia. Rothgültig Ertz so durchsichtig in einer Silberhaltigen reichen Schwartz, i.e. Red-goldish-Ore, transparent, in a Silver holding rich Schwarze, i.e. Blackness. M. de Schönberg. [Found in Veins in great Quantity about 200 Fathom deep. It holds about ½ Silver; the very Garnates in it hold Silver. The red Colour is owing to the Sulphur and Arsenick.]


phur, no Lead. 'Tis found in great Quantity in Fissures perpendicular 200 Fathom deep. 'Tis the Sulphur and Arsenick that give it the red Colour. Mr. Weber].


p. 28. Argentum rubrum supers plumbaginem in marmore metallico albo, Friberg in Saxonia. Rothgultig-Ertz in grey Bleyglantz, i. e. Red-goldish-Ore, with Copper-Ore, and Lead-Flitter, M. de Schonberg.


p. 32. Excrescentia Cristallorum ex marmore metallico rubro cui inidt glabulis argenti rubri. Friberg. Quarz Gewachfe auff rothen Spad darinnen eine Knopfen rothgultig Erzc, i. e. Quartz, a sort of Spar vegetating, or growing upon a red Spad, wherein there is a Bud, or Germe of red-goldish Ore. M. de Schonberg.


p. 34. Argentum rude rubrum mixtum cum Marcafita, Schennnicens Hungaricum. Dr. Leopold.

p. 35. Minera Argenti purissima, ex sodinis Schennnicensibus in Hungaria. Dr. Leopold. There is Spar and Marcafita with it.

p. 36. Minera Argenti ex Palatinatu superiori. Dr. Leopold. This is pretty rich in Silver. There is also of this sort of Ore got at Schennnicz.


p. 38. Argentum rude nigrum Schennnicens Hungaricum. Dr. Leopold. It yields about 4 Silver.
Agricolae Sahlbergium. Dr. Schuochtzer.

p. 40. **Argentum nigrum in marmore metallico lutei coloris.**

p. 41. **Argentum nigrum in Silici candido.** Fribergae. Quartz
Silber-Ertz in weissen Quartz, i.e. Black Silver-Ore in white Quartz, a sort of Spar. M. de Schonberg.

p. 42. **Argentum nigrum divers.** Fribergae in Saxonia. Reich
Schwartz Silbern Ertz, i.e. Rich black Silver-Ore. M. de Schonberg.

p. 43. **Argentum nigrum in marmore albo metallico.** Fribergae.
Schwartz Silbern Ertz in weissen Spad, i.e. Black Silver-Ore in white Spad. M. de Schonberg.


p. 46. **Argentum nigrum *spongiosum.** continet in se sexaginta
Marcus argenti (i.e. 30 per Cent.) Fribergae. Schwartz dwuncht mit Silbern Ertz in weissen Spad, 10 fachzig Mark Silber halt, i.e. Black, spongy, rich, Silver-Ore, in white Spad, which holds 60 Marks in Silver. M. de Schonberg.


p. 48. **Argentum albicans in plumagine.** Fribergae. Reich
Weiigultig-Ertz in Bleyglantz, i.e. Rich white goldish-Ore in Lead-GLitter. M. de Schonberg.


p. 52. **Argentum albicans in Lapidie plumario.** Fribergae in Saxonia. Weiigultig Ertz mit etwas Bleyglantz, i.e. White Goldish-Ore, with something of Lead-GLitter. M. de Schonberg.

p. 36. Argentum rude plumbej coloris. Glafs-Ertz Agricola. Ex
Vinis Hungaria. Dr. Scheuchzer.

p. 54. Argentum rude plumbej coloris, Friberge. Glafs-Ertz. [It
yields of Silver, one with another, near an Ounce and a half per
Pound. It has Lead in it. There is great Quantity of it 400
Fathom deep. Mr. Weber.] M. de Schonberg.

p. 55. Argentum rude plumbej coloris, Friberge. Glafs-Ertz. [It
yields of Silver, one with another, near an Ounce and a half per
Pound. It has Lead in it. There is great Quantity of it 400
Fathom deep. Mr. Weber.] M. de Schonberg.

p. 56. Argentum rude ex Hungaria, Glafs-Ertz. M. de Schon-
berg. ["Tis rich and found in Quantity in Veins at Schemnitz.
Mr. Weber.] The Glafs-Ertz is always very rich in Silver. The
Characteriftick of it is, that it cuts with a Knife like melted
Lead. That on the Top is the Glafs-Ertz; the rest is Bleyglantz,
or common Lead-Ore.

p. 57. Argentum rude plumbej coloris, quod cultello fcendi po-
tef. John-Georgenstadt. Derb Glafs-Ertz, i. e. Glasly-Ore,
tough, or tenaceous, not friable. M. de Schonberg.

p. 58. Argentum rude plumbej coloris in lapide argentario ru-
br. John-Georgenstadt in Saxonia. Glafs und rothgultig Ertz,
i. e. Glasly and red-goldifh-Ore, by Gultig they imply only rich.
This holds about half Silver. M. de Schonberg.

p. 59. Argentum rude plumbej coloris in marmore metallico ru-
br. Friberge in Saxonia. Angeflogen Glafs Ertz uff roth-
lichten Spad, i. e. Interspers'd glasly-Ore upon reddifh Spad.
M. de Schonberg.

p. 60. Argentum rude cineraceum in marmore candido metallico.
Spaat. Ex Vena Sanclii Michaelis, que eft Saalsfeldij in Thuringia.
Dr. Leopold. The Ore in this is of Zink, holding some Silver.

p. 61. Argentum rude cineraceum. Gedigen graun Silber Ertz
Agricola. Friberge in Saxonia. Dr. Scheuchzer.

p. 62. Argentum rubrum in Silice candido. Friberge. Roth-
gultig Ertz in weifen Quartz, i. e. Red goldifh-Ore in white
Quartz, a Sort of Spar. M. de Schonberg.

p. 63. Argentum albicans in mica. Friberge in Saxonia. Wei-
gultig Ertz in Glimmrichen Geburge, i.e. White Goldifh-Ore
in a glittering Vein-ftone. M. de Schonberg.

p. 64. Silver-Ore out of the Silver-Mine of Schemnitz in Hunga-
ry. Dr. Edward Brown.

p. 65. Silver-Ore from the famous Mines of Claufhall in Han-
over. The Ore here yields Silver, Lead, and Copper. Five
Parts in Eight of the Revenue of thefe Works belong to the
Elektor: and bring him in yearly about 30000 l. Sterling. This
is a Sample of the Sort of Ore that yields the moft Silver. This,
which is the deepest of thefe Mines, is betwixt 700 and 800 Feet
in Perpendicular. This may hold about 15 of Silver. M. Bel-
choir.

p. 66. Argenti Vena in marmore candido Cryfocolla ex caruleo
perfusa. Ex Sefamina vallle (Schams) Rhelia. Dr. Scheuchzer.

p. 67. Argentum rude Suacenfe venâ Malachitica mixtum. Dr.
Scheuchzer.

p. 68.


p. 71. Cadmia fissilis argenti ferax. Fribergae in Saxonia. Derber Silberhaltiger Erzt Kobold, i.e. Tough Silver-holding Cobalt-Ore. M. de Schonberg. [It differs little from our Vitriolick Pyrites in Appearance: and it hloors like it.] [This Sample dif- solv'd after the manner of the Pyrites.]


p. 73. Minera Argenti nigricans, ex fod. Freyburgo-Mifnicis. Dr. Leopold.

p. 74. Vena Argenti ex sodina Trium Regum sanctorum Schem- nizes, in Hungaria. Dr. Leopold.


p. 76. Minera Luna ex sodina Fortune Recentis, ad oppidum Jo- rhannis Georgij, ad coniina Bohemic. Dr. Leopold.

p. 77. Minera Luna ex sodina St. Andrae in Hercynijs. Dr. Leopold.

p. 78. Vena Argenti, Cupri, & Pyrite, in Ferrara Alpe Naflera, Rhatia. Dr. Scheuchzer.

p. 79. Vena Luna divas, internicante pyrite distineta, ex sod. Salbhergensis in Suecia. Dr. Leopold.

p. 80. Minera Argenti ex sodina Hellesfarffen, in Suecia. Mr. John Angerslein.

Plumbi Minera, Lead-Ores.

\( \sigma. 1. \) Plumbago super Pyritem aureo colore. Fribergae in Saxo, nis. Silberhaltiger BleySchweiff uff Kupfer Kies, i.e. A Silver-holding Lead-Verge upon a Copper Marcasite. M. de Schonberg. [This is the very finest grain'd Steel-Ore. It may hold about \( \frac{3}{4} \) Lead, but is of very hard Fusion].

\( \sigma. 2. \) Steel-grain'd Lead-Ore, holding Silver. Minera Argenti ex sodinis Anhaltinns. Dr. Leopold.

\( \sigma. 3. \) Vena Argenti & Plumbi necnon Cupri fucunda. Fribergae in Saxonia. Kleinprischlichter Bley, i.e. Small-grain'd Lead. M. de Schonberg. [100 lb of this commonly yields about 30 lb of Lead and 12 Ounces of Silver. It lies about 300 Fathom deep, in a Vein, in great Quantity. Mr. Weber].

\( \sigma. 4. \) Vena plumbi; essuditur prope Davasium in Rhatia. Dr Scheuchzer.

\( \sigma. 5. \) Minera plumbi cum Fluore albo, ex Sylva Sessana. Dr. Kifher, N a 3
6. Lead-Ore, lying in Sparks or Grains amongst white Spar, with a small Admixture of a yellow shining Marcaïite. It hardly holds more than 1 Lead. From a Mine in Sweden.


9. Flos aris in Galena argenti nigra. Friberga in Saxonia. Kupferblumen in schwarzen Silber blende, i.e. Copper Flowers in black Silver Blende. M de Schönberg. [Galena or Blende, holds a little Lead; which is apt to run into a Sag.]

10. Minera plumbi ex fodiinis Fallaunensis in Suecia. Dr. Leopold.

11. Sparkling Lead-Ore, the Sparks small: very poor and ftony. From Clausthal, Hannover.

12. A ftony Lead-Ore of a dark grey Colour; the Lead lying in Sparks with an Admixture of Sulphur. It may hold about 1 Lead. From Sweden.


14. Vena plumbi, cupri, & argentii, effoditur in Rhatia suppra Zillis in Monte Delfini. Dr. Schescherzer.


17. Lead-Ore, with white Spar. This Ore, when freed from the Spar, yields upon Trial, 61 lb in 100 of Lead, and 6 Drachms of Silver. From New-England. Mr. Bridger.

18. Lead-Ore, with a Spar, from Clausthal, Hannover. Mr. Belchoir. These Lead-Mines are very considerable.

19. Sparkling Lead-Ore, the Sparks large, with white Spar incorporated with it: as also a sort of Veinfstone, of a grey Colour, and fine Constitution. Clausthal, Hannover.

20. Grosgrain'd Lead-Ore with Spar, white and semipellucid, crystalliz'd upon it. Clausthal, Hannover.

21. Sparkling Lead-Ore, the Sparks large; vein'd with white Spar, and a yellow brassly Marcaïite. Clausthal, Hannover.

22. Plumbago cum Pyrite. Friberge in Saxonia. Bley und Kupfer Ertz, i.e. Lead and Copper-Ore. M. de Schönberg. [It may hold more than 1 Lead.]


24. Minera plumbi ad pagum Kleeberg, prope Urbem Butifacum. Dr. Kifner.
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3.25. Galena plumbifera, ex vena Gratia Dei Claufthalienfis five Vallis Nicolaitanne, in Hercynijis Lunenburgiciis. Dr. Leopold.

3.26. Lead-Ore. From Swartzburg. There is a little Calamine incorporated with it.

3.27. A Piece of Lead-Ore, flakey, glossy and shining, with some small Proportion of Sulphur or Marcaíite. It seems to hold about \( \frac{1}{2} \) Lead. 'From Sweden.


3.29. Lead-Ore, holding Antimony, sent by the Name of Neelangenum, from Fort St. George. Mr. Bulkley.

3.30. Minera plumbi ex folidinis Rhodenibus Hassia. Dr. Leopold. There is white Spar intermingled with it: and a little Marcaíite.

3.31. Silber Ertz. Iglav Moravia. M. Ol du Mont. [There is a crossth grain'd Lead-Ore, with Tubera upon it like those of the Hamatites, along with it. It does not appear to hold much Silver].


3.33. Lead-Ore, sent by Dr. Kischer, with the Inscription, Minera Argenti ex Suecia. [It appears to hold very little Silver: but is rich in Lead. This Ore is whiter and more glossy than usual].

3.34. Lead-Ore, of a fine Violet Colour; found, but rarely, in the Mines of Schwartzenburg in Saxony. Mr. Melmoth, who says that there's a considerable Quantity of common Potters-Ore got in these Mines. The Potters-Ore at St. Iffy in Cornwall, being expos'd for some time on the Surface to the Air, attains a violaceous Caft. This Colour is probably owing to an Admixture of Sulphur: and Marcaíites that abound in that Mineral, have frequently a glossy red, purple, or violet Caft; particularly those from Devonshire and Cornwall. (See the Catalogue of the English Fossils. 1. 10. 11. 50. 51. 52.)

3.35. Vena argenti & plumbi secunda. Friberga in Saxonia. Silberhaltiger kleinfpiiftgter Bleyglantz, i.e. Silver holding small pointed Lead-Grätter.

3.36. Broad-grain'd Lead-Ore with Marcaíite, and Spar, adhering to it, from Freyburg in Saxony.

3.37. Lead-Ore, the finest and cleanest I ever saw: and carrying somewhat of a GloTs and Resemblance of Silver. From the Mines at Claufthall, Hannover.

3.38. A Mass of Lead-Ore, having amongst it a grey Spar, and a small Proportion of a yellow shining Marcaíite. The Ore is of that Sort call'd the Blue-Ore: and breaks into small Squares. From the great Mine near Widtfabla in Sweden. It seems to hold about \( \frac{1}{2} \) Lead. Some Part of the Lead of these Mines, which are the only considerable Lead-Mines of that Country, yields Sil-
ver; but in so small a Proportion, that 'tis hardly worth wor-
king. Mr. LATHALIER.

Glantz-Ertz, i.e. Diced Glitter-Ore. M. de Schonberg.

6.40. A Nodule of Lead from a Mine at - - - - - in Hun-
gary. M. Ol. du Mont. He had several other like Nodules from
the same Mine.


6.42. Lapis plumbarius floribous candidis similiis. Fribere in
Saxonia. Weisbkey Ertz, i.e. White Lead-Ore. M. de Schon-
berg. [It is found dispersedly among the other common Lead-
Ore in the Veins, in small Quantity. It yields about \( \frac{1}{2} \) Lead. Mr.
Weber].

6.43. Lapis plumbarius luteus & viridis. Fribere in Saxo-
nia. Gelbe und grün Bleyn Ertz, i.e. Yellow and green Lead-
Ore. M. de Schonberg. [The Green is owing to Calamine. It
holds about \( \frac{1}{2} \) Lead].

6.44. Lapis plumbarius niger. Fribere in Saxonia. Schwartz
Bleyn Ertz, i.e. Black Lead-Ore. M. de Schonberg.

Minerae Stanni, Tin-Ores.

1.1. A Tin-Grain very large, brought from Missnia, by M. Ol.
du Mont. This is shot in the ordinary Form of Cristall, an hexa-
gonal Pyramid, rais'd on an hexagonal Column or Bale. The
Tin-Grains of Cornwall are in quadrangulæ Pyramids: as there
appears to be one in that 7.9. infra, from Marieburg.

1.2. Lapillus niger plumbi candidi ferax. Eibenstock in Saxo-
nia. Schwarzte Zinngraune, i.e. Black Tin-Grains. M. de Schon-
berg. [This holds half Tin. It lies in Veins amongst the Ore.
Mr. Weber].

1.3. Lapillus niger plumbi candidi ferax in lapide cinereo. Ei-
benstock in Saxonia. Zinngraune in grauen Kalkgebürg, i.e.

1.4. Lapillus niger plumbi candidi. Ehrenfreidserdorff Saxo-
nia. Zinnegraune, i.e. Tin-Grains. M. de Schonberg.

1.5. Tin-Grains brought from Missnia, by M. Ol. du Mont.

1.6. Tin-Grains. From Schlachenwerdt in Bohemia.

1.7. Lapillus niger plumbi candidi. Marienberg in Saxonia.
Zinnegraune, i.e. Tin-Grains. M. de Schonberg. [This is the
richest Tin-Mine in Saxony. Mr. Weber].

1.8. Lapis niger ex quo præparatur Stannum Sueberge in Saxo-
nia. Schwartzer Zwitter, i.e. Black Tin-Ore. M. de Schon-
berg.

1.9. Lapilli nigri plumbi candidi feraces in silice albo. Maria-
berger, Zinngrauen in weifen Quartz, i.e. Tin-Grains in a white
Quartz, a sort of Spar. M. de Schonberg.

1.10. Lapilli nigri plumbi candidi feraces in terra lutea. Ma-
risberge in Saxonia. Zinngrauen in gelbem Gebürg, i.e. Tin-


17. The common Tin-Ore from Aew, Saxony. Mr. Melmoth. [We have a like Sort in Cornwall, holding some small Quantity of Tin, and a very little Iron].

18. Tin-Ore, grey, of the common Sort from Schlackenwerde in Bohemia; where there are about 60 Grooves, and greater Quantities of this Metal got than in any other Part of Germany. This is pretty like one Sort of Cornish-Ore that yields a Part of Tin.

Minerae Cupri, Copper-Ores.

1. Native Copper; found, but very rarely, in the Lead-Mines of Freyberg, in Saxony: sometimes in this blanch'd Form, sometimes in Flakes, and Plates, fine and malleable. Mr. Melmoth. There is a considerable Quantity of a yellow Marcasite Copper-Ore in these Mines.

2. Es nativum è fodinis Hercynia. Gewachsen Kupffer, i.e. Grown Copper. From the Haartz Mountains. M. de Schonberg.

3. Es purum fossile, Gediegen Kupffer, Agricola; ex Duca tu Wirtembergens. Dr. Scheuchzer.


A Vein of native Copper in a red Stone, from the Copper Mines of Goifar in Germany. Mr. Belchoir.

A Marcalite, with Spar and Grit. Sent by Dr. Leopold, with the Inscription, Minera Cupri Claushalensis fylve Hercyniae. There are some very small Spangles of native Copper in it.

A grey flaky Stone, with a Mass of brown Spar affixed, with Veins of blue and green in it. Sent by Dr. Leopold, with the Inscription, Minera Cupri ex sodinis Heinebergensiibus Comitatus Hassovicensis.

Nago Potshawe; from the East-Indies. Mr. Bulkley. They calcine it, and afterwards use it inwardly in scirrhous Tumours of the Spleen and Belly; also in hard Swellings of the Testicles. 'Tis a hard stony Earth, holding Copper: and ting'd with Green and Blue.

Minera Cupri viridis cum caruleo. Ex sodinis Hasso-Darmstadtiensibus. Dr. Kifner. They call this Blue Berg-blaw, or Mine-Blue.

Vena arii viridis etrutila qua in se continet sexaginta per centum libras Cupri. Sneberge in Saxonia. Reiche Kupfergrüne und rothe, i.e. Rich Copper Green, and rich Copper Red. M. de Schonberg. [It has Virgin Copper in it; and yields above 1/2 Copper.]


Lapis fissilis, qui are et dives in caruleo nigricans. Isforte in Saxonia, Schwartz blauer Kupfer Siefer, i.e. Blackish blue Copper Shiver. M. de Schonberg.


A white Spar, with Veins of Brown, a very bright Blue, and a few Spots of Green, pretty ponderous, and doubtless impregnated with Copper, sent by Dr. Scheuchzer, with the Inscription, Caruleum fissile, Bergiasar, & Chrysocolla, Berg-grun Agricultae, Bulacensis. [Berg-Lafur is Mine-Blue, Berg-grün is Mine-Green.]

Caruleum nativum. Dr. Scheuchzer.

Chrysocolla nativa. Annaberge in Saxonia. Kupfergrün, i.e. Copper-Green. M. de Schonberg. [This is Copper-Ore, and may yield 1/2 of that Metal.]

A Marcalite, with Spar, and Grit; sent by Dr. Leopold, with the Inscription, Minera Cupri ex sodinis Fallumensibus in Suecia. This holds but little Copper.

Copper-Ore, green, and very rich. From--------- in Germany. M. Valkenier.

A Stone, gritty, with a Cast of Green, and shining Sparks throughout. This is the common Copper-Ore of Awe, in Saxony, about 5 Miles from Schwartzenberg. 'Tis got in great Quantity, and some of it is pretty rich; tho' this seemingly holds but little Copper. Mr. Melmoth.

v. 24. Spanish Copper-Ore. It may hold about \( \frac{1}{3} \) Copper. Brought by M. Ol. du Mont.

v. 25. Minera Cupri prope Pagum Hummershausen, Territorij Hasso-Darmstadiensis. Dr. Kifner.


v. 27. Minera Cupri ad Pagum Acheback, Territorij Hasso-Darmstadiensis. Dr. Kifner. [By the two opposite flat Sides, and the Flakes or Veins of this Ore running parallel, 'tis apparent it was taken forth of a Fissure.]

v. 28. Minera Cupri, prope Pagum Ellemhausen, in Comitatu Erbaciensi. Dr. Kifner.

v. 29. Copper-Ore, of a Rust-Colour, with bright Sparks interspers'd, and Threads of a very fine bright Green. Sent by Dr. Leopold, with the Inscription, Minera Cupri, ex sodinis, Spes Metalli fessoribus dedit, in Landgravianu Hassie.


v. 31. Flos aris Coloribus maxime variis. Gerflorff Saxoniae. Kupfferblume. M. de Schonberg. [There is also Virgin-Silver in it.]

v. 32. Cupri Minera a Ditionibus Principum ac Comitum Schwartzbergeniis. Kupffer Kies; i.e. Copper Marcalite. M. de Schonberg.

v. 33. Copper-Ore, from the same Mine with the former, having part of a Rider of a duskey grey Stone in it. M. de Schonberg.

v. 33. Copper-Ore, from another Vein of still the same Mine, with a Vein in it of white Spar, crystallizz'd.

v. 34. Minera Cupri ex Comitatu Schwartzburgensii. Dr. Kifner. This has Veins of a fine bright green cupreous Matter, shot into extreme fine Threads, much like those of the Ore of-------- in Devonshire. It has also Spar adhering to it, white, and in some Parts tinged with green.

v. 35. A Marcalite, yellow, with a glossy Grey, and Purple in some Parts, holding Copper. From the Mines of Newfohl in Hungary.

v. 36. A Marcalite, holding Copper. From Kopperberg, in Sweden.


v. 39. Minera Cupri. Schwartzburg. Pfennichweiff Kupffer Ertz; i.e. Peacocks-Tail Copper-Ore. M. de Schonberg. [It holds near \( \frac{1}{3} \) Copper. Mr. Weber.]

v. 40. Minera Cupri. Schwartzburg. Gelb Kupffer Ertz; i.e. Yellow Copper-Ore. M. de Schonberg. [It holds \( \frac{1}{3} \) Copper. Mr. Weber.]

v. 41. A Marcalite, with Spar and Grit, sent by Dr. Leopold, with the Inscription, Minera Cupri ex sodinis Fallunensibus in Suecia. This holds but little Copper.

v. 42.
Lapis metallicus aurarius aurei Coloris. Friburghæ in Saxonia. Gelb Kupfser Ertz; i.e. yellow Copper-Ore. M. de Schönberg. This may hold about $\frac{1}{10}$ Copper.


White Spar, and Marcafite, holding Copper; from the Mines at Claafball, Hannover. Mr. Belchoir.

A Marcafite, holding Copper; from Kopperberg in Sweden.

A Copper Marcafite, of a dusky Colour, with some small Admixture of Spar. It very nearly resembles some of the Marcafites of Cumberland. From the great Mines at ------ in Sweden. Mr. Lathalier. He was down in one of the Mines, where he had this given him for a Sample of the common Ore, and was told it yields from 5 to 7 in 10 of Copper. They find it from 50 to 150 Fathom deep.

Another Sample, out of the same Mine, more yellow, shining, and sulphurous. Mr. Lathalier.

A Marcafite, yellow, with a glossy Grey, and Purple in some parts, holding Copper. From the Mines of Newfohl in Hungary.

Minera Cupri Hassiaca, ad Pagum Kleeberg, prope Urbem Burzbach. Dr. Kifner.

A Marcafite, with Spar and Grit, sent by Dr. Leopold, with the Inscription, Minera Cupri ex fodinis Rhodensibus in Landgraviiatus Hassia.

A yellow brassy Marcafite, with Lead-Ore in the same Mais; the former holding Copper, the other Silver. From Claafball, Hannover Mr. Belchoir.

A Marcafite, yellow, with a Gloss of Purple in several Parts, and broad-grain'd Lead-Ore adhering to it. Some of this Copper-Ore is very beautifully gloss'd with a bright Blue, Green, and Purple. From the Copper-Mines at Saalfeld in Saxony. Mr. Melmoth. The Copper-Ore is all of this Marcafite Kind. 'Tis the richest of any of the common Copper-Ores in Saxony; and indeed in all Germany. What Quantity of Lead-Ore is got in this Mine, he did not enquire. They have of this sort of Copper-Ore, both in Cornwall and Devonshire.

Minera Cupri ex fodinis Dusenaviensibus Comitatus Nassoviae. Dr. Leopold. [This holds about $\frac{1}{2}$ Copper, with very little Lead.]

A dusky grey gritty Stone, yielding Copper and Lead; from a Mine at Ilmenaw, near Erfurth; in Saxony. Mr. Melmoth.

A black, glossy, flakey, light Body; from the same Mine, yielding also Copper and Lead. Mr. Melmoth. [Both these appear to me to hold very little Metal.]

Minera Cupri arenosa, Conchitern striatum complectens, & Lapillum calculofum, ex Territorio Saxo-Ifenacensi, prope Pagum Gerhanfen. Dr. Kifner.
Minera Cupri fusca ex fodinis Hasso-Darmstadiensibus.

Dr. Kifner. ['Tis very poor.]

v. 58. Pyrites carulei & purpurei Coloris in marmore metallico albo. Fribergæ in Saxonia. Braun und bläue Kupferblumen in weisen Spad; i.e. brown and blue Copper-Flowers in white Spad. M. de Schonberg. [This may hold about 1 Copper.]

Minera Ferri, Iron-Ores.

Φ. 1. Native Iron; from ---- in Saxony, being a Shoot about \( \frac{1}{4} \) of an Inch in length. Mr. Melmoth. It very readily answers the Magnet.

Φ. 2. Ferrum nativum fossile. John-Georgen-land in Saxonia. Gewachsen gedigen Eisen; i.e. grown, pure native Iron. M. de Schonberg. [This answers the Magnet very readily; and is a very great Curiosity.]

Φ. 3. A reddish, glossy Iron-Ore, appearing to be pretty rich. Sent by Dr. Leopold, with the Inscription, Ferri repertus ad Pagum Rojsberg Comitatus Weilburgici in Westeravia.

Φ. 4. Minera Ferri, ex Sylva Bussingenfis, ad Tres Fontes, Territorij Hasso-Darmstadiensis. Dr. Kifner.

Φ. 5. Iron-Ore, glossy, black with a Cast of blue. Sent me by Dr. Liffer, with the Inscription, Minera Ferri communis ex fodinis Dammoragrube 16 Milliaribus Holmia Suecia distantiubis. [It appears to be very rich and fine.]

Φ. 6. Another sort, seeming to be as rich, but more shining. Sent me by Dr. Martin Liffer, with the Inscription, Minera Ferri rarior ex fodinis Suecia.

Φ. 7. Lapis ferrarius Schwarzenbergenfis. Eisen-Stone; i.e. Iron-Stone. M. de Schonberg. [This is the common Ore there. It lies in Veins, in vast Quantities, about 40 Fathom deep. The Veins in many places are a Fathom Diameter. Mr. Weber.]


Φ. 10. The common Ore of Iron, near Caen in Normandy. 'Tis pretty rich, and got in considerable Quantity. It seems to have a little Copper in it.

Φ. 11. Iron-Ore, Shickskerner. From Bohemia. 'Tis found chiefly in this Form, in small Lumps in the Isser-Meadow, in great Quantities near the Mountains; out of which it is washed by Floods after Falls of Rain. 'Tis very rich; and being only powder'd, it answers the Magnet before Calcination. 'Twas imagin'd, by some German Mineralists, to hold Gold; but, upon tryal, I could obtain neither any of that Metal, nor Silver, out of it. It yielded full \( \frac{1}{4} \) of Iron.

Φ. 12. Iron-Ore, of a very dark red Colour, and very much like a fort found at Langron, in Cumberland, along with the Hematites, of which there are Veigia upon this. 'Tis found very plentifully at Schwartzenberg in Saxony, and yields a considerable Proportion of Iron.

Φ. 13.
Minera Ferri, ad Pagam Berckhauzen, Comitatus Solmen-

Dr. Kifner. This is of a Rust-Colour; and, on the Outside, has Efflorecencies of the Hæmatites upon it, very black and shining.

Hæmatites, striated from the Surface to the Center, of a blackish red Colour; found plentifully at Schwartzzenberg in Sax-
yony. 'Tis rich in Iron. Mr. Melmoth. He hath Variety of these Hæmatite, from the same Mines, which all resemble ours of Cumberland.

Hæmatite, of a dusky red Colour, striated, and in all other respects resembling that of Cumberland. From Mocho. Mr. Bulkley.

Ferrum purum fossile. Eibenstock in Saxonia. Gewachsen Eisen; i.e. Grown-Iron. M. de Schonberg. [This is an Hæmatite, which kind is also found at Swartzberg. It lies above the Veins. Mr. Weber.]


Hæmatites. Eibenstock in Saxonia. Blut-stone; i.e. Blood-
stone. M. de Schonberg.

Hæmatites, Schylos, ex Saxonia. Dr. Kifner.

Iron-Ore, from Virginia. Mr. Doody.

Nodules, of a brown Rust-Colour; found about 10 or 12 Foot deep, in Cormandel, East-India. They extract Iron out of them; which indeed is the only Metal this Coast affords. Mr. Bulkley.

Another Nodule, little different; only it has Tubercules on one side. Sent by Dr. Scheuchzer, with the Inscription, Vena Maris pisiformis ex Comitatu Badensi.

Small brown Nodules; sent by Dr. Leopold, with the Inscription, Vena Maris pisiformis Smalandica, quam hyberno tempore ex lacen Asel vel Efel, profè Statilfis Incole colligunt, & in Officinis ferrariis, exinde Fornaces, Tormenta & Globulos, & alia Instrumenta bellica fundunt.

Other like Nodules, lying in a very fine Clay of a light brown Colour. From the same Place.

Vena Ferri Globofa. Ex Comitatu Badensi. Dr. Scheuchzer.

Caubq Roy, is calcined before used, and then given for the Hiccough. The Fakiers dye or stain their Clothes with it, to appear different from others. 'Tis a Nodule, ochreous, and holding Iron. From East-India. Mr. Bulkley.

Ferri Vena Lengnaviensis, ex Ditione Bernensi. Dr. Scheuch-
zer.
Appendix.

Mineralia ferruginea, Magnes.

Minerals related to Iron, and holding some of that Metal.

Sect. I. The Loadstone.


†Φ. 3. A Loadstone, from Saxony. They sometimes find the Magnet in the Veins along with the Iron, in Saxony; and very commonly in the Upper Hungary. They smelt and run it down with the Iron-Ore. Mr. Weber.

†Φ. 4. A Loadstone; found amongst a great many more, on the Shores of the River Potoxon, in Maryland.

Mantissa I. Dendritae.

Natural Delineations of Shrubs, upon the Surfaces of various Fossils, chiefly in black, but sometimes in brown, made by Mineral Streams.

χ. 1. Various Delineations on all sides of a grey Stone resembling Trees, Shrubs, &c. Given me by Mr. Charlton, alias Curteyn. He told me it came from beyond the Seas, but could not tell me from what Country. 'Tis pity a Gentleman so very curious after Things that were elegant and beautiful, should not have been as curious as to their Origin, their Uses, and their natural History; about which he was little solicitous. Mr. Robert Ball shew'd me lately a Body exactly like this in all respects, which he inform'd me was taken forth of the River Arno near Florence; where there are great Quantities of this Stone with these Delineations.

χ. 2. Dendrita è Pago Solnhofen Comitatus Pappenheimensis. Dr. Scheuchzer.

χ. 3. Fruticum lineamenta in Marmore albido. Ex Lapicidina Scaphusiana. Dr. Scheuchzer.

χ. 4. Dendrita Glascensis, ex Bohemia. Dr. Scheuchzer. This, being split, shews how the Delineations are form'd in the Fissures betwixt the Slates.

χ. 5. Dendrita propè Pagum Popperg Ducatus Solisbacensis. Dr. Scheuchzer.

χ. 6. Stigma & Dendrita ex Comitatus Badensis ferri sodinis.

Mantissa 2. Fossilia Incognita & Incerta.

Various native Fossils, of whose Nature, Origin and Constitution I have not been yet able rightly and sufficiently to inform myself.

ψ. 1. A Stone of a reddish Completion, and seeming to hold some small proportion of Iron. 'Tis variously intersected with Septa.
Septa, composed of white Spar, after the manner of the *Ludus Helmontij*. What is observable in it, and what indeed I do not understand the Origin of, is a very remarkable reticulated Work on the Flat of one Surface of it; sent by Agostino Scilla, with this Inscription, *Figure risultata da Corpo esteriore di qualunque parte d'Animale, in Sicilia*. He did not find this till after his Book was published; so that there's no mention of it there.

ψ. 2. A Body of a sparry Constitution and a pale brown Colour approaching white; in Figure oblong, cylindrick, but something tapering. 'Tis fistulous, or hollow, but fill'd with a yellowish brown Stone, of the same sort with that in which it lies. Sent by Agostino Scilla, with the Inscription, *Tubero di qualche Animale, marino, serata nel Sasso nella Cave di Messina*. This also was found after his Book was published.

ψ. 3. Various Bodies, oblong, streight, cylindrick, or rather something tapering; placed in various Postures in the same Mafs: they are ponderous, of a very dusky red Colour; and indeed in that, and all other respects, they resemble Cast-Iron.

ψ. 4. *Gomuttra Selagitta*. 'Tis found on a Mount call'd *Vindy*, where Cows frequent and urine. 'Tis suppos'd, by the Gentious, to be partly produced that way; as the Name imports, which signifies a Stone made of Cows Urine. When refined, 'tis used inwardly against Gonorrhœa's, and inward Ulcers. From the *East-Indies*. Mr. Bulkley. (It seems to be the *Lapis Piceus*.)

ψ. 5. Black Pumice. From the Island of *Tenariffe*. This sort is found frequently all over that Island; and is very like a sort of Vein-Stone found also frequently in *Cornwall* in the perpendicular Fissures over the *Tin-Ore*. There is a Sample of that in the *English Catalogue, f. 7*; It also very nearly resembles some of the light spumose Cinders found near *Vesuvius*.

ψ. 6. Pumice of a pale brown Colour; found in the Caldera, or Cavity at the top of the *Pico* in the Island *Tenariffe*. 'Tis in Texture, Constitution and Matter so like a coraloid Porus, that I cannot think it to be really any thing else. The Pumice is commonly found floating in the Sea. *Vid. Phil. Transact. N° 304. P. 2161*.

ψ. 7. A Body in Constitution something resembling the precedent; but of a paler Colour, being near white. 'Tis very light, porous and friable; and has a Salt in it, which, to me, tastes very like the common marine Salt. This Salt is usually found in the Pumice. *Vid. Philos. Trans. N° 304. p. 2161*

ψ. 8. A Body, very light, porous and friable; of a light grey Colour near white. 'Tis glossy and shining like a Talc; and indeed 'tis striated length-ways after the manner of the fibrous Talc. It has a Salt in it exactly like that in the precedent.
Mantissa III.

Commentatio quædam, seu Exempla quorundam Errorum apud Scriptores Fossilium.

Some Instances of Mistakes in the Writers of Fossils, relating to the Origin of Bodies. [Conf. Mantiss. 2. Ψ. 5, 6, 7, 8.]

1. Lapis Spongiae. This has passed hitherto for a Fossil; and is commonly class'd with Stones, by the Writers of them. 'Tis light, porous, and friable. As to its Form, 'tis commonly hollow or fistulous. It has a brackish Salt Taste; is manifestly of marine Origin; and composed of a coarse, lax, coralline Matter. The Specimens in this Collection, and all the rest of it that I have seen, appear to have been the Theca, Latibula, or Cases of some Insect, made in the manner of those of the Phryganium or Cad-worm, or rather of the Theca of the Penicilli marini. 'Tis common to find on the Sea-shore, Insects thus involv'd in Cases composed of Sand, very small Bits of Shells, Sticks, or the like; as well as of coraloid Matter.

Mantissa IV.

Fossilium quorundam Preparationes.

Mudlany Instances: of Metalick and Mineral Bodies, that have been wrought; and that give some Light to Natural History.

1. Clay, of a very pale Colour, near white; used by the Indians about Fort. St. George to mark their Faces with. Mr. Bulkeley.

2. Terra Sigillata; from the Island of Crete. 'Tis of a pale Colour near white.

3. Terra Sigillata Seichawer, alba. Hamburgh

4. Terra Sigillata Silesiana, ex pallido luteescens. Dr. Kisner.

5. Terra Sigillata Stregonienfis luteescens. Dr. Kisner.


8. Terra Sigillata Laubacenfis, ex rufo pallidior. Dr. Kisner.

9. The true Venetian Bole. 'Tis of a Brick-Colour.

10. Goslar Vitriol, dissolved and crystallized. 'Tis very prettily shot into small Squares, generally of a rhomboid Figure. They are of a green Colour; and semi-transparent.

11. Roch-Allum. From Turkey.

12. Alumen Rupeum. Ex Agro Romano. The Texture, and Manner of its Crystallization, is very observable.

13. Vermillion, from China. The Merchants send it to Nuremberg, where it is prepared and fitted for the Use of Painters. Indeed reduced, as it is, to a fine Powder, it gives a good Colour. It is a factitious Cinnabar.

14. Vermillion, made in China; consisting of a Sulphur, and two Mercurey. 'Tis fibrous; and striated a-cross, like some of the
the Chinese native Cinnabar; and our Hæmatites. The Surface of
Outside of it also resembles that of the Hæmatites. Mr. Cuning-
ham, Surgeon.

x o. 15. Factitious red Arsenick; sent by M. de Schönberg, with
the Inscription, Sendaraca Saxerfeldensis. Raaffchelb.

x o. 16. Cadmia Metallicæ, preparati Colores. Specierum diversa-
rum. Blaue farbe, i.e. blue Colour. M. de Schönberg. Smallts,
all made out of Cobalt, and by the Name Procefs; but some come
forth of a finer, others of a worse Colour; according to the dif-
ferrnt Constitution of the Mineral out of which they are drawn.
He has here sent thirteen Samples, viz. Varieties under the Name
of Hoos Blau: one of ordinary Hoos Blau; one of Elaar Blau, qui
Colore non cedit Ultramarino; six of Elaar Blau; one of Metel E-
lar Blau; and one of ordinary Elaar Blau. Those are made out
of the Cobalt that is ponderous, grey, and shining; found plen-
fully in the Mines of Sreebergh. Being powder'd and waft'd, they
roast it to exhale the Arfenick; which they collect in the Flew of
their Furnace, run it down, and keep for Ufe. Afterwards they
flux the remaining Calx with Pot-Afhes and white Pebles pow-
der'd; and the Small, in fine, appears in form of a Blue-Glas. See
the Philosophical Transafions, No. 293. p. 1753.

x o. 17. Cadmia preparata, ad confecioneem Orichali utilis. M.
de Schönberg. It is calcined.

x o. 18. Lapis Tutia. This is what rifes from the Calamine in
making Brafs.

x o. 19. Nikil Album, five Pompolyx, ex Fornacibus cupreis,
Hambugh.

x o. 20. This appears to be Litharge; 'twas sent from Fort St.
George by the Name of Yevay Charrum. The Surgeons there ufe
it as a Caufick. Mr. Bulkley.

x o. 21. This likewise appears to be a Litharge, and is little dif-
ferrnt from the precedent. 'Twas sent me by Mr. Bulkley from
Fort St. George, by the Name of Moordar Tingy. 'Tis ufed to dye
the Hair black.

x o. 22. This was given me by Dr. Ed. Brown; and is what he
in his Travels, pag. - - calls Iron turn'd into Copper; from a Spring
near the Copper-Mines of Hern-grunt in Hungary. The Brief of
this Transafion is, these Springs, Rivulets, &c. that rife out of
the Copper-Mines here, are impregnated with much Vitriol; in
which there is alio Copper diffo'ld. Indeed the Vitriol conftitutes
a kind of Menftruum. Upon the putting Iron in, that Menftruum
preys upon it, and aflumes the ferrous Parts into itself. At the
fame time it precipitates an equal proportion of the cupreous
Parts; a thing common and well-underflood by Refiners, and all
who have been converfant with Solutions in Aqua Fortis, and oth-
er like Menftru.

x o. 23. Copper, very fine; and concreted in a very elegant and
obervable manner. 'Tis in form of the Letter B; and was form'd,
in the manner recited in the precedent, upon the putting a Piece
of Iron of the very same Figure and Dimensions into a Vitriolick Spring in Hungary. M. Ol. du Mont.

*ω. 24. Ferrum in Cuprum mutatum in Fonte Neofoleni in Hungaria. Dr. Leopold.

*ω. 25. A Piece of Copper in shape of a Piece of Iron, that was put into some Rivulet near Herngrunt. M. Ol. du Mont.

*ω. 26. Camenentum. N. B. Camenentum sua natura ferrum est, virtute vero Aqua viva, que prope Civitatem Eperies in Hungaria pridur, brevi temporis Spatio in Cuprum mutatur. M. de Schonberg. (The same is done in a Rill of greenish Vitriolick Water at Ysol, five Miles from Scheunfritz. The Copper precipitates exactly in the very Form of the Piece of Iron, in 1, 2, 3, to 6 Months, according to the Thickness of the Iron. Mr. Weber.)


*ω. 28. Coarse Pewter appearing to consist chiefly of Lead. 'Tis part of the Bales in which Bohea Tea was brought over from China. 'Tis commonly call'd here Tinang, but not rightly; Tu-nang being the Chinese Name for Speltre Ore. Conf. *ω. 6. supra.

*ω. 29. Cuprum rubrum Japonicum. Borax is cheap in Persia and India; so that probably the Japanese run their Copper with it: to which probably it owes this fine red Colour.

Mantissa V.

Arma & Instrumenta lapidea, n. Spicula, Jacula, Cunei, Secures, veteris Ævi.

Or Instances of certain Stones, form'd by Men, most of them antiently, and all before the Use of Iron was known; in order to serve for Tools and Weapons, but generally supposed by the Writers of Fossilis to have been Natural, and are exhibited by them under the Name of Cerauniax, or Brontiax and Ombrica.

†ω. 1. The Spiculum, or Head of an Arrow, made of Flint, part grey, and part brown. Found in one of the Orkney-Islands, by Dr. Wallace. These Flint Spicula are call'd in Scotland, Elfs Arrows Heads. Vide Sibbaldi Prodromum Naturalis Historia Scotia, Part. 2. 1. 4. p. 49. There are Spicula of like shape found also in Ireland.

†ω. 2. Another bearded or notched on each side, shaped with very great Art; of grey Flint. From one of the Orkney-Islands. Dr. Plot, in his Natural History of Staffordshire, C. 10. Sect. 8. Tab. 33. Fig. 1. has exhibited one of a Shape little different, found at Beresford.

†ω. 3. Another of much the same Shape, but larger, and of a yellownish Flint. From Guinea. Mr. Southwell.

†ω. 4. Another, the Flint of like Colour with the precedent, not bearded. Mr. William Vernon A. M. Fellow of Peter-House in Cambridge. This was found by him in Maryland.

0 2

†ω. 5.
† w. 5. Two others, made of a sort of a white glittering Peble. Found also in Maryland. Mr. Vernon.

† w. 6. A red Stone, square, oblong, and tapering towards each end; sent by the Name of Elf-stone, from Perthshire, in Scotland.

† w. 7. A Hatchet broad, and flat; of a hard Stone, dusky and near black. From Nova Britannia. Captain Dampier.

† w. 8. Another, of a Shape more oblong; of a dark brown Colour. From ✻ ✻ ✻ ✻ in the East-Indies.

† w 9. Another, less; in Shape not unlike a Wedge. Found near Canton in China.

† w. 10. Another, still less; from Virginia.

† w. 10b. Another. Barbadoes.

† w. 11. Another, less. From the Island Barbadoes.

† w. 12. A Dart-Head; of a grey talky Stone. Virginia.

† w. 13. An Arrow-Head; of a light brown Flint, somewhat pellucid. Ireland. Mr. Hugh Howard.

† w. 14. Another, finely notch'd, or bearded; of a like Flint. Ireland. Mr. Hugh Howard.

† w. 15. A rough hard Stone, ponderous, and seeming to hold in it Iron, cut into form of a Hatchet. Found in Tuscany. Signior Gambarini.

† w. 16. A Stone, very hard; red, variegated with white, and a dusky blue. ’Tis betwixt 2 and 3 Inches long; and above an Inch in diameter in the middle; tapering thence, and terminating in a Point at each end. From the Island of Guam, one of the Ladrones. The Natives use them, commonly, as a Jactulum, or Dart, in Slings; and do great execution with them. Capt. Dampier, as I remember.
A CATALOGUE
OF THE
FOREIGN FOSSILS
In the Collection of
J. WOODWARD M. D.

Brought as well from several Parts of Asia, Africa, and America; as from Sweden, Germany, Hungary, and other Parts of Europe.

PART II.

Exhibiting the FOSSILS that are extraneous; the Parts of Vegetables, and of Animals, digged up out of the Bowels of the Earth; in particular the Shells of Sea-Fishes: as also the Stoney, Mineral, and Metallick Bodies form’d in them.

Ranged and disposed in a Classical Method, according to their several Kinds and Alliances; with an Historical Account of each: as likewise various Observations, and Reflections.
W H E N this Catalogue was compos'd, I intended to add to it such extraneous Foreign Fossils as should afterwards come to my Hands; and reserv'd, for that purpose, Pages vacant, as also Numbers intermediate, to which therefore there are no Descriptions added, nor Fossils belonging. Thos'e, which I have receiv'd since, are enter'd into the other additional Catalogues. I shall rejoice that, in the Hurry of my Business, I shall find Leisure, during my Life, to reduce all into one common Method and Series, and one Catalogue.
Vegetable Bodies dug up out of the Earth. Leaves of Plants immersed in Stone. Parts of Trees and Shrubs found buried under Ground. Parts of Branches of Trees and Shrubs petrified, pag. 1.


Denticulata; f. Pectunculi Leptopolyginglymi Listeri, p. 10.

— figura oblonga. Pectunculi, p. 11.


Art. 1. Spatagi altero foramine in basis centro, altero in Marginem.
Divis. 1. Lineis foraminosis à vertice ad Marginem productis.
Divisio 2. Spatagi linearum ordinibus à vertice ortis, sed ad Marginem usuq; non pertingentibus.
 Pars 2. Echini, quibus unicum solummodo in Testa foramen est, idq; in centro Basis positum. Sect. 1. Echini tuberculis admodum exiguis obsiti, cum linearum brevium ordinibus decem ad Marginem usq; non productis, sed eo modo dispositis, ut figuram in superficie ad Pentaphylli folium accedente referant, ideoque PENTAPHYLLOIDES haud inepte dici possunt, p. 16.
Sect. 2. Echini, cum tuberculis majoribus & magis eminentibus, & Linearum seu Tuberculorum ordinibus à vertice ad Os pertingentibus, OVARII dici, p. 17.
Ova of Fishes in Stone. Bones, Teeth, &c. of Fishes, p. 22.
Bones and Teeth of Quadrupeds. Corpora Marina pressitum Conchylia Massæ Lapidea confertim immis, p. 29.
Testa aliaq; Animalium Marinorum partes, incerti Generis, p. 31.
De Conchylis Fossilibus aliqua Injuria affectis, quippe attritis, erosis, vel compressis. Fossilia Generum incognitorum, p. 33.

Vegetable
Vegetable Bodies dug up out of the Earth.

Leaves of Plants immersed in Stone.

a. 1. The Impression of part of a pinnated Leaf, resembling the *Osmanda regalis*, but somewhat narrower. Sent by Dr. Scheuchzer, with the Title of *Phyllitis in Cretaceo lapide Oeningensi ad Suevia*.

a. 2. A Leaf something resembling a small Bay-Leaf; sent by Dr. Scheuchzer under the Title of *Phyllitis ex Lapicidina Oeningensi ad Suevia*.

a. 2. Sent by Dr. Scheuchzer under the Title of *Phyllitis ex Lapicidina Oeningensi*. I confess I should rather think this the Leaf of some Tree of the Pear-kind.

† a. 2. Sent also by Dr. Scheuchzer with the Inscription, *Cassie Ligneae vel Canella; item Saliciis foliis in Lapide fissili Oeningensi, Dioecesos Conflat*). These Leaves seem to be all of a Plant of the same Species; and are much less than those of the Cinnamon or Cassia. They appear rather to be Leaves of some Tree of the Plum-kind.

a. 3. Three pinnated Sprigs of a Fern upon a grey Slate from Ilmenau. Sent by Baron Schonberg, Berghauptman, or Superintendent of all the Mines of Saxony, free Baron of the Empire, and Lord Chamberlain of the King of Poland.

Parts of Trees and Shrubs found buried under Ground.


Parts of Branches of Trees, and Shrubs petrified.

a. 25. A Piece of Wood, appearing to be Oak, petrified; from Virginia. Mr. Bird.

a. 26. A Piece of some geniculated Plant, about three Inches in length, and of an Inch in diameter, seeming to be part of a Sugar-Cane. 'Tis petrified. There is an Icon of a Body resembling this in *Aldrov. Museum*, p. 854. No. 2. which he calls *Caulis fasiculi petrificatus*. This was sent me by Signior Agostino Scilla, Author of the Book intitled, *Lettera circa i corpi marini petrificati*, 4°. in *Napoli* 1670. But this Body not coming to his hands till after that Book was published, there is no Icon, nor Account of it there.
a. 27. A Piece of petrified Wood, from Armenia. Mr. Barwick.

a. 28. A Body in some parts of a flakey, in others of a fibrous Constitution, with Veins of Spar in it. Found in a Lake in the Island Antegoa. 'Twas sent by the name of Petrified Wood; but whether it be really such or not, I have not yet had leisure to inform myself. It is harder than Porphyry.

a. 29. A Body of a fibrous and porous Constitution, with stoney Matter lodged in the Interfaces of the Fibres of it. Sent by Mr. Buckley from Fort St. George by the name of Petrified Wood. I have not time now to examine whether it be truly so or not.

Fruits dug up out of the Earth.

a. 33. Half a Cone, of the Pine-kind, seeming to be of the common Mountain-Pine, very fair, and well preserved, in the middle of a Piece of a hard brown Stone, found in Calabria. Agostino Scilla. 'Tis not in his Book.

Marine Animal Bodies dug up at Land.

Vermicularum Marinorum Tubuli.

e. 1. A very fair and large Tubulus of a Vermiculus. From Malta. There is along with it in the Stone, in which this Vermiculus lies, a Tooth of a Dog-Fish; and a Piece of the Spine of an Echinus, of that sort that is commonly call'd Bafioncinii di S. Paolo. Ag. Scilla.

e. 2. Another large white Tubulus, twirled round, in manner of a flat Cochlea; given me by Dr. Tennison, Lord Archbishop of Canterbury.

e. 3. Two others not unlike the precedent, but very small; sent by Dr. Scheuchzer with the Inscription, Tubulus marinus fossilis parus Cornu Ammonis instar in sepium revolutus, ex Comitatu Neocastrensi. Specim. Lithogr. p. 64. fig. 86.

e. 4. A fair spirated Vermiculus, with its Twirls running forwards much like those of the Buccina. From Malta. Ag. Scilla. This is not described in his Book; being not found till after that was published.

e. 5. A large Tubulus of a Vermiculus, straight; and seeming to have a Valve in it. Dug up near Bononia. Dr. Scheuchzer.

Patellae.

Dentalia.

Nautili.

7. 1. A Nautilus of the same Species with that found at Whiston in Lincolnshire, in the English Catalogue of my Fossils, d. 15. From the Mountains near Zürich. There appear linear Striae running along the back of it. This was sent me by M. Valkenier, Envoy of the States-General of the United Provinces to the Swiss-Canton.
γ. 2. A smaller, seeming to be of the same Species, only the linear Striae on the Back are wanting in this. Sent by Ag. Scilla, with the Inscription, *Configuratione di Gambro, con la Coccia di* fatta, *nel Isola di Malia.* Found since his Book was published.

γ. 3. Another, of the same Species; found near Zurich. M. Valkenier.

γ. 4. Another, of a more compressed Shape. From Malta. Ag. Scilla. Found since his Book was published.

**Ammonitæ.**

*Ammonitæ laves, nullis Strigis per latera transversim dulcis.*

γ. 5. Several Joints of a large Ammonites, in which the Sutures plainly appear. Found in a Valley among the Forest-Towns near Switzerland. M. Valkenier.

γ. 6. Two small Ammonitæ, appearing to be of the same Species with that found at *Alhampton* in Somersetshire, in the English Catalogue, *d. 25* x. From Altdorf. Dr. Leopold.

γ. 7. Another, little different, only this has a bright shining Armature upon it, and the Sutures are very conspicuous. From Switzerland. Dr. Scheuchzer.

γ. 8. Another. This is very fair, the Armature fine, the Sutures distinct, and terminates at a Diaphragm. 'Twas found in Burgundy in France. 'Twas of the same sort exactly with the foregoing; and there are of the very same found in Oxfordshire, Somersetshire, and other Parts of England. Dr. Scheuchzer.

γ. 9. Two small ones, having the Dorf sharp, and serrated; being of the same Species with that found at *Hannington* in Wilts-shire, in the English Catalogue, *d. 25* †. From Zurich. M. Valkenier.

*Ammonitæ lateribus strigatis, dorso lavo.*

γ. 10. Another, with undulated Sutures, placed very thick, and close together. From the Fields about Hesse-Caßel. M. Valkenier.

γ. 11. A small Ammonites, with the Dorfium very broad, and a double Order of Studs on the Sides. Found near Neufchàtel. M. Valkenier.

γ. 12. Another, very flat, the Strigæ on the Sides not appearing so plain as in the rest. Found in the Mountains near Neufchëtel. Mr. Valkenier.

*Ammonitæ, Strigis Dorfium trajicientibus, simplicibus.*

γ. 13. A Segment of an Ammonites. Sent by Dr. Scheuchzer, with this Title, *Strombità majoris secundum longitudinem striati Spira.* à *Comitatu Neocastrensi.* Specim. Lithogr. Helv. P. 59. Fig. 81.

Ammonites Strigos dorsum trajicientibus, bifurcatis.

y. 15. A Segment of a large Ammonites. Found in a Valley among the Foreft-Towns near Switzerland. M. Valkenier.

y. 16. An Ammonites, with the Strigæ placed very close together. Sent by Dr. Scheuchzer. Found near Basf.


y. 18. Another, with the Strigæ less, and closer. From the same Place. M. Valkenier.

y. 19. Another, with the Strigæ pretty large. From still the same Place. M. Valkenier.

y. 20. Another, with the Strigæ less, and closer together. From the same Place also. M. Valkenier.

y. 20 x. Another, little different. Burgundy in France. Dr. Scheuchzer. This Species is common in several Parts of England.

y. 21. Two small ones. Sent by Dr. Scheuchzer. From Switzerland.

y. 21 x. Another, of the same Species with one of the foregoing. From Burgundy in France. Dr. Scheuchzer.

y. 22. A larger, with the Strigæ pretty big, and high, of which some are bifurcated, and others not. Found near Neufchatel. M. Valkenier.

Ammonites, Strigos bifurcatis, dorsum trajicientibus, umbilicata.

y. 25. A large Ammonites, from St. Gall, in Switzerland. M. Valkenier.


Ammonites dorso acuminato absq. Sulcis secuadum Dorsum duftis.

y. 27. From Neufchatel. M. Valkenier.

y. 28. Another, less, from the same Place. The Ridge of the back in this is crenated, and there adheres to the middle of the Shell on each side a shining yellow Pyrites.

y. 29. Another, of the same Species, very fair, from the same Place. M. Valkenier.

y. 30. Another, with the Ridge not near so much crenated. Found near Altdorf. Dr. Leopold of Lubec.

y. 31. Two others, with the Strigæ smaller, and closer set. Found near Neufchatel. M. Valkenier.

y. 32. A small Ammonites, with the Strigæ fewer, but larger. From the same Place. M. Valkenier.

y. 33. Another small one, found near Zurich. Dr. Scheuchzer.
Ammonita Sulco unico per Dorsum ducito.

Ammonitarum Fragmenta, & Impressiones.

γ. 34. A Joint of an Ammonites, found near Neufchatel. Sent by Dr. Scheuchzer under the Title of Ceratoidis articulus. Specimen Lithogr. Helv. pag. 59. fig. 83.

γ. 35. An Impression of the Outside of an Ammonites upon Stone, very fair, exactly like those two found in Northamptonshire, in the English Catalogue, d. 98. & d. 99. and made by the Shell of an Ammonites of the same Species. From Neufchatel. M. Valkenier.

AURIS MARINA.

NERITÆ.

COCHLÆ.

γ. 50. A Coclites, of a compress'd Figure. Found near Neufchatel. M. Valkenier.

γ. 51. Another, very fair, with part of the Shell on, and the Clavicula more rais'd. Sent by Ag. Scilla; and seems to be that figured in his Book, Tab. 16. Fig. 2.

γ. 52. Another, found near Neufchatel. M. Valkenier.

γ. 53. Another, very fair. Sent by Ag. Scilla, from Calabria, but found since his Book came out.

γ. 54. Another, large. Found near Neufchatel. M. Valkenier.

γ. 55. Another, very small. Sent by the same Person, from the same Place.

γ. 56. Cochlea tenuiter secundum orbes striata, clavicula medio-eriter produita. The Species is sometimes found upon the Shores of Maryland; but this was dug out of the Ground, with other Shells, and Teeth of Fishes, &c. at a great distance from the Sea. Sent by Mr. Jones, a Clergyman in that Country.


γ. 60. A Coclites, sent by Dr. Scheuchzer, with the Inscription, Buccinates, ex Territorio Sangallensi.

TROCHI.

CONCHÆ VENERIS.

CYLINDRI.

ROMBI.

CONCHÆ PERSONÆ.

BILINGUES.

BUCCINA.

γ. 100. Buccinum, clavicula brevi, Strigis 4. secundum testa vo-

justum eminentibus. Found with γ. 56. in Maryland.

γ. 100*. Another of the same sort, and from the same Place. This has the upper Shell of an Oyster adhering to it; and is so broken,
broken, as fairly to shew and expos’d its internal Constitution. William Vernon, A. M. Fellow of Peter-House in Cambridge, found it in Maryland.

\( \gamma \) 101. *Buccinum tuberculis parvis frequentibus asperatum clavicula producât.* Dug out of the Cliffs of the Baltic-Sea. There are two Samples of this Species.

\( \gamma \) 101x. *Buccinum parvum verrucosum, clavicula producât.* Ex Agro Moguntino. Dr. Kifner.

\( \gamma \) 102. *Fragments of a Buccinum leve, clavicula producâtis.* From the Cliffs of Cheapspeak-Bay, below Herring-Creek, on the Western Shore of Maryland. Dr. Krieg of Riga.

\( \gamma \) 103. *Buccinum, clavicula producâtis.* Voluntis timidioribus, sriatis. Maryland. Mr. Vernon.

\( \gamma \) 104. *Cochlea, clavicula producâtis,* requiro, cancellata. Dug up near Bononia. Dr. Schenckzer.

**Purpurae.**

\( \gamma \) 110. A small *Purpura.* Found near Neuschatel. M. Valkenie.

**Umobilici Marini.**

\( \gamma \) 116. *Two Opercula of a Species of a Cochlea Marina.* These are commonly call’d by Naturalists Umobilici Marini. Sent by Ag. Scilla, with this Account, Pietre di S. Margherita, cioè Opercoli di Turbini, tronati con infiniti altri corpi di Mare fra terra nel Capo della Citta di Milazzo. Tab. xvii. A.A.

**Appendix.**

*Cochlea Terrestres, ex Tellure Effoss.*

\( \gamma \) 120. *Cochlea Terrestris interdum unicolor, interdum variegata, item varis fasciis depicta.* Lifs. Hist. Conchyl. No 54. This here has a single narrow Fascia, and was dug up ---- Fathom deep, in sinking a Well at Strasbourg. Mr. Meiinoth.

\( \gamma \) 121. Another, that seems to be of the same Species. This has several Fascie upon it. Found near Frankfurt on the Main; and sent by Dr. Kifner, with this Title, *Cochlea fossilis terrestris.*

**Conchæ, Bivalves, Pectines.**

3.1. A convex Shell of the *Pecten magnus fabrensis,* &c. No 2. Lifs. Hist. Conchyl. which Species, as Dr. Liffer obieves, is found in the Mediterranean-Sea. This was dug out of the Rocks near Cadiz, in Spain, where were many more of the same sort: as also several others. Brought to me by Mr. Clarke.

3.2. A small Pecten, with both the flat and the convex Shell. Found in Arabia Deserta, by Mr. Henry Morley, who observ’d many Fossil-Shells daily as he pass’d along in that Country. Con- ser. 5. 116. infra. This very ingenious Gentleman, Brother to Sir Robert Morley Baronet, traveled through, not only Italy, and other the more civilized Parts of Europe; but likewise, so great
was his Curiosity, and desire of Knowledge, through Egypt, Arabia, and several other Parts of Asia, where few Europeans besides have ever been.

3.3. The convex Shell of a Pecten, seeming to be of the same Species with that 8. Found near Neufchatel. M. Valkenier.

3.4. The convex Shell of a small Pecten, very fair. From Calabria. Agost. Scilla. This was found since he set forth his Book.

3.5. Thirteen very fair and entire Shells of a Pecten inequaliter auritus. Dug up in Maryland, and sent thence, some by Mr. Jones, others by Mr. Vernon. The biggest is 5 Inches and ½ in length; the rest of several Sizes, less and less, to the last, which is not half an Inch long. They seem to be of several Ages: and the Growth of different Years. There are both of the upper and under Shells. Some of them have Balani, and other Shells adhering to them: as also a thin reticulated Body, found commonly upon Shells at Sea.

3.5 x. Pecten fulcis inequaliter patentibus. Dug up near Bononia. Dr. Scheuchzer.

3.6. A Pecten, found 3 Miles from the great River Chaplank, which is 24 Miles from Chesapeake-Bay. Dr. Krieg.

3.7. One Shell, of a very small Pecten, sent by Dr. Scheuchzer, under the Title of Pectinipes rarioribus frisi. Lit. Hist. Tit. 48. In Lapide arenoso ferrugineo, ex agro Altdorfiico Territorijs Norimbergensis.

Pectinipes Affinis Ctenoides.

Conchylium hoc duabus testis constat: auritus, altera plana, altera convexa admodum, medio dorso depressiores, rostro adnisco. The Shells 402, 403, 404, 409, 412, 413. in the English Catalogue belong to this Genus. Those were not so well freed from the Stone, in which they were originally lodg'd, that I could so clearly discover all parts of the Shell, in order to enable me to ascertain and make a right Judgment of the Kind, as I could in the two following, when they afterwards came to my Hands. That Over sight therefore ought to be corrected in that Catalogue.


3.16. Another, of the same Species. Sent by Dr. Kijner, with this Account: Repentiuntur Bounding in Comitatu Budingensi, in ter va lateritia; & a uniglo circaur Kretzstein, ac si diceret, Lapide Buponum.

Sphondylis.

3.20. A large Sphondylus. Found in a Valley among the Forest-Towns near Switzerland. M. Valkenier.

3.21. Part of a large Sphondylus, with the Ridges big, rising and round, and at last standing off from the Shell in a tubular Form. Sent by Dr. Scheuchzer, with this Title, Concha Peffiler, in Territirio Basilienfi, que illustrat doctrinam de Bolemmitis. By Pp4 which
which he seems to believe the Belemnita only Parts of this Species of Shells. But a little further Observation would have shewn him that was a great Mistake.

3.22. One of those Tubular Bodies, separated from a Shell of the same Species.

**Margaritiferae.**

**Ostrea.**

3.35. An Oyster, with both the Shells join'd together; found in the Deserts of Arabia, by Mr. Henry Worsley. Vid. 3.2. supra, § 116. infra.

3.36. A single Shell of an Oyster; from the same Country. Mr. Worsley. "Tis the lower, or concave Shell.

3.37. Another, being the upper or flat Shell. From the same Place.

3.37*. The concave Shell of an Oyster, little different from the common English Oyster; appearing to be eroded in some parts by Worms. Dug up in Virginia. Mr. Banister.

3.38. The flat Shell of an Oyster; from the Rocks on the Shores near Cadiz in Spain. Found along with the Scallop, 3.1.

3.39. Two small Oyster-shells, found near Neufchatel. M. Valkenier. There are of this very Species found commonly in England, and particularly about Marston in Northamptonshire. See the English Catalogue, f. 128.


3.41. Another, sent by the same Person, from the same Place.

3.42. Another, of a more oblong Shape; and which seems to be of a different Species. Found near Neufchatel. M. Valkenier.

3.43. Another, found near Lutgeren, in the County of Baden. Dr. Schneckzer.

3.44. Another, found in the Country about Neufchatel. Sent by Dr. Schneckzer, under the Title of Chama Fossilis. Spec. Lithogr. p. 55. § 75. "Tis pity this very learned, ingenious, and inquisitive Gentleman had not, with greater Accuracy, adjusted the Kinds of the Fossil-shells he has publish'd in his Book. There are but too many Instances of his Inadvertency in this respect; of which this, of ranking a Shell that is incontestably of the Oyster-kind among the Chama, is one. All those which he has done me the favour to present to me, I have here taken care to reduce to their proper Classes and Tribes.

3.45. Another, very large, and thick; from the Island of Gaza near Candy.

3.46. An Ostracites, of an oblong Shape; found near Neufchatel. M. Valkenier.

**Ostrea Arborea quibus seilices Margines dentati sunt.**

3.56. A very fair and entire Pair. Found in the Chalk-pits in Languedoc. Mr. John Locke. A Shell of this Genus is call'd Rafzellin Lapis, by Dr. Lister, Hist. Conchyl. Tab. 486.
Another Pair, found in a Valley among the Forest-Towns near Switzerland. M. Valkenier. Shells of this very Species are found in Northamptonshire, Lincolnshire, &c. See the English Catalogue, f. 172. & seq.

Another single Shell, of the same Species, found in the same Place. M. Valkenier.

Another, that appears to belong to this Genus; but the Edges of the Shell are broken off. Found near Neufchatel. M. Valkenier.

Another, less, of the same Species with the last. Found in the same Place. Sent by Dr. Scheuchzer under this Title, Concha lapidea curvirostro rugosa & tuberculis quandog; munita, dorso elatiore. Spec. Lithogr. p. 56. fig. 77.

Recuvirostra.

A very fair one, with both Shells; found in the Dutchy of Wurttemberg. M. Valkenier. Many of this very Species are found in England. See the English Catalogue, f. 181. & seq. One of this Species is figured in Dr. Linster's Hist. Conchyl. in his Chapt. De Conchitis Bivalvibus, Fig. 38.

Another, of a different Species, growing gradually broader towards the Margins. Found in the Dutchy of Wurttemberg. M. Valkenier.

Another small one, found in the Canton of Bern, sent by Dr. Scheuchzer, under this Title, Conchites Anomius rugosus rostro subvereti & insigniter adunco donatus. Lifs. Tit. 4, 5.

Anomiae.

A large Pair, smooth, and not finuated in the Margins. Found near Neufchatel. M. Valkenier. This Species is found in Gloucestershire.

A Pair less. Ex Territorio Biennensi. Dr. Scheuchzer. This Species is common in Gloucestershire.

A Stone form'd in a small flat Shell of this kind, found in the same Place. M. Valkenier.

A Pair of Shells of this kind, found in Mount Leger near Zurich. Sent by Dr. Scheuchzer under this Title, Conchites Anomius rostro prominulo & veluti pertuso donatus, List. Tit. 46. This Species is found frequently in Gloucestershire, and the neighbouring Midland Counties of England.

A small one, found near Neufchatel. M. Valkenier. This likewise is common in England.

Two Pair, of an oblong Shape, with the Margin finuated. Found in great plenty on the side of an Hill near Neufchatel. Sent by Dr. Scheuchzer, with this Title, Concha rario Anomia vertice rostrato Columna de Purpura. These are also common in England.

Another, of the same Species. Ex Territorio Biennensi. Dr. Scheuchzer.
8. 75. Another Pair, larger, but of the same Species; from the same Place.

8. 76. Two others, of a Species something different; from the same Place.

8. 77. Two small ones, finely striated, with the Margins not sinuated. Found on Mount Leger near Zurich. Sent by Dr. Scheuchzer, under this Title, Petrunculites parvus striis capillaribus notatus. Spec. Lithogr. Fig. 29. p. 23. This Species is likewise found in the Cliffs of Sheppy-Island. See the English Catalogue, f. 321.

8. 78. Four sulcated Anomia, with a sinuated Margin. Sent by Dr. Scheuchzer, under the Title of Conchita seu Petrunculita striata ex Monte Legerio Helvetia. This Species also is found commonly in the middle Parts of England.

8. 79. Another of the same Species, found in a parcel of Lapis Judaicus, brought from Syria.

8. 80. Another, with the Margin but very little sinuated. Found near Neufchatel. M. Valkenier.

8. 81. Three others, of which one appears to be compress'd by some external Force. From the same Place. M. Valkenier.

8. 82. Two more, very large, from the same Place. Dr. Scheuchzer.

8. 83. Two less, and much sinuated; from the same Place. This Species is very common over all the middle Parts of England.

8. 84. Two others, from Dr. Scheuchzer, with this Title, Conchites striatus striis eleganter expressis armatura Margaritarum similis splendens, seu Petrunculites subpharicus, Listeri Tit. 25. ex Comitat. Neocaffrensi. These are found commonly in England.

8. 84 x. Two of the same Species: ex Territorio Bienensi, Dr. Scheuchzer.


8. 87, 88. Two Stones, seeming to be form'd in Shells of the Anomia kind. Sent by Dr. Kijfer, with the Title of Hystrolithi ex Vinetis Lohensteinensiibus. Wormij Mus. pag. 83.


DENTICULATE, &c. Petrunculi Leptopoly-Ginglymi Listeri.

8. 95, 96. Two Shells of this Kind, found near Mentz. Sent by Dr. Kijfer under this Title, Concha fossiles striata & fasciata. The Shells are thick, and the Striae pretty deep, otherwise they differ not from the Species dug up in England, in the English Catalogue, f. 418, which are also now found living upon our Coasts.

8. 97. Another, of the same Species, found at Weinheim in the Palatinate. Dr. Leopold.

8. 98. Another, very perfect, and fair. Found near Neufchatel, M. Valkenier.

8. 98 x. Two others, little different, only the Denticuli are smaller, and the Shells thinner. Maryland. M. Vernon. They seem to be of that Species exhibited by Dr. Lister, under the Name of Petrunculus subrufus paululum finosius densi & leviter admodum striatus, Hist.
Dent. Conchyl. No. 76. Tab. 245. which is found commonly on the Shores of Jamaica.


Denticulae Figura oblonga.

3. 105. A Pair of that Species, which is call'd the Jamaica Cockle. Dug up in Maryland. Mr. Jones.

3. 106. A single Shell, of the same Species. Found in the same Place. Mr. Jones.

3. 107. An extreme small Shell, of the same Species, from the same Place. Mr. Vernon. This seems to be the Shell of a Creature very young, and not near arrived to a Year's Growth.

Pectunculi.

3. 110. A Pair of Shells, found in Calabria, very fair, and little different from the Pectunculus maximus subsufsus valde gravis. Liff. Hift. Conchyl. No. 108, which in his Hift. Animal. Angl. pag. 175, is call'd Concha e maximis admodum crassa rotunda ex nigro ruficentis. This Species is found living in great Numbers upon the Shores of Yorkshire: and is likewise commonly dug up at Richmond in Surrey. See the English Catalogue --- Ag. Scilla. It seems to be that figured in his Book. Tab. XV. Fig. 1.

3. 111. A single Shell somewhat more flat, otherwise little different. Found in Calabria. Ag. Scilla. Tab. XV. Fig. 2. This indeed seems to be the same with the English Pectunculus maximus subsufsus mention'd above. 3. 110.

3. 111* Another of a Form somewhat more oblong; otherwise little different. Maryland. Mr. Vernon.

3. 112. A Stone given me by Mr. Benj. Middleton, very perfect, and fair, form'd in a Pectunculus not much different from that 3. 111. 'Twas found in Barbadoes 192 Foot deep, in sinking a Well in Mr. Middleton's Plantation there, in the Middle of the Island, on a rising Ground, and call'd for that Reason, The Mount-Plantation. 'Twas lodg'd in a Stratum of Stone, of the same Sort with that of which this Body it self is compos'd. They sunk 60 Foot deeper (i.e. to 252 Feet) before he left the Island: but were not then arrived at the Spring. They don't usually find Water in that Neighbourhood till the Depth of about 50 Fathom. They every where find the Earth, from the Surface to the Bottom, dispos'd into Strata. He does not remember what Order they lay, but observed they consist'd of various Matter. For, besides the Strata of Stone, he took notice of Clay, Marl, and Sand. This Well cost 150 Pound, or thereabouts, sinking so far. There were great Numbers of these Conchites, some bigger to twice the Bigness of this, others much less: but all of the same Sort, and he observed no others. Not far from the said Well, blowing up a Rock, he formerly observ'd several of these Conchites also lodg'd in the Stone of that Rock.
3.113. Another lefs, found with severall more, about 10 Miles on this Side Trent. Mr. Ben. Middleton.
3.115. Four small flat ones, found near Frankfurt on the Main. Sent by Dr. Kipner.
3.116. A Stone form'd in a flattish Pectunculus. Found among several others of the same Sort, and Oyster Shells, &c. in Arabia Deserta, at 8 or 9 Miles Distance from the Red-Sea, between Tor and Sue. Mr. H.Worlcy. Conf. 3.2. supra.
3.117. A Shell of the Species in which the Stone call'd Bucardites is form'd. Found in Calabria, where they occur plentifully in the Fields and Mountains. Ag. Scilla. Tab. XVI. A.
3.118. The Stone call'd Bucardites form'd in a Shell of the same Species with the preceeding, and found in the same Place. Ag. Scilla, after his Book was publish'd.
3.119. A single Shell of a large cancellated Pectunculus, perfect and fair. Dug up in Maryland.
3.120. Another, lefs, of the same Species, from the same Place.
3.121. A Pair, of the same Species, very large, and having the Cavity filled with a brown Sand of the same Sort with that in the Stratum in which this and the other Bodies were bury'd. Out of this Sand I pick'd several small Shells and Fragments of larger, both Bivalves and turbinated. 'Tis observable, that there is in one of the Valves of this Shell a round Hole of that Sort that is commonly made by the Purpura in the Shells of living Fishes. That Creature thus bores and pierces the Shell, in order to prey upon the included Fish; which it does by passing its Tongue, which is hard, bony, long, and sharp for the Purpoze, thorough the Hole it has thus made. This Practice of this Creature was observ'd by the ancient Naturalists: and in particular by Aristotle and Pliny. ταῖς γὰρ πορφυρίαις τοσσαίην ἵχνη ὑφάνειν τοῦ τοῦ φαρίου [he is speaking of the Tongue] ἀλα καὶ τῶν μογκυλίων διαφανώς τὸ ἐκεῖκα, διὸ τῶν ἐκεί μόνς ὅς ἐνέλάξειν ἄνας, Aristotle. de Partib. Animal. L. 2. c. 17. versus finem. Pliny mentions the same thing. Lib. IX. Cap. 36. „Lingua Purpura longitudo; dice digitali, qua pastitur perforando reliqua conchylia: santa dicetur aculeo elf.” Tho' there be indeed so many others, that 'tis hardly needful, yet I chuse to take notice of this further Evidence, that these Fossil-Shells were the Covers of Animals that were once living: and the rather, to evince, that these have all the Proofs of that, that can be desired, or that those now found upon the Sea-Shores have. Besides this Shell here, the Pectunculus fuscusus p. 81. 3.98%. the Pectunculus fasciatus infra 3.122. the Pectunculus exigius 3.124. and the Tellina p. 95. 3.149. are all bored in like manner. There are in a Shell, of this very Kind, 3.119. supra. 2 like Holes, that are not pierced quite thorough the Shell. The Reason is, that Shell is very crafs, and thick;
so that the Animal, having long labour'd in vain, and without having reach'd the included Filh, delifted.


3.123. The opposite Valve of a lefser Shell of the fame Species. From the fame Place. Mr. Vernon.


C A R D I T E S,

Sive Pectunculi dorfo in utraque testa in aciem elato.


C U N E I.

3.130. A large Stone form'd in a Shell of this Genus, with great Ridges running from the Cardo to the Margin. From Neufchatel. M. Valkenier. This is of the very fame Species with those in the English Catalogue, f. 550. &c. seqq. which are found plentifully in Gloucestershire.

3.131. Another of a longer Shape, and having the Ridges less. Found near Neufchatel, sent by Dr. Scheuchzer under the Title of Conchites ab uno Cardinis latere brevissimus, ab altero longissimo excurrens, striatus. Spec. Lithogr. Helv. Pag. 54. Fig. 74.

3.132. A Stone very fair and entire of that Genus which Dr. Plot calls Hippoccephaloides. The Margin of this Stone is very finely undulated. Found in the Dutchy of Milan by Ag. Scilla, after his Book was publish'd.

3.133. A Stone form'd in a Shell of this Genus, found near Basil. Dr. Scheuchzer. This is of the very fame Species with those in the English Catalogue. f. 572. found in Gloucestershire.

3.134. A smaller Stone, with Part of the Shell yet remaining. Found near Neufchatel. M. Valkenier. This is of the fame Species with that in the English Catalogue, f. 541.

3.135. A small one sent by Dr. Scheuchzer under this Title, Conchita bivalvis curvirofler Strijs obliquis crassioribus veluti cosflis donatus, Spec. Lithogr. Helv. pag. 58. fig. 79. ex Comir. Neocastrensi. This is a Species of that Genus which Dr. Plot calls Hippoccephaloides.

3.136. Two small ones found near Neufchatel. M. Valkenier. This is of that Species in the English Catalogue ---------- being found commonly in ------

3.137. A large Stone fasciated, having fair Ridges running parallel to the Cardo. Found in a Valley among the Forest-Towns near Switzerland. M. Valkenier. This is of the fame Species with that in the English Catalogue, f. 614. being found commonly in several Parts of Gloucestershire.
Tellinæ.

3. 145. A very large Tellinoïdes, with Part of the Shell yet remaining upon it, found near Neufchatel. M. Valkenier.
3. 146. Another lefts from the same Place.
3. 147. The Shell of a very small Tellina. Maryland. Mr. Vernon.
3. 149. Tellina, magna, crassa; Dentibus, & Sinibus adversis, ad Cardinem solito majoribus. Maryland. Mr. Jones.

Musculus; s. Fluviatilis, cardine non dentato.

Ctenoides.

Mithylus, seu Musculus marinus.

3. 160. A small one, very slender, found near Verona. Ag. Scilla, since his Book came out.

Solenes.

Chamae.

3. 170. Chama pholas livias ex altera parte obsfusus seabar five rugosus. Liff. Hist. Conchyl. No. 269. Dug up in Maryland, Mr. Jones. This Species is at this Day found living on the Coasts of England.
3. 172. Dug up in Maryland, Mr. Jones. This seems to be the Chama angustior ex altera parte sinuosa. Liff. Hist. Conch. No. 265. which is found in the Seas about Barbadoes.

Imbricatæ.

Pinneæ.

3. 185. Part of both Shells of a large Pinna marina, sent by Ag. Scilla with this Title, Punta de Penna Marina & altri frantumi trovavata nel Monte Mario di Roma, il quale è composto di simili coccia marine. In the Stone that fills up and also adheres externally to this Pinna, are found other small Shells: and particularly several very fair Peçtines. This came not into Ag. Scilla's hands till after he had finished his Book: and therefore is neither described nor figured there.

Trivalves. Ostreoides.

Pholades.

QUINQUEVALVES.

ANATIFERÆ vulgo dīcta, seu BERNICLE.

MULTIVALVES. BALANI.

§ 20. Five or six of the common West-Indian Balani adhering to each other, in the usual manner. Dug up in Maryland. Mr. Jones.

§ 21. Three Balani of the same Sort, very fair, intire, and all of the same Growth, and Size. Also from Maryland. Mr. Vernon.

ECHINI MARINI.

PARS I. Duobus in Testa foraminibus tuberculis in eorum superficie exiguis admodum SPATAGI dīcti.

SECT. I. Qui ad unum latus sulcum insignem habent, seu CORDIFORMES.

Artic. I. Foraminibus versus latera positis, uno sub fissura: altero, in latere opposito.

§ 1. An Echinus spatagus with the Sulcus or Fissure very large and deep. Sent by Ag. Scilla, and figured by him. Tab. VII. Fig. 1. with this Title, Echino spatago opppresso & petrificato in un tuso di Malta.

§ 2. Another of this Species, but less; from the same Place. Found by Ag. Scilla after his Book was publish'd.

§ 3. Another, of a Species different from the former, and seeming to be the same with that which is commonly found in the Chalk-pits of Kent, Essex, and other Parts of England. See the English Catalogue — — — — Found near Neufchatel. M. Valkenier.

§ 4. A Variety of the same Species with the precedent, found near Neufchatel: and sent by Dr. Scheuchzer under this Title, Echinites spatagites vel Brissoides bullatus & striatus. Spec. Lithogr. Helvet. pag. 61. fig. 84.

§ 5. Another of the same Species, but somewhat less; from the same Place. M. Valkenier.

§ 6. Another, sent by Ag. Scilla, and seeming to be that figured in his Book. Tab. X. Fig. 4.

§ 7 and 8. Two very flat ones, of a Species different from any of the former. Ag. Scilla. Tab. X. Fig. 1.

Artic. 2. Spatagi Cordiformes uno foramini in media fere basi, altero in ipso sulco seu fissura posito.

SECT. II. Spatagi nullo sulco laterali donati utrisque foraminibus in Basi Testa.

Artic. 1. Altero foramini in ipso basi margine, altero prope oppositum marginem sive GALEATI vulgo dīcti.
Art. 2. Spatagi altero foramine in Basis centro, altero in margine.

Divis. 1. — lineis foraminosis à vertice ad marginem productis.

Memb. 1. Figura Conoide seu PILEATI.

2.25. A Spatagites consisting of a yellowish Flint formed in a Spatagus Pileatus of the same Species with those commonly found in the Chalk-pits in Kent, Essex, and other Parts of England. See the English Catalogue —— sent from —— in Spain.


2.27. Another less, from Bleislorp near Neustadt in the Dutchy of Holstein. Dr. Leopold.

2.28. Another, somewhat different, from the same Place. Dr. Leopold.

Memb. 2. Figura compressa, seu DISCOIDES.

2.35. A very large one sent by Ag. Scilla. Found since his Book was publish'd. There are adhering to it the flat Shells of some Kind of small Bivalve.

2.36. A lesser, sent by Ag. Scilla, and figured in his Book. Tab. XI. fig. 12.

Divisio secunda. Spatagi linearum ordinibus à vertice ortis, sed ad marginem usque non pertinentibus.

2.42. A Spatagus extremly fair and perfect, of an oblong Figure, in the Shape of an Escutcheon. The upper Surface of it is rais'd into 5 Ridges, each of which is at the Bottom, almost encompassed by two Rows of small Lines. Sent by Ag. Scilla, and figured in his Book. Tab. X. Fig. 3.

Pars II. Echini, quibus unicum solammodo in Testa foramen est, idque in centro Basis pojitum.

Sect. I. Echini tuberculis admodum exiguis obstiti, cum linearum brevium ordinibus decem ad marginem usque non productis, sed eo modo dispositis, ut figuram in superficie ad Pentaphylli folium accedentem referant, ideoque

PENTAPHYLOIDES

hand inepte dici possunt.

2.50. One large, very fair, and entire, flattish towards the Margins, and rising in the Middle. The Teeth, as they are call'd, of this Echinus, are yet preserv'd: and appear standing round the Foramen in the Middle of the Shell. Sent by Ag. Scilla, who has given a Figure of it Tab. IX. under this Title, Echino detra dall Aldrovando Echino metra, &c. From Malta.

2.51. Another very beautiful and perfect, somewhat less with the Margin more sinuated, otherwise not different from the foregoing. Ag. Scilla.
7.52. Another likewise very entire and fair, more cupped and raised in the Middle than either of the precedent. There adheres to one side of this a very fair Scallop: and in several Parts of it a fine reticular Substance, which is found commonly affixed to Stones, Shells, and other Bodies in the Sea, and is generally thought by Naturalists to be the Remains of the Spat of some Kind of Fith. *Ag. Scilla.*

7.53. Another with the Surface smoother, the Margin thinner and broader, and the Body of it more depres'd. Sent by *Ag. Scilla:* and figured by him Tab.XI. (1) Fig. 3.

7.54. Another rising more equally from the Margin to the Middle. *Ag. Scilla.* Tab.X. Fig. 2. I saw a Shell from Sea in the Collection of Mr. William Cole of Bristol, of the same Species with this.

7.55, 56. Two others, broad, flat and smooth: with the Figure of a Cinquefoil very fair upon them, but small in Proportion to the Shell. From Malta. *Ag. Scilla.* Tab. VIII.

7.57. Another somewhat different. Dug up in Maryland. Mr. Jones.

7.58. Part of another, flat and thin; the Sutures very regular, and the Delineations upon the Plates extremely beautiful. Dug up also in Maryland. Mr. Vernon.

Sect. II. Echini, cum Tuberculis majoribus & magis eminenti-bus, & Linearum seu Tuberculorum ordinibus a vertice ad Os pertingentiibus, Ovarium dicti.

7.65. An Echinus Ovarius very beautiful and entire with the Mammilla & Papilla or Tubercles upon them very large: and five single undulated Rows of small transverse Lines, reaching from the Top to the Mouth or Hole at the Basis of the Shell. Sent by *Ag. Scilla.* Tab. XXIV. Fig. 1. under the Title of *Echiroides di mare petrificato & conservario* Delle colline di Meffina. We find of this Species in the Chalk-pits of Surrey, Kent, and Essex. See the English Catalogue b. 207, & seqq. The Creatures whose Exuviae these are, are found living at this day in several Seas. I have a very perfect and entire Shell of this very Sort from the East-Indies.

7.66. Another of the same Species with 2 Spines belonging to the Shell in the same Mass of Stone. *Ag. Scilla.* Found since his Book came forth: and therefore not figured or described in it.

7.67. A Mass of Stone with Part of a Shell of the same Species with the former, but much larger. There is in the same Stone a Piece of a Scallop. Figured by *Ag. Scilla,* Tab. XXIV. Fig. 2. under the Title of *Masse di Malta bianco, con parte d'isrico, ed una spinina dell' isefio.* Though he mentions a Spine in the Description, and exhibits one in the Figure, yet in the Stone none appears.
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2.63. A Mass of Stone, with several Spines of Echinus in it, and Part of an Echinus of the Species preceding: as also a small one entire of a Species somewhat different. *Ag. Scilla*. Tab. XXIII. Fig. 2. From Messina.


2.70. Several Segments and Plates of Echinus of the same Species with 2.65, parted at the Sutures. *Ag. Scilla*. Of these he has figured two Plates. Tab. XXIII. Fig. 3. under the Title of Mammelle da Malta.

2.71. The Impression of a like Plate, or Mammillæ, upon a grey Flint. *Ag. Scilla*. Found since his Book was publish'd.

2.72. An *Echinus Ovarius*, very fair, and of a Figure more rais'd than 2.69, being indeed of a different Species, as wanting the five undulated Rows or small Lines which are in all the preceding Species, and having the Mammillæ much less. *Ag. Scilla*. Tab. XIII. Fig. 1. From Messina. To the Bottom of this adheres a small Shell seeming to be of the same Species.

2.73. Another, of the same Species, compres'd by some external Force. *Ag. Scilla*. Tab. XXVI. Fig. 1. From Messina.

2.74. Another of the same Species, also compres'd, but in a different manner. From the same Place. *Ag. Scilla*. This seems to be that figured by him, *Tab. XXVI. Fig. 2*.

2.75. Another compres'd in a still different manner. From the same Place. *Ag. Scilla*. Tab. XXVI. B.

2.76. Another differently compres'd, from the same Place. *Ag. Scilla*. Tab. XXVI. Fig. I ut.

2.77. A small Echinus of a Species somewhat different from the preceding. From Neufchatel. Mr. Valkenier.

2.91. A Spine of an Echinus in a Mass of Stone. *Ag. Scilla*. There are in the same Mass Fragments of several Mycetitæ not unlike that exhibited by him in the Stone. Tab. XXIII. Fig. 1. under the Name of Poro.

2.92. Several Spines of *Echinus Ovariij*. *Ag. Scilla*. Tab. XXIV. Fig. 3. under the Title of Spine *d'ifrice petrificata, dette in Malta dal vulgo, Basioncini di S. Paolo.


2.94. Another Spine of a different Echinus from the same Mountain, Dr. Scheuchzer. This Sort is also not uncommonly met with in the Quarries of Oxfordshire, Gloucestershire, and Northamptonshire.

2.95. Four others from Neufchatel. M. Valkenier.

2.96. Two Spine of Echini, very thick, of an oval Shape, and like those brought from *Syria*, under the Name of *Lapis Judaicus*. Found near Neufchatel. M. Valkenier.
A great Number of Spines of Echini of different SIZES and Figures; brought from Syria, under the Name of Lapis Judaicus. These Bodies were by Naturalists ever reputed mere Stones; but in a Lecture that I read publickly in Gresham College, May 19. 1693, I demonstrated them to be Spines of Echini, to the full Satisfaction of the Auditory.

Joints, and Parts of Bodies, belonging to Marine Animals related to the Echini.

1. A Joint of an articulated Body, sent by Dr. Scheuchzer, under the Title of Dolioli figura Lapillus. Specim. Lithogr. Helvet. pag. 5. fig. 7. From Mount Leger near Zurich. This Body is commonly dug up in the Chalk-pits of Surrey, Kent, and Essex. See the English Catalogue.


3. A small Body thick set with little Cavities on one Side, and a pentagonal stellar Figure on the other. Sent by Ag. Scilla, under the Title of Animalia marine curiosissimo petrificato. From Messina.

4. An oblong bony Body: frigated in a various manner, but chiefly transversely. Dug up, with the Lapis Judaicus in Syria.

ENTROCHI & TROCHITAE.

1. The Head of an Entrochus, consisting of five Plates of the Shell to which it originally adhered: and several Joints or Trochi, rising from it. Dug up with the Lapis Judaicus in Syria.

2. Another like Head, but less: and without any Trochi joining to it. Sent by Dr. Scheuchzer with the Title of Modiolus Stellatus. Spec. Lithogr. Helvet. pag. 10. fig. 13. From Mount Leger.

3, & 4. A Trochus, and several Joints of an Entrochus, united in one round Column, both dug up, along with the Lapis Judaicus in Syria.

5. Entrochi from Hefs-Cassel. Mr. Valkenier.

6. Trochites Hildesianse. Dr. Kiihner.

7. An Impression of a Trochus upon Stone. Sent by Dr. Kiihner, under the Title of Trochita Matrix in Silice fluviatili prope Confluentes. Coblenz.

ENTROCHO-ASTERIAE.

Quippe que forma sunt Cylindracea, ursi Entrochi: sed sciet Ateriae in angulorum articulorum urag superficie Stellam pentagonam exhibent.

1.2. Several Joints of *Entrocho-Asteria*. Sent by Ag. Scilla, with the Title of *Varij Stelletti marini petrificati trovati in Malta*. Found after his Book was publish'd.


**ASTERIÆ.**


**B.** 2. *Asteria* from Malta. Ag. Scilla. Sent with the *Entrocho-Asteria*. No. 1, 2. under the Title of *Varij Stelletti marini petrificati*. Found after his Book was publish'd.

**CRUSTACEA.**

A. 1. A Crab little different from the common Sea-Crab living upon our Coasts. Given me by Mr. Charlton alias Courten, who said it was brought him from Persia, digg'd up there: but he did not enquire in what Part of that Country.

A. 2. Some Parts of the Shell of a Crab with the Chelæ or Claws, one of them pretty large: and Part of two of the Legs thick set with little Knobs as is usual in this Kind. Sent by Ag. Scilla, under this Title, *Granchio petrificato e mezzo disfatto dal Ifola di Malta*. 'Twas not found till after his Book was publish'd.

A. 3. Another Claw of a Crab almost entire. Ag. Scilla. Found near Messina: and figured in his Book. Tab. XIX. Fig. 1.

A. 4. Part of the Claw of a Lobster. Ag. Scilla. Found in the Island of Malta, after his Book was publish'd.

A. 5. Two Small Bodies, seeming to be the crustaceous Flaps of the Tails of some Fish of the Lobster-kind. From Malta. Ag. Scilla, after his Book was publish'd.

**PISCES corumque PARTES.**

**FISHES in Stone.**

μ. 1. A scaley Fish with a forked Tail, about 7 Inches long, and near two Inches over where thickest. The Head, one of the branchial Fins, and the Body with the Scales and Tail, appear all very fair. It lies in a blackish ponderous hard Slate, [the Germans call it Shiver-stone] dug up near Ifeb in Thuringia. Given me by Mr. Godfrey; to whom it was presented by Dr. Hoffman, Publick Professor at Hall in Saxony.

μ. 2. Another, 6 Inches long, of a more slender Shape than the preceding, dug up also near Ifeb. M. de Schönberg.

μ. 3. Another little different, sent by Dr. Kissner, with this Title, *Lapis fissilis Ifebianus, Pisces Lineamenta ex Pyrite constantia referens.*
(21)

\[ \mu.4. \] Another also from \textit{I}leb. The Body of this is fair: but the Head is wanting. \textit{M. de Schonberg.}

\[ \mu.5. \] Another, in which the Tail, and, at about 2 Inches Distance, the two opposite Fins both appear. In this the Slate is broken: and the former Part of the Fish wanting. From \textit{I}leb. \textit{M. de Schonberg.}

\[ \mu.6. \] Another, not much different, from the same Place. \textit{M. de Schonberg.}

This and the foregoing Fishes from \textit{I}leb are all upon a ponderous Slate of a dusky blackish brown Colour, hard, and seeming to hold some Metal. The Fishes upon this Stone are all so thin, and flat, and have taken up so little room in the Stone, that they appear to be only the Skins or Exuvia, rather than entire Bodies of Fishes. But that is the least strange, when 'tis known how easily the Bodies, and even the very Bones of some Fishes, liquefy and dissolve. And indeed these are found lodged among metallic and mineral Matter: and particularly Marcasite, which is compos'd of Arsenic, Sulphur, Vitril, and other like Salts. Now these, when in Water, and in a State of Solution as they were, would together constitute a Menstruum that might contribute greatly to the Dissolution of the Flesh of these Fishes. And what renders this more probable, is, that they were sufficient in it for a considerable Tract of Time, before they settled down with that mineral Matter which compos'd the Strata, wherein we now find these Fishes inclosed. 'Tis known that the Fins, Tails, Skins and Scales of Fishes, consist generally of Parts much more tenacious and confident than the Flesh of them: and consequently would not be so easily wrought upon. Of all these the Scales are square, or rhomboidal: and do not terminate round as those of the common scaley Fishes usually do. Many of them are of the Complexion that they are of naturally, and whilst the Fish is living: I mean whitish, bright, and shining. Some indeed carry a Gloss of Purple, others of greenish or yellow; but whether that be natural, or owing to the Minerals among which they have been so long lodged, is not so easy to determine. The Scales in these are commonly very fair, plain, and well preserved: as are also, in most of them, the Tails, Fins, Heads, and Jaws, which indeed are the Parts that are the most hardy and durable. In those that came from \textit{Syria}, chiefly the Skeletons of the Bones, as likewise the Tails, and the Fins, are well preserved, and frequently Scraps of the Flesh, but always script of the Skin: nor do any Scales appear, either in those that here follow, or any others that I have seen.

\[ \mu.7, 8, 9. \] Three Skeletons of Fishes very fair with the Heads, the Gills, Scraps of the Flesh and the Tails. From \textit{--- --- ---} near \textit{Canabine, in Mount Libanus.}

\[ \mu.10. \] Another, likewise very fair, sent by \textit{Ag. Scilla}, with this Title, \textit{Pesci petrificato nell rocche della Citta di Baruta, i. e. Berytus, Phoenicia.}
A whitish sort of Slate, with the Skeletons, Tails, and other Remains, of two Fishes in it. From Tripoli dilforia, in the Province of Cafravan, in which they are common. Dr. Sherard.

A Piece of the same Slate, from the same Place, having on it the entire System of a small Fish, very fair.

Pi$cficulns in Lapide fijfjli, Vallis Bolca, Ditionis Veronesis. M. Bourguet.

Pi$cficulns ex Lapicidina Oeningensi, qua est in Ditione Con
stantiens. Dr. Scheuchzer. Their two Pieces of Stone were originally contiguous: and, being split, part of the Fish adheres to one Piece of the Stone, the rest to the other. The Fish is very fair, and well preserved.

Two small Star-Fishes in the whitish Slate, wherein the Skeletons of Fish are commonly found, in Canobine, on Mount Libanus. This was part of a larger Piece, whereon were Remains of several small Fishes.

Ova of Fishes in Stone.

A Mass of brown Stone, composed chiefly of small globular Bodies, appearing to be the Vesicula of the Ova of Fishes, filled with a very fine Sand. Sent by Dr. Scheuchzer, with this Account, Hammerites subflavi coloris ex Birfa Flumine. Spec. Lithogr. Helo. p. 40. fig. 22.


Another, brown. Sent by Dr. Kifner, under this Title, Hammerites, sou Meconites, subflavi coloris. Found near Frankfort on the Main.

Another, very hard, so as to take a fine Polish. Sent by Dr. Scheuchzer, under the Title, Marmor Hammiticum subflavi coloris, ex Raurica Valle. This appears to be part of a Nodule, or Pebble.

Bones, Teeth, &c. of Fishes.

Part of a large Tooth, round, and tapering. It seems to have been a Tusk of the Morfe, or Walrus, called by some the Sea-Horse. Sent by Ag. Scilla, under this Title. Ivorio calcinato del Tempo. trovata nella Cave di Malta e experimentato non inferiorre alla vero. He thought this part of the Tooth of an Elephant, as indeed these are generally reputed. I take them rather to be of the Morfe. This is certain, they are generally dug up along with the Teeth of Fishes, as also Shells, and other marine Bodies.

Part of another, lcs. dug up in the Dutchy of Wiertemberg, along with the Whale's Tooth. There are upon the Surface of it fuliginous or halirious Delineations of Shrubs, as likewise upon the Whale's Tooth. M. Valkenier.
\[ 23 \]

\[ \underline{\mu. \, 32.} \text{Two Pieces of a large Tooth, being broke off from one kept in the Duke of Wirtemberg's Museum, and presented by the Keeper to Captain Richard King, who gave it me. It was dug up in that Dutchy, probably along with the precedent; and has like Delineations upon it. The Keeper call'd it } \text{Ebur Fossilis; } \text{and thought it produced naturally in the Earth.} \]

\[ \underline{\mu. \, 33.} \text{Two other like Pieces. Sent by Dr. Sbeuchzer, with the Inscription, } \text{Unicornu Fossilis-Canaladentis. } \text{Dr. Spleifius has wrote a Treatise about this, and other Bodies dug up there, under the Title of } \text{Dissertatio de Cornibus } \& \text{Ossibus fossilibus Canadadentibus,} \]

\[ 40. \text{Scaph. 1701.} \]

\[ \underline{\mu. \, 40.} \text{A very large Grinder of some cetaceous Fish, weighing } ------ \text{ perfect and intire. Dug up in the Dutchy of Wirtemberg, along with } \mu. \, 33. \text{ M. Valkenier.} \]

\[ \underline{\mu. \, 50.} \text{Two Teeth of the common Shark, or } \text{Canis Carcharias. } \text{Ag. Scilla, Tab. III. Fig. 1. His Account of them is, } \text{Dente di Lamia petrificati detti Glossoporte ordinatamente raccolti in Sasso di Malta.} \text{ Both of them are finely serrated about the Edges, and have the Points inclining to one Side.} \]

\[ \underline{\mu. \, 51.} \text{A very large Tooth, of the same Species of Shark, perfect and fair, near } \frac{1}{5} \text{ Inches long, and almost } \frac{1}{4} \text{ broad at the Root. From Malta. } \text{Ag. Scilla.} \text{ Found since his Book came out. This is serrated in like manner, and inflected to one side, as are all the following, to } \mu. \, 57. \text{ inclusive.} \]

\[ \underline{\mu. \, 52.} \text{Another as perfect, and near as big; from the same Place. Given me by Mr. Samuel Doody.} \]

\[ \underline{\mu. \, 53.} \text{Another something less. Sent by Ag. Scilla, and figured by him, Tab. VI. Fig. 1.} \]

\[ \underline{\mu. \, 54.} \text{Another, still less than the precedent; but very fair. Given me by Dr. Tennison, Lord Archbishop of Canterbury, with part of the Stone in which it was originally lodg'd.} \]

\[ \underline{\mu. \, 55.} \text{Another, with part of the Stone in which it lay. } \text{Ag. Scilla, Tab. V. Fig. 2. from Malta.} \]

\[ \underline{\mu. \, 56.} \text{Another, exactly of the same Shape, but something less; Found in Virginia by Mr. Banister. Given me by Mr. Doody.} \]

\[ \underline{\mu. \, 57.} \text{Another, of still the same Shape, dug up in Maryland. Mr. Jones.} \]

\[ \underline{\mu. \, 58.} \text{Another, lying in the Stone, from Messina. This has a small Apophysis rising from the Root on one side.} \]

\[ \underline{\mu. \, 59.} \text{Another, slenderer, and not serrated on the Edges. Found by Mr. Banister in Virginia, and given me by Mr. Samuel Doody.} \]

\[ \underline{\mu. \, 60.} \text{Another, of much the same Shape, not serrated, with two small Apophyses from the Root on each side. Found in digging near Genet in Flanders.} \]

\[ \underline{\mu. \, 61.} \text{Five small Teeth, being those figured by Ag. Scilla, Tab. XIV. No} \, 1, \, 2, \, 3, \, 4, \, 5. \text{ and sent by him with this Account in writing; Cavate di mano del Autore nelle Colline di Messina.} \]

\[ \text{Q94} \]

\[ \underline{\mu. \, 62.} \]


\[\begin{align*}
\mu. 62. & \quad \text{Several Teeth also of Sharks, of various Sizes and Shapes. Found, some in } \textit{Malta}, \text{ others near } \textit{Messina}, \text{ by } \textit{Ag. Scilla}. \text{ See his Book, Tab. VII.} \\
\mu. 63. & \quad \text{A Tooth of a Shark, serrated on the Edges, and large, being above 4 Inches long, but not near so much inflected as the former all are, except some among those in } \mu. 61 \& 62. \text{ From } \textit{Calabria}. \text{ Found by } \textit{Ag. Scilla}, \text{ after his Book was publish'd.} \\
\mu. 64. & \quad \text{Another, in Shape little different, but less. From } \textit{Maryland}. \text{ Sent by Mr. Jones.} \\
\mu. 64^a. & \quad \text{Two more, of nearly the same Figure, and Size; but somewhat thinner and flatter. From the same Place. Mr. Vernon.} \\
\mu. 64^b. & \quad \text{Two others, less, and having the Cuspides a little inflected towards the Left-Hand. From the same Place. Mr. Vernon.} \\
\mu. 64^c. & \quad \text{Two, still less, with the Cuspides verging also the same way. These have the Edges smooth, and not crenated, or serrated. From the same Place. Mr. Vernon.} \\
\mu. 64^d. & \quad \text{Two, little different, only the Cuspides verge towards the Right-Hand. Also from } \textit{Maryland}. \text{ Mr. Vernon.} \\
\mu. 65. & \quad \text{Three small ones, sent by Dr. Leopold, with the Inscription } \textit{Glossopetra Luneburgensis}. \\
\mu. 66. & \quad \text{Two Sharks Teeth, near 2 Inches in length, inflected, not sideways, as several of the precedent are, but inwards. Dug up in } \textit{Maryland}. \text{ Mr. Jones. There are in the Collection } \mu. 62. \text{ from } \textit{Malta}, \text{ two that are exactly like these.} \\
\mu. 67. & \quad \text{Another, inflected in a manner different from all the foregoing, viz. outwards. 'Tis also a little twisted towards the Point. 'Tis one of the Fore-Teeth, or Appreheniories of a Fish, of the Shark or Dog-Fish Kind. } \textit{Ag. Scilla}. \text{ It seems to be that grave'd, Tab. VI. Fig. 4. under the Title of } \textit{Dente di Canicola}. \\
\mu. 67^a. & \quad \text{Another, less. } \textit{Maryland}. \text{ Mr. Vernon.} \\
\mu. 68. & \quad \text{Another like Tooth, but somewhat less. Found near } \textit{Neuschateli}. \text{ M. Valkenier.} \\
\mu. 69. & \quad \text{Another, still of the same Shape. Sent by Dr. Scheuchzer, with the Inscription, } \textit{Glossopetra Altezeiennes}, \textit{ex Palatinatu de quibus}. \\
\mu. 70. & \quad \text{Another, little different, only smaller. From } \textit{Maryland}. \text{ Mr. Jones.} \\
\mu. 70^a. & \quad \text{Two, smooth, slender, and a little inflected towards the Right-Hand; the Root large, with 2 Apophyfes arising out of it on each side the Tooth. } \textit{Maryland}. \text{ Mr. Vernon.} \\
\mu. 71. & \quad \text{A Tooth belonging to a Dog-Fish, of a Species much different from any of the forrenention'd. This Tooth is flat, and very broad at the Bottom; the Point not rising very high, but is hook'd or inclin'd to one side. 'Tis serrated all round: the Serratures are larger and deeper than in any of the former. 'Tis an Inch and a quarter in length, and very near as much between the two extreme Fangs of the Root. } \textit{Ag. Scilla}. \text{ 'Tis bedded on a softish Stone, which he calls a } \textit{Tophus}, \text{ in which it was originally lodg'd; and there adheres to one side of the Stone, a Piece of the Shell of a Pecten. } \textit{Malta}. \\
\mu. 72. & \quad \\
\end{align*}\]
p. 72. Another of the same sort; from the same Place. *Ag. Scilla*, after his Book was publish'd.

p. 73. Ten more of the same. *Maryland*. Mr. Jones, and Mr. Vernon. These are of several Sizes, and have the Culfides inflected, some towards the Right-Hand, and others towards the left, as is usual in the Teeth of the same Jaw, as they happen to stand of one side of it or the other.

p. 74. Another, of the same Shape, but with the Serratures considerably smaller, especially towards the Point. *Agf. Scilla*. From *Malta*.

p. 74*. Another, little different, but that the Serratures towards the Point are wanting in this Tooth; being perhaps only worn out by the chewing. Dug up with p. 73. in *Maryland*. Mr. Jones.

p. 75. Two others, small, with the Roots not so broad. From *Malta*. *Ag. Scilla*.

p. 75*. Sixteen small ones, of various Shapes. All dug up in *Maryland*. Mr. Vernon.

p. 76. Another an Inch and 3 quarters in length; thick with Tubercles in several Parts of it. The Edges in this are undulated, as well as serrated. Found near *Messina*, by *Ag. Scilla*, after his Book was out.

p. 77. Another, of a different Shape from any of the former; being very broad and thick at the Root; but the Body of the Tooth very short and low. This is serrated round the Edges. From *Calabria*. *Ag. Scilla*. Found after his Book was out.

p. 78. A Mass of Stone, with 2 large Teeth, each rising to an obtuse Point from a broad Bottom. These are serrated on the Edges; but the Serratures are deeper and grosier than in any of the rest. They lie both in the same manner, and on the same Plane: and there are some Remains of a third also in the same Plane, and at the same Distance. *Ag. Scilla*, Tab. xii. Fig. 1. His Account of it is *Tuso di Malta*, che contiene una parte di Ganafia con tre denti incassati & petrificati. There is a Seam in the Stone, which is, I suppose, what he imagin'd to be the Jaw of the Fish; but nothing like a Jaw appears here. And in truth the Teeth of Fishes of the Dog-Fish Kind, are never infix'd in their Jaws; being only held on by means of Muscles, so that they can move them, raise them on end in their Mouths, and lay them down flat again at pleasure.

p. 79. Part of the Tooth of a Fish that *Ag. Scilla* has given an Icon of the Head and Teeth of, Tab. xxvii. and of the Teeth more distinctly Tab. 1. He calls this Fish *Pesci Vucca*. This Tooth was dug up in *Malta*, where they are dug up in great Numbers. He has given a Figure of it, Tab. iv. Fig. 1. It is composed of several Spikes, rising from the Root in the same Plane, in a cris-tated Form.

p. 80. Two Teeth, an Inch and a quarter in length, somewhat inflected, of a conical Figure, and a brown Colour. From *Malta*. *Ag. Scilla*. One of them has some part of the Root remaining.
These were found since his Book came out. We dig of the very same not uncommonly in the Quarries of Oxfordshire, and Northamptonshire.

μ. 81. Another of the same sort, but smaller; with the Root depending from it intire. Malta. Ag. Scilla. He sent together with it, several Teeth of this very sort, out of the Jaws of a Species of Fish of the Wolf-Fish-Kind, taken in the Sea adjacent to Sicily. By this it appears, that the Tooth is join'd to the Root by a Suture.

μ. 82. Four others of the same Form, but much less. They are of a reddish brown Colour, but have the Tips or Points white. From Malta. Ag. Scilla, after his Book was publish'd. These are the Fore-Teeth of a Fish of the Wolf-Fish Kind, found at this day living in the Seas about Sicily. He sent me the Jaw of one taken there; of which he has publish'd an Icon, Tab. ii. Fig. 4.

μ. 83. Another, brown, in shape a little flattet near half an Inch long, the upper Part terminating in three Points. There adheres to this a Root of 1/2 of an Inch long. From the same Place. Ag. Scilla. Found since his Book came forth.

μ. 90. Several boney Bodies, from 4/10 to 5/10 of an Inch in Length, of a flatish Shape, the broadest near 1/10 of an Inch over. There run along the two opposite Flats of these Bodies, for their whole Length, parallel Lines; which seem to be so many Commisures, and so the Bodies compos'd of several Plates joining at those Lines. I have not seen any thing exactly like them; which is far from strange, considering the vast Diversitv of Marine Animals yet undescribed, and unknown, and how imperfect Accounts we have of the Parts of these that are known. These seem by their Structure, to have been of the Officula that are found in the Heads of some Kinds of Fishes, rather than Teeth. Dug out of the Earth in Malta. Ag. Scilla, after his Book was publish'd.

μ. 91. A Tooth, flat, and ending at the Top in an Edge, about 4/10 of an Inch in Height, and 1/10 in Breadth. It appears to be one of the Incifores, or Fore-Teeth of some Species of Lupus Marinus. Dug up in Malta.

μ. 95. A very elegant Body, boney, appearing to have been the Palate of some Fifth of those Kinds which have their Palates boney, which several have. It is compos'd of several thin Plates, placed edgeways by one another. From Malta. Ag. Scilla, after his Book was out.

μ. 100. A boney Body in figure somewhat approaching an Oval, about an Inch long, and 1 of an Inch over; consisting of several Tabellae placed horizontally one upon another, being compos'd of several small round Bodies, some of them white, others yellow, each about 1/10 of an Inch in Diameter. The Body is not equally thick in all Parts; and does not any where exceed 1 of an Inch in Thickness. This Composition, the Fineness of the Colours, the Smoothness and Politeness of this Body render it extremely elegant and beautiful. It seems to have been the boney Palate of some kind
kind of Fish. There are besides this three Fragments more of
the same sort, one of which I caus’d to be cut; and thence learn-
ed that it is very hard, and takes a good Polish. The upper Sur-
faces of these Palates are smooth, appearing to have been worn by
the maffication and chewing of the Fish; for in such Parts in
which the Plates are broken, or separated so as to discover those
round Bodies within, where they have suffer’d any Attrition, as
those in the Surface have, they appear to be each convex on one
side, and concave on the other, the lower Orders of them being
by that means inserted into, and join’d with the upper. From
Malta. Ag. Scilla after his Book was out.

u. 105. Several Parts of the boney Tongue of a sort of Paf
arinaca Marina, common in the Brasilian Seas, and call’d there Nari Nari.
These were dug up in Maryland. Mr. Jones. There is an Ac-
count of them in Philosophical Transactions, No. 232. p. 674.

u. 106. Another like boney Substance, either of the same Body,
or very like it, from the same Place.

u. 115. Teeth of the Lupus Piscis, both of the conick and of
the flat Sort; which last are usually call’d Bufonites. Dug up in
the Island Malta. Ag. Scilla. He has caus’d some of these to be
figured, Tab. II.

u. 120. Two little boney Plates lying in the Tophus in which
they were found. They were commonly dug up with the Bufo-
nitae, and both those and these are usually call’d in Malta, Occhij
di Serpenti. Ag. Scilla.

u. 130. Seven Bodies seeming to be Bone’s out of the Heads of
some Fishes. Malta. Ag. Scilla. Found after his Book was
published.

u. 135. A boney Body of the same shape with those found in
England, and commonly call’d Siliquastrum; but larger than they
usually are here. This was dug up in Syria along with the Lapis
Judaicus, and other marine Bodies.

u. 140. A boney Body of an irregular Figure, 3 of an Inch
long, and 4 of an Inch broad near the middle. Found near Riga.
Dr. Krieg.

u. 145. Four flat Bodies from 1 an Inch to an Inch and 1 2 in
length, of a comprefs’d Figure, and serrated on each Edge. Dug
up at Malta. Ag. Scilla; after his Book was out. These are not
unlike the Aculeus of the Pafarinaca Marina of that Species which
is call’d the Sting-Ray.

u. 150. Three concave Bodies pointed at one end, and gradually
expanding and enlarging quite to the other. Ag. Scilla. He takes
them for Rodhra, or Beaks of Polypi Marinii. He found them in
the Rocks near Messina, after his Book was published.

* A considerable Part of the Mouth of the common Thornback is
lined and covered with a Crust composed of small round Bodies, not
unlike these in shape, but they are thinner, and in only one single
Tabella.
μ. 151. Four bony Bodies, with the Rostrum less picked than the foregoing, much shorter, and the Roots of it very long, and expanded very wide. Messma. Ag. Scilla. Found since his Book came out.

μ. 152. A bony Body, channel'd, and somewhat inflected two Inches in length, of an Inch in breadth at one end, and gradually lessening to the other. Ag. Scilla. Tab. xiv. F. 4. There are along with this three others. He thinks them to be Roftri d'Animali Simili al Pelipo.

μ. 154. A small Piece of Bone, having its Surface of a green Colour, and its interior Parts of a blue; broke off from a much larger. That is throughout of the same Colour. It seems to be part of the scutellated Bone of a Sturgeon; being flat, of a porous or cellular Constitution on one side, tho' the Cells be somewhat worn down, and flattened; and smooth on the other. 'Tis about \( \frac{1}{10} \) of an Inch in thickness, 3 Inches long, and 1 Inch and \( \frac{1}{2} \) broad. Taken up near Henngrunde in Hungary; colour'd by the Water of the rich Copper-Mines. Given me by Dr. Edward Brown, President of the College of Physicians. Those Bodies that the Jewellers call Turcois-Stones, are no other than Pieces of Bones tinged blue by the Copper-Ore, amongst which they were lodg'd. These they cut, polish, and set in Rings. And indeed the same learned Gentleman, in his Travels, p. 68. informs us, that in those very Copper-Mines of Henngrunde, are Stones found of a beautiful green and blue Colour; and one fort upon which Turcois have been found, and therefore call'd the Mother of the Turcois. By this I am the better enabled to apprehend an obscure Passage in P. Poterius's Pharm. Spagy. l. 2. c. 25. where he says, that in the Cabinet of S. Cassiani del Pozzo at Rome, he saw " Turcois-Stones * made of " Ebur-Folite, exactly like the true natural Turcois, agreeing " with them in all respects, in Colour, in Hardness, and in Virt- " tues."

μ. 160. Six Vertebra's of the Back-Bone of a large Thornback, lying in Stone obliquely, and in a manner that shews they were put into it by some considerable Force. Sent by Ag. Scilla, with this Inscription, Vertebræ di Pescis imbus in se in flumina e lius. Found after his Book came forth.

μ. 161. A single Vertebra, near an Inch in Height, and \( \frac{7}{10} \) of an Inch in Diameter, appearing to be of some Fifth of the Dog-Fifth Kind. Ag. Scilla. Found in Calabria, after his Book came out.

μ. 162. Another, less. Ag. Scilla. Tab. xviii. Fig. 2.

μ. 163. Another, different, much like the Vertebres of Fish of the Ray-Kind. Ag. Scilla. Tab. xviii. Fig. 4.

* " Turchesiós Lapides, ex dicto Ebole factos veris, & natura-" "libus Turchinis Gemmis simillimos, atque in omnibus conve-" "nientes, Colore, Duritie, & Virtute praetanttes."
Another, large: hollow'd, or having a considerable cavity th'or' the Middle of it. *Maryland.* Mr. *Vernon.*

Another, large, solid, and not hollow'd; sent from the same Place, by Mr. *Vernon,* with the Inscription, *Vertebra lum-baris ad cujas latus foramina vascoliferà conficiuntur.*

Another, by the same Person, and from the same Place.

Three Pieces of Bones. *Maryland.* Mr. *Vernon.* These are much like those dug out of *Harwich* Cliff, in the *English Catalogue,* n. 2, 3, & seqq.

A bony Body, in Shape flat, and round; smooth on one Side, and rough on the other. "Tis near 2 Inches and an half in Breadth: and \( \frac{3}{4} \) of an Inch in Height. "Tis of a very porous Constitution. Sent from *Maryland,* by Mr. *Vernon,* with the Inscription, *Ithoeoleon, patellarum in modum ad Pinnas in suo loco retinendas & dirigendas, inserviens.*

Another like Body, but not half so big. From the same Place, and by the same Person.

**Bones and Teeth of Quadrupeds.**

The Bone of the Foot of a Horse, commonly call'd the Coffin-Bone. Found bury'd with several other animal Substances in the Dutchy of *Wurtemberg.* M. *Valkenier.* This being apply'd to the Tongue, sticks to it; a Property very observable in several of the bony Bodies which have lain many Centuries in the Earth, from which indeed they derive that Property, and have it frequently to as high a degree, as *Eolus Armonia,* and some other like Earths.

A Tooth of that Sort call'd, the Fang-Teeth, Eye-Teeth, or *Dentes Canini* of some Quadruped. It exactly resembles the Fang-Tooth of a Lion, which died in the Tower in 1684, now in the Custody of Mr. *Oldisworth.* It was dug up in the Dutchy of *Würtemberg,* along with \( \mu.33 \). M. *Valkenier.* The Tip of this is broken off.

A large Grinder appearing to be of a Horse, 3 Inches long, flat-tish, and above an Inch over. Sent by Dr. *Scheuchzer,* with the Inscription, *Unicornis fossile* *Dentis figura* *Canadienfes,* *vid.* *Spleisium de Offib.* *foss.* *Canstad.* 4°. *Scaph.* 1701.

Two Teeth, half an Inch long, slender and inflected, appearing to be the Inciòres or Fore-Teeth of some small Quadruped: Sent by Dr. *Kifher,* with the Inscription, *Dentes fossiles Canadienfes.* *Cont.* v. 25. supra.

**Corpora Marina prefectim Conchylia Massa Lapidea confertim immista.**

A Mass of a hard brownish Stone, with the Shell of a Land-Snail in it, of the same Species with that \( \gamma.121 \). This has several Fasciae in it. Dug up near *Frankfort* on the Main, and sent by Dr. *Kifher,* with this Title, *Cochlea fossiles terres­res Zeni­
nis distincta, una cum alijs Testaceis integris & confractis, Massa lapide immersa.

§. 2. Another Mafs with two of the same Cochleæ in it, and other Shells. Found near Frankfort. Dr. Kifner.

§. 3. Another, appearing to be of still the same Species, in a whitish Stone, in which are several other small turbinated Shells. Sent by Dr. Kifner, with this Title, Buccinacula candida in Massam friabilem congefa & Tartarea incrustatione veluti candidata. Ex Agro Moguntino.

§. 4. A Mafs composed of several turbinated Shells, each inclosed in an oval Crucif. Sent by Dr. Kifner, with this Title, Buccinacula aliaque testacea foßilia in Massam lapideam duram congefa, & Tartaro nigrante singula incrufata. Found near Frankfort.

§. 5. Small Cochleæ very numerous, in a Mafs of soft Stone. Sent by Dr. Kifner, with this Title, Buccinacula foßilia in unam Massam subflavam compaßt, ex Agro Moguntino. They are very numerous, the whole Mafs being composed chiefly of them.


§. 8. A Mafs that has been very thick set with little flat Pectun-culi, of which the Shells are now perifh’d and gone, but the Places they took up, and the Impreffions, appear every where very fair in the Stone. Found near Frankfort. Dr. Kifner.


§. 10. A Stone in which there have lain many very small Muscles. The Impreffions remain very fair; but the Shells are perifh’d. Found near Frankfort. Dr. Kifner.

§. 11. A ftony Mafs in which are lodged several Muscel-Shells. Sent by Dr. Kifner. Found near Frankfort.

§. 12. A small Scallop, with some other Shells, in a Mafs of brown Stone. Found in a Field not far from the River Great-Chaplank, 24 Miles from Chesapeak-Bay in Maryland. Dr. Krieg.

§. 13. Several recurvirotrated Shells of the same Sort, with that No. —— lodg’d in a brown gritty Stone. From Schafhufe in Swiferland. Mr. Valkenier.

§. 14. A Mafs of Stone of a dusky green Colour, with the Impreffion of a Pecten very fair upon it. The Shell is perifh’d: but there is the Place or Cavity where it lay. This Cavity exhibits both the Shape and Bignefs of the Shell with a very remarkable Exactness; and may pass for one of the very many Inffances and Proofs we meet with, that these Impreffions are all owing to Shells, and that the Bodies resembling them, which have been call’d by Naturalif, Pectinita, Pectunculita, &c. owe their Forms to Pectines, Pectunculi, &c. This Mafs was sent by Dr.
Dr. Scheuchzer, with this Title, *Conchites striatus Chrysoalga lapidea immentus. Ex Suilenium Alpibus.*

§. 15. Four Shells appearing to be of the same Species, lodg'd in the very same Sort of Stone. *Ex Agro Tigurino.* M. Valkenier.

§. 16. Impressions on the Convex or Out-side of three of the same Sort of Peclines, very fair, in the same Sort of Stone, and from the same Place. M. Valkenier.

§. 17. A Mass of a hard whitish Stone, in which are two or three Peclines, and many of the *Concha Anomia,* some of them broken, so as to shew Spar concreted and crystalliz'd in the Cavities of them, which is very common in this and other Shells. *Ag. Scilla.* He calls these Sparry Concretions in the Inside of the Shells, *Corpi di Peso petrificati,* and shew'd them to his Antagonists for such, when they demanded of him why the Bodies should not be preferred as well as the Shells. From Messina. This he sent me for the Mass exhibited, *Tab. XIX. Fig. 2.* But if so, he took a little too much Liberty in his Icon, there being several Things in the Figure which are not in the Body. But indeed their ill Usage and Exasperations of him, and his Zeal for maintaining his Argument, disposed him to take that Liberty in several other Particulars.

§. 18. A Stone having in it the Tooth of a Shark, and the Spine of an Echinus. *Ag. Scilla,* sent for that delineated by him, *Tab. VI. Fig. 3.* But if it be, he has taken the same Liberty in this that he did in the foregoing. From Malta.

*Testa aliisque Animalium Marinorum partes, Incerti Generis.*

0.1. A Body sent by Dr. Scheuchzer, under the Title of *Concha fossilis Tellinoides porosa.*

0.2. Two Bodies, each about an Inch in Length, of a conical Figure, but somewhat inflected, set all over with Scales, placed in a Quincuneus Order. *Ag. Scilla. Tab. XIII.* From the Hills near Messina.

0.3. Two Bodies of a Dilooid Form, convex on both Sides, being thicker in the Center, and lessening gradually till they terminate in an Edge quite round. They have crooked Lines rising from the Umbilicus on both Sides, tending to the Edge of the Body. They are about $\frac{4}{5}$ of an Inch over. Sent by Dr. Scheuchzer, under this Title, *Lentes lapidea striata utrincque conveca Lentibus vitreis [Conspicillorum] similes. Ex Alisssimis. Suiilenium Montibus.* *Spec. Lithogr. Helv. p. 31. fig. 44.*

0.4. Two others of the Bigness of the foregoing, and of the same Figure, except that they are convex only on one Side, being flat on the other, and on the Flat they have Circles within one another, from the Center to the Circumference. From the same Place. Dr. Scheuchzer. *Spec. Lithogr. Fig. 46, 47.*

0.5.
0.5. Five Masses of a dusky Grey-Stone in which are immers'd great Numbers of Bodies of the two Species before-mention'd, of several Sizes; some so small, that they are but just discernible, others near an Inch over. These are broken in such a manner, that the interior Composition of them is clearly discover'd: and they appear to be made up of several Caes inclosing one another, and all of the same Shape with the outermost. What these very strange Bodies are, and to what Use they have served, is not easy to determine: I have not yet met with any thing in Nature like them. They are of a bony Substamce: and if I may have the liberty to give my Conjecture, I should think them to be of those Bones that lie loose in the Heads of several Kinds of Fishes. There are in the same Stone some other broad and thin Bodies, which are of different Composition from those described, and seem to be made up of transverse Fibres. Sent by Dr. Scheuchzer, with this Inscription, *Lapis Frumentarius descriptus in Append. Miscell. Curios. Ann. 1697 & 1698. pag. 63. Conf. cum Lenticibus lapideis striatis. Spec. Lithogr. p. 31. Fig. 42. & seqq. vid. ejusmodi Lapidis Iconem in Mussa Calceolar. p. 317.

0.6. A yellowish Stone, in which are several of the Bodies before mentioned. *Ag. Scilla* from Messina. Found after his Book was publish'd.

0.7. A Mass of Stone, of much the same Sort with that of 0.5. *supra*; and having several like Bodies in it. Among the rest, there is one large, near an Inch in Diameter, and flat on that Side that lies uppermost. 'Tis of an Ash-Colour: only there commences, in the Center of the Flat, a Line of a reddish Colour, striated a-cross in such manner as to resemble a twisted Cord or Thread, and passing spirally in 10 Gyri to the Margin of the Body, which is near round. These spiral Twirls, bring the Body, commonly call'd *Umbilicus marinus*, into my mind; some of which have on one Side spiral or cochlear Gyres, tho' much more gross than these. That Body is only the Operculum of a Sort of Sea-Shell: and whether this may not have served for the same Use, must be left to future Enquiries, and more diligent Observations on the Productions of the Sea. There are apparently two Kinds of this Body: that which is convex on both Sides, of which there is some Description p. 234. 0.5. *supra*; and this which is plain or flat on one Side. Sent by Dr. Scheuchzer, with the Inscription, *Lentes lapideæ. Specimen Lithogr. Helv.* p. 30.


De Conchylibus Fossilibus aliqua Injuria aucta, quipe attritis, erosis, vel compressis.

1. The convex Valve of an Oyster-Shell; very crass, but much sulcated, perforated and corroded by Worms. Found in Arabia Deserta, between Suez and Tor, along with those 8. 35, 36. by Mr. H. Worsley.

The Echini Ovarij, z. 73, 74, 75, & 76, supra, appear to have been compress'd and broken by some external Agent.

10. A Pair of the sulcated Anomia, with the Shells clapped close together in such manner, that they appear to have been compress'd by some external Force. Neufchassel. Dr. Scheuchzer.

Fossilia Generum Incognitorum.

1. A Piece of a grey Stone, having the Surface thick set with little Pores or Cavities. Sent by Dr. Scheuchzer, under this Title, Stigmitis. Spec. Lithogr. p. 13. Fig. 15.

2. A Stone of a very strange Shape, branching at one end into two Parts. Ag. Scilla. From Messina. Found after his Book was out.


4. Two Bodies of an oblong Shape, somewhat approaching to an Oval. Found in the Country of Heß-Darmstadt. M. Valkenier. We find the very fame sort of Stones in the Quarries about Oxford. See Dr. Flos's Natural History of Oxfordshire, §. 148. Tab. vii. Fig. 10.
An Addition to the Catalogue of the Foreign Native Fossils, in the Collection of J. Woodward M.D.
PREFACE.

Tis now above six Years since I digested and put my Foreign Native Fossils into a Method; when I likewise drew up a Catalogue of them. Both were done with much Hurry and Precipitation: and only in the Intervals of my Business; but with all the Faithfulness, Care, and Exactness that was possible. There are my own Notes, Descriptions, and Observations, upon some of them; but, of the far greater Part, I had not Leisure to do more than only simply deliver, in their own Words, the Accounts that I receiv'd from those who sent or brought them. None of these are so particular and full as might have been wish'd; but the Place where each was found is assign'd: and of what Kind the Body is; tho', as to this upon Examination, I sometimes see Reason to differ from the Person who presented me the Body; as will appear from my classing these Fossils, and the Company that I range each amongst.

The Fossils in the following Catalogue are such as have come to my hands since those in the former were methodized and cast into Classes. I have now not more Leisure for these employes than I had then; so that I am constrain'd to take the same Course in the drawing up of this, that I did in that. Tho' my Affairs permit me hitherto to descend no further, yet, by even this Account, [what each Body is, and where 'twas found] the Use of them is secured: and they may have the Fortune to fall hereafter into the hands of those that may be so happy as to have more Time; and Encouragement to make further Observations, and draw up particular Accounts of each.
Directions for the composing of a Catalogue of Fossils.

Would my other Engagements permit that, I would put these, and those of the former Catalogue, together; calling them jointly into the same Method. I would also dispose all the Native Fossils of England, in my Collection, into another like Method. Then I would give the History of each, so far as my Knowledge or Information extended; with an Account where it was found: at what Depth: amongst what other Matter; in what Manner it lay: whether in a Fissure, or in a Stratum; with all other Circumstances of the Place. Next, I would note every Thing observable in the Body itself; its Colour; its Figure, Texture, or the Manner of the Concretion of the Parts; and the different sorts of Matter that concur and are united in the same Mass. Finally, I would bring each single Body to the Fire, to Chemical Trials, and all other Tests; in order thoroughly to discover its Nature, Constitution, Properties, and various Uses.

Was this once effectually done, and just Deductions and Inferences made from the whole, it would go a great way towards a Natural History of Fossils, and the perfecting this Knowledge, which too, it hath lain hitherto so much in the dark, is, of all others, the most entertaining and useful. They who know the great Revenue that arises to this Kingdom from the Metals and Minerals in it; how considerable Discoveries have been made of late Years; and what Improvements of the Ways of Smelting and Refining of them; to pass by the Consideration of various other Fossils, of real Use and Value; will see of how great importance to the Publick these Studies are. What adds further to their advantage is, that they are not only pleasant, but, if the Compiler be accurate, they must be clear likewise, sure, and little liable to Error and Impostion. Mathematical Propositions are ordinarily abstraited; require great Extent of Thought, and Application of Mind. Whereas these Mineral Propositions are plain, simple, and obvious. The Relations of the Site and Circumstances of the Fossils in the Earth, and of the various Experiments made upon them, are no other than so many Histories of Fact. The Accounts of all Things observable in the Fossils themselves, will carry with them Evidence of Sense, which is the highest Certainty. These Fossils will be so many standing Monuments, that give perpetual Attestation to this; and there can need no other Proof.
Proof of those Accounts, than only a simple View of the Things set forth in the Catalogues. Nor, finally, can it be difficult to discern whether the Conclusions, drawn from those Relations, Experiments, and Accounts, follow rightly from them or not. I had begun an Essay of this Method in the Chapter of the Ludus Helmontij, in my Catalogue of the native Fossils of England; and intended another Sample of it in the History of my Lead-Ores: but Things of greater Pressure and Moment intervening, prevented and took me off from further Pursuit of it.

Aug. 23. 1725.
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Terraæ, & Terris Affinia.

a. 2. "Clay of which we make Brick, found near Madras." [I observ'd in all Parts of this, small Sea-shells in considerale Numbers. J. W.] East-India. Mr. Bulkley.
a. 3. "A sort of Clay or Ochre used to mark with. It grows "on the sides of some high Mountains." East-India. Mr. Bulkley.
a. 4. Terra lutosa, fuscì Coloris, ex Monte rubro prope Elversfaldam. Dr. Leopold.
a. 5. Terra rubra Elversfeldensis. Dr. Leopold.
a. 6. Terra atri Coloris. Ex Territorio Angelomontano. Dr. Scheuchzer.
a. 7. This was sent for red Ochre; but 'tis rather a sort of Bole. New-England.
a. 10. The true Terra Lemnia. 'Tis of a reddish brown Colour, and in its native State; just as taken out of the Earth, without wash- ing; or other preparation, being only form'd into a Bole, and the Judge's Seal set upon it; which is done upon the Place where it is diggd. There's a great Solemnity once a year, upon a certain Holyday in July, used at the taking of it up. Dr. Picanini was present when this was taken up. This sort is very rare; and re-

serv'd chiefly for the Grand Seignior. The Cups, out of which he drinks are made of it. The Pit is in a great Plain; the Stratum is horizontal; and about 4 Inches thick.
a. 11. Terra Lemnia, of a paler Complexion, being the common sort. The Stratum lies immediately under that of the former. Dr. Picanini.
a. 12. "Sura Phasham is used inwardly, after 7 Calcinations; "and good to cool inward inflammations. The Dose à gr. x ad "81. East-India." Mr. Bulkley.
a. 13. Marga, seu Hepatites; prope pagum Pfungen, Ditionis Ti-
gurina. Dr. Scheuchzer.
a. 14. "A sort of Ochre, that serves for marking, found at a-

bout 3 Foot depth. 'Tis a Bole. There is black Earth over it, "and hard white Clay under." East-India. Mr. Bulkley.
a. 15. Earth, grey, with a Cast of green; native, and just as taken out of the Pit, near Caffa, a principal City in the Lesser Tar-
sury;
tary; where 'tis found in great Quantity. The Turks and Tartars call it Caffaca; and make use of it in their Baths, it being smooth, unctuous, and detergent; and indeed one of the finest Fullers-Earth I ever saw. 'Tis absorbent, and adheres to the Tongue. Dr. Pi- canini of Rhetta, brought it from the Place.

a. 16 Whitish Clay, used as Fullers-Earth, and found near the other; a. 14. East-India. Mr. Bulkley.

a. 17. Soap-Earth, found in great Quantity on the Land near the Banks of the River Hermes, in Asia Minor, about 7 Miles from Smyrna. 'Tis found on the Surface of the Earth, in form of that want to be raised by Worms, every Morning. They sweep it up, boil it with Oil, and make Soap of it; which is the best in the world: and preferable to the Casile. There is a Tax upon it, which brings in a vast Revenue to the Grand Seignior. Mr. Chishull.

a. 18. A sort of Earth, found lying in Fissures of Rocks, in the Island of St. Helena, where 'tis call'd Marrow of the Earth.


a. 20. "Tella Sagrum, is a sort of Clay found in Rivers, and is used inwardly to dry, and absorb watery Humours; also good " in recent Coughs and Colds." East-India. Mr. Bulkley.


a. 22. "Common red Earth. It serves here to mark with. "'Tis found about 6 Foot deep; Sands lie above it, and Clay un-

a. 23. Ochra non usita Fragmenta, ex Monte Rammelio prope Gof-

a. 24. Terra Martialis, ex Valle Claushall, Ditionis Vrienisis. Dr. Scheuchzer.

a. 25. Creta, effossa prope Unter-Schachen, Territorij Vrienisis. Dr. Scheuchzer.


a. 28. Lac Luna, aus dern Zigerback, Ditionis Abbatis Cellanorum. Dr. Scheuchzer.

a. 29. Lac Luna, è Crypta Kaverheimensi Solisbacso Palatina. Dr. Bayer.

a. 30. Gur album talcoides, ab Himmelsfürsten, Saxonia. Dr. Henckel.


a. 32. Terra viridis, Tyrol. D. Link.

a. 33. Viride montanum Hungaricum, f. Grysocolla. From New-

Arenæ.
ARENÆ.

1. Sand, green; found on the Shores at one of the Ostia of the Nile, Egypt.

2. The common Sand, out of which the Dust-Gold is wash'd; Guiney. D. Chandos.


4. Sand, black, glossy, and shining; appearing to be Blend, or Mock-Lead, reduced to this Form; taken up about 6 Miles from the Mouth of James River, in Virginia; whither it is forced up from Sea by the Freshes. There is also, amongst it, some small share of the common white Sand. Mr. Bernbde.

SAXA.

1. A talkey reddish Stone. "Sanskra Beady. They calcine it 100 times, being first prepared with Juices. This is also a "Panacea; and cures, as they say, 1000 Diseases. Sanskra signifies a Thousand." East-India. Mr. Bulkley.


3. Ten Varieties of Emery from Smyrna. Mr. Baden. These Stones are of various Colours, and Constitutions; but have all talkey Micæ in them.

4. A Stone, greenish, and appearing to have been worn by the Motion of Water. Found, amongst many others of like sort, in the River Teglimento [Ol. Timavus] in Fruili. Monsieur Maximilian Misson.

5. Small white Stones, seeming to have been smooth'd and worn in like manner; found in great Numbers in a River near Salerna, in the Kingdom of Naples.

6. Saxum lineis nigris striatum, de quo in Crystallographia. Ex Gothardo Monte. Dr. Scheuchzer.

7. Stigmita, vel Dendricta, ex Comitatus Badenensis Terriferodinis. Dr. Scheuchzer.

8. Lapis fissilis Pyrite atramentario persusus ac ferrugineo Co- lore tintus; ad Radicum Montis Tittlici, Ditionis Angelomontani. Dr. Scheuchzer.

9. Lapis fissilis niger, supra Thermas fabarias. Dr. Scheuchzer.

10. Lapides fissiles rubri, ex valle Engsolana, prope Tusum Irth, Ditionis Berenfis. Dr. Scheuchzer.

11. Assa poory, is a sort of Slate. The Powder is used in Fumigations for Children when they get Cold, &c. The Smell is very offensive. East-India. Mr. Bulkley.

MARMORA.

1. Marmor subflavum, Maculis sanguineis affersum; ex Ferrifodinis Comitatus Badensis. Dr. Scheuchzer.
3.2. Marble, the Ground blackish with a Cast of Green, having Spots, oblong, and some of them square, White with a Cast of Green. This is the Ophites of the Moderns: and probably of the Antients. At least Pliny* reckons the Ophites with the Green Marbles, and says, 'tis like the Spots of Serpents; meaning that it has Spots like those of some Kinds of Serpents, from which it had its Name. He mentions two Kinds of it: the one white and soft, the other blackish and hard: the latter of which fort this seems to be of. He further observes that it was call'd likewise Memphites, from the Place in which 'tis was found. Memphis was anciently a City of Egypt: and 'tis from that Country that this Marble, and the Works made of it, were ever fetch'd, particularly by the Romans of old. This Piece was found on the Shores of Pozzuolo in Italy, amongst other Fragments and Remains of ancient Work, by Mr. Hugh Howard.

3.3. Granite, from Mount St. Catherine, a little to the South of Mount Sinai. All the Mountains from thence to the Red-Sea, consist of different sorts of Granite.

SILICES, CALCULI.

1. Lapis igniarius rubri Coloris, ex Schio Ditionis Vicentina. Mr. Bourguet. This is of the Flint Kind, ruddy within, and covered with a white Crust outwardly.

2. Achatiae, ex Montibus Euganei. This seems to be part of a Stratum of the same sort that is call'd in England Chert. See The Catalogue of the English native Fossils. S. Zanichelli.

3. Pyrites Siliceus, ex Monte Legerio. Dr. Scheuchzer.

4. A grey Flinty Peble. From the Shore at the Cabo de bona Esperanza. Mr. Wren.

5. A Flinty Peble, not different from some commonly found in England. Found near Fort St. George, Eafi-India. Mr. Bulkley.

6. Another. ibid.

7. Silex Hammites, ex Birfa Fluvio, Agri Basiliensis. Dr. Scheuchzer.

8. A Part of a sparry Peble, from Fort St. George, East-India. Mr. Bulkley.


10. Small Pebbles, diaphanous. East-India. These are of the same Hardness with the English. Mr. Beazor. Jeweller.

11. Chelidonius Mineralis. Rotsmund, Praefecture Samensis, in Territorio Bernensis. Dr. Scheuchzer

Appendix 1.
Geodes, Osteocollas, Ætites, Bezoar-Minerale.

6.16. Ætites Ericeti Luneburgensis. Dr. Hugo.

Appendix 2.
Pisolithi.

6.20. Pisolithus Carolinarum. Dr. Henckell.

Appendix 3.
Pumex, Lapis Spongias.

6.22. Lapis Spongia vulgaris fossillis; ex Agro Bononiensi. Mr. Bourguet.

Talcum squamosum, seu foliaceum. Mica.
7.2. Lapis talcosis, Bononiensis. Mr. Bourguet.
7.3. Lapis calcarius subalbidus, cum admixto Selenitide; ex Monte calcario Lunebergensi. Dr. Leopold.
7.4. Talcus Lapis candidus prope folium in Valle Pragallens, Rhasia. Dr. Scheuchzer.
7.5. Mica Argentea, in Saxo albo; ex Sila Fluvio Ditionis Tigu- rina. Dr. Scheuchzer.
7.6. Mica parva subviridis, in Saxo albo; ex Silæ Torrente, Dictionis Tigu- rina. Dr. Scheuchzer.
7. "Suverna Gairecom. The Powder boil'd with Butter, is
taken to cure Leanneis of the Body." East-India. Mr. Bulkley.
9. Mica varia. Found near Fort St. George, East-India. Mr.
Bulkley.
10. "Nella Corivendum, is found by digging at the Foot or
Bottom of Hills, about 500 Miles to the Southward of this
Place. They use it, as Emery, to clean Arms. &c. It serves
also to grind Rubies, by making it like hard Cement, by the
help of Stick-Lac mix'd with it." East-India. Mr. Bulkley.
11. Small Stones, reddish, having in them Sparks of a white
shining Talc. There is a Mountain of these in the Country. New-
England. These have been thus worn, and rounded, by the Wa-
ter of the Deluge departing. That Mountain must be compiled
after the manner of Gravel here in England. There were many
of these Stones sent, all of near the Size of these.
12. Mock-Lead, or black Talc, powder'd; from Guinea.
13. Creta nigra, ex Territorio Angelomontano. Dr. Scheuchzer.
15. Talci Minera, ex Melioboco. Germanis der Brouken, vel
Blocksberg. Dr. Kijner.
16. Lapides Lucidi Bononienfsi. Mr. Bourguet.
17. Lapidis Bononiae Fragmmta variijima, ex Monte Padano.
Mr. Bourguet. These are striated; and 10 might be better rank'd
amongst the fibrous Talcis.

Selenites, Lapis specularis.

1. Selenites Rhomboidalis Solito longior, ex Marga juxta Paffy
Villam non longe Parisis.
2. "Rauy Mummy, or Stone-Mummy. It grows on the
" Tops of high Rocks. It is said to be caus'd by the Dews that
" fall upon the Stones. They powder and boil it in Milk, and
" then give it to stop Gonorrheas, Dole 9 f.s. Morning and Even-
" ing." East-India. Mr. Bulkley. This is the Rhomboid Selenites.
4. Lapis specularis Scandianensis. Dr. Scheuchzer.
5. Mucovia Glafs; from Ruffia.
6. "Rauy Mudden. Mix'd with Honey, 'tis good to cure
" Leanneis." East India. Mr. Bulkley.
6. A coarse, grey, sparly substance, of Constitution like that call'd ordinarily petrified wood; from Tripoli, in Barbary.

7. A blackish stoney substance, in Form of that commonly call'd petrified Wood. Sent from Tripoli, in Barbary, for Date-Tree petrified. Dr. Sherard.

8. Asbestos, ex Hungaria. Dr. Breynius.


**Ludus Helmontii.**


**Belemnites.**

1. Belemnites, ex Agro circa Littgeren Comitatus Badensis. Dr. Scheuchzer.


**Coralloidea.**

1. Porus Coralloides siccatus, juxta Parisios effossus. Dr. Jussieu.

2. A Coralloid Astroites. Mr. Miller. From Virginia. Found with several Sea-Shells, in digging at a considerable Depth, near James-River, about 20 Miles from Sca.


4. Madrepora, ex Zopica Monte. Mr. Bourguet.


8. Myceites minimus, striatus, cuneiformis. à Chaumont. Dr. Jussieu.


9. Fungus lapideus seutelliformis, exciss veluri striis quibusdam notabilis. Hi Fungi marini lapidei sunt, & plane ignotiss. Reperimur simul cum Ostreopéthis, & aliiis Conchylis. Sunt autem valde discrepantium Formarum, & Struætæ diversissimæ, raram, interdum Molis ut aliqui 50, 80, 100, imo 200 & 300 Libras facile pendere possunt. Quibus permixta interjacent etiam Astroites rariss quos tamen nihil aliud quam memororum Fungites quorumdam Fragmenta esse, institera Collatione compertum hæ-

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**Note:** The text appears to be a detailed list of different geological and biological specimens, including descriptions of substances, fossils, and marine life, with references to various locations and authors. The text is written in a formal, scholarly style typical of 17th-century scientific literature. The page is numbered (7) at the top. The last line reads: "...instituta Collatione compertum..." suggesting that the document continues on the next page or pages.
Mich. Rheinoldi Rosinus, Munda-Saxo. He hath set forth an Account of the Fossil Fungi, or Myceites, in his Tentamen de Lithozois & Lithophysis subterraneis, 4to. Hamb. 1716. where he wrongly imagines these to be of marine Origin, and brought from Sea, with the Shells, at the Deluge. Whereas these Myceites being stone, must have been dissolved, as all Stones and Stone Coraloids were. See Nat. Hist. Earth, Part 2, and 4. Their being found along with Shells, which he urges as an Argument, no more proves that these, than it does the Flints, Pyrites, and various other Bodies, undoubtedly of mineral Origin, came from Sea. He owns that there are none like these now found at Sea; and they are altogether unknown. See my Papers against Dr. Buntner's Notion in his Rudera Diluvij Tesles.


A. 11. Fungites minores Ficus aridas referentes, ejusdem Locis. Dr. Hugo.

A. 12. Lapis constans ex Conis s. Cuneis se invicem amplectentibus. Ex Ripsa Neofadienfis. This Body I place in this Class; it seeming something to approach the Constitution of the Body call'd by some Lithofrotons, which I have rank'd among the Coraloids; perhaps not very rightly, I being not satisfied of the Origin or Constitution of either those Bodies, or these. Of these there is one found in Lancashire; in the Catalogue of the extraneous English Fossils, Class 13. q. 35. amongst the Fossilia incognita.

Crystallis, Flores cryzzallini.

μ. 1. Crystallus Helverica. Dr. Scheuchzer.

μ. 2. Crystallus diaphana, cujus Plana lateralia non sunt parallela, Pyramide exigua. Ex Alibus Valejisis. Dr. Scheuchzer.

μ. 3. Crystallus diaphana, rara, in qua Canaliculi quadranguli. Dr. Scheuchzer.

μ. 4. Crystallus fusca. Dr. Scheuchzer.

μ. 5. Crystallus micâ Chryzocolla superfis. Dr. Scheuchzer.

μ. 6. Crytal, a very large Sprig, join'd by several lesser. Freyberg. G. Frid. Milius.

μ. 7. Another Specimen, less. Out of the Alps of Switzerland. Dr. Scheuchzer.

μ. 8. A Sprig of Crystal, pretty clear, having about it several fine Amethysts, shot into Cubes. Freyberg. Mr. Linck.


μ. 10. Crystallus succineo Colore notata. Dr. Scheuchzer.

μ. 11. Spar, very beautiful crystallized; out of the Hartz-Mountain, Lunenberg. M. Valkenier.

μ. 12. Spar, crystalliz'd very elegant. Freyberg. Mr. Linck.

μ. 13. Part of a large ferruginous Ball, hollow, the Inside thick set with hexagonal sparry Crystals. [in manner of those found near King's-Weston.] From Bombay, East-India. Mr. Stuart, Surgeon.

§ 15. *Fluor trigonus, descriptus in Specim. Lithogr. Helvet. Dr. Scheuchzer.* All the genuine Crystals, that are clean and transparent, are of an hexagonal shape; as are also the genuine crystallized Spars, which consist of Crystal render'd, in some degree, opake, by admixture of stoney Matter. Where Talc, or other mineral or metallic Matter, is united in the Mass, it changes the Form to Trigonal, Cubic, Rhomboid, &c.

**Crystalli Coloribus imbuiti Gemma.**

§ 16. The Jargon, *Pegu.* This is little harder than Crystal. Mr. Beavor, the Queen's Jeweller.

§ 17. Rock-Rubin, native, *Pegu.* All the three sorts of Rubin are found in *Pegu*; from which Country we generally have them. Mr. Beavor.


**Fluores simplices in Stratorum Saxeorum Fissuris concreti.**

§ 20. A Piece of that sort of white Spar that breaks in Rhomboid Figures, and is commonly found in the Lead-Mines of the Peak. There are Samples of it in the Catalogue of the English Native Fossils, f. 24, and f. 25. 'Twas sent with the Title of *Selenira Rhomboidealalis ex Monte Gimnor, Abbatis Cellanorum, descriptus in Specim. Lithogr. Helvet. Dr. Scheuchzer.* This is very different from the *Selenites Rhomb.* of Dr. Plor. N.H.Oxfordshire.


§ 23. A talky Spar, white, with a Caft of green; found near Fort St. George, East-India. Mr. Ed. Bulkley,

§ 24. *Sunco Fully, from East-India, sent by Mr. Ed. Bulkley, who, I believe, very wrongly takes it for a sort of Arsenick.* 'Tis there given in Agues and Fevers. Mr. Ed. Bulkley.

§ 25. *Spatum album, Saxonia.* Dr. Henckell.


§ 27. *Spatum specularis candidum ex Fodinis Claushalensibus, in Hercynias.* Dr. Leopold.


§ 30. *Fluor mineralis, cujus Frustra Prunis candenentibus inspersa in Tenebris pergrato Lumine refulent.* Ubi tamque Calor plus jusfo imvaluit, cum Fragore in Partes minutissimas diffilire solent. Integra

*bijus*


Lamina fluorea: Stalactite, Tubera, Flosculi. Incrustationes.

µ. 32. A Sparry Incrustation. Sent with the Inscription Tophus, ex Pago Rorös, Ditionis Tigurinae. Dr. Scheuchzer.

µ. 33. Materia Stalactite, qua Saxis prope Scaturigines Thermarum Fabariensium incrustat. Dr. Scheuchzer.

µ. 34. Arabicus Lapis, Ebori similis Plinij. Ex Monte Legerio. Dr. Scheuchzer.

µ. 35. A Sparry Incrustation, from the side of a Fissure of a Stone Stratum, sent with the Title of Stalacitite nivei Candoris, e Saxis prope Scaturigines Thermarum Fabariensium. Dr. Scheuchzer.

µ. 36. Tartarus ex Fonte Aponensi. What he calls a Tartarus, is a Sparry Matter, brought forth by Water, cast on a Board, and gradually incrusted upon it. S. Zanickelli.

µ. 37. Stalactites Carolinorum Carlsbader Tophus. Dr. Henckell. This is nothing but an Incrustation of Spar, cast, successively, by the Water, on the sides of these Baths.

µ. 38. Quarti Vena, intra parietes Lapidis subcarulei, Lineis albis striati, prope Thermas Fabarias. Dr. Scheuchzer.

µ. 39. Tofus, ex Balneo Walterschmitano, Territorio Tugiensis. Dr. Scheuchzer.

µ. 40. Tofus, ex Balneo Falscano, Rhatia. Dr. Scheuchzer.

µ. 41. Tessella Helvetica Lusoriis similes in Fluoro albido. This Spar adheres to a Fissure of a Stratum of Stone. These Dice seem to be artificial, and put on. I broke the Mass in several Parts, but could find no Dice in the interior Substance of it.

µ. 42. Stalactites ex Antro Baumanniano mirabili, in Hercynia.

µ. 43. Sent as Part of a Stalactites, ex Spelunca Baumanni.

µ. 44. Stalactites Seleniticus, ex Istria Dominii Venetorum. M. Bourguet.


µ. 46. Paula Gumda, found in Water-falls, and Canals. The Powder given in Milk, is good for Gonorrheas. East India. Mr. Bulkley.

µ. 47. A very remarkable Kind of Osteocolla; found in great plenty, on the Brow or Side of a hollow'd Way, at — in Tuscany, betwixt Pisa and Poggibonzi. Monf. Maximilian Miffon.

µ. 48. Another Specimen, from the same Place.

µ. 49. White Sparry Efflorescencies, from a Sparry Plate. Sent with the Inscription, Fluor albus floridus, ab Himmelforth, Styria. Flo. Ferri, Eisenbluth dictus, i.e. iron-Blood. Dr. Henckell.


µ. 51.
Tophus, vel Tartarus, ex ingenti Lapicidinâ veterum Romanorum, in Ditione Vicentina in Moris spelunca excavata. Mr. Bourguet. This is an Efflorescent Spar, common in the Grotto's, and perpendicular Fissures of Stone, in England. See the Catalogue of the English native Fossils, Class VI.

Herba Tartarizata, ex Flumine Velino prope Interamnum. S. Zanichelli.

Folia Alni Tartarizata, ex Belunensi Ditione S. Zanichelli.

Stone, from a Wall near Philadelphia, said to be made of Christians Bones, by the Turks at their taking the City. Dr. Smith, in one of his Epistles, mentions this Wall as an Instance of the Turkish Barbarity. What paffes thus for Bone, is nothing but a loose soft porous Stone, form'd in an old Aqueduct, now in the Wall. Dr. Sherard. The Tradition of the present Turks is, that this Wall was built out of the Bones of the besieged by the Turks who first took Philadelphia. Sir Paul Rycaut's History of the Greek Churches, Chap. II. He takes the Bodies in this to be really Bones, cemented together. On which account he brought a Piece of it thence. Whereas, in truth, it consists of various Bodies, chiefly Vegetables, incrust'd over and cemented together by Sparry and Stony Matter brought out into Springs and Rivulets: and of such Incrustations, Sir Paul himself gives Instances in this very Chapter. Had he made due Observations upon those, he would have seen these were no other. There was a great Quantity of it sent me, from which I framed Judgment of it.

A brown Sparry Incrustation, compos'd of various flat thin parallel Plates, much resembling the Incrustations of the Tea-Boyler's of the Coffee-Houses of London, and probably form'd by the Sun's exhaling the Water, as those are by its being exhal'd by Fire. This was found incrust'd upon the Plaister of the Piscina mirabilis at Baie. Monf. Maximilian Missen.

Two Veins of brafsy shining Marcaflate in a white Spar, sent by the Name of Spatham. From Clausfball, by Dr. Leopold.

Spar, white, semipellucid, having on the Surface numerous Flores of a crystaliz'd shining brafsy Marcaflate. From the Hartz Mines, Lunenburg. Mr. Valkenier.

Spar, pretty diaphanous, shot into hexagonal Crystals; with a pale brown Talc, and Flores of Marcaflate, concreted upon it. From Hartz-Mines also.

Another Specimen, little different, only the Marcaflate is in greater Quantity. From the same Mines.

Another, from the same Mines.

A semipellucid Column, compos'd of Shoots of Spar, of an irregular and uncommon Figure; with small Flores of Marcaflate on one Part. Freyburg, Mr. Linck.
White Spar, the Surface form’d into small Plates, wedg’d together in a very various and obviarable Manner, holding much Lead. On the Surface are sprinkled small Sparks of a brassy shining Marcalite. Claufhall, Hannover.

Another Specim-n; from the Hartz-Mines.

Another from the same Mines. This has besides, crystaliz’d Spar, and a pale brown talky Matter, incorporated with it.

The Marcalite on the Surface of this is shot into small quadrangular Pyramids. From the same Mines.

From the same Mines. The sparry Plates are larger, and somewhat more transparent than any of the foregoing.

From the same Mines. The Plates of this are still more transparent.

The Plates of this are yet more transparent, and near crystalline. From the same Mines. There are small Flores of Marcalite likewise on the exterior Surfaces of the three last. These and the rest of the Spurs from the Hartz-Mines, by their Weight, seem to hold Metal. ’Tis said to be Lead. I have not yet had leisure to make Tryal.

Lapides Venarum metallicarum, fluoreo-Talcei.

Blende Germanico, Minera Speciem quidem sed nullum Valorem habet. Ex Fodinis Claufhalenibus.

Sterile nigrum in Fodini Plumbi, Blende. Saxonia. Dr. Henckell.

Sterile nigrum; ex Stanni Fodinis. Dr. Henckell.

Genus Montanum Suecicum, Sod Slag appellatum; quod inventitur in Argenti Fodina, Sulberg. Mr. Angerslen.

BITUMINOSA.

Bitumen fossile coagulatum, quod inventitur in Ferrifodina Beterberg, in Suecia. Mr. John Angerslein.

Coal, light, but fine as Canell, brought, by an Indian, out of the inner Parts of the Country. New England.

Lithanthracis Species, nosfratibus Stein-Gallen dicta, mediis Saxis eruta; ex Praefettura Vallis Rhenanae. Dr. Scheuchzer.

Lithanthrax, f. Carbo fossilis Helsingburgo-Scanicus. Dr. Leopold.

Lithanthrax, ex Valle Engagliand, Ditionis Bernensis. Dr. Scheuchzer.

SALES.

Nitrum nativum Sancto-Mauritianum Rhetia. Dr. Scheuchzer.

Vitriolum Hassiacum. Dr. Leopold.

Vitrioli Vena, ex Alpibus Suevibus. Dr. Scheuchzer.

Vitriolum Martis, ex Fodina Fahlunensi Suecia. Dr. Leopold.

Vitriolum viride Goslariensi. Dr. Leopold.
Lapis Atramenti ruber, vel Minera Vitrioli, ex Fodinis Gof- lariensibus. Dr. Kisner.

Vitriolum album nativum Schemnicens, Hungaricum. Dr. Leopold.

Lapis Scifffis uiger Eliaridenfis, Scanicus, ex quo Lixivium Aluminis coquitur. Dr. Leopold.

Vhrioltim album nativum Schemnicenfe, Hungaricum. Dr. Leopold.

Mify jUvum ex Todinis Golarienfibus. Dr. Kisner.

Farina Altminis, Dibana. Dr. Leopold.

Terra aluminoja, cruda, Dibana. Dr. Leopold.

Lapis Sci£iHs niger Eliaridenjis, Scanicus, ex quo Lixivium jilumifiis coquitur. Dr. Leopold.

Lapis Eliaridenjis, Scanicus, primâ vice calcinatus. Dr. Leopold.

Lapis Oris Eliaridenfis Scanicus, fecunda vice calcinatus. Dr. Leopold.

Sulphur.


Sulphur cum Lapide speculari quod rarum es. Ex Scandit- nenfibus Collibus, Ditionis Mutinenfis. M. Bourguet.

Sulphur nativum foalafticum. Smyrna.

Arsenicum.

Native yellow Arfenick, Auripigmentum. Smyrna.

Taulacum, a fort of Arfenick, yellow, with Specks of red; which, after many tedious and difficult Preparations, is given inwardly: and esteem'd a Panacea. They say that Gold may be extracted out of it. East-India. Mr. Bulkeley.

Ranty Pundoe, a fort of Arfenick; being well prepared, 'tis given in Coughs and Colds. 'Tis found on the Tops of high Hills. East-India. Mr. Bulkeley.

Puckaun Beady, is a fort of Arfenick, found by Rivers- sides; and, after many troublesome Preparations, is used in the Diabetes. East-India. Mr. Bulkeley.

This seems to be red Arfenick. From China. Mr. Oliphant. He says it is taken forth of the Copper-Mines. They call it Hingwach, and use it in Medicine: as likewise in Painting. Alone it makes an Orange-Colour; incorporated with Cerufs, more or less, a Lemon-Colour, and various Yellows. There seems to be Cinnabar in it.

Cinnabaris.

Pyrites.

1. Pyrites ... India Orientalis. Argyradasmas Plinij. This is orbicular, striated from the Surface to the Center; and not different from those commonly found in England.

2. Pyrites aures, ad Oppidum Leun, Comitatus Solmenfis. Dr. Kistner.


5. A Pyrites, of a globos Figure, seeming to be composed wholly of many cubick Pyrites, very distinct and fair. Sent with the Inscription, Minera Argentum continens, globosa. Ex Margifodinis, prope Erzam Ducatus Carlembergenfis.

6. Pyrites ex Margfodinis Principatus Waldercensis, baud protul a Pyrmont, ubi in magna Copia reperiantur. Vulgo Mergel- nuos, i.e. Nux margarum. This is of Constitution much like the precedent.

7. Pyrite cubici elegantissimi, ex Torrente Nolla, in Valle Do- mesfica, Rhelia. Dr. Scheuchzer.

8. Pyrite cubicus ex Fontibus Rhani posterioris, in Rhelia. Dr. Scheuchzer.


11. Two large Cubic Pyrites, of a blackish Colour, found in a Mountain not far from Sakia in that part of South-East Tar- tary call'd by the Natives Thibet or Burant. The Metropolis of this Country they call Lhassa. Brought thence by Paare Felix a Capuchin Fryar, who was a Millionary in those Parts 1724.

12. Several less in a Cluster, or concreted in one Mats. Out of a Mountain near Kiazé, in the Province of Hupak, in the King- dom of Great Thibet. By the same.


14. Bodies of various Figures. angular, and crystalliz'd, of the Bignefs of large Peas, black, glossy, talkey, and much of the fame Constitution with Blende. But, some of them put into the Fire, emitting a sulphurous Smell, I chose to rank them with the Pyrites. I had the following Account with them. "Wicran- tum, found in the Diamond-Mines. They first powder it, and then mix it with the Juice of divers Plants, then dry it and calcine it; and this they repeat sixty times: but the first Calci- nations are made with a Mixture of divers Urines, viz. Human, with that of an Elephant, Horse, Camel, Ass, Goat, &c. and, after
after that, with the Juices. 'Tis good in Coughs, and Con-
"fumptions." East-India, Mr. Bulkley. At the first view, I ima-
gined they held Tin; they something resembling the Tin-Grains. Of what Constitution they are, must be determined by trial.

** Marscasita.**


π. 15. Marscasita cum Quarzo. Ex Fodina Chalybis Comitatus Sarneum. Dr. Scheuchzer.


π. 19. A Marscasite, from Smyrna.

π. 20. Marscasita, gemenar Kies, i. e. common Ore, ex quo con-
ficitur Sulphur & Vitriolum. Dr. Henckell.

π. 21. Marscasita albus Arsenicalis. Weisser Kies, or Gifte Kies, i. e. white Ore, or poisonus Ore, Fodinis Stanni & Cobaltsi. Dr. Henckell.

** Cobaltum.**

π. 22. Minera Cobalti ex quo Smalts preparata, cum Floribus ejet coloris Florum Persicorum. Ex Saxonia prope Schneeberg.

π. 23. Cobaltum, ex quo Caruleum factitium preparatur. Ex Fodiniis Schneebergensisibus, in Misiaia. Dr. Leopold.


π. 25. Cobaltum Schneebergensis, Blauferben, i.e. blue-colour'd Cobalt. Dr. Henckell.

** Antimonium.**

π. 26. Antimonij Minera, ex Insula Ilva. M. Bourguet. This has Sulphur upon it, much after the manner of that of Cornwall.

π. 27 Native Antimony, cover'd with a brownish Crust, after the manner of that of Cornwall. Mr. Sam. Robeferi. This is from Hungary.

π. 28. Vena Antimonij, ex Valle Sexamnina, Rhatia. Dr. Scheuchzer.

π. 29. Alumen Plumsom, cum Minera Argenti & Plambi in-
termixtum. Invenitur in Fodina Sahlberga, Suecia. Mr. John Angersten.

** Calaminaris.**

π. 30. Lapis Calaminaris, Boiemorum, Galmeij. Dr. Henckell.

** Nigrica Fabrilis.**

π. 31. Black-Lead, Nigrica fabrilis, found at the Surface, he thinks in great quantity, on the high Hill of Gibraltar. Mr. Warren.
A sparry Body, cover'd over with a Crust of Black-Lead, in the manner that the Antimony of Cornwall is crusted over with Sulphur. See the Catalogue of the additional English native Fossils, g. 12. This yields a fifth part Silver. New-England.

This is Wad, or Black-Lead, with White-Spar.

Argenti Minera,

Sen potius Plumbi in se Argentum continentis.

p. 1. Silver-Ore, with common, shinning, braisy Marcasite, and white Spar. Potosi, Peru.

p. 2. Silver-Ore, with white Spar, and Sparks seeming to be of Lead-Ore. Potosi.

p. 3. Minera Argenti alba, dives cum Pyrita, ab Himmelsfurten in Saxonia, continens 6 ad 10 Marcus Argenti. Dr. Henckell.

p. 4. Minera Argenti ditissima, cujus ibi, continet 3 xij. Argenti parissimi. Hercynia. Ex Fodina Samfon dicta. Dr. Hugo. This has braisy shinning Marcasite, and white Spar, incorporated with the Lead-Ore.

p. 5. Minera Argenti ditissima, cujus ibi, continet 3 x. Argenti parissimi. Hercynia. Ex Fodina dicta St. Jacobi. Andreosberg. Dr. Hugo. This has incorporated with it a red Spar, much like that of the Rotgulden Ertz.

Plumbi Minera.

p. 1. Plumbum flatu fso. Terra Metallica flava circumduc- tum, de Tarnowitz ex Polonia. This nearly approaches a native or virgin Metal. The small Quantity of white Mineral with it, somewhar resembles Saccharum Saturn: and is doublets a white Lead-Ore of the same sort with the English.

p. 2. Vena Saturni tessellata, ex Fodinis Hartzigerodanis in Duc. Ambaltino. Dr. Leopold. This is of the finest Blue or Pottern-Ore. He calls it tessellated, nor as shot into Tessellæ, or Cubes, as some Lead-Ore does, but as breaking in Squares, which this sort of Ore, when clean, as this is, commonly does.

p. 3. Minera Argenti & Plumbi in Fodina Subbberga, Suecia. Mr. Angersten.

p. 4. Minera Plumbi, ex Fodina Gratia Dei Claushalensis. Dr. Leopold.


p. 6. Mo'bdena grossior grober bleyglantz, i.e. Coarie Lead, shining, hic ubiis obiit, continens 60 Libras Plumbi & 1, 2, 3. Lotos Argenti. Saxonia. Dr. Henckell.


9. Lead-Ore, rich. New-England. This is exactly like the common Lead-Ore of Mendip. See the Catalogue of the English native Fossils, Clas XI. Part 3. n. 28. & seq.

10. Lead-Ore, glossy, and shining; from Cornelius Munster, about five Leagues from Aix la Chapelle.


12. Minera Saturni cubica cui Crystallus intermixta supra Marmore Metallicco subviridi, de Blejslade, prope Joachimsthal, in Bohemia.

13. Minera Plumbi cubica Quartzo albo innata, cui & cupri nonnihil commixtum; de Annaberg, in Saxonia.

14. Minera Plumbi & Argenti, ex Fodina Sublberge, in Suecia. Mr. Angersten. This nearly approaches the English steel-grain'd Lead-Ore.

15. Steel-grain'd Lead-Ore, from the Silver-Mine at Freyberg, Saxony, five hundred Foot deep. Dr. Arnold of Exeter. There is white Spar with it.


17. Vena Plumbi, in Tovas, Rhaetia. Dr. Scheuchzer.


19. Lead-Ore, incorporated with white Spar; yielding also Silver. Brought by the Name of Silver-Ore, from Clausthal, 12 Leagues from Hanover. Lord Hertford.

20. Vena Plumbi & Argenti divies, ex Rhaetia. Dr. Scheuchzer.

21. Vena Plumbi divies, ex Fodina Hartzigerodana, in Ducatu Anhalsino. Dr. Leopold.


23. Minera Plumbi ex Fodina Eleonore & Ludovica, Clausthalensi. Dr. Leopold.

24. Minera Plumbi, cum Galena & Chrysfocolla, in Marmore sodidte albicante, ex Fodina Spes Metalliiosfloris dicta, qua eft Rhöthe, in Landgraviatu Hassiaco Darmstadiensi. Dr. Leopold.

25. Vena Plumbi rarius, Rhetica. Dr. Scheuchzer.

26. Minera Plumbi viridis, terrara, pure puta fere Plumbum; ab Ufbaarm, Saxonia. Dr. Henckell.

27. A brown talky Lead-Ore, from the Black-Sea. 'Twill not be brought to run into Shot by any means. Dr. Sherard.

28. Minera Plumbi alba, Weifs bley Ertz; i.e. white Lead-Ore. Saxonia. There is of this sort in England. See the Catalogue of the additional native English Fossils, l. 13. & seq.

Stanni Minera.


2. Tin-Grains.

3. Fragments of Tin-Ore, rounded, smooth'd, and reduced to the Form of Pebbles, probably by the Motion of Water. Minera Stanni fluviatilis, à Steffen. Dr. Henckell.

4. Minera Stanni rubra, dives, ex Altenberga, Saxonia.

Cupri Minera.


3. Minera Veneris ditissima, ex Fodina Linnumadaben, Provincia Herdaben, in Suecia. Mr. John Angersten.


5. Out of the same Vein with the precedent.


7. Vena Cupri, in Marmore luteo, (Spat) cum adhrente Cardo, ex Fodinis Heimburgensibus, Comitatus Nassovici, prope Urbs Wemb Embs. Dr. Leopold.

8. Vena Cupri, Argenti quoque ferax, ex Fodina Guttenbergiae, in Bohemia. Dr. Leopold.


10. A brassy shining Copper-Ore, found at Seraakioi, on the Bosphorus on Europa Side. Dr. Sherard.


16. Minera Cupri ex Fodinis Costricensibus prope Geram, qua Voighlanis Oppidum eff. Dr. Leopold.

17. Minera Cupri Ochra infecta, ex Fodina Claushalensi.

18. Minera Cupri, in Marmore candido, (Spat) ex Fodina Claushalensi. Dr. Leopold.

Ferri Minera.


2. Ferri Minera ex insula Ilva. Signior Jos. Monte. Part of this Vein conflits of Chips, or thin Plates, after the manner of one sort of talky Spar. On one side of the Mafs is a Grain of a brassy shining Marcastate.


4. Minera Ferri Norvegica prope Urbem Arandale, cujus Portus appellantur Mardoë. a D. fac. a Melle. Mr. John Angersten.

5. Minera Ferri, è Fodina Beterberg, in Suecia. Dr. Klunder.

6. Minera Martis optima Sahlbergenensis, Suecia. Dr. Leopold. Mr. Angersten.

7. Minera Martis fertilior, ex Fodinis funchitenibus, in Saaverlandia. Dr. Leopold. Mr. John Angersten.

8. Minera Ferri, à Clausthall. Dr. Klunder.


10. Minera Martis optima Sahlbergenensis, Suecia. Dr. Leopold. Mr. John Angersten.

11. Minera Subhala, ex Fodina diCia Reventhal. Dr. Klunder.

12. Ferri Minera Suhlana, ex Fodina diCia Friderick. Dr. Klunder.

13. Minera Martis optima Sahlbergenensis, Suecia. Dr. Leopold. Mr. E. Bulkley.


15. Vena Chalybis, Meliwerk diCia, ex Comitatu Sarunetum. Dr. Scheuchzer.

16. Vena Chalybis, Meliwerk diCia, ex Comitatu Sarunetum. Dr. Scheuchzer.

17. Vena Chalybis insima, Roth-Ert diCia, ex Comitatu Sarunetum. Dr. Scheuchzer.

18. Vena Ferri, ex Alpe Guppen, Ditionis Glareonensis. Dr. Scheuchzer.


20. Vena Ferri ex Hammite constans, ex Monte Baumgarten, Territorij Bernenfis. Dr. Scheuchzer.


24. Vena Chalybis genuina, Rother-Ertz diCia, ex Comitatu Sarunetum. Dr. Scheuchzer.

Dendrites s.

Delineationes Arborisorum Minerales.


κ. 2. Pietra embofata, the Florentine Marble, taken out of the Quarry, about four Miles from Florence, by Dr. Piccanini. 'Tis found in thin Strata, and is full of Cracks. In there is commonly found a black mineral Matter; which ordinarily has infused itself into the Substance of the Stone, so far as it was matter'd, on each side the Crack, exhibiting various Delineations; but chiefly, as fuliginous Steams are wont, in Form of Shrubs. They penetrate the Substance of the Stone: and appear, near the Crack, where-ever the Stone is cut. Much of the Stone in this Quarry, and indeed of the Country round, is of this sort. There is, in the same Quarry, likewise another sort of Stone, somewhat yellower, having in it Delineations of Towers, Cattles, and Buildings.

κ. 3. Another Sample of the same sort of Stone, cut and polished. Out of the same Quarry.


Ejecta ex Montibus ignivomis.

J. 1. A vitrify'd Substance, variegated with dusky and green, flung forth of Vesuvius. Mr. Bembde was present when it was flung forth. It fell upon his Hat.

J. 2. A black heavy Sand: a light Substance, friable, somewhat like a Scoria, black within, of a pale brown without, and a yellow sulphurous Substance. Cast out of the new Island near Sapori. Dr. Sherard.

Fossilia Artis opè redacta.

ο. 1. A Regulus, from the first running of the Potosi Silver-Ore,

ο. 2. supra,


4. Cadmia Fornacum, Ofenbruch; i.e. Ovenbreak, Saxonis. Dr. Henckell.

5. Lapis Bononensis calcinatus, sive Phosphorus Mineralis. Mr. Bourguet.


7. The Caput mortui of Amber: or what remains after the Salt, Oil, and Spirit, are distill'd off.

8. Alumen Cristallizatum, ex lixivio Lapidis scissilis Eliandensis confeclum. Dr. Leopold.

9. Tartar of Rhenish-Wine; from Germany.

10. Tessella of Paste, and Glass, red, yellow, blue, and green, being Remains of the antient Opus Tessellatum; found on the Shores of Pozzuolo, Italy. Mr. Howard. Some of these are worn, smooth'd, and rounded, so as to appear like small Pebles, by the Agitation of the Sea; in like manner as Fragments of Marble-Stone, &c. beat out of the Cliffs, commonly are. There is among them a Piece of green Glass, of a very remarkable Constitution; being thick set with Pipes of a yellow Colour.
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rina, non rostrata, Clavicula produci ofi. Buccina rostrata Clavi-
cula breviori. Buccina rostrata Clavicula produci ofi. Buc-
cina bilingua. Buccina amputacea, p. 4.

Umbilicus marinus. Conchylia bivalvia. Pectines. Ostrea. O-

strea arboea, p. 5.

Ostrea Figura angusta, rostro longo recurvo. Ostreides. Concha


Concha, Anomiiis affinis, p. 7.

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longa, p. 8.

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Conchi. Tellina. Solenes. Pinna. Conchylia multivalentia, Echi-
ni Sparagi, p. 10.

Echini Ovarij. Corpora quadam Echinis, ut videtur, affinis. En-

Conchylia Massa Saxea conserén immisla, p. 13.


Conchylia sicuariilia, & lacustria, ex telluris Visceribus eruta.

Cochlea terrestris ex telluris Visceribus eruta, p. 15.
A Catalogue of the Additional Foreign Extraneous Fossils.

Vegetabilium Partes ex Tellure eruta.

a. 2. Lignum Fossilis Quernum, è Turfsse-Fodinis Belendorffsensibus, tertio à Lubeca Lapidé, sub Materia bituminosa, quæ aliquot Orqy-

arum Altitudine illud contexerat erutum. M. à Melle.
a. 3. A Piece of Fossil-Wood, found in the Peat-Earth, about ten English Miles from Lubec; wherein there are frequently found Oak, and Birch-Trees. M. à Melle.
a. 4. Folium Celsianae, recens explicatum, eâque plane Condizione qua solent Folia hujus Arboris exaeunte Maio Mense, quo Tempore Di-

Iuvium accessit; in sulphuris Minera, ad xxx Pedum Profunditatem 
in Agro Foroliuviensis effossa. Signior Jof. Monte.
a. 5. Lapis fossilis Filice notatus; ex Argenti Fodina Manebaenst, Ducatus Vinarienfis. G. Frid. Milius.

Conchylia Marina. Univalvia.

p. 1. Vermiculus Marinus. Effossus inter plura alia, in Loco dicit 
il Mavignone, Bononia. M. Bourguet.
p. 2. Tubuli vermiculares minores, instar Cornu Ammonis in fe 
revoluti. Ex Zopica, Ditionis Veronesis. M. Bourguet.
p. 3. Siphunculi marini, etiam ex Loco dicit il Mavignone.
p. 4. Dentalis major Scandinaviensis Italia. Respondent huius Tu-
buli aut 
Siphunculi Maris, Dentales dicit majoris Bonanni, p. 91. n. 8. 
sit &

Denticulus Elephantis. Rumph. p. 123. T. xli. j. Dr. Scheuch-
p. 7. Patella Fossilis, cucullata. Chaumont, per Giforre. Dr. 
Jussieu.


y. 1. Nautilus Orythographiae mea Tab. 2. delineatus. D. Bayer.
y. 2. Nautilusarum Species admodum singularis, quippe cæ a vul-
garibus Nautilitibus similia parietum qui contaminaciones distinguunt

U

ṣ. 3. Nautilites alii concamerationibus frequentioribus instructi. Ibid.

**Ammonitae.**


ṣ. 2. Ammonites alius talis sulcatus. Ibid.

ṣ. 3. Alius; cuius quidem una Superficies aculeis circa Marginen dispositis exornata conspicitur: altera vero Aris humidi & nitrosee Injuria licet eessa sit, nihil secius valde notabilis est. In ea namg; Partes quibus olime gaudebat concamerationum, erof La-pide, quodammodo prominentes, & idcirco accuratius discernendas passim exhibet. Ibid.

ṣ. 4. Nautilites precedentium Ammonitarum adinflar Concamerationes olime obtinens plurimum anfractuosas, nunc Lineis illis Ser- pentisformibus saltem adumnbratas. Ibid.

ṣ. 5. Ammonita marmoreus. Querford. Dr. Hugo.

ṣ. 6. Cornu Ammonis, in Marga Neoliadiensi. Dr. Hugo.


ṣ. 9. Ammonita Eldageniensis, prope Hanoveriam. Dr. Hugo.

ṣ. 10. Cornua Ammonis Merienhagensis, Præfectura Laenestein. Dr. Hugo.

ṣ. 11. Cornua Ammonis non spinatum, in extremo Ambitu sulca-tum, binis Tuberculorum Ordinis, uno in summa Spirà, altero prope fulcum, striis insipser binis vel ternis ad prima, bine ternis ad secunda Tuberculà, aliquibus etiam in spatii intermediis excurrentibus. Achelberg bey Rotlingen, biborio à Tubinga.


**TROCHI.**

3.18. This Trochus very nearly approaches, if it be not the same, with that Species in the *Catalogue of the extraneous English Fossils*, e. 1. Ex Loco vulgo dicito il Mavignone. Mr. Bourguet.

**NERITÆ.**

3.19. *Nerita, Colorem nativum adhuc retinentes, prope Herrenhausen effossa.*

**COCHLEÆ, Forma compressiore.**

*Cochlita* Ora angustiori & depressa, ex Zopic, Ditionis Veronenfis. M. Bourguet.

*Turbinata, ex Agro Veronenfis.* M. Bourguet.

**COCHLEÆ, Clavicula brevi.**

*Cochlites, ex Val del Molin, Ditionis Veronenfis.* M. Bourguet.

*Cochlea fossils candidisima.* Chaumont. Dr. Jussieu. This Species is found on the Shores of England: and is the same with that in the *Catalogue of the extraneous English Fossils*, e. 38.


*Eadem Species.* Ex Loco vulgo dicito il Mavignone. Mr. Bourguet.

*Eadem Species. Ex Ronca Ditionis Veronenfis.* M. Bourguet.

**COCHLEÆ, Clavicula productior.**

*Eadem Species.* Ex Agro Bononienfis. M. Bourguet.

*Eadem Species.* Ex Val del Molin, Ditionis Veronenfis. Mr. Bourguet.

*Eadem Species.* Ex Agro Bononienfis. M. Bourguet.

*Clavicula pumila.* Chaumont. Dr. Jussieu.

*Clavicula productior.*

*Cochlites, ex Val del Molin, Ditionis Veronenfis.* M. Bourguet.

*Cochlites, ex Monte Mario prope Romam.* D. Zanichelli.

*Ex Val del Molin, Ditionis Veronenfis.* Mr. Bourguet.

*Digg'd up near Paris.* Dr. Jussieu.

*Ex Val del Molin.* Mr. Bourguet.

*Weinheim Palatinatus.* Mr. Rosinus.

*Val del Molin, Ditionis Veronenfis.* Mr. Bourguet.

*Weinheim Palatinatus.* Mr. Rosinus.

*Digg'd up near Paris.* Dr. Jussieu.

*Ibidem.*

*Digg'd up with other Shells, several Yards deep, near James River, Virginia, 20 Miles from Sea.* Mr. Miller.

*22. A Stone cast in some Shell, probably of this Kind, Luttenberg.*

Uu 2
Ex Agro Bononienfi. Mr. Bourguet.


25. Ex Hetruria, prope f. Quirico. Mr. Bourguet.

26. Ibid.


RHOMBI.


29. Effossus prope Pagum Harleshausen, in Hassia. Mr. Rosinus.

CYLINDRI.

30. Ex Loco vulgo diéto il Mavignone. Mr. Bourguet.


32. Effossus juxta Parisios. Dr. Jussieu.

BUCCINA, non rostrata, Clavicula breviore.

33. Turbinate auriti, ex Rivo (vulgo) di Ziamaro Ditionis Bononienfi. S. Zanichelli.

34. Ex Loco vulgo diéto il Mavignone. Mr. Bourguet.


BUCCINA, non rostrata, Clavicula productiori.

37. Ex Montibus Asolanis, Ditionis Tarvisina.


BUCCINA, rostrata, Clavicula breviore.

40. Buccinum striatum; in Hassia, prope Pagum Harleshausen, effossum. Mr. Rosinus.

BUCCINA, rostrata, Clavicula productiori.

41. Effossum juxta Parisios. Dr. Jussieu.

42. Ex Montibus Asolanis, Ditionis Tarvisina. D. Zanichelli.

43. Digg'd up in Virginia with 21. I have seen several of this Kind digg'd up in Maryland.

44. Ex Monte Mario prope Romam. D. Zanichelli.

45. Effossum in Loco d. il Mavignone. Mr. Bourguet.

46. Ab eodem Loco.

47. Effossum juxta Bononiam, Hassia. Dr. Scheuchzer.

BUCCINA, bilingua.


49. Ex Loco vulgo diéto il Mavignone. Mr. Bourguet.


BUCCINA, ampullacea.

51. Ex Val del Molin, prope Ronca, Ditionis Veronensis. Mr. Bourguet.

52. Ex Monte Mario prope Romam. D. Zanichelli.
Umbilicus marinus.

1. 53. Turbinarum Opercula Umbilici marini diili. Ex Scandinavonisbus Collibus, Ditionis Mutinensis. Mr. Bourguet.

Conchylia bivalvia. Pectines.

1. 1. The Bottom Valve of a very large Pecten, digg'd up, at the Depth of several Yards, 20 Miles from Sea, near James River Virginia. Mr. Miller.

2. Another, less; of the same Kind. Virginia, found with the foregoing.

3. Another; having the Bottom of a Balanus affix'd upon it; found with the preceding.

3. 4. Three, of the same Species. Digg'd up in the Morea. [Peleponnesius] D. Zanichelli.


3. 6. Another, digg'd up near Corinth. M. Bourguet.

3. 7. Three, of a somewhat different Species. Ex Agro Bononiensi. M. Bourguet.


Ostrea.

4. 1. The Bottom Shell of an Oyster, found, in Virginia, with 4. 1. supra.

4. 2. The upper Valve of a small Oyster crenated within near the Cardo, Virginia. Found with the foregoing.

4. 3. The upper Shell, very cren's, of a Bivalve of the Oyster Kind, Virginia. Found with the foregoing.


4. 5. Ostracites, ex Insula Ægyna. M. Bourguet.


4. 7. The lower Shell of an Oyster, digg'd up in the Morea. Mr. Bourguet.


4. 8*. Ostrei majoris Operculum, ex Foro Julius. Mr. Bourguet.

Ostrea Arborea.

I much doubt whether this be one. There are several East-India Shells found also in the West-Indies.

**Ostreæ Figura angusta Rosiïo longo recurvo.**

1. 10. Concha rugosa, frequens, ad Pagum Winkelhaid, Agri Altdorf. Dr. Bayer. This is of the same Kind with those found commonly in England. See the Catalogue of Extraneous English Fossils, f. 181. & seq.

**OSTREIDES.**

2. 11. Two Bivalves, twirld up, in Virginia, with the Peçtines 7, 1, 2, 3. supra. There are of the same Species found, in great Numbers, in the Cliffs betwixt Limington and Christ-Church; a Thing very remarkable. See the Catalogue of these at No 7.

Concha anomia, Fab. Col. laxes.


6. 2. Concha anomia, ex agro Quorsfurtensi. Dr. Kifner.


6. 4. Ex Territorio Wirtembergensi. Dr. Kifner.

6. 5. Concha anomia Fab. Col. Species; erute prope Coburgum Saxonia. Dr. Kifner.


6. 7. Concha anomia, ex Comitatu Badensi. Dr. Scheuchzer.


Concha anomia sulcata.


6. 11. Pectunculus siriatus; prope Biennam. Dr. Scheuchzer.


6. 19.

6.20. Two Conchæ anomiae Roftrô pertuso eleganter striatae, non descriptæ. Agri Altidorni. Dr. Bayer.

Conchæ, Anomii affines.


3. Ostreopechènitâ, paulo convexioris Figure, & Margine qua Vertici opponitur depressiori atque inflexo. M. Rosinus.


5. Ostreopechènitâ decircuiti magis Ambitus, subtilissimis striis dotarius. M. Rosinus.


7. Similes ferme, striis crebroribus & subtilioribus insignes. M. Rosinus.


13. Hysterolithus prope Cobolenz, Archiepiscopatus Trevirensis. This Body is cast or moulded in a Bivalve.


15. Strìfloris Figure & Alarum longiorum, Specimen. M. Rosinus.


17. Duo quorum Vertices sursum erěcti ab inferiore Testa longius distant; quia in re ab omnibus alis qui Vertices aduncos, atque ab inferiore, ut ita dicam, Testa non adeo remotus obtinere solent, plurimum different. M. Rosinus.


19. Duo, quodammodo Flabelliformes, Semicirculis Vertiei ob-
tensis pluribus, qui scriis subtilissimis ubiq; intersecantur curiosius
diffiniti. M. Rofinus.

1. 20. Conchites polygylinglymus, insolita prorsis Patellamque amu-
lante Figura ab aliis quibusvis longius recedens. M. Rofinus.


1. 22. Peñunculus Dorfo valde convexo, & media Lacuna striato, Ventre 
feu Valva altera potius concava, ad Latera urinque 
veluti alatus. Budinga in Luto, unde Bufecephali Krotenfeuin No-
mine accepit. Dr. Scheuchzer, Mus. Diluv. p. 69. N. 579.

Polyleptoginglymi Figurá subrotundá.

1. 1. Concha Polyleptoginglyma, ex Palatinatu Weinheimensis, 
de his Gieiurus de Montibus conchiferis, &. Dr. Kifaer.

1. 2. Chama Polyglynglyma maxima, cum adnatis, qua Pifeem 
olim Tefta comcretebant, Ligamentorum nervorum reliquis. ê Monte 
Hoberg prope Alzey Palatinatus. M. Rofinus.

1. 3. Chama Polyglynglyma, Colore nativo quadammodo abhuc 
imbuta, in Hassia prope pagum Harlephants effoffa. M. Rofinus.


1. 5. Chama, ex Monte Mario prope Romanam. S. Zanichelli.

1. 6. Digg'd up in Virginia, along with 1. 1. This is of the same 
Species with those in the Catalogue of the English Extraneous 
Fossils, f. 420, 421, which were digg'd out of Harwich Cliff. 
They are found in great numbers, on the Coasts of Barbadoes, 
Jamaica, and the Bahama Islands. They were also found on 
the Shores of England.

1. 7. Chama rotunda seu circinata venricosior transversim striata 
Coloris flavescentis; Arenæ flavae & Teßaceorum aliorum Fragmenti 
repleta. Ex Monte Winterkasten prope Weifenstein, haud longe 
Cassellis. Dr. Scheuchzer, Mus. Diluv. N. 379. p. 56.

1. 8. Chama Polyglynglyma differentis Magnitudinis ad Pedem pra-
dici Montis Hoberg effoffa, à quorum Contemplatione Geyerus in 
Traïatu de Montibus Conchyferis Alzeyenibus, rector quidem colligebat, 
per Incrementi successivi Gradus variis, in minoribus hujus-
modi Conchis observandos, maximas tales ad summam quam affe-
quae sunt Magnitudinem olim pervenisse. Afi quod, de Modo quo 
Id factum sit. ibidem tradit, insulsissima sunt, & à Veritate etiam 
Historicà maxime aliena. M. Rofinus.

1. 9. Concha Polyleptoginglyma perforated by the Purpura. Digg'd 
up, in Virginia, along with 1. 1.

1. 10. Another, lefs, found with the precedent, in Virginia.

Polyleptoginglymi Figura oblonga.

1. 11. Ex Monte Mario, prope Romanam. Signior Zanichelli.

1. 12. A B'valve out of a Mountain near Certaldo, the Town 
where Bocchius was born, in Tuscany, M. Nifson. This Gentle-
man formerly offered his Thoughts concerning these Bodies in 
But he frankly now acknowledges, that, upon Perusal of the 
Natural
Natural History of the Earth, he has changed those Thoughts, and believes these Bodies Remain of the universal Deluge.

13. Digg'd up, in Virginia, with ζ. 1. and ζ. 3.

Pectunculi laves.

1. Concha ex Agro Bononienf. S. Zanichelli. This Species is found living on the Coasts of England: and is also digg'd up at Richmond. Vid. Catalogue of the Extraneous English Fossils, f. 433.

2. Ex Rivo di Ziavaro Ditionis Bononienfis. S. Zanichelli.


5. Chamites levis Minerâ Ferri infarcitus, ex Arena sodina Teutenti Hassiacâ. Mr. Rosinus.

6. Found near Paris, Dr. Jussieu. This Species is also found in Harwich-Cliff. See the Catalogue of the English Extraneous Fossils, f. 447.

Pectunculi fasciati.


8. Tellinites Bayeri Orychtogr. pag. 75.

9. Digg'd up in Virginia along with ζ. 1. supra. This Species is also found in Harwich-Cliff. See the Catalogue of the English extraneous Fossils, f. x 489.

Pectunculi a Cardine ad Marginem striati.


Pectunculi à Cardine ad Marginem sulcati.


13. Pectunculus ex Agro herbipolensi. Dr. Kifner.


15. Ex Monte Mario prope Romam. S. Zanichelli.


17. A Pair of Pectunculi digg'd up in Virginia along with ζ. 1.

Pectunculi Figura oblonga, à Cardine ad Marginem protensi.

18. A Stone cast in a Pectunculus, found above 20 Foot deep, above 20 Miles from Sea, by Lyons-Creek, Virginia.

19. A Valve of a Pectunculus, very large and cast; with the Labia undulated. Found in Virginia along with ζ. 1. This and the following nearly approach the Clafs of the Cunei.

20. Another, found with the preceding.


22. Ex Agro Quersfurienfis. Dr. Kifner.

C u-
Cunei.

2.23. Conchites bivalvis transversim striatus. Ex Territorio Basiliensi. Dr. Scheuchzer. There are of this Species found very commonly in Gloucestershire. See the Catalogue of the English extraneous Fossils, f. 572. & seq.


Tellinæ.

2.25. Digg’d up in Virginia along with 2.1. 19, 20. Mr. Miller.

Solenes.

2.25*. Solenes minimi, ex Traichtu Hildesienste. Dr. Kisner.

Pinne.


Conchyliæ multivalvata.

2. A Balanus digg’d up, in Virginia, along with 2.1. supra. M. Miller.

2.2. Several Balani growing on the Shell of a Pecket. Ex Monte Blancano, Agri Bononienste. M. Bourguet.

Echini spatagi.

v. 1. Echinita, Chelonites dicius, ex Schio Ditionis Vicentine. Mr. Bourguet.

v. 2. Echinus Brissoides, ex Agro Veronenste. Mr. Bourguet.

v. 3. Alius, ex eodem Loco. Mr. Bourguet.

v. 4. Alius, ex eodem Loco. Mr. Bourguet.

v. 5. Ex Agro Veronenste. Dr. Scheuchzer.

v. 6. Ex Agro Altdorfino. Dr. Bayer.


v. 9. Echinites major ex Canali Herrenhawsensi, Anno 1719. in Usus Machine hydraulicæ facto. Dr. Hugo.


v. 11. Echinites Wagricus. Ibid. D. à Melle.


Echinus Ovarij.


§ 3. Lapides Judaici, found at the Foot of Mount Lebanon, 14 Miles from Tripoli in Syria. Capt. Price. These appear plainly to have been clavated Spikes of some kind of Echinus Ovarius. There are of these found in England. See the Catalogue of the extra-aneous English Fossils, Class 5. Part 2.

Corpora quadam Echinis, ut videtur, affinia.

o.1. The Stella Marina of M. Rosinus, sent by Mr. Linck, found in Rubble-Stone commonly made use of and burnt for Lime, together with Scalops and other Sea-Shells, Asterias, and Entrochi, at the Depth of 6, 12, or more Ells, at Querford between Brunswick and Wofenbotle. There is an Account, but a very wild and romantick one, given of it by Mr. Rosinus in his Book de Lithozois 4°. - - - 'Tis of the same Constitution with the Shells of the fossil Echin Ovarij, and doubtless have ferv'd as Trains or Appendages to some like Bodies; as the Entrochi and Asterias have of others. This appears to have had an Hollow in the middle, which is since filled with grey Spar.

o.2. Another, from the same Place, tho' somewhat compress'd, is near intire; and retains the first Joint of the Pedunculus, by which this Body was held and tack'd to the Shell.

o.3. Another, from the same Place.

o.4. Pentagonum stellare, quale Tab. II. Tentam. de Lithozois, No 1. exhibetur à Cl. Anélore M. R. Rosino. This is the Basis of one of these Bodies. There are with it four small Joints of the same Body.

o.5. Modiolus stellatus Luidij, Spec. lith. Helv. p. 10. Fig. 13 a. Ex Monte Randio. Dr. Scheuchzer, Mus. Diluv. p. 97. No 982. These Bodies are found in various Places in England; and are Joints of Trains belonging to some Body of the same Tribe with the foregoing.

Entrochi. Trochite.


§ 2. Trochi, & Entrochi, specierum variarum; quos, neceo quo jure, Asterias appellat M. Rosinus; & descripti in Tent. de Lithozois. Reperiti in Ducaso Wirtembergico.

§ 3. Alii, diversarum adnec specierum, descripti in eodem Tentamine. Horum nonnulli, incisi & lavo, at substantiam interiorem offundunt
estendunt quasi Seleniticam, & Figuras Pentaphyloides, seu Stellares; etiam intimas Medullas, permeantes. In Duc. Wirtemberg. These, with the Pentaphyloid Figures, are the Entroco-Asteria. M. Rosinus.


π. 5. Alii, adhuc diversi. Ibid.

π. 6. Exordia Radiorum sigillatim emissorum ad Trochos pertinent. Ibid. These are Parts of the Shells, with the first Joints of the Entrochi, which are Appendages or Trains to them.

A S T E R I A.


p. 2. Asteria, ex Comitatu Neocastrensi. Dr. Scheuchzer.

P I S C I U M P A R T E S.

e. 1. Piscis in Lapide sffili, Osterodensi. Dr. Hugo.

e. 2. Piscis Fragmentum in Lapide praduro. Ex Agro Veronensi. Mr. Bourguet.

e. 3. Pisciculus in Lapide, Agri Veronensis. D. Zanichelli.

e. 4. Piscis in Lapide, à Canobine Montis Libani. D. Sherard.

e. 5. Lapilli istis permissiles qui Piscium Capitibus circa Exortum Spina Dorfo inmasci solent. Ex Arenæ-Fodina Teutenti Hassiac. M. Rönnus.

Q U A D R U P E D U M P A R T E S.

τ. 1. Os foßile cratum prope Marienbornam Comitatus Ysenburgici. Dr. Kifner.

τ. 2. A boney Substantie, digg'd up at --- in France. Mr. Beavor, the Queen's Jeweller. He says it becomes of a blue Colour if heated at a Flame or Fire. See the Catalogue of the Second Addition of English Native FoSSils, aa. 8.

τ. 3. Turcouis d'Auvern en France. They were originally all white: and have been brought to these Colours in the Fire. Mr. Beavor.

τ. 4. Part of a large Bone found lodg'd in a pale brown Stone, in Spelunca Baumaniana Hercyniae. Dr. Hugo.

τ. 5. A small Bone in like Stone, out of the same Cave. Dr. Hugo.

τ. 6. Part of a Bone yet smaller, out of the same Cave. Dr. Hugo.

τ. 7. Deus Lupi foSSils, ex Spelunca Baumaniana. Dr. Hugo.


τ. 9. Two Teeth, in Part of a Jaw Bone, digg'd up near Confladt, in the Dutchy of Wirtemberg. M. Valkenierg.
T. 10. Two Teeth digg'd up, near Constadt, in the Dutchy of Wirtemberg, along with the precedent, and various Sea-shells. Mr. Valkenier. I am not without some Doubt whether this Gentleman was not impos'd upon in these.

T. 11. A Piece of the Tooth of an Elephant broke off a Segment that was eleven Inches in Circumference, and two Foot long, but broke in Carriage from Holland, whence twas sent me by Mr. Valkenier, with the following Account. Un Unicornus fossile du Longueur environ d'une aune, qui a ete trouve sous la terre a Constadt dans le Duché de Wirtemberg en Suabe, ou l'on trouva, il y a sept ou huit ans, cinquante cinq de ces Especes, dont il y en a voit du longueur d'once pieds, que j'ai vu dans l'Antiquatre du Duc dans sa Residence a Stutgard. Of these, at the Request of Mr. Valkenier, there was an Account publish'd at Schapronen in 4° 1701. by Dr. David Speilstein, under the Title of Dissertatio de Cornibus et Offisius fossilibus, Constadt. This was a Frustium of the middle Part of the Tooth; so that doubtless it was very large. Why the Germans call this Unicornus, is not easy for me to imagine. I thought, before I had seen it, by this Account, and others I had formerly seen in the foreign Gazettes, that these Bodies had been Horns of the Narwhale or Unicorn Fish. But this may pass amongst many other Instances of the Carelessness of the Writers of Fossils, and of their Prejudices, which indeed have hitherto been such, that any Man is much more like to be misled than inform'd by what has been hitherto publish'd on that Subject. I believe the Tooth µ. 40. in the Catalogue of foreign extraneous Fossils, was found with this here: and consequently may be rather the Grinder of an Elephant, than of some Cetaceous Fish. as Mr. Valkenier imag'in'd.


Conchylia Massa Saxae confertim immissa.


v. 2. Congerias Pectunculorum varij Generis, ex Montibus Beluenseibus Forojulij. Dr. Zanichelli.

v. 3. A Pholas, with other Bivalves, in a reddish brown Stone, having in it Sparks of Talc. Frankforti ad Mantum. Dr. Kiñer.

v. 4. Iron-Stone, fide to be rich, having various Bivalves and Imprefions in it. From Denten three Leagues from Caßel the Capital of Hesse.


v. 6. Lapis, prater plurimos Oßrepepeñinum, præsertim alatorum, nuclei, & impressa Voñiglia, talem etiam Figuram cujus Imagines Tab. vi. † sub Lettera A depeñte exlibentur, continens. Frustium est alias praegrandis Lapidis, qui ante Amos aliquot in Monte ad Rhenum prope Arcem Ehrenbreisstein sito inventus fuit atque quia

† Tentam. de Lithozois.
ob ingentem Molem integer Loc0 moveri haud poterat, ab Operariis multo Labore diffusus fuit, qua Ratione intus latentes, & solidissimo lapideo Cortice surinque involuta hujusmodi Conchitarum Figura felicissimo casu detecta fuerunt. M. Rosinus.

v. 7. Conchula innumer a in Saxo Neosadiensi Ripa.


v. 10. Turbinata innumer a in Massa saxea, ex Ripa Neosadiensi. Dr. Hugo.

v. 11. Marga Scissilis, f. foliata, Conchyla compressa, friabilia, & quas calcinata, continens. Ex Neosadiensi Ripa, ubi miranda hujus Terra laminose Varietas Labrum Ripa constituit. Dr. Hugo.

v. 12. Lapis valde durus innumer a continens Strombos, prope Neoburgum Comitatus Hoyea.


v. 16. Conchyla in Massa saxea juxta Pari his effossa. Dr. Jussieu.


v. 18. Peñines in Massa saxea effossa prope Heldesiam.


Corpora Marina incognita, ex Tellure effossa.


Φ. 2. Lapides Frumentarii, seu Numismales, cum Concharum & Turbinatarum Congerie, ex Zopica, Ditionis Veronensis. Mr. Bourguet.


Φ. 5. Lapis Frumentarius pulcherrimus. Ex Zopica, & Boniolo Monte, Ditionis Veronensis. Mr. Bourguet.

Lapides numismales maiores. Fuxta Veronam. Mr. Bourget.

Lapis numismalis major. Ex Zopica, Ditionis Veronensis. Mr. Bourget.

Lapides frumentarii, ex Agro Veronensi. S. Zanichelli.

Lapides numismales. Ex Zopica Ditionis Veronensis. Mr. Bourget.


Lenticula fossiles, s. Lapides numismales vulg. circa Parisios frequentes. Dr. Jullicu.


Lentes lapideae, ex Zopica Ditionis Veronensis. Mr. Bourguet.

Conchylia fluviatilia, & lacustria, ex telluris Visceribus eruta.

Cochlea olim Lacustres, seu fluviatiles, Spiris (ut in Amnonia fere soler) in se invicerem revolutis constantes, Marga candida Mundeni in Montibus editissimis haud raro permissa. Mr. Rolinus.

Cochlites, ut videtur Cochlea terrestris. Exeadem Marga. Mr. Rolinus.

Cochleae terrestres, ex telluris Visceribus eruta.

Cochlea terrestris candida, prope Vallen in Hassia effossae, cum aliis similibus. Mr. Rolinus.

Cochlites, ut videtur Cochlea terrestris. E Latomia prope Nordlingam, Suevorum. Dr. Bayer.

FINIS.