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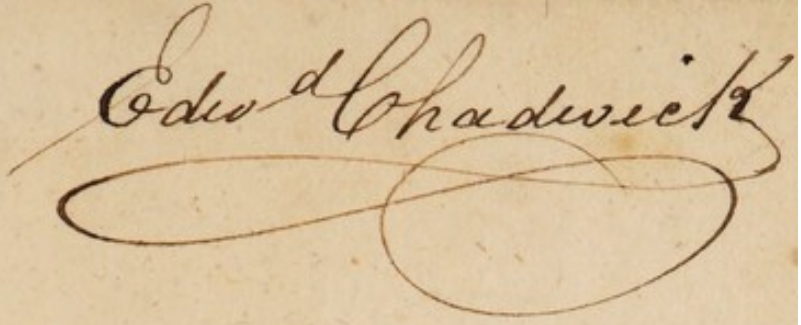

NATURALES CURIOSÆ.

MARCHANT, Printer,
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Naturales Curiosæ:

CURIOSITIES

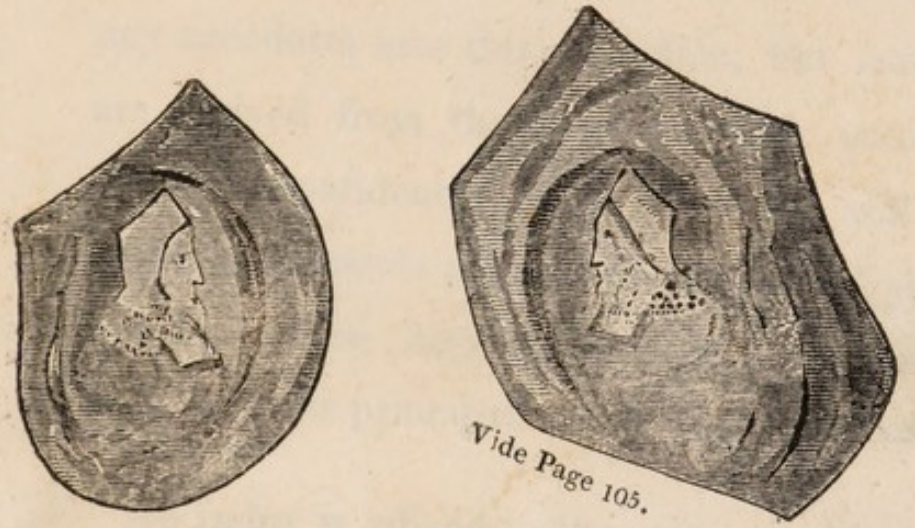
IN

NATURAL HISTORY.

Taken from authentic Reports of eminent Travellers.

BY JOSEPH TAYLOR.

Author of Antiquitates Curiosæ.



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1819.

ADVERTISEMENT.

THE present little volume is respectfully submitted to the public, with the hope that it will be found productive both of entertainment and of information.

The Editor has been careful not to admit any anecdotes into this collection, but such as are derived from the most authentic sources; and he confidently trusts, that it will be found particularly adapted for the use of young people, whose improvement and amusement have been his principal aim in this compilation.

An Index is affixed to the volume, which will be found of considerable service in making a reference to any particular article.

London, May, 1819.

REMARKABLE CURIOSITIES

IN

NATURAL HISTORY.

THE AERIAL PLANT.

THE burning sands of hot climates, even the karo fields of the Cape of Good Hope, which are so arid and scorched that no water can be extracted from them, are the media in which the most succulent vegetables of which we have any knowledge flourish and evolve; so deleterious indeed is a wet season to their growth, that they are destroyed by it. There are also various tribes of vegetables that are destitute of roots, and which can only be supported and nourished by the air, and by the moisture which the atmosphere contains. A large portion of the class of fuci have no root whatever; and it is stated that the Aerial Epidendron, (the *Epidendrum flos aeris*, denominated aerial from its extraordinary properties, and which is a native of Java, on account of the elegance of its leaves, the

beauty of its flower, and the exquisite odour which it diffuses, is plucked up by the inhabitants, and suspended by a silken cord from the ceiling of their apartments, from whence it continues from year to year to put forth new leaves, to display new blossoms, and exhale new fragrance, although fed out of the simple bodies before stated.—*Saumarez, on the Principles and Ends of Philosophy.*

THE ACUMINATUS, OR SHOOTING FISH.

This very remarkable fish is a native of the East Indies. It has a hollow cylindrical beak. It frequents the sides of the sea and rivers, in search of food; from its singular manner of obtaining which, it receives its name. When it spies a fly sitting on the plants that grow in shallow water, it swims to the distance of four, five, or six feet; and then, with a surprising dexterity, it ejects out of its tubular mouth a single drop of water, which never fails striking the fly into the water, where it soon becomes its prey.—*Dr. Gregory.*

THE PAPER NAUTILUS, OR SAILING-FISH.

" Learn of the little Nautilus to sail,
Spread the thin oar, and catch the driving gale."—
Pope.

" Among the principal miracles of nature," says Pliny, " is the animal called Nautilos, or Pompilos. It ascends to the surface of the sea in a supine posture, and gradually rising itself up, forces out, by means of its tube, all the water from the shell, in order that it may swim the more readily; then throwing back the two foremost arms, it displays between them a membrane of wonderful tenuity, which acts as a sail, while with the remaining arms it rows itself along; the tail in the middle acting as a helm to direct its course: and thus it pursues its voyage, and if alarmed by any appearance of danger, takes in the water and descends."—*Pliny.*

DESCRIPTION OF THE SAME FISH BY ANOTHER AUTHOR.

The *Argonauta,* known to shell collectors by the name of the *Paper Nautilus,* is supposed to have given to man the first idea of navigation. When it means to sail, it discharges a quantity

of water from its shell, by which it is rendered lighter than the surrounding medium, and, of course, rises to the surface. Here it extends two of its arms upwards, which are each furnished at their extremity with an oval membrane, that serves as a sail. The other six arms hang over the sides of the shell, and supply the place either of oars or rudder. It is an inhabitant of the Mediterranean and Atlantic seas.

Two feet they upward raise, and steady keep:
These are the masts and rigging of the ship.
A membrane stretched between supplies the sail,
Bends from the masts, and swells before the gale.
The other feet hang paddling on each side,
And serve for oars to row and helm to guide.
'Tis thus they sail, pleased with the wanton game,
The fish, the sailor, and the ship the same.
But when the swimmers dread some danger near,
The sportive pleasure yields to stronger fear;
No more they wanton drive before the blasts,
But strike the sails, and bring down all the masts;
The rolling waves their sinking shells o'erflow,
And dash them down again to sands below.

THE AQUATIC GLOW-WORM.

There is a singular luminous appearance of the ocean, frequently observed by navigators on the coast of Cornwall, generally accompanied by a fresh gale, termed Briony, which Dr. Borlaise attributes to a water-insect, which he calls the Aquatic Glow-worm, supposing it to ascend from the bottom of the sea. Mr. Carew says, "if the sea-water be slashed with a stick or oar, in the darkest night, it will cast forth a bright shining colour, and the drops resemble particles of fire, as if the waves were turned into a flame."

THE ROLLING CLOUD, OR HELM-WIND.

Near the mountains, towards the north-east part of the county of Westmorland, is a very remarkable phenomenon, such as is not found any where else in the kingdom, except only about Ingleton and other places bordering upon the mountains of Ingleborrow, Pendle, and Penigent, in the confines of the counties of York and Lancaster. It is called a *Helm-wind.* A rolling cloud, sometimes for three or four days together, hovers over the mountain tops, the

sky being clear in other parts. When this cloud appears, the country people say the *Helm* is up; which is an Anglo-Saxon word, signifying properly a covering for the head, from whence comes the word *helmet*. This helm is not dispersed or blown away by the wind, but continues in its station, although a violent roaring hurricane comes tumbling down the mountain, ready to tear up all before it: Then on a sudden ensues a profound calm: And then again alternately the tempest; which seldom extends into the country above a mile or two from the bottom of the mountain.

In the modern part of the Universal History, vol. xv. p. 519. we find an account of exactly the like appearance on some of the hills near the Cape of Good Hope, thus described by those elegant authors:—"In the dry season, a white cloud hovers over the top of the mountains; from which cloud issues the south-west winds with incredible fury, shattering houses, endangering shipping, and greatly damaging the fruits of the earth: upon discovery of which cloud, the sailors immediately prepare for a storm."

BEAUTIFUL VARIEGATED MARBLE.

Dr. Woodward, in his Natural History, says, "That near Ambleside, and in the ridge of mountains leading from thence to Penrith, there is a marble of a dusky green colour, veined with white; and in Knipe Scar, are several talcy fibrous bodies, which might be employed for the making wicks for lamps, as they will burn very long without any sensible diminution; they are opake and of an ash-colour. Fossils of various kinds are found in different parts of this country; as at Threapland the *entrochi* and *trochitæ* of various kinds, some of which are compressed and flattened, others raised and truncated, some hollow in the middle, and filled with grey stony matter. Of the same are those found near Strickland-head, on the banks of the rivulet which runs down from Shap, and by the inhabitants called Fairy-stones. Here also are found the *Mycetites*. *Coralloid* bodies are found in great quantities, and differently variegated, near the river Lowther; they will bear a polish, and are about the hardness of Genoese marble. Some of the kind are found at Halsfell, near Kendal, and appear beautifully variegated, of a brown sandy colour, but so interspersed with

different colours, that they are little inferior to Sienna marble."—Specimens of all these are to be found in the collection left by Dr. Woodward to the University of Cambridge.

LOCUSTS AND WILD-HONEY.

"And his meat was locusts and wild-honey."
Matt. ch. iii. v. 4.

It has not been till lately that any of our travellers into Palestine have told what was meant by Locusts, in the preceding passage. Dr. Clarke first related that a tree grows there, which is called the *Locust-tree*, and produces an eatable fruit. But the fact was well known to many who had been in the Mediterranean. The tree grows in several of the countries which border that sea. It has been lately found in much greater abundance in some parts of the East Indies, whence it has now become an article of exportation. Many thousands of its pods are at present in the warehouses of the East India Docks, and either because the fruit is richer in the more southern climates, or for some other reason, a great quantity of them have been shipped on board a vessel bound for

Venice and Trieste, where, as we hear, they are intended to be distilled into a liquor, which is supposed to be an antidote to the plague, or at least useful in curing it. These pods are about twenty inches long, and from half to three-quarters of an inch in diameter. We call them pods for want of a term which would more accurately describe them; but they are not flat, neither have they that sort of *hinge* on one side and slight fastening on the other, which plainly shew how the shells of peas and beans are to be opened. On the contrary, these are round; but there are two opposite lines along them, where the colour alone would induce any one to suppose the skin to be, as it is, thinner than elsewhere. Having this fruit before us only in its dry state, we can describe it in no other; but at present a knife could scarcely be made to penetrate the thicker part, and does not very easily make its way into the thinner. The fruit, which lies in little cells within, is a pulp or paste somewhat like that of tamarinds, but smoother, and not so sweet. There are pips in it, nearly as hard, and about half as large as those of a tamarind, containing a kernel in each.

Such was a part of the food of John the Baptist, during his abode in the wilderness. It should be added, that in the stems of this *Locust-tree*, the wild bees still deposit their honey.

This explanation of the sense, in which St. Matthew uses the word *Locusts*, is the more worthy of notice, as it has escaped *Whitby*, and several, if not all, of the commentators. Nor do any of the lexicons remedy their deficiency by an aditional synonym for the Greek word.

THE AMIANTHUS—INCOMBUSTIBLE MINERAL.

This mineral is met with in potstone or serpentine rocks, either dispersed through them, or accumulated in their clefts and crevices, unmixed with any other substance. The most beautiful comes from the province of Tarentesia in Savoy; it is in white flexible filaments, sometimes a foot long, of a pure silky lustre. In some parts of Corsica, it is so common as to have been used by Dolomieu instead of hay or moss, to pack up specimens of other minerals in. The islands of Elba and Crete; Zoblitz, in Saxony; Swartwick, in Sweden; Cornwall and Anglesey,

in England; and Portsoy, in Scotland, also furnish considerable quantities. A compact kind, which decomposes by exposure to the air into remarkable flexible threads, is found in the Ural Mountains in Siberia.

The fibrous texture of the Amianthus, its incombustibility, and the little alteration that it undergoes even in a strong heat, were early noticed, especially among the eastern nations; and methods were found out of drawing the fibres into thread, and afterwards weaving it into cloth. This, when dirtied with grease, or other inflammable matter, was cleansed by throwing it into a bright fire; the stains were burnt out, and the cloth was then removed, but little altered in its properties, and of a dazzling white, hence it obtained from the Greeks the name ἀμιαντος, or *undefiled.* In the rich and luxurious times of the Roman Empire, this incombustible cloth was purchased at an enormous price, for the purpose of wrapping up the bodies of the dead, previously to their being laid on the funeral pile. The practice of burning the dead falling into disuse, occasioned the manufacture of amianthine-cloth to be neglected, and at length entirely forgotten in Europe; but though it has

ceased to be an article of necessity or luxury, yet the method of its preparation has occasionally attracted the notice of travellers, and occupied the time of the curious.—Ciampina, of Rome, in 1691, published the following as the best way of preparing the incombustible cloth. Having previously steeped the Amianthus in warm water, divide its fibres by gently rubbing them with the fingers, so as to loosen and separate all the extraneous matter; then pour on repeatedly very hot water, as long as it continues to be in the least discoloured. Nothing will be now left but the long fibres, which are to be carefully dried in the sun. The bundles of thread are to be carded with very fine cards, and the long filaments thus obtained, are to be steeped in oil, to render them more flexible. A small quantity of cotton or wool is to be mixed, and by means of a thin spindle, the whole is to be drawn out into a thread, taking care that in every part the Amianthus may be the principal material. The cloth being then woven in the usual manner, is to be placed in a clear charcoal fire to burn off the cotton and oil, when the whole remaining tissue will be pure white Amianthus. The shorter fibres that

are incapable of being woven have been sometimes made into paper; the process for which is the same as that employed for common paper, except that a greater proportion of paste or size is required; after having been made red hot, however, this paper becomes spongy and brittle. Amianthus threads are also sometimes used as perpetual wicks for lamps; they require, however, to be cleansed occasionally from the soot that collects about them, and the fibres in the hottest part of the flame are apt to run together, so as to prevent the due supply of oil. In Corsica the Amianthus is advantageously employed in the manufacture of pottery; being reduced into fine filaments, it is kneaded up with the clay, and the vessels which are made of this mixture are lighter, less brittle, and more capable of bearing sudden alterations of heat and cold than common pottery.

REMARKABLE INSTANCE OF THE WONDERFUL OPTIC POWER OF VULTURES.

Mr. Barber, in the year 1778, being in company with several gentlemen in Bengal, whilst on a shooting party, killed a wild hog, which

they left close to their tent on the surface of the earth. In less than one hour after it had been killed, at the time that the sky was so serene that there was not a cloud observable, a small dark spot at an immense distance in the air, attracted their notice; this spot gradually increased in size, and they soon found that it was a Vulture which was flying in a direct line towards the dead animal, on which it immediately alighted for the purpose of devouring it. In less than an hour's time, seventy vultures came from all directions, some horizontally, but the major part descended from the upper regions, in which a few minutes before no appearance of them was discernable.

Such, indeed, is the exquisite sensibility of the eye of birds, that they are provided with a membrane, which they are enabled to spread over the external surface of it, so as to protect the retina from the injuries which it might sustain on particular occasions from the irritation of the solar rays.—*Saumarez.*

THE ANT-LION.

The Ant-Lion is an insect of wonderful properties; it is hatched from an egg laid in soft moving ground, or sand: the insect increases soon in size, and assumes the shape of a small spider, with this difference, that his legs are constructed in such a way that he proceeds backwards; he has six feet, and the belly is in the shape of a heart, armed with small tubercles and bristles. The corselet to which the legs are attached is small, and the head is armed with two horns, not unlike those of the stag-beetle, and two very sharp eyes. What must create our greatest admiration is, that this insect, which cannot move but in a retrograde direction, is doomed by nature to feed upon flies and ants, whose quickness and agility would at all times deprive him of his prey, but that he has been endowed with an uncommon instinct, attended with stratagem: he makes a kind of funnel-like hole in a soft ground or sand, and placing himself at the bottom of it, waits there with the utmost patience, for several days, till an incautious ant, or giddy fly, falls in the dreadful pit. Then all his skill is put in requisition; he throws out, by the shaking of his horns, a great quan-

tity of sand upon and above the insect, to prevent its climbing up the steep sides of his hole; and, when the prey appears strong and nimble, he gives a general commotion, the whole construction crumbles down, and the imprudent insect, overwhelmed with the ruins, falls into the horns of the Ant-Lion, which open as a pair of forceps at the bottom. When he has sucked the blood and inside of his prey, he charges it upon his head, and, by a sudden jerk, throws the carcase, at a great distance, away from his abode. After passing several weeks in these watchings and troubles to get his food, he being then grown to a larger size, makes himself a kind of hall out of the sand, which he hangs inside with a shining kind of thread or silk, and remains there till he arrives at his second state, which is a sort of chrysalis, or larva, the appearance of which is between the past and the future form. From this larva, this shapeless, uncouth, ill-looking, mummy-like being, arises a slender-waisted winged insect, which after fluttering about for a few weeks, performing the duty of nature, and depositing eggs in the sand, resigns its life, conscious, we may suppose, of having done all it was created for, and fulfilled

the intention and will of God. The winged insect has a head of a chesnut colour; the body is of a pearly grey, the legs short, the wings long and greyish, and the superior ones marked with four brown spots. It is often seen fluttering about the sides of roads and dry banks exposed to the east, in the months of June and July—continues for a little time, and then entirely disappears. The writer of this anecdote, kept for several years many Ant-Lions under his inspection, and can vouch for the truth of what is asserted above. This insect is very rare in this country; but in France and Italy there is not a bank on the sides of a public-road, or a sandy ridge at the foot of an old wall, which does not harbour a great number of these insects.—*Description of Animals.*

THE MOCKING BIRD.

This very curious bird, deserves particular notice. Without any exterior attractions, it possesses faculties which render it one of the greatest objects of curiosity and admiration among the feathered tribes. It is about the size of a thrush. Its natural notes are musica

and solemn; but it likewise possesses the singular power of assuming the tones of every other animal, whether quadruped or bird. It seems to divert itself with alternately alluring or terrifying other birds, and to sport with their hopes or their fears. Sometimes it entices them with the call of their mates, and on their approach terrifies them with the scream of the eagle, or some other bird of prey. It frequents the habitations of mankind and is easily domesticated: it builds its nests in the fruit-trees near the houses of the planters; and sitting sometimes most of the night on the tops of their chimneys, assumes its own native melody, and pours forth the sweetest and most varied strains. The savages call it *Cencontlatolli,* or Four-hundred languages. It is found in Carolina, Jamaica, New Spain, &c. In Jamaica, it is very common in the savannahs, where it perches on the highest trees to chant its song.

THE HUMMING BIRD.

Of all animated beings, says Buffon, this bird is the most elegant in form, and superb in colours. The precious stones, polished by art,

cannot be compared to this jewel of nature. Her miniature productions are ever the most wonderful; she has placed it in the order of birds, at the bottom of the scale of magnitude; but all the talents that are only shared amongst the others, she has bestowed profusely on this little favourite. The emerald, the ruby, and the topaz, sparkle in its plumage, which is never soiled by the dust of the ground. It is inconceivable how much these brilliant birds add to the high finished beauty of the western landscape. No sooner is the sun risen, than numerous kinds are seen fluttering abroad; their wings are so rapid in motion, that it is impossible to discern their colour, except by their glittering; they are never still, but continually visiting flower after flower, and extracting the honey. For this purpose they are furnished with a forked tongue, which enters the cup of the flower, and enables them to sip the nectared tribute; upon this alone they subsist. In their flight they make a buzzing noise, not unlike a spinning wheel, from whence they have their name.

The nests of these birds are not less curious than their form: they are suspended in the air

at the extremity of a branch of an orange, a pomegranate, or a citron tree, and sometimes even to a straw pendant from a hut, if they find one convenient for the purpose. The female is the architect, while the male goes in quest of materials, such as fine cotton, moss, and the fibres of vegetables. The nest is about the size of half a walnut. They lay two eggs at a time, and never more, in appearance like small peas, as white as snow, with here and there a yellow speck. The time of incubation continues twelve days, at the end of which the young ones appear, being then not larger than a blue-bottle fly. "I could never perceive" (says Father Duteste) "how the mother fed them, except that she presented the tongue covered entirely with honey extracted from flowers." Those who have tried to feed them with syrups, could not keep them alive more than a few weeks; these aliments, though of easy digestion, are very different from the delicate nectar collected from the fresh blossoms. It has been alleged by various naturalists, that during the winter season they remain torpid, suspended by the bill from the bark of a tree, and are awakened into life when the flowers begin to blow; but these fictions are rejected;

for Catesby saw them throughout the year at St. Domingo and Mexico, where nature never entirely loses her bloom. Sloane says the same of Jamaica, only that they are more numerous after the rainy season. Marcgrave mentions them as being frequent the whole year in the woods of Brazil.—The method of obtaining these minute birds is to shoot them with sand, or by means of the trunk-gun: they will allow one to approach within five or six paces of them. It is easy to lay hold of the little creature while it hums at the blossom. It dies soon after it is caught, and serves to decorate the Indian girls, who wear two of these charming birds as pendants from their ears. The Indians indeed, are so struck and dazzled with the brilliancy of their various hues, that they have named them, *the Beams,* or *Locks of the Sun.* Such is the history of this little being, who flutters from flower to flower; breathes their freshness, wantons on the wings of the cooling zephyrs, sips the nectar of a thousand sweets, and resides in climes where reigns the beauty of eternal spring.

THE MARMOT.

The Marmot, when taken young, is more capable of being tamed, than any other wild animal; it will easily learn to perform feats with a stick, to dance, and obey the voice of its master. It bears a great antipathy to the dog; and when it becomes familiar in a house, and is certain of being supported by its master, it will in his presence attack the largest dogs, and boldly fasten on them with its teeth. They are natives of the Alps and Pyrennean mountains, and remain in a torpid state from the end of September to the beginning of April. They live in societies, from five to fourteen in number, in burrows which have several passages constructed with great art: the principal apartment at the end is warmly lined with moss and hay; and it is asserted that this work is carried on by the whole company; that some cut the finest grass, others pull it up, others take it in their turn to convey it to the hole; upon this occasion, it is added, one of them lies on its back, permits the hay to be heaped on its belly, keeping its paws upright to make room, and in this manner is dragged, hay and all, to their common retreat. Whenever they venture abroad,

one is placed as a sentinel, sitting on an elevated rock, while the others amuse themselves in the fields below; and no sooner does he perceive a man, an eagle, a dog, or any other enemy, than he informs the rest by a kind of whistle, and is himself the last to take refuge in the cell. These animals run much swifter up hill than down; they climb trees, and run up the clefts of rocks, with great ease: indeed, it is ludicrously said of the Savoyards, who are the general chimney-sweepers of Paris, that they have learned their trade from the Marmot.

THE LAND TORTOISE.

This animal is often domesticated, especially in gardens. We shall select the account of a tame tortoise, given by the Reverend Mr. White of Selborne, as a pleasing specimen of the manners of these animals in a state of captivity. This one had been in possession of a lady for upwards of thirty years. It regularly retired below ground about the middle of November, and did not emerge till the middle of April. Its appetite was voracious in the middle of summer, but it ate very little in spring and

autumn. It seemed greatly alarmed if surprised by a shower of rain during its peregrinations in search of food; and though its shell was so thick that it could scarcely have been injured by the wheel of a loaded cart, it discovered as much solicitude to avoid rain, as a fine lady in her gayest attire, shuffling away on the first sprinklings, and making for some shelter.—Whenever the old lady, its mistress, who usually waited on it, came in sight, it always hobbled, with awkward alacrity, towards its benefactress, though to strangers it appeared quite inattentive. It never stirred out after dark; often appeared abroad only for a few hours in the middle of the day; and in wet days never came from its retreat. Though it loved warm weather, it carefully avoided the hot sun, and passed the more sultry hours under the shelter of a large cabbage-leaf, or amid the friendly shades of an asparagus bed. Towards autumn, however, he appeared anxious to improve the effect of the faint sun-beams, by getting under the reflection of a wall, and inclining its shell towards the sun. In scraping the ground to form its winter retreat, it dug up with its fore feet, and threw up the earth over its back, with its hinder feet;

but the motion of its legs was so slow, as scarcely to be observed; and though it worked with the greatest assiduity both night and day, it was more than a fortnight before it had completed its inhumation.

How long an animal of this species may live we cannot determine; but it is known, at least, that their age may exceed a century. One of them, introduced into the garden of Lambeth Palace, in the time of Archbishop Laud, was living a hundred and twenty years afterwards, and died at last rather from the neglect of the gardener than from excessive age.

The land tortoise forms an excellent article of food, though it is scarcely ever employed for that purpose, except in Greece. The eggs, however, are eaten very commonly in Italy.

THE SOLDIER, OR HERMIT-CRAB.

It is very diverting to observe this animal when about to change its shell, at which time it is seen busily parading the shore, along that line of pebbles and shells which is formed by the extremest wave. They crawl very fast with

the shell on their back, and at the approach of danger draw themselves within the shell, and thrusting out the larger claw, will pinch very hard whatever molests them. When it wants to change its shell, it is seen dragging its old incommodious habitation at its tail, unwilling to part with one shell, even though a troublesome appendage, till it can find another more convenient. It is seen stopping at one shell, turning it, and passing it by; going on to another, contemplating that for a while, and then slipping its tail from its habitation to try on the new; this also is found inconvenient, and it quickly returns to its old shell again. In this manner it frequently changes, till at last it finds one light, roomy, and commodious; to this it adheres, though the shell be sometimes so large as to hide the body of the animal, claws and all. Yet it is not till after many trials, and combats also, that the soldier is completely equipped; for there is often a contest between two of them for some well-looking favourite shell for which they are rivals. They endeavour both to take possession; they strike with their claws, they bite each other, till the weakest is obliged to give up the object in dispute. It is then the victor im-

mediately takes possession, and parades in his new conquest three or four times backwards and forwards upon the strand before his envious antagonist. When taken, it is said to utter a feeble cry, endeavouring to seize the enemy with its nippers; which, if it fasten upon, it will sooner die than quit.

THE PINNA.

Animals of this genus inhabit bivalve shells, fragile, and furnished with a beard; gapes at one end; the valves hinge without a tooth. They inhabit the coasts of Provence, Italy, and the Indian Ocean. The largest and most remarkable species inhabit the Mediterranean. It is blind, as are all of the genus; but furnished with very strong calcareous valves. The Cuttle-fish, an inhabitant of the same sea, is a deadly foe to this animal. As soon as the Pinna opens its shell, it rushes upon her like a lion, and would always devour her, but for another animal whom she protects within her shell, and from whom in return she receives very important services. It is an animal of the crab kind, naked like the hermit-crab, and very quick-sighted. This

crab the Pinna receives into her covering, and when she opens her valves in quest of food, lets him out to look for prey. During this the Cuttle-fish approaches; the crab returns with the utmost speed and anxiety to his hostess, who being thus warned of the danger, shuts the doors and keeps out the enemy. That very sagacious observer, Dr. Hasselquist, in his voyage towards Palestine, beheld this curious phenomenon, which, though well known to the ancients, had escaped the moderns.

Oppian gives us the following pretty fable of this curious animal.

In clouded deeps below, the Pinna hides,
And through the silent paths obscurely glides;
A stupid wretch, and void of thoughtful care,
He forms no bait, nor lays the tempting snare;
But the dull sluggard boasts a crab his friend,
Whose busy eyes the coming prey attend;
One room contains them, and the partners dwell
Beneath the convex of one sloping shell.
Deep in the wat'ry vast, the comrades rove,
And mutual interest binds their constant love;
That wiser friend the lucky juncture tells,
When in the gaping circuit of hill shells
Fish wandering enter; then the bearded guide
Warns the dull mate, and pricks his tender side;

He knows the hint, nor at the treatment grieves,
But hugs th' advantage, and the pain forgives ;
His closing shells the *Pinna* sudden joins,
And 'twixt the pressing sides the prey confines.
Thus, fed by mutual aid, the friendly pair
Divide their gains, and all the plunder share.

REMARKABLE INSTANCE OF RETALIATION IN BEES.

It is considered very cruel in Africa to kill bees in order to obtain their honey, especially as from flowers being there at all seasons, and most in winter, they can live comfortably all the year round. A Hottentot who was accustomed to kill bees, was often reasoned with by the humane to give up so cruel a practice ; yet he persisted in it till a circumstance occurred which determined him to relinquish it. He had a water-mill for grinding his corn, which went very slowly, from the smallness of the stream which turned it, consequently the flour dropped very gently. For some time much less than usual came into the sack, the cause of which he could not discover. At length he found, that great part of his flour, as it was ground, was carried off by the bees to their hive: on

examining this, he found it contained only his flour and no honey. This robbery made him resolve to destroy no more bees when he took their honey, considering their conduct in robbing him of his property as a just punishment to him for his cruelty. The gentleman who related this story was a witness to the bees robbing the mill.

PARTICULAR INSTANCE OF SAGACITY IN ANTS.

Mr. Campbell, in his Travels in South America, relates the following remarkable story :—

" 'Go to the Ant, thou sluggard,' viz. for instruction and reproof: and the more frequently I do so, the more I admire the wisdom that taught him to select this insect as a pattern of activity; for, of all the creatures God has placed on our globe, this seems to be the most active and industrious. All their nests that I have watched, exhibited the utmost activity. Every one appears in such haste to accomplish his object, that they resemble the inhabitants of a city when on fire in all quarters; and this activity is not confined to particular nests or particular times of the day, but is an universal

virtue among ants, exhibited from sun-rise to sun-set. Viewing their motions while the waggon approached, I observed a little ant, with great exertion, bringing a large prickly seed home to the general magazine, which it carried in its mouth. When its progress at any time was impeded by a stalk of grass lying across its path, it immediately turned about and dragged it after it. I observed great ingenuity in this contrivance. On arriving at the mouth of its nest, which was under ground, it left the seed above, ran into the hole, and soon brought out a large ant, who, laying hold of the seed, carried it down with the greatest ease. How it conveyed the information to the other that his assistance was required, I could not conjecture, but the great ant seemed perfectly aware of the business on which he was called."

SINGULAR PROPERTIES OF THE PAPAW-TREE.

The Papaw-tree *(Carica papaya)* deserves a place in every large hot-house, on account of its possessing a remarkable property which has been long known to those who have resided in the West Indies, but which has only of late

been particularly described in this country by Dr. Holder,—that of intenerating butchers' meat or poultry. This singular property is not even hinted at in the last edition of Miller's Dictionary. The juice rubbed on beef or mutton has the effect of rendering the meat as tender as veal or lamb, without injuring its other qualities. Indeed it is affirmed, that if a fowl be hung against the trunk of a Papaw-tree, it becomes intenerated in a short space of time, by mere proximity; and that the oldest poultry may thus be rendered as tender as chickens. In stoves in England, the Papaw-tree has been known to attain the height of twenty feet in three years, and to produce its fruit and flowers: it is not, however, a durable plant.

NEPENTHIS DISTILLATORIA; OR, PITCHER-PLANT.

The most extraordinary vegetable production of Java, and other Eastern islands, is the *Nepenthis distillatoria,* or Pitcher-Plant, which is found in most arid situations, but is provided with a curious contrivance for securing a sufficient supply of moisture. To the footstalk of

each leaf is attached a small tube, shaped like a pitcher, or horn, covered with a lid, which is moveable on a kind of hinge or strong fibre, passing over the handle, and connected with the leaf. By the contraction of this fibre the lid is opened, when the weather is showery or the dews fall; and, when the moisture has filled the pitcher, closes again so firmly as to prevent evaporation, securing the water for the sustenance of the plant or thirsty travellers.

EDUCATION OF FISHES.

Fishes have been seen to possess, in a greater or less degree of perfection, all those external senses by which other animals acquire a knowledge of external objects. Hence we find that they speedily become acquainted with the hand that feeds them, and know the face of a stranger. They may be taught to come to the edge of a pond, when called by their usual name, or to assemble at the sound of a bell.—Baster even informs us of a trout which had been kept fourteen years and seven months, which would come and repose on the hand of its master, while he removed the water out of the vessel in which it was kept.

That they possess some powers of deliberation, appears evident from the artifices which they employ to escape from the nets in which they have been enclosed, or from the hook which they have incautiously swallowed. Salmon have been known to lie close on the ground in some hollow place, to permit the net to pass over them, or by a sudden spring to leap out of the net. The Fishing-Frog, or Angler, as it is also called, (*Lophis piscatorius,*) has two long tentaculæ on the head, resembling in appearance small worms. Having buried its body in the sand, leaving only these tentaculæ exposed, it moves them backwards and forwards, until the eye of some young fish is attracted by the deceitful appearance, and falls a prey to its lurking foe.

TOWN IN A SALT MINE, AT CRACOW, IN POLAND.

There is a town in the immense Salt Mines of Cracow, in Poland, within which is a spacious market-place, a river of fresh water, a neat church, and a famous statue of Lot's wife, cut out of a solid block of rock-salt, by the moist

or dry appearance of which, the subterranean inhabitants are said to know when the weather is fair or wet above ground. The galleries in these extraordinary mines are so numerous, and so intricate, that workmen have frequently lost their way, their lights have been burnt out, and they have perished before they could be found. Although the arches of the different stories of the galleries are boldly executed, yet they are not dangerous, as they are supported by large masses of timber of a foot square, and these vast timbers remain perfectly sound for many centuries, while the other pillars, whether of brick, or stone, or salt, soon dissolve or moulder away.

SEALS NOT INSENSIBLE TO THE POWER OF MUSIC.

In Cornwall, when persons are in pursuit of the Seal, it is said to be a common practice, as soon as the animal is observed to thrust its head above water, to halloo to it, till they can approach within gun-shot, since it will continue to listen to the sound for many minutes.

The Seal, indeed, displays a taste for music,

which could scarcely be expected from his habits and local predilections. They will long follow a boat in which any musical instrument is played, and even a tune simply whistled has attractions for them.

SELF-MOVING SEED.

A very remarkable seed is the *Centaurea crupina,* the stems of which are about three feet high. One or two seeds are usually ripened in a flower, crowned with a black down, so stiff as to make the seeds creep, when held in the hand, from whence originated the name *Crupina,* from a Dutch word, "to creep." If one of these seeds is put between the stocking and the foot, it will, in a short time, travel over the whole body, and creep out at the sleeve or neck-band.

REMARKABLE PROPERTIES OF THE WATER-LILY.

The Water-Lily, be the pond deep or shallow, in which it grows, pushes up its flower-stems, till they reach the open air, that the "*ferina*

fecundans" may perform, without injury, its proper office. About seven in the morning, the stalk erects itself, and the flowers rise above the surface of the water; in this state they continue till four in the afternoon, when the stalk becomes relaxed, as if weary of exertion, and the flowers sink and close.

INTERESTING EXPERIMENT WITH A TULIP.

The bulbs of a Tulip, in every respect resemble buds, except in their being produced under ground, and include the leaves and flower in miniature, which are to be expanded in the ensuing spring. By cautiously cutting in the early spring, through the concentric coats of a tulip-root, longitudinally from the top to the base, and taking them off successively, the whole flower of the next summer's tulip is beautifully seen by the naked eye, with its petals, pistils, and stamens.

LUMINOUS POTATOES.

The following interesting letter, from an officer at Strasburgh, was read at a meeting of

the Royal Society of Agriculture, at Paris, January 28th, 1790.

" On the 7th of January, about eleven o'clock at night, returning to the barracks of the regiment in which I serve, I was much surprised, in passing the rooms, occupied by the soldiers of my company, to perceive a considerable light in one of them, at so unseasonable an hour. I went to inquire the cause; but what was my astonishment when I saw, by the light of seven or eight luminous points, the soldiers sitting up in their beds playing with these lights, and reasoning on the cause of so singular a phenomenon? One of the most intelligent gave me the following account of the matter.—In the evening, they had been preparing some potatoes for their next day's soup, amongst which, having cut one that appeared vegetating and spoiled, they threw it into the basket with the refuse. At nine o'clock they put out the lamp and went to bed. But they were scarce laid down, before one of the soldiers perceived a strong light in the basket; and, supposing it to be a burning coal, he rose to take it out. He put down his hand into the basket with great caution, but finding no heat, he took out the luminous object, and found

it to be the damaged potato, by the light of which, he sought a book, and could perfectly distinguish the letters. His comrades expressing a desire of partaking of this curiosity, he cut it into seven or eight slices, each of which, in a few seconds, assumed the same luminous appearance: it was some time after this that I passed the window. Next morning I ordered two slices of this luminous potato to be brought to me, that I might examine them with attention; and this was the result. It appeared not mealy, yellowish, and marbled with broad white lines. The surface of each slice was spangled with very minute points of a metallic appearance. They had the smell of a sponge, and preserved their luminous property till the third day. The phenomenon seems to deserve the attention of philosophers. — *Strasburgh, Jan.* 11th, 1790."

SINGULARITY OF NATURE FOR A SINGULAR PURPOSE.

The Barbyrouessa, or Indian Hog, a species of wild boar, found in the East Indies, has two *bent* teeth, more than half a yard long, growing

upwards, and, which is the singularity, from the upper jaw. These instruments are not wanted for defence, that service being provided for by two tusks issuing from the under jaw, and resembling those of the common boar. Nor does the animal use them for defence. They might seem, therefore, to be both a superfluity and an incumbrance. But observe the event. The animal hitches one of these bent teeth upon the branch of a tree, and then suffers its whole body to swing from it. This is its manner of taking repose, and consulting its safety. It continues the whole night suspended by its tooth, both easy in its posture and secure; being out of the reach of animals which hunt for prey.

SINGULAR PROPERTIES OF THE DOLPHIN.

The Dolphin is a large fish, so like the porpoise, that he has been often confounded with it, although they differ much from each other. He seldom exceeds five feet in length; the body is roundish, growing gradually less towards the tail; the nose is long and pointed; the skin smooth; the back black, or dusky blue, becoming

white towards the belly: he is entirely destitute of gills, or any similar aperture, but respires and also spouts water through a pipe of a semi-circular form, placed on the upper part of the head. The lower end of the pipe opens in the mouth, and is capable of being opened and shut at pleasure. We find eight small teeth in each jaw; a dorsal and two pectoral fins, and the tail in the shape of a half moon. Their snouts are most useful to them when in search of eels and other fish which harbour in the mud at the bottom of the sea.

Several curious stories have been related of this remarkable fish. The anecdote of Arion, whom a Dolphin, enchanted with the harmonious strains of his lyre, saved from sinking in the sea, is well known, and acquired great credit among ancient poets: but it is rather an instructing allegory than a well-grounded fact. However, this fish has obtained the reputation of being particularly fond of man, from the following interesting anecdote related by Pliny the younger, who, at the time he wrote it, does not appear to have had any doubt of its being true. It is as follows:—

"There is, in Africa, a town called Hippo,

situated not far from the sea coast: it stands upon a navigable lake, from whence a river runs into the sea, and ebbs and flows with the tide. Persons of all ages divert themselves there with fishing, sailing, or swimming, especially boys, whom love of play and idleness bring thither. The contest among them is, who shall have the glory of swimming farthest. It happened in one of those trials of skill, that a certain boy, more bold than the rest, launched out towards the opposite shore: he was met by a Dolphin, who sometimes swam before him, and sometimes behind him, then played round him, and at last took him upon his back, then set him down, and afterwards took him up again: and thus he carried the frightened boy out into the deepest part, when immediately he turned back again to the shore and landed him among his companions. The fame of this remarkable event spread through the town, and crowds of people flocked round the boy, to ask him questions and hear his answers. The next day, the shore was lined with multitudes of spectators, all attentively contemplating the ocean, or whatever at a distance looked like it; in the mean while the boys swam as usual, and among the rest the youth I

am speaking of went into the lake, but with more caution than before. The Dolphin again appeared, and came to the boy, who, together with his companions, swam away with great precipitation. The Dolphin, as it were to invite and recall them, leaped and dived up and down, darting about in a thousand different convolutions; this he practised for several days together, till the people began to be ashamed of their timidity. They ventured therefore to advance nearer, playing with him, and calling him to them; while he, in return, suffered himself to be touched and stroked. Use rendered them more courageous; the boy, in particular, who first had experienced the safety, swam by the side of him, and leaping upon his back, was carried about in that manner: thus, they gradually became acquainted and delighted with each other. There seemed now, indeed, to be no fear on either side; the confidence of the one, and the tameness of the other mutually increasing: the rest of the boys in the mean while surrounding and encouraging their companion.

"It is very remarkable that this Dolphin was followed by a second, who seemed only a spectator, or attendant on the former: for he did

not at all submit to the same familiarities as the first, but only conducted him backwards and forwards, as the boys did their comrade. But what is further surprising, and no less true, is that this Dolphin, who thus played with the boys, would come upon the shore, dry himself on the sand, and as soon as he grew warm, roll back into the sea. Octavius Avitus, deputy governor of the province, actuated by an absurd sense of superstition, poured some precious ointment over him as he lay on the shore; the novelty and smell of which made him retire into the ocean, and it was not till after several days that he was seen again, when he appeared dull and languid. However, he recovered his strength, and continued his usual playful tricks. All the magistrates round the country flocked thither to see the sight, the entertainment of whom, upon their arrival, and during their stay, was an additional expense, which the slender finances of this little community could ill afford; besides the quietness and retirement of the place was utterly destroyed. It was thought proper, therefore, to remove the occasion of this concourse, by privately killing the poor Dolpin."

The elder Pliny mentions a similar circum-

stance of a Dolphin, who used to carry a boy to school upon his back, and bring him home again, across the straights which separate Baiæ from Puzzoli: the boy died of an accidental illness, and for several days the disappointed fish made his appearance at the place where he was wont to take the boy up; but finding him not, soon pined away and died; he was placed in the same tomb with the remains of his friend, the boy.

There are several other facts mentioned by ancient authors to prove the philanthropy of the Dolphin; but those related above, being the most interesting, will be sufficient for our purpose. Since the province of *Dauphiné*, in France, has been united to the crown, their heir apparent has been called "Dauphin," and quarters a Dolphin on his shield. Falconer, in his beautiful poem, the Shipwreck, describes the death of this fish in the following elegant manner:—

" ——— Beneath the lofty vessel's stern,
A shoal of dolphins they discern,
Beaming from burnish'd scales refulgent rays,
Till all the glowing ocean seems to blaze.
In curling wreaths they wanton on the tide;
Now bound aloft, now downward swiftly glide.

Awhile beneath the waves their tracks remain,
And burn in silver streams along the liquid plain.
Soon to the sport of death the crew repair,
Dart the long lance, or spread the baited snare.
One in redoubled mazes wheels along,
And glides, unhappy, near the triple prong.
Rodmond, unerring, o'er his head suspends,
The barbed steel, and every turn attends;
Unerring aimed, the missile weapon flew,
And, plunging, struck the fated victim through.
The upturning points his ponderous bulk sustain;
On deck he struggles with convulsive pain;
But while his heart the fatal javelin thrills,
And fleeting life escapes in sanguine rills,
What radiant changes strike the astonished sight,
What glowing hues of mingled shade and light!
No equal beauties gild the lucid west,
With parting beams all o'er profusely drest;
No lovelier colours paint the vernal dawn,
When orient dews impearl the enamell'd lawn;
Than from his sides, in bright suffusion glow,
That now with gold empyreal seem to glow.
Now in pellucid sapphires meet the view,
And emulate the soft celestial hue;
Now beam a flaming crimson to the eye,
And now assume the purple's deeper dye;
But here description clouds each shining ray,
What terms of art can nature's pow'r display.

THE TAILOR-BIRD.

The *Sutoria,* or Tailor-bird, is a native of the East Indies. — Mr. Pennant speaking of this wonderful little bird, says, " Had Providence left the feathered tribe unendued with any particular instinct, the birds of the torrid zone would have built their nests in the same unguarded manner as those of Europe; but *there* the lesser species, having a certain prescience of the dangers that surround them, and of their own weakness, suspend their nests at the extreme branches of the trees; conscious of inhabiting a clime replete with enemies to them and their young.—Snakes that twine up the bodies of trees, and apes that are perpetually in search of prey; but, heaven-instructed, they elude the gliding of the one, and the activity of the other. Some form their pensile nest in the shape of a purse, deep and open at top; others with a hole in the side; and others, still more cautious, with an entrance at the very bottom, forming their lodge near the summit.—But the little species here described, seem to have greater diffidence than any of the others. It will not trust its nest even to the extremity of the slender twig, but makes one more advance

to safety, by affixing it to the leaf itself. It picks up a *dead* leaf, and, surprising to relate, *sews* it to the side of a living one, its slender bill being its needle, and its thread some fine fibres; the lining, feathers, gossamer, and down.

Mr. Pennant has given a picture of this extraordinary piece of architecture: the *live* leaf, which serves for its basis, being that of the Mango-tree, with the nest affixed to it, and the birds projecting their little heads above the entrance of their pendant habitations. He informs us also, that one of these curious nests is preserved in the British Museum. The colour of these ingenious *flying tailors,* is a light yellow: its eggs are white; its length is three inches; its weight only three sixteenths of an ounce; so that the materials of the nest, and its own size, are not likely to draw down a habitation that depends on so slight a tenure.

TRAVELLING OATS.

If the bearded Oat be left with other grain in a barn, it extricates itself from the glume, nor does it stop its progress till it gets to the walls of the building. "Hence," says Linnæus,

speaking of his countrymen, " the Dalecarlian, after he has cut it, and carried it into the barn, in a few days finds all the glumes empty, and the oats separate from them, for every oat has a spiral arista, or beard, annexed to it, which is contracted by moisture and extended in dry weather. When the arista is contracted, it drags the oat along with it, but when it expands again, the oat does not go back to its former place, the roughness of the beard the contrary way preventing its return.

REMARKABLE MOVING VEGETABLE.

One of the most curious and interesting vegetables in the world is the celebrated moving plant, named *Hedysarum gyrans*, which is found on the shores of the Ganges, in Bengal. It is biennial, though a shrubby plant, bearing long spikes of pale party-coloured flowers. Its great singularity consists in the leaves: these have a peculiar and spontaneous motion, both moving together from a pendant to an erect position, or the reverse, with considerable rapidity; or one of them will move by starts, while the other is stationary. This motion

does not take place in all the leaves of one plant, or one branch at a time; but is apparently devoid of uniformity, regularity, and sympathy. It is likewise independent of all external stimulation, except that it requires a warm, close, and quiet atmosphere. Young plants exhibit these phenomena the best, and they do not require the presence of the sun's light. The writer of the article in Dr. Rees's Cyclopedia, says, " We have never seen it in so much perfection as by candle-light, in a very warm close apartment." And it is observed by the younger Linnæus, that it loves shade and rainy weather, and performs its movements very well during the night.

MECHANICAL WONDERS OF A FEATHER.

Every feather is a mechanical wonder. If we look at a quill we find properties not easily brought together,—strength and lightness. I know few things (observes Dr. Paley) more remarkable than the strength and lightness of the very pen with which I am writing. If we cast our eye to the upper part of the stem, we see a material, made for the purpose, used in no other

class of animals, and in no other part of birds; tough, light, pliant, elastic. The pith, also, which feeds the feathers, is amongst animal substances, *sui generis;* neither bone, flesh, membrane, nor tendon.

But the artificial part of a feather is the *beard*, or, as it is sometimes called, the vane. By the beards, are meant what are fastened on each side of the stem, and what constitute the breadth of the feather,—what we usually strip off from one side or both, when we make a pen. The separate pieces, or *laminæ*, of which the beard is composed, are called threads, sometimes filaments or rays. Now, the first thing which an attentive observer will remark is, how much stronger the beard of the feather shows itself to be when pressed in a direction perpendicular to its plane, than when rubbed, either up or down, in the line of the stem; and he will soon discover the structure which occasions this difference, viz. that the laminæ, whereof these beards are composed, are flat, and placed with their flat sides towards each other; by which means, whilst they *easily* bend for the approaching of each other, as any one may perceive by drawing his finger ever so lightly upwards, they are much

harder to bend out of their plane, which is the direction in which they have to encounter the impulse and pressure of the air, and in which their strength is wanted and put to the trial.

This is one peculiarity in the structure of a feather; a second is still more extraordinary. Whoever examines a feather, cannot help taking notice, that the threads or laminæ of which we have been speaking, in their natural state *unite;* that their union is something more than the mere apposition of loose surfaces; that they are not separated without some degree of force; that, nevertheless, there is no glutinous cohesion between them; that, therefore, by some mechanical means or other, they catch or clasp among themselves, thereby giving to the beard or vane its closeness and compactness of texture. Nor is this all: when two laminæ, which have been separated by accident or force, are brought together again, they immediately *re-clasp:* the connexion, whatever it was, is perfectly recovered, and the beard of the feather becomes as smooth and firm as if nothing had happened to it. Draw your finger down the feather, which is against the grain, and you break, probably, the junction of some of the contiguous threads;

draw your finger up the feather and you restore all things to their former state. This is no common contrivance: and now for the mechanism by which it is effected. The threads, or laminæ, above mentioned, are interlaced with one another: and the interlacing is performed by means of a vast number of fibres, or teeth, which the laminæ shoot forth on *each side*, and which hook and grapple together. A friend of mine (says the Doctor) counted fifty of these fibres in one-twentieth of an inch. These fibres are crooked, but curved after a different manner: for those which proceed from the thread, on the side towards the extremity of the feather, are longer, more flexible, and bent downward: whereas, those which proceed from the side towards the beginning, or quill end of the feather, are shorter, firmer, and turn upwards. The process then which takes place, is as follows: when two laminæ are pressed together, so that these long fibres are forced far enough over the short ones, *their* crooked parts fall into the cavity made by the crooked parts of the others; just as the latch that is fastened to a door enters into the cavity of the catch fixed to the door-post, and there hooking itself *fastens* the door;

for it is properly in this manner that one thread of a feather is fastened to the other.

This admirable structure of the feather, which it is easy to see with the microscope, succeeds perfectly for the use to which nature has designed it; which use was, not only that the laminæ might be united, but that, when one thread or laminæ has been separated from another by some external violence, it might be reclasped with sufficient facility and expedition.

SINGULAR PROPERTY IN CHICKWEED.

The common Chickweed affords a notable instance of what is called the *sleep of plants;* for every night the leaves approach in pairs, so as to include within their upper surfaces the tender rudiments of the new shoots; and the uppermost pair but one at the end of the stalk are furnished with longer leaf-stalks than the others; so that they can close upon the terminating pair, and protect the end of the branch.

REMARKABLE INSECT THAT SUBSISTS ON THE NECTAR OF PLANTS.

Many insects are provided with a long and pliant proboscis for the purpose of acquiring

this grateful food, (the nectar of plants,) as a variety of bees, moths, and butterflies: but the *Sphinx convolvulus,* or Unicorn-Moth, is furnished with the most remarkable proboscis in this climate. It carries it rolled up in concentric circles under its chin, and occasionally extends it to above three inches in length. This trunk consists of joints and muscles, and seems to have more versatile movements than the trunk of the elephant; and near its termination is split into two capillary tubes. The excellence of this contrivance for robbing the flowers of their honey keeps this beautiful insect fat and bulky; though it flies only in the evening, when the flowers have closed their petals, and are thence more difficult of access; at the same time the brilliant colours of the moth contribute to its safety, by causing it to be mistaken by the late-sleeping birds for the flower it rests upon.

CURIOUS PROPERTY IN THE PLANT WHITE DITTANY.

This plant is a native of Italy and France, but stands well in our gardens. The resin exuding from it is so inflammable, that if a

lighted candle be brought near the stalk of the plant, so that the flame touch any of the resin, the whole takes fire in an instant, and goes off with a remarkable explosion. The plant will not be destroyed by this experiment, but will recover its resinous matter again in a few days, and the explosion may be repeated with success.

THE WOODPECKER'S TONGUE.

The tongue of the Woodpecker is one of those singularities which nature presents us with when a singular purpose is to be answered. It is a particular instrument for a particular use: and what, except design, ever produces such? The woodpecker lives chiefly upon insects lodged in the bodies of decayed trees. For the purpose of boring into the wood, it is furnished with a bill, straight, hard, angular, and sharp. When, by means of this piercer, it has reached the cells of the insects, then comes the office of its tongue; which tongue is, first, of such a length, that the bird can dart it out three or four inches from the bill,—in this respect differing greatly from every other species of birds; in the second place, it is tipped with a stiff, sharp,

bony thorn; and, in the third place, (which, says Dr. Paley, appears to be the most remarkable property of all,) this tip is dentated on both sides, like the beard of an arrow or the barb of a hook. The description of the part declares its use. The bird having exposed the retreats of the insects by the assistance of its bill, with a motion inconceivably quick, launches out at them this long tongue; transfixes them upon the barbed needle at the end of it; and thus draws its prey within its mouth.

INTERESTING EXPERIMENT FOR THE MICROSCOPE.

The embryo grain of wheat, at the time of blossoming, being carefully taken out of the husk, will be found to have a small downy tuft at its extremity, which, when viewed in a microscrope, greatly resembles the branches of thorn, spreading archwise in oppsoite directions. By expanding a few of the grains, and selecting the most perfect, a very pretty microscopical object will be obtained for preservation.

WONDERFUL PROPERTY IN THE CHINESE RATTAN, NOT GENERALLY KNOWN.

The Chinese Rattan, which is used when split for the making of cane chairs, will, when dry, if struck against each other, give fire; and they are used accordingly in some places in lieu of flint and steel.

CYPRESS-WOOD SUPPOSED TO BE IMPERISHABLE.

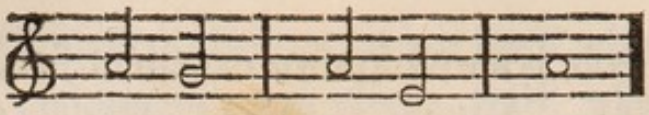
The imperishable chests which contained the Egyptian mummies were of Cypress; and the cedar, with which black-lead pencils are covered, is not liable to be eaten by worms. The gates of St. Peter's Church, at Rome, which had lasted from the time of Constantine to that of Pope Eugene the Fourth, that is to say, eleven hundred years, were of cypress, and had, in that time, suffered no decay. According to Thucydides, the Athenians buried the bodies of their heroes in coffins of cypress, as being not subject to decay. A similar durability has also been ascribed to cedar.

THE SOLE.

The Sole is a well-known excellent fish, whose flesh is firm, delicate, and of a pleasing flavour. They grow to the length of eighteen inches, and even more in some of our seas. They are often found of that size and superiority in Torbay, from whence they are sent to the markets of Exeter and several other towns in Devonshire and the adjacent counties. They are also found in the Mediterranean and several other seas, and, when in season, are in great requisition for the most luxuriant tables. The upper part of the body is brown, the under part white; one of the pectoral fins is tipped with black; the sides are yellow, and the tail rounded at its extremity. It is said that the small soles caught in the northern seas are of a much superior taste to the large ones, which the southern and western coasts afford.

A musician of fame having travelled, in his harmonical tour, not unlike Dr. Burney, as far as Marseilles, found there this fish so delicate, and so much to his taste, that he died of indigestion after eating too much of it. His friends

erected a tomb to his memory, and a wag gave the following epitaph :



which, being read according to the French gamut and pronunciation, gives these words, *La sole lá mis la.* "The Sole placed him there." It is certain that, taken in too great a quantity, or when out of season, this fish is not one of the wholesomest.

THE SEA-WOLF.

The Sea-Wolf is often caught at Heligoland, an island not far from the mouth of the Elbe ; it is about three feet in length, and has a larger and flatter head than the shark. The back, sides, and fins, are of a blueish colour, the belly is nearly white; the whole skin is smooth and slippery, without any appearance of scales. He is of a very voracious nature, and has a double row of sharp and round teeth, both in the upper and lower jaw. However, his appetite does not lead him to destroy fishes similar in shape to himself, as he is supposed to feed entirely on

crustaceous animals, and others, whose shells he easily breaks with his teeth. He is sometimes found in the northern seas exceeding six feet in length, and owes his name to his natural fierceness and voracity. The fins nearest to the head spread themselves, when the animal is swimming, in the shape of two large fans, and their motion contributes considerably to accelerate his natural swiftness. We do not hear that his flesh is good to eat.

LONGEVITY OF THE PIKE, AND ITS RAPACITY.

The regions of fresh water have their sharks as well as the empire of the seas. The Pike lives in rivers, lakes, and ponds: and, in a confined piece of water, he will soon destroy all other fish, as he generally does not feed upon any thing else, and often swallows one nearly as large as himself; for, through his greediness in eating, he takes the head foremost, and so draws it in by little at a time, till he has swallowed the whole. I remember, says the writer of this anecdote, to have seen in the stomach of a large Pike a gudgeon of good size, the head of which had already received clear marks of the power

of digestion, whilst the rest of the fish was still fresh and unimpaired.

It is a very long-lived fish. In the year 1479, a Pike was caught at Hailbrun, in Suabia, to which was affixed a brazen ring with the following words engraven on it in Greek characters:— "I am the first fish which was put into this lake by the hands of the Governor of the Universe, Frederic the Second, the 5th of October, 1230." The Pike has a flat head, and sharp teeth in his jaws, the under one of which is more prominent than the superior one.

THE SUN-FISH.

The shape of this fish is round, and surrounded with a fin which answers the purpose of nature, and brings to our mind the idea of the sun, as it is painted, encompassed with rays of light. This fish is also known by the name of Diodon. He appears like the upper part of the body of a very deep fish which had been amputated in the middle. The mouth is small, with two broad teeth only in each jaw. When alarmed, he inflates his body to a globular shape of great size, and is beset with large and sharp spines, which the

animal can erect and depress at pleasure: by this manœuvre he defends or secures himself against the attacks of his enemies, and might have been named the hedgehog of the sea, if other fishes had not already obtained the name of *Echini*. The back of this curious marine animal is of a rich blue colour. He frequents the coasts of both the ancient and new continents, and has been found on the shores of England.

THE TENCH.

This fish is of a short thick body, and seldom exceeds ten or eleven inches in length. The irides are red, the back, dorsal and ventral fins, dusky; the head, sides, and belly, of a greenish hue, mixed with gold, and the tail very broad. They delight in still water, in the muddy parts of ponds, where, secure, as they suppose, from the voracious ramblings and dreadful proscriptions of the tyrant pike, and from the hook of the angler, they live nearly motionless covered by the flags, reeds, and weeds that shade their place of retirement: this inactive life has enabled some individuals of this

species to attain an extraordinary bulk, and tenches have been seen of an astonishing size comparatively with the common length and thickness of the fish. We have read, as a well authenticated fact, that, in the northern part of England, and in a piece of water which, having been long neglected, was filled with pieces of timber, stones, and rubbish, a great number of tenches of good size had been found; and that one, in particular, which seemed to have been shut up in a nook, had not only surpassed in size the common ones, but had also taken the form of the hole in which it had accidentally been confined. The body was in the shape of a half moon, answering in the convexity of its outlines the concavity of the dungeon where this innocent sufferer had been immured for several years. Did the water which the imprisoned creature inhaled, carry in itself food enough not only to support but even over-supply the cravings of nature, and produce superabundance of nourishment? or did some kindred neighbour bring small insects, or other aliment, in pity for the confined sister of the pond; an act of charity which has been often remarked in other individuals of the brute creation? How-

ever, inaction and contentedness, two qualities which that tench is supposed to have enjoyed in a great degree, are sufficient to create health and bulk in any animated being.

THE SURMULLET.

There are fourteen species of this fish, but the most remarkable is the Red Surmullet, *Mullus barbatus* of Linnæus.

This fish, when alive, presents some of the most brilliant colours exhibited in nature, and the changes which they experience, as the fish expires, are singular and various. The luxurious Romans brought this fish alive to table in a glass vessel, and, suffering the fish to expire, contemplated with delight the successive changes of colour. After pleasing the eye by this display, the fish was removed and dressed for the feast.

EXTRAORDINARY LARGE OAK-TREE.

The large Golenos Oak, which was felled in the year 1810, for the use of his Majesty's navy, grew about four miles from the town of

Newport, in Monmouthshire; the main trunk, at ten feet long, produced 450 cubic feet; one limb, 355; one ditto, 472; one ditto, 235; one ditto, 156; one ditto, 106; one ditto, 113; and six other limbs, of inferior size, averaged ninety-three feet each; making the whole number 2426 cubic feet of sound and convertible timber. The bark was estimated at six tons; but as some of the heavy body-bark was stolen out of the barge at Newport, the exact weight is not known. Five men were twenty days stripping and cutting down this tree; and a pair of sawyers were five months sawing it, without losing a day, Sundays excepted. The money paid for sawing, &c. only, independent of the expense of carriage, was £82; and the whole produce of the tree when brought to market was within a trifle of £600. It was bought standing for £405; the main trunk was nine feet and a half in diameter, and, in sawing it through, a stone was discovered six feet from the ground, above a yard in the body of the tree, through which the saw cut; the stone was about six inches in diameter, and completely shut in, but round which there was not the least symptom of decay. The rings in the butt were carefully

reckoned, and amounted to above 400 in number, a convincing proof that this tree was in an improving state for upwards of 400 years; and, as the ends of some of the branches were decayed, and had dropped off, it is presumed it had stood a great number of years after it had attained maturity.

SINGULAR INSTANCE OF THE EFFECT OF COLD ON BIRDS.

In February, 1809, a boy in the service of Mr. W. Newman, miller, at Leybourne, near Malling, went into a field called the Forty Acres, and saw a number of rooks on the ground, very close together. He made a noise to drive them away, but they did not appear alarmed; he threw snow-balls to make them rise, but still they remained. Surprised at this apparent indifference, he went in among them, and actually picked up twenty-seven rooks; and also, in several parts of the same field, ninety larks, a pheasant, and a buzzard hawk. The cause of the inactivity of the birds, was a thing of rare occurrence in this climate. A heavy rain fell on the Thursday afternoon, which, freezing as it

came down, so completely glazed over the bodies of the birds, that they were fettered in a coat of ice, and completely deprived of the power of motion. Several of the larks were dead, having perished from the intenseness of the cold. The buzzard hawk being strong, struggled hard for his liberty, broke his icy fetters, and effected his escape.

SELF-MOVING WATER-CRESS.

Monsieur A. de Chateaubriand, in book v. ch. 10. of the Beauties of Christianity, asserts, "that on the banks of the Yare, a small river in the county of Suffolk, we were shewn a very curious species of Cress; it changes its place, and advances, as it were by leaps and bounds. From its summit descend several fibres; when those which happen to be at one extremity of the plant are of sufficient length to reach the bottom of the water, they take root. Drawn away by the action of the plant, which settles upon its new foot, the claws on the contrary side lose their hold; and the tuft of Cresses, turning on its pivot, removes the whole length of its bed. In vain you seek for the plant on

the morrow in the place where you left it the preceding night, and you perceive it higher up, or lower down the current of the river, producing, with other aquatic families, new effects and new beauties."

THE PHLOAS, A LUMINOUS WORM.

This curious animal (Phloas) is of the genus *Vermes testacea;* shell bivalve, divaricate, with several lesser differently shaped accessary ones at the hinge; hinges recurved, united by a cartilage in the inside; beneath the hinge is an incurved tooth. The inhabitants of this genus perforate clay, spongy stones, and wood, while in their younger state; and as they increase in size, enlarge their habitation within, and thus become imprisoned. They contain a phosphorous liquor, of great brilliancy in the dark, and which illuminates whatever it touches, or happens to fall upon. There are twelve species.

All that we can know with certainty is, that they must have penetrated these substances when very small, because the entrance of the hole in which the Phloas lodges is always much less than the inner part of it, and, indeed, than

the shell of the animal itself. Hence some have supposed, that they were hatched in holes accidentally formed in stones, and that they naturally grew of such a shape as was necessary to fill the cavity.

The holes in which these insects lodge are usually twice as deep, at least, as the shells are long: the figure of the holes is that of a truncated cone, excepting that they are terminated at the bottom by a rounded cavity, and their position is usually somewhat oblique to the horizon. The openings of these holes are what betray the Phloas being in the stone; but they are always very small in proportion to the size of the fish. There seems to be no progressive motion of any animal in nature so slow as that of the Phloas; it is immersed in the hole, and has no movement except a small one towards the centre of the earth; and this is only proportioned to the growth of the animal. Its work is very difficult in its motion; but it has great time to perform it in, as it only moves downwards, sinking itself deeper in the stone as it increases in bulk. That part, by means of which it performs this, is a fleshy substance, placed near the lower extremity of the shell; it is of the shape of a

lozenge, and is considerably large in proportion to the size of the animal: and though it is of a soft substance, it is not to be wondered at, that in so long a time it is able, by constant work, to burrow into hard stones. The manner of their performing this may be seen by taking one of them out of the stone, and placing it upon some soft clay; for they will immediately get to work, in bending and extending that part allotted to dig for them, and in a few hours they will bury themselves in the mud, in as large a hole as they had taken many years to make in the stone. They find little resistance in so soft a substance; and the necessity of their hiding themselves, evidently makes them hasten their work. The animal is lodged in the lower half of the hole in the stone, and the upper half is filled up by a pipe of a fleshy substance, and conical figure, truncated at the end. This they usually extend to the orifice of the hole, and place on a level with the surface of the stone; but they seldom extend it any farther than this. The pipe, though it appears single, is in reality composed of two pipes, or at least it is composed of two parts, separated by a membrane. The use of this pipe, or proboscis, is the same with that of

the proboscis of other shell-fish, to take in sea-water into their bodies, and afterwards to throw it out again. In the middle of their bodies they have a small green vessel, the use of which has not yet been discovered. This, when plunged in spirit of wine, becomes of a purple colour; but its colour on linen will not become purple in the sun like that of the *murox;* and, even if it would, its quantity is too small to make it worth preserving.

The Phloas is remarkable for its luminous quality. That this fish is luminous was noticed by Pliny, who observes that it shines in the mouth of the person who eats it; and if it touches his hands or clothes, it makes them luminous. He also says, that the light depends upon its moisture. The light of this fish has furnished matter for various observations and experiments to M. Reaumur and the Bolognian academicians, especially Beccarius, who took so much pains with the phosphorical light.

M. Reaumur observes, that, whereas other fishes give light when they tend to putrescence, this is more luminous in proportion to its being fresh: that when they are dried, their light will revive if they are moistened either with fresh or

salt water, but that brandy immediately extinguishes it. He endeavoured to make this light permanent, but none of his schemes succeeded.

The attention of the Bolognian academicians was engaged on this subject, by M. F. Marsilius, in 1724, who brought a number of these fishes, and the stones in which they were enclosed, to Bologna, on purpose for their examination.

Beccarius observed, that though this fish ceased to shine when it became putrid, yet that in its most putrid state it would shine, and make the water in which it was immersed luminous when it was agitated. Galeatius and Montius found that wine and vinegar extinguished this light; that in common oil it continued some days, but in rectified spirit of wine or urine, hardly a minute.

In order to observe in what manner this light was affected by different degrees of heat, they made use of a Reaumur's thermometer, and found that water rendered luminous by these fishes increased in light till the heat arrived to 45°, but that it then became suddenly extinct, and could not be revived again.

In the experiments of Beccarius, a solution of sea-salt increased the light of the luminous

water; a solution of nitre did not increase it quite so much. Sal-ammoniac diminished it a little, oil of tartar, *per deliquium*, nearly extinguished it, and the acids entirely. This water poured upon fresh calcined gypsum, rock crystal, ceruse, or sugar, became more luminous. He also tried the effects of it when poured upon various other substances, but there was nothing very remarkable in them. Afterwards, using luminous milk, he found that oil of vitriol extinguished the light, but that of tartar increased it.

This gentleman had the curiosity to try how differently-coloured substances were affected by this kind of light; and having, for the purpose, dipped several ribbons in it, the white came out the brightest, next to this was the yellow, and then the green; the other colours could hardly be perceived. It was not, however, any particular colour, but only light, that was perceived in this case. He then dipped boards painted with the different colours, and also glass tubes filled with the substances of different colours, in water rendered luminous by the fishes. In both these cases, the red was hardly visible, the yellow was the brightest, and the violet the dullest. But on the boards, the blue was nearly

equal to the yellow, and the green more languid; whereas, in the glasses, the blue was inferior to the green.

Of all the liquor to which he put the Phloades, milk was rendered the most luminous. A single Phloas made seven ounces of milk so luminous, that the faces of persons might be distinguished by it, and it looked as if it was transparent.

Air appeared to be necessary to this light; for when Beccarius put the luminous milk into glass tubes, no agitation would make it shine, unless bubbles of air were mixed with it. Also Montius and Galeatius found, that, in an exhausted receiver, the Phloas lost its light, but the water was sometimes made more luminous, which they ascribed to the rising of bubbles of air through it.

Beccarius, as well as Reaumur, had many schemes to render the light of these Phloades permanent. For this purpose he kneaded the juice into a kind of paste with flour, and found that it would give light when it was immersed in warm water; but it answered best to preserve the fish in honey. In any other method of preservation, the property of becoming luminous would not

continue longer than six months, but in honey it had lasted above a year; and then it would, when plunged in warm water, give as much light as ever it had done.

THE PILOT FISH.

The body of this fish is long, the head compressed, rounding off in front, without scales as far as the *operculum*. The mouth is small, the jaws of equal length, and furnished with small teeth; the palate has a curved row of similar teeth in front, and the tongue has teeth all along. The colour varies in several species. What is most remarkable in this fish is, that he is a provisor, or guide, for the shark, when in search of food. This opinion, long doubted, has been, it seems, confirmed by Mr. Geoffrey, professor in the Museum of Natural History at Paris, who speaks as an eye witness, and describes how the pilots (for two of them accompanied the shark which he saw near Malta, on the 26th of May, 1798) led the fish to a piece of bacon which a seaman had let down with a rope and hook; and how the shark obeyed their motions till he ar-

rived in sight of his prey. What can induce this small fish to associate and become subservient to the shark?

THE STAR-GAZER.

The head of this fish is large, square, and covered by a strong bony case, roughened by an infinite number of small warts, or protuberances; each side of this case is terminated above by two spines, the hindermost of which is the strongest, and covered by a skin; the under part has five spines, smaller than those above; the mouth, which is wide, opens in an almost vertical direction; the tongue is thick, short, and roughened with numerous small teeth; near the interior tip of the lower jaw is a membranous process which terminates in a long *cirrus*, or beard, extending to some distance beyond the lips, which are themselves edged with smaller ones; the eyes are situated very near each other on the top of the head. The body is of a somewhat square form as far as the vent, and thence becomes cylindric; it is covered with small scales, and marked near the back by a lateral line composed of small pores, or points,

bending from the neck to the pectoral fins on each side, and thence in a straight line to the tail. On the back are two fins, of which the first is much shorter than the latter, and furnished with stronger spines; the pectoral fins are large, with soft rays; the ventral fins are small; the tail of a moderate size, and rounded at the end. The colour of the body is brown, with a whitish or silvery cast towards the abdomen; the head, pectoral fins, and the tail, have a strong ferruginous cast, and the first dorsal fin, towards its hindpart, is marked by a large black spot.

The Star-gazer is an inhabitant of the Mediterranean and Northern Seas, chiefly frequenting the shallow parts near the shores, where it lies concealed in the mud, with the tip of the head alone exposed. In this situation it waves the beards of the lips, and particularly the long *cirrus* of the mouth, in various directions; thus alluring the smaller fishes and marine insects which happen to be swimming near, and which mistaking these organs for worms, are instantly seized by their concealed enemy. The usual length of this fish is about twelve inches. It is in no esteem as an article of food, being generally

considered as coarse and of an ill flavour. The gall was anciently considered as of peculiar efficacy in external disorders of the eyes.

THE REMORA, OR SUCKING-FISH.

This fish resembles the herring; his head is thick, naked, depressed, and marked on the upper side with transverse rough lines. The fins are seven in number; the under jaw is longer than the upper, and both furnished with teeth. He is provided by nature with a strong adhesive power, and, by means of the *striæ* on his head, attaches himself to any animal, or body whatever. A small fish with seven acting fins, armed like a galley with oars, we might suppose to have a great power of motion in the water, but, by some reason unknown to us, Providence has contrived for him an easier way of travelling, by fixing himself to the hulk or sides of ships, and even to the body of larger animals than himself, as the whale, the shark, and others. Now is it probable that so small, so weak a creature, should have might enough to retard the fast steering of a man of war, frigate, or even a boat, sailing on the smooth surface of the liquid

plain? Yet, to the shame of authors who invented and published such a falsity, and to the humiliation of human pride, whose ignorance believed such things, this nonsense has been held as a fact for many centuries, and copied from book to book as indubitable, so far that the very name of the fish was derived from this idle story. This fish is a native of the Indian Ocean, and in Ichthyology is termed *Echeneis.*

THE FLYING SCORPION.

How admirable is nature! how extensive her power, and how various the forms with which she has surrounded the united elements of animated matter! From the uncouth shape of the wallowing whale, of the unwieldly hippopotamus, or ponderous elephant, to the light and elegant form of the painted moth, or fluttering colibri; she seems to have exhausted all ideas, all conceptions, and not to have left a single figure untried. This fish is one of those, in the outlines and decorations of which she appears to have indulged her fancy in one of the happiest hours of the creation; and yet the whimsicality of the

result has stamped the individual with the discordant appendage of frightful beauty. Armed *cap-à-pié*, surrounded with spines, and thorns bristling on his back and fins, like an armed phalanx of lance bearers; and decorated on the body with yellow ribbons, interwoven with white fillets, and on the purple fins of his breast, with the milky dots of the pintado; the scorpion presents a most extraordinary contrast. His eyes, like those of which poets sang when celebrating the Nereides and Naiades, consist in black pupils surrounded with a silver iris, radiated with alternate divisions of blue and black compartments. The rays of the dorsal fin are spiny, spotted brown and yellow, conjoined below by a dark brown membrane, and at liberty above; the ventral fins are violet, with white drops, and the tail and anal ones are a sort of tesselated work of blue, black, and white united with the greatest symmetry, and not unlike those ancient fragments of Roman pavement often found in this island.

This variegated fish is found in the rivers of Amboyna and Japan, but even there it is scarce; its flesh is white, firm, and well tasted, like our perch, but it does not grow so large; it is of a

very vôracious stomach, feeding on the young of other fish, some of which, two inches in length, have been found in its craw. The skin has both the appearance and smoothness of parchment. To the tremendous armour of its back, fins, and tail, this fish owes the name of Scorpion.

THE TRUMPET-FISH.

This fish abides in the Mediterranean, and is not more than three inches in length; he has a large snout, long and narrow at the end; the eyes are large, the irides red, and the body is covered with rough cinorous scales. The anterior part of the body has two bony substances, like fins, and another situated on the belly. This fish is often found in the ocean, where he seems to be driven by storm, as he is seldom seen there in any other than tempestuous weather. His breathing the water out of his snout with a sounding noise has occasioned our sailors to call him the *Trumpet*. This species belongs to the *Centriscus* order, which contains several families, many of them presenting very curious shapes.

DIONÆA MUSCIPULÆ, OR VENUS'S FLY-TRAP.

This newly discovered beautiful sensitive plant is a native of America. In its construction nature seems to have had some view towards its nourishment, in forming the upper joint of its leaf like a machine to catch food; and placing it upon the middle of the bait for the unhappy insect that become its prey. Many minute red glands that cover its inner surface, and which perhaps discharge some sweet liquor, tempt the poor insect to taste them; and the instant these tender parts are irritated by its feet, the two lobes rise up, grasp it fast, lock the two rows of spines together, and squeeze it to death. And further, lest the strong efforts for life, in the creature thus taken, should serve to disengage it, three small erect spines are fixed near the middle of each lobe among the glands, that effectually put an end to all its struggles. Nor do the lobes ever open again, while the dead animal continues there. But it is nevertheless certain that the plant cannot distinguish an animal from any other substance; for, if we put a straw or a pin between

the lobes, it will grasp it full as fast as if it was an insect. The plant is one of the *monogynia* order, in the *decandria* class. It grows in America, in about thirty-five degrees north latitude, in wet shady places, and flowers in July and August. The largest leaves are about three inches long, and an inch and a half across the lobes: the glands of those exposed to the sun are of a beautiful red colour; but those in the shade are pale and inclining to green. The roots are squamous, sending forth but few fibres, and are perennial. The leaves are numerous, inclining to bend downwards, and are placed in a circular order; they are jointed and succulent; the lower joint, which is a kind of stalk, is flat, longish, two-edged, and inclining to heart-shaped. In some varieties they are serrated on the edges near the top. The upper joint consists of two lobes; each lobe is of a semi-oval form, with the margins furnished with stiff hairs like eye-brows, which embrace, or lock in each other when they close: this they do when they are inwardly irritated. The upper surfaces of these lobes are covered with small red glands; each of which appears, when highly magnified, like a compressed arbutus berry.

Among the glands, about the middle of each lobe, are three very small erect spines. When the lobes inclose any substance, they never open again while it continues there. If it can be pushed out so as not to strain the lobes, they expand again; but if force is used to open them, so strong has nature formed the spring of their fibres, that one of the lobes will generally snap off rather than yield. The stalk is about six inches high, round, smooth, and without leaves, ending in a spike of flowers. The flowers are milk white, and stand on foot-stalks, at the bottom of which is a little painted bractea or flower-leaf. The soil in which it grows, as appears from what comes about the roots of the plants when they are brought over, is a black light mould, intermixed with white sand, such as is usually found in our moorish heaths. Being a swamp plant, a north-east aspect will be properest for it at first, to keep it from the direct rays of the sun; and in winter, till we are acquainted with what cold weather it can endure, it will be necessary to shelter it with a bell-glass, such as is used for melons. This should be covered with straw, or a mat, in hard frosts. By this means, several of these plants

have been preserved through the winter, in a very vigorous state. Its sensitive quality will be found in proportion to the heat of the weather, as well as the vigour of the plant. Our summers are not warm enough to ripen the seed, or possibly we are not sufficiently acquainted with the culture of it.

THE HIBISCUS, OR MUTABLE ROSE.

The *Hibiscus mutabilis*, or changeable Rose, has a soft spongy stem, which by age becomes ligneous and pithy. It rises to the height of twelve or fourteen feet, with heart-shaped leaves. The flowers are produced from the wings of the leaves: the single are composed of five petals, which spread open, and are at first white, but afterwards change to a blush rose-colour, and as they decay, turn purple. In the West Indies, all these alterations happen on the same day, and the flowers themselves are of no longer duration; but in Britain the changes are not so sudden.—*Dr. Gregory.*

Child of Summer, lovely rose,
In thee what blushing beauty glows!

But ere to-morrow's setting sun,
Thy beauty fades, thy form is gone.
Yet though no grace thy buds retain,
Thy pleasing odours still remain.
Ye fair, betimes, the moral prize,
'Tis lasting beauty to be wise.

ETYMOLOGY OF THE PASSION-FLOWER, A CURIOUS ANECDOTE.

This beautiful flower, when full blown, is about four inches in diameter, has ten petals, or flower leaves, within which, round about the bottom of the style, are placed two rows of stamina, like threads of a purple colour. The style somewhat resembles the pedestal of a pillar, and divides itself on the top into three parts, which turn their mouths towards the bottom of the flower. Besides these three tubula, a little below that part of the style where they unite, there are placed five stamina, which spread themselves in a star-like figure, with yellow apices on their points. At the foot-stalk of each flower is a whirl, or clasper, and to that is joined the leaf of the plant, crenated on the edges, and of a beautiful green colour.

This plant owes its name of *Passion-flower* to the missionaries who first discovered it in America; and who have made it, as it were, an epitome of our Saviour's passion.—The petals, they say, represent the ten apostles, besides Judas who hanged himself, and Peter, who denied his master. The stamineous parts which spread themselves on the flower, they compare to a glory. And the small purple threads standing round the bottom of the style, they fancy to be a crown of thorns. The style, which is in the middle of the flower, serves them for a pillar, to which they say, the Jews bound the malefactors whom they scourged; and that they may not want any part of the story, the clasper is supposed to be a cord, and the leaf a hand. The three divisions on the top of the style are fancied to be three nails, and taking off one of the five stamina, with its apex, this is called a hammer, and the four others remaining form a cross; the three alabastrices, at the bottom of the flower, are imagined to represent the three soldiers, who cast lots; and the time between the opening and shutting of the flower, being just three days, completes the representation.

The Cærulea, or blue-rayed common palmated

passion-flower, with large spreading flowers, with whitish green petals, and a blue radiated nectarium; is succeeded by a large oval, yellowish fruit. It is in flower from July until October; but the flowers are only of one day's duration, generally opening about eleven or twelve o'clock, and frequently in hot sunny weather burst open with elasticity, and continue fully expanded all that day; and the next they gradually close, assuming a decayed appearance, and never open any more.

THE BEE-FLOWER.

The flowers of the great Bee Orchis, a plant so called, are in the highest degree singular and beautiful; they so perfectly resemble the smaller kind of humming-bee, that any person might strike at them, supposing them to be bees sitting on the plant. The upper part, representing the head, is white; the side pieces, representing wings, are purple; and the body is brown, variegated in an elegant manner with lines and streaks of yellow. They are to be met in chalk pits, and flower in June.

THE MILITARIS, OR MAN-FLOWER.

This curious plant, called the *Militaris*, or Man Orchis, has erect flower-stalks, eight or ten inches high, terminated by a loose spike of ash-coloured and reddish flowers. The structure of this flower exhibits the figure of a naked man; and is often of different colours in the same flower, as ash-colour, red, brown, and dark striped. This plant flourishes in various parts of Europe and Asia; and grows in our country spontaneously, and in great abundance.

REMARKABLE SHELL, CALLED THE ADMIRAL.

In Conchology, the Admiral is the name of a beautiful shell of the volute kind, much admired by the curious.

There are four species of this shell, viz. the Grand Admiral, the Vice Admiral, the Orange Admiral, and the Extra Admiral. The first is extremely beautiful, of an elegant white enamel, variegated with bands of yellow, which represent, in some measure, the colours of the flags in men-of-war. It is of a very curious shape, and finely turned about the head, the clavicle

being exerted. But its distinguishing character is a denticulated line, running along the centre of the large yellow band; by this it is distinguished from the Vice Admiral, the head of which is also less elegantly formed.

The Orange Admiral has more yellow than any of the others; and the bands of the Extra Admiral run into one another.—*Dr. Gregory.*

ANAGALLIS.—PIMPERNEL, OR POOR MAN'S BAROMETER.

The common Pimpernel is a beautiful little scarlet flower, well known in our fields, and called the poor man's weather-glass, from its property of opening in fair weather and shutting up on the approach of rain. There are some foreign, with larger flowers, cultivated in our gardens, which are extremely handsome.

THE CYPREDIUM, OR SPIDER-FLOWER.

The *Cypredium* from South America, is supposed to be of a larger size and brighter colours than that from North America. It has a large

globular nectary, about the size of a pigeon's egg, of a fleshy colour, and an incision or depression on its upper part much resembling the body of the large American spider. This globular nectary is attached to divergent slender petals, not unlike the legs of the same animal. This spider is called by Linnæus, *Aranea avicularia*, with a convex orbicular thorax, the centre traversely excavated; he adds, that it catches small birds as well as insects, and has the venomous bite of a serpent. M. Lonvilliers de Poincy, calls it *Phalagæ*, and describes the body to be the size of a pigeon's egg, with a hollow on its back, like a navel, and mentions its catching the humming-bird in its strong nets.

The similitude of this flower to this great spider seems to be a vegetable contrivance to prevent the humming-bird from plundering its honey.

MECHANICAL PROPERTIES OF THE PEA.

The Pea, or papilionaceous tribe of flowers, enclose the parts of fructification within a beautiful folding of the internal blossom, sometimes

called from its shape the boat, or keel; itself also protected under a penthouse formed by the external petals. This structure is very artificial; and what adds to the value of it, though it may diminish the curiosity, very general. It has also this further advantage, (and it is an advantage strictly mechanical,) that all the blossoms turn their *backs* to the wind, whenever the gale blows strong enough to endanger the delicate parts upon which the seed depends. "I have observed this a hundred times (says Dr. Paley) in a field of peas in blossom." It is an aptitude which results from the figure of the flower, and as we have said, is strictly mechanical; as much so, as the turning of a weather-board or tin cap upon the top of a chimney.

THE PEA, A COMPARISON.

In *May* when vegetation thrives,
And nature cloth'd in luxury lives;
The Pea in loveliest green array'd,
Genteelly rears its sprightly head.
While Sol's enliv'ning rays it shares,
And on each side an offspring bears.
The rains descending from above,
Its verdure, with its growth improve;

Till the full pods, a luscious band,
Invite the gard'ner's eager hand.
But time, that wears both you and me,
Deals desolation to the Pea.
The husk soon dry, and wither'd grown,
The Pea contracts a heart of stone;
And all its youthful vigour past,
To what it was, returns at last.
Thus man in infant life is seen,
With passions tender, young, and green,
Increasing till he gains his prime,
Then stoops before the scythe of Time;
Nature soon claims the tribute just,
He withers, dies, returns to dust.
Though youth a thousand beauties shares,
As many beauties age impairs.
Then laugh not at my verse or me,
For man is nothing but a Pea.

SINGULAR PROPERTY OF THE POPPY.

Of the Poppy, and of many similar species of flowers, the head while it is growing, hangs down, a rigid curvature in the upper part of the stem giving to it that position; and in that position it is impenetrable by rain or moisture. When the head has acquired its size, and is ready to open, the stalk *erects* itself, for the

purpose, it should seem, of presenting the flower, and with the flower the instruments of fructification, to the genial influence of the sun's rays. "This always struck me (says Dr. Paley) as a curious property; and specifically, as well as originally, provided for in the constitution of the plant: for if the stem be only bent by the weight of the head, how comes it to straighten itself when the head is the heaviest? These instances show the attention of nature to this principal object: the safety and maturation of the parts upon which the seed depends."

TO THE POPPY.

When jocund Summer leads her laughing hours,
And decks her zone with odorific flowers,
'Tis then thy charms attract the vulgar gaze,
And tempt the view with meretricious blaze;
Caught by thy glare, with pleasure they behold
Thy glowing crimson melting into gold.
In vain to nobler minds thy lure is spread,
Thy painted front, thy cup of glowing red;
Beneath thy bloom, such noxious vapours lie,
That when obtain'd, and smelt, we loathe and fly;
Thus pleasure spreads for all her silken joys,
And oft, too late, the painted prospect cloys.

CACTUS GRANDIFLORA, OR NIGHT-BLOWING CEREUS.

This flower, though very short-lived, is as grand and beautiful as any in the vegetable system. It is a native of Jamaica and Vera Cruz. It begins to open in the evening, about seven o'clock, is in perfection about eleven, and fades about four in the morning; so that the same flower only continues in perfection about six hours. The calyx when expanded is about a foot in diameter, of a splendid yellow within, and a dark brown without; the petals are many, and of a pure white; and the great number of recurved stamina, surrounding the style in the centre of the flower, make a grand appearance, to which may be added the fine scent which perfumes the air to a considerable distance. Dr. Darwin gives us the following beautiful lines on this elegant flower:—

"Nymph! not for thee the radiant day returns,
Nymph! not for thee the golden solstice burns,
Refulgent Cerea! At the dusky hour
She seeks, with pensive step the mountain bower,
Bright as the blush of rising morn, and warms
The dull cold eye of midnight with her charms,

Then to the skies she lifts her pencilled brows,
Opes her fair lips, and breathes her virgin vows;
Eyes the white zenith; counts the suns, that roll
Their distant fires, and blaze around the pole;
Or marks where Jove directs his glittering car,
O'er heaven's blue vault.—Herself a brighter star.
There, as soft zephyrs sweep with pausing airs
Thy snowy neck, and pass thy shadowy hairs,
Sweet maid of night! in Cynthia's sober beams
Glows thy warm cheek, thy polish'd bosom gleams.
In crowds around thee gaze th' admiring swains,
And guard in silence the enchanted plains;
Drop the still tear, or breathe th' impassioned sigh,
And drink inebriate rapture from thine eye.

THE CHOLCICUM AUTUMNALE — AUTUMNAL CROCUS.

Dr. Paley, in his Natural Theology, speaking of the Autumnal Crocus, says, "I have pitied this poor plant a thousand times. Its blossom rises out of the ground in the most forlorn condition possible, without a sheath, a fence, a calyx, or even a leaf to protect it; and that not in the spring, not to be visited by summer suns, but under all the disadvantages of the declining year. When we come, however, to

look more closely into the structure of this plant, we find that, instead of its being neglected, nature has gone out of her course to provide for its security, and to make up to it for all its defects. The seed-vessels, which in other plants are situated within the cup of the flower, or just beneath it, in this plant lie buried ten or twelve inches under ground, within the bulbous root. The tube of the flower, which is seldom more than a few tenths of an inch long, in this plant extends down to the root. The styles in all cases reach the seed-vessels; but it is in this by an elongation unknown to any other plant. All these singularities contribute to one end: as this plant blossoms late in the year, and, probably, would not have time to ripen its seeds before the access of winter, which would destroy them, Providence has contrived its structure such, that this important office may be performed at a depth in the earth, out of the reach of the usual effects of frost. That is to say, in the autumn, nothing is done above ground, but the business of impregnation; which is an affair between the antheræ and the stigmata, and is probably soon over. The maturation of the impregnated seed, which in other

plants proceeds within a capsule, exposed together with the rest of the flower to the open air, is here carried on, and during the whole winter, within the heart, as we may say, of the earth, that is, out of the usual effects of frost. But then a new difficulty presents itself: seeds, though perfected, are known not to vegetate at this depth in the earth. The seeds, therefore, though so safely lodged, would, after all, be lost to the purpose for which all seeds are intended. Lest this should be the case, a second admirable provision is made to raise them above the surface when they are perfected, and to sow them at a proper distance: viz. the germ grows up *in the spring*, upon a fruit-stalk accompanied with leaves. The seeds now, in common with those of other plants, have the benefit of the summer, and are sown upon the surface. The order of vegetation externally is this: the plant produces its flowers in September; its leaves and fruit in the spring following."

SINGULAR PLANT.

The inhabitants of St. Lucie have discovered a most singular plant. In a cavern of that isle,

near the sea, is a large basin, from twelve to fifteen feet deep, the water of which is very brackish, and the bottom composed of rocks. From these, at all times, proceed certain substances, which present, at first sight, beautiful flowers, of a bright shining colour, and pretty nearly resembling our marigolds, only that their tint is more lively. These seeming flowers, on the approach of a hand or instrument, retire, like a snail out of sight. On examining their substance closely, there appear, in the middle of the disk, four brown filaments, resembling spider's legs, which move round a kind of petal with a brisk and spontaneous motion. These legs have pincers to seize their prey; and upon seizing it, the yellow petals immediately close, so that it cannot escape. Under this exterior of a flower is a brown stalk, of the size of a raven's quill, and which seems to be the body of some animal. It is probable that this strange creature lives on the spawn of fish, and the marine insects thrown by the sea into the basin.

THE BATTLE OF WHALES.

On the 21st of June, 1818, no fewer than two hundred and six whales, called the bottle-nose, came into Stornaway Harbour; when a desperate battle ensued between them and the inhabitants of the place, armed with axes, swords, and knives, so that very few of these extraordinary visitors escaped; some of them measured above twenty feet long, by fifteen in circumference.

PORCUPINE FISH.

The *Diodon hystrix*, in point of habit or external appearance, may be said to connect in some degree the tribe of fishes with that of spiny quadrupeds, such as porcupines and hedge-hogs; it is also allied in a similar manner to the *Echini*, or sea-urchins. The *Diodon hystrix*, commonly termed Sea-Porcupine, is said to afford an amusing sight when taken by a line and hook, baited by a species of crab; after seizing the bait by a sudden spring, on finding itself hooked, it exhibits every appearance of violent rage, inflating its body, and elevating its

spines to the highest possible degree, as if endeavouring to wound in all directions, till after having tired itself by its vain efforts, it suddenly expels the air from its body, and becomes placid for some time; but when drawn towards the shore, redoubles its rage, and again inflates its body: in this state it is left on the sand, it being impossible to touch it without danger till it is dead. It is a native of the Indian and American seas, and is considered as a coarse fish, but is sometimes eaten by the inhabitants of the West India islands.—*Bullock's Curiosities.*

THE TORPEDO, OR NUMB-FISH.

The Torpedo has been celebrated, both by ancients and moderns, for its wonderful faculty of causing a numbness or painful sensation in the limbs of those who touch or handle it. The shock or sensation given by this fish is attended with all the effects of that produced by an electrical machine, so far as experiment hitherto has enabled us to discover. Although this fish does not appear to be furnished with any striking exterior qualities; although it has

no muscles formed for great exertion, nor any internal conformation differing from the Ray kind; yet such are the wonderful powers it possesses, that in an instant it can paralyse the hand or body that touches it, and cause for awhile a total suspension of the mental faculties. Reaumur has by several experiments attempted to demonstrate that it is not necessarily, but by a voluntary effort, that the Torpedo benumbs the hand that touches it. On every trial he could readily perceive when it intended to give the stroke, and when it was about to continue inoffensive. In preparing to give the shock, it flattened its back, raised its head and tail, and then by a violent contraction in the opposite direction, struck with its back against the finger that touched it; and its body, which before was flat, became round and lumpy. It is said, that the negroes can handle the Torpedo without being affected; and we are told the whole secret of securing themselves from its shock consists in keeping respiration suspended at the time. The electrical power, however, is known to terminate with the life of the animal, and when dead it is handled or eaten with perfect safety. It is an

inhabitant of the Northern, European, and the Mediterranean seas.—*Bullock's Curiosities.*

REMARKABLE FOSSIL TREE.

A fossil tree is in existence near the village of Penycuik, about ten miles from Edinburgh, of which curious phenomenon, the following description is given in a letter by Sir J. S. Mackenzie, Bart.—

"On the south bank of the river North Esk, a short distance above the paper-mill at Penycuik, where the strata usually accompanying the coal formation of this country, are exposed, a large portion of the trunk, and several roots, of a fossil tree, are visible. It rises several feet above the bed of the river, as far as the strata reach, and the roots spread themselves in the rock. It appears as if the tree had actually vegetated on the spot where we now see it. It is, where thickest, about four feet in diameter. The strata, in which the remains of the tree stand, are slate-clay, and the tree itself is sandstone. There is sandstone below, and immediately above the slate-clay, and the roots do

not appear to have penetrated the lower sandstone, to which they reach. Small portions of coal were observed where the bark existed, the form of which is so distinct on the fossil, that we may conjecture the tree to have been a Scotch pine. This conjecture may appear more probable, from the roots spreading more horizontally than those of other species. There are several rents across the trunk, which may have been caused by frost.

A LUSUS NATURÆ, OR SPORT OF NATURE.

The pebble from which the Vignette in the title page is copied, weighs nine penny-weights, six grains, according to the description given of it a few years since, which said description further remarks:—"They surprise and please all who see them. Originality, antiquity, and the fame of the artist, are esteemed essential traits to render any picture truly valuable. All these are eminently conspicuous, at the first view, in this matchless *gem*. It being the marvellous work of God, it claims the pre-eminence of all others in a superlative degree; and

the best judges affirm, that it would enrich the most opulent and superb cabinet in Europe."

THE SHARK.

There are several species of this monster, for his boldness and voracity may allow us to style him so. The greatest and most audacious of this destructive tribe of sea-fish, is called the White Shark. He represents the vulture, as the whale does the eagle, among the inhabitants of the deep. Like the whale he is viviparous, but differs from that marine wonder in bulk and in habits. The whale's peculiar food is a small sea insect, called the Medusa; the shark lives entirely upon fish or flesh, and it is reported that when he has once tasted of the flesh of a human being nothing can make him desist from his pursuit after the vessels which he suspects to contain the desired food he seeks after. The white shark is sometimes found weighing near four thousand pounds. The throat is often large enough to swallow a man. He is furnished with six rows of sharp triangular teeth, amounting in the whole to one hundred and forty-

four, serrated on their edges, and capable of being erected or depressed at pleasure, owing to a curious muscular mechanism in the palate and jaws of the animal. The whole body and fins are of a light ash colour, the skin rough, and often worked into that substance called *shagreen*, an abbreviation of the words "shark" and "green." His eyes are large and staring, and he possesses great muscular strength in his tail and fins. Whenever he spies from the deepest recesses of the sea, a man swimming or diving, he bolts from the place, darts up to his prey, and if unable to take the whole, or snatch away a limb, he follows for a long time the boat or vessel in which the more expert swimmer has found a safe and opportune retreat; but seldom does he let any one escape his cruel jaws and get off entire. A late worthy member of the Court of Aldermen, Sir Brook Watson, lost, when young, one of his legs in the mouth of one of these monsters. Some commentators of the book of Jonah, are of opinion that it was this fish, and not the whale, that swallowed the prophet.

Had nature allowed this fish to seize on his prey with as much facility as many others, the

shark tribe would soon have depopulated the ocean, and reigned alone in the vast regions of the sea, till hunger would have forced them to attack and ultimately destroy each other; but, holding the impartial scale over the whole creation, she ordered that the under jaw of this devouring marine animal should be, by its cumbersome prominency an impediment to his seizing easily his offered food; and it is generally remarked, that when on the point of catching hold of any thing the shark is obliged to twist himself on one side, which troublesome evolution often gives time to escape. The flesh of the fish is of a disagreeable taste, and cannot be eaten with any kind of relish.

ST. PETER'S FISH.—HADDOCK.

This fish is much less in size than the cod-fish, and differs somewhat from it in shape; it is of a blueish colour on the back, with small scales; a black line is carried on from the upper corner of the gills on both sides down to the tail; in the middle of the sides, under the line, a little beneath the gills, is a black spot

on each shoulder, which resembles the mark of a man's finger and thumb; from which circumstance it is called *St. Peter's* fish, alluding to the fact, recorded in the 17th chapter of St. Matthew; "Go thou to the sea, and cast an hook, and take up the first fish that cometh up, and when thou hast opened his mouth, thou shalt find a piece of money: that take, and give unto them for me and thee." And while St. Peter held the fish with his fore finger and thumb, it is supposed that the skin received then, and preserved to this moment, the hereditary impression. The flesh of the haddock is harder and thicker than that of the whiting, but not so good. It is often brought upon the table as a good dish, either broiled, boiled, or baked, and is esteemed by many above several others.

WONDERFUL FECUNDITY OF THE COD FISH.

The Cod is a noble inhabitant of the seas; not only on account of his size, but also for the goodness of his flesh, either fresh or salted. The body measures sometimes above three and even four feet in length, and of a proportionate thick-

ness. The back is of a brown olive colour, with white spots on the sides, and the belly is entirely white. The eyes are large and staring. The head is broad and fleshy, and esteemed a delicious dish.

The fecundity of all fishes is an object of real astonishment to every observer of nature. In the year 1790, a cod fish was sold in Workington market, Cumberland, for one shilling: it weighed fifteen pounds, and measured two feet nine inches in length, and seven inches in breadth; the roe weighed two pounds ten ounces, one grain of which contained 320 seeds or eggs. The whole therefore might contain, by fair estimation, 3,904,440 eggs. From such a trifle as this we may observe the prodigious value of the fishing trade to a commercial nation, and hence draw a useful hint for increasing it; for, supposing that each of the above seeds should arrive at the same proportion and size, their produce would weigh 26,123 tons burden. If each fish were brought to market and sold as the original one, for one shilling, the produce then would be 195,000 pounds; that is to say, the first shilling would produce twenty times 195,000, or 3,900,000 shillings.

THE CAVALLO-MARINO, OR SEA-HORSE.

This is a small fish of a curious shape: the length is about two inches; the head bears some resemblance to that of a horse, whence originates its name; a long dorsal fin runs from the head to the tail, which is spirally turned inside. They are often seen in cabinets and museums in a dried state, and the library of the East-India House is in possession of a very good specimen of this curious creature. It belongs to the order of the Pipe-fish.

CHANGEABLE FLOWER.

In the island of Lewchew, says Mr. M'Leod, is found a remarkable production, about the size of a cherry-tree, bearing flowers, which alternately, on the same day, assume the tint of the rose or lily, as they are exposed to the sunshine or shade. The bark of this tree is of a dark green, and the flowers bear a resemblance to our common roses. Some of our party, whose powers of vision were strong, (assisted by vigorous imaginations,) fancied that, by attentive watching, the change of hue, from white

to red, under the influence of the solar ray, was actually perceptible to the eye; that however they altered their colour in the course of a few hours was very obvious.

ANECDOTES OF THE PIKE.

Sir Francis Bacon, in his History of Life and Death, observes the Pike to be the longest lived of any fresh water fish, and yet he computes it to be not usually above forty years, and others think it to be not above ten years; but Gesner mentions a Pike taken in Swedeland, in the year 1449, with a ring about his neck, proving him to have been more than two hundred years old.

All Pikes that live long prove chargeable to their keepers, because their life is maintained by the death of so many other fish, and even those of their own kind.

This fish is called by some writers the tyrant of the rivers, or fresh-water wolf, by reason of his bold, greedy, devouring disposition, which is so keen, that Gesner relates that a man going to a pond (where it seems a Pike had devoured all the fish) to water his mule, had a Pike bite his

mule by the lips, to which the fish hung so fast, that the mule drew him out of the water, and by that accident the owner of the mule angled out the Pike. And the same author observes, that a maid in Poland had a Pike bite her by the foot, as she was washing clothes in a pond. I have heard the like of a woman in Killingworth pond, not far from Coventry. I have also been assured by my friend, Mr. Seagrave, who keeps tame otters, that he has known a Pike, in extreme hunger, fight with one of his otters for a carp that the otter had caught and was then bringing out of the water. I have told you who relate these things, and tell you that they are persons of credit, and shall conclude this observation by repeating what a wise man has said—"That it is a hard thing to persuade the belly, because it has no ears."

Bowlker, in his art of angling, gives the following instance of the exceeding voracity of this fish:—"My father caught a Pike in Barn-Meer (a large standing water in Cheshire) an ell long, and weighing thirty-five pounds, which he brought to Lord Cholmondeley; his lordship ordered it to be turned into a canal in the garden, wherein were abundance of several sorts of

fish. About twelve months after, his lordship drawed the canal, and found that this overgrown Pike had devoured all the fish except one large carp, that weighed between nine and ten pounds, and that was bitten in several places. The Pike was then put into the canal again, together with abundance of fish with him to feed upon; all which he devoured in less than a year's time, and was observed by the gardener and workmen there, to take the ducks and other water-fowl under the water, whereupon they shot magpies and crows, and threw them into the canal, which the Pike took before their eyes. Of this they acquainted their lord, who, thereupon ordered the slaughterman to fling in calves' bellies, chickens' guts, and such like garbage, to him to prey upon; but being soon after neglected, he died, as was supposed, for want of food."

The following relation was inserted as an article of news, in one of the newspapers, January 2, 1765:—

"*Remarkably large Pike.*

"Extract of a letter from Littleport, December 17th.—'About ten days ago, a large Pike was caught in the river Ouse, which weighed

upwards of twenty-eight pounds, and was sold to a gentleman in the neighbourhood for a guinea. As the cookmaid was gutting the fish, she found, to her great astonishment, a watch, with a black ribbon and two steel seals annexed, in the body of the Pike. The gentleman's butler upon opening the watch, found the maker's name, Thomas Cranefield, Burnham, Norfolk. Upon a strict inquiry it appears, that the said watch, was sold to a gentleman's servant who was unfortunately drowned, about six weeks ago, in his way to Cambridge, between this place and South Ferry. The watch is still in the possession of Mr. John Roberts, of the Cross Keys, in Littleport, for the inspection of the public.' "

And in the same paper, the 25th of the same month and year.—" On Tuesday last, at Littleshall lime-works, near Newport, a pool, about nine yards deep, which has not been filled for ages, was let off by means of a level brought up to drain the works, when an enormous Pike was found: he was drawn out by a rope fastened round his head and gills, amidst hundreds of spectators, in which service a great many men were employed. He weighed upwards of a hun-

dred and seventy pounds, and is thought to be the largest ever seen. Sometime ago, the clerk of the parish was trolling in the above pool, when his bait was seized by this furious creature, which by a sudden jerk pulled him in, and doubtless would have devoured him also, had he not by wonderful agility and dextrous swimming escaped the dreadful jaws of this voracious animal."

In Dr. Plot's history of Staffordshire, p. 246, are sundry relations of Pike of great magnitude. One in particular, caught in the Thames, an ell and two inches long.

The following circumstance containing further evidence of the voracity of this fish, with the addition of a pleasant relation I met with in *Fuller's Worthies, Lincolnshire,* p. 144.

" A cub fox, drinking out of the river Arno, in Italy, had his head seized on by a mighty Pike, so that neither could free themselves, but were engrappled together. In this contest, a young man runs into the water, takes them both out alive, and carrieth them to the Duke of Florence, whose palace was hard by. The porter would not admit him without promising to share his full half of what the Duke should

give him, to which (hopeless otherwise of entrance) he consented. The Duke highly affected with the rarity, was about giving him a good reward, which the other refused, desiring his highness would appoint one of his guards to give an hundred lashes, that so the porter might have fifty, according to his composition." And here my intelligence leaveth me, how much farther the jest was followed.

The same author relates from a book, intituled "*Vox Pisces*," printed in 1626:—"That one Mr. Anderson, a townsman and merchant of Newcastle, talking with a friend on Newcastle Bridge, and playing with his ring, let it fall into the river; but it having been swallowed by a fish, afterwards taken, the ring was found and restored to him." *Northumberland Worthies*, p. 310. A like story is related of Polycrates, King of Samos, by Herodotus.

BATTLE BETWEEN A PIKE AND A FROG.

As the Bishop of Bohemia and Bishop Thurzo were walking by a large pond in Bohemia, they saw a Frog, when the Pike lay very sleepily and quiet by the shore, leap upon his head,

and having denoted malice or anger by his swoln cheeks and starting eyes, stretch out his legs and embraced the Pike's head, and presently reached them to his eyes, tearing with them and his teeth those tender parts. The Pike, moved with anguish, plunged into the water and rubbed himself against weeds, or whatever he thought might free him from his enemy, but all in vain, for the Frog continued to ride triumphantly and to bite and torment the Pike, till his strength failed, and then sunk with the Pike to the bottom of the water; then presently the Frog appeared again at the top, and croaked and seemed to rejoice like a conqueror, after which he presently retired to his secret hole. The Bishop, who had beheld the battle, called his fisherman to fetch his nets, and by all means to get the Pike, that they might discover what had happened; and the Pike was drawn forth, with both his eyes eaten out; at which, when they began to wonder, the fisherman expressed surprise, assuring them that he was certain that Pikes were often so served. It appears that this species of frogs are fishing-frogs, called by the Dalmatians the water-devil.

THE FLYING-FISH.

This fish is slender and long, with a large staring eye. The body is in shape, scales, and colour, like one of our mullets. The fins on each side of the back are long, and spread so as to answer the purpose of wings, and, aided by them, he flies nearly to the distance of a gun-shot before he touches the water, and when he has slightly dipped, in order to rest himself, mounts up again; a curious manœuvre, by which he often escapes the dolphin which swims rapidly in pursuit of him. He is a native of the Mediterranean, and is found in many other seas in warm climates. This curious creature, as we may easily perceive, is the link between the fish and the birds, as the Auk and Penguin unite the inhabitants of the air with those of the sea, in the contemplative mind of the naturalist.

THE CHEILINUS, OR FRIENDLY FISH.

This fish inhabits the shores of the Mediterranean. It is of a whitish colour, mixed with red. The scales are large and transparent. They live in shoals, and such is the attachment which

is said to prevail among them, that, according to Appian, when one has taken the bait, another will come to its assistance and bite the cord to enable it to escape. This fish was eagerly sought after by the luxurious Romans, who preferred the liver, and even the intestines without being emptied. Its food consists of marine plants.

THE SPARUS, OR GILT HEAD.

This fish inhabits the seas of Brazil, and, when a few of them are swimming in company, they emit so much light, that, in the darkest night, a person may see to read by means of it. This property enables the fish to pursue its prey with more certainty; but, on the other hand, it gives information to its foes. Its flesh is esteemed excellent, and much sought after.

THE COBITES FOSSILIS, OR BAROMETER-FISH.

The *Cobites fossilis* inhabits marshes and lakes with a muddy bottom. It is remarkably vivacious, and is capable of surviving in mud, provided it be moist. This is a wise pro-

vision of nature, by which this animal is fitted for those situations in which it resides. When the pools or ditches in which it lives dry up, this animal buries itself in the mud, and lives securely until the rain replenishes its pond. As it is frequently dug up in this situation, it has been supposed to search for its food in the ground like an earth-worm. It will remain alive under ice, provided there is a small portion of unfrozen water around it. It appears to be extremely sensible to the changes in the state of the atmosphere. During calm weather, it remains at rest on the mud in the bottom of the ditch; but, at the approach of a storm, or change of weather, it rises to the surface of the water, and moves about with seeming uneasiness. Hence it is often kept in vessels within doors by the curious, for the purpose of predicting the changes in the weather. In winter it buries itself in the mud, and issues forth in the spring, when it spawns. It is found in the marshes and lakes in the midland parts of Europe. Its flesh is soft, and but little sought after.

THE ABRUS, OR WILD LIQUORICE.

This elegant plant grows wild in both the Indies, Guinea, and Egypt; and produces those beautiful red seeds, resembling beads, with a black spot or eye at the end annexed to the pod, which is much admired; and in consequence of their resemblance to beads, are frequently strung into necklaces, and worn by the fair of Africa, Asia, and even Europe. The plant is shrubby and twining; the leaves pinnated with many oblong leaflets; the seeds are very beautiful, and are eaten in Egypt, but are the most unwholesome and indigestible of the pulse tribe. One variety produces white, and another yellow seeds; but otherwise they are not essentially different. The *Abrus* is with us a stove-plant, raised from seeds, sown in light earth, and plunged in a hot-bed. It sometimes ripens seed in England.

CURIOUS PARTICULARS RELATIVE TO THE PALM-TREE.

The Palm-branch or Palm-tree, was anciently used as an emblem of victory, being carried

before a conqueror, in processions and rejoicings, for having overthrown the enemy. It was also presented to the kings of Syria, as a symbol of submission, or a kind of present, or token. This tree was very common about Jerico. From one common root it produces a great many suckers, which, by their spreading, form a small forest upwards, to which the prophet alludes, when he says—"*The righteous shall flourish like a Palm-tree.*" It produces its leaves like hair upon the top of its trunk. There are two sorts, the male and female; the male renders the other fruitful, by means of a flower which is enclosed in its fruit; the leaves turn round like curls in hair, and their extremities hang down towards the ground.

WONDERFUL CAPACIOUSNESS OF A CAMEL'S STOMACH.

The stomach of the Camel is well known to retain large quantities of water, and to retain it unchanged for a considerable length of time. This property qualifies it for living in the desert. Let us see, therefore, what is the internal or-

ganization upon which a faculty so rare and so beneficial depends. A number of distinct sacks or bags (in a dromedary thirteen of these have been counted) are observed to lie between the membranes of the second stomach, and to open into the stomach near the top by small square apertures. Through these orifices, after the stomach is full, the annexed bags are filled from it; and the water so deposited is, in the first place, not liable to pass into the intestines; in the second place, is kept separate from the solid aliment; and, in the third place, is out of the reach of the digestive action of the stomach, or of mixture with the gastric juice. It appears probable, or rather certain, that the animal, by the conformation of its muscles, possesses the power of squeezing back this water from the adjacent bags into the stomach, whenever thirst excites it to put this power in action.—*Dr. Paley.*

REMARKABLE LARGE OAK TREE.

Mr. Wilson, of Scotton, in Yorkshire, had standing, in January, 1819, in the corner of one of his fields, an oak tree, which stretched its

branches over a foot-path, a carriage road, an occupation road, and part of the lands of three other proprietors.

FIGHTING MONKIES.

A surprising instance of passion, making a near approach to reason, is to be found in the Natural History of the Ukraine, or country of the Cossacks, bordering on Poland. A sort of animals that bear a strong resemblance to monkies, abound in the plains and forests of the Ukraine. These creatures form separate parties, or classes, and on certain days meet in hostile bands, and engage in pitched battles. The opposing armies have their respective chiefs, and officers of several subordinate ranks; the various combatants appear to obey orders, and proceed with the same regularity that men do on the like occasions. Cardinal Polignac, who was sent ambassador by Louis the Fourteenth to Poland, in order to support the interests of the Prince of Conde, against Stanislaus, had often an opportunity of seeing these animals engage. He tells us, that they gave the word of command for the onset

by a sort of cry, or inarticulate sound; that he has seen them march in regular companies, each led by its particular captain. On meeting, both parties have drawn up in battle array, and, on the signal being given by their chiefs, have engaged with a degree of fury that has surprised him.

OAKS PLANTED BY SQUIRRELS.

It is a curious circumstance, and not generally known, that most of those oaks which are called spontaneous, are planted by the squirrel. This little animal has performed the most essential service to the British navy. A gentleman, walking one day, in the wood belonging to the Duke of Beaufort, near Troy-house, in the county of Monmouth, his attention was diverted by a squirrel, which sat very composedly upon the ground. He stopped to observe his motions. In a few minutes, the squirrel darted like lightning to the top of a tree, beneath which he had been sitting. In an instant, he was down with an acorn in his mouth, and began to burrow in the earth with his hands. After digging a small hole, he stooped down, and de-

posited the acorn; then covering it, he darted up the tree again. In a moment he was down with another, which he buried in the same manner. This he continued to do as long as the observer thought proper to watch him. The industry of this little animal is directed to the purpose of securing him against want in the winter; and, as it is probable, that his memory is not sufficiently retentive to enable him to remember the spots in which he deposits every acorn, the industrious little fellow, no doubt, loses a few every year. These few spring up, and are destined to supply the place of the parent tree. Thus is Britain, in some measure, indebted to the industry and bad memory of a squirrel for her pride, her glory, and her very existence.

ACONITUM—WOLF'S BANE, OR MONK'S HOOD.

The common Monk's hood is a native of the mountainous and woody parts of Germany, France, and Switzerland; but is cultivated in our flower-gardens for the beauty of its colour, which is sometimes white, sometimes yellow, and sometimes blue; and like many

other plants is beautifully duplicated in its petals by such horticulture; but every part of it is strongly poisonous. It receives the name of Monk's hood, from its flower being composed of five irregular petals, resembling in some measure a man's head, with a helmet or hood on it. The upper petal represents the hood or helmet, the two lower ones stand for that part which covers the lower jaw, and the two wings seem adapted for covering the temples. From the centre of the flower there arise two pistils, resembling feet, and received into the hollow of the upper petal, or hood; as is also another pistil, which finally becomes a fruit, composed of several membraneous vaginæ collected into a head, and usually containing angular and wrinkled seeds.

All the species of aconite are extremely acrimonious, occasioning mortal convulsions, or nflammations that end in a mortification. It is even said, that some persons, by only smelling at the flower of the common Monk's hood, have been seized with swooning fits, and lost their sight for two or three days.—*Dr. Gregory and Pantologia.*

ADONIS—RED MOROCCO.

This flower is so named because it was fabled that Adonis was changed into this flower by Venus, after having been slain by a boar. The *Adonis Autumnalis*, an annual plant, is common in our gardens, and even in the fields about London. Its flowers are of a bright scarlet, with a black spot or eye at the bottom, and are frequently sold in London under the name of red-morocco. There are six species of this plant, much resembling the *Anemone* in appearance, only smaller.

AGAVE—AMERICAN ALOE.

The species of this plant are six, including some varieties with striped leaves, of which the most remarkable is *Agave Americana*, or Great American Aloe. It is a vulgar notion that this plant does not flower in less than a hundred years. The fact is, that its flowering depends upon its growth. In hot climates, therefore, it is known to bloom much sooner; and in this country, if it was kept in a dry stove, instead of a green-house, we have no doubt that it would

flower earlier than it does. It is chiefly remarkable for the height to which the stem shoots up when it blooms, from twenty to thirty feet. Cortusus is said to be the first European who possessed this plant, in 1561. It flowered in England about the year 1698, and now scarcely a summer passes without one flowering in some of the nurseries about London. In the course of the year 1805, one of the striped-leaved, (said to be the first which ever flowered in England of that variety) was exhibited by Mr. Smith of Dalston.

In Spain and Portugal, there are hedges of the great Agave. The leaves are said to answer all the purposes of soap, and are also good for the scowering of pewter, and other utensils: the inward spongy substance of the dried stalks may be used for tinder; and the fibres of the leaves, when washed and dried and beaten, will make a strong thread for common purposes.

A more full description of this beautiful and useful plant, is given in my Anecdotes of Remarkable Trees, page 187.

SINGULAR RETALIATION.

A remarkable fact occurred in the park of Lord Grantley, at Wonersh, near Guildford, a short time since (i. e. December, 1818.) A fawn drinking was suddenly pounced upon by one of the swans, which pulled the animal into the water, and held it under until quite drowned. This was observed by the other deer in the park, and did not long go unrevenged; for, shortly after this very swan, which had hitherto never been molested by the deer, was singled out when on land, and furiously attacked by a herd, which surrounded and presently killed the offender.

THREE DISTINCT TREES FROM ONE TRUNK.

In the Public Ledger for March 12, 1818, is recorded the following curious circumstance.—

" The Earl of Carlisle has an Alder-tree now growing on his estate, in Cumberland, which, about three feet from the ground, measures more than nine feet in circumference; and his lordship has flourishing, in Geltsdale Forest, out of one solid trunk, three distinct trees, viz. a common ash, a mountain ash, and an alder.

REMARKABLY TAME ROBIN.

A very singular circumstance has occurred in the Central school, in Winchester, (May, 1818.) A Robin has built a nest, in which she has laid six eggs, and is now sitting on them, in a cupboard, to which the boys have constant access, and, in which their books are deposited; she never retires from her nest during the school-hours. The boys pay a singular attention by doing every thing to prevent her being annoyed.

THE SORROWFUL TREE.

This very remarkable plant, the *Abore triste*, or Sorrowful-tree, grows in India, and is so called, because it never blossoms but in the night-time, and continues to do so all the year round. As soon as the sun sets, there is not a blossom to be seen upon this wonderful tree; yet, within half an hour, there appears innumerable flowers, pleasing to the sight, and of very fragrant smell; but, as soon as day approaches and the sun begins to rise, they gradually close, and not one is to be seen on the tree, which appears as dead and withered, until the evening

again approaches, when it begins to blossom as before. It is a very quick growing plant, about the size of a common plum-tree. If a branch of it is set in the earth, it very soon takes root, and bears blossoms, which very much resemble orange-tree flowers, of a yellowish white, and the bottom somewhat of a reddish yellow.

REMARKABLY LARGE YEW-TREE.

There was growing in the church-yard of Darley, in Derbyshire, the beginning of December, 1818, a yew-tree, the circumference of which was nearly *thirty-six feet*. This extraordinary tree, according to tradition, was planted about *eight hundred* years ago.

INTERESTING PARTICULARS OF A TULIP-TREE.

There is at present, (i. e. Dec. 2, 1818,) in the garden of G. Dickson, Esq. of Cousland, in Berwickshire, a tulip-tree in full blossom, which is the second time it was ever known to be in that state. The history of it is remarkable. It stands in the situation of the garden of the Old

Priory of Cousland, well known for having sheltered the famous Mary Scott, *the flower of Yarrow*, from the persecutions by which she was harassed in the earlier part of her life, and which was destroyed during the Reformation. The last time this tree was in blossom was in the year 1720, being ninety-eight years ago.

CURIOUS PHENOMENA IN PLANTS.

Twist a branch of any tree in such a manner that the inferior surfaces of the leaves are turned towards the sky, and in a short time all those leaves will resume their original position. These motions are performed sooner or later, in proportion to the degree of heat, and the flexibility of the leaves. Many leaves, as those of the mallow, follow the course of the sun. In the morning, their surfaces are presented to the east: at the noon they regard the south; and when the sun sets they are directed to the west. During the night, or in rainy weather, these leaves are horizontal; and their inferior surfaces are turned towards the earth.

THE ORIGIN OF THE VASE OF THE CORINTHIAN CAPITAL.

The herb *Acanthus* is said to have given rise to this beautiful vase of the Corinthian order. The leaves are much celebrated for their beauty, and artists have introduced them into various kinds of carved work. Its greatest fame is the capital just named, which, we are told, Callimachus formed upon the model of a basket, covered with a tile, and surrounded with the leaves of an *Acanthus* plant, upon whose root it had accidentally been set. This basket continues the vase of the capital: the leaves and stalks are the ornaments with which it is covered, and the tile form its abacus. Such was the original capital; but sculptors, even in those ages of chaster taste, had the error, so common at this time, of supposing every thing that is laboured must be beautiful. Instead of the great and noble simplicity of this natural leaf, they soon began to decorate it with more carving; they split the edges of its several segments, variously into three, or into five distinct and separate leaves: these they left plain, and even at the edges;

and, because the form of the whole was altered, they called the first variation, where the division was into three, the *laurel*, and the other, where it was into five, the *olive leaf*. In both, the proper form and beauty of the leaf are lost: it is neither noble nor in nature; it becomes a monstrous production of ignorant art: the whole is a body of acanthus leaf bearing olive or laurel leaves at its tops and sides.

The leaves on the capitals of the columns in the temple of Vesta, at Rome, are of the laurel kind; those of the Basilic of Antonine, of the olive; and there are many more instances, needless to be recounted here, both of one and the other division. In the temple of Vesta, at Tivoli, we see the *true Acanthus*. Nothing reflects more upon the taste of architecture, in that time of its eminent glory, so much as this insult upon nature: the preferring, to her great simplicity, the littleness of art.

SINGULAR DEXTERITY OF A GOAT.

We met (says Dr. Clarke) an Arab, with a Goat, which he led about the country to exhibit, in order to gain a livelihood for itself and its

owner. He had taught this animal, while he accompanied its movements with a song, to mount upon little cylindrical blocks of wood, placed successively one above another, and in shape resembling the dice-boxes belonging to a back-gammon table. In this manner the Goat stood, first on the top of one cylinder, then on the top of two, and afterwards of three, four, five, and six, until it remained balanced upon the summit of them all, elevated several feet above the ground, and with its four feet collected upon a single point, without throwing down the disjointed fabric whereon it stood. The diameter of the upper cylinder, on which its four feet alternately remained until the Arab had ended his ditty, was only *two inches*; and the length of each, six inches. The most curious part of the performance occurred afterwards; for the Arab, to convince us of the animal's attention to the turn of the air, interrupted the *Da Capo;* as often as he did this, the Goat tottered, appeared uneasy, and, upon his becoming suddenly silent in the middle of his song, it fell to the ground.

SINGULAR DECEPTIONS CAUSED BY THE ATMOSPHERE.

Mr. Salt thus describes the effects of the atmosphere on the vision, to which he was an eye-witness—"At day-break, we continued our route to Aden. As we approached the peninsula, we were much struck with the appearances which the sun put on as it rose. When it had risen about half way above the horizon, its form somewhat resembled a castellated dome; when three parts above the horizon, its shape appeared like that of a balloon; and at length the lower limb suddenly starting up from the horizon, it assumed the general form of a globe, flattened at either axis. These singular changes may be attributed to the refraction produced by different layers of atmosphere, through which the sun was viewed in its progress. The same cause made our ship in the bay look as if it had been lifted out of the water, and her bare masts appear to be crowded with sail: a low rock also seemed to rise up like a vessel; and a projecting point of land to rest on no other foundation than the air: the space between these objects and the horizon having a grey pellucid

tinge, very distinct from the darker colour of the sea."

Dr. Clarke, speaking of the same phenomenon, says—"One of the Arabs, whom we saw from afar, seemed higher than a tower, and to be moving in the air; at first this was to me a strange appearance, but it was only the effect of refraction. The camel which the Arab was upon, touched the ground like all others." The effects of the atmosphere, however, in causing these appearances, seem to be confined to hot and arid countries, and almost peculiar to the deserts of Africa, particularly those of Arabia and Abyssinia.

THE SIMOOM, OR HOT WIND OF THE DESERT.

The effects of this wind are instant suffocation to every living creature that happens to be within the sphere of its activity, and immediate putrefaction of the carcases of the dead. The Arabians (says Niebuhr) discern its approach by an unusual redness in the air; and they say that they feel a smell of sulphur as it passes. The only means by which any person can preserve

himself from suffering from these noxious blasts, is by throwing himself down with his face upon the earth, till the whirlwind of poisonous exhalations has blown over, which always moves at a certain height in the atmosphere. Instinct even teaches the brutes to incline their heads to the ground on these occasions: camels have always been observed upon the approach of this destructive wind to bury their noses in the sand until it had blown over.

The heat (according to Volney) is sometimes so excessive, that it is difficult to form any idea of its violence without having experienced it; but it approaches nearly to that of a large oven, at the moment of drawing out the bread. Woe! therefore, to the traveller whom this wind surprises remote from shelter! he must then suffer all its dreadful consequences. The danger is when it blows in squalls, for then the rapidity of the wind increases the heat to such a degree as to cause sudden death. This death is a real suffocation. This wind is especially fatal to persons of a plethoric habit. These accidents are to be avoided by stopping the nose and mouth with handkerchiefs. Another

quality of this wind is its extreme aridity, which is such, that water sprinkled on the floor evaporates in a few minutes.

Dr. Clarke, in his second volume, p. 495, mentions this wind; and although he does not present us with a picture so full of horror, yet describes its effects as sufficiently terrifying.—"Upon our arrival in the camp, we found the general in a large green tent, open all round, and affording very little shelter from the heat, as the Simoom was at that time blowing, and far more insufferable than the sun. Its parching influence pervades all places alike; and coming as from a furnace it seemed to threaten us all with suffocation. The author was the first who sustained serious injury from the fiery blast, being attacked with giddiness, accompanied with burning thirst. Head-ache, and frequent fits of shivering ensued; and these ended in violent fever."

THE BEAVER.

The Beaver seems to be now the only remaining monument of brutal society. From the result of its labours, which are still to be seen in

the remote parts of America, we learn how far instinct can be aided by imitation. We from thence perceive to what a degree animals, without language or reason, can concur for their mutual advantage, and attain by numbers those advantages which each, in a state of solitude, seems unfitted to possess.

The beavers begin to assemble about the months of June and July, to form a society that is to continue for the greatest part of the year. They arrive in numbers from every side, and generally form a company of above two hundred. The place of meeting is commonly the place where they fix their abode, and this is always by the side of some lake or river. If it be a lake, in which the waters are always upon a level, they dispense with building a dam; but if it be a running stream, which is subject to floods and falls; they then set about building a dam, or pier that crosses the river, so that it forms a dead water in that part which lies above and below. This dam, or pier, is often four score, or a hundred feet long, and ten or twelve feet thick at the base. If we compare the greatness of the work with the powers of the architects, it will appear enormous; but the solidity with

which it is built is still more astonishing than its size. The part of the river over which this dam is usually built is where it is most shallow, and where some great tree is found growing by the side of the stream. This they pitch upon as proper for forming the principal part of their building; and although it is often thicker than a man's body, they instantly set about cutting it down. For this operation they have no other instrument than their teeth, which soon lay it level; and that also on the side they wish it to fall, which is always across the stream. They then set about cutting off the top branches, to make it lie close and even, and serve as the principal beam of their fabric.*

This dyke or causeway, is sometimes ten and sometimes twelve feet thick at the foundation. It descends in a declivity, or slope, on that side next the water, which gravitates upon the work in proportion to the height, and presses it with a prodigious force towards the earth. The opposite side is erected perpendicular, like our walls; and that declivity, which, at the bottom, or basis, is about twelve feet broad, diminishes towards the top, where it is no more than two

* Spectacle de la Nature.

feet broad, or thereabouts. The materials whereof this mole consists, are wood and clay. The beavers cut with surprising ease, large pieces of wood, some as thick as a man's arm or thigh, and about four, five, or six feet in length, or sometimes more, according as the slope ascends. They drive one end of these stakes into the ground, at a small distance one from the other, intermingling with them a few that are smaller and more pliant. As the water, however, would find a passage through the intervals or spaces between them, and leave the reservoir dry, they have recourse to a clay, which they know where to find, and with which they stop up all the cavities, both within and without, so that the water is duly confined. They continue to raise the dyke in proportion to the elevation of the water, and the plenty which they have of it. They are conscious likewise that the conveyance of their materials by land, would not be so easily accomplished as by water; and, therefore, they take the advantage of its increase, and swim with their mortar on their tails, and their stakes between their teeth, to the places where there is the most occasion for them. If their works are,

either by the force of the water, or by the feet of the huntsmen who run over them, in the least damnified, the breach is instantly made up; every nook and corner of the habitation is reviewed, and with the utmost diligence and application, perfectly repaired. But when they find the huntsmen visit them too often, they work only in the night-time, or else abandon their works entirely, and seek out for some safer situation.

The dyke, or mole, being thus completed, their next care is to erect their several apartments, which are either round or oval, and divided into three stories, one raised above the other; the first below the level of the causeway, which is for the most part full of water; the two others above it.

This little fabric is built in a very firm and substantial manner, on the edge of their reservoir, and always in such divisions or apartments as above mentioned; that in case the water increases, they may move up a story higher, and be nowise incommoded. If they find any little island contiguous to their reservoir, they fix their mansion there, which is then more solid, and not so frequently exposed to

the overflowing of the water, in which they are not able to continue for any length of time. In case they cannot pitch upon so commodious a situation, they drive piles into the earth, in order to fence and fortify their habitation against the wind as well as the water. They make two apertures at the bottom, to the stream; one is a passage to their bagnio, which they always keep neat and clean; the other leads to that part of the building where every thing is conveyed that will either soil or damage their upper apartments. They have a third opening or door-way, much higher, contrived for the prevention of their being shut up and confined when the frost and snow has closed the apertures of the lower floors. Sometimes they build their houses altogether on dry land; but then they sink trenches five or six feet deep, in order to descend into the water when they see convenient. They make use of the same materials, and are equally industrious in the erection of their lodges as their dykes. Their walls are perpendicular, and about two feet thick. As their teeth are more serviceable than saws, they cut off all the wood that projects beyond the wall. After this, when they have mixed up

some clay and dry grass together, they work it into a kind of mortar, with which, by the help of their tails, they plaister all their works both within and without. The inside is vaulted, and is large enough for the reception of eight or ten beavers. In case it rises in an oval figure, it is for the generality above twelve feet long, and eight or ten feet broad. If the number of inhabitants increase to fifteen, twenty, or thirty, the edifice is enlarged in proportion. I have been credibly informed, that four hundred beavers have been discovered to reside in one large mansion-house, divided into a vast number of apartments, that had a free communication one with another.

All these works, more especially in the northern parts, are finished in August, or September at farthest; at which time they begin to lay in their stores. During the summer they are perfect epicures; and regale themselves every day on the choicest fruits and plants the country affords. Their provisions, indeed, in the winter season, principally consist of the wood of the birch, the plane, and some few other trees; which they steep in water, from time to time, in such quantities as are proportioned to the num-

ber of inhabitants. They cut down branches from three to ten feet in length. Those of the largest dimensions are conveyed to their magazines by a whole body of beavers; but the smallest by one only: each of them, however, takes a different way, and has his proper walk assigned him, in order that no one labourer should interrupt another in the prosecution of his work. Their wood-yards are larger or smaller in proportion to the number in family; and according to the observation of some curious naturalists, the usual stock of timber for the accommodation of ten beavers, consists of about thirty feet in a square surface, and ten in depth. These logs are not thrown up in one continual pile, but laid one across the other, with intervals or small spaces between them, in order to take out, with the greater facility, just such a quantity as they shall want for their immediate consumption, and those parcels only which lie at the bottom in the water, and have been duly steeped. This timber is cut again into small particles, and conveyed to one of their largest lodges, where the whole family meet to consume their respective dividends, which are made impartially in even and equal

portions. Sometimes they traverse the woods, and regale their young with a novel and more elegant entertainment.

Such as are used to hunt these animals know perfectly well that green wood is much more acceptable to them than that which is old and dry; for which reason they plant a considerable quantity of it round their lodgements; and as they come out to partake of it, they either catch them in snares, or take them by surprise. In the winter, when the frosts are very severe, they sometimes break a large hole in the ice; and when the beavers resort thither for the benefit of a little fresh air, they either kill them with their hatchets, or cover the opening with a large substantial net. After this they undermine and subvert the whole fabric; whereupon the beavers, in hopes to make their escape in the usual way, fly with the utmost precipitation to the water, and plunging into the aperture, fall directly into the net, and are inevitably taken.

VALUE OF ARABIAN HORSES.

The Arabian horses are divided into two great branches; the Kadischi, whose descent is unknown, and the Kochlani, of whom a written genealogy has been kept for two thousand years. These last are reserved for riding solely. They are highly esteemed, and consequently very dear; they are fit to bear the greatest fatigue, and can pass whole days without food: they are also said to shew great courage against an enemy; it is even asserted, that when a horse of this race finds himself wounded, and unable to bear his rider much longer, he retires from the fray, and conveys him to a place of security. If the rider falls upon the ground, his horse remains beside him, and neighs till assistance is brought. The Kochlani are neither large nor handsome, but amazing swift: the whole race is divided into several families, each of which has its proper name. Some of these have a higher reputation than others, on account of their more ancient and uncontaminated nobility.—*Niebuhr.*

Dr. Clarke, in his Travels, gives also the following account of the attachment and affection of an Arab for his mare; and at the

same time informs us of the great value of fine horses in Arabia.—" Ibrahim went frequently to Rama, to inquire news of the mare, which he dearly loved: he would embrace her, wipe her eyes with his handkerchief; would rub her with his shirt-sleeves; would give her a thousand benedictions, during whole hours that he would remain talking to her. 'My eyes,' would he say to her, 'my soul, my heart, must I be so unfortunate as to have thee sold to so many masters, and not keep thee myself? I am poor, my antelope! Thou knowest it well, my darling! I brought thee up in my dwelling as my child.—I did never beat nor chide thee; I caressed thee in the proudest manner. God preserve thee, my beloved! thou art beautiful, thou art sweet, thou art lovely! God defend thee from envious eyes!' This man's name was Ibrahim; being poor, he had been under the necessity of allowing a merchant of Rama, to become partner with him in the possession of this mare. She was called Toaisa; her pedigree could be traced on the side of sire and dam for 500 years prior to her birth. The price was £300, an enormous sum in that country."

CAMELS.

The Camels of the hot countries are not fastened one to the tail of the other as in cold climates; but are suffered to go at their will like herds of cows. The camel-driver follows singing, and from time to time giving a sudden whistle. The louder he sings and whistles, the faster the camels go, and they stop as soon as he ceases to sing.

The Camel is made only for level countries. The African Arabs say, if one should put the question — "Which is best for your Camel, to go up hill or down?" he will make answer, "God's curse light on 'em both, wheresoever they are to be found."

This animal is very ill qualified to travel upon the snow, or wet ground; the breadth in which they carry their legs, when they slip, often occasions their splitting themselves, so that when they fall with heavy burdens they seldom rise again.

The circumstances attending this animal's death, when his strength fails him upon the road, have something in them affecting to humanity. Such are his patience and perseve-

rance, that he pursues his journey without flagging, as long as he has power to support its weight; and such are his fortitude and spirit, that he will never give out, until nature sinks beneath the complicated ills which press upon him. Then and then only will he resign his body and burden to the ground. Nor stripes nor caresses, nor food, nor rest, will make him rise again. His vigour is exhausted, and life ebbs out apace!—This the Arabs are very sensible of, and kindly plunge a sword into the breast of the dying animal to shorten his pangs. Even the Arab feels remorse when he commits this deed; his hardened heart is moved at the loss of so faithful a servant.

Of the hides of the Camel are made the soles of the slippers which are worn in Egypt, without any other dressing but what the sun can give them.

THE CARRIER-PIGEON.

There is a species of pigeons which are called *carriers*, and which used to be kept for the purpose of conveying letters. These are easily distinguished from all others by their

eyes, which are compassed about with a broad circle of naked white skin, and by being of a dark blue or blackish colour; it is from their attachment to their native place, and particularly where they have brought up their young, that these birds are employed in several countries as the most expeditious carriers. They are first brought from the place where they were bred, and whither it is intended to send them back with information. The letter is tied under the bird's wing, and it is then let loose to return. The little animal no sooner finds itself at liberty, than its passion for its native spot directs all its motions; it is seen, upon these occasions, flying directly into the clouds to an amazing height; and then, with the greatest certainty and exactness, directing itself by some surprising instinct towards home, which lies sometimes at many miles distance, bringing its message to those to whom it is directed. By what marks they discover the place, by what chart they are guided in the right way, is to us utterly unknown; certain it is, that in the space of an hour and a half they perform a journey of forty miles, which is a degree of despatch three times greater than the fleetest quadruped can per-

form. These birds are not brought up at present with as much care as formerly, when they were sent from governors in a besieged city to generals that were coming to relieve it without; when they were sent from princes to their subjects, with the tiding of some fortunate event; or from lovers to their mistresses, with expressions of their passion. The last use we have seen made of them, was to be let fly at Tyburn on days of execution, when the cart was drawn away; pretty much as when some ancient hero was to be interred, an eagle was let off from the funeral pile, to complete his apotheosis.

In the Annual Register for the year 1765, we read of an experiment which was made, by which the velocity of flight in these birds was pretty well ascertained. A gentleman, for a trifling wager, sent a carrier-pigeon from London by the coach to a friend at St. Edmondsbury, and along with it a note, desiring that the pigeon, two days after its arrival there, might be thrown up precisely when the town clock struck nine in the morning, this was accordingly done; and the pigeon arrived in London, and flew into the Bull-Inn, in Bishopsgate-street, at

half an hour past eleven o'clock of the same morning; having flown seventy-two miles in the space of two hours and a half.

Some years ago this animal was made use of for a very extraordinary purpose. During the drawing of the lottery, a gang of sharpers, distributed in various places, devised a scheme for making this bird the instrument of their plunder. One of these was to bring with him a carrier pigeon, and wait in the Guildhall till a large prize was drawn, and with all possible despatch to place the fortunate number under the wing of the pigeon, and let him loose. This intelligence was faithfully conveyed to his associate, in a much more speedy manner than by the usual mode, and he was directed to insure the number to whatever amount he thought proper. It is probable, that from this circumstance might arise the application of the common cant term *pigeon*, to any one who had been overreached and cheated.

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