OPHRIS, or OPHRYS, in botany, the name of a genus of plants, called in Engliſh *twyblade*, the characters of which are theſe: the flower, which has no perianthium, conſiſts of five oblong petals. The nectarium is dependent, longer than the petals, biſid, and marked with a deticulation on each ſide of its baſe. The ſtamina are two very ſhort filaments. The antheræ are erect, and covered by the inner margin of the nectarium. The germen of the piſtil is oblong and contorted. The ſtyle adheres to the inner ſide of the nectarium. The fruit is an oval capſule, containing a multitude of duſt-like ſeeds. Vid. *Linnæi*, Gen. Plant. p 434.

The ſpecies of *ophris* are, 1. The ovated-leaved *ophris*, or the common *twyblade*. 2. The bulbous-rooted *ophris*. 3. The creeping-rooted marſh *ophris*. 4. The leaſt, or triangular-leaved *ophris*. Vid. *Hill*'s Hiſt. of Plants, p 592.

OPILIO, in natural hiſtory, the name given to a peculiar genus of ſpiders. The diſtinguiſhing character of which is, that they have but two eyes. Their legs are uſually very long, and their skin hard and firm. They do not ſpin webs like the common ſpiders, for the catching their prey. Their head ſeems to grow to the middle of their ſhoulders: their forceps is terminated by two claws like thoſe of the leg of a crab. They differ from the common ſpider alſo, in the nature of their excrements; thoſe of this kind being hard and ſolid, the others liquid.

Of theſe there are four principal kinds: 1. The grey creſted *opilio*. This is the largeſt ſpider of this kind. Its body is greyiſh or browniſh, and its legs very long and ſlender; and it has on the back part of the head, a ſort of creſt formed of a double row of ſpines, and there is a rhomboidal crown ſpot on the middle of the back. This ſpecies is common in the fields about Auguſt. 2. The rediſh brown not creſted *opilio*. This is of a middling ſize, and has the longeſt legs of any kind. 3. The ſmall wood *opilio*, variegated with black and white ſpots, with a very elegant creſt. This is very ſmall, and has a remarkably little head. Its legs are remarkably long. It is found in woods in April. 4. The ſmall ſcarlet ſpiders, commonly called the *tant*, or *taint*. This is ſuppoſed to be very poiſonous. *Ray*'s Hiſt. of Inſects, p. 29. See the article TANT.

OPIMATORES, among the Romans, military men, who had the direction and management of the proviſions, and were to take care that the army wanted nothing. *Pitiſc.* Lex. Ant. in voc.

OPISTHODOMUS, ὀπισθοδομος, among the Athenians, the public treaſury, ſo called from its being ſituated on the back-ſide of Minerva's temple. Here, beſides other public money, a thouſand talents were laid in ſtore, againſt any very urgent occaſion; but if any man expended them upon a trivial account, he was to put to death. Alſo the names of all that were indebted to the commonwealth, were entered in a regiſter in this place. The tutelar gods of this treaſury, were Jupiter Σωτηρ, or the Saviour, and Plutus, the god of riches, whom they repreſented with wings, and placed next to the ſtatue of Jupiter the Saviour; which was unuſual in other places. *Potter*, Archæol. Græc. l. 1. c. 8. T. 1. p 31.

OPISTHOGRAPHUM, οπισθογραφον, among the antients, a waſte book, or ſchedule, on which were writ, extemporary things that wanted to be reviſed and corrected afterwards. *Pitiſc.* in voc.

The word is compounded of οπισθεν, *i. e.* afterwards, or on the backſide, and γραφω, I write; becauſe it was writ over again on the backſide of every page, which was left blank for that purpoſe.

OPIUM *(Cycl.)* — Dr. Charles Alſton, profeſſor of botany and the materia medica, in the univerſity of Edinburgh, has given us a diſſertation on *opium* in the medical eſſays of that place, vol. 5. art. 12. This gentleman is of opinion, that notwithſtanding the authorities of Lemery, Savary, Monſieur de la Condamine, in the Mem. de L'Acad. des Sciences for 1732, mentioned in the Cyclopædia, all which would lead us to conclude we have nothing but the meconium, or the expreſſed juice or decoction of the plant, our *opium* is neither an extract, nor an inſpiſſated expreſſed juice of poppies, but the milky juice drawn by inciſion from poppy heads. To ſhew this, the doctor, according to the directions of Dioſcorides, on a dry day before noon, cut off the crown of white poppy heads, ſo as to avoid penetrating into the cavity of the fruit, and collected the milk with a ſilver ſpoon in a China cup. The juice being expoſed to the open air, in a few days thickened to the conſiſtence of *opium*, and was of a fiery, hot, bitter taſte, and ſoporiferous ſmell, and more ſo than the common *opium*, of a dark yelloviſh brown colour on the outſide, ſomewhat higher within, and appeared as if compoſed of drops: after ten years keeping, its colour and taſte remained. This agreed with the account Bellonius, lib. 3. obſ. 15. gives of the beſt *opium*. That which was gathered from the papaver vulgare, or wild poppy, was ſomewhat of a lighter colour; but Dr Alſton thinks this but accidental, as the milk ſoon turns black on the knife. He alſo ſlightly ſcarified ſome poppy heads after the Perſian manner. When the juice was thickened, he ſcraped off the *opium*, and obtained more of it than by the other method. To procure the tear in its utmoſt perfection, he cut off the ſtar from ſeveral heads, and bending them down, let the milk drop into a cup. It grew ſolid as *opium*, and being formed into a lump, appeared uniformly white; nor was there any difference in the juices of different poppies.

Secondly, the Doctor obſerves, that the extract and inſpiſſated juice ſcarce any way reſemble *opium*; nor is their taſte and ſmell like it. The extract appears black when dried, and ſo does the juice, but when diluted, the firſt is brown, and the latter green. The extract is tough and adheſive, the juice rough and friable, and grows mouldy a day or too after expreſſion. *Opium* may poſſibly be mixed with either of theſe; and the greeniſh brown *opium* may have ſome ſmall portion of the juice in it. Its penetrating ſmell is certainly owing to the mixture of ſome aromatic ſubſtance.

Thirdly, *opium* contains more roſin than either the inſpiſſated juice, or extract. One third of *opium* appears to be roſin, while the juice and extract ſcarce yield one tenth part.

Fourthly, if *opium* was not the tear of the poppy, there would be no occaſion for ſowing ſo many fields with poppies in Egypt, and other places. Nor would it be ſo powerful a medicine, for its anodyne virtues depend chiefly on the milky juice.

The objection drawn from the low price of *opium*, is of no force; for even in this climate, where the heads are ſmall, the Doctor obſerves he could, in an hour, collect a dram of *opium* without the Perſian knife, or that dexterity which is acquired by practice. From all theſe conſiderations he concludes, that the greateſt part of *opium* is the tear of the poppy.

It has been controverted whether *opium* be got from the white or black poppy. Dr. Alſton thinks it of no conſequence, with reſpect to the medicine, which be choſen; the juice of both having the ſame effects.

As to the ſophiſtication of *opium*, the Doctor is of opinion, that only an innocent liquid is mixed with it, or a milky juice of the ſame nature with that of poppies, otherwiſe it would not be ſo ſtrong as what is made here. As the wild lettice, or *lactreca ſilveſtris odore viroſo*, C. B. *Pin.* 123. abounds with a milk of the ſame taſte and ſmell with *opium*; it may poſſibly be mixed with it, and without detriment; ſince the milk of the common lettices is anodyne and ſomniferous.

Many learned men among the moderns, have been of opinion, that *opium* was the nepenthes of Homer. Dr. Alſton forms ſome objections againſt this, and thinks that ſome of the antient phyſicians, who were neither ſtrangers to Egypt nor Homer's works, would have made the diſcovery long before the ſixteenth century.

Opium is acrid, bitter, and ſtrongly odoriferous. On attentively taſting it, a nauſeous bitterneſs is firſt perceived; then a pungent heat affects the tongue, next the palate, and laſt of all the lips. The heat continues ſome time, the bitterneſs longer, provoking a plentiful diſcharge of ſaliva. It alſo heats the noſe, and produces an inclination to ſneeze.

Opium is certainly diaphoretic, and has ſtimulating qualities, which ſtrongly refute the notion of its being refrigerating; it is certainly a hot medicine, tho' in many caſes it diminiſhes preternatural heat.

Opium conſiſts of five parts of gum, four of reſin, and three of earth, not diſſolvable either in watry or ſpiritous menſtruums. Suppoſing that the reſin of *opium* is as good, or as much wanted as the gum, or the mucilaginous part, brandy will be found the beſt menſtruum.

Frider. Hoffman thinks the narcotic virtue of *opium* depends on its volatile ſulphur, (*vaporoſum ſulphur.*) Geoffroy in his *Materia Medica*, will have this virtue owing to a thick rareſiable ſulphur, (*ſulphur craſſum ad modum rareſcibile*) a kin to that of ſaffron, caſtor, &c. But Dr. Alſton thinks both theſe opinions inſufficiently ſupported. *Opium* is rather alcaleſcent than aceſcent, yet it is not an alcali. From the abovementioned gentleman's experiments, it ſeems that the ſolution of *opium* gave more appearances of an alcali, than of an acid; contrary to the account given by Geoffroy, Mat. Med. Tom. 2. p. 697. From theſe experiments it alſo appears, Firſt, that the eſſential ſalt of *opium* is ammoniacal; Secondly, that *opium* contains a very ſmall proportion of an acid; Thirdly, that it is aſtringent, or makes the ſame change on Chalybeats which vegetable aſtringents do.

The moſt active principles of *opium* are very fixed; for it keeps well, and, when forty years old, remains hard, ſolid, and retains its taſte; and it ſeems that the practice of toaſting *opium*, in order to correct it, by diveſting it of its narcotic part, is of no ſervice; and *opium* affords little or nothing by diſtillation.

Upon a chemical analyſis *opium* yields phlegm, urinous ſpirit, oil, a volatile and a fixed ſalt, and ſome earth; but little of the virtues of *opium* can be inveſtigated, or explained, from its analyſis, ſince ſimples extremely different as to their effects on human bodies, afford the ſame principles on diſtillation, as Homberg has ſhewn by the analyſis of the deadly night-ſhade, and cabbage. See Mem. de l' Acad. des Sciences. An. 1701.

The curious may find the analyſis of *opium* in the abovementioned diſſertation by Dr. Alſton.

The effects of *opium* on other animals are not much different from its effects on men. Dr. Alſton put a few drops of a ſo-

lution of *opium* into a frog's ſtomach, and the circulation of the blood of the animal being examined by a microſcope, no alteration was perceived in the blood, as to its conſiſtence, colour of the ſerum, magnitude, figure, or colour of the red globules, but its velocity was ſurprizingly diminiſhed. In about half an hour, the blood regained its common celerity, and the frog its vigour. On giving the creature a ſecond doſe, the blood moved ſlower than it did the firſt time, and its velocity gradually decreaſing, ſtagnated firſt in the ſmaller, then in the larger veſſels, and in a quarter of an hour the frog expired. It is remarkable, that, notwithſtanding the diminution of the velocity of the blood, the pulſe was not leſs frequent, and that even when the circulation ſtopt in the foot, the pulſe remained viſible by an undulatory motion. On opening the frog, its ſtomach was found full of a clear mucus, tinged with the *opium*, and every thing alſo ſeemed perfectly natural. This experiment was repeated ſeveral times, with the ſame appearances.

A dog being killed by an injection of a ſolution of *opium* into his crural vein, on opening his thorax, the lungs were found ſound, but very ſmall, and white, without any blood in them. The heart was big, and all its great veſſels diſtended with blood; but nothing preternatural was obſerved in the brain or abdomen.

Opium, externally applied, is diſcutient, anodyne, and ſoporiferous, and has almoſt the ſame effects as when taken inwardly; but, that it can make any part inſenſible of pain is not evident. Wedelius declares he never could obſerve any ſuch effects. One inconvenience following the immoderate application of *opium*, mandragora, and hyoſciamus for pains of the eyes, taken notice of by Galen, is the mydriaſis, or a preternatural dilatation of the pupils. Mr. Ray gives a notable inſtance of this kind, ariſing from the application of a leaf of the deadly night-ſhade to a cancerous ulcer a little below the eye. The uvea, in a night's time, entirely loſt its muſcular force, and was ſo relaxed, that the pupil, in the cleareſt light, remained four times bigger than that of the other eye.

Opium rather coagulates, than attenuates the blood. See Dr. Friend's Emmenolog. cap. 14. This favours what is affirmed by ſome authors, that the blood has been found congealed, or frozen, as they expreſs it, about the heart of thoſe who have been killed by *opium*. See Wedel. Opiolog. l. 1. §. 1. c. 5. Uſe makes the quantity of *opium* ſafe, and even beneficial, which would otherwiſe prove poiſonous. Daily experience confirms this; and they who habituate themſelves to *opium*, find it as neceſſary as ſpirituous liquors to tipplers. A few grains will deſtroy a perſon unaccuſtomed to it, but ſome diſorders, as madneſs, enervate its force. Among the Eaſtern nations, a dram of *opium* is but a moderate doſe. Garcias mentions one who took ten drams every day, and tho' ſhe appeared ſtupid and ſleepy, yet ſhe diſputed very readily and learnedly on any ſubject. It is remarkable that, notwithſtanding this exceſſive uſe of *opium*, the Turks are generally long liv'd, if we credit Bellonius, lib. 3. obſ. 14, 15.

The action of *opium* is very analogous to that of wine or vinous ſpirits; the good and ill effects of both differ little. See Wedelius in his *Opiologia*, and Geoffroy's materia medica. Platerus affirms that wine is narcotic, and Sydenham that *opium* is the moſt excellent cordial in nature.

The virtues of *opium*, internally taken, depend chiefly on its action on the ſtomach. There are many inſtances of terrible ſymptoms, and death itſelf cauſed by narcotics, before they went out of the ſtomach, and without inflaming it, or cauſing any viſible change in it, far leſs vitiating the maſs of blood; and alſo of the ſame ſymptoms being removed, and death prevented by vomiting. Dr. Alſton is alſo of opinion; 1mo. That the anodyne and hypnotic virtues of *opium* do not depend on its action on the brain or on the blood. 2do. That it affects firſt and principally the nerves to which it is applied; next ſuch as more immediately communicate with them; then thoſe which ſerve for ſenſation and voluntary motion; and laſt of all, by conſent the whole nervous ſyſtem. 3tio. That this impreſſion on the nerves differently affects the ſenſorium commune and the mind according to its degree, and the nature and function of the nerves primarily acted upon. 4to. That the primary or firſt obſervable effect of the mechanical impreſſion of the narcotic part of *opium* on the nerves, is the relaxation of their fibres. Now as this relaxation of the nerves, and conſequently of the moving fibres, demonſtrates *opium* to be more than a palliative remedy in a great many diſeaſes; ſo it is not difficult by it to account for its bad as well as good effects. For by relaxing to a certain degree, it may prove anodyne, cordial, diaphoretic, hypnotic, &c. or cauſe ſtagnations, deliriums, lethargies, apoplexies, and death.

It does not appear that *opium* rarefies the blood, or that the operation of this medicine depends on ſuch a rarefaction. If it were, it ſeems likely that bleeding might be a remedy for the ſymptoms occaſioned by the abuſe of *opium*; but ſome authors affirm that veneſection is mortal even the day after a narcotic has been taken. See Dr. *Alſton*, loc. cit.

We have an account in the Memoirs of the Academy of Sciences at Paris, of the death of a young man at Cairo, from his being decoyed into taking a very large doſe of this medicine. Among a number of young people in that city, who frequently drank together, there was one who always boaſted of his ſuperior power to bear a large quantity of liquor, and his companions, determined to get the better of him for once, diſſolved, without his knowing of it, a dram of liquor in the liquor he was to drink; the conſequence was, that, inſtead of falling aſleep, as they expected he would, he fell into violent deliriums, and afterwards into a profound and dead ſleep.

The next morning his comrades went to ſee him, and triumph in their victory, but found him dying, looking livid, without pulſe, and with his mouth cloſed. They ſent for aſſiſtance, but in vain. After the death of the perſon, the body, arms, and thighs, became covered with livid tumors as big as the head of a young child, and theſe emitted an intolerable ſtench, almoſt as ſoon as the corpſe was cold. There is one very ſingular accident in regard to this caſe, which is, that this ſtench allured all the cats from the neighbouring houſes, who came with great eagerneſs, and were hardly prevented from devouring the body.

Dr. Smyth, while at Smyrna, took pains to obſerve, what the doſes of *opium* taken by the Turks, in general, were. He found that three drams in a day was a common quantity among the larger takers of it, but that they could take ſix drams a day without miſchief. A Turk eat this quantity before him, three drams in the morning, and three in the evening, with no other effect than its giving him great cheerfulneſs. But the taking it thus habitually greatly impairs the conſtitution; the perſons who accuſtom themſelves to it, can by no means live without it, and are feeble and weak; their legs are uſually thin, and their gums eaten away, ſo that the teeth ſtand bare to the roots; they are often alſo of a yellow complexion, and look much older than they really are. The Turkiſh meſſengers, when ſent upon buſineſs of haſte, always carry *opium* with them, and take largely of it when tired; they ſay it immediately gives them ſtrength and ſpirits to proceed, taken with proper precaution. Phil. Tranſ. N°. 223.

When *opium* affects the head, or lungs, by its volatile æthereal oil, or ſpirit, acids, eſpecially foſſile acids, are the proper correctors. And, when it produces ſickneſs, nauſeas, vomitings, ſpaſms, flatulent colic pains, and ſuch like ſymptoms, by the action of its ponderous, ſtimulating, and adheſive oil, the warmeſt alexipharmics muſt be uſed. *Morgan*, Mecan. Prac. Phyſ. p. 271.

Opium given too ſoon, to ſtop the operation of emetics, has been known to produce dangerous effects. See Medic. Eſſ. Edinb. Vol. 4. Art. 6. or its Abridgment, Vol. 1. p. 160.

The reſinous part of *opium* being noxious in Mr. Godfrey's opinion, he propoſes to make liquid laudanum, by digeſting an ounce and a quarter of *opium*, in half a pint of diſtilled water twenty-four hours, ſhaking the veſſel frequently; then filtres it, and adds three ounces of ſpirit of wine; after which, the other ingredients may be added at pleaſure. Miſc. vere util. p. 59.

OPIUM *Cyreniacum*, in the materia medica, a name given by ſome of the writers of the middle ages to *aſſa fœtida*. This was the *ſcordolaſaron* of the Greek writers of thoſe times, and was called *Cyreniacum* from the place whence it was principally brought. Aviſenna tells us, that, in his time, it was brought principally from Kirvan, and that is Cyrene.

OPLITODROMI, Οπλιτοδρομοι, among the Greeks, a deſignation given to thoſe who run in armour, at the Olympic, and other games. *Potter*, Archæol. Græc l. 2. c. 21. T. 1. p. 442.

The word comes from the Greek οπλον, *armour*, and δρομος, a *race*.

OPOBALSAMUM, (*Cycl.*) in the materia medica, a name given by ſome authors to the true *balſamum judaicum*, or *balm of Gilead*. *Dale*, Pharm. p. 282.

OPOPIA, a name given by ſome anatomical writers to the bones which form the receptacle of the eyes.

OPORICE, a name given by the antients to a medicine compoſed of the autumnal fruits, and extolled for its great virtues againſt weakneſſes of the ſtomach and dyſenteries.

It was compoſed of five quinces with their ſeeds, as many pomegranates, a pint of ſervices, a pint of Syrian ſumach, and half an ounce of ſaffron; all theſe were put together into a gallon of muſt, and boiled over a very gentle fire to the conſiſtence of honey, with great care to avoid burning. Vid. *James* Med. Dict. in voc. & *Pliny*, l. 24. c. 14.

OPOS, a word uſed by the old medical writers, to expreſs the juices of plants, whether flowing ſpontaneouſly, or by means of inciſions. It is uſed by Hippocrates to expreſs the juice of ſilphium, which was called ſimply the juice, by way of eminence, as we call the quinquina bark ſimply the bark. Others have made it ſignify the juice of the fig-tree, and the caprificus, which they had in frequent uſe to curdle their milk.

OPOSSUM, or POSSUM, in zoology, the name of a very remarkable American animal, deſcribed by various authors, under the names of *maritacaca*, *carigoi*, *ropoza*, *caregueya*, *jupatuma*, *tlaquatzin*, *ſarigoi*, and *ſemivulpa*.

It is a creature of the ſize of a large cat. Its head is ſhaped like that of the fox; its noſe ſharp, and its upper jaw longer than the under; its teeth are ſmall, but like thoſe of the fox

and,

and it has two long ones, like the hare, in the front of the mouth; its eyes are very beautiful, ſmall, round, and vivid; its ears long, ſmooth, and very ſoft, placed erect, like thoſe of the fox, and very thin and tranſparent. It has black whiskers, like thoſe of a cat; and has other hairs of the ſame kind on the other parts of its face, and over its eyes; its tail is round, and a foot long, and is of great ſervice to it, as it uſes it to twiſt round the branches of trees, hanging itſelf to them by that means. The tail is hairy near the inſertion, but naked all the other part, and is partly black, partly of a brownish white; its hinder feet are conſiderably longer than the fore ones, and each has five toes; they much reſemble hands, and the nails are white and crooked, the hinder one being as in the monkey kind, the longeſt. Its head, and legs, as Hernandez obſerves, ſomething reſemble thoſe of the badger. It has a broad, longitudinal, black ſtreak, on the face; it is of a blackiſh colour with a mixture of a brown and grey on the back and ſides, and has ſomewhat of a faint yellowiſh caſt on the belly. *Ray*'s Syn. Quad. p. 183.

What diſtinguiſhes this creature, however, from all the other animals of the world, is, that it has a bag or pouch into which it receives its young as ſoon as deliver'd; this is a ſort of open uterus, and is placed under the belly near the hinder legs; in this the young are ſhelter'd till they are able to ſhift for themſelves, and when they begin to be ſtrong enough they frequently run out and return in again. The creature is of a ſtinking ſmell like our fox or martin. It feeds on ſugar canes, and ſome other vegetables; but not wholly on theſe, for it frequently preys on birds which it catches on the trees, and often plays the fox's trick of ſtealing poultry.

The *Opoſſum* has been called *Marſupiale* by ſome authors, from the *Marſupium* or pouch for the receiving its young. This pouch is a membranous body, not very thick, though conſiſting of ſeveral coats. It has four pair of muſcles, ſerving to contract and diſtend, as alſo to open and ſhut it at the mouth, and there are two bones in this part of the body peculiar to this animal, and ſerving only for the inſertion of theſe muſcles. The pouch itſelf is to be rang'd among the veſiculous parts of the body, which ſeem to be part muſcles, part glands, and to perform the office of both motion and ſecretion. The hollow part of this pouch is lightly colour'd with hairs, but theſe are not placed ſo thick but that the ſkin is ſeen between them. Theſe hairs are uſually matted together in ſeveral places with a tough, yellow, and glutinous matter ariſing out of ſeveral glands there. This ſubſtance is of a very nauſeous and offenſive ſmell. Mr. Ray, and others, have obſerved that this animal, while alive, ſtinks like a pole-cat, or even worſe than that animal. This ſtink is principally owing to the matter contain'd in this bag; and yet ſo nearly is this matter ally'd to that contain'd in the ſcent-bag of the civet-cat, and other animals, that when expoſed to the air for ſome days, it loſes its offenſive ſmell, and becomes a very grateful perfume like them. The ſame obſervation holds good of the ſcent bag of our weazel, and pole-cat, which (particularly in the laſt animal) are very offenſive while freſh, but when expoſed to the air and dry'd, become only a perfume reſembling that of civet.

John Faber relates out of Lerius, that the *opoſſum* or *ſerigni* ſtinks ſo that the barbarous Indians refuſe to eat it; but that if the kidneys be taken out, the ſtink goes off in a great meaſure, and the creature becomes eatable, and his fleſh very well taſted; but it is very probable that Lerius, who had ſeen the operation performed, but examined only in a curſory manner, miſtook the ſeat of the offenſive ſmell, and that the perſon who performed it, cut deeper than he was aware, and took out this bag or pouch as well as the kidneys. The kidneys, and the fat about them, have no ill ſmell at all.

The pouch of the *opoſſum* has, beſide its glandular coat, a muſcular one, which ſerv'd to contract or diſtend the whole ſubſtance of it together, as its muſcles did its particular parts; beſide this, alſo, it has a vaſcular coat, in which the blood veſſels are diſpoſed in very great abundance.

The male *opoſſum*, as well as the female, has this kind of pouch under its belly, and takes upon himſelf, at times, the care of carrying and preſerving the young in caſe of any impending danger. Phil. Tranſ. N°. 239. p. 123.

OPTIO, among the Romans, an aſſiſtant or lieutenant belonging to every centurion.

They were called *optiones* from *opto*, I chooſe; becauſe it was in the option of the centurion to chooſe whom he pleaſed for this employment; though at firſt it was otherwiſe, the *optio* being choſen by the tribune or chief commander of the legion. *Pitiſc.* in voc.

The *optiones* were not peculiar to the camp, but were uſed alſo in many other offices of life. id. ibid.

OPULUS, the *water-elder*, in botany, the name of a genus of trees, the characters of which are theſe: The flower conſiſts of only one leaf, but puts on a various form in the different ones. Some are rotated and pierced at the bottom by a piſtil; theſe are barren. Others are hollowed into the ſhape of a baſin, and pierced in the ſame manner at their bottom by the pointall of the cup: In theſe the cup finally becomes a ſoft juicy berry, containing a flatted and heart-faſhion'd ſeed. See Tab. 1. of Botany, Claſs 20.

The ſpecies of *opulus* enumerated by Mr. Tournefort, are theſe: 1. The common *opulus* or *water-elder*. 2. The *opulus* with globoſe flowers. *Tourn.* inſt. p. 607.

OPUNTIA, in botany, the name of a large genus of plants, the characters of which are theſe: the flower is of the roſaceous kind, or conſiſts of ſeveral leaves diſpoſed in a circular form. The cup, after the flower is fallen, becomes a ſeed-veſſel of a fleſhy ſubſtance, umbilicated, and unicapſular, fill'd with ſeeds uſually of an annulated appearance.

The ſpecies of *opuntia* enumerated by Mr. Tournefort, are theſe: 1. The common *opuntia* or Indian fig. 2. The middle ſeed *opuntia*, with oblong leaves. 3. The *opuntia* with ſmall roundiſh and compreſſed leaves. 4. The largeſt *opuntia* with long, broad, and thick leaves. 5. The ſmalleſt, round-leaved, Indian *opuntia*. 6. The ſmall American *opuntia* with long and very ſlender ſpines. 7. The little, narrow-leaved, American *opuntia*. 8. The tall tree *opuntia* of America, with cereus leaves, and white flowers. 9. The tall tree *opuntia* of America, with articulated leaves and yellowiſh flowers. See Tab. 1. of Botany, Claſs 6.

We have ſeveral ſpecies of this plant, propagated in the gardens of the curious; they are all early raiſed by cutting off their branches at the joints during any of the ſummer months; theſe cuttings are to be laid by for a fortnight, in a dry, warm place, that the wound may heal up, otherwiſe they are very ſubject to rot, as are alſo all the other ſucculent plants. The proper place for planting theſe, is one third part common paſture land, one third ſea land, and one third more of an equal mixture of lime rubbiſh and rotten tanner's bark. This mixture ſhould be made three or four months before it is to be uſed, and the larger ſtones and clods ſeparated, and laid at the bottoms of the pots, and the reſt filled up with the finer part; the cuttings are to be planted in theſe pots, which are then to be plunged into a hot bed of tanner's bark, where they muſt be gently watered, and when they begin to ſhoot they muſt have as much air as poſſible; and, finally, removing them into the ſtove, they muſt be placed near the glaſſes, and have as much air as may be: they may be expoſed to the open air in the ſummer months, but they ſucceed much better when they are kept continually in the ſtove. *Miller*'s Gard. Dict.

ORACH, *atriplex*, in botany. See ATRIPLEX.

Stinking *orach* is a powerful medicine. The very ſmell of it will ſometimes recover patients out of hyſteric fits, when all the common means fail; and a decoction of the plant is an excellent medicine in the ſame caſes. A decoction of it, made very ſtrong, and given in a glyſter, in hyſteric caſes, is alſo excellent; and a conſerve of the leaves, one of the beſt forms it can be given in, has the ſame virtues in a very high degree, alone; and is a good medium to bring other medicines into the form of an electuary for the ſame purpoſes. A ſyrup of it is ſometimes kept in the ſhops, and is not without its merit, though a great deal of the virtue of the plant be loſt in ſuch a form.

ORANGE, *aurantium*, in botany, the name of a genus of trees, the characters of which are theſe: the flower is of the roſaceous kind, being compoſed of ſeveral petals, arranged in a circular form; the piſtil ariſes from the cup, and is ſurrounded by a number of little leaves, which terminate in the ſtamina. This piſtil finally becomes a fruit of a roundiſh figure, covered with a thick and fleſhy rind, and divided within into ſeveral cells, which are full of juice and veſicules, and contain ſeveral callous ſeeds. To this is to be added, that the leaves are heart-faſhioned at the bottoms.

The ſpecies of *orange*, enumerated by Mr. Tournefort, are theſe: 1. The common ſweet *orange*. 2. The common-ſharp-taſted *orange*. 3. The winter *orange*, with a leſs juicy fruit. 4. The ſharp-taſted wild *orange*. 5. The *orange*-tree with curled leaves. 6. The ſtellated roſe-*orange*. 7. The variegated *orange*. 8. The variegated, narrow-leaved *orange*. 9. The corniculate *orange*. 10. The narrow-leaved corniculate *orange*, with ſmaller fruit. 11. The ſtriated *orange*. 12. The fœtiferous *orange*. 13. The manyfold fœtiferous *orange*, with one fruit, including two or three others. 14. The Lisbon *orange*. 15. The China *orange*. 16. The large-fruited *orange*. 17. The manyfruited *orange*. 18. The *orange* with very narrow ſpear-pointed leaves. *Tourn.* Inſt. p. 620.

ORANGE-*flowers*. Theſe flowers are very juſtly eſteemed one of the fineſt perfumes. The water diſtilled from them is accounted ſtomachic, cordial, and carminative. Some alſo ſpeak of it as a ſudorific.

There are a very great variety of *orange*-trees in the gardens of the curious. The manner of raiſing them from ſeeds is this: When you purpoſe to raiſe ſtocks for buding, they ſhould be raiſed from citron ſeeds, taken out of the rotten fruit in ſpring; for the ſtocks of this kind are preferable to any other, both for their quickneſs of growth, and their readily taking buds either of *oranges*, lemons, or citrons.

A good hot bed muſt be prepared, either of horſe dung or tanners bark. The laſt, where it can be had, is much the beſt;

beſt; the ſeeds muſt be ſown in pots of rich earth, and theſe, when the bed is of a due temper, muſt be plunged into it. The pots muſt be watered frequently, and the glaſſes of the hot-bed ſhaded with mats in the heat of the day, and at times raiſed to give air.

The ſeeds will come up in three weeks, and a month after this the plants will be fit to tranſplant into ſingle pots. The bed muſt be now renewed, and ſome pots of about five inches over at the top, muſt be filled half full with freſh earth, mixed with very rotten cow-dung. Place one plant in the middle of each of theſe pots, and then fill it up with the ſame earth; then place theſe pots in the new hot-bed, and water the plants every day. By July, the plants will be two foot high, and muſt then be hardened by degrees to the air, by raiſing more and more the glaſſes of the hot-bed. In September they muſt be taken into the greenhouſe; in the winter ſeaſon they muſt have frequent ſmall waterings, and in ſpring their heads muſt be waſhed, to cleanſe them from filth. In ſpring, they muſt have again a gentle hot-bed, but in June they muſt be hardened again; and in Auguſt they will be fit to bud.

At this time you are to make choice of cuttings from very thriving and fruitful trees; chuſing ſuch buds as are round. When the ſtocks are budded, they muſt be removed into the greenhouſe, to ſhelter them from wet, turning their buds from the ſun, but letting them have as free air as poſſible, and refreſhing them often with water. They muſt remain in the greenhouſe all winter, and in the ſpring muſt have another bark hot-bed; then cutting off the ſtocks about three inches above the buds, obſerve to give them as much water as they require.

The buds with this management will be by July three feet high, and they muſt then be hardened by degrees, that they may bear the greenhouſe in the winter; and as this will be a ſufficient height for the ſtems, it is proper at this time to ſtop the leading branch to force out lateral ſhoots. This firſt winter they will be tender, and muſt be taken great care of, and after this they require no more care than other full grown trees.

It is a regular and certain way of ſupplying a greenhouſe with *orange*-trees, but there is a much more expeditious one, which is the purchaſing ſuch trees as are brought over every year from Italy. Theſe are as large when we receive them, as thoſe of our own produce will be in ten or twenty years growth; and tho' they have but ſmall heads then, will be brought to have very good ones in three years, and to produce very fine fruit.

In the choice of theſe trees, thoſe which have two buds in ſtock are preferable to thoſe which have only one; and the ſtraitneſs of the ſtem, freſhneſs of the branches, and plumpneſs of the bark, are greatly to be regarded. When you have purchaſed a proper number of theſe trees, each of them is to be ſet in a tub of water, with its head and half its trunk above the ſurface; they are to ſtand in this three days, then they are to be taken out, their roots picked, and bruſhed clean, and the tops of the branches cut off, and they are to be planted ſingly, in pots juſt large enough to contain their roots, in a mixture of freſh earth and rotten cow-dung. Theſe are to be ſet in a moderate hot tanners bark-bed, and ſome potſhreds muſt be always put at the bottom of the pots, to keep their holes from being ſtoped, and give a free paſſage to the water. They are to be moderately watered at proper times, and by the month of June they will ſhoot out pretty long ſhoots, which muſt be ſtoped, in order to produce the lateral branches. They muſt now be hardened by degrees, and in the middle of July muſt be brought into the open air, in ſome warm ſituation, defended from winds and from the too great heat of the ſun. In September they muſt be removed into the greenhouſe, and watered gently during the winter. In the ſucceeding ſummer, the branches muſt be ſtopped from growing to their lengths, to furniſh a good head; and they muſt be frequently watered. And after this, they will require no farther management, but to be new potted every year; which ſhould be done in April, and the earth prepared for it a year beforehand, of cow-dung and freſh earth. The roots ſhould be ſoaked a quarter of an hour in water, and afterwards ſcrubed very clean, before they are put into the new pot.

If old *orange*-trees have bad heads, the way to mend them is to cut them moſtly off, and proceed with them in the ſame manner as with the trees brought from Italy.

All *orange*-trees require frequent waterings, but theſe ſhould not be large; there muſt always be a paſſage for the water to run off at the bottom of the pot or tub; they muſt have as much freſh air in winter, as the ſeaſon will allow, and they ſhould not be placed too near each other in the greenhouſe. In ſummer they ſhould be placed where they may have the morning and evening ſun, without too much wind; and they ſhould not be houſed till October. The ſhaddock and citron are much tenderer than the *orange*, and ſhould therefore be houſed ſooner.

In the Philoſophical Tranſactions, N° 114, there is a very remarkable account of a tree ſtanding in a grove near Florence, having an *orange* ſtock, which had been ſo grafted upon, that it became in its branches, leaves, flower, and fruit, three-formed; ſome emulating the *orange*, ſome the lemon, or citron, and ſome partaking of both forms in one; and what was very remarkable, was, that theſe mixed fruits never produced any perfect ſeeds; ſometimes there were no ſeeds at all in them, and ſometimes only a few empty ones.

The ſeeds of the *orange* kind ſeem different in their nature from thoſe of all other plants. In the generality of others, the ſeed is only a ſort of nidus, and bed of a nouriſhing matter, for the young plant contained in ſome one part of it, and called the plantula ſeminalis; and however minute the ſeed itſelf may be, this plantula is but a very ſmall part of it: but the ſeeds of the *orange*, though contained in the inſide of a pulpy fruit, and in all reſpects, ſeeming of the nature of the common ſeeds, yet, when examined nicely, are found to contain, not a ſimple plantula ſeminalis, but each of theſe ſeeds or kernels, contains within it another compleat ſeed. Both in the *orange*, and lemon kinds, on opening what we call the ſeeds, when the ſkin, or membrane, is ſtripp'd off, there are frequently found two ſeeds encloſed in that membrane, that is, under the ſkin, and without ſide of the kernel, there is a ſmall ſeed, the like of which does not appear in the ſeed of any other fruit.

It is true, indeed, that in hazel nuts, as alſo in almonds, and in peach and apricot kernels, we often find a double ſeed, or kernel, but then each of them is ſeparately encloſed in its own membrane, and has no communication with the other, but is only placed in ſimple contact with it; and each has its diſtinct ſtalk, or ſtring, by which it ſeverally receives its nouriſhment; and, in theſe, the containing of two kernels ſeems only an accident, a kind of ſuperfœtation, as in the twin births of animals, which, naturally, bear only one.

When one of the *orange* or lemon ſeeds is ſtripp'd of its outer membrane, there appears a little ſtring, which lying under it, cauſes a protuberance in the firſt ſkin; and from this ſtring not only the ſeed, but the plant within it receives its nouriſhment; and the firſt and hard ſkin, which is eaſily ſeparated, ſeems only given to it for the defence of the inward parts; whereas nuts, almonds, peach-ſtones, and the like, have a much harder and firmer coat given them for the ſame purpoſe. The ſtring which appears through the firſt membrane extends its ſmall veſſels alſo through the ſecond membrane near the ſeat of the plantule; but theſe are ſo extremely fine, that we loſe them before they enter it, no microſcope being able to ſhew them farther than where they grow extremely ſmall, and fine, near the entrance into this part. It is an amazing thought, but it is alſo an evident truth, that this ſmall ſtring, which runs in this manner under the coat of this ſeed, contains in it as many diſtinct veſſels as are to be found in a full grown *orange*-tree; for if all theſe veſſels were not in the young plant, while involved in its matrix, whence ſhould they come afterwards? When this ſtring is cut tranſverſely, and examined before a good microſcope, ſomething of this appears, for there are ſeen in it the ſections of ſeveral veſſels, and the ſmall quantity of pulpy matter between them is encloſed in a ſeemingly thick and tough membrane, together with them, in order to keep the whole together: if the ſeed, or kernel, be itſelf cut acroſs, it appears to be only a congeries of a great number of globules of a ſoft matter, preſſed together. Within this ſeed thus cut, and under all its membranes are ſeen the two regular, and perfect ſeeds, lodged together, and not ſeparated by any membrane, as the accidental double kernels of nuts, &c. always are; ſometimes, indeed, there is only one ſuch obſerved, and ſometimes there are three. Theſe are not always of the ſame ſize, but one is often larger than the others. Each of theſe is, however, a true perfect, and diſtinct ſeed, and is divided naturally into two lobes, and theſe ſeem only to have been united at firſt, juſt where the young plant lies, ſo that this whole kernel ſeems to have been deſtined by nature for no other end, but to foſter and cheriſh the young plant, till it become able to ſhoot up and live above ground. In the heart of this inner ſeed is found the plantula ſeminalis, which is not larger than a ſmall grain of ſand, to the naked eye. The wonderful conformation of this ſtructure, cannot but ſtrike any one who is uſed to examine ſeeds, with great amazement. It is plain that the ſeed contained within the other ſeed, can only receive its nouriſhment from the veſſels contained in the ſtring above deſcribed. But it is amazing, that theſe ſhould not be, as uſual, immediately diſtributed from that general cord, or congeries of them, to the ſeed itſelf, but to another that is the center ſeed, and can only come to the inner ſeed, after having paſſed thro' this, and been in it devaricated into other veſſels too fine for the eye to trace.

Signior Franciſco Lana, in his prodromus to ſome philoſophical diſcoveries, tells us, that there is a way of producing *oranges*, without ſowing or planting the trees, only by infuſing the flowers in oil of almonds; for that this oil will, every year afterwards, at the proper ſeaſon, produce both flowers, and ripe *oranges*. See the whole proceſs at large, under the article FRUITS, as atteſted by the author and his friends.

Sea ORANGE, in natural hiſtory, a name given by Count Marſigli to a very remarkable ſpecies of ſea plant. It is tough and firm in its ſtructure, and, in many things, reſembles the com-

common fucus; but, instead of growing into the branched form, the generality of those plants have, it is round and hollow, and in all respects, resembles the shape of an *orange*. It has, by way of root, certain very fine filaments, which fasten themselves to the rocks, or to shells, stones, or any thing else that comes in the way. From these their grows no pedicle, but the body of the *orange*, as it is called, is fastened by them to the rock, or other solid substance. The *orange* itself, is usually of about three or four inches in diameter; and while in the sea, is full of water, and retains this when taken up. In this state, it frequently weighs a pound and an half, but when the water is let out, and it is dryed, it becomes a mere membrane, weighing scarce any thing. It is best preserved, by stuffing it full of cotton, as soon as the water is let out of it, and hanging it up to dry in this form. Its surface is irregular and rough, and its colour a dusky green on the outside, and a clearer, but somewhat bluish green within; and its thickness is about an eighth part of an inch. When viewed by the microscope, it is seen to be all over covered with small glandules, or indeed, composed of them; for they stand so thick, one by another, as to leave no space between, and seem to make up the whole substance: so that it appears very like the rough chagrin skin used to cover toys. These are all so many hollow ducts, thro' which the sea-water finds a passage into the globe formed by this skin, and by this means it is kept always full and distended; on cutting it with a pair of scissars, the water immediately runs out, and the skins collapse: but there is something farther remarkable, which is, that the whole substance, near the wounded place, is in motion, and seems as if alive, and sensible of the wound. The glandules are found full of water, and resembling small transparent bottles; and what goes to the structure of the plant beside these, is an assemblage of a vast number of filaments, all which are also hollow, and filled with a clear and transparent fluid.

There is another plant of this kind, described by Count Marsigli, Triumfetti, and others, and called the *ramose*, or branched *orange*. This is very much of the nature of the former plant, but instead of consisting of one round globule, it is formed of several oblong ones, all joined so together, that they represent the branches of some of the fucus's, but that they are shorter; and these are all hollow and full of water, in the same manner as the single globes of the common kind. This has, by way of root, certain fine and slender filaments, which fasten it to the stones or shells near which it is produced; and it is of a dusky greenish colour on the surface, and of a fine bluish green within. The surface viewed by the microscope, appears rough, as in the other, and the glandules are of the same kind, and are always found full of a clear water. *Marsigli*, Hist. de la Mer. p 81.

ORANGE-*dew*, a sort of dew which falls in the spring-time, from the leaves of *orange* and lemon trees, and is extremely fine and subtile. Mr. De La Hire observing this, placed some flat pieces of glass under the leaves to receive it, and having thus procured some large drops of it, was desirous of finding out what it was. He soon found that it was not a merely aqueous fluid, because it did not evaporate in the air; and that it was not a resin, because it readily, and perfectly mixed with water: it was natural here to suppose it a liquid gum; but neither did this, on examination, prove to be the case; for being laid on paper, it did not dry as the other liquid gums do. Its answering to none of these characters, and its being of the consistence of honey, and of a sweet-sugar-like-taste, gave a suspicion of its being a kind of manna; and whatever in the other tryals had proved it not a resin, a gum, &c. all equally tends to prove that it is this substance.

ORARIUM, in ecclesiastical writers, the same with *brandeum*. See the article BRANDEUM.

ORATORIO, in the Italian music, a sort of spiritual drama of dialogues, containing recitativos, duettos, trios, ritornellos, chorusses, &c.

The subjects of these pieces are usually taken from the Scriptures, or from the life of some saint, &c.

The music for the *oratorio* should be in the finest taste, and most chosen strains. These *oratorios* are greatly used at Rome in time of lent; and of late in England.

ORBICULAR *leaf*, among botanists. See LEAF.

ORBICULARE *os*. See the article Os.

ORBICULARIS, (*Cycl.*) in anatomy, a name given by Riolanus, and some others, to the muscle called by Albinus *orbicularis oris*, and by Cowper and others, *constrictor labrorum*

ORBICULARIS, in botany, a name given by some authors to the *artanita*, or *cyclamen*, called in English *sow bread*. *Ger.* Emac. Ind. 2. See CYCLAMEN.

ORBICULARIS *intestini*, in anatomy, a name given by Vesalius, and some others, to the muscle now known by the name of the *sphincter ani*.

ORBIS, in zoology, the name of a genus of fishes, of which there are a great many species: that, however, which is usually meant by the word *orbis* above, is the species called *orbis primus*, by Rondeletius, and *orbis ægyptiacus* by Salvian, because frequently caught in the ostia of the Nile. Excepting the tail, this fish is of a round figure. It has no scales, but is covered with a firm and hard skin all over, full of small prickles, which render it very rough. Its mouth is small, and has four broad teeth. It has only one hole on each side for its gills, and a fin under each. It has another fin near the tail on its under part, and another answering to it in its upper. The tail is one broad and flat fin. It is not eatable, for the whole fish is head, or if you would rather call it so, belly. *Willughby*'s Hist. Pisc. p. 143. See Tab. of Fishes, N° 18, 63.

There is an opinion, that when this fish is dryed and hung up by the tail, it will always turn its mouth to that quarter from whence the wind blows.

The other species of this genus are, the *orbis lagocephalus*, *orbis scutatus*, *orbis muricatus*, *orbis ranæ rictu*, *orbis spinosus Clusii*, *orbis muricatus alter Clusii*, and the *orbis oblongus testudinis capite*. *Rondelet*, *Gesner*, *Aldrovand.* and *Salv.an.*

ORBIS *magnus*, in astronomy, the *orbit* of the earth in its annual revolution round the sun.

ORCHESOGRAPHY, the art of noting all the steps and motions used in dancing. See DANCE, *Cycl.*

ORCHIS, in botany, the name of a genus of plants, the characters of which are these: the flower is of the polypetalous anomalous kind, consisting of six leaves irregular in shape and size. The five upper of which are so disposed, as in some degree, to resemble a helmet. The lower leaf is of various shapes in the different species; it has usually a head, and often a tail, and resembles the body of a fly, a bee, a man, or other animal. The cup of the flower finally becomes a fruit, which is pervious by three fenestræ, to each of which there adheres a valve. The seeds are extremly small, and resemble a fine dust. To this it is to be added, that the roots are fleshy, with fibres propagated from them, and are in some species roundish, and resemble the testicles of an animal, and in others divided into several segments, resembling a hand and fingers. See Tab. 1. of Botany, class 11. *Tourn.* Inst. p. 431.

The species of *orchis*, enumerated by Mr. Tournefort, are these: 1. The broad-leaved great *orchis*, with a gaping hood. 2. The smaller-flowered broad-leaved *orchis*, with a gaping hood. 3. The broad-leaved *orchis*, with a compact spike of flowers. 4. The narrower leaved *orchis*, with a gaping hood. 5. The great soldier *orchis*. 6. The middle soldier *orchis*. 7. The lesser soldier *orchis*. 8. The mountain soldier *orchis*, with a red conglomerated spike. 9. The tall meadow soldier *orchis*, with variegated flowers. 10. The lower meadow soldier *orchis*. 11. The sweet-scented purple mountain *orchis*. 12. The sweet-scented dusky purple *orchis*. 13. The globular-flowered *orchis*. 14. The dwarf alpine mossy-leaved *orchis*. 15. The common male *orchis*, with spotted leaves. 16. The common male *orchis*, with shorter spotted leaves. 17. The common *orchis*, with drooping leaves, not spotted. 18. The common *orchis*, with drooping plain leaves, and with small white flowers. 19. The common female *orchis*. 20. The common female *orchis*, with rose-coloured flowers. 21. The female *orchis*, with white and changeable-coloured flowers. 22. The common little male *orchis*, with spotted leaves. 23. The male man *orchis*. 24. The female man *orchis*. 25. The monkey *orchis*. 26. The male Portugal man *orchis*, with an aromatic smell. 27. The Portugal man *orchis*, with a small green flower with a purple edge. 28. The bearded or goat *orchis*, with short and broad leaves. 29. The goat *orchis*, with longer and narrower leaves. 30. The smaller goat *orchis*. 31. The smaller goat *orchis*, with a purple spike. 32. The common purple spiked stinking *orchis*. 33. The white sweet-scented *orchis*, with spiral flowers. 34. The two-leaved *orchis*, with very broad leaves. 35. The narrower-leaved bifoliate *orchis*. 36. The smaller bifoliate *orchis*, with white flowers, with long spurs. 37. The greater trifoliate *orchis*. 38. The smaller trifoliate *orchis*. 39. The butterfly *orchis*, called by some the *frog orchis*. 40. The greater bee *orchis*, with the upper leaves white and purple. 41. The bee *orchis*, with greenish flowers. 42. The bee *orchis*, with ferrugineous flowers. 43. The bee *orchis* with blue flowers. 44. The bee *orchis*, with spotted flowers. 45. The bee *orchis*, with white flowers. 46. The bee *orchis*, with wholly purple flowers. 47. The bee *orchis*, with variegated flowers. 48. The greater fly *orchis*. 49. The lesser fly *orchis*, with green wings and a green head. 50. The yellow fly *orchis*. 51. The narrow-leaved *orchis*. 52. The *orchis* resembling an expanded butterfly, with green flowers. 53. The butterfly *orchis*, with spotted leaves. 54. The narrow-leaved white flowered butterfly *orchis*. 55. The spider *orchis*. 56. The Italian mountain *orchis*, with a ferrugineous flower with an oblong tongue. 57. The spotted-leaved Italian *orchis*, with long tongues. 58. The broad leaved handed meadow *orchis*, with long spurs. 59. The broad-leaved palmated meadow *orchis*, with fresh coloured flowers with long spurs. 60. The broad-leaved palmated meadow *orchis*, with snow-white flowers with long spurs. 61. The great narrow-leaved palmated meadow *orchis*. 62. The palmated meadow *orchis*, with spotted leaves. 63. The white-flowered spotted-leaved palmated meadow *orchis*. 64. The spotted leaved palmated meadow *orchis*, with variegated flowers. 65. The greate st

greateſt meadow-palmated *orchis*. 66. The leſſer palmated *orchis*, with long ſpurs to the flowers. 67. The ſmall narrow-leaved ſweet-ſcented palmated *orchis*. 68. The clove-ſcented palmated *orchis*. 69. The white-flowered palmated *orchis*, with the ſmell of elder. 70. The purple-flowered palmated *orchis*, with the ſmell of elder. 71. The palmated frog *orchis*. 72. The caſtrated *orchis*. 73. The broad-leaved marſh palmated *orchis*. 74. The narrower-leaved palmated marſh *orchis*. 75. The common palmated marſh *orchis*, with very narrow leaves. 76. The palmated marſh *orchis*, with ſpotted leaves. 77. The palmated marſh *orchis*, with red leaves and flowers. 78. The green-flowered palmated *orchis*. 79. The largeſt palmated *orchis*, with a bright-red ſweet-ſcented flower. 80. The greateſt palmated mountain *orchis*. 81. The narrower-leaved great palmated mountain *orchis*. 82. The white-flowered palmated mountain *orchis*, with ſpotted leaves. 83. The narrower-leaved palmated alpine *orchis*, with a black flower. 84. The narrow-leaved palmated mountain *orchis*, with roſe-coloured flowers. 85. The narrow-leaved palmated mountain *orchis*, with white flowers. *Tourn.* Inſt. p. 443.

ORCHIS-*root*, in the materia medica, is otherwiſe named *ſalep*, vulgarly called *ſaloop*. See the article SALEP.

ORCHIS, in ichthyology, a name given by Geſner, and ſome others, to the fiſh, commonly called *orbis*, and by Artedi the ſpherical *oſtracion*, with four teeth, and ſmall ſpines all over it. See the article OSTACION.

ORCHOTOMY, a word uſed by ſome chirugical writers for the operation of caſtration.

ORCYNUS, in zoology, a name by which ſome authors have called the fiſh commonly known by the name of the tunny or thynnus. *Willoughby*'s Hiſt. Piſc. p. 176. See THYNNUS.

ORDER, in rhetoric. See DISPOSITION, *Cycl.*

ORDINARY (*Cycl.*)—ORDINARY *Court of Chancery*. See PETTY *bag*.

ORDINATE (*Cycl.*)—To find the greateſt and leaſt *ordinates* to curves. See MAXIMUM, *Cycl. & Suppl.*

ORE (*Cycl.*)—Some *ores* are ſo kindly as to melt readily of themſelves, without any aſſiſtance from the common fluxes; theſe are of great value to the owners. Other are more intractable and require the aſſiſtance of various fluxes, and others ſo very obſtinate as not be work'd in the larger way, where there can be no very conſiderable expence allow'd for fluxes. On this account many mines remain at this time unwrought, as being untractable in the large way without great charges; hence the improving the buſineſs of fluxes ſerves to render them at once both cheap and effectual, and muſt be of great ſervice to metallurgy.

Some of the cheapeſt and moſt powerful fluxes now in uſe are dry'd wine lees, dry'd cow-dung and horſe-dung, dry'd river-mud, fuller's-earth, iron filings, common ſalt, potaſh, and ſandiver. Theſe may be uſed in the larger works, as nitre, tartar, borax, ſal armoniac, and mercury ſublimate in the leſs: as for compound fluxes they are very numerous, almoſt every operator having his particular noſtrum; and it is plain that ſome fluxes are better adapted to the *ores* of ſome metals than others; but certainly a few general ones might be fixed upon, one or other of which would anſwer all the operator's expectations.

The following three preparations are all very general, very powerful, and not expenſive. 1. Take of nitre, prepared by long boiling in lime water, of ſea-ſalt melted in the fire, of ſandiver, and of dry wine lees, each one part; glaſs of lead three parts, and powdered glaſs eight parts; mix them all well together, and uſe them in an equal weight with ſtubborn *ores*. 2. For a ſtill ſtronger flux take equal parts of white tartar, common ſalt, and nitre prepared as above; calcine all together to a white powder, and mix with it its own weight of glaſs of lead: of this flux add two parts to one part of the moſt ſtubborn ores. 3. For every powerful ſaline flux, take of the ſtrongeſt ſoap-boiler's lees four pounds, of white tartar and common ſalt, melted in the fire, each one pound, boil theſe together, with four gallons of human urine, to a dry ſalt. This flux is particularly ſerviceable where ſulphur and cobalt abound, and render the *ore* very refractory. *Shaw's* Lectures, p. 257.

The *ores* of the richer metals, as gold and ſilver, uſually contain a very conſiderable portion of ſulphur, and Alonſo Barba tells us, that the moſt expert mineraliſts in Peru, always eſteem abundance of ſulphur a ſign of a rich *ore* in the neighbourhood. Among the richeſt *ores* of the mountain of Potoſi, there are ſuch quantities of native brimſtone, that the cavities in the mines are often filled with a blue flame, on only bringing a lighted candle into them ſo as to touch their ſides. It has been wondered at, that where there is abundance of ſulphur in theſe mines, there ſhould be no vitriol found, that being only a metal diſſolved by means of ſulphur; but this objection ceaſes, when we conſider the denſe and compact nature of theſe two metals, which renders them not ſoluble by means of ſulphur, as the others are. Wherever there is ſtore of ſulphur, or of pyrites, or other ſtones which contain ſulphur in the mines of copper and iron, great ſtore of vitriols are always found there alſo, being formed by the corroſion of the *ores* of thoſe metals by ſulphur, which renders them ſoluble in water, from which they again concrete in form of ſalts. Chemiſtry is able to imitate the operations of nature on this occaſion ſeveral ways; for copper, or iron, being formed in thin plates, and either rubbed over with the acid ſpirit of ſulphur, or calcined with powder of common ſulphur, become ſoluble in water, and afford cryſtals of true vitriol wholly analogous to the natural ones, and either blue or green, as iron, or copper are the metals employed; but theſe proceſſes not being able to produce cryſtals of ſalt, or vitriol, from either ſilver, or gold, it is not wonderful that nature is not able to form them by the ſame means.

The general formation of ſulphur from the ores of metals yet lying in the bowels of the earth, is, probably, after this manner. An acid, ſaline, ſulphureous ſteam, or vapour, ſuch as common ſulphur is eaſily reduced to, by heat not greater than that within the bowels of the earth, inſinuating itſelf either through the pores of ſtones, or through their cracks, which are always frequent about the veins of metals, penetrates into the bed of *ore*; ſuppoſe of copper. The vapour is continually ſupplied with freſh quantities from below; and as it blends itſelf with the metal, corrodes it as the fume of brimſtone will the ſame copper in plates. The metal, thus corroded, being ſoluble in water; as we find by experience, it is neceſſary, that the *ore* muſt, under the ſame management, be ſo too; and, in this caſe, the water, which is continually pervading all the ſtrata of the earth, waſhes off the diſſolved metal; and wherever it happens to be ſtayed in ſmall quantities afterward, whether within the vein of the metal, or at a diſtance from it, it cryſtallizes the ſalt it contains, and common blue vitriol is produced, if the metal in the vein be iron. The ſame proceſs is obſerved, and the event is the ſame in all reſpects, when copper is the metal corroded, except that the vitriol, inſtead of blue, is green; this plainly accounts for the obſervation of the workers in copper-mines, that vitriol and brimſtone are uſually found together, the one being a natural conſequence of the other. Sulphur is, indeed, often found where there is no vitriol, but vitriol is very ſeldom found without ſulphur; it being not a diſtinct principle, but a genuine production of ſulphur. Phil. Tranſ. N° 104.

Dreſſing of ORES. See the article DRESSING.

Iron ORE. See IRON.

Gold ORE. See GOLD.

Firm, *Pottern*, and *Steel* ORE. See LEAD *ore*.

OREILLARD, in the manege. See WIDE-*eared*.

OREJUELAS, in botany, a name uſed by ſome authors for the *flos auriculæ*, a flower growing in New Spain, and uſed there in making chocolate. *Dale*, Pharm. p. 339.

OREON, a name given by the antients to a kind of *horſe-tail*, which they found growing on the mountains in wet and damp places. It is to this ſpecies that many authors have attributed the principal virtues of the genus; and this ſeems to have been the ſame with our great water *horſe-tail*. Neophytus ſays, that it roſe up with a ſingle ſtalk, reſembling a young reed, and that this was compoſed of ſeveral points, which, in the manner of cups, were inſerted one into another; and that from theſe joints the leaves grew, and that they reſembled thoſe of the pine-tree. The branches are what this author calls leaves, and they do pretty well reſemble the leaves of the pine-tree. They are long and ſlender, and of a bright green. Our great *horſe-tail* loves the heads of ſprings in hilly countries, and is always moſt plentiful in ſuch places.

OREOSELINUM, *mountain-parſley*, in botany, the name of a genus of plants of the umbelliferous kind, the characters of which are theſe: the flower is of the roſaceous kind, being compoſed of ſeveral petals, arranged in a circular order on a cup, which afterwards becomes a fruit compoſed of two large, oval, flattiſh, ſtriated, and marginated ſeeds, which ſometimes depoſit their covering. To this it may be added, that the leaves are like thoſe of parſley, or hemlock.

The ſpecies of *oreoſelinum* enumerated by Mr. Tournefort are theſe: 1. The great, parſley-leaved *oreoſelinum*. 2. The leſſer, parſley-leaved *oreoſelinum*. 3. The hemlock-leaved marſh *oreoſelinum*. 4. The ſhrubby, aniſe-leaved, African *oreoſelinum*, which produces the *galbanum* of the ſhops. This is called by many *ferula galbanifera*. *Tourn.* Inſt. p. 319.

OREXIS, *appetite*. The appetite, when exceſſive, or otherwiſe vitiated, is diſtinguiſhed by medical writers into ſeveral kinds, and deſcribed under ſeveral names, according to its difference in degree, and other particulars.

The firſt kind is the *addephagia*: this is the name given that ſpecies in which the food is not only eaten in too large a quantity, but is ſwallowed in a particularly ravenous manner.

The ſecond is the *orexis canina*: in this caſe the patient is continually eagerly longing for food, and if it is not ready ſo ſoon as he deſires, he is ſubject to fainting fits after the recovery, from which he does not feel the ſame craving appetite.

The third is the *pica*, or *ſitta*: this is the caſe when the patient has an eager appetite to things not fit for food, ſuch as chalk, cinders, tobacco-pipes, and the like.

The fourth is the *malacia*: this is diſtinctively made the name of that ſpecies of *exceſſive appetite* in which the pati-

ent has a great desire for some particular things, but those of the nature of common food, and usually of the nicer, and more delicate kind.

Signs attending it. An over-large eating is usually attended with cardialgias, anxieties, and straitness of the breast; after this, with nauseas, eructations, and not unfrequently with a vomiting, or a diarrhœa; often a dizziness of the head follows, and sometimes very violent pains in it, with a lassitude and pains in the limbs, and pains and rumblings in the abdomen; finally, sometimes fevers, sometimes suffocations, and sometimes convulsions, are the consequence.

Persons subject to it. The *excess of appetite*, in its different kind, affects different sets of people. The *addephagia* is usually the case with boys who are just come to distinguish good taste, and feed as their parents do; and sometimes with women who have more sensation than judgment. People in general of sanguine and sanguineo-phlegmatic habits, eat more food than others; and choleric persons often eat, and usually swallow their food, quicker than others. Persons of melancholic habits, are usually of all others, the least eaters. Finally, people, in general, eat heartily, and even excessively, when they come, from a coarse and homely diet, to a more elegant and agreeable one; and this *excessive appetite* becomes a symptomatic complaint with people who are troubled with worms, and with hypochondriac complaints, with quartans, and often with epilepsies.

The *malacia* seems particularly to affect women during the time of their being with child. The *pica* is common to women with child; to young women before the first eruption of the menses; with those who are emaciated by a too violent flux of that discharge; and, finally, sometimes, though more rarely, to persons in epilepsies, and in quartans.

Causes of it. *Excessive appetite* is generally occasioned by a too great love to agreeable tastes, which generally degenerates into a custom of devouring things of agreeable flavours greedily; and, finally, into an habitual and almost necessary desire of them. In infants who are over-much fed by their nurses, the fault is not in the will, but even this also, in fine, becomes habitual, and not to be overcome easily.

Prognostics in it. *Excessive appetite* does great mischief among men, and is a very common complaint, inasmuch that there are ten thousand who err in eating more than nature requires, for one who eats less. It is common for persons recovered from illnesses to have an *excessive appetite*; but, if this be indulged to the extent, it usually brings on either a return of the same disease, or, at least, one equally bad. People, after long hunger, have also the same sort of *excessive appetite* as after diseases, but there have been frequent instances, that those who indulged it freely have died upon the spot. In general, the consequences of *excessive appetite* indulged, is diseases of many kinds, particularly obstructions of the viscera, cachexies, and atrophies. When the *pica* attends a quartan, it very often happens, that all medicines are vain in the attempt of a cure, till that unnatural *appetite* has been perfectly sated. When young girls fall into a *pica* from a want of the menses at a due time, they are always relieved from it by the appearance of that evacuation; but in persons who fall into it from inordinate profluvia of that discharge, it is usually very difficult of cure, and the same difficulty always attends it when hereditary.

When people have eat to an immoderate degree by reason of any of these kinds of *excessive appetite*, the best method of relieving them, is by giving them large draughts of warm water, till they vomit; or, if the stomach will not be brought to discharge its contents by this means, a few grains of emetic tartar are to be given, or a small dose of ipecacuanha. After this the bowels are to be gently relaxed; but this is by no means to be done by any violent medicines, the stimulus of which would bring on violent and dangerous pains. After the mischief of a monstrous repletion is, by this means, got over, the best preservative for the future is abstinence, and gentle exercise. There have, however, been instances of people being cured of this disease, by palling the *appetite* by large draughts of oil, regularly taken, three times a day. The good women have a way of curing the *pica* in girls, by making the chalk, and other such things which they are to eat, bitter, or of some other disagreeable taste; when a girl has been once tricked in this manner, she will often have as violent a distaste to these unnatural eatables, as she before had an inclination for them; and, in like manner, grown persons who have violent *appetites* to certain particular foods, have been cured by conveying into them an infusion of tobacco, or some other such thing as will provoke vomiting, so disguised as not to be tasted, while eaten. When the stomach and bowels, over-loaded by these meals, are, of themselves, discharging their abundant contents, by vomit, or stool, it is a very rash and dangerous practice to give any thing to stop those emotions till the whole is thoroughly carried off. *Junker's* Consp. Med. p. 605, seq. See the articles CANINE, BULIMY, &c.

ORFUS, in zoology, the name of a fresh water fish, common in Germany, and called there the *orft*, the *oerve*, and the *nerfling*; seeming by the descriptions of Gesner, and other authors, to be the same with our *rudd*, or *rubellio fluviatilis*. See Tab. of Fishes, N°. 43. *Willughby's* Hist. Pisc. p. 252.

ORGANO, in the Italian music, is used to signify the thorough bass. It is usually scored with figures over the notes, for the harpsichord, bass-viol, and lute.

ORGUES, (*Cycl.*) are preferable to herses, or portcullises, because these may be either broke by a petard, or they may be stopped in their falling down; but a petard is useless against an *orgue*; for if it break one or two of the pieces, they immediately fall down again, and fill up the vacancy; or if they stop one or two of the pieces from falling, it is no hindrance to the rest; for being all separate, they have no dependance upon one another.

ORICHALCUM, or AURICHALCUM, *brass*. See the article BRASS, *Cycl.* and *Suppl.*

It is to be observed, that zink is the metal which has the power of giving a yellow colour to copper. We long supposed, from calamine's answering the same purpose, that two different substances could do this; but it has been since found that they are the same, and that calamine is no other than the ore of zink. See the article CALAMINE.

It is evident from all accounts, that the *orichalcum* of the antients was a fictitious substance, not a natural metal. They made it on the same basis that we make brass at present; but they had several ways of doing it, and distinguished it into several kinds. They had a white sort in frequent use and great esteem; and even the yellow they distinguished into two principal sorts, under different names. The *orichalcum* and *æs flavum*, brass and yellow copper, are with us synonymous terms; but with them they were used to express different combinations of the ingredients. Pliny tells us indeed of a natural mine of this metal found somewhere, and that the metal produced from it was in very great esteem. He says, that the making of brass was first found out in Cyprus, and that it was an artificial metal, but that this natural kind was greatly superior to it, and was the only kind in esteem, so long as the mine yielded any of it, but that at last it was exhausted. This account is unquestionably erroneous; but yet it has taken so much footing in the world from the authority of this author, that many suppose it truth, and think that we have not at present the metal called *orichalum* by the antients. They who suppose, according to Pliny, that there was once a vein or mine of this metal, which was afterwards lost again, certainly err, and there is sufficient proof of the truth of the contrary opinion by all the Greek writers, declaring the manner in which *oricalcum* was made, which was with copper and calaminaris-stone, as brass is made at this time. Some indeed have somewhat perplexed the matter, by adding the word pseudoargyron, as a part of the composition. Among these is Strabo, but by that author in other places we find, that all that he means by this name is, the calamine found in silver mines, which resembled, as the common calamine does, some kinds of silver ore; so that the two accounts come to the same thing.

ORICHALCUM, or AURICHALCUM *album*, *white brass*. This was a metal well known among the antients, and celebrated by Aristotle and by Strabo, and others, under the name of κραμα λευκον. It was made by mixing an earth with copper while in fusion; but what that earth was, we are not informed.

There have been many objections made to the name *aurichalcum album*, as a contradiction in terms. The epithet white being by no means allowable with a word which is generally supposed to express gold-coloured brass; but this is an error. The truth is, that *aurichalcum* is an error in orthography; the true word being *orichalchum*, ορειχαλκον, mountain copper. The Romans changing the *o*, in a Greek word into *au*, when they adopted it into their own language, is common; and we daily see so many instances of it, that this custom alone might justify it, were the word always written *aurichalchum* by the Romans; which, however, it is not, Virgil, and several others expressly calling it *orichalchum*, according to the original or proper orthography: there was, therefore, no idea of gold, nor any other denomination of colour intended in the word *aurichalchum*; all that was expressed by it was, mountain copper; and this term was made to express a mixed metal, made of copper and of some earth, stone, or other mineral. In this sense, the mixture of copper with that of earth, whatever it was that turned it white, was as properly called *orichalchum album*, as that with calamine was *orichalchum flavum*, or simply *orichalchum*. We know several ways of turning copper white, one of which was much practised some years ago, and spoons and other utensils made of it, had the name of *alchymy* things; but this was done by means of arsenic; a thing not known to the antients: this, therefore, could not be the same with their white brass, and indeed, none of our methods seem to be the same with theirs, since the metal is debased by all ours, and becomes brittle; whereas, in their management, according to their own accounts, it seems not to have lost any thing of its ductility, tho' it acquired a peculiar brightness.

ORIENTAL, (*Cycl.*) in astronomy. A planet is said to be *oriental* when it rises in the morning before the sun.

Hybernal

Hybernal ORIENT, that point of the horizon where the ſun riſes when in the firſt degree of Capricorn. See OCCIDENT.

ORIGANUM, *wild marjoram*, in botany, the name of a genus of plants, the characters of which are theſe: the flower conſiſts of one leaf, and is of the labiated kind, the upper lip is erect, of a roundiſh ſhape, and bifid, the lower is divided into three ſegments. The piſtil ariſes from the cup, and is fixed in the manner of a nail into the hinder part of the flower, and ſurrounded with four embryos, which afterwards become many ſeeds, and ripen in the cup of the flower. To theſe marks, it is to be added, that the *origanums* all bear their flowers in a ſort of ſcaly ears or ſpikes.

The ſpecies of *origanum* enumerated by Mr. Tournefort are theſe: 1. The common *origanum*. 2. The common *origanum* with variegated leaves. 3. The white wild *origanum*. 4. The low, woolly, procumbent *origanum*. 5. The heracleotic *origanum*, or *cunila gallinacea* of Pliny. 6. The *origanum* of Crete, called *pot-marjorum*, the genuine hyſſop of the antients, according to Lobel. 7. The round-leaved *origanum*. 8. The *origanum* with the ſmell of pennyroyal. 9. The broad-leaved, ſmooth, low *origanum*. 10. The Canada *origanum*, with umbellated flowers. 11. The broad-leaved woolly cretic *origanum*, uſually known by the name of *dittany of Crete*. 12. The *origanum* of mount Sipylus. 13. The ſlender-headed Canada *origanum*. 14. The woody *origanum* of Syracuſe, with large umbels of flowers. *Tourn.* Inſt. p. 199.

Origanum is a very pleaſant aromatic. An infuſion of the plant, drank in the manner of tea, is of great ſervice in diſorders of the ſtomach; it abſterges the viſcous matter apt to lodge there, and thereby promotes an appetite and aſſiſts digeſtion. It alſo diſpels flatus's, and is eſteemed good in jaundices, and all other chronic caſes occaſioned by obſtructions of the viſcera.

ORIGINARY, *originarii*, among the Romans, an appellation given to ſlaves born in their maſter's houſes, who were otherwiſe called *vernæ*. *Hofm.* Lex. in voc.

ORIOLUS, in zoology, a name by which ſeveral authors have called the *galbula*, a very beautiful yellow bird of the thruſh kind, remarkable for its manner of hanging its neſt. *Albertus*. See the article GALBULA.

ORITES, in natural hiſtory, the name of a ſtone deſcribed by the antients, and celebrated by the writers of the middle ages for its wonderful virtues. Pliny ſays, that it was round, and remained unhurt in the fire, and that ſome called it *Sideritis*. To this the later writers have added, that there are three kinds of it; the firſt round and black: this rubb'd over with oil of roſes was famous for the bites of venomous beaſts. The ſecond was green, variegated with veins and ſpots of white: this was to be carried about people, to preſerve them from many ſorts of injuries. And the third was compoſed of parallel plates, and ſaid to have the virtue of cauſing abortion, if only carried in the pocket.

ORITORIUS *lapis*, a name given by Ludovicus Dulcis, and ſome other authors, to the *ochreoferreous ætitæ*, or eagle ſtones; particularly to a ſpecies of them common in Germany, and uſed in the ſhops there, and in ſome other places, under the name of *eagle ſtones*. Theſe are of a browniſh colour and ſmooth ſurface, and are eaſily broken, being only compoſed of a thin cruſt of ferrugineous earth, encloſing ſeveral ſmall lumps of a greeniſh marle, which rattle in it when ſhaken.

ORIZEUS *color*, a term uſed by authors to expreſs the yellow colour in the eyes and urine of perſons afflicted with a jaundice. See JAUNDICE.

ORKNEY-*beans*, in natural hiſtory, a name given by authors to a ſort of fruit found on the ſhores of the *orkney* iſlands near Scotland. Theſe are of ſeveral diſtinct ſpecies, and are none of them the produce of thoſe iſlands, nor of any places thereabout, but are probably of American origin, many of them being plainly natives of Jamaica.

They are found principally on thoſe coaſts which are moſt expoſed to the waves of the great ocean, and are on theſe ſo plentiful, that they might be gathered in large quantities, if of any value; but the only uſe they are put to is the making ſnuff-boxes out of them. Sir Robert Sibbald, and Mr. Wallace, in their accounts of Scotland, have both named them under the title of *Molucca beans*. See MOLUCCA *beans*.

ORLEANA, in the materia medica, the name of the *arnotto*, or *uruca*. *Dale*, Pharm p. 388.

ORMENA, among the antient naturaliſts. See ASPARAGUS.

ORNICUS *lapis*, a name given by ſome anthors to the *ſapphire* of the antients, which is a peculiar ſpecies of our *lapis lazuli*, in which the gold-coloured matter is not diſpoſed in veins, but in ſeparate ſpots of the form of a ſtar. It was firſt called *o iniſcus*, and *orinus*, by corruption from *aurinus*, golden, and thence came, at length, the word *ornicus*.

ORNITHIÆ, a name given by the antients to certain winds, which uſually blew in ſpring, at the time when the birds of paſſage came over to them. Pliny ſays, that theſe winds blew from the Weſt, and that, by ſome, the Eteſian winds were called by this name. Others ſuppoſe that they blew from the North, or North-Weſt.

ORNITHOGALUM, *ſtar of Bethlehem*, in botany, the name of a genus of plants, the characters of which are theſe: the flower is liliaceous, being compoſed of ſix petals, arranged in a circular form. The piſtil ſtands in the center of the flower, and finally becomes a roundiſh fruit, or ſeed-veſſel, divided into three cells, and containing a number of oblong ſeeds; to this it is to be added, that it has a bulbous or tuberous root, in which it differs from the phalangium, which has a fibrous one.

The ſpecies of *ornithogalum* enumerated by Mr. Tournefort are theſe: 1. The great Syrian *ornithogalum*, with umbellated flowers. 2. The great, narrow-leaved, *ornithogalum*, with umbellated flowers. 3. The broad-leaved, middle-ſized, white *ornithogalum*, with umbellated flowers. 4. The narrow-leaved, middle-ſized, white *ornithogalum*, with umbellated flowers. 5. The leſſer white *ornithogalum*. 6. The umbellated *ornithogalum*, with bluiſh white flowers. 7. The greateſt, broad-leaved, Alexandrine *ornithogalum*. 8. The Indian, broad-leaved, *ornithogalum*. 9 The great, narrow-leaved, *ornithogalum*, with greeniſh white flowers. 10 The great, narrow-leaved, *ornithogalum*, with flowers in ſpikes. 11. The ſpiked *ornithogalum*, with ſnow-white flowers. 12. The great, white-ſpiked, French *ornithogalum*. 13. The great, white-ſpiked, Byzantine *ornithogalum*. 14. The ſpiked *ornithogalum*, with greeniſh-white flowers. 15. The Spaniſh white-flowered, ſpiked *ornithogalum*. 16. The pale, blue-flowered *ornithogalum*. 17. The *ornithogalum* with a large flower growing on a ſmaller. 18. The great, pale-yellow *ornithogalum*. 19. The yellow *ornithogalum*, with larger flowers. 20. The tuberous-rooted, African, yellow *ornithogalum*, with onion-like leaves, and ſweet-ſcented flowers. 21. The common, wild *ornithogalum*. 22. The leſſer, wild, yellow *ornithogalum*. 23. The narrow-leaved, bulbiferous, *ornithogalum*. 24. The yellow-flowered, Portugal *ornithogalum*, with capillaceous leaves. 25. The Indian *ornithogalum*, with yellowiſh-green flowers. 26. The African *ornithogalum*, with green flowers, growing one out of another. 27. The one-leaved, ſpiked *ornithogalum*, with a ſnow-white, ſweet-ſcented flower. 28. The blue-flowered, two-leaved, German *ornithogalum*. 29. The trifoliate, German *ornithogalum*, with deep blue flowers. 30. The bifoliate, German *ornithogalum*, with fleſh-coloured flowers. 31. The bifoliate, German *ornithogalum*, with white flowers. 32. The narrow-leaved, white, late-flowering, *ornithogalum*. 33. The blue-flowering *ornithogalum*, with yellowiſh green ſtamina. 34. The purple-flowered *ornithogalum*. 35. The ſpiked *ornithogalum*, with grey flowers. 36. The blue-flowered, Conſtantinople *ornithogalum*. 37. The Conſtantinople *ornithogalum*, with bluiſh purple flowers. 38. The Conſtantinople *ornithogalum*, with a white flower. 39. The Conſtantinople *ornithogalum*, with duſky, bluiſh flowers. 40. The borrage-flowered, Conſtantinople *ornithogalum*. 41. The blue *ornithogalum*, with ſtriated flowers. 42. The Spaniſh, deep-blue, *ornithogalum*. 43. The great, purpliſh, blue *ornithogalum*. 44. The ſummer *ornithogalum*, with flowers ſtanding alternately on the ſtalks. 45. The great, autumnal *ornithogalum*, with pale, purple flowers. 46. The great, autumnal *ornithogalum*, with white flowers. 47. The leſſer, autumnal *ornithogalum*, with purple flowers. 48. The leſſer, autumnal *ornithogalum*, with blue flowers. 49. The little, ſpring *ornithogalum*. 50. The blue-flowered, Portugal *ornithogalum*. 51. The broad leaved, Portugal *ornithogalum*, with violet-coloured flowers. 52. The broad-leaved, Portugal *ornithogalum*, with fleſh-coloured flowers. 53. The broad-leaved, Portugal *ornithogalum*, with greeniſh flowers. 54. The broad-leaved, Portugal *ornithogalum*, with white flowers. 55. The Peruvian, eriopherous *ornithogalum*. 56. The oriental, eriopherous *ornithogalum*. 57. The *ornithogalum* of the ſea ſhores, commonly called the *red-rooted ſquill*. 58. The white-rooted, maritime *ornithogalum*, commonly called the *white-rooted ſquill*. 59. The maritime *ornithogalum*, with an eſculent root, called the *eſculent ſquill*. *Tourn.* Inſt. p. 378.

The ſeveral ſpecies of this plant produced in our gardens are all propagated with great eaſe by the off-ſets which the roots produce in very great abundance. The beſt time to tranſplant the roots is in the beginning of July, when the leaves are decayed. They ſhould have a light, ſandy ſoil, which, if it be over-dunged, will decay, and rot the roots: they continue flowering a long time, and are a very great ornament in gardens, but they ought to be tranſplanted once in two or three years, otherwiſe the roots grow luxuriant in off-ſets, and the flowers are weak. *Miller's* Gard. Dict.

ORNITHOPODIUM, in botany, the name of a genus of plants, the characters of which are theſe: the flower is of the papilionaceous kind, and its piſtil which ariſes from the cup finally becomes a hooked, or falcated, jointed pod, of a flattiſh and undulated form, and containing, in each joint, one roundiſh ſeed. To this it is to be added, that the pods of this plant uſually grow four or five together; and by that means in their ſhape reſemble a bird's foot.

The ſpecies of *ornithopodium* enumerated by Mr. Tournefort are theſe: 1. The great *ornithopodium*. 2. The little *ornithopodium*. 3. The *ornithopodium* with roots compoſed of knotty tubercles. 4. The ſcorpioides *ornithopodium*, with flatted

pods.

pods. 5. The Portugal, ſcorpioide *ornithopodium*, with undulated pods. 6. The purſelain-leaved *ornithopodium*. *Tourn.* Inſt. p. 400.

ORNITHOSCOPI, ὀρνιθοσκοποι, in antiquity, diviners, or ſoothſayers, who made predictions, and drew omens, from birds. They were likewiſe called *ornithomantes*, and *orneoſcopi*, &c. *Potter*, Archæol. Græc. l. 2. c. 15. T. 1. p. 321.

OROBANCHE, *broom rape*, in botany, the name of a genus of plants, the characters of which are theſe: the flower is of the perſonated kind, divided into two lips, the upper of which is galeated, and the lower divided into three ſegments. The piſtil ariſes from the lower part of the cup, and finally becomes an oblong fruit, conſiſting of only one cavity, which uſually contains extremely minute ſeeds.

The ſpecies of *orobanche*, enumerated by Mr. Tournefort, are theſe: 1. The great large flower'd *orobanche*, ſmelling like cloves. 2. The great ſtinking *orobanche*. 3. The great Portugal *orobanche*, with purpliſh flowers. 4. The ſmall flowered *orobanche*. 5. The bluiſh flowered *orobanche*. 6. The branched, purple-flowered *orobanche*. 7. The blue-flowered, branched *orobanche*. 8. The whitiſh-flowered, branched *orobanche*. *Tourn.* Inſt. p. 175.

OROBO, a name given by the chemiſts to any ſort of metallic glaſs.

OROBOIDES, a name given by Hippocrates, and other authors, to a furfuraceous ſediment in the urine of perſons who have the jaundice: it is uſually of a rediſh brown colour; and is not peculiar to that diſeaſe, but is found in ſome others.

OROBUS, *bitter vetch*, in botany, the name of a genus of plants, the characters of which are theſe: the flower is of the papilionaceous kind; from the cup there ariſes a piſtil, which is covered with a membrane, and finally becomes a membranaceous pod of a cylindric figure, uſually containing oval ſeeds. To this it is to be added, that the leaves grow in pairs on a middle rib, which terminates in a point.

The ſpecies of *orobus*, enumerated by Mr. Tournefort, are theſe: 1. The purple-flowered, ſpring *orobus* of the woods. 2. The vernal, wood *orobus*, with a pale red flower. 3. The broad-leaved *orobus*, with ſmall purple flowers. 4. The broad-leaved *orobus*, with ſmall pure white flowers. 5. The narrow-leaved, aſphodell-rooted, wild *orobus*. 6. The vetch-leaved, wood *orobus*. 7. The red-ſtalked, vetch-leaved, wood *orobus*. 8. The Italian, narrow-leaved *orobus*, with variegated flowers. 9. The wood *orobus*, with oblong ſmooth leaves. 10. The Engliſh, wild, wood *orobus*. 11. The Pyrenæan *orobus*, with nervous leaves. 12. The American *orobus*, with ſcarlet fruit, marked with a black ſpot, by ſome called the *phaſeolus* of America, and the *abrus*, and ſcarlet Indian pea *Tourn.* Inſt. p. 393.

OROCONITES, in the materia medica, a name given by Hippocrates, and others, to a bulbous root that is recommended as a rich food. It has the name from the Greek, ὄρος, a mountain, and κονιτες, of a conic figure. This ſhews that it was a root of ſuch a ſhape, found growing in mountainous places; but the learned have been puzzled in their attempts to find out what it was.

Guillandinus is of opinion, that the *oroconites* of Hippocrates is the *traſi*, or ſweet *cyperus* root, but there are many arguments againſt this opinion, though the two circumſtances expreſſed in its name, that is, the place of growth, and the ſhape of it, are ſufficient to throw this to the ground. The *traſi* grows in low marſhy grounds, near waters, and its roots are ſmall tubera of the ſhape of a hazel-nut, whence the Spaniards, who are very fond of them, have called them *avellanda*. The Arabians have a root which they call the bulb, by way of eminence. This ſeems, indeed, to be the ſame with the *oroconites* of Dioſcorides; and they give the ſame account of its virtues, and tell us, that it grew far from waters on the mountains of Syria, near Damaſcus, and elſewhere, and that it was of the ſize and ſhape of a pear; this may very well be called a conic ſhape in a root.

ORONTIUM, in botany, a name given by ſome authors to the *antirrhinum*, called in Engliſh *calf's ſnout*, or *ſnap-dragon*. *Ger.* Emac. Ind. 2.

OROSPIZA, in zoology, a name by which the antient naturaliſts called the *brambling*, or *mountain finch*.

The word is Greek, and expreſſes *mountain-chaffinch*. See the article MONTIFRINGILLA.

ORPELLO, a preparation of braſs uſed in the glaſs trade, and prepared in this manner: cut plates of braſs into ſmall pieces, and place them in a luted crucible, in a ſtrong fire, but not ſo violent as to melt it. Let it ſtand in this manner for four days, in which time it will be well calcined; when cold, powder, and ſift it, and finally grind it on a porphyry. This will be a black powder; ſpread this on tiles, which place on burning coals in the leer, near the hole, for four days; take off the aſhes that may fall into it, and finally powder and ſift it fine for uſe. It is known to be nicely prepared, when, on mixing with the melted metal in the glaſs furnace, it makes it ſwell and boil.

The colour it gives is a very elegant ſky-colour, and a ſea-green, or a mixt colour, between them, according to the quantity, and degree of calcination. *Neri*'s Art of Glaſs, p. 35.

ORPHAN (*Cycl.*) — Among the Athenians, the *orphans* whoſe fathers had loſt their lives in the ſervice of their country, were under the guardianſhip of the *polemarchus*, who was to provide them with a competent maintenance, out of the public treaſury. See POLEMARCHUS.

ORPHANUS, in natural hiſtory, a name given by ſome authors to a poor ſpecies of *opal*, called by ſome *pſeudo-opalus*: it has no other colours beſide a milky white, and purpliſh red. This ſtone is frequent in Germany, and Hungary.

ORPHEOTELISTÆ, ὀρφεοτελισται, in antiquity, perſons initiated in the Orphic myſteries. They aſſured all that were admitted into their ſociety of certain felicity after death; which when Philip, one of that order, boaſted of, Leotychidas, the Spartan, replied, Why do not you die then, you fool, and put an end to your misfortunes, together with your life? At their initiation, little elſe was required of them beſides an oath of ſecreſy. *Potter*, Archæol. Græc. T. 1. p. 497.

ORPHEUS, in zoology, the name of a fiſh caught in the Archipelago. It is of a broad and flat figure, and of a fine purple colour; its eyes are large and prominent, and its teeth ſerrated; it has only one fin on the back, and the anterior rays of that are prickly, the others ſoft to the touch. Its anus is ſmall, and it is ſaid to have no paſſage for the ſemen.

This was the fiſh called *orpheus* by the antients, but the modern Greeks call another fiſh by that name. This is of a flat figure, but very thick, has a ſmall mouth, and is covered with ſmall, but very rough ſcales, which adhere very firmly to the fleſh; the tail is not forked; it has fleſhy lips, and very ſmall teeth; its back and ſides are black; its belly white; it has a large black ſpot at the root of the tail. Its head is reddiſh, and its fins are very elegantly diverſifyed with various colours; it has only one back fin, and that has the anterior ray prickly, the hinder ones not at all ſo. It grows ſometimes to twenty pound weight, and is much eſteemed among the modern Greeks. *Geſner* de Piſc. p. 752.

ORPIMENT, (*Cycl.*) *auripigmentum* — *Orpiments* are inflammable foſſile ſubſtances compoſed of numbers of thin flakes, like the talcs, which eaſily ſplit, and are ſeparated from one another, and are flexile, and not elaſtic, ſoluble in oil, fuſible in a moderate fire, and yielding in burning an offenſive ſmell like that of garlic.

Theſe, like the talcs, are, in ſome of the ſpines, compoſed of large plates, or flakes, each making the whole ſurface of the maſs, and, in others of ſmall flakes lodged in extraneous matter, or cohering alone into a maſs in form of ſpangles.

Of this genus of foſſils, there are only three known ſpecies: 1. A broad-flaked, gold-coloured kind, well known among the antients, as is plain from the deſcription of it left us by Dioſcorides, and much eſteemed at preſent by our painters. This is found in ſeveral places, as in the iſlands of the Archipelago, in the mines of Goſſelaer, in Saxony, in ſome parts of Turky, and the Eaſt-Indies, and in its utmoſt purity about Smyrna; this makes the fineſt of all yellows in painting. 2. The ſmall-flaked, yellow kind, which is the common *orpiment* of the ſhops, and is a fine colour, though greatly inferior to the former. This is found in many parts of the Turkiſh dominions, and in Germany. And, 3. Red *orpiment*. This has been a name given by the more judicious to ſandarach, and, by the vulgar, to red arſenic, but is to be reſtrained only to this foſſile, which is of a fine bright red, and of the regular texture of the *orpiments*, and anſwering all their characters. This is a very beautiful ſubſtance of a fine bright red, very gloſſy, and a little tranſparent, and is found in the Turkiſh dominions, in the iſlands of the Archipelago, and even in our own country, Dr. Hill having lately received ſome of it from Cornwall, under the name of red mundic.

The Engliſh druggiſts are guilty of an unpardonable piece of ignorance, in that, in general, they know no difference between yellow *orpiment*, and the yellow factitious arſenic, which they regularly ſell under its name; the *orpiment* is known to be a ſafe internal medicine, and the thing they ſell under its name is a very terrible poiſon. The colour-men, however, who ſell both are well acquainted with the difference. *Hill*'s Hiſt. of Foſſ. p. 204.

ORRHAGOGA, a name given by the antients to ſuch medicines as operated violently, as purges, and evacuted ſerous and watery humours.

ORRHOPIGION, a word uſed by anatomical authors, ſometimes to expreſs the extremity of the ſpine, but more frequently the line or ſeam which runs from the penis along the middle of the ſcrotum to the anus.

ORRHOPISSA, a name given by the antients to the thinner or more fluid parts of tar.

ORRICE, a name given by the vulgar to the *iris-root*. See the article IRIS.

ORRUS, in botany, a name by which many of the antients called the cultivated pine tree, from its being remarkably full of juice.

The firſt perſon who has given us the name is Theophraſtus; but he is followed in it not only by the other Greeks, but alſo by the Latins, who have called the ſame tree for the ſame reaſon *ſapinus*, a contraction or abbreviation of the word *ſapapinus*, the juicy pine. Pliny tells us, that this laſt was the name of the manured pitch tree; but in this he errs, for Vitruvius, and others, tell us that the pine nuts, *nuces pineæ*, which were eaten

and uſed in medicine, were the fruit of the *ſapapinus*, or *ſapinus*; and it is evident, that theſe muſt be the produce of a pine tree, not of a pitch tree, or any thing of the fir kind.

ORTHOCERATITES, in natural hiſtory, a name by which ſome late authors have called a ſpecies of ſea ſhell, found frequently foſſile, but not known at preſent in its recent ſtate; called by others *polythalamium* and *tubulus marinus concameratus*. It is uſually ſtrait, but ſometimes its end is twiſted like the *cornu ammonis*. See TUBULIS *Concamerati*.

ORTHODOXI, in botany, ſuch ſyſtematic writers as have formed their methods on the true natural foundation, and divided the plants under their conſideration into claſſes and genera, according to the characters of their parts of fructification. Theſe are either the *univerſales*, or *particulares*; by the firſt are meant, thoſe who have thus ranged the whole vegetable world; and by the latter, thoſe who have undertaken only ſome one claſs of plants, as the umbelliferous, &c. *Linnæi*, Fund. Bot. p. 2.

ORTHODROMICS, that part of navigation which teaches the art of ſailing in the arch of ſome great circle.

The word is Greek, Ορθοδρομικα, derived from ορθος, *rectus*, ſtreight, and δρομος, curſus, run or diſtance; *q. d.* the ſtreight or ſhorteſt diſtance; and this can only be in the arch of a great circle.

ORTHRAGORISCUS, in zoology, the name uſed by Rondeletius, and ſome other authors, for the fiſh more commonly known by the name of the *mola*, and called in Engliſh the *ſun fiſh*. *Willughby*'s Hiſt. Piſc. p. 151. See the article MOLA.

ORTYGOMETRA, in zoology, the name of a bird called in Engliſh the *daker-hen*. It is ſomewhat larger than the quail. Its body, in ſhape, reſembles the common hen. It has two dusky lines on the head: its breaſt and belly are white: its throat of a dusky brown: its back feathers are black in the middle, and of a tawny colour at their edges: its thighs are variegated with transverſe-white ſtreaks. It is common in Ireland, and in ſome of the northern counties of England, particularly in Northumberland. The noiſe it makes is only *crex*, *crex*, whence the antients have called it by that name. The Italians call it *re edelle quaglie*, or the *king of the quails*. It is a very delicately taſted bird. *Ray*'s Ornithol. p. 122.

ORVALA, in botany, the name given by Linnæus to a genus of plants, called *papia* by Micheli. The characters are theſe: The perianthium is compoſed of one leaf, it is tubulated and dilated at the mouth, and is crooked and divided into five ſegments; the lower two being ſhorter than the reſt. The flower is compoſed of one petal, and is not of the labiated kind; the tube is of the length of the cup. The limb is erect, long, and divided into four ſegments. The upper of which is oblong, convex, and falcated and lunated at the point. The lower is oblong, and is alſo lunated at the point, and the ſide ones are oblong and pointed, and divided each into three ſegments. The ſtamina are four filaments of the length of the flower; they are placed under the upper ſegments of the flower; the antheræ are two in number. The germen of the piſtil is divided into four; the ſtyle is ſimple, and of the ſame length with the ſtamina; the ſtigma is bifid, and acute. The ſeeds are four, and of an oval kidney-like ſhape. *Linnæi*, Gen. Plant. p. 278.

ORVALA, in botany, is alſo a name uſed by ſome authors for the *horminum*, or *clary*. *Ger.* Emac. Ind. 2.

ORYCTOGRAPHY, is that part of natural hiſtory wherein foſſils are deſcribed. *Wolfm.* Diſc. Prælim. Logic. §. 81.

ORYCTOLOGY, is that part of phyſics which treats of foſſils, or it is the ſcience of foſſils. Under this head comes the doctrine of ſalts, ſulphurs, ſtones, gems and metals. *Wolfm.* Diſc. Prælim. Logic. §. 81.

ORYGMA, ὀρυγμα, among the Athenians, a name given to the pit, more uſually called *barathron*; (See BARATHRON) whence the public executioner received the appellation of ὁ επι τω ὀρυγματι. It was a dark noiſome hole, and had ſharp ſpikes at the top, that no man might eſcape out; and others at the bottom, to pierce and torment ſuch as were caſt in. From its depth and capaciouſneſs, it came to be uſed proverbially for a covetous miſer, or voracious glutton, that is always craving, and can never be ſatisfied; and ſuch a one the Latins called *barathro*. *Potter*, Archæol. Græc. l. 1. c. 25. T. 1. p. 134, ſeq.

ORYX, in zoology, an animal mentioned by Ariſtotle and Pliny, with only one horn. Pliny makes it a ſpecies of wild goat; but Columella thinks it was a kind of deer. It is ſaid, that this creature was of great uſe in Africa, to relieve the ſcorched inhabitants from thirſt, there being always found in its body veſicles full of a very wholeſome and pleaſant liquor. *Hofm.* Lex. in voc.

ORYZEUM, a name given by many of the chemical writers to gold.

OS *(Cycl.)* — Os *argenteum*, in natural hiſtory, the name of a ſpecies of ſhell fiſh, of the round mouthed ſnail, or *lunaris cochlea* kind. It has a very elegant ſilver colour in the round opening, or mouth of the ſhell. See LUNARIS *Cochlea*.

Os *aureum*, the golden mouth, in natural hiſtory, a name given to a ſpecies of cochleæ of the lunar kind, or of that genus which have a round mouth. This, in the *os aureum*, is of a fine yellow. See LUNARIS *Cochlea*.

Os *calcis* *(Cycl.)* — This is the largeſt bone of the foot, of which it makes the poſterior part, and in ſome meaſure the baſis. It is oblong and very irregular, and may be divided into a body and two apophyſes, one great and anterior, the other ſmaller, lateral and internal. The body of the *os calcis* has ſix ſides; one poſterior, one anterior, one ſuperior, one inferior, and two lateral. The poſterior ſide is broad, unequally convex, and as it were divided into two portions, one ſuperior, ſmall and poliſhed, the other inferior, much larger, unequal, and rough, which, in children, is an apophyſis, and may be termed the *tuberoſity* of the *os calcis*. The lower part of it is bent downward, and terminates in two tubercles or obtuſe points, which belong rather to the inferior than the poſterior ſides of the bone. The upper ſide may be divided into two parts, one poſterior and unequal, having a ſmall depreſſion; the other anterior, convex, and cartilaginous, proportioned to the great inferior cavity of the aſtragalus. This ſide is turned obliquely forward, and by this obliquity becomes part of the foreſide, the remaining part of which is loſt in the anterior apophyſis. The lower ſide is narrow, and behind it lies the two tubercles already mentioned, of which the internal is the biggeſt; they both ſerve for the inſertion of the aponeuroſis in the ſole of the foot, but chiefly the biggeſt. The two lateral ſides are continued over the anterior apophyſis, the external is gently convex and unequal, covered only with the common integuments and ligaments; the internal is hollow and depreſſed. The greater anterior apophyſis lies in the ſame direction with the body, being a continuation thereof. It has five ſides or remarkable parts, and were it not for the body would have a ſixth. The upper ſide has an irregular and unequal depreſſion, which, together with that in the apophyſis of the aſtragalus, forms a conſiderable foſſula. And its anterior extremity has a ſmall cartilaginous ſurface, anſwering to one of thoſe in the apophyſis of the aſtragalus. The anterior ſide of the apophyſis is broad, oblique, cartilaginous, partly convex and partly concave, and is articulated with a like ſurface of the os cuboides: this is the foreſide of the whole *os calcis*, when conſidered without any diviſion. The outſide of the apophyſis is very rough, being a continuation of the outſide of the body, with a tubercle or eminence of the place where the two ſides meet. This, however, is not found in all ſubjects. On the lower part of this tubercle is a cartilaginous ſurface for the paſſage of the tendon of the *peronæus longus*: ſometimes we ſee only ſome ſmall veſtiges of this eminence, and often none. We ſometimes alſo meet with a cartilaginous ſurface, ſmall, lower down, and more forward, near the anterior extremity of the apophyſis, for the paſſage of the ſame tendon. The lower ſide is a tuberoſity continued from the ſide of the body, and deſigned for the inſertion of muſcles. The lateral apophyſis is almoſt common to the body, and to the great anterior apophyſis, and increaſes the cavity on the inſide of the *os calcis*. On its upper part it has a very ſmooth cartilaginous ſurface, articulated with one of the inferior ſurfaces of the aſtragalus. This apophyſis is very low down, and its inferior part is ſmooth for the paſſage of tendons. *Winſlow*'s Anatomy, p. 97, ſeq.

Os *calcis luxated*. It ſometimes happens, that the *os calcis* above, and no other bone of the foot, is diſplaced or luxated by ſome external force; and this happens ſometimes toward the external, ſometimes toward the internal ſide of the foot. When this accident happens, it is eaſily diſcovered by the violent pain it occaſions; and by the inequality of the part, that is, there is a cavity plainly obſervable in one part, and a tumor in the other, on the place. The reduction of this diſlocation is very eaſy. The patient is to be placed on a bed, and while two aſſiſtants extend the limb in the oppoſite directions, the ſurgeon replaces the diſlocated bone with his fingers, and the preſſure of the palm of his hand, and then there is no more than a proper bandage and reſt required to the cure. *Heiſter*, Surg. p. 174.

Os *cuneiforme*. This in the carpus is the third bone of the firſt row. It has its name from the Latin *cuneus*, a wedge. Its figure much repreſenting that of a wedge ſticking between the two rows. It has a rough ſurface with a ſmall tubercle upon it, which forms the greateſt part of the cubital edge of the carpus; and four articular ſides of which one is convex, which compleats the articular convexity of the carpus, one orbicular and internal, or on the concave ſide of the carpus, on which the os piſiforme is ſet; and two others, which make an angle between them, one for the os ſemilunare, and the other for the os unciforme. *Winſlow*'s Anatomy, p. 83.

The *oſſa cuneiformia* of the tarſus are ſituated before the os ſcaphoides. The firſt of them is the largeſt, and the third the leaſt; with the os cuboides, theſe form a ſort of arch, which on the ſide next the other foot is high, and low on the oppoſite ſide. In each of theſe bones we may diſtinguiſh the baſis, the apex, and four ſides, one poſterior, one anterior, and two lateral; whereof one is internal, the other external. The firſt bone is like a wedge contorted and bent. Its baſis is low down, unequally rounded, like an oblong tuberoſity, ſerving for the inſertion of a tendon; the internal lateral ſide, or that which is turned towards the other foot, is unequally convex, and rough, for the inſertion

tion of ligaments. The external lateral side, or that next the second bone is unequally concave, and cartilaginous toward the superior and posterior edges. The largest portion of this side is articulated with the second bone. The rest toward the anterior edge is joined laterally to the second bone of the metatarsus. The backside is the least; it is cartilaginous and almost triangular, suited to the first of the three triangular surfaces of the os scaphoides. The anterior side is cartilaginous, large, and semilunar, the convex edge being turned toward the other foot, and by this the first *os cuneiforme* is articulated with the first bone of the metatarsus. The angle is turned upwards, and the obliquity of it occasions the anterior side to be the highest, and the posterior lowest. The second *os cuneiforme* has the basis upward, and the angle downward, and resembles a wedge more than the first: this basis is short and rough, for the insertions of ligaments. The backside is cartilaginous, and perfectly triangular, suited to its articulation, with the middle surface of the convex side of the os scaphoides The anterior side is also cartilaginous, a little more oblong and articulated with the basis of the second metatarsal bone. The two lateral sides have, toward their superior and posterior edges, oblong cartilaginous surfaces, by which they are articulated with the first and third *ossa cuneiformia*; the rest of these two sides is a little depressed, and there, by small interstices, void spaces are left between the bones: this is every way the straitest bone of the three, its angles hid between the two other bones of the same name, and does not reach so low as theirs, which makes this part of the foot a little hollow. The third *os cuneiforme* has likewise its basis upward, and its angle downward. The basis is longer than that of the second, almost flat or very little convex, and rough for the insertion of ligaments; the angle runs down lower than that of the second bone. The backside is cartilaginous and triangular, that is of the same figure with the third surface of the convex side of the os scaphoides: the anterior side is, likewise, cartilaginous and triangular, but a little oblong, being articulated with the basis of the third bone of the metatarsus. The internal lateral side is broad, with two cartilaginous surfaces, one toward the posterior edge, the other toward the anterior; the first is for its lateral articulation with the second *os cuneiforme*; the second for its lateral articulation with the basis of the second metatarsal bone. The external lateral side is likewise broad, and toward its posterior edge has a large cartilaginous surface for its articulation with the os cuboides towards its anterior edge. There is a sort of void space for the passage of vessels, and sometimes a little cartilaginous corner for its lateral articulation with the fourth bone of the metatarsas. *Winslow*'s Anatomy, p. 100.

Cartilages of the Os *femoris*. No part of the *os femoris* is covered, except the uniform convexity of the head, and the articular portion of the lower extremity. The trochanters have no true cartilage, what appears like it being only the remains of tendinous insertions; the cartilaginous substance, which to a certain age unites the apophyses to the body of the bone, does not belong to these, because it is only found in the time of youth, and in adults is converted into a bone. The cartilaginous matter, by which the head of the *os femoris* is cemented, deserves, however, to be observed here, because that apophysis has been separated by violent falls. The convexity of the head of the *os femoris*, all the way to its symphysis with the neck, is covered with a very smooth, shining cartilage. A little below the middle of this convexity, and something toward the back part, there is a depression in the shape of a crescent, the cartilage being here interrupted by the insertion of the internal articular ligament of the head of the *os femoris*. The cartilage which covers the lower extremity of this bone is exactly fitted to the semi-oval convexity of the inferior surface of each condyle, and to the pulley formed by their union. *Winslow*'s Anatomy, p. 126.

Ligaments of the Os *femoris*. The *os femoris* is connected by its upper extremity to the os innominatum, and by the lower to the bones of the leg, by means of several ligaments. The ligaments of the upper extremity are two in number, one which surrounds the whole articulation thereof, with the cotyloide cavity, and one contained in the articulation. The first is termed the orbicular ligament of the head of the *os femoris*; the other the internal ligament; and to these may be, though but improperly, added a third, which is of the nature of a capsular ligament. The orbicular ligament is the most considerable, the largest, and the strongest, of all the articular ligaments of the human body; it is fixed quite round the border of the cotyloide cavity, and is made up of several sorts of fibres, and is much stronger and thicker in some parts than in others; the other, or internal ligament of the head of the *os femoris*, resembles a flat cord, and is composed of a bundle of flat fibres, closely interwoven. The ligaments of the lower extremity of the *os femoris*, by which this bone is connected with the leg, are six in number, one posterior, two lateral, two middle, or crucial, and the capsular. The crucial ligaments lie within the joint, and are fixed by one end to the back part of the notch, or opening, which parts the two condyles: these are surrounded by the capsular ligament, but all the rest lie on the outside thereof, being closely joined to it. Of the two lateral ligaments, one is internal, and broad, being fixed to the tuberosity of the internal condyle; the other is external, and narrow, and is fixed to the tuberosity of the external condyle. The posterior ligament is broad and thin, and being fixed a little above the convexity of the external condyle, it thence descends obliquely behind the great notch, and internal condyle. The capsular ligament is, as it were, glued to the three former, and is fixed quite round the inferior extremity of the *os femoris*; at a small distance above the anterior, lateral, and posterior parts of the cartilage, and above the posterior part of the great notch; and from the cartilage and notch, through the small space upward already mentioned, it covers the bone, and afterwards is inverted downward, to form the capsula for the mucilaginous liquor of the joint. *Winslow*'s Anatomy, p. 126.

Os *frontis*. This is situated in the anterior part of the skull, and forms that part of the face which is called the forehead, from whence it has its name. Its figure is symmetrical, resembling a large shell almost round. Tho' this has always been looked upon as one bone, it is to be observed that it is sometimes found divided into two equal parts by a continuation of the sagittal suture; and this division is equally common to both sexes. Considered as one bone it may be divided into an upper part, which belongs to the crown of the head, a lower part which belongs to the basis of the skull, an anterior part which is the forehead, and two lateral parts at which the temples begin. Its two sides are the one external, which is in its greatest part convex, and forms the forehead; the other internal, which is concave in proportion. On the outside are observed the following eminences: Two superciliary arches, which form the upper edge of each orbit, or the supercilia; three risings not always equally apparent, one between the two arches, and the other two above them; which may be called the knobs of the forehead: five apophysis, one at the extremities of each arch, one between the orbits, which sustain the ossa nasi, and which in some subjects makes a part of the bony septum of the nose. This last may be called the nasal apophysis, the other four the angular apophyses. The external cavities are these two orbitary portions or vaults forming the upper portions of the orbits: a remarkable depression in each of these vaults above the external angle, which contains the lachrymal gland: a small depression above the internal angle, to which is fixed the cartilaginous pully of the great oblique muscle of the eye; two portions of the temporal fossæ; two little cristæ which form the anterior extremity of the great semicircular plane of the temples, on each side, at the edge of the superciliary arches, near the external angle; two superciliary foramina, which are sometimes double, and sometimes only notches; and, lastly, two holes or portions of holes, called the internal orbitary holes.

On the inside of this bone we see a sharp perpendicular eminence, called the frontal or coronal spine, directly opposite to the middle rising on the outside already mentioned; above this spine, a portion of the groove for the longitudinal sinus, which when the spine is wanting, runs down lower; below the spine a considerable opening, called the ethmoidal opening, because it contains the os ethmoides; the sides of this are always more or less cellular. Between this opening and the coronal spine, a blind opening, which in some subjects is wholly in the *os frontis*, in others, common to that bone and to the os ethmoides, and which seems to open into the frontal sinuses near the nose. The anterior fossæ of the basis of the skull, which receive the anterior lobes of the brain, and which, by juting out forwards, form the risings on the outside, before taken notice of: toward the lower part they are uneven, answering the inequalities of the lobes, and they are also a little raised, to make room for the orbits, sulci or furrows of the arteries of the dura mater, and sometimes other indeterminate depressions. Tho' this bone is in general composed of two tables, and a diploe, yet the orbitary vaults are very thin, and without any diploe. About the middle of the lower part of the bone, where the middle rising is commonly situated, the two tables are parted, to form two cavities called the frontal, or superciliary sinuses, and the separated portions are here each of them composed in some measure of two tables, or at least have two surfaces, which make in all four surfaces of each of the two tables.

The frontal sinuses are extended on the edge of the superciliary on each side, more or less, all the way to the superciliary perforations; below they are open, and communicate with the cells of the os cribrosum. They are commonly parted by a bony septum, which is often more or less uneven; sometimes also it is perforated, and sometimes part of it, sometimes the whole is wanting.

In different subjects these sinuses are observed to vary extremely both in extent and form; in some they are very small, and often very irregular, and their disposition cellulous; sometimes also they are entirely wanting, and in such subjects the cavity of the nose is larger than ordinary; one of them does not open into the nose but only communicates with the other.

The *os frontis* is articulated by suture with seven other bones, the ossa parietalia, os ethmoides, os sphenoides, ossa lacrymalia, ossa nasi, maxillaria, and the ossa malarum. It contains

tains the anterior lobes of the brain, and a portion of the longitudinal ſinus, and forms the forehead, the upper parts of the orbits, and a portion of the temples. *Winſlow*'s anatomy, p. 21.

Cartilages of the Os *humeri.* The cartilage by which the hemiſphere of the head of the *os humeri* is covered, is gradually thicker toward the middle, and thinner toward the edges. The four ſurfaces of the tuberoſities, which appear cartilaginous in dry bones, ſerve only for the inſertion of the tendons of four muſcles, which move the *os humeri* on the ſcapula. The channel, or ſinus, between the two tuberoſities is partly covered by a thin cruſt, which appears rather ligamentary than cartilaginous, and partly by a tendinous ſtratum. The trochlea and ſmall head of the lower extremity of the *os humeri*, are covered with a common cartilage, in which the ſame proportion of thickneſs is obſervable, as in that of the upper extremities; and this holds indeed pretty generally of the convex articular cartilages: and the foſſulæ near the pulley and ſmall head, are covered with a thin cartilaginous and ligamentary varniſh.

Ligaments of the Os *humeri.* The capſular, or mucilaginous ligament, looſely ſurrounds the whole articulation of the ſcapula with the head of the *os humeri.* The true ligament of this joint ſeems to be made up of two ſorts of ligaments cloſely united together, *viz.* of a capſular ligament, which ſurrounds the whole articulation, and of ſeveral true ligaments which run over, and cloſely adhere to the former at different diſtances. On the body of the *os humeri* there are two particular ligaments, which may be termed the intermuſcular, or lateral ones: they are long, flat, thin, but ſtrong and narrow, fixed by one edge along the two lower thirds of the bone, and reaching to both condyles; they are broad, pretty tight, and are very narrow at the upper part, but broader toward the condyles.

The lower extremity of the *os humeri* is joined to the bones of the fore arm, by two faſciculi of ligamentary fibres, one fixed to the internal condyle, the other to the external. Each faſciculus is compoſed of fibres cloſely joined together near the condyle, but afterwards parting in diſtinct bands like a gooſe's foot. The capſular ligament is fixed to the condyles, and then covers them, and is afterwards fixed round both ſides of this lower extremity above the foſſulæ. The foſſulæ are ſlightly varniſhed over alſo with a cartilaginous ſubſtance. This capſula ſeems to be ſtrengthened by a ligamentary wall, the fibres whereof croſs one another in different directions, and appears larger and looſer when the muſcles are ſeparated from it, than when cloſely united to them in its natural ſtate. *Winslow*'s Anatomy, p. 139.

Os *humeri fractured.* Fractures of the *os humeri* are leaſt dangerous when near its middle, and much worſe when near its upper or lower head. It ſometimes happens, that the fractured ends of this bone keep their places, but much more frequently they are found ſlipped one over another; by which means the fractured limb is made ſhorter than the ſound one: ſometimes alſo, tho' much more rarely, it happens, that the divided ends of the bone recede from one another, by reaſon of the weight of the arm, and by that means the fractured limb becomes longer than the ſound one. In fractures of this bone, where the ends of the divided bone have ſliped one over another, as is uſually the caſe, there is required both force and ſkill to reduce them, eſpecially if the patient has tenſe nerves and larger muſcles, as is uſually the caſe in ſtrong men. To extend the arm on this occaſion, the patient muſt be ſeated on a high ſtool, and an aſſiſtant muſt lay hold of his arm firmly above the fracture, keeping his elbow gently bent; then the lower part of the arm beneath the fracture, is in like manner to be taken hold of, and the arm is to be gently extended forward, by endeavouring to remove eaſily each part from the other, in a right line. The ſurgeon is then to take hold of the fractured part of the arm, and with both his hands reduce the fractured bones into their proper places, while the arm is kept in a proper ſtate of extenſion by the aſſiſtants; and when they are replaced, the limb is to be rolled up with the proper bandages. *Heiſter*'s Surg. p. 127.

Os *hyoides.* Mr. Du Vernoy obſerves, that the right ſide of the *os hyoides* is ſhorter than the left. Comment. Acad. Petrop. Tom. 7.

Cartilages of the Ossa *innominata.* Theſe are not ſo numerous as might be imagined, on examining the bones in a dried ſkeleton, where we are apt to think we ſee the dried remains of cartilages on the criſta of the os ilium, on the tuberoſity of the os iſchium, and on the grooves and notches which give paſſage to the tendons of muſcles; but none of theſe incruſtations are true cartilages, but for the moſt part tendinous, aponeurotic or ligamentary, which ſubſtances being dryed, look more like cartilages than the true cartilages themſelves in the ſame ſtate. The true cartilages of theſe bones in adults are properly five in number, three of which are common, and two proper. The firſt and principal common cartilage, is that which makes the ſymphyſis of the oſſa pubis. This forms a kind of arch, which is more conſiderable in men than in women; the two others join the oſſa ilium to the os ſacrum, but are thinner than that of the oſſa pubis. The proper cartilages are thoſe which line the cotyloide cavities, in the edge of each of which there is a notch or opening between the anterior or inferior parts, and in the cavity itſelf there is a broad and ſhallow depreſſion, reaching from the notch beyond the middle part of the cavity; all the reſt of the acetabulum is covered with a very white, ſhining, ſmooth cartilage, which terminates preciſely at the edge of the cavity. *Winſlow*'s Anatomy, p. 122. See Ilium.

Ligaments of the Ossa *innominata.* Theſe are of two kinds, common and proper: the common ligaments are thoſe which go between theſe and the neigbouring bones, of which there are a conſiderable number: One ſuperior, inſerted by one end in the internal labium of the poſterior part of the os ilium; one inferior and anterior, fixed by one end in the inner ſide of the criſta of the os ilium, and by the other in the ſuperior and anterior part of the firſt falſe tranſverſe apophyſis of the os ſacrum. Several inferior and poſterior, fixed by one end along the internal labium of the tuberoſity of the criſta of the os ilium, and by the other in the firſt three falſe tranſverſe apophyſes: and to this muſt be added the ligaments by which the os femoris is joined to the *os innominatum.* The principal proper ligaments are four: the two ſacro-ſciatic, the obturator, and the inguinal, which ſee under their proper heads; but beſide theſe, there is another ſmall, flat, and very ſtrong ligament, which runs tranſverſely between the two angles of the cotyloide notch, and may be termed the proper, or tranſverſe ligament thereof. The elaſtic border of the cotyloide cavity may likewiſe be reckoned among the ligaments: it is a ſort of additional piece, ſtrongly united to the edge of the cavity, but eaſily yielding any way, on preſſure. The two ligaments by which the os femoris is connected to the *os innominatum*, are alſo inſerted in this bone; one of theſe ligaments ſurrounds the whole articulation, and the other is contained in it: the firſt is called the orbicular ligaments, the other, tho' very improperly, the round ligament: the orbicular is very ſtrong, and unequally thick, and ſurrounds the whole convex circumference of the ſupercilium of the cotyloide cavity. The ligament which lies in the joint is not round, but is a flat cord, broad at one end, and narrow at the other, and is in ſome degree of a triangular ſhape. *Winſlow*'s Anatomy, p. 122.

Os *innominatum fractured.* A fracture of this bone very ſeldom happens; but when it does, it is readily diſcovered by the injury and ſymptoms in the neighbouring parts, and is the more particularly dangerous, when the patient diſcharges a brown bloody matter. In reſtoring this bone, the patient muſt lie down on his ſound ſide; the bone muſt be replaced with the hands, covered with compreſſes, dipt in ſpirit of wine, and kept on by the ſpica bandages. Afterwards bleeding, with cooling and relaxing medicines, muſt be uſed, and a thin diet obſerved. *Heiſter*'s Surg. p. 126.

Os *orbiculare.* This, in the carpus, is the fourth bone of the firſt row. It has its name from the roundneſs of its figure, and is, for the ſame reaſon, by ſome called *os piſiforme*, and *os lenticulare*; it is, however, not perfectly, or regularly round; it has but one cartilaginous ſide, which is irregularly orbicular, and the border, a circumference of which repreſents a kind of narrow collar. The reſt of the bone is rough, convex, and irregularly round, making one of the four eminences, on the concave ſide of the carpus. This bone, and the os cuneiforme, may be ſuppoſed to make a third row, diſtinct from the other two. *Winſlow*'s Anatomy, p. 83.

Naſi Ossa. See Nasi *oſſa.*

Palati Ossa. See Palati *oſſa.*

Parietalia Ossa. See Parietalia *oſſa.*

Pectoris Ossa. See Pectoris *oſſa.*

Os *ſacrum* (*Cycl.*) — As this bone is the baſis by which the whole ſpine is ſupported, it has by ſome been called *os baſilare*; its figure comes near that of a long triangle, with the baſis upward, and apex downward. Anatomiſts, in its deſcription, divide it into the upper part, or baſis, the lower, as it is ſituated, or apex; two ſides, the anterior, or concave, and the poſterior, or convex; and two lateral parts, or edges. The pieces of which it is compoſed in infants, called falſe vertebræ, are five in number, and are united together by cartilages, which in time almoſt diſappear, leaving only little ridges, or lines, more or leſs prominent in their places. The firſt of theſe is much larger than any of the true vertebræ, but their ſize diminiſhes by very great degrees as they deſcend; ſo that the loweſt which makes the point of the *os ſacrum*, has ſcarcely the appearance of a vertebra. At the baſis, or upper part, of the *os ſacrum*, are two articular apophyſes, anſwering to the inferior ones of the laſt vertebra of the loins. Below each of theſe apophyſes laterally is a large notch, and between them, we ſee diſtinctly enough the body of this firſt falſe vertebra, which is like that of the lumbar vertebræ, being very much inclined backward; ſo that the body of this firſt falſe vertebra, as well as that of the laſt true one, is longer before than behind; and from this obliquity it is that the *os ſacrum* and laſt lumbar vertebra, form at their connection, a very conſiderable angle. The lateral parts are broad at top, forming on each hand a large, irregular, cartilaginous ſurface, in the figure of a great S, and ſometimes of a bird's

head. By these two sides the *os sacrum* is connected to the ossa innominata, by a cartilaginous symphysis. Between each of these lateral sides and the nearest posterior holes, there is a large rough depression, and under that another not so large. These depressions are often pierced by several holes, which lose themselves in the substance of the bone. *Winslow*'s Anatomy, p. 60.

Os *sacrum fractured*. When this bone is found to be fractured, the fragments are to be reduced into their proper places with the fingers, and if any part of it be depressed inwards, a finger dipp'd in oil or butter, and with the nail close cut off, must be introduced up the anus in order to thrust the depressed fragment into its proper place, to which it is to be directed externally by the other hand. This being performed, a sticking plaister is to be applied, and compresses dipped in spirit of wine over it, to be kept on by the T bandage, or the plaisters may be let alone, and only the compress and bandage applied. The patient must keep his bed a fortnight, lying on his sides; or if he will needs sit up, it must be on a chair without a bottom, that the bones may not be displaced by touching the seat. *Heister*'s Surg.

Os *sepiæ*, the cuttle-fish bone. See SEPIUM, *Cycl.*

OSSA *temporum*. See TEMPORUM *Ossa*.

Os-*tincæ*. The sides of the os-tincæ have been known to open together in women with child, and have been divided by incision, in order to extract the child. See Med. Ess. Edinb. Vol. 3. Art. 19.

OSSÆI, or OSSENI, a name sometimes given to the Jewish sect of religion called *Essenians*. *Hofm.* Lex. Univ. in voc. See ESSENIANS, *Cycl.*

OSCHEALIS *hernia*, a term used by some writers for a hernia of the scrotum.

OSCILLA, in antiquity, small images of wax or clay, made in the shape of men or women; which were consecrated to Saturn in order to render him propitious. *Hofm.* Lex. Univ. in voc.

OSCINES, among the Romans, an appellation given to such birds, from whose chattering or notes, omens and predictions were drawn. *Hofm.* Lex. Univ. in voc.

OSLEOM *iron*, in the wire-works, a particular sort of bars of iron wrought on purpose for the manufacture of iron-wire. These are small and square, and the first thing done with these, toward the making them into wire, is, the straining, or drawing them at a furnace to small rods, of the thickness of one's little finger; these they bow round, and deliver them to the wire-drawers. *Ray*'s Engl. Words, p. 132. See WIRE.

OSMERUS, in ichthyography, the name of a genus of fishes, of the malacopterygious, or soft-finned kind, the characters of which are these: The branchiostege membrane contains seven or eight bones on each side. The back and belly fins are placed at the same distance from the top of the snout; by which it is distinguished from the coregoni and salmons. The teeth are large, and are placed on the tongue in the palate and in the jaws.

The species of *osmerus*, enumerated by Artedi, are these: 1. The *osmerus* with seventeen bones in the pinna ani: this is the smelt or eperlanus of authors. 2. The *osmerus* with eleven bones in the pinna ani.

This is the little fish called *saurus* by Salvian, and by the people of Rome, named *tarantola*. It is about a span long, and somewhat thicker than a man's thumb. The scales are moderately large, and the pinna dorsi has twelve rays. *Artedi*, Gen. Pisc. 8.

OSMONDS, in our old writers, a kind of iron antiently brought into England. It is mentioned in Stat. 32. Hen. VIII. c. 14. *Blount*, *Cowel.*

OSMUNDA, in the Linnæan system of botany, the name of a genus of plants, of the fern kind, the characters of which are: That the seeds are produced in globose capsules which stand distinct, but are collected in a cluster on the branch, and open horizontally when ripe. The seeds are small, oval in figure, and very numerous: according to this character, that species of the fern kind usually called the *sensible polypody* of Muntingius, and ranked among the polypodies is, an *osmund*; for it produces clusters of globose capsules so large, that they are scarce to be conceived to belong to any thing of the fern kind. These also stand on particular stalks, not on the back of the leaf, which is also the case in the other species of *osmund*, as our common English kind evidently shews.

The characters of *osmunda*, according to Mr. Tournefort, are these: The flowers are not discovered, but the seeds are collected into clusters. The capsules in which they are enclosed, are of a spherical figure; and when ripe, they burst by the contraction of the fibres. The leaves resemble those of the fern's.

The species of *osmund*, enumerated by Mr. Tournefort, are these: 1. The common, or marsh *osmund*. 2. The *osmund* with lunated leaves, commonly called *moonwort*. 3. The *osmund* with multifid leaves, called *branched moonwort*. 4. The larger branched *osmund*, with lunated leaves. 5. The feverfew-leaved *osmund*, or *moonwort*. 6. The *osmund* with adiantum leaves. 7. The hairy lonchites-leaved *osmund*. 8. The great fern leaved *osmund*. 9. The lesser fern-leaved *osmund*. 10. The hart's-tongue-leaved *osmund*. 11. The cut-leaved *osmund*, with broad dents. 12. The deeply jagged, and lightly hairy *osmund*. 13. The asphodel-rooted *osmund*. 14. The verticillated *osmund*. 15. The spear pointed lightly serrated *osmund*. *Tourn.* Inst. p. 547.

OSOSOR, a word used by some authors as a name for opium. See the article OPIUM.

OSPRION, a word used by some authors for a bean, which is its proper and determinate signification; but by some authors it is extended to all sorts of pulse.

OSSA. See the article Os.

OSSELET, in the manege, is a very hard excrescence, resembling a little bone, on the inside of the knee, (and never on the outside) appearing to be of the same substance with the rest of the knee, and only distinguishable from the knee by its descending a little lower.

OSSERVANZA, in the Italian music, is used for singing or playing with care; that is, executing a piece of music justly and exactly as it is marked, without adding or diminishing. *Bross.* Dict. Mus. p. 22.

OSSICULA *auditoria*, in anatomy, are four little bones contained in the cavity of the tympanum, or barrel of the ear, and assisting to the hearing; they are denominated from things they have been supposed to bear a resemblance to, the malleus, incus, stapes, and os lenticulare, called by others the *os orbiculare*; each of which see under their proper heads.

OSSICULA *musculorum*, in ichthyology, a name given by authors to those oblong and slender bones which are situated in the flesh of some kinds of fish between the muscles: these, in the anterior part, and especially near the head, are of a forked shape; but in the hinder part of the body, they are usually simple and slender. These sorts of bones are found in the following kinds of fish: 1. In all the cyprini. 2. In the esoces. 3. In the clupeæ. 4. In the eels. 5. In the coregones. 6. In the osmerus. 7. In the salmon kind. 8. In mackrell. And 9. In the ammodytes or sand eel. In the five last, these bones touch the spine at one end, but in the others they no where come near it.

The use of these loose bones seems to be, to strengthen and support the muscles, that by this means they may be able the more forcibly to move the body, and turn it about: they are peculiar to fish, no land animal having them. *Artedi*, Ichthyol.

OSSIFICATION *(Cycl.)* — Dr. Nisbet's opinion of *ossification* is, that in the blood, or a fluid secreted from it, there is an ossifying juice consisting of particles which are not apparent: that whenever nature designs an *ossification* between membranes, or within a cartilage, she occasions a more than usual afflux of this fluid; which so much distends the vessels which were before invisible, as to make them capable of receiving the red globules of blood, which is always to be seen near to the place where *ossification* is begun. In this blood, gritty bony particles are to be felt by the point of a knife; which have been formed by the attraction and cohesion of the particles of the ossifying juice obstructed, along with the other grosser fluids, in the beginning of the vessels prepared to receive refuent juices. The blood being capable of forming fine membranes, the membranous parts of a bone, which act as a gluten to keep these particles and fibres together, if there be any such, that do not arise from the coats of its vessels, are produced by a cohesion round the cretaceous particles of a part of the fluid, in which they were generated and contained. Thus the membranes of cartilages serve as a bed between, or within which the bony particles are deposited, or shoot; but without any intermixture of the particles of the bone and cartilage, or continuation of the fibres of the one substance to those of the other, as is evident in cartilages containing bones kept long enough in water, and then slit; for the bone will, as soon as the large vessels that enter its substance are divided, slip as easily, if not easier, from it, than an acorn does out of its cup: and there is a smoothness and polish of the parts of both cartilage and bone, which shew there is no conjunction of the fibres of the two substances. While the bones are encreasing within cartilages, the cartilages are extended and spread out; by which, with the pressure which they suffer, and the great influx of various fluids, and the nutricious matter being hindered to flow freely into them, they decrease continually; and at last may truly be said to be entirely destroyed. Med. Ess. Edinb.

Dr. Buddeus endeavours to prove, that the preternatural *ossifications*, which are commonly said to be formed in different parts of the body, do not deserve that name; for that these hard substances have scarce any other properties of bone, except whiteness and hardness. *Misc.* Berol. Tom. 5. pars 2. §. 1.

OSSIFRAGUM, in botany, a name given by Bartholine, and some other writers, to a peculiar kind of grass, growing in some parts of Norway. It comes up early in the spring, before any other grass, and the cattle are tempted to eat it; but it emaciates them, and makes them sickly; their back bones become protuberant if they feed any time on it, and their legs so weak that they can hardly go. The remedy among

among the country people is a very odd one. They collect the bones of different animals, and break them into small pieces. The cattle greedily devour this sort of food when offered them in this disease, and there follows a sort of driveling at the mouth for a considerable time, after which they become well. It is possible there may be much error in this story. The kingdom of Norway is full of mines, and the effluvia of these may be the occasion of the cattles illness, and the ceasing of these effluvia their cure; for it is not probable that either of these effects should be owing to the grass or the bones. *Barthol.* Act. Med.

OSSIPAGINA, in botany, a name given by Arnobius and some other of the old Greek writers to the consolida-major, or greater comfry. It had this name from its supposed quality of agglutinating broken bones on being taken internally. The Greek writers have sometimes called this plant *pecte*.

OSTEOCOLLA, (*Cycl.*) a substance used in Germany in cases of fractures, giving it inwardly to bring on a callous; but so inaccurately described by authors, several different species of the crustaceous spars having been described under its name, that it is not easy to ascertain what it truly and regularly is. Dr. Hill, from the inspection of what is now universally received in Germany as such, which answers very well to the accounts given of the substance by those who have first recommended it in medicine, has ascertained the name to a peculiar species of crustaceous spar of the terrene kind, which he has described under the name of *cibdeloplacium crassius, exalbo pallide fuscum, durum, superficie scabra*, or hard, pale brown, thick crustaceous spar, with a rough surface.

This is found in long, thick, and irregularly-cylindric pieces, which are usually hollow, but are sometimes filled up with a marley earth, and sometimes contain within them the remains of a stick, round which the *osteocolla* had been formed: but tho' it is plain from hence, that many pieces of *osteocolla* have been formed by incrustation round sticks, yet the greater number are not so; but are irregularly tubular, and seem formed of a flat cake, rolled up into a cylindric shape. The crusts of which these are composed do not form regular concentric circles round the internal cavity, as must have been the case had they been formed by incrustation, but shewing plainly that they were once so many thin strata, composing a flat surface, which has afterwards been rolled up as one might do a paper three or four times doubled, into two, three, or more spiral lines; in which case, each single edge of the paper would be every where a regular part of a continued spiral line drawn from a given point; but they would by no means be so many detached concentric circles.

The *osteocolla* is found of various sizes, from that of a crow-quill to the thickness of a man's arm. It is composed of spar and earth, and is found, both in digging and in several brooks, in many parts of Germany and elsewhere. *Hill's* Hist. of Foss. p. 359. *Osteocolla* is called *hammosteus* in many parts of Germany. It has this name in these places from the observation of its always growing in sand, never in clay, or any solid soil, nor even in gravel. Where a piece of it any where appears on the surface, they dig down for it and find the branches run ten or twelve feet deep. They usually run streight down, but sometimes they are found spreading into many parts near the surface, as if it were a subterraneous tree, whose main stem began at twelve foot depth, and thence grew up in a branched manner, till met by the open air. The main trunk is usually of the thickness of a man's leg, and the branches that grow out from it are thickest near the trunk, and thinner as they separate from it. The thinnest are about the size of a man's finger. The people employed to collect this *osteocolla* when they cannot find any mark of it on the surface, search after the specks of white, or little lumps of whitish soft matter, which they find lying in different parts on the top of the sand. These always lead them either to a bed of perfect *osteocolla*, or to some in the formation. If they miss of the substance which they seek after, they still find a substance like rotten wood; which, when traced in its course, is found to proceed from a main trunk, at the depth of that of the *osteocolla*, and to spread itself into branches in the same manner. The diggers call this substance the flower of *osteocolla*, or *hammosteus*.

The *osteocolla* found in the earth is at first soft and ductile, but in half an hour's time, if exposed to the air, it becomes as hard as we find it in the shops. The method to take up a perfect piece for a specimen, is to open the ground, clear away the sand, and leave it so for an hour or thereabouts: in this time it will harden, and may be taken out whole. It is certain, that the *osteocolla* is produced at this time; for, if a pit be cleared of it, there will more grow there in a year or two, but with this difference, that it will be softer and will not harden so easily in the air as the other. What the rotten substance resembling the decayed branches of trees is, it is not easy to say, unless it really be such: but the opinion of the common people, that it is the root of something, is absurd; because its thickest part always lies at the greatest depth, and the branches all run upwards. The *osteocolla* is a marley spar, which concretes round this matter; but what it is that determines it to concrete no where in the same ground but about these branches, is not easy to say. The rottenness of this substance which forms the basis of the *osteocolla*, renders it very liable to moulder and fall away; and hence it is that we usually see the *osteocolla* hollow. Sometimes it is found solid, but in this case there will be found to have been a vegetable matter serving as its basis, and instead of one branch, it will be found in this case to have concreted about a number of fibres, the remains of which will be found in it on a close examination. *Phil.* Trans. N. 39.

OSTEOCOLLA-*flower*. See the article FLOWER.

OSTEOCOLLA-*roots*. See the article ROOT.

OSTEOCOLLON, in botany, a name given by some authors to the great comfry. *Ger.* Emec. Ind. 2.

This name was given by some of the old writers to the symphytum, or comfry, from an opinion that its agglutinating quality reached to the bone, and that it was of great service taken internally in cases of fractures.

OSTEOGONY. See the article OSSIFICATION.

OSTEOLOGY (*Cycl.*)—There are properly two kinds of *osteology*, one of which is to be learned from bones dried and prepared by boiling, and the other from the bones of a dead subject, as they are naturally connected with each other. Both these methods are very necessary for the practice of physic, and for the exact knowledge of the human body. By examining dry bones, however, we can only learn their exterior forms, their situation, and the connection which they may have with one another; but when we consider them as joined together in a dead body, we are in a condition to observe many other things in regard to them, very useful in physic: because their connections with one another by cartilages and ligaments, and by the diversity of articulation, are sometimes very different in the dry from what we see them in the fresh bones; there are, for instance, in dry bones, certain cavities which appear to be cotyloide, because they are divested of their cartilages; but in fresh bones, they are found to be glenoide, their cavities being filled with cartilages. And, on the other hand, some cavities appear to be glenoide in the skeleton, which are cotyloide in the body, their cavities being augmented by cartilaginous supercilia.

The exterior form and qualities of bones are much better demonstrated also from fresh subjects, than from prepared bones; because they loose a great many things in boiling, such as the cartilaginous bodies, the periosteum, the mucilaginous substance found between them, and the marrow contained in their cavities; all which may be shewn in a fresh body, but cannot be seen in a skeleton. *Riolan.* Encheiridion Anatomicum.

OSTINATO, or *Contrapunto* OSTINATO, in the Italian music, is much the same with *Perfidia*. See PERFIDIA, *Cycl.*

OSTRACION, in the Linnæan system of zoology, the name of a large genus of fishes of the general order of the branchiostegi. The characters which distinguish the fish of this genus, are, that they have no belly-fins, and their skin is always hard and often prickly. Of this genus, besides the *ostracion*, commonly singly so called, are the orbis, hystrix, atinga, &c. *Linnæus's* System. Naturæ, p. 52.

The characters of the *ostracion*, according to Artedi, are these: there is no branchiostegi membrane; the figure of the body is particular, being globose, or spherical, or roundish, oval or oblong and square, or finally conic; the skin is very hard, and usually beset with rigid and hard spikes, either on the whole body or on some part of it, but in some species it is wholly smooth; there are no belly-fins; the number of the others is five, there are two pectoral or lateral fins, two others are on the back, the other at the anus and the tail; the mouth is small; the teeth are large; and the eyes are covered with the common skin of the head; there are on each side two foramina for the nostrils, near the eyes; the lips may be drawn back, but in their natural state they cover the greater part of the teeth. *Artedi*, Gen. Pisc. 39.

The species of this genus are these. 1. The oblong square *ostracion*, with four large tubercles on the back: this is the piscis quadrangularis maximus of Ray. 2. The oblong square *ostracion*, with a gibbous back: this is covered all over the body with beautiful hexagonal figures. 3. The oblong square *ostracion*, with a sharp snout, and with several spots on the back and head; there is a specimen of this in the cabinet of Sir Hans Sloane. 4. The square *ostracion*, variegated with a great number of spots: the spots of this are rounded, and are of various colours. 5. The triangular *ostracion*, with two spines on the head, and two more on the lower part of the belly: this is covered with hexangular and other radiated bodies instead of scales. 6. The triangular *ostracion*, with two spines near the head, and one long one on the upper part of the body near the tail: this is very beautifully spotted. 7. The triangular *ostracion*, with two spines in the lower part of the belly, and covered with hexagonal bodies, with prominent edges: this is the piscis triangularis of Clusius and other authors. 8. The triangular *ostracion*, spotted all over and covered in many places with tubercles, having two spines in the lower part of the belly: the spots of this fish are of various colours, and they are larger than the tubercles. 9. The triangular *ostracion*, with hexagonal and radiated tubercles, and

with two ſpines in the lower part of the belly. This is ſmaller than moſt of the others. 10 The triangular *oſtracion*, covered with innumerable ſmall tubercles, and having no ſpines.

The ſpecies hitherto enumerated, have all a conſiderable number of teeth, the following ſpecies have only four: 1. The round *oſtracion*, with four teeth, covered every where with ſmall ſpines. This is the orbis of ſome authors. 2. The ſpotted *oſtracion*, covered all over with ſmall and very thick-ſet ſpines. This is the orbis aſper of authors. 3. The oblong and compreſſed *oſtracion*, with a roundiſh belly, and with ſpines only on that part. This is the orbis lagocephalus of Grew. The following ſpecies of *oſtracion* have no teeth at all, but have bony jaws: 1. The ſphæric *oſtracion*, covered all over with thick-ſet three cornered ſpines. This is the atinga orbicularis of authors; and is about the ſize of a gooſe's egg. 2. The roundiſh *oſtracion*, covered every where with flat and ſhort ſpines, but with the belly ſmooth. This is the orbis ſpinoſus of Cluſius. 3. The roundiſh *oſtracion*, covered with ſhort three-cornered ſpines, ſet at diſtances from each other. This is the orbis reticulatus of Liſter. 4. The oblong roundiſh *oſtracion*, with tubercles on each ſide, and with a very long back fin. 5. The roundiſh *oſtracion*, with numerous thick-ſet ſpines of a three-cornered figure at the baſe. 6. The conic oblong *oſtracion*, with long cylindric ſpines on all parts of the body, but principally on the ſides. This is the hiſtrix piſcis, or porcupine fiſh of authors. 7. The oblong *oſtracion*, with long and cylindric ſpines covering all parts of it, but principally the head and neck. 8. The oblong ſmooth *oſtracion*, with a long head, and with a body adorned with various figures. This is the orbis teſtudinis capite of Ray. 9. The compreſſed roundiſh rough *oſtracion*, with horizontal pectoral fins, and with four foramina in the head. This is the fiſh called by authors the *mola*, or *ſun-fiſh*. *Artedi*, Gen. Piſc. p. 39.

Willughby uſes the word *oſtracion* for a fiſh caught ſometimes in the river Nile. It is very thick in proportion to its length, and of a ſomewhat pentangular form. It is uſually of about a foot long, and is covered with a ſhelly coat or skin, not leſs ſtrong and hard than many of the ſhell-fiſh kind. It has a ſtrait, not forked tail, two fins a little above it, and two more higher up the body. Its eyes are white; its mouth ſmall; and it is all over of a pale whitiſh hue. *Willughby*'s Hiſt. Piſc. p. 148.

OSTRACITES, (*Cycl.*) in natural hiſtory, a name given by authors to the foſſile *oiſters*, common in many parts of England. Theſe are of various ſhapes and kinds; and the name is by ſome authors made to ſignify, the ſhell itſelf, when preſerved in its native ſtate and condition; as is the caſe with thoſe found about Woolwich and Blackheath; and by others, the ſtones caſt or formed in thoſe ſhells, or in cavities from whence they have been waſhed away and diſſolved: in both theſe caſes, the ſtone carries the exact reſemblance of the ſhell, even in its niceſt lineaments; in the firſt caſe, carrying every mark of the inſide; in the other, of the outer ſurface. *Hill*'s Hiſt. of Foſſ.

We have this ſtone in great plenty in many parts of England; and it is very famous, in ſome places, for its virtues in caſes of the gravel, and the like complaints, as mentioned in the *Cyclopædia*. See Tab. of Foſſils, Claſs 9.

This virtue of a foſſile, not generally known, may make it neceſſary to add ſuch an account of it, that it may not be miſtaken by thoſe who are willing to try it. It is the *oſtracites maximus rugoſus aſper*, the greateſt rough and uneven *oſtracites*, excellently deſcribed by Liſter. It burns to lime as the ſpars and ſelenitæ do, and yields no volatile ſalt on a chemical analyſis. The common oiſter ſhells freſh taken and uſed, do not afford more than half a ſcruple of a liquor moderately urinous, from a quarter of a pound of the ſhells; and probably, on being long expoſed to the weather, they would looſe even that, and yield no more, on trial, than the *oſtracites*.

Theſe foſſile oiſter-ſhells are more beaked at the part where the hinge is, than the common oiſter; and in their ſpecific gravity, they are heavier than freſh oiſter ſhells, and approach to the nature of the ſelenites.

It is to be obſerved, that all the foſſile ſhells, and particularly the *lapides judaici*, or Jew's ſtones, which have been the ſpines of ſea echini, have been eſteemed diuretics, and good in the ſtone and gravel. Among the antients, Dioſcorides, Pliny, and all the reſt recommend them highly. Phil. Tranſ. N° 251.

OSTRACODERMATA, a term uſed by Ariſtotle, to expreſs that claſs of ſhells which we call *teſtaceous*, in oppoſition to the cruſtaceous animals, or malacoſtraca. The definition Ariſtotle gives of this claſs of animals is, that they are ſoft within, but hard without; that their ſhells may be bruiſed or broken; but their parts cannot be torn from one another, as they can in the cruſtaceous kind, ſuch as the lobſter; whoſe ſhells covering the legs, body, tail, &c. being ſo many diſtinct pieces of ſhell, and only joined by membranes, may be torn aſunder by pulling till thoſe membranes give way. The echini marini, or ſea urchins, have been generally allowed to be teſtaceous animals; and even Ariſtotle himſelf, the author of the diſtinctions, as well as later writers, have arranged them in this manner; but it is plainly erroneous; for they have all the characters of the cruſtaceous kinds, when ſtrictly examined; and their ſhells are, as in the lobſter, made up of ſeveral pieces connected by membranes, and diviſible one from another, by tearing or pulling without breaking; and every one of the ſpines is a ſort of leg, moveable every way upon its ſocket, and joined in the ſame manner only by a membrane: Geſner ranks them among the teſtaceous fiſhes, tho' he acknowledges that Rondeletius, whom he uſually follows, claſſes them among the cruſtaceous kinds; reckoning them after lobſters and crabs. Pliny alſo is of this opinion, and differs in it from moſt others of the antients: yet the place of theſe fiſhes has ſcarce yet been aſcertained. A ſhell is properly enough the name of the covering of theſe, as well as of the other, or teſtaceous fiſhes; and in the teſtaceous kinds, may be defined to be a hard ſubſtance, covering an entire animal, or at leaſt one whole ſide of one without joints or ligatures: and, on the other hand, a cruſt may be defined to be ſuch a hard ſubſtance as covers only one particular joint of the encloſed animal; ſo that in the whole cruſtaceous fiſh, there are as many ſhells, if we may be allowed to uſe that word in the general ſenſe, on every animal, as there are joints in that animal. The ſcalops, oyſters, wilks, &c. give us familiar inſtances of the firſt kind or ſhells, properly ſo called; and the crabs and lobſters, of the latter kind or cruſts. The firſt, therefore, are properly teſtaceous animals; and the latter cruſtaceous: and in this caſe, whoever examines the ſea echini in their exact and perfect ſtate, will find that they evidently belong to the cruſtaceous, not to the teſtaceous claſs.

The echini, lobſters, &c. may be called *multi teſtaceous*, or many-ſhelled; and the others *ſimply teſtaceous*, *biteſtaceous*, and by other terms, expreſſing the characters of thoſe few genera which have more ſhells than two: and as in the ſcaly fiſhes, every ſeparate ſcale has its ſeparate muſcle, to which it is anſwered by a particular tendon; ſo all the cruſtaceous animals have particular muſcles, which are ſeparately inſerted one into every cruſt; and all theſe cruſts are alſo connected to each other by common membranes, which are in a particular manner neceſſary, as they do not lie one upon another as the ſcales of fiſhes do, and by that means ſecure and ſtrengthen each other. Phil. Tranſ. N° 219. p. 199.

OSTREA, the *oiſter*, in natural hiſtory, the name of a very large genus of ſhells, the characters of which are theſe: It is a bivalve ſhell, of a coarſe external ſtructure, and dirty appearance; each ſhell being compoſed of a great number of laminæ not nicely cloſed down upon one another. It is in ſome ſpecies ſmooth, in others ſtriated, tuberous, or prickly; uſually flat, but ſometimes globoſe, plicated, and wrinkled into ſinuſes. The lower ſhell being always deeper than the other. Aldrovand ſuppoſes this genus of ſhell fiſh obtained the name *oſtreum*, from the Greek ὀστέον, a bone, as they are of a bony hardneſs. See Tab. of Shells, N° 17.

Moſt authors have confounded the two genera of *oiſters* and chamæ together, tho' there is an obvious and invariable diſtinction. The *oiſter* is rough, and has a ſort of beak; and notwithſtanding the roughneſs of both ſhells, it always ſhuts very evenly and firmly: add to this, that one of its ſhells is flat, the other convex; and is thus abſolutely diſtinguiſhed from the chamæ. Hiſt. Nat. Eclair. p. 313.

Oiſters in their growth become faſtened to every ſolid ſubſtance which they happen to come into contact with; and rocks, ſmall ſtones, wood, ſea-plants, and a thouſand other things are found at times with *oiſters* adhering to them, whoſe ſhells have fitted themſelves to the form of the thing itſelf, and left their natural ſhape. The people who fiſh for, and trade in *oiſters*, pretend to diſtinguiſh two kinds; one which is fecund and will breed; the other which is barren. They ſay, they diſtinguiſh theſe by a little black fringe, which always ſurrounds the good breeding *oiſters*.

The way to make *oiſters* green is, to put them into ſmall pits where the water is about three foot deep, and where the ſun has great power; in theſe they become green in three or four days.

The ſpecies of *oiſters* being very numerous, they may be better underſtood by being arranged under ſome general heads.

I. Some *oiſters* are plane and ſmooth.

Of theſe we have the following ſpecies: 1. The common *oiſter*. 2. The naturally green *oiſter*. 3. The oriental *oiſter*. 4. The pearl *oiſter*, or berberis; this is by many authors deſcribed as a peculiar genus, under the name of *concha margaritifera*; but it is a true ſpecies of *oiſter*. 5. The green-onion-rind *oiſter*. 6. The roſe-coloured-onion *oiſter*. 7. The yellow-onion *oiſter*. 8. The amber-coloured-onion *oiſter*. 9. The ſtriated-onion *oiſter*. 10. The ſaddle *oiſter*. 11. The violet-coloured ſaddle *oiſter*. 12. The pintado *oiſter*, whoſe ſpots reſemble thoſe of the pintado, or guinea hen. 13. The pond *oiſter*. 14. The red-ſtriated japan *oiſter*. 15. The ſwallow *oiſter*.

II. Some *oiſters* are ſmooth, yet foliated on the ſurface.

Of theſe we have, 1. The malleum, or brachiated *oiſter*; called *the mallet-headed oiſter*. 2. The ſmall plicated *oiſter*, called *the cocks comb*, or *the hog's ear oiſter*. 3. The hedge-

hog

hog *oyſter*: this has its ſhells round, with tubular ſpines. 4. The leaf *oyſter*. 5. The tortuous *oiſter*, called by many the leg *oiſter*. 6. The thigh *oiſter*.

III. Some *oiſters* are of a globoſe form, and carry ſpines on their ſhells.

Of theſe we have the following ſpecies: 1. The round-ſpined *oiſter*. 2. The *oiſter* with flat ſpines. 3. The fire-coloured *oiſter*, with large ears. 4. The white-pointed rock *oiſter*: this is uſually found adhering to ſtones. 5. The bridge *oiſter*: this alſo is uſually found affixed to ſtones or pebbles, in ſuch a manner as to repreſent a bridge; the ſeveral ſmall ſtones its ſhell ſpreads over making the piers. 6. The furr and roſe-coloured *oiſter*, with flat white ſpines. 7. The coral *oiſter*. 8. The medal *oiſter*, ſo called from the place near Bourdeaux, where it is found. 9. The *oiſter* with red and blue ſpines. 10. The cluſter *oiſter*, with variegated ſhells.

IV. Some *oiſters* are of a globoſe figure, and jagged with high raiſed laminæ.

Of theſe we have the following ſpecies: 1. The great foliated *oiſter* of Rumphius, called by ſome the Placenta foliacea. 2. The ſtriated orange *oiſter*, from the Baltic. 3. The ſquammoſe or ſcaly *oiſter*, called Scandebec by Rondeletius. 4. The ſquammoſe *oiſter*, with tubular ſpines. 5. The yellow ſquammoſe foliaceous *oiſter*: this ſpecies is often found adhering to the ſeveral kinds of coral, and is not unfrequently itſelf covered with balani or center ſhells.

V. Some *oiſters* are oblong and umbonated.

Of theſe we have the following ſpecies: 1. The ſmooth ſpondylus or aſs-foot *oiſter*. 2. The rugoſe but not ſpinous *oiſter*. 3. The white-plated *oiſter*, with a digitated edge covered with roſe-coloured ſpines. 3. The yellow-plated *oiſter*, variegated with red and white. 5. The gaidaron *oiſter* of Rondeletius. See OYSTER.

OSTRICH, *ſtruthio*, in zoology. See STRUTHIO.

OSTRUCIUM, a name given by the Latin writers of late ages to the plant called ſmyrnium and oluſatrum. Macer calls this plant caulis ſylveſtris, and has given to it the virtues attributed by the antients to the ſtruthion, ſuppoſing theſe to be the two names of the ſame plant; but this is evinced to be an error by the writings of all the antient Greeks. Theophraſtus in particular ſays, that the ſtruthion is a prickle or thorny plant. This alone is ſufficient to prove it can have no relation to the *oſtrucium* of the later authors, or Alexanders, which is a ſmooth unbelliferous plant.

This inaccuracy of the writers who collect their accounts from the ancients, is ſometimes of bad conſequence; ſince thoſe who are unable to have recourſe to the original authors, are miſled ſo far as to ſuppoſe the virtues of one plant may be found in another. See the article SMYRNIUM.

OSYRIS, in botany, the name given by Linnæus to a genus of plants, including the caſia of Tournefort, and other authors. The characters are theſe: it produces both male and female flowers. In the male flowers the perianthium is one leaved and hollow, and is divided into three ſegments, which are all of the ſame ſize, and of an acute oval figure. There are no petals, and the ſtamina are three ſhort filaments. The antheræ are ſimple. In the female flowers the cup is of the ſame figure as in the male, but is very ſmall and ſtands upon the germen of the piſtill, and remains on it a long time. There are no petals. The germen of the piſtill is roundiſh, the ſtyle is very flat, and the ſtigma roundiſh. The fruit is a round berry, having one cell, in which is contained a ſingle bony ſeed. *Linnæi* Gen. Plant. p. 472. *Tourn.* 448.

OSYRIS is alſo uſed by ſome authors for the linaria or toad-flax. *Ger.* Emac. Ind. 2.

OTAPULLI, in botany, a name given by ſome authors to the tree which produces the *gamboge*, or *gutta gamba* of the ſhops. Hort. Malab. Vol. I. p. 41.

OTENCHYTES, a name given by ſome authors to a ſyringe made for injecting into the ears

OTHOMAN. See the article OTTOMAN.

OTHONE, οθονη & οθονιον, among the antients, a kind of linnen garment worn by women. *Pitiſc.* in voc.

OTHONI, a word uſed by chemical writers for what they otherwiſe call the *mercury of the philoſophers*, or *philoſophic ops*.

OTHONNA, the name given by ſome authors to a ſtone found in Ægypt, and deſcribed to be always in ſmall pieces, and of the colour of poliſhed braſs: probably it is ſome ſpecies of the *pyrites*.

OTHONNA, in botany, a name given by ſome authors to the *african marygold*. *Ger.* Emac. Ind. 2.

OTIS, in zoology, the name of a large bird, called in Engliſh the *buſtard*. The *otis* is called *tarda* and *otardes* by ſeveral authors. See Tab. of Birds, N° 28.

In the Linnæan ſyſtem of zoology, the *otis* makes a diſtinct genus of birds of the order of the Gallinæ; the diſtinguiſhing characters of which are, that the feet have only three toes each, and thoſe all placed before, and the head is not adorned with a creſt or any other ornament. *Linnæi* Syſtem. Nat. p. 47.

It is of the ſize of the common turkey, its beak is like that of the common gallinaceous fowls; its head and neck are grey; its belly white, and its back variegated with tranſverſe ſtreaks of red and black; it has no hinder toe, by which, and by its ſize, it is eaſily diſtinguiſhed from all the reſt of the gallinaceous kind. It feeds on herbs, and eats very greedily the leaves of dandelion, and particularly on the ſeeds of hemlock, which ſeems a very ſtrange food It is frequent in many parts of England, where there are large heaths and plains: they are very bad fliers, and very difficultly raiſe themſelves up from the ground; but they are extremely ſhy, and if they ſee a man at a very great diſtance, they immediately eſcape as faſt as they can. Their fleſh is eſteemed. *Ray*'s orinthology, p. 129.

OTITES-*digitus*, the *ear-finger*, a name given by authors to the finger next the little one.

OTOMO, in zoology, the name of a bird of the lagopus kind, called alſo *colmeſtre*, and by the Germans, *ſteinhun*, that is, *ſtonehen*. It is of the bigneſs of a tame pigeon; its belly and wings are white, with only a very few browniſh feathers; its head, neck, and breaſt are variegated with brown feathers, and the upper part of the neck with black and white; its beak is very ſhort and black, and it has fine red granulated membranes over its eyes; its tail is principally black, but is variegated with brown and white; and its legs and feet are feathered to the ends of the toes. *Geſner* de Avibus.

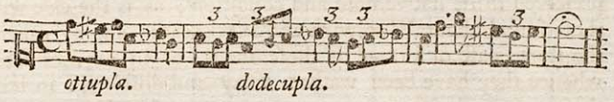
Mr. Ray is of opinion, that this is the ſame ſpecies of bird, with the common white *lagopus*, it being no way different but in colour, and thoſe birds being ſaid to change colour in the ſummer months. It is caught on the mountains of Germany, and is a very delicate bird for the table.

OTTER, in zoology. See the article LUTRA.

OTTERPIKE, in zoology, the name of a large ſpecies of the *draco-marinus*, or *ſea-dragon*, called in Engliſh the *weaver*: it is not greatly larger than the *weaver*, but is of a great variety of beautiful colours; and inſtead of the yellow ſide-lines which that fiſh has, this has rows of large black ſpots. *Willughby*'s Hiſt. Piſc. p. 288.

OTTOMAN, or OTHOMAN, an appellation given to the empire of the Turks, or rather to their emperors, from *Othomannus*, or *Oſmanhus*, the firſt prince of the preſent family. See *Hoffm.* Lex. in voc.

OTTUPLA, in the Italian muſic, ſignifies *octuple*, or the meaſure of four times; it is marked with a ſemi-circle, C; and ſometimes thus: when it is to be played very quick. In this time, eight quavers are contained in a bar. But it often happens, that ſuddenly, inſtead of two quavers for every time of the bar, three are required; this is called *dodecupla*. 'Tis enough to place a 3 over three quavers, or notes of equal value, to ſhew that the meaſure muſt be changed; and when this three is omitted, it ſufficiently demonſtrates the meaſure to be *ottupla* again: this makes what is called by the Italians *ottupla è dodecupla*, thus:



ottupla. *dodecupla.*

Corelli, in the laſt movement of his tenth ſonata, opera terza, very often uſes an 8 after the *dodecupla*, to ſhew, that the triple there is changed to common time.

OTUS, in zoology, the name of the common *horn-owl* of the ſmaller kind, in many reſpects different from the great *horn-owl* or *eagle-owl*. It is a moderately large bird; its beak is black, and its face ſurrounded with a double circle of feathers, the outer of which is variegated with fine black, white and brown lines, and the place where both circles join is all the way black; its belly and the feathers on its legs are brown; its throat and breaſt are covered with feathers black in the middle, with white and brown edges; its long wing feathers are ſpotted with black; its horns, or feathers that riſe up from its ears, are black in the middle and variegated with brown and white at their edges; and its tail is grey above and yellow underneath, and is variegated with ſeveral tranſverſe black ſtreaks; its feet are hairy down to the toes. It is common in Italy, and is ſometimes caught in ſome parts of England, and generally fixes its abode in mountainous places. *Ray*'s Ornithol. p. 64.

OVA (*Cycl.*)—The ingenious Dr. Kerkring was the firſt who advanced the generation of all animals to be from *ova*, and that even man himſelf was produced out of an egg. The ſyſtem occaſioned great raillery at the time, and the author found himſelf under a neceſſity of publiſhing all his obſervations by way of juſtification. The *eggs* which he found in the teſticles of all females countenanced his opinion, and he gave figures of the parts in their natural ſituation, and of the eggs which he found in women from the age of eighteen to more than forty, in his different diſſections. Among the other creatures he examined, he found many ſmall eggs in the teſticles of cows, and other creatures of the viviparous kind. He gives an account of one *egg* which he had an opportunity of opening about four days after it had fallen into the matrix of a woman, and in this he could perceive the marks of the little embryo, the head of which was diſtinctly to be ſeen from the body. Another *egg*, which he had an opportunity of opening at about a fortnight after conception, afforded him a ſight of a little ſecundine. The membrane chorion divided in four places, and the amnion divided in the ſame manner the navel ſtring, by which the child was faſtened to the ſecundine;

cundine; and in the child itſelf, the face at this time began to be formed, and the features were diſtinguiſhable, and the principal parts of the body eaſily traced. At longer periods from the time of impregnation, the features and lineaments of all the parts appear more and more ſtrong; and the author has given accurate deſcriptions of the progreſs of the fœtus toward perfection, and figures of it at three, four, five, and ſix weeks after conception, at which laſt time all is very fair and plain.

The *ova* in which theſe lineaments of the fœtus are found after conception, are themſelves formed without ſuch lineaments, not only in married women, but in maids who have had no commerce with men at all; and it is the ſame in creatures naturally oviparous. The pullet will even lay her eggs without any intercourſe with the cock, but then they will have none of the lineaments of the young fowl, which are found in the eggs laid after treading, and enlarging every day after the beginning of the incubation.

The eggs found in the teſticles of unmarried women are generally of the ſize of a pea, round, and containing a glutinous liquor, which will harden, on boiling, in the ſame manner as the yolk and white of a common egg. The taſte is rather unpleaſant than inſipid, and they are inveloped in two ſkins, which after they are fallen into the womb become two membranes, called the amnion and chorion, which enlarge as the contents enlarge.

Fallopius obſerved theſe eggs in women before the time of Kerkring, but it was this author who carried on the conjectures of the other into a ſort of certainty, and added proofs to what he had firſt hinted from a number of experiments; and Wharton, in his account of human generation, is of opinion, that the ſemen penetrates into the teſtes of the female by means of the Fallopian tubes; in which caſe, the impregnation is in this inſtance performed exactly as in others of the oviparous creatures, and the whole difference amounts to no more than this, that in ſome the impregnated matter loſes its figure of the *egg* before it is excluded the parent; but in others, it retains it till it is not only put forth out of the body, but hatched by its genial heat afterwards.

The egg being impregnated by the ſemen admitted this way, deſcends into the womb, and there becomes, in a few days, of the biggneſs of a cherry; and afterwards increaſes, as we have already obſerved. This author having an opportunity of opening the body of a woman who had died ſuddenly about four days after the end of one of the menſtrual diſcharges, found in the womb an egg, of the biggneſs of a black cherry: he aſked the husband carefully, whether he had lain with his wife ſince the time of the menſes; and was informed that he had. This egg was evidently the produce of that impregnation; and tho', at the utmoſt, it could be no more than four days old, the fœtus was plainly diſtinguiſhable in it, on an accurate inſpection; and the head in ſome ſort found: the reſt of the body ſeemed an unformed maſs of fleſh. In ſuch another caſe, where there was reaſon to believe the embryo about fifteen days old, the eyes, noſe, ears, and mouth, were eaſily diſtinguiſhable in the head; and the body was ſo far faſhioned, as to be eaſily known by its ſhape, and the rudiments of legs and arms appeared very plainly from it. The bones, as they are afterwards to become, are at theſe young periods mere griſtles, and harden by degrees afterwards; but they ſoon acquire that degree of firmneſs, that the fleſh may be taken off and they preſerved as ſkeletons.

At about three weeks from the time of the conception, the fœtus has its cartilages for bones ſo perfect and ſo firm, that with due care in the management of ſo tender an object, the fleſh may be ſeparated, and a ſkeleton preſerved of this ſmall ſize. The head is very large at this period, in proportion to the body; but what is afterwards to become the ſkull, is only a membrane inflated with wind. The arms and hands are ſeen diſtinctly, and even all the fingers are formed. The number of the ribs may be eaſily counted, and the toes are as diſtinct as the fingers; but they are all ſo minute and tender, that a very nice hand, and very great art are neceſſary for the diſplaying them. After another week, that is, when the fœtus is a month old, the bones are ſo well formed, that the whole figure preſerves its form, and is able to ſupport itſelf. The jaw bones appear; the clavicles are formed; and all the ribs are very fair and diſtinct, except the firſt and laſt; and theſe two, even after another month, do not acquire the conſiſtence of bones. At this period of one month, the joints of the arms, and thoſe of the legs, are all very diſtinctly ſeen.

On examining a fœtus at two weeks beyond this period, that is, at ſix weeks from the time of conception, the inferior jaw bone has in it ſomewhat very remarkable; for it is plainly ſeen to be compoſed of ſix little bones; whereas, in the younger periods this is not obſervable; and when the child is born they are all joined together, and make but one bone.

Theſe are the proportions of growth in fœtus's, which have continued regularly growing to the time of the death of the parent, and have been taken out by diſſection afterwards: much leſs is to be judged from abortions, where the regular proceſs of nature in the growth and formation of the fœtus is perverted, and the child has, perhaps, been dead ſome months before it is excluded, or has been ſickly, and therefore not capable of taking nouriſhment, and growing as it ſhould have done. For theſe reaſons it not unfrequently happens, that an abortive fœtus of four months is not larger than one of theſe regular fœtus's of ſix or eight weeks; nor the parts any thing more advanced in their ſtate and ſolidity, or if at all, but very imperfectly and irregularly.

Mr. Dennys has added ſome obſervations on this ſyſtem of Kerkring; he agrees that theſe eggs, in which the rudiments of the fœtus are firſt to be diſcerned, are generated in the teſticles of the female, and made to deſcend thence by the ſpiritous effect of the male-ſemen, making its way thither thro' the tubes; and adds, that they are of very different forms and ſizes in different women The ſame woman often has, in her teſticles, eggs of very different ſizes; and as to the proportion in ſize, between different animals, no regard ſeems paid in it to their bulk, ſince not only thoſe of a cow, are much ſmaller than thoſe of a woman, but thoſe of a duck, or a hen, are vaſtly larger than either. The firſt beginnings of things do not always bear a proportion to their ſtate and increaſe, in the animal or vegetable world: beans are a much larger ſeed than that of the apple or pear, tho' the latter raiſes a large tree, while the former only furniſhes a ſmall plant. The reaſon why the eggs of fowls are proportionably larger than thoſe of the human ſpecies, or of quadrupeds, is, that they are to contain not only the young animal, but alſo the food for it to live on in the firſt part of its life. *Dennys*, in *Kerkring*, de Ovo.

Monſieur Gaulois obſerves, that the veſicles or eggs, in all ſorts of females, are to be obſerved in three ſorts of ſtate or condition: Firſt, while they are faſtened to the place where nature has lodged them, as in a repoſitory. Secondly, when they are looſened from the place. And Thirdly, when they incloſe the embryo

In the firſt of theſe ſtates, they are common to all females in the animal world; and authors of long ſtanding have obſerved, that there were in all the female animals, veſicles faſtened to certain parts of their bodies It is alſo certain, that after conception, that which incloſes the fœtus is very like an egg; but this is no new doctrine neither, for even Hippocrates and Ariſtotle have advanced it: Harvey alſo, of later times, has treated very much at large on this ſubject. The whole matter, in the doctrine of Kerkring that is new, and that deſerves a further enquiry is, whether theſe veſicles, which were always known to be faſtened to the bodies of females, are at all looſened from them; and whether that kind of egg, wherein the embryo is found, be, or be not one of theſe veſicles looſened?

The ſyſtem of Kerkring is founded on the anſwering this queſtion in the affirmative; but thoſe who are of the contrary opinion, who are not a few, think, that the bladder reſembling an egg, in which the fœtus is formed, comes not from elſewhere, but is formed in the place of the conception; and Harvey pretends to explain in what manner it is formed there; and they all agree, that the veſicles, called eggs in females, are ſo faſtened that they never can be removed; and even if they were, that there is no paſſage large enough for them to deſcend by from the place of their formation into the womb. Some pretend alſo, that if theſe are eggs then men have eggs alſo; for that the veſicles found in cluſters at the ſides of the *vaſa deferentia*, which anatomiſts from their figure compare to a cluſter of grapes, are truly and exactly of the ſame kind with thoſe veſicles called eggs in females. See EGGS.

OVA, among the antients, a kind of verſes, wherein the verſes were reduced to the form of an egg. *Hofm.* in voc.

OVAL-*leaf*, among botaniſts. See LEAF.

Foramen OVALE. See FORAMEN *Ovale*.

OVARY, *ovarium* (*Cycl.*)—OVARIUM of fiſhes. All fiſh have *ovaria*, but they, as well as the eggs they contain, differ greatly in the different kinds, in number, ſituation, figure, and ſtructure. In the cetaceous, the cartilaginous, and moſt of the other kinds of fiſh, the *ovarium* is double, or there are two *ovaria*; but in ſome fiſh, as in the *oſmarus*, the *perea fluviatilis* of Bellonius, and perhaps in ſome others it is ſingle. As to its ſituation, it generally occupies the whole length of the abdomen, as in moſt of the ſpinoſe fiſhes; and in the petromyzum and accipenſer. In many of the cartilaginous fiſhes it occupies only the upper part of the abdomen; and finally, in the cetaceous fiſhes it is placed at the corner of the uterus. As to its figure, it is generally oblong and compreſſed, as is ſeen in moſt of the ſpinoſe kinds: in thoſe fiſh which have it ſingle, it is oblong and cylindric, and in the cetaceous fiſhes it is round.

The eggs themſelves are alſo very different in number and ſtructure. In regard to number, they are in ſome fiſhes very few, as in the cetaceous kinds. In the cartilaginous kinds they are ſomewhat more numerous, amounting to fifty or a hundred; and in other kinds of fiſh they are ſo numerous, as to be beyond account.

In regard to their ſize and ſtructure, they alſo differ conſiderably: in ſome fiſh they are large, and reſemble a hen's egg in their contents; having a white, and yolk, and cicatricula,

tricula, all distinct in them, as in the cartilaginous fishes of many kinds. In others, as in the cetaceous kinds, they are very small and simple, and have no distinct appearance either of white, yolk, or of the cicatricula. Hence it is evident, that the fœtus of cetaceous fishes, while included in the egg, receives its nourishment from the womb itself; but in the others, as the cartilaginous, and other fish, the white of the egg serves as nourishment to the fœtus while it remains in it. Finally, in the generality of other fishes, the eggs are very small, and probably do contain a white, and yolk, tho' their size makes it not easy to see their parts distinctly. All the spinose fishes have these small sorts of eggs, and among the cartilaginous ones, the accipenser and petromyzum. It has been supposed by some, that the eggs of these fishes were simple bodies, and only answered to what Harvey, and other authors on these subjects call the *cicatricula*; but this cannot be the case, for if so, the young fish must perish; for the semen of the male fish is only scattered over the eggs while they lie in the water, and serves only to the rendring them prolific. The figures of all the eggs of fishes, so far as is yet known, is round. *Artedi*, Ichthyology.

OVATED-*leaf*, among botanists. See LEAF.

OUCH, in our old writers, a collar of gold, or such like ornament, worn by women about their necks. Stat. 24 Hen. VIII. c. 13. *Blount*, *Cowel*.

OVEN, or *Assaying* OVEN, in metallurgy, is the particular sort of furnace, used by the assayers in their operations on metals.

It is most conveniently constructed in the following manner: Make with iron plates a hollow quadrangular prism, eleven inches broad, and nine inches high, ending at top in a hollow quadrangular pyramid of seven inches in height; this prism must be closed at bottom with such another iron plate, which serves as a bottom to it. Near the bottom make a door three inches high, and five inches broad, to lead to the ash-hole. Above this door, and at the height of six inches from the basis, make another door of the figure of the segment of a circle, four inches broad at its basis, and three inches and a half high in the middle; then fasten three iron plates on the forepart of this furnace; let the first of them, which must be eleven inches long, and half an inch high, be placed with its lower edge against the bottom of the furnace, and fastened there with three or four rivets in such a manner, that there may be, between the upper edge of the said plate, and the side of the furnace, a groove so wide, that the sliders of the lower door may be put into it, and freely move backward and forward therein: these must be made of a thicker iron plate.

The second iron plate eleven inches long, and three inches high, must be placed perfectly parallel to the foregoing plate; and in the space between the two doors in such a manner, that both the upper and lower edge of it may, with the side of the furnace, form a hollow groove: one of these grooves which looks downward, serves to receive the upper edges of the sliders that shut the lower door; and the other that looks upward, is to receive the inferior edges of the sliders of the door above.

The third plate, which is to be of the same dimensions with the first, must be riveted close above the upper door, in such a manner, that it may form a groove looking downward, and contiguous to the upper edge of the upper door. In order to shut both doors, you must adapt to each of them two sliders made of iron plates, that may move within the above-mentioned grooves; but the two sliders belonging to the upper door, must have each a hole near the top; that is, one a small hole a fifth of an inch broad, and an inch and a half long; and the other a semicircular aperture, one inch high, and two inches broad: besides this, let each slider have a handle, that it may be laid hold of when it is to be moved.

Beside these, let five round holes, each of an inch in diameter, be bored in the furnace; two of these must be made in the fore part of the furnace, two in the back part of it, but all at the height of five inches from the bottom, and three inches and a half distant from each side of the furnace: and, finally, a fifth hole must be made at the height of one inch above the upper edge of the upper door. The inside of the furnace must be lined throughout with iron hooks, standing out about half an inch, and placed at about three inches distance from one another, to hold on, and fasten the matter of the lute, with which the whole inner surface of the furnace is to be coated.

Let an iron moveable hollow quadrangular pyramid, of three inches in height, be next adapted to the upper aperture of the furnace; this must be seven inches broad at the basis, and end upwards in a hollow tube three inches in diameter, two inches high, and nearly cylindrical, but a little convergent at the top: this prominent tube serves to support a funnel, or flue, which must be nearly cylindrical, hollow, and two foot high, and made of iron plates. This, when a very strong fire is required, must be put perpendicularly upon the shorter tube, in such a manner, that it enters closely and evenly into it an inch and a half, or two inches deep; and may be taken off at pleasure when the fire is not required to be so very violent. This pyramidal cover must, however, have beside, two handles fitted to it, that it may conveniently also be taken off or put on at pleasure; and that this when put on the aperture of the furnace may not be subject to be easily thrown down, let an iron plate be riveted to the right and left upper edge of the furnace, and be turned down toward the inside, so as to make a furrow open before and behind, into which the lateral edges of this cover may enter, and be fastened, and at pleasure moved backward and forward when it is to be put on or removed.

Lastly, let a square ledge, made of a thick iron plate, be fastened on the top of the upper edge of the lower door, which will conveniently support the grate and the lute; but this must be made of two pieces, that it may easily be introduced into the cavity of the furnace; and thus will you have an *assay oven* compleat, and ready for a great variety of operations.

When this is to be used, that the fire may be the better confined, and the iron not be destroyed by growing red-hot, the whole inside of the furnace must be covered over with lute, a finger, or a finger and a half thick. The matter for the making the assaying metals, &c. or a mixture of clay with sand, powder of calcined flints, or broken crucibles, either mixed with water, or with blood diluted with water, will serve very well for this purpose: but the most ready of all lutes, and at the same time one of the best in the world, is the coarse earth called Windsor loam: this must be mixed up with water pretty stiff, and pressed on the inside of the furnace, first wetted also with water; and when this lute begins to dry, it must be beat down close to the sides with a wooden mallet; and then the unevennesses and cracks, filled up with clay somewhat moister, so as to be made smooth and even with a trowel, and then left to dry gently; and if any cracks happen, they must again be filled up. If any pieces of this lute are broken off by the fire, let it be quite cold, and wet it after the operation is over, and the edges of the old lute and fresh clay will unite very well, and fill up the holes. If the crack is but small you may use the furnace again immediately, even before the fresh clay is dry.

This is the method of coating the *assay furnace* or *oven*; but before this is done there must be put within the furnace small iron bars, equal in length to the diameter of the oven; these must be prismatical in shape, quadrangular, and half an inch thick: their extremities will be supported by the ledge before described within the oven; and they must be placed at three quarters of an inch distance from one another. These must also be so placed, that their flat sides may be oblique with regard to the transverse section of the furnace, and that the two opposite angles may look one upwards and the other downwards. The bars being thus not laid flat, but edgeways, you hinder the ashes of the fuel of the fire from being detained too long between the interstices of the bars, and from making any obstruction that would oppose the free draught of the air. After the placing these, the furnace being coated over with lute, and dried by a gentle heat, is fit for use.

When an operation is to be performed in this, two iron bars of an inch in thickness, and somewhat more than the diameter of the furnace in length, must be put thro' the four holes before described, standing opposite to one another; and the ends of the bars must jut out a little beyond the edges of the holes on each side; these serve to support the muffle with its bottom, in which the coppel or test, with the matter to be worked on is to be placed: these are then to be introduced thro' the upper aperture of the furnace, and set on these bars in such a manner, that the open foreside of the muffle be contiguous to the inward border of the upper door. The fuel is to be introduced thro' the top of the furnace, and the cover on this account must be moveable, and not too heavy. The best fuel is charcoal made of hard wood, and broken into pieces of an inch big, that the muffle may be covered regularly over some inches high; large pieces of coal are to be avoided at this time, because they cannot fall into the narrow interstices between the sides of the muffle and those of the furnace; and cannot of course surround every way this circumference of the muffle; for which reason if such were used, there must be some places void of fuel, and the fire, consequently, either not strong enough, or unequal: and if, on the other hand, the pieces of coal were too small, they would fall immediately thro' the interstices of the grate into the ash hole, and the tenderest particles of them turn too soon into ashes, and increase the heap of ashes, and obstruct the free draught of the air.

Scotch coal, or Kennel coal, but not Newcastle or sea coal, broken into small pieces, may be mixed with an equal quantity of charcoal; or if any ores require long roasting, the fire may be first kindled with Scotch coal alone, but the operation must be finished with charcoal alone. *Cramer's* Art of Ass. p. 75. seq.

OVER *(Cycl.)* — OVER-*blow*, in the sea language. They say it *over-blows* when the wind blows so very hard that the ship can bear no top sails.

OVER-

OVER-*done*, in the manege, in French, *outré*. A horſe is ſaid to be *over-done*, or *outré*, when his wind and ſtrength are broke and exhauſted with fatigue.

OVER-*flowing of lands*. The farmers of England having long obſerved how great an advantage it was to meadow and paſture land, to be ſometimes *over-flowed* by the ſudden riſe of brooks, rivers, or the like, which brings the ſoil of the uplands upon them, and makes them need no other mending or manuring, tho' conſtantly mowed, have found an artificial method of working the ſame effect, and by it producing the ſame good effect in many of their grounds without any ill one. The benefit of the natural *over-flowings* of meadow lands, which lie in the way of floods, is in ſome ſort taken off, by their being ſubject alſo to theſe inundations at improper times; and when a winter flood has cauſed a fine crop of graſs, a ſummer flood ſometimes comes and deſtroys it all before the hay-making ſeaſon.

There are ſome lands ſo advantageouſly ſituated, that with the aſſiſtance of art they may be laid under water or left dry, at the pleaſure of the farmer. Theſe are the moſt valuable of all graſs lands, and it is upon theſe that the farmer practiſes his artificial *over-flowings*; improving them in winter by letting in the floods to have their ſoil for manure upon them, and keeping them dry in ſummer when the graſs is long.

The artificial *over-flowing* of lands is commonly effected by directing the ſtreams of rivers, brooks, ſprings, or land floods, or ſome part of them, out of their proper channel; but where the ſtreams lie ſo low as to be incapable of *over-flowing* the lands, they are made uſe of to turn ſuch engines as may raiſe a quantity of water ſufficient to do it. The beſt and cheapeſt engine for effecting this, is that called the Perſian wheel; which may be made of any ſize, according to the height the water is to be raiſed to, and the ſtrength of the ſtream by which it is turned. This wheel is placed ſo, that its bottom only is immerſed in the ſtream; and there are open boxes at its cogs; theſe are all filled one after another with water, which is raiſed with them to the upper part of the wheel's circuit, and then naturally empties itſelf into a trough which carries it to the land.

Where there are not ſtreams to turn this wheel, the farmers have recourſe to pumps, and other engines, moved by wind. Lands that lie near brooks give more frequent opportunities for theſe practices, than thoſe which are near rivers; the brooks having greater falls, and the rivers running more ſlow and level: but when it can be effected by the water of large rivers, the land is yet more enriched by it, theſe waters being more fruitful than the others.

When the water is, by this engine, thrown into the trough, it is to be conducted by it to the higheſt part of the land; and when that is ſufficiently flooded, the water is to be let into a large but not deep trench, ſeveral ſmall ones running out of which to all parts of the land, may convey it every where, and every part may be enriched by it. It is always proper to contrive this matter ſo, that the *overflowing* may be often repeated, and the water quickly carried off; for when it is ſuffered to lie long upon the land in winter, it is apt to breed ruſhes and other coarſe plants in the ground.

Some farmers graze their lands till Chriſtmas, and ſome longer; but as ſoon as fed bare, from Allhallows till ſpring, that the graſs is not too high, is the propereſt time of *overflowing*, except that it prove a dry time in April or May. If this happen, *overflowing* the lands at this time will be of ſingular advantage; for the graſs will grow three times as faſt after it, in hot weather, as it would in cold. Land-floods are the beſt to *overflow* with in winter, and warm fattening ſprings in ſummer; only it muſt be obſerved, that the water of one operation is dried in before any more is let on. It is always beſt alſo to do it at night, that the moiſture may be ſoaked into the ground before the heat of the day; for otherwiſe the land is often burnt. The waſhings of towns and of public highways is of great improvement to lands, as is alſo the waſhings of lands where ſheep feed.

All waters are not proper for this purpoſe of *overflowing* of lands to enrich them, the waters of coal mines and other places where there is any ſulphureous mineral mixed among them, being apt to deſtroy and kill the graſs where-ever they come. Theſe waters are eaſily known from the healthful ſpring, by their leaving a reddiſh mud or ſediment behind them where-ever they have paſſed; but it is poſſible, that even theſe may have their uſe when properly applied. They ſeem to contain a vaſt quantity of ſalt of ſome kind, and we know that urine, dung, and many other things, that are moſt fit of all others to enrich land, will burn up and deſtroy plants, if improperly laid on in large quantities: the caſe may be the ſame in theſe, and very probably theſe waters abounding in ſalt would do great good if they were properly blended with common water, and let in upon the lands with floods of ſweet water. The farmers have gone ſo far towards the proving the truth of this, that they have found ſome of theſe ſprings, when more diſtant from their ſource, not only more innocent than before, but beneficial.

Cold clay lands, and other ſtrong lands that lie flat, will only be improved by *overflowing* them with land floods, and that only in ſummer, when the ſeaſon is very dry. Theſe lands will not bear water in ſuch quantity at any other time, becauſe it will not ſoak into them eaſily; and it is for the contrary reaſon, that the light and ſpungy lands are always moſt improved by *overflowing*. *Mortimer*'s Huſbandry.

OVER-*grown*, in the ſea language. When the waves of the ſea grow high, the ſailors call it *rough ſea*; but when the ſurges and billows grow vaſtly high, then it is an *over-grown ſea*.

OVER-*hale*, in the ſea language. A rope is ſaid to be *over-haled*, when drawn too ſtiff, or haled the contrary way.

OVER-*hale the runner*, in the ſea language. See RUNNER.

OVER-*hale the ſheet*, in the ſea language. See SHEET.

OVER-*ride*, in the manege, the ſame with *over-done*. See the article OVER-*done*, ſupra.

OVER-*ſet*, or *overthrow*, in the ſea language. A ſhip is ſaid to *over-ſet* when her keel turns upwards; which misfortune happens either by bearing too much ſail, or by grounding her, ſo that ſhe falls upon one ſide.

OVER-*worked*, in the manege, is the ſame with *over-done*. It is called in French, *eſtrapaſſer*. See OVER-*done* and ESTRAPASSER.

OVER-*laying of children* may be prevented by a machine called *arcuccio*. See ARCUCCIO.

OVIEDA, in botany, the name given by Linnæus to a genus of plants, called by Plumier *valdia*. The characters of which are theſe: the perianthium is a ſhort and broad one-leaved cup, lightly divided into five erect and pointed ſegments, and remaining after the flower is fallen. The flower conſiſts of one petal, and is of the labiated kind. The tube is extremely long and ſlender, and ſtands upon the germen of the piſtil. It is ſomewhat thicker at the top than at the baſe, and the upper lip is hollow and emarginated; the lower is divided into three ſegments. The ſtamina are four filaments longer than the flower. The antheræ are roundiſh. The germen of the piſtil is globoſe, and ſtands between the cup and the flower. The ſtyle is capillary, and of the length of the ſtamina; and the ſtigma is bifid and acute. The fruit is a globoſe berry, placed in the cup, which grows larger to receive it, and is of a campaniform ſhape. The ſeeds are oval, and are two in number. *Linnæi* Gen. Plant. p. 295. *Plumier*, Gen 24.

OVILE, among the Romans, a name given to the incloſures in which the comitia met to create magiſtrates. See the article COMITIA, *Cycl.*

OVIPAROUS (*Cycl.*)—The diſtinction between *oviparous* and viviparous creatures, ſeems, in the inſect world, to be much leſs fixed and determinate than is ſuppoſed. It is evident, that ſome flies, which are naturally *oviparous*, if they are kept from the finding a proper nidus for their eggs, be it meat, or any thing elſe, will retain them ſo long beyond their due time of excluſion, that they will hatch into worms in the body of the parent, and be afterwards depoſited alive on fleſh, or in the manner of the young of the viviparous inſects. Bartholine gives an account in his Medical obſervations, of a hen, which, inſtead of eggs, brought forth no leſs than five living chickens; but ſhe died of it.

This ſtory of Bartholine is countenanced in a great meaſure by a thing which happened in this kingdom; where, in the county of Norfolk, ſome years after his publiſhing this hiſtory, there was a hen, which, tho' big with eggs, could not lay, but after a time died; and people being curious to open her afterwards, there was found in the ovarium, a chicken diſcloſed from the ſhell, and perfectly formed in all its parts; and probably had this been excluded in this ſtate, more would have followed, after being hatched in the ſame unnatural manner. We have in ſome authors inſtances given of the ſame accident in the ſerpent kind, which puzzle the diſtinction between the *oviparous* and viviparous kinds.

OVIS, the *ſheep*. The character of this genus of animals, given by naturaliſts, is, that the covering is wool, not hair; the mouth proportionably ſmaller than in the ox kind; the horns crooked, wrinkled, and often ſpiral, and the papillæ only two.

The wool of theſe animals is only a congeries of very long and ſlender hairs, oddly twiſted and contorted, and variouſly interwoven with one another. This is a cloathing peculiar to the ſheep kind, ſo far as is yet known, no other animal having been ſeen to poſſeſs it: it is not, however, the cloathing of all the ſpecies of ſheep, ſome of the diſtant nations having ſhort hair, like that of the goat.

We at preſent know five ſpecies of this animal: 1. The common *ſheep* of our own paſtures. 2. The *ovis laticaudo*, famous for the enormous ſize and breadth of its tail, which often weighs thirty pounds. See the article PLATYCERCOS. 3. The *ovis ſtrepſichoros*. See STREPSICHOROS. 4. The *ovis Afri.ana*, or African *ſheep*, which inſtead of the wool of the *ovis*, has ſhort hair like that of the goat; we have theſe often brought into England, and they ſeem no way different from ours but in their covering. And 5. the *ovis Guinienſis*, commonly called the *Angola ſheep*. This is of the ſize of our *ſheep*, but the hinder part of its head is more prominent, and its ears hang down. Their ſcrotum is very large, and their penis placed in the middle of the belly; the horns ſmall, and bending down to the eyes; and the neck adorned with a large mane.

mane. The hair of the reſt of the body is ſhort, and they have a dewlap under the throat like our bulls. *Ray*'s Syn. Quad. p. 73.

To theſe are uſually added the *pacos* and *muſmon*; the firſt of which properly belong to the camel claſs, not the *ſheep*, and the latter an animal ſuſpected not to be found any where at this time.

In the Linnæan ſyſtem of zoology, the *ſheep* makes a diſtinct genus of animals, of the order of the *pecora*. The characters by which the creatures of this genus are diſtinguiſhed from the reſt of that order, are theſe: their horns are hollow, bent backward, wreathed and crooked, and ſcabrous, not ſmooth on their outſide. *Linnæi* Syſtem. Nat. p. 43.

OUMIEN, a name given by the Chineſe to a peculiar ſort of porcelain, of which they are very fond. It is black, ornamented with gold. They ſometimes alſo call the blue and gold, which is made in the ſame manner, by the ſame name. They colour it with three parts of the azure, and ſeven parts oil of ſtone, and lay on the gold afterwards. If they would have it bluiſh, they add leſs of the azure, and ſome ceruſs white. Obſerv. de l'Aſie.

OUNCE *(Cycl.)* — The *ounce averdupois* weight, is about 37½ grains *troy*. See POUND.

OUNCE is alſo the Engliſh name of the lynx, or *lupus cervarius*, a very fierce beaſt of prey. See LYNX.

OURISSIA, in zoology, a name by which Cluſius and ſome other authors have called the *humming-bird*, or *guainumbi*. *Cluſ* Exot. l. 5. c. 7. See the article GUAINUMBI.

OUROLOGY, in medicine, a name given by authors to a treatiſe or diſcourſe on the ſubject of urine. The chemiſts have given us treatiſes on the analyſis of urine, and the preparations of it, ſuch as the phoſphorus, &c. under the name of *ourologies*: and medical writers have, under the ſame name, given us treatiſes on the prognoſtics from the urine, and its various appearance in different diſeaſes.

The firſt ſtep towards judging by the urine, is to fix ſomething as its ſtandard in a healthy ſtate, all the deviations from which, in whatever reſpect, are to be judged ſignals of diſtempers or diſtempered habits. This ſtandard is beſt taken from the urine of a perſon in health, of between thirty and forty years old, and it is of a citron colour and moderate conſiſtence, of a due and ſomewhat ſtrong ſmell, and made in a conſiderable quantity. This, when it has ſtood a proper time, is alſo to depoſit a natural ſediment. By being well acquainted with all the ſtages and changes of this, the diſeaſed urine will be eaſily judged of by their ſeveral peculiarities in difference from it. Phil. Tranſ. N°. 100.

It is ſaid by ſome, that people often die with good and healthful urine; but this is only ſaid by thoſe who are not ſkilful in urine: for it is as impoſſible for the urine to be healthful at the approach of death in diſeaſes, as for the blood to be ſo.

The time of inſpecting the urine, and the time that the urine is made that is to be inſpected, are alſo circumſtances of great conſequence. The urine by which the beſt judgment is to be formed, is that made after the firſt ſleep in the night; and the time of judging of this is not immediately when it is made, but about two hours after, when it has had time to ſettle. It muſt in the mean time be ſet to ſettle in a moderate air, neither too cold nor too hot. The firſt hinders the ſettling, and the latter rarifies the colour; and if very great, it cauſes an ebullition, which deſtroys what ſhould ſwim upon the ſurface of the urine. The urine muſt not be judged of in the ſun, nor by candle-light; for either of theſe lights will give falſe colours: but the proper place is, when there is a moderate, not glaring light; and when it is firſt received, it muſt be held very ſtill and ſteady; afterwards it will be proper to ſhake it, to ſee the whole that ſwims in it, and will ſeparate from it. *Eygel.* de Urinis.

The colour of the urine is the moſt precarious of all its appearances, and to be judged of with the greateſt caution. What is taken to be the mark of a diſeaſe in this caſe, is often only the effect of medicines or the food: rhubarb or ſaffron will make the urine yellow, and a common ſallad will make it greeniſh; but theſe tinctures go off after a few hours from the time of taking the things which occaſion them. People who live in a hot air, and thoſe who uſe violent exerciſe, uſually make more high coloured urine than others. The ſubſtance, the quantity, the qualities, and the contents of the urine, will always diſcover to the attentive view the nature, cauſe, and ſymptoms of the perſon who made it. What is moſt to be obſerved as to the ſubſtance of the urine is, whether it be thick or thin, clear or turbid, oily or not oily. The copiouſneſs of it is only to be judged of by compariſon of the quantity voided within the twenty-four hours by the patient, with that he uſed to void in health, or that quantity which at a medium a man in health does uſually void. Among the qualities of the urine, the principal is the ſmell. This is affected not only by diſeaſes, but by medicines taken for them. The urine is on many occaſions rendered fœtid; and there are ſome things which communicate an agreeable ſmell to it, ſuch as turpentine and many of the diſtilled oils. Among the things which render the urine fœtid, the principal are ulcers and purulent matter. The taſte of the urine alſo declares its qualities. It is naturally of a ſaltiſh and ſulphurous taſte, but this goes off, and a ſweetneſs or inſipidity is obſerved in it. The principal colours of the urine in its various ſtates, as inflamed by diſeaſes, are white, yellow, reddiſh, and black; to one or two of theſe, differing in degree or to mixtures of two or more of them, in different proportions, may be referred the other leſs common colours of pale citron, high-red, green and blue, which laſt two, in any perfect degree, are very uncommon. The moſt dangerous of all urines are the blue and the black, particularly the laſt: the antients, however, judged too ſeverely of it. Galen ſays, he never knew any one recover who made black urine; but we meet with ſome inſtances of children eſcaping after this ſymptom.

The contents of the urine are of three kinds: the ſediment or matter ſubſiding to the bottom; the matter hanging in the middle; and the matter ſwimming at the top. Theſe differ according to their degrees of weight, and in all theſe the phyſician is to obſerve, the ſubſtance, colour, uniformity and likeneſs. For example: the beſt ſediment is that which is moderate in ſubſtance and quantity, white, uniform, and alike both for matter and time. We are not to expect a ſediment in the urine in all diſeaſes, and in ſome a thinner, in others a thicker ſediment, is the beſt ſymptom. Among all the appearances of the middle and top of the urine, the worſt is that of a ſort of clouds forming themſelves in the urine, and riſing to the top entirely. Theſe are the ſigns of light-headedneſs, and often of death itſelf.

Beſides theſe, which are the general contents of urine, there are particular ones; ſuch as mealy matter, ſcales, coagulated blood, purulent matter, aſhes, ſlime, pieces of ſeeming fleſhy matter, ſmall hairs, woolly filaments, flying duſt, tough ſtuff adhering to the ſides of the veſſel, and reſembling the webs of ſpiders, bladders, froth, fat or cream-like ſubſtances, and finally ſandy or ſtony matter. This laſt is the moſt frequent of all, and is of two kinds; the one found in the body, the other only ſeparated from the urine after it is diſcharged. It is of great conſequence to know theſe, as they give great light into the nature of nephritic complaints. The ſandy matter generated in the body always precipitates itſelf to the bottom in the urine, as ſoon as it is made, and remains looſe in it; but the other only ſeparates from it in the pot, and adheres to the ſides of it in form of a ſort of cruſt. It has been ſuppoſed by many, that preſages of the ſtone may be made from theſe ſeparations from the urine, but there is no certainty in it; only this, that thoſe who have been uſed to void grains of ſand, if they ſuddenly leave it off, and from that time begin to make a whitiſh and thin urine, they then may be ſuſpected to have a ſtone breeding within them.

The nature of the ſand voided at times by people afflicted with the ſtone, may ſerve as a guide to judge of the nature of the diſeaſe. When it is hard and red, the ſtone is likely to be ſituated in the bladder; if hard and white, the kidneys are likely to be the ſeat of the diſorder. We have inſtances of very particular matters voided by urine, beſide theſe: ſome wholly erroneous; others certain, tho' very ſtrange. Plempius gives an account of a woman who voided a yellow fatty matter with her urine for ſeveral months after the going off of a quartan ague, and tho' ſhe diſcharged great quantities of this, was not at all the better for it. Phil. Tranſ. N°. 100.

OUT, OUTSIDE, or WITHOUT, in the manege, is the contrary of *in*, *inſide*, *inner*, &c. See IN, INNER, &c.

OUTIN, in zoology, a name by which ſome call the fiſh known among authors by the name of *oxyrynchus*. *Willoughby*'s Hiſt. Piſc. p. 187. See the article OXYRYNCHUS.

OUTLICKER, or OUTLIGGER, in a ſhip, a ſmall piece of timber, three or four yards long, as occaſion ſerves, made faſt to the top of the poop, and ſtanding right out a-ſtern: at the outmoſt end of it is a hole, into which the ſtanding part of the ſheet is received, and made faſt through the block of the ſheet; and then again received through another block, which is ſeized to this *outlicker*, hard by the end of it. This is ſeldom uſed in men of war, or in great ſhips; and whenever it is made uſe of, it is becauſe the mizen maſt is placed ſo far aft, that there is not room enough within board to hale the ſheet flat.

Outligger ſeems the true orthography of the word, which appears to be derived from the Dutch *uitlegger*, q. d. *outlier*.

OUTNESS, is uſed by ſome for that relation of things by which one appears out of, or at a diſtance from another.

Dr. Berkeley, in his eſſay on viſion, makes uſe of the word *outneſs*; and obſerves, that we form no notion of *outneſs* from the ſenſe of ſeeing merely, but only from motion.

OVUM *(Cycl.)* — OVUM-*anguinum*, a name given by many authors to a foſſil, ſuppoſed by the vulgar to be the petrified egg of a ſerpent, but being really like the brontiæ and ombriæ, ſpecies of the *echinites*. See ECHINITES.

OVUM-*polypi*, in natural hiſtory, a name given by ſome of the earlier writers, to the papyraceous, or thin-ſhelled nautilus. The reſemblance of the body and arms of the fiſh which inhabits this ſhell, with thoſe of the ſea-polypus, gave occaſion to their ſuppoſing this creature the ſame animal, not yet got out of the egg. The ſhell of this ſpecies being very thin, and