THE NATURAL HISTORY

OF

THE VALE OF BELVOIR.

By the Rev. GEORGE CRABBE, B. D. Rector of MUSTON.

" ——— Do but compare the Country where I lye,
" My *Hill* and *Ould*s will say, they are the Island's eye.
" Consider next my Site, and say it doth excell;
" Then come unto my Soil, and you shall see it swell
" With every grass and grain that Britain forth can bring;
" I challenge any Vale, to shew me but that thing
" I cannot shew to her, that truly is my own."

DRAYTON, Poly-olbion, Song XXVI.

THAT part of the County of Leicester called *The Vale*[1] *of Belvoir* lies to the North, North-west, and South-west of Belvoir Castle, without any definable limit; and under this name are comprehended a part of Nottinghamshire and a few parishes in the county of Lincoln.

The soil, as well as the first appearance, is uniform, with very little diversity of wood or water. Viewed from the Castle, or the hill of Belvoir, the whole country appears flat, and the prospect rather extensive than agreeable; yet it grows interesting upon a further examination, and gains in fertility what it loses in variety.

The Natural History of such a country may seem of little importance, and confined to a few objects; but whatever may be the case with the common observer, or the admirer of general views, the Naturalist will certainly meet with much to engage his attention, and pay his researches.

This is more particularly true in the department of Natural History which relates to Fossiology, and especially the division of Petrefactions: in the higher classes of the three kingdoms (the *Tria Regna Naturæ* of Linné) little can be expected. Our Beasts, Birds, Reptiles, and Fishes, are already described; and few or none of them can be considered as local curiosities. Our Insects are more numerous, more local, and defined with more uncertainty. The *Vermes* of an Inland County can but little engage our attention; and in the Vegetable Race, the Botanist will scarcely expect more than the places or growth for some particular plants, and a description of one or two individuals. The Minerals and Fossils will therefore engage us longer than any other objects of Natural History; and of these some account shall be given of all the Genera, with a few of the Species, and mention shall be made of certain Varieties.

The MAMMALIA of the Vale of Belvoir are not perhaps sufficiently distinguished by any form or property to merit a peculiar description. The labouring Horses are large and heavy, and their prevailing colour is black; the Cows are of a middle size, and of the horned breed. The Sheep are less than those of Lincolnshire; yet large, and yearly improving from the breed introduced by Mr. Bakewell of Dishley, a gentleman who is much celebrated for his attention to this part of rural œconomy[2].

The Chace-deer belonging to the Duke of Rutland range in considerable numbers over the Vale and the adjacent parts of the Hill country; yet, through the liberality of the family, and their regard to the interests of the farmer, they are fewer than in former times, when the tillage of the soil was loaded with the heavy expence of nightly watchmen for the preservation of their crops[3].

The remaining animals, which, being *Feræ Natura*, are yet not considered as common right, are Hares and Rabbits; the former are found plentifully in most parts of the Vale; and the latter, of a very fine kind, at the foot and along the declivity of the hill which leads from the Castle to the parish of Stathern.

This and the neighbouring hill-country are celebrated for hunting, and many Foxes are found here: a few years since, two very beautiful ones, of the black kind, were turned off from Croxton Park by the Duke of Rutland, with a view to their associating with the common kind, and they did so; but it does not appear to have added any thing to the variety or pleasure of the chace.

In the river Devon is sometimes found the Otter[4], but this happens rarely; and Badgers[5] have been taken, but not often, in the woods of Barston and Stathern.

The Fitchet[6], or Polecat, makes its usual devastation in this country, and, with the Weasel[7] and Ermine[8], may be frequently met with.

The Cream-coloured Mole[9], a variety of the common kind, which is mentioned by Mr. Pennant as inhabiting his lands near Downing, is also found in the Southern part of the Vale, but more frequently about the parish of Dalby; it particularly possesses one inclosure, from which it has almost excluded the black kind, and made them, though in all the neighbourhood very plentiful, the scarcer animal in that meadow.

The smaller Quadrupedes in the order of the *Mammalia* called *Glires* by Linné, which are common throughout the kingdom, need not be noticed as inhabitants of a particular part of it, as they are neither found in great numbers, nor are totally strangers.

The BIRDS in this neighbourhood will not long engage our attention. The Kite is very common in the woods between Belvoir and Stathern, and is at almost all times gliding over the burrows of the Rabbits. Of the Pie kind, Woodpeckers and Jays are numerous. The Hooded Crow is seldom seen; and the Hoopo is totally a stranger[10]. The Kingfisher is more frequent in the Southern part of the Vale than might be supposed from its inland situation, and the smallness of its streams. The Gallinaceous

[1] "Some of the following articles are not, strictly speaking, in the Vale; but all of them are in the vicinity of Belvoir Castle.

[2] "Mr. Bakewell has Rams, which he is said to let, for one season, at the astonishing prices of two, three, and even four hundred guineas each: a relation perhaps incredible in other counties, but well known in this part of Leicestershire, where some of the persons reside who adopt the opinions and improvements of Mr. Bakewell; of whom see some Memoirs in vol. III. p. 759." G. A.

[3] "But then they had the land cheap." G. A.

[4] *Mustela lutra.*

[5] *Ursus meles.*

[6] *Mustela putorius.*

[7] *Mustela vulgaris*, Mr. Pennant.

[8] *Mustela erminea, the* Stoat.

[9] *Talpa alba.*

[10] "The Crane, Egrett, Bohem. Chatterer, Snowflake, are as much strangers as the Hoopo. I have seen the Bearded Manica, actually shot near Melton Mowbray. The Nightingale doth not migrate far North; but, what is more extraordinary, is a stranger to Devonshire and Cornwall, where Myrtles grow to the tops of cottages." G. A.

Tribe (exclusive of domestic birds) affords only Partridges and Quails. Pheasants have been liberated in the woods about Belvoir, but do not increase there.

The divisions of *Anseres* and *Grallæ*, the water-birds of Ornithologists, give us few species, as may be imagined from the situation of the country, and its want of lakes and rivers of any considerable magnitude. Even in the numerous order of *Passeres*, or small birds, what is remarkable is rather the absence of the common kind, than the presence of the scarce. The Nightingale is seldom heard; and the melody of these woods wants the addition of many little warblers, who gladden other groves, and meliorate the notes of their more harsh and dissonant inhabitants.

It has been remarked, by some attentive observers for many years, that Swallows which visit the Vale of Belvoir enter it from the North-east; and commonly assemble and rest a few days about the parish of Foston in Lincolnshire, before their dispersion through the adjacent country.

The AMPHIBIA of Linné are divided into *Reptilia*, *Serpentes*, *Nantes*.

Of *Reptiles*. The Vale of Belvoir possesses the common Frog[1] and Toad[2]; the scaly Lizard[3], and Water Newt[4]; the green Lizard, a variety of the scaly[5], has also been found in the turfty pastures below Barston-wood; it differs in no respect but colour from the common kind; the length is generally about six inches; and the scales are a pale blue-green without any variation.

No *Serpents*[6] are found in this part of Leicestershire, or, if any, very few. A person who has frequently searched the country for every object of Natural History, for six years past, has never met with either the Viper[7], Snake[8], or Blind Worm[9], all which are common in the warm and sandy banks and hedges in many parts of England.

The division *Nantes* contains no species to be met with in the fresh waters of this kingdom.

FISHES are the next division of the animal system: of these, the little streams[10] which run across the Vale into the Trent afford but few. The Dace, the Roach, the Gudgeon, and the Eel, are the most common; some Pike are found here, with a few Perch; the bearded Loche [Pennant] inhabits a few clear and rapid brooks, and the Trout are occasionally caught (but are not indigenous) in the stony part of the river Devon. If to these be added the Minow, the the Stickleback, and the *Amphisbæna aquatica* of Bertrusius, Albertus, &c. or the *Gordius aquaticus* of Linné, this part of the Natural History of the Vale will be sufficiently noticed.

INSECTS are divided by Linné into seven classes[11]:

1. *Coleoptera:* Beetles.
2. *Hemiptera:* Grasshoppers, Bugs, &c.
3. *Lepidoptera:* Butterflies and Moths.
4. *Neuroptera:* Dragon flies, Ephemeræ, &c.
5. *Hymenoptera:* Bees, Wasps, &c.
6. *Diptera:* Common Flies and two-winged Insects.
7. *Aptera:* Insects without wings.

The number of species in each of these classes, and more especially in the 1st, 3d, and 6th, is very large in every part of this kingdom: continual additions are made to our knowledge, and every year produces the discovery of some new species: a collector of insects will in vain search the writings of Linné, Scopoli, De Geer, Fabricius, and even the authors of our own country, for many which he will find in the Vale of Belvoir; he will, however, by this means see their affinity, and the place they hold among those already described.

Of these Non-descripts it is not intended to give here a particular account, as that belongs to a work purely entomological, but to mention circumstances only which seem appropriate to the country.

COLEOPTEROUS INSECTS, of the most common kind in many other parts of the kingdom, are here very scarce; and, others are frequently met with which are considered as uncommon both in the North and South of England; even the *Scarabæus melolontha* (the common Cockchafer) in some years is scarcely to be met with without a particular search, when they are very numerous in almost every other county. In the year 1787 the oaks about Doncaster were entirely stripped by them; while those in the woods of Stathern and Barston had none about them, but were spoiled in an almost equal degree by the larva of the *Phalæna viridata*, the small green Oak Moth, which frequent these woods in numbers truly astonishing.

The *Lucanus Cervus*, or Stag Beetle, is never found here, nor perhaps in any part of England so far North; but the *Lucanus parallelopipedus* is very frequently seen in old wood and decayed trees; it is about the length of the common Dor, or Clock *(Scarabæus Stercorarius)*; but is flat, and has its jaws projecting forward about the length of its head, with one dent in the middle of each: it has the name *parallelopipedus* from the equal breadth of its head, thorax, and abdomen, a circumstance not often occurring in this, or perhaps any class of insects.

The *Scarabæus cylindricus* inhabits the old willows which are half decayed: it has a form the reverse of the last mentioned, being very elevated in the thorax, and almost cylindrical: the thorax has five sharp dents; and the small head, which is nearly concealed, has an erect horn; the wing-cases *(elytra)* are hard, punched, and shining. This insect, though not very scarce, is noticed for the singularity of its make, there being very few of the kind in this kingdom.

Dermestes murinus (Systema Naturæ, Tom. II. p. 563.) is found in Stathern wood, but not, as Linné mentions, "in cadaveribus;" it haunts the mossy stumps of various trees.

Ips rufipes (Mantissa Insectorum Fabricii, Tom. I. p. 45.) is not described by Linné. It is found in the bark of willow and other trees about Belvoir Castle, but is a scarce insect.

Ptinus imperialis, Systema Naturæ II. 566.
This is described by Linné as being the size of a wheat grain, with the figure of a white spread-eagle upon the back of it. It is found at Stathern, but not of equal magnitude.

Silpha Germanica, Sys. Natur. 569. *Nigrophorus* Fabricii.
Two specimens of this insect were found near Belvoir Castle, totally black, with minute punctures.

Cassida murræa. Sys. Natur. 575.
This, with three or four varieties, is frequent

[1] *Rana temporaria.* [2] *Rana bufo.* [3] *Lacerta agilis.* Mr. Pennant, in his Zoology, doubts whether this be the common English scaly Lizard. There seems, however, little reason to suppose otherwise, particularly as the green Lizard above mentioned is undoubtedly the *Lacerta viridis*, p. 363. Systema Editio 13.
[4] *Lacerta palustris.* [5] *Lacerta viridis.* Ray.
[6] "No Serpents at Lindley. Q. if low, wet, and cold. See T. Row in Gent. Mag. on No Serpents in Ireland." G. A.
[7] *Coluber berus.* [8] *Coluber natrix.* [9] *Anguis fragilis.*
[10] "——————— I still retain
"Two neat and dainty rills, the little Snyte and Deane,
"That, from the lovely Oulds, their bounteous parent, sprong
"From the Lecestrian fields, come in with me along,
"Till both within one bank they on my North are meint,
"And where I end, they fall, at Newark, into Trent." DRAYTON, ubi supra.
[11] Fabricius has a different, and perhaps more scientific arrangement; but that of Linné is better known, and is sufficient for the present purpose.

upon

upon the *Inula dysenterica*, and some other plants.

Coccinellæ. Sys. Natur. 579.

These insects are commonly known by the names of Lady-Cow and Lady-Bird; they are generally red or yellow, with black spots; some black, with red spots; others red, with white spots; and, lastly, some black with white or yellow spots. Of these about sixteen species are met with in the woods of Stathern and Barston, or other parts of the Vale, the most rare of which is the *Coccinella 16-guttata*; a variety of the common kind, or *7-punctata*, often occurs here, with an additional spot upon each elytra.

Ips Boleti. See Mersham's Entomologia Britannica, p. 59.

Elongated; brown, the shells crenated and furrowed. In Boletus. It is a rare insect, found at Muston.

Chrysomela halensis. Entomologia Britannica, 177.

Yellowish; the head and wing-cases green-gold; the antennæ and feet brownish. Frequent in meadows about Muston.

Chrysomela Tanaceti. Sys. Natur. 587.

This is a very common insect, about one third of an inch in length, rough, black, ovate, and punctuated; it is often found single upon ant-hills and in meadows; but, at particular times, they assemble in great abundance, and almost cover the ground for a considerable space, so that many thousands might be taken at once: this happens likewise to the *Coccinella 7-punctata* before mentioned, but not in this neighbourhood. On the coast of Suffolk it is not unfrequent to see them lie dead upon the beach very near the sea in prodigious numbers, probably caused by their flight over the water, to a distance from which they are unable to return; and so falling into it, they are drowned, and thrown upon the shore[1].

Chrysomela oleracea. Sys. Natur. 593.

This small blue shining insect is very common and destructive in gardens, and among turnips and plants of that kind: it is called by Farmers simply "The Fly," and is extremely injurious to the seed-leaves of the young plants; it leaps with great force and velocity: the spring is the more common season for it; but it infests gardens all the summer: a preventive which would be effectual, and not very expensive, is much to be desired: soot strewed upon the bed, and lime, are not sufficiently powerful.

The *Chrysomela nemorum* differs, in having a yellow border round the elytra.

It is almost equally destructive.

Bruchus granarius. Sys. Natur. 605.

In farm-yards and about corn-stacks early in the spring.

Curculio. Sys. Natur. 606.

Many small species of this genus are found here; but happily that pernicious one, the *Curculio granarius*, the Weevil or Boud, seldom haunts the granaries in this neighbourhood. Another species of the same genus, *Curculio lineatus*, may be seen in great plenty among grain of every kind, and at almost every part of the year; but, as it does not deposit its egg in any sort, no injury is sustained by its numbers; this is about one fifth of an inch long, the colour grey, the thorax having three paler lines marked upon it.

Attalabus. This is called by Fabricius *Clerus*; and the second species of that author, *Clerus dubius*, flies here, but not frequently; another species, hereafter described, is also found, but is very scarce.

Cerambyx moschatus. Sys. Natur. 627. The Goatchafer.

This insect smells strongly of musk: it is bright green, with a tinge of gold; the length of the antennæ is about one inch and an half, and the body an inch long: it haunts willows, and some other trees, in July and August.

Cerambyx meridianus, p. 630. also occurs, but rarely.

Leptura. The beautiful species of this genus, called *Leptura arietis* and *arcuata*, with the *florale* (*Calidium florale* of Fabricius), fly in the woods below Belvoir, with several other species of this and the last-mentioned genus.

Elater. Sys. Natur. 651.

This is distinguished from every other genus of insect by a power of springing upwards with considerable force when laid upon the back: many frequent this country; and some of them, as the *sanguineus* and *æneus*, are beautiful insects; as is the *Cupreus* of Fabricius, the elytra being half yellow and half copper-green, with pectinated black antennæ: it is common about Stathern.

Cicindela. Sys. Natur. 657.

The *Cicindela campestris*, a common, but beautiful insect, flies here early in the spring: it is a gold-green, with silver-white spots; the length about half an inch.

Dytiscus: the Water-beetle. Sys. Nat. 664.

One of our largest insects is the *Dytiscus marginatus*, common in the pools of this country, with many other species of *Dytiscus*, a genus which agree in form, and vary in size more than most others.

Carabus. Sys. Natur. 631.

The *Carabi* are the most common of this class of insects; they are called Ground-beetles; are most of them black with some fœtor; they are very swift, and very voracious. Forty species at least may be taken in and about the gardens of Belvoir Castle; of which the *coriaceus*, *granulatus*, *violaceus*, and *inquisitor*, occur most frequently of the large kind. It may not be uninteresting to collectors in this department of Natural History, to be informed that the large and beautiful species of this genus *Carabus Sycophanta*, the body violet colour, and the shells golden-green with longitudinal striæ, has been found alive in this country. By many it is considered as a doubtful native.

Meloe proscarabæus. Sys. Natur. p. 679.

This insect is large and slow; its wing-cases cover only half the abdomen, and it has no wings: it frequents warm hedges and pastures early in the spring; on being touched, there issues from the joints and sections of the body a bright red pellucid liquor. Scopoli says, that in the male insect the elytra are longer than the abdomen, but no such occur here.

Staphylinus. Sys. Natur. 683.

Many species of this genus fly in this country throughout the summer: they feed upon dead and putrid flesh; are long and slender; and the elytra cover about one third of the abdomen.

Staphylinus maxillosus: the largest species is frequent in every part of the Vale.

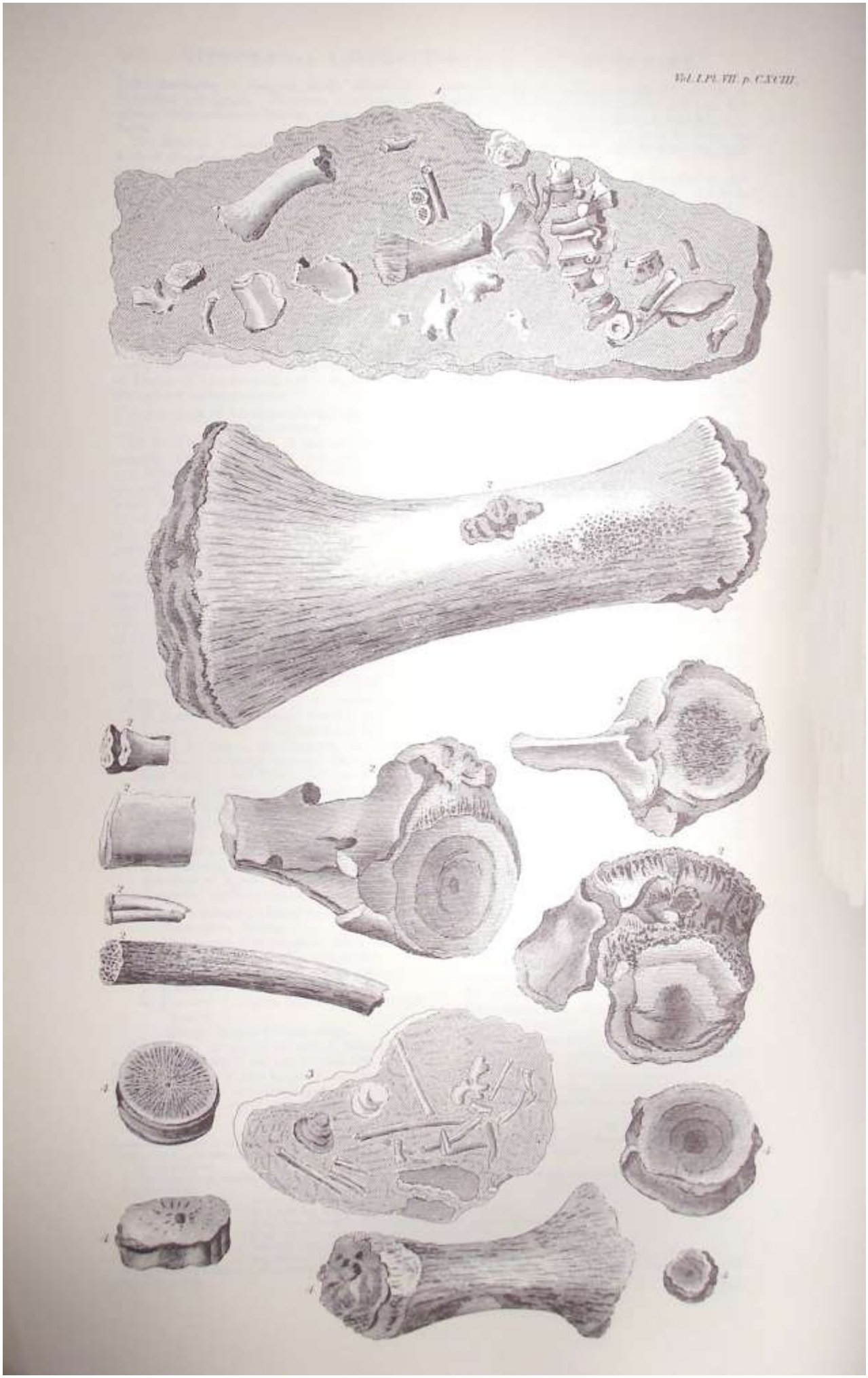
Staphylinus balteatus De Geer, called by Linné and Fabricius a variety of the former, or the Junior Insect, is sometimes seen upon dead bodies of sheep, horses, &c.; but is evidently a different species, in form as well as colour distinguished from the *maxillosus*.

Staphylinus rufus: sometimes seen in fungis.

Forficula: the Earwig

Forficula minor: the small Earwig, being about one third of the common size, frequents gardens in the spring.

[1] "This Hasselquist saw happen to Locusts, a long-winged insect; yet Marshal, Norfolk Husbandry, can think that the next insect (*Chrysomela oleracea*) can fly from Siberia to Norfolk!" G. A.



To this short account of some species already described, may be added the three following, which have not been noticed: it would be easy to add many others if the limits of this work permitted.

Scarabæus obscurus:

Melolontha obscura .... according to Fabricius.

In size and shape it exactly resembles the *Scarabeus horticula;* but the elytra are a shining black, together with the thorax, and every other part of the insect: it seems to have been confounded with the *Horticola* by Entomologists, from which it differs in colour; nor is it found with it in gardens, or among fruit-trees, but generally flying single in open fields or meadows.

It is equally hairy with those of the *Melolontha* kind; its antennæ have 3 lamina; and the spines of its anterior tibia are two.

Attalabus ruficollis. Clerus Fabricii.

Niger, thorace rufo, elytris nigris striato-punctatis

habitat circa Muston, sed rarius.

It is five lines long, and the elytra one and a half broad; the thorax is red; the head, elytra, abdomen, and pectinated antennæ, shining black; the posterior palpi long and securiform, which constitute the character of the *Clerus* according to Fabricius.

Dytiscus perpusillus. Hydrophilus of Fabricius.

Niger, thorace lævi, elytris punctato-striatis.

This is the smallest insect of this class hitherto described. It is difficult to fix the genus, but the antennæ are perfoliate as in the *Hydrophili*, and the feet *Natatorii;* but it is not found in the water. It has been caught upon a sheet of white paper flying over a hot-bed in the spring: it is about the size of a mite *(Acanus siro)*, and the punctuation of the elytra cannot be distinguished by the naked eye: it is many degrees less than the *Staphylinus Boleti*, which is placed by Linné "inter minima insecta."

The other classes of insects will not so long detain us.

HEMIPTERA.

Gryllus bipunctatus. Sys. Natur. 693.

The small Spring Locust, covered by the long scutellum instead of wings: found about Belvoir Castle.

Gryllus verrucivorus.

The large Grasshopper with sword-form tail. About Stathern, Muston, and other places. It frequents hedges where hops grow.

Many species of *Grylli, Cicadæ*, and *Cimices*, fly in the gardens and plantations about Belvoir Castle.

Cicada. Sys. Natur. 704.

The *Cicada spumaria* is a small insect found in gardens, &c. involved in the frothy spume which proceeds from it. Of these insects it is difficult to number, much less describe the species, they are so nearly resembling each other: twelve varieties, or perhaps species, are found here, of which no discriminating character can be given.

Cicada bifasciata. A small neat species found in the Vale about Harby.

Notonecta. Sys. Natur. 712. The Boatfly.

The *Notonecta glauca*, the third variety of Scopoli, in his Entomologia carniolica, p. 119, is here very common; while the first or common Boatfly of Linné is seldom found.

Notonecta striata: many varieties in pools about Harby and Stathern.

Nepa. Sys. Natur. 713. Water Scopion. Ponds about Belvoir.

Cimex. The Bug.

The species of this genus fly in the wood opposite Barston and about Belvoir in great varieties, among which are several new ones; the Cimex linearis is seldom found except in a few ponds about Muston.

The *Aphides, Chermes*, and *Cocci*, are found in every part of the Vale in great variety.

The LEPIDOPTERA, or Butterflies and Moths, succeed these in the Linnean System; and no class has so much engaged the attention of the Entomologist: their number, beauty, and variety, are surprizing. Harris, in his English Aurelian, enumerates four hundred and fifteen: whether so many fly in the Vale of Belvoir is not easy to tell; but certainly many are there which he has not described; so that the whole number in the kingdom is much larger than in his work. The *Phalæna* alone have afforded Fabricius eleven hundred and eighty-nine species in his Mantissa Insectorum, 1787; and of these, especially the smaller kind, *Geometræ, Pyralides*, and *Tineæ*, most are European insects, and a great number English. This is not the case with his *Papiliones:* of eight hundred and thirty-four Butterflies, not one fourth part are European; and only about fifty inhabit this kingdom, of which the greater part are found in and about the woods which reach from Stathern to Belvoir Castle, and the plantations about that mansion.

The *Sphinges*, called the Hawk, Elephant, and Humble-bee Moths, are more rare, but fly in Belvoir Gardens. The *Filipendulæ* and *Stellatarum* are common.

NEUROPTERA, or insects with nerved wings, form the next class, the number of which is comparatively small: a beautiful variety of the *Libellula Virgo* flies about the rivulets of this country, viz. "Libellula Corpore viridi-cœruleo nitido, alis medio cœrulescentibus; basi et apice albis, margine immaculato," Geoffry Insect. et Fabricii Syst. p. 425: with several other varieties of the *Virgo* and *Puella*.

Ephemera. Sys. Natur. 906. The May-fly. Day-fly. These insects, after living for the space of three years in their larva-state in the water, are said to finish the remainder of their life (their perfect or winged state) in one day. "Volatiles factæ," says Linné, "brevissimo fruuntur gaudio, uno sæpe eodemque die, nuptias, puerperia, et exsequias celebrantes." This, however, must not be understood quite literally: an *Ephemera*, which has not deposited its eggs, will live five or six days; and almost every one, two or three: the *Striata* and *Diptera* often survive a week: theirs is notwithstanding, in all probability, the shortest life of any winged insect of equal size.

Phryganea. The larva of these insects are called Case-worms, and are found abundantly in pools and ditches: they are a common bait for angling. Linné says, Swallows skim the pools for them: the species of this insect are here met with in great abundance.

Hemerobius perla. Sys. Nat. 910. A beautiful green four-winged insect with golden eyes, together with three other of the same genus, are caught in Stathern and Barston wood.

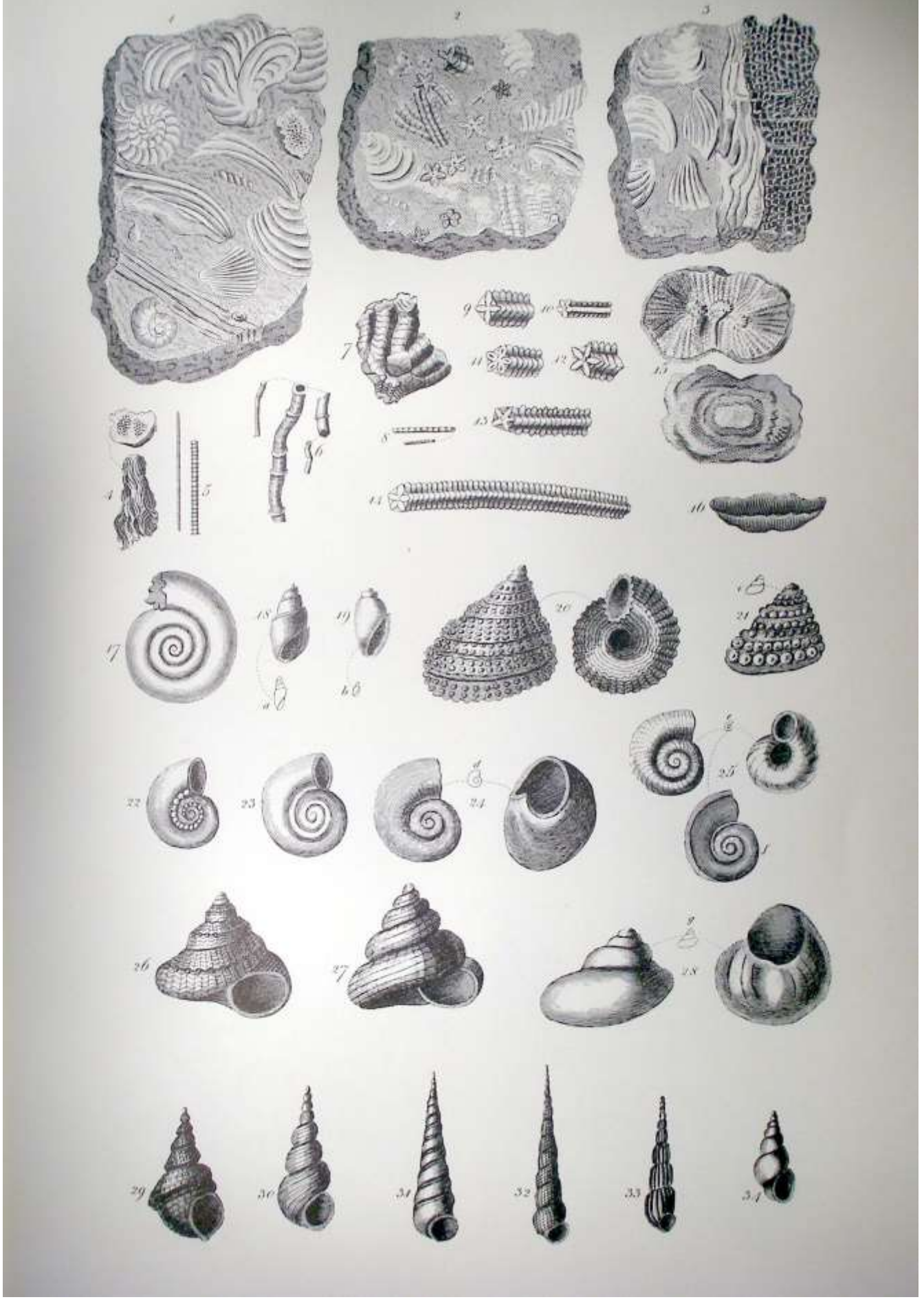
Raphidia ophiopsis. Sys. Nat. 916.

A singular and scarce insect, haunts the bark of old oaks in the above woods: it is easily distinguished by the length and figure of its thorax, which is slender and cylindrical.

HYMENOPTERA, is a class of insects which have four wings, all membranaceous, and are furnished with a sting.

Ichneumon. A small insect resembling a slender Wasp.

The species of this genus are here, as indeed in almost every part of the kingdom, very numerous: these are the insects which deposit their eggs upon the larva of the Butterfly and Moth, where they are hatched, and the young sustained at the peril of the foster-parent, which commonly dies just upon its change into a chrysalis or pupa. Older Entomologists, not aware of this circumstance, supposed



supposed one kind of larva produced those very different insects, the *Ichneumon* and *Phalæna*. Goedart, finding this of the larva of the *Phalæna antiqua*, says, "Eruca mirificè propagans sobolem dicta mihi miranda, quandoquidem vel papilionem vel musicam gignit."

Chrysis. The Golden Wasp. Sys. Nat. 947.
One species of this genus, the *Ignita*, with a green thorax and golden abdomen, is very common. A very small, but equally beautiful species, not described (or not accurately), flies about the church and old walls of Stathern.

Vespa crabro. The Hornet. Great numbers in Barston wood.

Vespa rufa. At Stathern, or one nearly resembling it.

Apis. The Bee.
About twenty-four species may be caught in the woods below Belvoir-Hill, and the gardens and plantations about the Castle.

Formica. The Ant.
Formica Herculeana, *rufa*, *fusca*, *nigra*, *rubra* and *cæsitum*, all occur about or near Belvoir. They are called,
1. The large Horse Ant.
2. The middle sized reddish Ant. Common Ant.
3. The pale brown Ant. Shining Ant.
4. The small black Ant.
5. The very small red Ant. In grass.
6. The Moss Ant, with two knots between the thorax and abdomen.

Mutilla formicaria; or rather, *Ichneumon apterus*.
In Barston wood.

DIPTERA. Sys. Nat. p. 969.
Dipterous Insects are more particularly called Flies; of these Linné enumerates ten genera.

Œstrus. The Breese or Gadfly. Butler means this genus when he says,

"The Learned write, an Insect Breese
"Is but a mongrel prince of bees
"That falls before a storm on Cows,
"And stings the founders of his house,
"From whose corrupted flesh that Breed
"Of vermin did at first proceed."

Hudibras, Part III. Canto, II. l. 1.

They deposit their eggs in the ears, fauces, anus, and back of cattle, and are found over the whole kingdom; but the *Œstrus Bovis* is not very common in this part of it.

Tipula. Sys. Nat. 670.
A very common and numerous tribe of insects, found in every part of the Vale; one large and handsome species of which is not described by any author: it is of the size of the *Tipula rivosa*; but the wings are immaculate, and of a pale brown-gold colour; it is very scarce, but haunts a few places about Stathern in July and August.

Tipula pectinicornis breeds in rotten trees, but is not very common.

Musca. The Fly commonly so called.
Many species undescribed, and perhaps indiscriminate, will here occur to the Entomologist.

Tabanus. Sys. Natur. 1000.
The species *Bovinus*, *Autumnalis*, *Pluvialis*, and *Cæcutiens*, frequent the Vale, and are distinguished as most of this genus by their fasciated or punctuated eyes. The *Bovinus* is not very common.

Culex. The Gnat.
Culex ciliaris. Linné. Stathern, Harby, &c.
Culex annulatus. Mantissa Insectorum Fabricii, Tom. II. 363. At Muston.

Conops and *Asilus*. Various species in the woods about Belvoir.

Bombylius medius. Sparingly under the Hill.

Hippobosca ovina.
An insect which is an exception to this class, (having no wings, but otherwise agreeing with the winged *Hippobosca*), is very common upon the back of sheep, adhering most tenaciously to the wool by its numerous small and acute claws.

APTERA. Insects without wings.
These are *Lepismæ*, *Podurœ*, *Pediculi*, *Pulices*, with each 6 feet.
Acari, *Phalangii*, *Araneæ*, each 8 feet.
Monoculi, *onisci*, each about 14 feet.
Scolopendræ and *Juli*, each many feet. One *Julus*, 240.
Nothing particular need be mentioned of these genera: the same species which are found in other counties will be met with here; but they are so imperfectly described, that it is very difficult, in many cases, to say if they be the individuals meant by authors or not.

VERMES. Syst. Nat. 1069.
Under this title Linné comprehends the following animals:
1. The *Intestina*, or Worms, properly so called, and Leeches.
2. *Mollusca*, certain marine animals of a soft, gelatinous nature, having arms or tentacles.
3. *Testacea*, Mollusca covered with shells. Vulgò shell-fish.
4. *Lithophyta*. Compound animals with calcareous habitations. Vulgò, Corals.

To which are appendaged,

Zoophyta. Compound animals, as it were, flowering (efflorescent) from a vegetable stem.

It will be immediately seen, that a very small number of these can be inhabitants of an inland country, where even fresh water is not very plentiful: each division, however, (except the *Lithophyta*) affords a few specimens.

Among the INTESTINA are,
Gordius aquaticus and *argillaceus*. In clay, and waters above a clay soil, like a horse-hair; and vulgarly supposed to be actually hair animated.
Fasciola intestinalis. In the intestines of roach, &c.
Hirudo geometra. About Goadby in streams, and in the Devon.

Among the MOLLUSCA is only one genus.
Limax ater. In woods.
—— *maximus*. About Belvoir gardens.
—— *hyalinus*. In plants and mosses, pellucid, with four or five other species or varieties.

TESTACEA. Sys. Nat. 1100.
Land or fresh water shells are little prized by many collectors of natural curiosities; they have indeed little beauty, and their varieties are few; they are also brittle, many of them breaking with the slightest force, and are reckoned too common to merit attention: yet they are links in the great chain of being; many of them are curious, as affording a knowledge of their modes of life, which could not be obtained from Marine *Mollusca*; and, at least, one species in our fresh waters is scarce and curious.

BIVALVES.
Mya pictorum. Sys. Nat. 1112. In the Devon plentifully.
Tellina cornea. In ponds and ditches.
Mytilus anatinus. In the Devon and other streams.
Mytilus cygneus. Not immediately in the Vale, but lower down the Devon near its junction with the Trent.

UNIVALVES.
Nautilus.
The recent species of *Nautilus*, or *Cornu Ammonis*, hitherto found, are few and minute: those described by Linné are sea-shells; but Mr. Lightfoot, author of the Flora Scotica, found a small species in fresh water. There is one of this genus, and perhaps the same Mr. Lightfoot mentions, below Belvoir Castle, on the left hand in the way

Redmile, in a pool where the bur-reed grows.

Turbo bidens. Sys. Nat. 1240. In woods about Belvoir.

Turbo perversus. In moss and old trees.

These two shells are remarked for the turning of the volutions in a different direction from the common Univalves; *anfractibus contrariis.*

Helix. The Snail.—viz.
Planorbis. In ponds, and river Devon.
Vortex. In ponds, not common.
Albella. Ant-hills and hedges.
Hortensis. Garden Snail.
Arbustorum. About Belvoir.
Vivipara. Ditches.
Zonaria. Ribband Snail, very common.
Stagnalis. Very large specimens at Goadby.
Putris. Ponds.
Auricularia and *Tentacularia.* Ponds.

Several varieties of these Snails, particularly the *Zonaria,* are found about Belvoir Castle.

The LYTHOPHYTA are all marine animals.

Zoophyta.

Spongia fluviatilis. A fragile, fetid, subramose Spunge, is found in a small rivulet about Bingham.

Spongia lacustris. Creeping, flat, fetid Spunge, plentiful in a little stream under the Bridge, and sparingly in the Devon about Croxton.

Tubularia campanulata. Monsieur Tremley's Polypus. See Adams on the Microscope, &c.

Upon duck-weed and the byssus in several ponds about Stathern.

Vorticella. Sys. Nat. 1318.

There are in several pools and ditches throughout the Vale of Belvoir many kinds of *Vorticella,* some answering to the brief descriptions of Linné, others varying from them. It is difficult to state the kinds or numbers; but the lover of microscopical researches need not fear a want of objects for his amusement.

Hydra. The above observation applies also to this genus.

Volvox Globater. A common microscopical animalcule.

Chaos. Lin. Sys. 1326.

Under this name Linné has comprehended all those animalcula of indeterminate or changeable figure, found in vinegar, paste, water, and various infusions of grain, hay, and herbs; they can scarcely claim a place in local history; and it will be sufficient to observe, that they may be procured in the neighbourhood (as perhaps in all other places) in great variety and abundance.

VEGETABLES.

MONANDRIA.

Hippuris vulgaris. Mare's Tail. In the Devon.

DIANDRIA.

Veronica Chamædrys. Wild Germander. Knipton Pastures, Muston Gorse.

Pinguicula vulgaris. Butterwort.

In low and boggy ground about Knipton by the sides of the Devon, but sparingly.

Circæa lutetiana. Enchanters Nightshade. In Stathern wood.

TRIANDRIA.

Valeriana officinalis. Wild Valerian.

Under the hill at Goadby, Piper's Hole, Devon side.

Iris fœtidissima. Stinking Iris.

In a farm-yard at Stathern near the Church; by the common pasture-gate at Eastwell.

Nardus stricta. Mat-Grass.

In Knipton Pasture, and about Belvoir.

Sanguisorba officinalis. Burnet Saxafrage.

In several meadows between Muston and Bottesford: probably at first culvitated, but it is now in no great esteem.

Alchemilla vulgaris. Ladies Mantle. About Stathern.

Sagina erecta. Upright Pearlwort.

Upon the declivity of Belvoir Hill, about the Warren.

PENTANDRIA.

Lithospermum officinale. Gromwell.

At Muston, in the road from the Church towards Grantham.

Symphytum officinale. Comfrey. Muston, by the Devon.

Menyanthes trifoliata. Buckbean.

Between Stathern Town and the wood—Knipton.

Lysimachia nummularia. Creeping Moneywort.

By ditches and moist banks, at Langar, Coulston Bassett, &c.

———— *tenella.* Purple Moneywort, or Pimpernel.

By Devon side at Knipton.

Verbascum nigrum. Black Mullein. At Stanton.

Vinca minor. Lesser Periwinkle. At Muston.

—— *major.* Greater Periwinkle.

At Woolsthorpe on several walls in the street.

Datura Stramonium. Thorny Apple.

In several meadows about Belvoir Castle, but probably from seed which originated in the gardens.

Solanum dulcamara. Woody Nightshade.

Common about watery places. When this plant lies in the water, as it frequently does, radical fibres in great numbers will issue from the stem to the length of many yards, all which take root in the ground when the water dries away; hence the extreme difficulty of eradicating the plant.

Campanula glomerata. Lesser Canterbury Bells.

About Stathern Hill side; more plentiful at Harston and Woolsthorpe.

———— *hybrida.* Corn Bell Flower. Sparingly at Woolsthorpe.

Rhamnus Catharticus. Purging Buckthorn.

In Muston Gorse, but not common.

———— *frangula.* Berry-bearing Alder.

At Woolsthorpe, Knipton, Stathern.

Ribes rubrum. Small Red Currants.

Among the plantations about Belvoir; the fruit about half the common size, pleasant, but very acid.

Gentiana Amorella. Autumnal Gentian.

In the pastures between Stathern and Plungar.

Sanicula Europæa. Common Sanicle. At Croxton.

Sison amomum. Field Honey-wort, or Amomum.

At Stathern by the sides of the Southern inclosures; the seed warm and aromatic.

Bunium Bulbocastanum. Kipper-nut. Earth-nut.

In great plenty in most parts of the Vale.

Phellandrium aquaticum. Water Hemlock.

In the Devon, about Bottesford and Stanton.

Scandix odorata. Sweet Cicely.

About Belvoir; but it may be suspected to have sprung from the gardens.

Pastinaca sylvestris. Wild Parsnip.

Plentifully at Stathern; the root six inches long, and very sweet.

Smyrnium olusatrum. Alexanders.

In the Nottinghamshire part of the Vale, about Bingham, &c. This plant is cultivated as Celery; but the seed will often lie in the ground two and three years before it vegetates.

Pimpinella major. Greater Pimpinell.

In the Southern part of the Vale below and about Piper's Hole, Claxton, &c.

Ægopodium

Ægopodium Podagraria. Goutweed, &c. In gardens at Stathern, &c.

Viburnum Lantana. Mealy-tree. Stathern.

——— *Opulus.* Water Elder. Barston wood.

Sambucus Ebulus. Dwarf Elder. Belvoir Castle stables.

Parnassia palustris. Grass of Parnassus.
In all the tufty pastures and bogs by the Devon side.

Linum usitatissimum. Flax.
Among Corn at Muston, Woolsthorpe, Eastwell, &c.

——— *catharticum.* Purging Flax. In meadows, &c.

HEXANDRIA.

Acorus calamus. Sweet Cane. *Calamus aromaticus.*
Not a native of the Vale, but planted in the Devon at Muston, where, as it increases, it will be esteemed indigenous. This observation applies to many plants in the kingdom, and particularly several scarce ones about Oxford, where former Botanists have placed them.

Juncus bulbosus. Bulbose Rush. Muston. Bottesford.

OCTANDRIA.

Epilobium tetragonum. Square Willow Herb.
Sides of springs about Knipton.

Daphne Laureola. Spurge Laurel.
Stathern Wood. Muston Gorse. About Langar.

Polygonum amphibium. Amphibious Persicaria.
In and near the watery places about Plungar and Barston.

——— *hydropiper.* Water Pepper. Arsmart.
About Muston in ponds.

DECANDRIA.

Saxifraga tridactylites. Rue-leaved Saxafrage.
On thatch, walls, and old buildings.

——— *granulata.* White Saxafrage. About Belvoir.

Saponaria officinalis. Sopewort.
In the hedges of Harby about the town.

Silene nutans. Nottingham Catchfly.
In and about Nottingham, especially the Castle, this plant grows in great abundance. It is now at Stathern from seed scattered there.

Stellaria graminea. α. β. γ. Hudson's Flora.
All these varieties in the hedges or turfly pastures.

Arenaria trinervia. Plantain-leaved Sandwort.
On the hills where the plantations are round Belvoir Castle.

——— *rubra* and β. *media.* Spurry. In ploughed fields.

Oxalis acetosella. Wood Sorrel. Croxton Park.

Cerastium semidecandriam. Least Mouse-ear Chickweed.
In old walls and dry places about Stathern.

——— *arvense.* Corn Mouse-ear Chickweed.
At Woolsthorpe.

——— *aquaticum.* Water Mouse-ear Chickweed. By the Devon. In hedges about Muston.

Spergula arvensis.

——— *pentandria.* Corn Spurry.
Both in the lighter grounds in the Vale.

ICOSANDRIA.

Prunus Padus. Bird's Cherry. In Belvoir Plantations.

Spirea filipendula. Common Dropwort.
About Knipton, Waltham on the Wolds, &c.

Rosa villosa. Apple Rose. Stathern.

Rubus idæus. Raspberry.
About Belvoir in the deepest part of the Wilderness.

Rubus cæsius. Dewberry.
In great quantity about Coulston-Basset.

Fragaria vesca. Strawberry. About Belvoir,

——— *sterilis.* In Stathern Wood.

Potentilla repens. β. Hudson's Flora. Large Cinquefoil.
At Stathern in the pasture below the Hill.

POLYANDRIA.

Tilia Europæa. Lime Tree. About Belvoir, &c.

Cistus Helianthemum. Little Sun-flower.
On the banks about Croxton.

Nymphæa lutea. Yellow Water Lily. In the Devon about Stanton.

Anemone lutea. Wood Anemone.
At Piper's Hole. In Croxton Park.

Ranunculus flammula. Spear Crowfoot.

——— *lingua.* Small Spear.

——— *repens.* Creeping.

——— *bulbosus.* Bulbous.

——— *acris.* Upright.

——— *sceleratus.* Marsh.

——— *auricomus.* Wood.

——— *parviflorus.* Small-flowered.

——— *arvensis.* Corn.

——— *hederaceus.* Ivy-leaved. And

——— *aquaticus.* Water Crowfoot.
These are all the species of Ranunculus mentioned by English Botanists. They are all found in the Vale of Belvoir, in more or less plenty. The *parviflorus* on dray walls at Muston; the *flammula* in the Devon.

Ficaria. Hudson. *Ranunculus Ficaria.* Linné. Pilewort.
Common in the Vale.

DIDYNAMIA.

Gymnospermia.

Nepeta cataria. Cat Mint.
About Muston, in the way to Bennington Grange.

Mentha aquatica. Water. In Ditches.

——— *hirsuta.* Hairy. By hedge-sides.

——— *rubra.* Red. Stathern, &c.

——— *arvensis.* Corn Mint. In ploughed fields.

——— *pulegium.* Pennyroyal. Scarce.

Betonica officinalis. Wood Betony. Belvoir and Woolsthorpe.

Ballota alba. White Ballote.
A variety of the Black. It grows in Stathern, and sparingly at Muston.

Leonurus cardiaca. Motherwort.
Not a native of the Vale, but now about Stathern from seed brought from Cove, near Beccles, in Suffolk.

Clinopodium vulgare. Wild Basil. On the Hill above Barston Wood.

Prunella vulgaris, flore rubro. Sef-heal with a red flower.
Hill above Harby.

Angiospermia.

Antirrhinum elatine. Sharp-pointed Toad-flax.

——— *spurium.* Round-leaved Toad-flax.
Bothbetween Bottesfordand Muston, in corn-fields.

Scrophularia nodosa. Figwort. In hedges about Croxton.

——— *aquatica.* Water Betony. Muston, &c.

Tetradynamia.

Lepidium latifolium. Broad-leaved Pepperwort.
At Muston, brought from Aldborough in Suffolk.

Thlaspi campestre. Mithridate Mustard.
Above Harby. At Piper's Hole. Goadby.

——— *arvense.* Broad-pod Treacle-Mustard.
At Stathern. Seeds from Skillington.

Cochlearia coronopus. Swine's Scurvygrass. In path-ways and yards.

Erysimum

Erysimum barbarea. Winter Cresse.
Flore pleno at Muston.

Arabis thaliana. Wall Cresse. Sandy banks in the spring.

Sysimbrium amphibium. α.
β. *aquaticum.*
γ. *terrestre.*
Varieties of Water Radish. At Langar.

Sinapis nigra. Black or common Mustard.
——— *alba.* White.
——— *arvensis.* Wild or Charlock.
All these in the corn-fields of the Vale.

MONODELPHIA.

Geranium cicutarium. Hemlock Cranesbill.
——— *moschatum.* Musk Cranesbill.
——— *pratense.* Meadow Cranesbill.
——— *molle.* α. and β. Common soft Cranesbill.
——— *lucidum.* Shining Cranesbill.
——— *dissectum.* Jagged Cranesbill.
——— *robertianum.* Stinking Cranesbill.
——— β. Saxatile.
The two first species are scarce in the Vale; the fifth was brought from Matlock, and is scattered about Stathern; the variety β. of the *robertianum* from Orford Beach, in Suffolk.

Malva alcea. Vervain Mallow. Harby, Belvoir, &c.

DIADELPHIA.

Polygala vulgaris. Milkwort.
Three varieties, blue, red, and white, are here common.

Spartium scoparium. Broom. About Claxton, but very scarce.

Genista anglica. Pettywhin. Sparingly about Goadby.

Anthyllus vulneraria. Kidney Vetch.
At Knipton, Muston, Allington, &c.

Orobus tuberosus. Heath pea.
In the pastures about Claxton and Goadby.

Lathyrus Nyssolia. Crimson Grass Vetch.
Plentifully in a little meadow at Muston in the way to Bottesford: very sparingly in any other place.

Ervum tetraspermum. Smooth Tare.
——— *hirsutum.* Hairy Tale.
Both common at Muston, Bottesford, &c.

Ornithopus perpusillus. Birdsfoot.
Scarce, in the dry hills about Croxton.

Hedysarum onobrychis. Saintfoin.
At Muston, in a meadow called Saintfoin.

Astragulus glycyphyllos. Wild Liquorice. At Piper's Hole, sparingly.

Trifolium melilotus. Melitot Trefoil. Common.
——— *repens.* White Clover. In Meadows, &c.
——— *pratense.* Purple Honeysuckle. Perennial.
——— γ. Larger annual or biennial.
——— *arvense.* Hare's Foot. At Bottesford.
——— *striatum.* Knotted. At Bottesford.
——— *subterraneum.* Dwarf. Now at Muston. Brought from Bury in Suffolk.
——— *fragiferum.* Strawberry. In wet pastures.
——— *agrarium.* Great Hop Trefoil. } In pas-
——— *procumbens.* Small Hop. } tures.

Lotus corniculatus. var. γ. Large-flowered Lotus.
In the boggy parts of the river Devon, and about Harston.

Medicago polymorpha. Heart Medick. Snail Trefoil.
Now at Muston, brought from the banks of the Cam.

POLYADELPHIA.

Hypericum humifusum. Trailing St. John's Wort.
Very sparingly about Woolsthorpe by the river.
——— *perforatum.* Common St. John's Wort.
——— *hirsutum.* Hairy.
——— *quadrangulum.* St. Peter's Wort.
The three last upon the hill above Harby, Stathern, &c.

SYNGENESIA.

Tragopogon pratense. Yellow Goatsbeard. In Pastures.

Lactuca virosa. Stinking Lettuce. Barston Wood.

Picris echioides. Rough Picris. Bottesford, Muston.

Serratula tinctoria. Sawwort. In Stathern and Harby Pastures.

Carduus heterophyllus. Gentle Thistle. At Knipton, in the bogs.
——— *eriophorum.* Globe Thistle.
About Belvoir, and all the way to Stathern, &c.
——— *acaulis.* Dwarf Thistle.
At Croxton in the way to Skillington.

Carlina vulgaris. Wild Carline.
About Belvoir Hill and the pastures below.

Bidens tripartita. Trifid Hemp-Agrimony.
In the road from Belvoir Castle to Croxton. At Muston.

Tanacetum vulgare. Tansy.
Hills above Barston, Harby, &c.—*Foliis crispis.*

Gnaphalium dioicum. Mountain Cudweed.
In the road from Croxton to Skillington, with a beautiful pale red flower.
——— *sylvaticum.* Upright Cudweed.
In a hedge near Waltham, one mile from the town on the left hand going to Grantham.
——— *uliginosum.* Marsh Cudweed.
Common in all the Vale.

Erigeron acre. Blue Erigeron.
Sparingly beyond Langar in the road to Nottingham.

Tussilago Petasites. Great Colt's-foot, or Butterbur.
——— *hybrida.* Stalked Colt's foot, or Butterbur.
The first of these plants is very common in most parts of this kingdom: the latter is very scarce, and is particularly sought for in this county: it grows with the first species along the banks of the Devon: and most plentifully at Knipton and Muston. They can only be distinguished when in flower: the latter is then often more than two feet high; the former eight or nine inches; they have besides the specific distinction mentioned by Botanists.

Aster Tripolium. Sea Starwort.
This plant, as may be gathered from its name, cannot be a native of the Vale of Belvoir: it has been brought from the Coast of Suffolk, and planted there, where, though the soil is very different, it flourishes much, and flowers about November[1], a little later than the common Asters of the garden.

Inula helenium. Elecampane.
About the Devon side, but probably planted there.
——— *pulicaria.* Lesser Elecampane.
Scattered about Muston from seed brought from Gillingham, near Beccles, in Suffolk.

Achillea ptarmica. Sneeze-wort Yarrow.
In and about Goadby and Eastwell.

Viola tricolor. Pansy Violet, or Heart's-ease.
A very large variety, like that cultivated in gardens, is found in some enclosures at Woolsthorpe.

[1] Botanists carry seeds and plants from one country and soil to another; some for fun (as Dr. Lort threw a Roman coin at top of Stonehenge). Hence the propriety of making an early Flora. Hence it is that former Botanists are not blameable for not mentioning plants that may be common by and by. G. A.

GYNANDRIA.

Orchis pyramidalis. Pyramidal Orchis.
At Wolsthorpe, by the river Devon, sparingly.

—— *mascula.* Male Orchis.
In Stathern Wood. Piper's Hole.

—— *morio.* Female Orchis. Common in pastures.
Either of these Orchis may be used in making Salep.

—— *ustulata.* Dwarf Orchis.
Very scarce, but found beyond Bingham by the Trent side.

—— *latifolia.* Broad-leaved Orchis.

—— *maculata.* Spotted Orchis.
These two common in moist meadows.

—— *conopsea.* Sweet or Musk Orchis.
Scarce, but found about Goadby and Eastwell.

Ophrys ovata. Twayblade.
In Belvoir Plantations next Woolsthorpe.

Serapias latifolia. Helleborine.
In a plantation below Belvoir Castle.

MONOECIA.

Zannichellia palustris. In pools about Stathern, &c.

Chara vulgaris. Common Chara. Ponds at Eastwell.

Lemna trisulca. Ivy-leaf duck's-meat. Ponds at Eastwell.

Typha angustifolia. Lesser Reed Mace.
In a pool beyond Barrowby in the road to Grantham.

Sparganium erectum. Great Burreed.
In the Devon at Bottesford and Stanton.

Carex Dioica. Male and Female Carex, or Cyperus Grass.

—— *pulicaris.* Flea. Both in Knipton by the Devon.

—— *paniculata.* In turfty places by the Devon.

—— *flava.* Yellow Carex at Woolsthorpe.

—— *pilulifera.* Round-head Carex. Woolsthorpe.

—— *sylvatica.* Wood Carex, in Stathern Wood.

—— *acuta.* Curtis, Flora Londinensis.

—— *gracilis.* Curtis.
These, with about twelve more species, are found in the Vale, principally about the Devon, at Knipton and Woolsthorpe.

Betula alba. Birch Tree. Not very common.

—— *alnus.* Alder.

Poterium sanguisorba. Burnet. Hills about Woolsthorpe.

Fagus Castanea. Chesnut. In Croxton Park.

Carpinus Betulus. Horn Beam.

DIOECIA.

Salix pentandria. Sweet shining Willow.
At Eastwell, along the Brook, but probably planted there.

Viscum album. White Missletoe.
On apple-trees, but not common.

Tamus communis. Black Briony.

Bryonia alba. White Briony.
Both in hedges, but neither very frequent.

POLYGAMIA.

Callitriche vernalis.
β. autumnalis. } Water Starwort.
In ditches about Langar, &c.

Valantia cruciata. Crosswort.
Piper's Hole. Hill above Barston Wood.

CRYPTOGAMIA.

Filices.

Asplenium scolopendrium. Harts-tongue.
A variety with laciniated leaves in the gardens at Belvoir Castle.

—— *trichomanes.* Maiden-hair.
Upon Stathern and other churches.

—— *Ruta-muraria.* Wall Rue. Muston Church, &c.

Acrosticum Thelypteris. Marsh Polypody. About Croxton Park.

Polypodium filix mas. Male Polypody.

filix femina. Female Polypody.
In Belvoir Plantations.

—— *aculeatum.* Prickly Polypody. About Granby.

MUSCI.

Phascum acaulon. Sides of moist hedges, Eastwell and Stathern.

Polytrichum nanum.
In the road from Croxton by the Park Wall.

Mnium palustre. In a bog at Knipton.

Bryum fontanum. Under Stathern Hill.

—— *extinctorium.* Extinguisher Moss.
On the wall near the entrance into Belvoir Castle.

—— *Hygrometricum.* By the Lime-kiln below Belvoir.

—— *serpillifolium.* Hudson, Flor. Ang. 492.
Several varieties in the gardens and plantations about Belvoir Castle.

Hypnum bryoides.

—— *taxifolium.*

—— *adiantoides.*
All in the moist plantations and hedge-sides about Woolsthorpe, &c.

—— *parietinum.* On the Hill between Belvoir and Stathern.

—— *dendroides.* In Knipton Wood by the Brook.

—— *alocuperoides.* Very large in Belvoir Plantations.

ALGAE.

Jungermannia furcata. In the Plantations next the Warren at Belvoir.

Marchantia polymorpha.
In an old Lime-kiln below Belvoir Castle; it is the variety γ. of Hudson, and flowers yearly.

Lichen vernalis. Relhan, Flor. Cantabrigien. 423.
On the Park-wall at Croxton.

—— *incanus.* Relhan.

—— *canescens.* Dickson.
In walls and pales common.

—— *muscorum.* Relhan, 424, figure.
In the pastures of the Vale common.

—— *flavo-rubens.* On trunks of trees in Stathern Wood.

—— *gelidus.* On the Walls of Croxton Park.

—— *parellus.* Dyer's Lichen.
On the walls from Belvoir to Stathern.

—— *excavatus.* Relhan, 426. On dry hills in Harby Pastures.

—— *subimbricatus.* Relhan's figure, p. 427.
On Stathern Church and the walls in the Churchyard.

—— *physodes.* About Goadby Park, sparingly.

—— *nigrescens.* In Stathern Wood, but not frequent.

—— *calicaris et farinaceus.* Relhan, 432.
In plantations about Belvoir.

—— *capreatus.* Stathern Wood; it seldom flowers there.

Lichenes scyphiferi.
Many varieties occur in the Vale of Belvoir; but they have the brown fructifications only; the scarlet kinds are very scarce.

Lichen hirtus.
In a plantation by the side of the Devon at Woolsthorpe.

Tremella Sabinæ. Dickson's Fasciculus.
This plant can scarcely be called a native of Great Britain, having yet been found only upon the Savin, which is a foreign shrub. It grows upon that in the greatest abundance at Muston, and appears principally in July and August.

Tremella auricula. Eared Tremella. Jew's Ears. In Elder in the Warren, between Belvoir and Stathern.

——— *albida.* Hudson, Flor. Ang. 565. In the Wood by the Devon's side at Woolsthorpe.

Byssus aurea. On the West walls of Belvoir Castle.

——— *Jolithus.* On a few quartzy stones in Belvoir Castle.

FUNGI.

Agarics.

The Agarics are so numerous a genus of Fungi, and so liable to confusion through want of a proper specific knowledge, that, even with the help of plates, it is difficult sometimes to tell precisely what an Author means. The Flora Cantabrigiensis of Relhan, Hudson's Flora Anglica, Lightfoot's Flora Scotica, and a late publication by Mr. Bolton of Halifax, all afford assistance in this difficult part of Botany; but there are many Agarics in the Vale of Belvoir, and about the woods of Stathern and Barston, which are undescribed, though they can no more pass for varieties of any species hitherto defined, than any two of those species can be deemed varieties of each other. In this confusion, it will be sufficient to point out the great variety of these Fungi here met wit, without entering into particulars.

Boletus igniarius. Touchwood.
——— *coriaceus.* Leathery Boletus.
——— *hepaticus.* Liver Boletus.
——— *squammosus.* Scaly Boletus.
——— *versicolor.* Striped Boletus.
——— *lovinus.* Brown and
——— *luteus.* Yellow Boletus.
All these are common in the woods and plantations.

——— *elegans.* Bolton's Fungi, Vol. II. 74. Sometimes found on apple-trees. Muston.

——— *albus.* In Stathern Wood, but scarce.

——— *nummularius.* On rotten wood in pastures about Belvoir.

Phallus impudicus.
In many of the plantations about Belvoir. At Denton.

Hydnum auriscalpium.
In the plantation of firs and oaks next the Castle.

Helvella clavata. Dickson, Fascic.
This curious species grows in the gardens below Belvoir Castle. A person who resided there entered it in his note-book several years since by the name of *Helvella gelatinosa.* It is a yellow subgelatinous Fungus, with a cap, but no lamella. Several grow together among rotten leaves and the perishing plants in September and October.

Peziza lentifera. On the ploughed land at Harby.
——— *punctata.* On horse-dung. Belvoir Hill.
——— *scutellata.*
On rotten wood in moist places. Eastwell.

——— *gracilis.* A new species.
The stalk is an inch high, and very slender; the cup about the size of half a pea hollowed; the colour brown, and the surface smooth, both within and without.
It grows in the small plantation on the right hand in going from Belvoir Castle to Blackberry-hill. Found in September.

——— *cochleata.* In Stathern Wood.

Clavaria ceralloides. Large Coral Clavaria.
——— *fastigiata.* Small Coral Clavaria.
These two Fungi are common; the first in the woods here; the second in the pastures; but, besides these, is a Clavaria on the hills, which cannot be called a variety of either. It is yellow, two inches high, the clubs issue from one root, but no where join above, nor are branched. Sometimes two grow together. It is not perhaps yet either figured or described.

Lycoperdon Bovista. Very large. In meadows, &c.
——— β. *echinatum.* Woods at Belvoir.
——— γ. *excipuliforme.* In pastures.
——— *epidendrum.* On decayed stumps of trees.

Sphæria fraxinea. Relhan, Supplement, 34.
——— *maxima.*
Both in Stathern Wood.

——— *fragiforme.* Dickson.
On the decayed sticks from Yews.

——— *mammiformis.* Relhan, 472.
On willows at Stathern.

FOSSILS.

These may be considered as native or extraneous. Native Fossils are Earths, Salts, Metals, and Inflammables. Earths are calcareous, barytic, muriatic, argillaceous, and siliceous.

Calcareous Fossils are the most numerous in the Vale of Belvoir; but native Calx has not been found there.

Spar is one of the most common of mineral bodies; it has not many varieties in this country: the principal are,
1. Masses of small crystalized pyramids without a column, upon limestone.
2. Small plated Spar, in the cavities of *Anomia.*
3. Small crystalized; in those and other petrifactions.
4. Common irregular debased Spar, every where with limestone.
5. Stalactical Spar, crumbly and light, from the arches in the entrance into Belvoir Castle.
6. Dull and soft Osteocolla, in a spring which run South of Stathern.
It is pipy.
7. White opaque Spar, in small pieces scattered in various places, like *Gypsum,* and even striated as some varieties of that fossil.

Chalk is not found very pure in any part of the Vale; nodules at Stathern are white and fine, but are debased with a portion of Argill; not so much, however, as to render them marle.

Limestone, in various degrees of purity, over the whole Vale: pure, and without extraneous parts, at Croxton upon the Hill; grey, in small masses, with Statagmitæ, at Stathern; blue and hard in pieces intimately united with common building-stone; brown and coarse, with small *Entrochi,* at Croxton; and over the whole country with various extraneous bodies.

Marble, except in small pieces, scattered about the roads and ploughed land, is not discovered.

Gypsum is dug in several places in the Nottinghamshire part of the Vale, and masses are found in every part. The varieties are,
1. Common white striated.
2. White scaly.
3. Pale-red flaky.
4. Spar-like *Gypsum,* the *Glaciale* of Linné, in a peculiar kind of fossile Ammonite, found at Muston brick-kiln.

Selenite.
Ten-sided Selenite is found at Stathern in blue calcareous marle.

Calcareous Earth with Clay; i. e. *Marle* of the calcareous kind; several varieties of this:
1. Fine, blue, soft, and unctuous, at Stathern.
2. Fine, hard, blue and stony, at Easthorpe, &c.
3. *Margodes,* with conchoidal fractures in nodules in clay, at Stathern.
4. Micaceous marle, at Stathern.
5. Slaty black marle, at Langar.
Almost all the clay in the country has a calcareous part; the dark clay much, but not sufficient to rank it in this genus.

Calcareous Iron Stones in small nodules are sometimes met with.

Barytes

BARYTES is not found here, except in some petrifactions, which, from their specific gravity, may be supposed to contain it; but they have not been sufficiently analyzed to determine their contents.

MURIATIC EARTHS are not found.

ARGILLACEOUS EARTHS are not plentiful.

Pure clays are very scarce; but there are several varieties of the common kind, which contain much *Silex*, and some calcareous parts.

Coarse kinds of the *Ludus Helmontii* occur in several places.

Bole, of an indurated yellow kind, is found about Scalford, and in the road to Melton Mowbray; and a fine dusty calcareous red kind often lies in the cavities of the stony yellow, which is not calcareous.

MICA is only found in the masses of granite (which themselves are not often met with) and in the Micaceous marle above mentioned.

Granite, composed chiefly of Mica and Quartz, is found in small pieces of a black kind about Stathern and Harby.

SILICIOUS STONES are in few varieties.

Flint, in small pieces over the ploughed grounds, &c.

Single or *Shingel*, small fragments of worn quartz, about Knipton, in the gravel.

Jasper, of a dull kind, with red specks at Stathern, and a browner at Knipton.

Dendroides are found sometimes on the coarser silicious stones, but no fine ones.
They occur also on the calcareous.

Feltspar is only in granite.

Silicious Iron Stones are in small masses in the pits.

SAND STONE.

The building-stone of the Vale is principally taken from pits near Belvoir Castle; it is also dug in several places in the Vale, for walls and for repairing the roads: it is not of one kind, but none of the kinds are very good. A coarse angular, but irregular grit, in an argillaceous cement, is common to them all, but with more or less calcareous parts; a soft stone near Croxton has no calx; but many kinds are nearly compounded of grit and calcareous earth, with a small portion of Argil.

Stone is dug at Belvoir, Muston, Easthorpe, Normanton, Bottesford, and Redmile; in which places occur most of the petrifactions mentioned in the following pages.

SALINE substances are seldom found here; the only solid one is an *Embryon Alum*, found in small scales, like Mica, in lumps of brown clay: it lies about ten feet deep, in the barn-yard belonging to the rectory at Stathern.

Salts are said to impregnate a few waters in this neighbourhood; but no analyzation has been made which can be depended upon.

The saline efflorescence, on walls by stables, and places of that kind, occurs here as in other countries: it is formed by two, three, and sometime more species of salt.

INFLAMMABLES in the Vale of Belvoir are of two species, *Coal* and *Pyrites*.

Coal of a soft kind was discovered at Woolsthorpe, but in no great quantity; besides this, there is found at Normanton, in the blue limestone stratum, a bituminous body, resembling Cannal-coal, of a conchoidal fracture and singular appearance, intermixed with a coarse white spar, in such manner as to give the whole a tessellated form: this fossil seems to originate in the vegetable kingdom, and Mr. Mounsey has traced it till it actually terminates in a matter evidently ligneous; immediately above the sparry compartments of this substance, lies a calcareous coarse stone, with variety of fossil bodies.

Pyrites, of an irregular shape, called, by Wallerius, *Pyrites*, of botryoide form, were found in sinking a well at Barston; they are of a brilliant pale yellow; which, like all other of this species of mineral, grew dull when long exposed to the air.

METAL, whether in substance or ore, has not been found in the Vale of Belvoir, except in the iron stones, which contain that species, though probably in no great quantity.

PETRIFACTIONS, in great numbers, and of many kinds, are found over all this country, and more particularly in the North part of the Vale, about Bottesford, Easthorpe, Muston, and Normanton.

Of these, the Rev. Mr. Mounsey has in his possession the greatest variety, and is continually making additions to it. The following are the principal genera which he has hitherto found; but the limits of this work will not admit an account of the numerous species comprehended under them.

PETRIFICATA, Linné, Systema Naturæ, vol. III. 157.

AMPHIBOLITHUS.

1. *Glossopetra subulata, striata*, called by Luid, in his Lithophylaceum *Limaculum* and *Siliquastrum*; it resembles a black polished horse-leech. Found at Easthorpe. It is of a metallic black, and highly polished like those found at Pyrton-passage, but is a scarce fossil.

It is not of the kind figured in the Plate of Fossils, inserted under Burbach, in vol. IV. Plate LXXIII. p. 463, fig. 11. which is the *Glossopetra anceps*.

HELMINTHOLITHUS.

This genus affords almost all the petrified bodies we know; they follow in the order of Linné.

1. *Hammonites*, or *Cornu Ammonis*. See the Burbach Plate, fig. 7. 8. and 15. And fig. 22. is certainly of this genus.

Species.

1. With a smooth back and obtuse.
2. With a furrowed back, the furrows equal.
3. With a furrowed back, the furrows bifid.
4. With an acute whole back, and flat disk.
5. With one furrow at the back, and the disk with ridges alternately shorter.
6. With a prominent ridge between two furrows.

This last is the common *Cornu Ammonis* of the country; the numbers are very great, and the variation of size astonishing: Da Costa mentions a yard in diameter as the largest extreme; and the size of a pea as the smallest. Whether any here exceed the former dimension is not certain; but many are so minute as to require the help of a magnifier to distinguish their volutions; and being put into a scale, which will turn readily with a fourth part of a grain, or indeed with much less, they scarcely cause that side of the beam to preponderate: between these dimensions others are found in every gradation.

2. *Serpula*.

Small pieces of stone with serpula are found at Easthorpe and Muston; it is yet hollow, and about the size of large thread, and some much larger.

3. *Patella*.

Fossile limpets are very scarce; Mr. Mounsey has met with a small specimen at Normanton.

4. *Helix*.

In petrifactions the genus *Helix* is not to be distinguished from the Turbo, nor even the Trochus, as the mouth is mostly abraded; some species, which nearly resemble the recent kind of an oblong form, are found at Easthorpe and Normanton.

5. *Nerita*.

5. *Nerita.*

It is very doubtful, if any of the numerous Univalves hitherto found in this country answer the definition of this genus.

6. *Turbo.* See the Burbach Plate, fig. 3.

A numerous genus. Mr. Mounsey has at least twenty species, with many variations: the *Turbo terebra* of Linné, and one like the *Turbo acutangulus*, are among those which most nearly resemble the recent kinds.

They are found in several pits, but chiefly at Normanton, Easthorpe, and Muston.

7. *Trochus.* See the Burbach Plate, fig. 18.

Three or four varieties are defined with a tolerable degree of certainty, and not unlike the recent kinds; these are from Easthorpe pits, and minute; but *Trochi* are found of larger kind, though not so perfect.

8. *Buccinum.*

A small species of this genus at Muston and Sedgbrook; it is smooth, not umbilicated, and with seven volutions.

9. *Conus.*

One species of the division *Pyriformes.* South of Muston.

10. *Nautilus.*

The fossile *Nautilus* is found in great varieties of size, but not of form; a petrifaction, called by Da Costa *Ammonoides*, is also met with about Normanton; they do not materially differ, except in the size of the first volution, from the common *Cornu Ammonis:* these have the beautiful foliaceous appearance of the fossile in the Burbach Plate, fig. 13.

11. *Pinna.*

Petrifactions of *Pinna* are very scarce; a specimen of one or two have been found at Easthorpe and Normanton, with longitudinal striæ, but no spines.

12. *Mytilus.* Burbach Plate, fig. 5.

A slender Muscle, about the length of the *Mytius edulus*, is common in the stone at Muston; and a larger and less slender resembling a *Pholas;* they are also found very small upon a slaty limestone about Bennington and other places.

13. *Anomia.*

This genus occurs in the greatest numbers. Burbach Plate, fig. 2. *a.* is one species.

The species *Terebratula* is common.

The *Plicatella* is generally filled with a fine foliated spar, and is equally plentiful.

The *Angulata* is more scarce, and is filled with earth.

Many variations, and perhaps species, are found in the pits about Stathern.

14. *Ostrea.*

Pectens. Burbach Plate, fig. 12.

This division of *Ostrea* affords several beautiful specimens, particularly one at Bottesford; it is elegantly striated with striæ alternately less and greater; the colour is a polished black-blue.

Other varieties are,

Pectens, quite plain and smooth.
——— striated longitudinally.
——— striated transversely.
——— ridged with vaulted spines.
——— ridged with broad ridges.
——— striated deeply within the valve.
——— faintly radiated, with few rays, &c.

Ostrea, properly so called, have fewer variations, except in size: there are many of this kind.

Gryphites, Beaked Oysters, vulgarly called Crow Stones, are found in great plenty over the Vale; they differ but little in form or size; this petrifaction is a compact spar, scaly, and fetid when struck. In some specimens the upper small valve will fall by a blow, and the spar, where the animal lodged, from the under valve, leaving impressions on both sides where the ligaments tied it to the shell. See the Burbach plate, fig. 16. for the larger or lower valve.

Gryphites have been found of a flinty matter, but not in this country.

15. *Arca*

Three small species; one resembling the *Arca nucleus* of Pennant, found at Easthorpe.

16. *Chama.*

These are scarce. Mr. Mounsey has one specimen.

17. *Spondylus.*

Several, and very perfect; they resemble in form the *Gaederopus*, but are without spines. Easthorpe.

18. *Venus.*

There are some small, which are scarcely petrifactions; others large, and of a sparry matter, the hinge being perfect, and of this genus; these shells most resemble the *Venus Erycina;* but the smaller specimens only differ in size from the *Venus Gallina.*

19. *Donax.*

A petrifaction, resembling the *Genus Donax* in the obtuse margin, is found at Foston Field; but the hinge is not visible.

20. *Cardium.* Burbach Plate, fig. 4. *a.* and *b.* are probably of this genus.

It affords a few specimens, one like the *Cardium edulis*, but much less.

21. *Tellina.* Burbach Plate, fig. 2. *b.* a *Tellin* of the *Cuneus* kind.

The greatest variety of Bivalves is found in this genus, viz.

1. Those smooth and nearly equilateral.
2. Furrowed or striated.
3. *a.* The sides unequal, or *Cunei.*
3. *b.* The ridges of these latter very deep and transverse.
4. Two very deep dents beneath the hinge, as figured (but not accurately) in the Lithophylacium Luidii.
5. Oblong, with the hinge at one end, and several other varieties.

Casts of Fossile *Cunei*, plain and striated, entirely of stony matter, with no remains of shell, are found at Knipton Brook, and many other places; some resemble the figure No. 17. of Burbach Plate.

These are the petrifactions of the Testaceous kind, which are more certain; many remain, which require further investigation.

22. *Madreporus.*

The *Porpita*, or Button-stone of Dr. Plott, is a scarce fossil in this country, but is found at Easthorpe. See Burbach Plate, fig. 9. *a. b.*

A variety not mentioned by Authors occurs with it, where one side is more irregular, but undivided; and the lamina on the other side radiated two ways, but with their extremities terminating in the middle of the coral.

Another *Madrepore* of the fasciculated kind is found about the country, but not immediately in the Vale; as at Harlaxton, in Lincolnshire, it is of a kind called *Columella* by some authors, but is fasciculated.

Minute specimens of *Escharæ* are discovered on pieces of limestone scattered about the Mill-hill at Stathern; it is precisely like the *Eschara foliacea*, but less.

Other small coral, or petrifactions of Zoophytes, are met with, which cannot readily be referred to any known genus.

23. *Entrochus.* Burbach Plate, fig. 10. *c.*

The *Entrochi* of this country are few: they are found in a coarse calcareous stone, and principally

cipally at Croxton and Bottesford: they are small and smooth, and composed of a pure white opaque spar. At Bottesford they are mixed with the *Asteria*.

24. *Asteria*. See the Burbach Plate, fig. 10. *a*. and *b*.

25. *Stella columnaris*. Star Stones.

These are common at Knipton Brook and Bottesford; and found, but not so common, at other places in the Vale.

In the first, or *Asteria*, the *Stella* is more compound, and leaves a space in the centre: in the second, the points of the radii unite in the centre, and leave no space.

A variety, with only four radii, was found by Mr. Mounsey, but is very scarce.

26. *Belemnites*.

These conical fossils are in many places called thunder-stones: they are composed of a dense radiated fetid spar; they are found all over the Vale of various sizes, with or without a nucleus at the base.

PHYTOLITHUS *Lithoxylon*.

Petrified Wood is found at Easthorpe, Muston, and Sedgbrook, hard, spatose, and with evident fibrose texture: other specimens are crumbly and rotten.

2. *Rhizolithus*.

Petrified roots do not occur, unless the fibres mentioned under the article Sand-stone can be so denominated.

3. *Carpolithus*.

Resemblances of fruit, but of a very uncertain kind, are found at Easthorpe. Burbach Plate, fig. 6. is a *Carpolithus*, but not of the kind found here.

OSSA ANIMALIUM. Burbach Plate, fig. 19.

The bones found petrified in the pits at Bennington, *Orston*, and Easthorpe, can be referred to no certain kind, but are evidently osseous fossils, the external fibrose part and the central interstices plainly shewing their origin: they are probably different kinds of Vertebræ, nearly similar to those figured in Plate IX. of the Fossilia Hantoniensia.—A very large stone has been lately observed by Mr. Mounsey, which has the impressions of united vertebræ, with other separate bones, in considerable quantity; this stone lies under a post which supports a hovel, and cannot at present be particularly examined.

AN ACCOUNT of the STRATA of STONE and the FOSSIL BODIES found in the VALE of BELVOIR;

accompanied with THREE PLATES of the more curious PETRIFACTIONS, engraved from SPECIMENS in the Possession of the Reverend WILLIAM MOUNSEY, by whom they were collected, arranged, and described.

THE term FOSSIL admits a considerable latitude of interpretation; it means any kind of bodies dug out of the earth, and in this sense it is used by Woodward, including every metallic and mineral substance; and we yet say a "Collection of Fossils," without excluding from our idea any other than animal and vegetable substances. Linné, in his System, published in 1768, makes of fossil bodies only one division of the mineral kingdom; Minerals, properly so called, being one, and Rocks and Fossils the other two; in this sense Fossils were petrifactions, of which he made eight Genera, with many Species.

Mr. Mounsey, in his account of the admirable collection he had formed, uses the word Fossil nearly in this sense of petrifactions, including, however, with Woodward, shells found with no other changes than such as arises from brittleness and loss of colour, and some other bodies which help to compose the various contents of lime-stone pits in the Vale of Belvoir.

Having premised thus much, it is not necessary to class and methodize our subject as those who treat of this part of Natural History in a more general or more scientific method. The Plates consist of petrified bodies alone; and respecting the pits where these are found, their strata and the stone which forms them, with some other particulars equally curious and satisfactory to the Mineralogist and the Collector of Fossils, the account which Mr. Mounsey has himself written and communicated, leaves nothing more to be desired on these heads. This indeed he presented as a series of remarks intended for the basis of a Treatise on the Fossiology of the Vale: but, having given to it our full consideration, we are perfectly assured that no other introduction to the description of the particular bodies is necessary; that any enlargement we could make would be superfluous; and that any corrections or alterations (except of a few and most trivial inaccuracies in a composition not immediately intended for the press) must be sought with much care, and made with little advantage.

OF THE STRATA OF THE EARTH, &C. CONTAINING FOSSIL SHELLS IN THE VALE OF BELVOIR.

In that part of the Vale of Belvoir which lies in this county, stone is dug for various purposes; in some places it is sought for the use of builders, in others it is burned to lime; but in most (and with respect to some portion of it, in all) it serves for the repair of the roads and village causeways, &c.

The strata which form these beds of stone, of whatever thickness they may be, as from an inch to a foot, are uniformly horizontal, and in no place appear to dip or follow the direction of the ground; but this uniformity extends no further than to the position of the strata. At the depth of 12 feet in some places are found seven or eight regular beds of stone; other places afford two or three beds; and in many places no bed is to be found. In one pit I observed 11 strata, of which more than one third part was useful stone; between each stratum was blue-clay bind or clunch, an hard marle containing more calcareous than argillaceous matter; but the contents of one of these pits gives no certain information respecting the formation of the strata of another, even at the most inconsiderable distance; we can therefore depend upon no observations which are not made from an inspection of the pit immediately under our examination; in a few yards the variation becomes great. Some strata gradually decrease in thickness, and run out, when other strata arise as these terminate; but though the pits be unlike with respect to their contents, yet it is to be remarked that the strata are stronger or weaker in proportion as they widen or approach each other. They are said to approach when a fresh stratum arises in the intermediate space, and to widen when one gradually runs out, for the distance then becomes doubled. Where the stone is firm and compact, the stratum of it terminates in an edge; where it is more tender and brittle, it finishes in earthy knots, and shivers, and this is always found in strata very near the soil, where all regular appearance of stone entirely vanishes.

Not more dependance is there to be placed upon the continuance of any of the strata at a greater depth.

In this neighbourhood, about 40 years since, John duke of Rutland, with the expectation of finding coal, caused the earth to be bored to the depth of 213 feet, chiefly through a calcareous and argillaceous bind, intersected by nine or 10 strata of stone: and when they reached 169 feet about 14 inches of soft coal were met with. On higher ground they bored below the level of the other, till they had pierced 469 feet; not a tenth part of the various strata were stone, and no coal appeared, yet the distance was only two miles from the place of former trial; neither was there any proportion found in the two places, in those strata of alternate clay and stone, at any depth; so that, as is before remarked, one pit gave you very unsatisfactory information respecting the contents of another, though in its own vicinity, so that no judgment could be formed of the stone, coal, or other mineral bodies, which any untried spot was likely to produce.

Near the surface, the plough in a great measure indicates the nature of the beds below. When sand is there, a light arenaceous soil will of course be turned up; if the earthy-brown rock, so common in this neighbourhood, small irregular fragments, with shelly and petrified portions, will be discovered. Sometimes the asteriæ or star-stones are plentiful in the soil, loose and scattered among stony or earthy matters. In the brook at Bottesford (in the Vale), at about three feet depth under its bed, lies a rock, which is composed of little else than masses of these asteriæ; it is entirely calcareous, and when polished makes a beautiful marble. In the liberties of Normanton and Easthorpe, hamlets to Bottesford, the beds of stone are of a very different appearance and quality; and these beds are in some cases about two miles distant, in others not more than one mile.

In Normanton are found pits which yield alternate strata of clay, and a tolerably-hard pale-blue lime-stone. These run for seven or eight strata in a depth of about 10 feet; the weakest stratum of the stone about three inches, and the strongest nine. In all these beds are many petrified marine bodies; they are always found in greater numbers, and more perfect, in the lower strata. Sometimes very large bivalves lie detached from the rock, thick and strong, of sparry texture, and with bituminous smell, when abraded, or struck against each other. Some of these are perfect, some pressed almost flat, and in this latter case, the stone now so hard and solid was evidently in its former soft state, forced by pressure from those breaches made in the shell; and this case seems to have happened (whatever could be the means) prior to the formation of the rock, for they were there surrounded with clay, and lodged between two firm strata of stone, sufficient, judging from their present situation, to guard them from any violence or pressure. In those more perfect, and found in the lower beds, there are very beautiful crystallizations, white, transparent, and hexangular, when broken water gushes from the cavity, and the internal part then resembles a cavern or grotto-work in miniature, brilliant and irregular.

At the lower part of the pits, and in the centre of the rock itself, are to be found pieces of wood, sometimes petrified, but oftener become a substance of peculiar kind; the greater portion is like jet or finer coal, not so light as to swim in water, but it is polishable, and does not stain the fingers; it has nothing calcareous in it, and burns nearly as coal, with sulphureous smoke; of this one piece has been found near four feet long, seven inches broad, and two thick; its specific gravity 1.263. Not one homogeneous body, but a mass of contiguous small pieces without regular form, which are surrounded or held in by septa or thin flakes of a beautiful flesh-coloured substance of flinty texture, the specific gravity of which is 4.8, or near four times as heavy as the bituminous matter; neither is this calcareous [1], but it sparkles in the fire, and undergoes very little change of colour at the point of ignition.

At Easthorpe the stone (excluding the petrified bodies) is of dull earthy-brown colour, and increases greatly in quality the deeper it is found. When it appears, on low ground, near the surface, and especially near a small stream, it is weak, shivery, and indeed scarcely merits the epithet Rock; but in the higher grounds, at nine or ten feet depth only, it is 18 inches thick, and sufficiently compact and durable. This same rock is probably continued to Muston, about a mile distant, since it is there found of the same kind, and apparently in the same level, about three feet thick; all the earth above is a mixture of vegetable mould and blue clay, with here and there a thin stratum of shelly bodies, more frequently the gryphytis or crow-stone.

A part of this rock, or what seems at least of its substance, wears away, and becomes a soft earth on exposition to the weather, more particularly the frosts and thaws of winter; then it is that the shells also in part perish, but many are also detached from the stone, and are to be collected fine and perfect, and in such quantities that I have doubted whether they only, or every other matter composing the heterogeneous body of the rock, exceed in weight; to the eye they seem the principal portion.

The variation of the shelly bodies thus petrified or (in some cases) thus preserved without petrifaction, is as extraordinary as the variety of species. In the same spot are found the fossil *Nautilus*, known generally by the name of *Cornu Ammonis*, and particularly that variety which has on the back an elevated ridge between two furrows; of these have been seen specimens three feet in diameter, and with proportionable thickness, and others of the same external character, not weighing five grains, some so ponderous that it was difficult to convey them, and others so light that the weight was unperceived. There are likewise *Trochi* so minute that 12 of them, with some portion of earth within, have only weighed a single grain.

Of more than 100 species of fossil bodies, which Mr. Mounsey collected in this neighbourhood, 40 at least are the produce of his researches in this pit; and these, for the greater part, in so perfect a state, that if colour be excepted, they lose little by a comparison with the recent shells. This kind of petrifaction is doubtless the most numerous, but not the only one. There are some exuviæ of animals, exclusive of the testaceous class, as vertebræ of cetaceous fish, and coralloid bodies, madrepore, and some other genera.

The wood which is discovered in these places is either petrified or in a state of decay, and not, as some shells, preserved without alteration of substance; in both states the wood shows the grain and circular marks of its annual increase, and the knots also very distinctly. The rock where it is found is of such an heterogeneous nature, that several bodies in actual contact with each other have no resemblance in colour or substance; in one part is limestone; next, a black jaspery pebble, made smooth, and rounded by attrition; here a calcareous body, and there one on which acids have not the smallest effect. There is a composition of earth and clay, wood and pebbles, limestone and spar, with varieties of corallines and testaceous figures, which all together are formed into a tolerably hard and compact mass.

What is here termed the rock, is not one solid bed or floor of stone, but it consists of a vast number of shapeless and disproportioned blocks intimately connected. These blocks are sometimes 600 or 700 pounds weight, and sometimes not more than 20 or 30 pounds. Besides the irregular division of the blocks there are regular lines or seams which run parallel, and are generally from three to nine or ten feet asunder, and occasionally more than 20 feet. These are called by the workmen the South Seams, from their having always their direction North and South, or (as I observed) pointing to the needle with the greatest nicety. Other seams there are which run across in every direction, without any tendency to the formation of regular divisions. Under the beds of

[1] Probably the substance here described is the Baroselinite or Ponderous Spar of Mineralogists.

stone,

stone, even at the bottom of the pit, are found stringy productions, evidently of vegetable origin; they ascend through the fissures and crevices, and it is very difficult to trace them to their termination, at what we might judge to be their root, or at the end next the surface of the soil, but they may be distinctly traced, and even taken out for two or three feet, though oftentimes not thicker than a hair, and always very rotten, tender, and friable, nor have they in any part the resemblance to vegetable fibres, except such as must have been for a long period in a state of total decay. When the strata are thus viewed, with these irregular cracks and regular seams, the horizontal divisions so accurately preserved, and the others, though chiefly with a tendency to be vertical, yet with every variation of obliquity, the mass appears to be tesselated in a curious manner.

When these blocks are long exposed to the weather, and washed frequently by the rain, then the petrified shells appear in every direction, and with every variation in size; some on the exterior side, others on the inner; some of them wrenched from their natural form, and turned from the hinge; in others that mark of the genus is laid bare, and becomes as distinct as in the recent specimens, the teeth elevated and acute, leaving no doubt of the characters; but others are again entirely closed, and between these are some opened in part, in a greater or less degree, whilst on the contrary no small numbers are flattened by pressure, which no longer exists, and heaped upon each other with the greatest confusion.

It is well known to the workmen that water insinuates itself through the different beds of clay, and the seams of the incumbent strata in a very short time, and these seams are thus filled with mud, making a space of about a quarter of an inch, though without any regularity, some being much less in width, and others exceeding that measure. By the perpetual dripping of the moisture in wet seasons, and the constant evaporation in dry and warm weather, the shells become exposed in these crevices, and are thus pitted and imperfect, while those in the opposite sides embedded in the solid rock undergo no alteration, but preserve their original shape, which while they are so situated no external circumstances are likely to affect.

The rock itself sometimes appears to have been broken by some convulsion of Nature, and, being so displaced, to be afterwards re-united. This breach, however occasioned, I have been able to trace through the middle of a petrifaction, and the junction of the parts has been completed by the intervention of sparry matter, but the two divided parts were seldom united again in the same direction, being generally wrenched aside in one place or the other.

There are various pits of stone in the Vale of Belvoir, many of them, in a great degree similar to these I have attempted to describe; others varied, but not so much as to require a particular description, the petrifactions in them not being found in either such numbers or varieties, though these which may be collected are equally as well preserved, and afford many fine specimens.

In a red-sand-stone upon the range of hills near Belvoir Castle, the shells dug out of the midst of the rocks are not petrified, but yet are firm and strong as in their recent state; what alteration they have suffered seems to be in loss of colour, and this is not universally the case. There has been found a specimen not only unchanged in substance, but having that beautiful purple polish within, which is so frequently seen in the foreign species of larger univalves. In other pits they are pale and brittle, but with no further change, being still testaceous, though much more tender than any fresh species.

The nearer these Fossils approach their rocky-bed the more they become assimilated to its substance, and when the body is actually sunk into it, there the petrifaction is complete. These are the more remarkable circumstances which arise in a general survey of the stone pits in this district.

FOSSILIA LEICESTRIENSIA:

OR,

PETRIFIED BODIES FOUND IN THE VALE OF BELVOIR. FROM THE COLLECTION OF THE REV. WM. MOUNSEY; WITH FIGURES OF THE PRINCIPAL SPECIES.

Petrified animals of the order *Mammalia* are seldom found in a state so perfect that an accurate judgment may be formed of the living species; nay, it is very probable that such species has not been yet discovered alive. We can therefore only form an indistinct idea of the animal to which these relicks once appertained, and as they are discovered in the same kind of stone, and in the same pits with petrified bodies, evidently marine, we may conclude that these were the bones of some cetaceous fish, which our Naturalists class in the order *Mammalia*. In Plate I. are figured many bones, some united, others distinct; they vary in size, and probably were not of the same origin. Among these are some which resemble the leg of some short thick quadruped. See fig. 2, Plate VII. and other figures marked 2, of which it is very difficult to form a satisfactory conjecture.

No. 1, Plate VII. represents a mass of blue stone of calcareous kind, found at Orston under a third stratum, in a pit about eight or nine feet deep. The length of this block is three feet and a half, and its greatest breadth 18 inches; it contains many of the vertebræ and other bones of some animal; the osseous texture is preserved; a calcareous spar fills up the interstices of the bone; but the fibrous part, whether siliceous, or already saturated with some acid, does not ferment with the marine. The seven figures marked 2. are from the same block, but now detached. No. 3, in the same Plate, contains other bones of a smaller animal; and fig. 4, probably a leg, was found at Bennington in the same neighbourhood. The other figures marked 4, are also found at that place. Figures like these are engraved in the ninth Plate of Brander's Fossilia Hantoniensia, and are briefly mentioned by Dr. Solander as the vertebræ of some unknown species of fishes; how far that judgment may be correct, or how these bones, resembling the tibiæ of land animals, will admit of the same decision, we must not venture to determine.

In the Lythophylaceum Britannicum Luidii, are some ill-executed figures of animal remains under his class *Chylostea*, which resemble these vertebræ; and Dr. Woodward, in his Catalogues, has many varieties of different parts of Mammalia, but whether the cetaceous, or of any other order, cannot be determined, both from the want of figures, and from the great uncertainty which the question is involved in.

In the collection of the Rev. Mr. Turner, rector of Denton, in the vicinity of Belvoir Castle, are two blocks of stone, hard, but coarse, and of dull greyish colour; these, when in one mass, about four or five feet long and nearly two broad, were luckily split, and discovered the convex and concave skeleton of an animal; the bones were not much distorted from their natural position; they are completely petrified, and are become of the same nature with the stone itself. Conjecture is wearied by endeavours to determine the quadruped to which these remains once belonged; nor is it very improbable that they are all which in these climates can ever be seen of it.

Horns, of some animal of the order Pecora, and genus Bos, have been lately found at Bottesford; they are larger than those of any taurine species we are acquainted with, are widely extended, and of great strength; the texture firm, the surface smooth, and between the horns dark and polished.

Under the head *Amphibiolithus*, or, according to other Fossiologists, *Ichthyolithus*, are ranged certain parts of marine amphibia, among which one of the most common is the *Glossopetra*, or petrified teeth of the Shark; they vary somewhat in shape and size, but

but generally are in both like the common horse-leech. They are wrinkled on the surface, are of compact sparry texture, and of dark glaucous-green colour. They are called by some authors Limaculus. They are occasionally to be met with among the fossils of the Vale. See Plate VIII. fig. 16.

We now proceed to that order of fossil bodies named *Helmintholithus*, that is, petrifactions of any of those animals which come under the denomination *Vermes* (worms), of which the testacea afford by far the greater number, and of these are the principal part of such collections as are formed of fossils and petrifactions.

1. HELMINTHOLITHUS NAUTILITES,
the petrified Spiral Nautilus, or *Cornu Ammonis*.

These are sufficiently common in many parts of the kingdom, and are of many varieties; but few of these variations are found in one pit, or in one neighbourhood. As has been observed, they are of almost every dimension, from two or three feet diameter to a one line. They are in general calcareous, and for the most part coarse and mixed with sand and clay; there are, nevertheless, many exceptions, which have a sparry texture and may be polished very highly.

The varieties in these pits are,

1. With the back *(ambitus)* entirely smooth. These have the exterior figure of the Nautilus; but whether their inward structure be concamerated is uncertain. See Plate VIII. fig. 20. Diameter of the larger seven inches.

2. The back furrowed; the furrows equal, neither the middle part nor border being prominent. This variety not only differs from the more common in the exterior character, but in the substance itself, being selenitical, at least so far as respects the matter which fills up the cellular divisions. Found in clay at Muston. They are small; an inch diameter, and under.

3. The back flatted, having the ridges on the face (the disk) carried through, and therefore the same in number over the whole petrifaction. One surface is very convex, the other plane, like some Helices. Small, one line and a half diameter.

4. The back furrowed with double furrows *(sulcis bifidis)*, and thus containing twice so many as the disk. Found in gravel. Size about two inches. Of this kind are many found by the banks of the Humber.

5. With a single furrow in the middle of the back. The surface with striæ alternately shorter. Found in the bed of the river at Bottesford. Small.

6. The back has a prominent middle ridge, between two furrows. This is the common kind, of which Mr. Mounsey has found almost every possible variation of dimension, from three feet diameter to one line. They are in vast numbers about the roads and highways; generally coarsely calcareous, but occasionally fair and sparry.

To these may be added the following:

A petrifaction, apparently a Nautilus (the *Nautilitis Lithophylaceum Luidii)*, with a prominent ridge at the back, and the surface with wave-like lines *(undulatim-striato)*. Size 18 lines diameter, with another Nautilitis of the same author (263), supposed a petrifaction of the Pearly Nautilus. It is a foot in diameter when large, but some only three inches. Neither of these are so distinctly marked as the foregoing.

When the petrified body is small, and (as it often happens) the aperture is invisible or imperfectly distinguished, it is extremely difficult to ascertain the genus of testacea to which it belongs. The three genera, *Trochus*, *Turbo*, and *Helix*, and, in small specimens, even *Conus* and *Murex* may be confounded; not to take into consideration that these appellations being given, and their character assigned from recent species, there will be found in the fossil shell something which, in a certain degree, varies from that character.

On this account it is that these names are given with much hesitation; and many collectors of either recent or fossil shells would doubtless remove a part of them into other genera.

CONUS.

1. A Conus, with seven or eight volutions, having the lower borders acute. Length two lines. Plate VII. fig. 18. *a*. its natural size.

2. A pyriform shell. Conus? Smooth, with short obtuse spire. The whole sub-cylindrical. Size of the last. Plate VIII. fig. 19. *b*. natural size.

TROCHUS.

1. A studded Trochus. The volutions, with regular tubercles; resembles the *Trochus nodulosus* of the Hampshire fossils, but is less, and has less the form of the genus. Plate VIII. fig. 21. magnified; *c*. natural size.

2. A small Trochus, with longitudinal distant striæ; one line in length, and of the same breadth.

3. A Trochus, with the volutions striated transversely, and the larger striæ duplicate about one third of an inch.

4. An umbilicated Trochus, with acute volutions, decussately striate. One fourth of an inch size.

5. An obovate smooth Trochus *(Anfractibus per Carinam disjunctis)*. Very small.

6. A widely-umbilicated Trochus, with an acute spire, studded transversely. In the broader part an inch; length eight lines.

7. An umbilicated Trochus, with an acute spire. The volutions studded one way, and striated the other. Varies in size; some two inches. Plate VIII. fig. 20. natural size.

TURBO.

A. Those ovate or oblong.

1. A sub-triangular Turbo, with six volutions, studded and striated. Length eight; breadth six lines.

2. An ovate species, or ovato-oblong, varies from seven lines long to two. The volutions acutely raised in the middle; studded and striated.

Under the term *Turbinites* are described and figured several petrifactions, which resemble these in the Lithophylaceum before quoted. See Plate VIII. fig. 29.

3. An umbilicated Turbo, transversely striated, and decussated with numerous longitudinal oblique lines. Length 16 lines; breadth 16. See Plate VIII. fig. 26.

4. A small ovate Turbo, with sub-angular aperture *(Trochus?)*, the spire transversely striated. Length three lines.

5. A Turbo smooth, umbilicated, sub-ovate. Long three lines; broad 2.

6. A rounded Turbo, sub-umbilicated, transversely striated, the umbilicus small, and longitudinal. Diameter three lines.

7. A Turbo sub-rotund, with six sub-striated volutions. Like the figures styled *Cochleæ clavicula productiore* of some authors, rather lengthened out. Plate VIII. fig. 27.

8. A small smooth Turbo, with cordate aperture; the spire short, the volutions sub-striated. Varies much. Plate VIII. fig. 24. *d*. natural size.

9. An umbilicated Turbo; sub-rotund, with four or five smooth volutions. Resembles some Helices. Plate VIII. fig. 28. *g*. natural size.

10. A smooth sub-umbilicated Turbo; roundish, with the volutions concave, and carinated. Diameter ten lines. Plate VIII. fig. 23.

11. A smooth umbilicated Turbo; roundish, with the volutions convex, and carinated. The carina acute. Diameter eight lines.

12. A roundish Turbo, having a single series of studs *(nodi)* in the first volution, and these only. Diameter ten lines; others less. Plate VIII. fig. 22.

13. A rounded umbilicated Turbo, with angular smooth volutions; the aperture round. Two lines diameter. Plate VIII. figure below fig. 25. *l*. natural size.

Turbo.

b. With very long spire.

These are the *Strombi* or *Needles* of some authors. They have in their form a strong resemblance to some recent species, but other exterior characters are different.

14. A long acute-angled Turbo, with double and carinated volutions. Length 10 lines; breadth two.

15. An obtuse-angled Turbo of the needle kind, longitudinally striated. Length from eight to nine lines.

16. A decussately-striated long Turbo, with rounded volutions, with strait striæ. Plate VIII. fig. 33. enlarged. The natural length four lines.

17. A Needle-Turbo, decussately striated. The volutions 12—14; the longitudinal striæ deep. Plate VIII. fig. 32.

18. A Turbo of this kind, but not so much produced. The volutions eight: the striæ transverse, and superficial. Plate VIII. fig. 30. but enlarged.

19. A Turbo *(duplicatus Linnæi)*, with 14 smooth carinated volutions. Length 18 lines; breadth five.

20. A smooth Turbo, with 12–14 volutions; more produced than 19, else resembling it. Plate VIII. fig. 31. enlarged. Length about nine lines.

Helix.—The Snail.

1. An Helix, or Turbo; fragile, with lunar aperture, smooth spire, and six smooth volutions. Plate VIII. fig. 34.

2. A large Helix; ovate, ponderous; smooth, with six volutions. Perhaps a Turbo. Length 40 lines; breadth 44.

Patella.—Limpet.

A small fossil shell, with the character of the Limpet; the margin very whole, and the top imperforated. The diameter from two to three lines.

Serpula.—The Worm-shell.

Clusters of Serpula (the *Vermicularis* of Linné, but smaller than the fresh specimens) are frequently found, with more or less of the shelly exterior remaining in our blocks of stone. See Plate VIII. fig. 4. and the figure above, where they are cut transversely.

2. *Serpula lumbricalis?* Cylindrical. Varies much in dimension. See four figures in Plate VIII. No. 6.

3. Plate VIII. fig. 5. This has in the figure the appearance of an *Entrochus*. It is placed here with some hesitation. It is articulated, and the joints elevated. See two specimens fig. 5.

Bivalve Petrifactions.

Tellinæ.—Cunei.

These in general have the form of the recent Tellens, but the joints cannot always be seen. The name of *Cunei* (wedges) is given from their shape. They incline to one side; the hinge not being in the middle.

1. A cuneiform Tellen, with coarse transverse striæ. The sulcated fossil *Cunei* of Da Costa, heavy, sparry. Vary much. Some 14 lines long and 21 broad.

2. A thick cuneiform Tellen, with deeper valves; else like No. 1. Length 20 lines; breadth 26.

3. An ovato-cuneiform Tellen, with transverse striæ. Length and breadth 19 lines and 29.

4. An ovato-cuneiform Tellen (a variety of three), larger. The striæ transverse.

5. A striated cuneiform Tellen, produced so as to approach the form of the Solen (razor-shell), but broader some than others. Proportion of breadth to length 54 to 24. Plate IX. fig. 3.

6. A Tellen, with recurved beak; wedge-form, with transverse striæ; the valves boat-shaped *(navicular)*. Two inches long; four to five broad. Plate IX. fig. 3.

7. An oblong wedge-form Tellen, compressed *(natibus elevatis)*. Plate IX. fig. 4. *a*. natural size.

8. A more ovate Tellen; smooth, with sub-rotund valves. An inch long; two broad.

9. Tellen? or perhaps *Cardium*. The same in the Lithophylaceum Luidii, fig. 774. *Musculites*.

10. A sub-orbicular Tellen? smooth, and gibbous *(natibus prominentibus altera majore)*. 15 lines to 12.

11. An ovato sub-rotund Tellen; striated with numerous transverse striæ *(natibus elevatis)*. Breadth 21; length 18 lines. Plate IX. fig. 6.

Cardium.

1. A small Cardium; striated, with many minute decussating striæ, longitudinal, and transverse. Breadth five lines.

2. A Cardium? with about 20 longitudinal striæ; resembles the Pecten, but appears of this genus. The striæ equal, and not alternately greater and less. Long 10 lines; broad 9.

3. Fragment of a Cardium; rugged, with vaulted squammæ *(Isocardium Linnæi)*. Breadth 26 lines.

Donax.

Plate IX. fig. 7. Donax; sub-triangular, transversely furrowed. Perhaps a Venus. Diameter seven lines.

Venus.

1. Varieties of the species *Gallina*, small, but resemble the recent shell. Klein, table X. fig. 50. Diameter two lines. Plate IX. fig. 8. *b*. natural size.

2. A sub-rotund Venus, transversely radiated with seven to eight radii. Shell thick. Breadth ten lines; length seven.

3. A small Venus, with longitudinal striæ, and three of four circular rays. Diameter five lines. Plate IX. fig. 9. *c*. natural size.

4. A smooth Venus, small; varies from three lines diameter to one.

Chama.

1. With longitudinal rugose ridges ten to twelve, and transverse striæ. Klein, table X. fig. 53. but his figure is larger, and more rugged. Varies from eight to five lines long, and from 15 to 9 broad. Plate IX. fig. 10.

Arca.

1. With decussated striæ, remote and incurved beaks; has affinity with the *Arca Lactea*, 106 of the Hampshire fossils. Length three lines; breadth five. Plate IX. fig. 11. *d*. natural size.

2. An Arca, more smooth, with slight transverse striæ; the beaks approximating. This also like the *Arca Lactea*. Plate IX. fig. 12. *d*. natural size.

3. A small smooth Arca, of Tellen shape *(natibus approximatis)*. Long two lines; broad three. Plate IX. fig. 13. *d*. natural size.

Spondylus.

Species uncertain; a *Gædaropus?* Not thorny; unequally rugged; the rugæ irregular. It is not a petrifaction, but in a shelly state. Plate IX. fig. 14. natural size.

Ostrea.

a. Pectens.

1. A Pecten? angular, with elevated longitudinal ribs, irregularly and transversely striated. A curious and scarce fossil. The ribs run out into spines. Plate IX. fig. 15. natural size.

2. A Pecten, with unequal ears; the valves convex; the striæ alternately less; the form oblique. Diameter 15 lines. Plate IX. fig. 16.

3. A Pecten, with obsolete rays, and transverse striæ. Diameter 14 lines.

4. A smooth, or obsoletely-striated Pecten. Diameter about 15 lines.

5. A Pecten, like those frequently found both

fossil and recent. The striæ very numerous; one valve convex. Varies in diameter, 18 lines to 8. Plate IX. fig. 17.

6. A Pecten, found in shelly state frequently. *Pecten recondita*; Hampshire fossils. Diameter one inch.

7. Fragment of *Ostræa maxima*. Diameter three inches.

8. A striated Pecten, with equal ears obliquely ovate; the longitudinal striæ alternately greater. Diameter 24 lines, but varies much. The genus doubtful; the specimens very neat. Plate IX. fig. 19. and another represented open.

9. A Pecten? with sub-equal ears, and minute longitudinal striæ. Shell smooth; sides unequal. Found recent in America, and sold by the name of *Clams*.

10. A Pecten, with rays about 12; the scales imbricated. Plate IX. fig. 20.

11. A Pecten, with decussated striæ, and with small squamæ. Diameter five inches.

12. A rounded Pecten, smooth; large. Diameter four and five inches.

13. A smooth Pecten? equal eared. About 14 lines diameter. Plate IX. fig. 18.

14. A Pecten? varying in size. Character doubtful. Diameter three and four inches.

B.—Oysters.

15. A species resembling the *Edulis*, but more oblong and smoother. Long 32 lines; broad 20.

16. Another. Genus uncertain. Long 42 lines; broad 27.

Many valves are found which appear to belong to species of this genus, or that of Spondylus, one like the small red oyster, common in the West Indies, which adheres to coral, &c.; others have an hinge somewhat differing. See Plate IX. figs. 22 and 23.

17. The Gryphyte, or Crow-stone, a petrifaction common in many parts of this kingdom; here very perfect. Each valve and the contents in the state of compact spar are frequently to be met with. They often resemble in quality the Belemnite, and are bituminous. All are of calcareous substance. It is often considered as an Anomia.

18. The *Ostreâ Ephippium*, the Glass or pellucid Oyster, is found preserved, and not much altered. Diameter 22 lines. Plate IX. fig. 21.

Anomia.

These are found in prodigious numbers, and often form a great part of the very substance of the rock. They are in general completely petrified.

1. An angulated Anomia; one of the least common. Plate IX. fig. 24.

2. *Anomia Plicatella*. Linnæi.

3. *Anomia Terebratule*. Linnæi.

In this genus the gradations in form and substance vary so insensibly, and the species or varieties so approach each other, that it is very difficult to give them any appropriate name, or indeed to describe them. They take the nature of the substance they are embedded in, and may be found of the purest spar, and of the coarsest stone; often friable; sometimes admitting polish. The species are not many, but the varieties numerous.

Pholas?

An oblong striated rugged Pholas? having the form of the Dactylus, with many longitudinal and transverse striæ. It is 28 lines broad, and about 12 long. Plate IX. fig. 25 to 28. also possibly a variety.

Mytilus.

1. The petrified Muscle, most common here, resembles the *Edulis*, but is more narrow and smaller. It is about 26 lines in breadth, and about nine long.

2. Another species resembles a small recent one from the West Indies, but is somewhat narrower in proportion to its length. Dimensions three lines and four.

Pinna.

1. A fragment of fossil Pinna is frequently observed in the common stone of this country, but no character of the genus can be distinguished except the form. Plate IX. fig. 26.

2. Plate IX. fig. 27. a large fossil Pinna, nearly a foot in length, and at the broad termination 80 lines in width. *a.* and *f.* shews it intersected. It is seldom found perfect, and not often in a fossil state, but impressions of this or some species are to be seen in the common stone of the country.

Echinites.

1. Petrifactions of Echini are not so frequent in this district as in countries abounding with gravel. The *Echinus Spatagus* is the one here met with, and that only where there is a gravelly soil. None are to be traced in the building quarries or common stone of the vicinity.

Belemnites.

The *Tubulus Marinus* of Klein; Thunder-stone; *Nautilus Belemnita*. Found of various dimensions, always conic, but with greater or less proportion of length to the base, often filled with a *nucleus* at the greater termination; the substance sparry, but uniformly and strongly bituminous. They vary from seven or eight inches to so many lines in length. This is the *Nautilus Belemnita* of Linné, in the later editions of the Systema Naturæ.

Asteria.

The Asteria or Star-stone, so common in this district, are said to be portions of the Star-fish petrified; what species of that animal produced these joints may not be easily determined. They are figured in Plott's Oxfordshire, and are found, though very sparingly, on the Lincolnshire coast. They are either single stones, with star-like impressions on each side, or articulated masses, with numbers varying from two to 40, or upwards. See Plate VIII. fig. 11, 12, 13, 14.

These species vary in some respects. Fig. 14 the common kind; fig. 12 has the radii very acute; in fig. 13 one ray is more eminent.

Fig. 9 is a single variety with four radii, and these very perfect and regular.

Fig. 7 is a mass of ramified Asteria, or rather some part of the animal connected with them. It is a singular fossil, and very rarely to be found.

Fig. 8 appears to be Asteria formed like *Entrochi*. Very small.

Madreporites.

The *Madrepora Porpita*, *vulgò* Button-stone, is here to be collected in a perfectly fossil state, with the stria all preserved.

A singular variety, or perhaps species, occurs, Plate VIII. fig. 15. *Porpita duplicata*.

Branched white Coral *(Madrepora fascicularis?)* in small pieces are to be collected, but is not frequent.

To these may be added that Selenite *(Gypsum Selenites)* pellucid and crystallized is occasionally found in the Vale (at Stathern).

The *Ludus Helmontii*, a compound mass of clay and calx, with crystallized spar, and frequently with the *Cornu Ammonis*, or impressions of it, occurs in some places.

A bituminous fossil also occurs in the blue limestone at Bottesford. It is composed of various cells or compartments formed of Gypsum, or perhaps Barytes, and filled with tessulæ of Lithantrax resembling cannel coal. See Plate VIII. fig. 3. the right hand part of the mass. Fig. 2 gives some idea of the stone found at Bottesford with asteria rising in various directions; and fig. 1. a block of stone from Easthorpe pits, conveys some notion of the confused assemblage of shells, pebbles, earth, wood, &c. &c. found so often there, and in such astonishing variety.