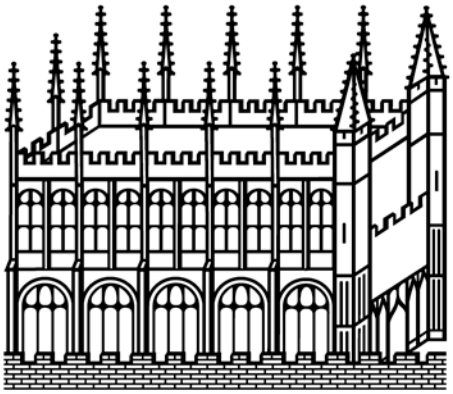

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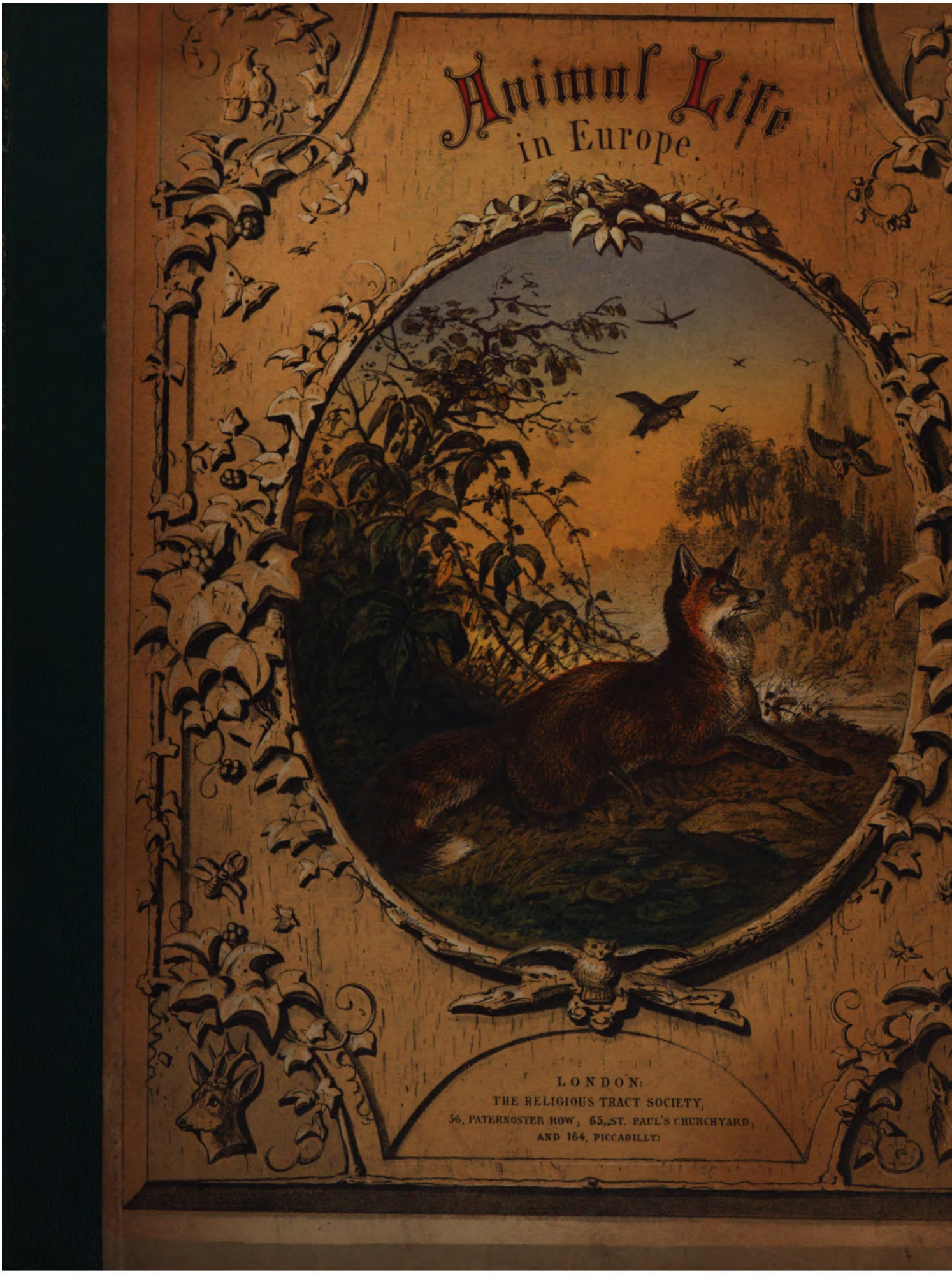
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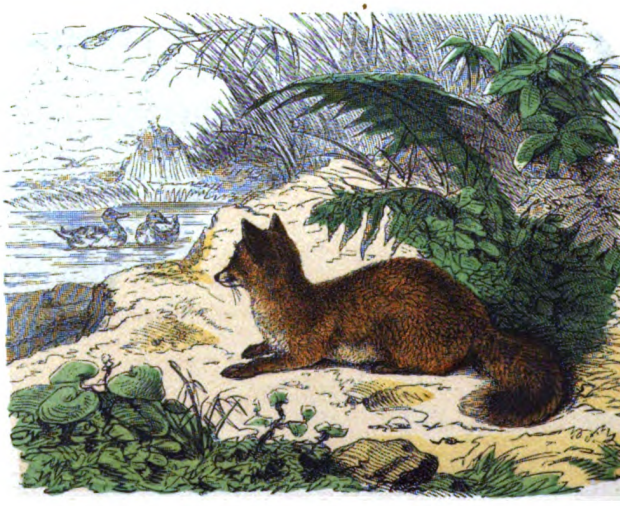
AND 164, PICCADILLY.

Lynx.

Wild Cat.

Bear.

Wolf.



Fox.

ANIMAL LIFE

IN EUROPE.

ILLUSTRATED WITH COLOURED PLATES

BY F. SPECHT.

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PLATE I.

ANIMALS.

The Lynx.

THE first picture in our scrap-book is that of a European Lynx springing after a Rabbit, which seems likely just to save its life by escaping into its burrow.

Learned men describe the Lynx as a carnivorous quadruped of the feline tribe; that is to say, it is a flesh-eating four-footed animal of the Cat tribe.

All animals of this tribe have teeth formed to seize and tear their prey. They cannot move their jaws from side to side, but only up and down, so they snap and chop their food as Puss may be seen to do with a Mouse. The tongue is covered with horny prickles which point inwards towards the throat, so as to keep the food from falling out of the mouth when the jaws are opened, and to tear off the flesh from the bones which the animal cannot swallow.

The feet have sharp hooked claws lodged in a sheath, so that they can be moved out or drawn in at pleasure.

The head of the Lynx is round, and the face short. Most animals of the Cat tribe have long tails and plain ears, but the Lynx is distinguished by a short tail and pencil-tufts on the ears like Camel's hair. Years ago the Lynx was found in most parts of Europe, making its haunts in the pine forests; but where these forests have been cleared away the animal has disappeared, and is now unknown in France and Germany, though still abundant in Russia and Sweden.

Like other feline animals, it is very agile in climbing trees, whence it springs upon any live creature within its reach. Birds, Weasels, Squirrels, Rabbits, or Hares, are equally welcome to it. When attacked by an animal larger than itself, it lies upon its back, striking fiercely with its claws, and is very frequently the conqueror.

It makes a long, dismal, howling noise, which causes it to be called by some the Wolf-Lynx.

Its fur is very soft and thick near the skin. It is interspersed with much longer hairs, which are black or pale grey. The thicker fur is neither red, brown, or grey, but has a tinge of each of these colours. The spots on the body are dark brown, and the tip of the tail is black. Its winter coat makes light warm muffs.

The eyesight of the Lynx is so quick and sharp that very quick-sighted people are said to be Lynx-eyed. The animal has to hunt its prey in dark gloomy forests, so the Creator kindly and wisely fitted it for the place it had to live in. In the same way the Mole, which lives under ground in darkness, has tiny eyes and very quick hearing. God gives all creatures just what they need and can use.

Here is a little fable about these two animals. As a Lynx sat at the foot of a tree, sharpening his teeth and waiting for his prey, he saw a Mole creep from under the earth which he had raised. "Poor creature," said the Lynx, "what a sad lot is yours, to be deprived of the light. You do well to bury yourself, for you are more than half dead: what a difference in your sight and mine!" "True," said the Mole, "yet I am very well content with my

lot. Though my sight is not so sharp as yours, I can hear very quickly. And hark! I hear a sound that warns me of danger." So saying, the Mole plunged into the earth, and was out of sight in a moment, whilst the proud and boastful Lynx was pierced by the spear of the hunter: for he had not the ears of the Mole, and had just then forgotten to use the sight he was boasting of.

The Wild Cat.

The animal in our second picture is another of the feline tribe, as indeed its name shows: *felis* being the Latin name for Cat, and the origin of the term *Felidæ* for the whole tribe. Like the Lynx, it is a carnivorous or flesh-eating animal, and has the same kind of teeth and claws. It also lives in the woods as a beast of prey, eating Rabbits, and Birds, and Snakes, and making its home in hollow banks or old trees.

A true Wild Cat is very fierce, and would be a formidable enemy even to a man, attacking his face and throat with its strong sharp claws. They are now but rarely met with in any of our English woods. Many years ago they used to be more numerous. Old natural histories describe them as being three or four times larger than the Domestic Cat, but the few that are found at the present day do not measure more than three feet, including the tail, which, however, is shorter and less pointed than that of the Domestic Cat. The Wild Cat is still to be met with in the less cultivated parts of Scotland and Ireland, where it is called the Hunting Cat. It is also sometimes called the British Tiger; partly because it is very fierce, and partly because it is striped like a Tiger, the stripes being black, on a ground of sandy grey.

Did the first of our Domestic Cats come from the wild ones in the woods? Probably not. There is reason to believe that our pretty Pussies are descendants of the Egyptian Cat, to which in size and shape they bear a much greater resemblance than to the wild ones of our forests. It is said that they were introduced into England about the tenth century.

All animals of the Cat tribe have feelers or whiskers, in each hair of which the sense of touch is very quick and delicate. If ever we are walking about the house, or in a wood, when it is almost dark, we naturally put out a hand to feel if we are coming near to anything that might hurt us. These whiskers serve exactly the same purpose to the Cat, and assist it to avoid danger when prowling about in the dark. Their powers of hearing and smelling are also very acute. Here again we may see the wisdom and goodness of God in providing for the wants of his creatures according to the state of life for which they are intended.

The Brown Bear.

There are several species of Bears, and they, with a few similar animals, are classed under the term *Ursidæ*, from *Ursus*, the Latin word for Bear.

The family group in our third picture is of the Brown Bear. One old Bear seems to be planning to get the Lamb, which the mother Bear has just brought home to her cubs; but she has raised her powerful paw in readiness for the intruder's head, and will teach him better manners, and send him to seek his prey elsewhere.

The picture shows that the Bears are carnivorous, or flesh-eaters; but they may be called omnivorous, or eaters of all things, for there is hardly any sort of food that comes amiss to them, and their teeth are different from those of animals that are entirely flesh-eaters. They are very fond of honey, and will gnaw and scratch through trees where the wild Bee has laid up her store. They will rout up the Ants' nests, and eat both the insects and their eggs. They are very fond of roots, fruits, and vegetables. It is said that they will go into the harvest fields when the ripe corn is cut, and taking one of the sheaves between their forepaws, will sit on their haunches munching up the grain.

Still the Bear lives chiefly on other animals, and in pursuit of its prey will swim with ease through broad and rapid streams, and climb the highest trees and rocks. Its paw, which is its strong and ready weapon, is armed with long sharp claws, which fit it for climbing and digging. Its strength is very great, and it is said that a Bear has been seen to carry a dead Horse in his forepaws while walking over a narrow bridge on its hind legs. It would go hard with a man or beast who might chance to meet an angry or a hungry Bear. He rises on his hind legs, and having stunned his enemy by one blow on the head with his paw, he seizes him between his thick and powerful arms, and holds him until the breath is squeezed from his body. A Bear robbed of her whelps is spoken of in Scripture to show what is angry and terrible, and it

is most likely that the two she-Bears sent by God to punish those wicked youths who had mocked his prophet Elisha had been deprived of their young. David, you remember, once attacked a Bear who had taken a Lamb out of his flock, and the Lord gave him strength to deliver the Lamb and to kill the powerful beast of prey.

When not hungry or provoked, the Bear is said to be very inoffensive. This, however, is better to believe than to have to try, and we may feel thankful that those who have lived before us have cleared the land of such unwelcome occupants, for they were formerly very plentiful here. They are now found among the Alps and Pyrenees, and through the North of Europe. They make their homes in caverns or in forests, scratching out hollows under the roots or great stones, and sometimes finding places of sufficient size in old hollow trees. Dried leaves and moss, and smaller branches of pine, are carried there to make all warm and comfortable, and there they shut themselves in, dozing away the winter months.

The height of the Brown Bear is about three feet, its length four. The tail is very short. The ears are short and rounded. Its hair is long, thick, and shaggy. The young, like the one in our picture, often have a circle of white round the neck, which usually becomes coloured like the rest of the fur by the second or third year. Occasionally it remains white, and gives the name of Ring-Bear.

When caught young, a Brown Bear can be easily tamed, and taught many amusing tricks. It becomes attached to its keeper. They live to a great age, some having been kept in confinement for forty or fifty years. They continue growing in weight for twenty years, and have been known to reach seven hundred pounds, but the more usual weight is from four to five hundred pounds.

Wolves.

Those who have heard the story of Little Red Ridinghood may like to know something about the habits of Wolves. Perhaps the most pleasant thing we can say about these animals is that there are none to be found in our dear old England. More than a thousand years ago, in the time of the Ancient Britons and Saxons, they were very common in our mountains and forests.

Wolves are not very large animals. They are about the size of a Fox-hound. Their height at the shoulder is not much more than two feet, but their body is long and narrow. They have a covering of coarse wiry hair, of a reddish-grey colour. Their cry is a long dismal howl.

Wolves are classed with the canine or Dog tribe; but it is said that Dogs and Wolves, though much alike in appearance, show a great hatred of each other. Wolves are very strong, fierce, and cunning; they are quarrelsome among themselves, yet band together in packs when they hunt for food, and then they are terrible indeed. They can smell their prey a great way off, and will track it for miles—

> "With their long gallop, which can tire
> The hounds' deep hate and hunters' fire."

A pack of Wolves will seize and kill even Buffaloes and other animals much larger than themselves, and they will tire out and catch Deer and wild Horses. Unless desperate with hunger, they are fearful of men. When they can get into a flock of Sheep and Lambs, they will eat all they can, and then go on killing as if for mere cruelty.

Our Lord Jesus Christ speaks of himself as a good Shepherd who, when the cruel Wolf is killing the Sheep, comes forward and loses his own life in defence of the flock. How lovingly we ought to serve and follow that dear Friend who died that He might deliver us from death and save us from perishing.

If any of their pack gets wounded or weak, the others fall upon them, kill, and eat them.

At one time these fearful creatures were the terror of our land; they now abound in the more mountainous parts of Europe.

Fierce as Wolves naturally are, there have yet been instances of very young ones being tamed and showing great attachment to their masters. The owner of a tame Wolf had been three years away, and returned one evening when the Wolf was shut in his den, so that he could not see any one; but, as soon as he heard his master's voice, he set up the most piteous cries. When the door of his den was opened, he rushed towards his old friend, leaping on his shoulders and showing every sign of joy.

The Fox.

The Fox is another animal of the canine or dog-like tribe. It is smaller than the Wolf, and is of a reddish-brown colour. It has a long bushy tail, called from its shape "the brush," which is

tipped with white. It is very shrewd and cunning, so that we sometimes say, "as sly as a Fox." It is common in most parts of Europe and Asia, and in our own country.

It lives in holes and winding burrows, which it makes by the aid of its strong paws. If the Fox finds a Rabbit's burrow or a Badger's hole, he will turn out the first owner and enlarge it so as to suit his own purpose.

There is so strong and peculiar an odour with the Fox, that persons who have once smelt it can tell if they are walking near where a Fox has recently been. It is by this scent that the hounds track him. Sometimes he will cross a stream so that the Dogs may lose the scent. When hard pressed by the hunters the Fox will climb up a tree and hide himself amongst the branches.

In walking near a wood in summer evenings you may sometimes see an old Fox with her three or four little cubs following her: she is very careful of them, and having brought them up in a nursery at the far end of the hole, nicely carpeted with moss and some of her own warm fur, she is now taking them to see the world, and learn to get their own living.

The voice of the Fox is a sort of yelp or bark. They do not go in packs to seek food, as Wolves do, but are solitary in their habits, and are seldom seen abroad in full daylight. It is in the dusk that Reynard prowls from his hole, listening and smelling as he goes; and finding his way to the farmyard, he carries off all sorts of poultry, and will not object to little Pigs and Lambs. In the wood he feeds upon Rabbits, Hares, and Partridges, as well as Weasels, Mice, Frogs, and insects.

Besides all these good things, Foxes are fond of ripe fruits, especially grapes. We all know the fable of the Fox that kept jumping up at some grapes that were beyond his reach, and then when he found he could not get them, went away saying that "they were not worth having, for they were sour." In countries where grapes and Foxes both are more abundant than they are with us, their fondness for this fruit is well known. It is referred to in the Bible by Solomon, who says, "Take us the Foxes, the little Foxes that spoil the vines, for our vines have tender grapes."

There is another text of Scripture of which the Fox reminds us. "Foxes have holes, and the birds of the air have nests, but the Son of Man hath not where to lay his head." Should not this fill our hearts with love and gratitude for the grace of Him who, though he was rich, yet for our sakes became poor, that we, through his poverty, might be made rich? For though the Fox mentioned in the text may not be quite like our Foxes, the lesson is the same.

Mr. St. John relates the following singular story of the craftiness of a Fox: Soon after it was daylight I observed a large Fox come very quietly along the edge of the plantation; he looked with great care over the turf wall into the field, and seemed to long very much to get hold of some of the Hares that were feeding in it, but apparently knew that there was no chance of catching one by dint of running. After considering a short time, he examined the different gaps in the wall, fixed upon one which appeared to be most frequented, and laid himself down close to it in an attitude like that of a Cat at a mouse-hole. In the meantime I watched all his plans: with great care he scraped a hollow in the ground, throwing up the sand as a kind of screen; every now and then, however, he stopped to listen, and sometimes to take a most cautious peep into the field. When he had done this, he laid himself down in a convenient posture for springing upon his prey, only occasionally reconnoitring the feeding Hares. Several Hares passed very near his place of ambush, still he took no apparent notice of them. Two at length came directly towards him, and, though he did not venture to look up, I saw, by an involuntary motion of his ears, that those quick organs had already warned him of their approach. Two Hares came through the gap together, and the Fox, springing with the rapidity of lightning, caught one and killed her immediately.

On another occasion one moonlight night, a Hare was crouched down in a furrow of a ploughed field; the Fox spied her out, and creeping along the adjoining furrow, slowly and noiselessly drew nearer and nearer to the Hare. Reynard only now and then ventured to peep over the ridge of the furrow, lest the Hare should notice him; when sufficiently near, the poacher made a sudden rush, and seized the Hare before she was at all aware of an enemy's presence.

I once, says Mr. Lord, whilst fishing in a small trout river in Devonshire, observed a Fox come down to the stream near to where I was standing; the animal was panting and breathing heavily, and otherwise exhibiting evidence of great distress. After lapping the water thirstily and greedily, it crept beneath the bushes, and scrambled along under the bank for quite a hundred yards, or

perhaps more, until it reached a stick which crossed the stream from bank to bank. The stick was so small that I never for a moment imagined an animal so large as a Fox would attempt to cross the river upon it; but to my astonishment, slowly and cautiously the frightened animal made its way along this dangerous bridge, and landed safely on the opposite side. Not a moment too soon for its own safety, for the hounds were rapidly hunting along upon its track. On they came, but failed to make out the scent farther than where the Fox had left the field to go under the bank. The huntsman never imagined the Fox had crossed the river, for the hounds swam over at the spot where the Fox had lapped the water, but as there was no scent on the opposite bank they swam back again. After making a wide cast, the huntsman called off the hounds and went away. I did not tell him what I had seen, because I thought the poor Fox fairly deserved my protection. Now it would have been far easier for the Fox to have swum straight across the stream, and a greater saving of time, than taking a difficult course under the river bank and making a hazardous crossing upon a small pole. I thought at the time, and I am still of the same opinion, that its instinctive natural cunning prompted it to adopt the expedient I witnessed, as being the most likely means to throw the hounds off the scent, and so increase the chances of escape.

Many instances are recorded where Foxes have feigned death, and, like the Opossum, have suffered themselves to be dragged about, without showing any sign of life until the danger had ceased, when they scampered away safely.

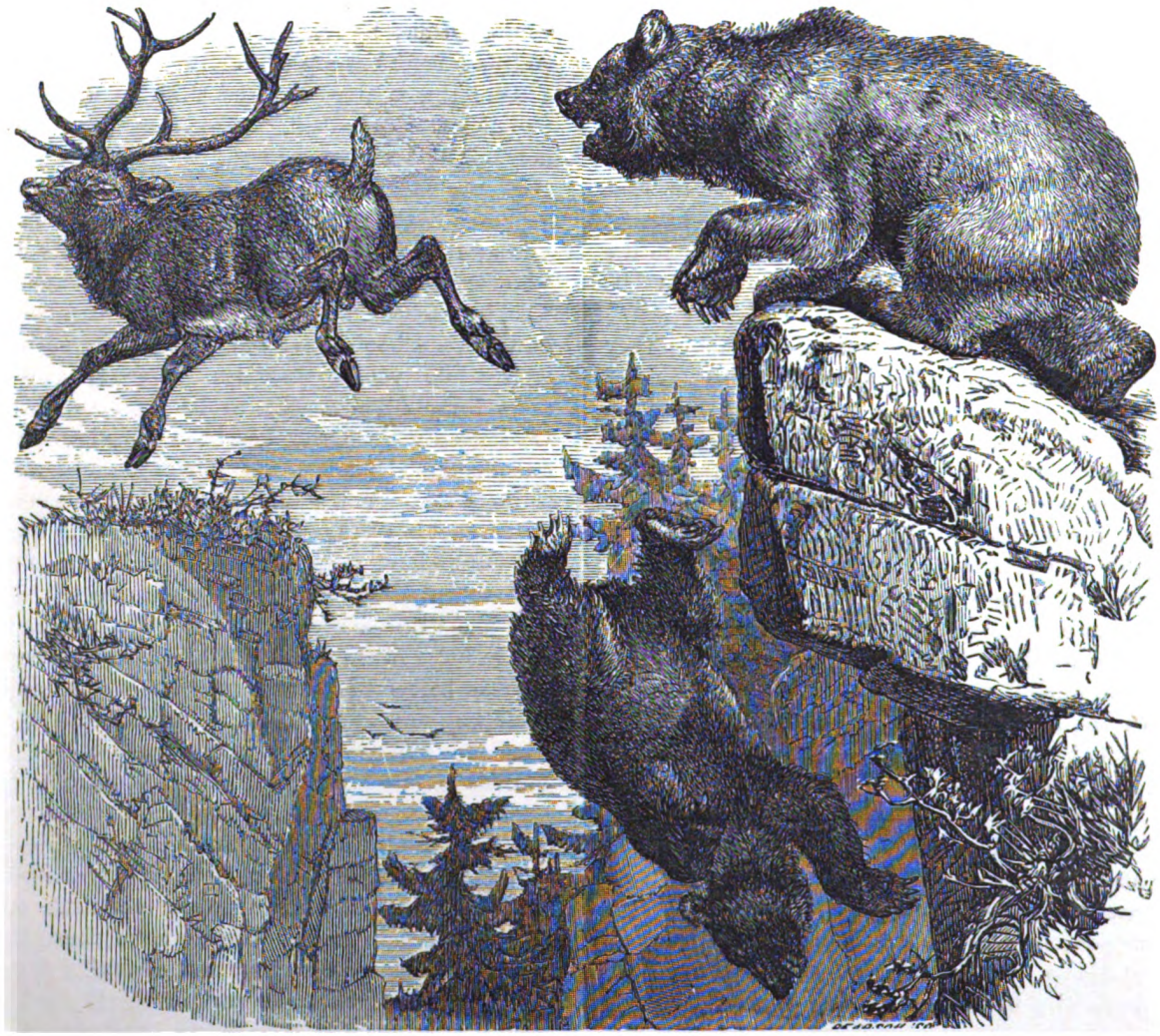


PLATE II.

ANIMALS.

The Common or Fish Otter.

In the second page of pictures we begin with the middle one—the Otters. In India, Otters are called by a name that means Water Cat, and if you look at only the heads of the two Otters in the picture, you might suppose them to be two Cats.

Otters are water-loving animals. Though they do not altogether live in the water, their pantry and larder are there. They are wonderfully expert in catching fish, which form their chief food. They eat so many, that if they were allowed to multiply greatly in any spot, they would soon clear the stream of fish. Many years ago they abounded in our rivers and streams, and Otter-hunting was very common. They are now much more rare. But in some parts of England and Scotland they are to be found, and packs of Dogs, called Otter-Hounds, are trained to hunt them.

In India, Otters are kept by the native fishermen to help in catching fish. They become very tame, and will follow their masters as Dogs do. They will go into the water and bring out the larger fish in their mouths, and lay them down at their masters' feet, and then go in for more. At other times they will drive shoals of fish into the nets, as you may have seen a shepherd's Dog drive a flock of Sheep. Of course, the master does not teach them to do this by a mere whisper in an old Otter's ear. He has to be the very patient teacher of a young Otter; he feeds it chiefly on bread and milk, and puts before it a piece of leather in the shape of a fish: this it plays with as a kitten might with a reel of cotton, or a ball. After some days the Otter is taken by its master to the water, and is sent in after the piece of leather, which is tied to a long string; this the Otter brings to shore, as it would do a fish; it is then made to give it up to its master, who caresses and feeds it, and sends it in again. It would take too much time to give all the history of an Otter's school-days; but you should notice that it is while young that the Otter or any other animal must be taught to be docile and useful. Occasionally the Otter has been tamed in England and Scotland as a pet, and it will become attached to its owner. You would be surprised to see a little Otter sucking amongst a litter of young puppies, but Otters have been so reared, and can be tamed and trained as easily as its foster-brothers.

The home or nest of the Otter is not in the water, but in holes in the banks. The old Otters begin to burrow below the surface of the water, and dig their way upwards, so that the highest parts, where they live and rear their little ones, are dry. They burrow on until they make a small opening in the earth so as to admit air. This hole is always where it will be hidden by the growth of waterside plants and bushes. The nest is made of dry rushes and small twigs. There are three or four little ones in the nest in the month of May, and of these the old Otters are exceedingly fond and careful. A gentleman rowing on the upper part of the River Thames saw a very young Otter lying on the bank. He

Weasel.

Bat.

Hedgehog.

Mole.

Otter.

Shrewmouse.

Marten.

Badger.

caught it, and put it into the boat, thinking to take it home and tame it. But he had not rowed very far when he heard a whining, barking noise, and soon saw the old Otter attempting to spring into the boat. He and his companion tried to keep it off with the oars and boat-hook, but it could swim as fast as they could row. It would not be driven away, but was so savage and persevering, snapping the boat with its teeth and lashing it with its tail, that the little one was put into the water, when they both swam off to their burrow.

Otters seek their food by night, and catch fish by seizing them a little below the head, just as you see one in the picture is holding the fish. Sometimes, in very severe frosts, Otters are driven to seek their food on land, and then, like Weasels and Stoats, they go into farmyards and carry off small animals, or follow Rabbits into their burrows.

The length of the body and head of an Otter is a little more than two feet, and the tail one foot four inches more. The tail, which is thick and strong, is very useful; it serves as a rudder by which to steer in the water. The body is slender in proportion to its length. It is so flexible, and the legs are so little seen in walking, that the animals are sometimes called "worm-shaped," and indeed they can worm themselves in and out of their holes in a wonderful manner. In one respect their feet are like those of a Duck, for they are web-footed. Of course this helps them in swimming.

The colour of the Otter is a rich brown, like an old horse-chestnut, with an intermixture of whitish grey, and two small spots on each side of the nose and one beneath the chin. The fur is of two sorts: underneath is a close short wool adapted for keeping off the water, and over that are long coarse glossy Hairs.

Weasels.

There is a large family of small animals in various parts of the world, classed under the general term *Mustelidæ*, from the Latin word *Mustela*, which means Weasel. Those which we have in Great Britain are the Polecat, the Stoat, or Ermine-Weasel, the Beech Marten, the Pine Marten, the Ferret, and Common Weasel. The Ferret, a native of Africa, does not live wild with us, but is very often kept in country places to assist in catching Rabbits or Rats. The Common Weasel is the smallest of all these, and the Polecat perhaps the fiercest. We will notice the two in our picture: they are the Stoat, or Ermine-Weasel, in the top corner, and the Beech Marten at the bottom.

The Stoat, or Ermine-Weasel, is about nine inches long, besides the tail, which is between four and five inches. Like all its family connections, it has great courage and ferocity, it will attack and conquer animals much larger than itself; but its conquest is not a test of strength, for the Weasel creeps along in a quiet stealthy manner, and springs upon its prey when as little expected as wished for. Fixing its teeth in the large vein of the neck, it sucks the blood of its victim. In this way it will seize young and even old Hares, Rabbits, Poultry, Rats, Snakes, and Frogs.

The movements of the Weasel family are very quick and graceful: they will climb trees and run up the sides of walls with surprising ease. They make their nests of dry leaves, moss, or grass, in the hole of an old tree, or in an overgrown bank. There, two or three times a year, they bring up little ones, which they defend most fiercely, and carry to them game and poultry enough to stock many a Christmas larder.

The Stoat in summer is of a reddish brown on the back and head, with an almost white throat and belly, the tip of its tail is black and its toes white. The under fur is short, warm, and thick, with long shiny hairs covering it. This is the little animal that yields the costly white fur with black tail tips dotted about it called Ermine, for in winter even in this country it is found to lose its colour and become nearly white, the tip of its tail always remaining black. But Ermine-Weasels are not numerous in this country, and those skins which are used for fur are sent here from Russia, Norway, and Siberia. The sable fur is also from an animal of this family which lives in Siberia.

The Beech Marten is larger than its cousin Stoat. It measures as much as eighteen inches in length, without the tail, which is nine more. Its fur also is of two sorts, the inner very soft and short, and of a light, yellowish grey colour; the outer very long, pale at the roots, and shining brown at the tips. It is found in England, but is more common in the northern and temperate countries of Europe and in Western Asia.

You will see that the Marten has climbed a tree to a bird's nest. Without heeding the cries of the birds, it will eat all their eggs, and themselves too, if it can seize them. All the Weasel family are fond of eggs.

The Hedgehog.

This curious little animal is about twelve inches long, including the tail, which is nearly an inch. The appearance of its mouth and head is very like that of a Pig, only that its snout is more pointed and its eye rounder. Its feet have five toes and strong claws, used in digging. Various sorts of Hedgehogs are known in different parts of the world, but the one represented in our picture is common in every part of England. It lives, as its name implies, among the hedges and in the outskirts of woods, at the roots of which it cleverly makes a nest for its young of moss and dry leaves. The under part of its body is covered with a few bristles and long hair which almost hide its feet when walking; the upper part is very different, being covered with hard shiny quills or spines about an inch in length. These it raises up on end when it is angry or frightened; when not so raised they point towards the tail. It can also roll itself into a ball by placing its head on its breast, drawing up its legs, and curling its body firmly round. In this state it appears a ball of spines, and it is not easy to tell one part from the other. So firmly will it keep itself thus closed that it may be thrown or rolled a long way without opening and without being inconvenienced. The easiest way to make it open is to put it in water, as it will then want its limbs for swimming, which it can do with ease.

The Hedgehog has an appetite for all kinds of food, and shows great strength and skill in taking its prey. It will eat Snakes and Frogs, young Rabbits, Hares, and Partridges, as well as the smaller insects and animals found in the hedgerows. It will go into the poultry-yard and eat not only the eggs, but the chickens too, and if it can get at the milk will drink that also.

Its colour is grey-brown. Each spine is marked at the root with a white ring, then a length of brown, and the tip is yellowish white. It sleeps through the winter in hollow trees, or in snug little holes among loose stones or roots.

The Badger.

The Badger is a foot or less in height, and about two feet in length without the tail, which is six inches long, and very thick. It has a stout body, with thick short legs, and long strong claws.

Badgers are found in most parts of Europe and Asia, and in many parts of North America. Formerly they were abundant in England. They are still occasionally to be met with in woods and copses, where they make long burrows, with only one entrance, but many chambers, the farthest of which is the nursery, where four or five little Badgers are reared in a warm place, well covered with dried grass and leaves.

Badgers feed mostly by night, eating roots, fruit, grass, insects; they are accused also of feasting on young Rabbits, and the eggs and young of Partridges and Pheasants. Like the Bear, they are fond of honey. They find the nests of the Ground Bee, and devour both the honeycomb and the young insects. Their fur is so thick and close, and their skin is so hard, that no sting can go through them. So the Badger can eat up the nests and honey without fearing the stings of the Bees.

The colour of the Badger is a pale brown on the upper part of its body, and very dark brown on the lower parts, including feet and tail, but each of its hairs, or rather bristles, is not of the same shade of colour through the whole length: there is half an inch of very pale, and then half an inch of dark brown, succeeded again by a length of intermediate shade. The skin of the Badger makes a very strong leather, and the hair is valued for painters' brushes. The skin, with the hair, is sometimes used for ladies' muffs, and for the hanging pouches worn by Highland soldiers when dressed in their kilts.

The American Badger is of a mottled or hoary grey colour above, whitish on the under surface. This species inhabits the sandy prairies which skirt the Rocky Mountains, and it abounds in the plains of the Missouri. It is more carnivorous than the European species, and will eat young Marmots and Field Mice. Indeed, the Badger frequently ousts the Marmot from its burrow, which it enlarges for its own use, at the same time most ungenerously devouring the former occupant.

Years ago a cruel sport was common in England called Badger-baiting. The poor harmless animals were attacked by Dogs, who were trained to draw them out of holes and worry them to death. Such cruelty must be hateful to the good and merciful God, who made all his creatures to be happy, and who requires us to be kind to everything which he has made. May we learn

> "Never to find our pleasure or our pride
> In suffering of the meanest thing that lives!"

Badgers' skins are spoken of in the Bible as

being used in the hangings of the Temple, but naturalists doubt whether the animal referred to is the one we know by that name.

The Bat.

Bats are called *Cheiroptera*, or Wing-handed animals. In the Book of Deuteronomy they are spoken of as creeping things that fly. They cannot be classed with any other creatures, either beasts or birds, for they are too much like Mice to be birds, and too much like birds to be Mice. If you look at the one in the picture, as it appears to be flying towards you, you will see that its body is much like that of a Mouse in size, form, and colour. Its wings are not unlike those of a bird with all the feathers taken off. They are, however, formed of very fine thin skin, so that you can almost see through them. When not in use they can be gathered up into a very small space, and quickly stretched out again, by the bones which you may see look something like the ribs of an umbrella. On the feet are five toes with sharp claws, which they can use as hooks to hang themselves up by. They generally do this with the head hanging downwards. This is rather a funny way of going to bed, is it not? but it is their way. Sometimes they use only one of their wings, and hang sideways. In these varied positions they seem to rest at ease. Though they are creeping things, they are seldom on the ground, and never rest there. A great number of Bats are found often living together in such places as suit their tastes, which are usually dark, damp, ruined buildings, caves, or old hollow trees. They sleep all the winter, and during the long hot days in summer, flying abroad in the evenings, and keeping more or less on the wing until the approach of morning. They live on moths and night insects. In their flight they are more like large moths than birds; and, like some of the moths, Bats will often fly in at an open window, and hang to the curtains or furniture of the room. Their cry is a shrill squeak. If laid hold of, they give a sharp bite, but their teeth are so small that they cannot hurt much.

The Common Bat is shown in our picture; its body is the size of a small Mouse, and the wings eight or nine inches from tip to tip. Besides this there are other and rather larger sorts in England. Over the world there are a great many different sorts and sizes—some measured by feet instead of inches. One kind is called the Vampire Bat, of which many tales are told. It is said that these Bats "seek out every kind of animal and suck their blood;" and that they often attack men and women (and children too, no doubt) when sleeping. They generally fasten on the feet; and their bite is so slight that those bitten scarcely feel it, and know nothing of it till the mischief has been done.

A person who was thus bitten tells us that these Bats, knowing by instinct that the person they intend to attack is in a sound slumber, generally alight near the feet, where, while the creature continues fanning with its enormous wings, which keeps one cool, bites a piece out of the tip of the great toe, so very small that the head of a pin could scarcely go into the wound. But they suck so much blood as to be themselves almost unable to fly away when they have finished their meal, while they leave their victim in a state of great weakness. Let us be thankful that we have no such visitors in our bedchambers.

There is a pretty little poem written by some cheerfully disposed person, to our Common Bat:—

"Little Bat, whose airy flight
Fills the evening with delight,
Flirt, and flirt, and frisk along,
Subject of my buoyant song.
When in dappled twilight grey
Through the sombre grove I stray,
While the songster's tuneful throat
Warbles forth its varied note,
'Thwart my dusky footsteps fly,
Adding dance to minstrelsy.
Now along the glittering stream,
Now beneath the moon's pale beam,
Now amid the vista's shade,
Thou thy giddy circles lead.
Joyous elf! thy fairy play
Glads the gloom of parting day."

There are many instances of Bats being tamed and made pets of.

The Shrew Mouse.

You may perhaps, when walking in the garden in autumn, have seen a little creature lying dead in your path, which looked something like a Mouse. This would have been a Shrew, or Shrew Mouse. But why should it be lying dead there? Because Pussy, whenever she can catch one, will kill but not eat it. We suppose she does not like the musky, unpleasant smell that the Shrew has; but this smell does not prevent Owls, Hawks, or Weasels

from eating it, or the Burying Beetle from using it for its purposes. Another cause for finding dead Shrews may be that they are such quarrelsome little creatures that they often fight amongst themselves until one or other is killed. You may know a Shrew by its long nose or snout. Its fur, of a reddy-brown colour, is shorter and more velvety than that of the Common Mouse, and its eyes are so small that they are nearly hidden by the fur. The length of its body and head is little more than two inches, and its tail more than an inch.

This little creature burrows a hole for itself with its long sharp claws, often choosing a sloping bank. Here it makes a nest for itself; in spring it nurses a family of little Shrews. Here, too, it passes the winter, not often venturing out; but it does not sleep away the winter months, as the Dormouse does. It feeds on insects, and the one in our picture seems to have just picked up a fine Cockchafer. It also eats grain and the roots of hedgerow plants.

The Mole.

But what is this poor little animal caught in a snare? It is not a large Shrew, although it does not look very unlike one. It is a Mole. You see three mounds of earth in the picture near the Mole. These mounds have been made by it or its companions in the course of their burrowing expeditions. For it is underground that this little miner has its nursery, its living place, and its castle, with various long passages to each, which some call its hunting grounds, for in these passages it finds worms for its food. But the mole is a large eater, and is not satisfied with worms only; it comes above ground in the evening, and will eat Frogs and Mice, and any dead thing that may lie about. But why is it caught in the snare? The mounds that it makes are injurious to the farmers, by wasting the seed that may be sown there, or by making the ground so rough that the scythe cannot be used over it, that they are glad to have them destroyed, and often give their men twopence for each Mole they catch. But it does good as well as harm. It clears the ground of worms and grubs of all kinds, and by its long burrows it helps to drain the soil, and brings fresh earth to the surface. Many farmers, instead of killing Moles, are glad to have them working about in the fields, and think them very useful.

This little miner, however much it travels about, either in or over the earth, has its coat always as clean as new velvet. Its long pointed skull has a strong bone in it which gives it strength in pushing its way through the soil. Its flesh-coloured paws are very strong and sharp, and particularly well formed for digging. Its front paws are called its hands; these it uses for digging up the earth; and with its hind paws or feet, which are much narrower than its hands, it throws the earth out of the hollow it is making. Moles have been called blind, and some persons have thought them to be without eyes; but any one who has handled a mole may know that it has little black eyes, which, if not very powerful for sight, enable it to see as much as it needs to see. Living in the darkness underground, quick and powerful eyesight would be of no use to it. But God, who cares for the Sparrow, and watches kindly over the meanest thing he has made, has given to the Mole such a wonderful power of hearing, smell, and touch, that it can escape from its enemies or follow its prey in the darkness just as well as if it had good eyes and lived in the sunlight.

Hamster.

Rabbits.

Squirrels.

House and Field Mice.

Hares.

Rats.

Marmot.

Beaver.

PLATE III.

ANIMALS.

The Hamster.

If you have kept Guinea Pigs, you might, perhaps, suppose the two little animals that seem to be enjoying themselves in the first picture of this page to be some of your own pets. But look at the tail, and then you will know at once that they certainly are not. For though Hamsters, as these little creatures are called, have not very long tails, Guinea Pigs have no tail at all. Hamsters are somewhat larger than Guinea Pigs, and are nearly a foot long, besides the tail, which is about three inches. Guinea Pigs, Hamsters, and all the other animals on this page, are classed under the general name of *Rodents*, or gnawing animals. They all have teeth suited to scrape, peel, or gnaw the things they feed upon, just as a Guinea Pig gnaws the bark from a stick, when it can get hold of one, or a tame Rabbit nibbles the woodwork of its hutch, or a Hare or Wild Rabbit gnaws the bark off the nice young trees in the orchard or garden. Rodents have only two sorts of teeth, the *incisors*, which are the long front teeth, and the *molars*, which are more numerous and farther back in the jaws, leaving a space between without any teeth.

Hamsters do not live in England. They are natives of Germany, Poland, and Russia. They dwell in burrows, which they make sloping downwards to the depth of three or even four feet. Here they are not content with one general room, but have several. They make a living room, a nursery, and perhaps a drawing-room, besides very large granaries, which they do not neglect to fill well; and before the winter sets in, they have stored up so much food that men search for their burrows and often find bushels of various sorts of corn in them. It is said that from sixty to a hundred pounds of peas, beans, or other corn, is often found in the storehouse of a single Hamster. But it would take this little animal a very great many journeys and a very long time to carry the large quantities it stores up, if it only took a few grains in its mouth at a time. As it would be running on all fours, it could not carry any in its paws. How, then, is it managed? The Hamster has his pockets where you would hardly guess. He has two pouches, one on the inside of each cheek, so large that they almost meet at the back of the neck. In collecting food, the Hamster uses his paws to press the grain backward to the bottom of these pouches, so as to pack them tight and quite full. When the pouches are well filled, the Hamster trots off to his burrow, and again uses his paws in unloading.

They have young ones several times every year, and there are from seven to twelve little Hamsters in each litter. If these were left alone they would increase so fast that they would strip the fields of grain. So the Hamster hunters catch and kill great numbers of them. The hunters not only get back the grain the Hamsters have stolen, but they sell their skins, the fur of which is very soft and warm. Hamster skins are much valued in China, where great quantities are sent. The flesh

also is said to be very good to eat. The Hamster is generally a reddish-grey on the head, neck, and back; the under parts are black, with white throat and feet, and a white spot on each side, cheek, and shoulder.

Like the Guinea Pig, it often gives a low grunting note when it is satisfied, but when it is angry, a sharp shrill cry. The Hamster's busy time is during the night; all day it lies rolled up in its burrow. In summer it feeds upon many sorts of green leaves, and also on Mice, Birds, and small creatures, and will attack and devour even Rats. It is said to be very ferocious and quarrelsome, fighting often with its own species until one or other dies.

When its burrow is not disturbed, it eats in the early winter from its stores until it gets very fat, and then curls itself up to sleep until the spring.

House Mouse and Field Mouse.

The bright, busy little creature, that loves cheese so well as often to go into a trap to get at it, is well known in England. You have most likely seen one. Perhaps you have heard cook scream at the sight, while somebody else called it a sweet little darling. Now, cook need not scream, for a Mouse would never hurt her; but as to making a pet of one, why Mice, although they really are pretty little creatures, are far too mischievous to be petted. What havoc they will make in a pantry! Bread, cheese, puddings, tarts, and meat are all welcome to them, and if they can get at the milk, they will have a great treat. Sugar, soap, or candles are not safe from their sharp little teeth. And besides what they eat at the time, they will carry off and store up as much in proportion as the Hamster does. Once, more than a half-pint of shrimps had disappeared in the night. Puss would have been suspected of being the thief, had she not started a Mouse from a nest which was comfortably made in the folds of an old umbrella. The umbrella was taken from the shelf, and opened, when out fell shrimps, nest, and some little Mice, blind and without any fur; for their fur had not grown, and their eyes had not opened. The nest was made of silk shreds from the umbrella, some paper, torn and nibbled very small, and some straws split so fine that the width of each straw must have been cut into at least a dozen strips. It was so compact that it had some resemblance to a bird's-nest.

It is chiefly in winter that Mice are in our houses. In the country, in summer, they amuse themselves by picking up a living among the ripening fruits and grain. They will sometimes find their way into corn-stacks, eating the grain, and bringing up families there.

The House Mouse, which in the picture is on the top of the bank, is dark grey on the back, shading off to nearly white underneath. Its tail, like that of all Mice and Rats, has rings round it, on the surface of the skin, from which short stiff hair grows.

The Field Mouse is very much like its cousin. It is different in its colour, being of a reddish-brown above, and shading off to a pale ash underneath. Its length is a little more than three inches, and its tail measures hardly an inch; while the tail of the House Mouse is nearly as long as its body. The true Field Mouse does not come into our houses. It will rob bee-hives, eating both wax and honey. They frequent woods, parks, orchards, and young plantations, where they burrow in the banks and under the roots of trees. In some places Field Mice have multiplied to such an extent that whole plantations of young trees have been destroyed by their gnawing. And the quantity of provision they will lay up for winter use is very great. It is not long since a nest of one of these little creatures was found to contain nearly a gallon of wood-nuts. They will do great mischief in gardens and fields, by eating the germs of plants, as well as by uprooting and carrying off newly-sown seeds. Both these Mice, as well as White Mice, are sometimes kept in cages as pets. They all have sparkling black eyes, and quick, elegant movements.

Rats.

The two Rats on the opposite side of the picture are very like the Mice, both in form and colour, and they are like them also in many of their habits. There are several different sorts of Rats. Those best known in England are the House Rat and Water Rat.

The Water Rat burrows by the edges of ponds and streams, and lives chiefly on the roots and waterplants growing there. It does not often come into farmyards and houses, but swims about ponds and streams, or creeps into holes in the banks. It is an inoffensive creature, and the only harm it does is by burrowing into the banks of streams, and so letting the water run away.

Rats are creatures we would rather keep out of the house than invite into it. They eat, carry off, or destroy all sorts of things. The quantity and variety of stuff they will drag into their holes is surprising. On one occasion a large parcel of tobacco was lost for some days; it was afterwards found in a Rat's hole. We may suppose they wanted to make their nests with it, for it is not likely they meant either to smoke or to chew it. They will carry off young Ducks and Chickens, and also eggs, which last feat they manage in a very clever manner. A gentleman once watched some Rats that had gathered round a hen's nest of eggs; this is what he saw:—"One Rat laid itself down beside an egg, and folding its body around it lengthwise, it held it as firmly as it could; then, the better to secure its hold, it took its tail between its teeth. The other Rats then seized it by the neck, and dragged away the Rat and the egg together. It is well known, too, that they will carry eggs from the bottom to the top of the house, lifting them from stair to stair, the first rat pushing them up on its hind, and the second on its fore legs."

Rats are excessively daring, ingenious, and persevering; they can also be very ferocious and formidable enemies, not only amongst themselves and other animals, but also to man, so that it is really dangerous to be in the power of numbers of them. Rats, besides quarrelling with and eating each other, will also eat mice; indeed, it is hard to think of anything they may not eat.

There was once a Rat living in a corn-stack which was washed away by a very heavy storm, and carried into a river. The current was so strong that the Rat could not cross it; and it would most likely have been drowned, had it not seen a Swan swimming along, its arched neck and wings above the water. The Rat wisely sprang upon the back of the Swan, where it held fast as if in a boat, until the Swan got near to the bank, when the Rat leapt off upon the land. You see, when the Rat was in danger because of the storm, he did not say to himself, "Oh, I am sure I must be drowned," but he quickly looked about to find what he could do to save himself, and he succeeded.

The old English Rat was black in colour, and was smaller and weaker than the Brown Rat which is now so common. Some years ago the Brown or Norway Rat was brought to our shores by accident in some ship. The old Black Rat has been either killed or driven away by its brown brother, and there is now scarcely one to be found.

Squirrels.

Squirrels are very pretty, harmless creatures. It is a most beautiful sight to see them gambolling about amongst the tall branches of a tree. But they are so quick-sighted and nimble that it is very difficult to catch a sight of them. They are said not to be natives of England, but to have been brought and naturalised here from more northern countries of Europe, where they are valued for their fur. With us they are usually of a red colour, turning slightly grey in hard winters; but in cold countries they are entirely grey in winter, and it is then that they are sought after for their fur. Mrs. Howitt has written such a pretty and complete little history of the Squirrel, that if you read it, you will know almost everything about it:—

"The pretty red Squirrel lives up in a tree,
A little blithe creature as ever can be;
He dwells in the boughs where the Stock Dove broods,
Far in the shades of the green summer woods;
His food is the young juicy cones of the pine,
And the milky beech-nut is his bread and his wine.
In the joy of his nature he frisks with a bound
To the topmost twigs, and then down to the ground;
Then up again, like a winged thing,
And from tree to tree with a vaulting spring;
Then he sits up aloft, and looks waggish and queer,
As if he would say, 'Ay, follow me here!'
And then he grows pettish and stamps with his foot;
And then independently cracks his nut;
And thus he lives the long summer through
Without any care or a thought of woe.
But small as he is, he knows he may want,
In the bleak winter weather when food is scant,
So he finds a hole in an old tree's core,
And there makes his nest, and lays up his store;
Then when cold winter comes, and the trees are bare,
When the white snow is falling, and keen is the air,
He heeds it not, as he sits by himself,
In his warm little nest, with his nuts on his shelf.
O, wise little Squirrel! no wonder that he,
In the green summer woods, is as blithe as can be."

Rabbits.

Look at that funny little Rabbit peeping out of its hole to inquire what is the matter with its friends above ground. Ah! he cannot see those two men with their guns near the trees, but the other Rabbits have seen or heard them, and they are making what haste they can to escape to their holes. Rabbits burrow in the ground near to one another. Their holes are often found in woods and copses, but the favourite place for a Rabbit warren

is on a sandy common, dotted over with furze or other bushes, and where the wild thyme grows among short soft grass.

But wherever the warren may be, it is a pretty sight to watch the Rabbits on a summer's evening, frisking about as if in wild happiness, or sitting up cleaning themselves with their forepaws, or turning themselves this way and that, as if to listen to sounds of approaching danger. Rabbits live on clover, grass, vegetables, and roots. They drink the evening and morning dew, keeping mostly within their holes during the day. They come out in the early morning to nibble the herbage whilst it is wet with dew. A parent Rabbit will bring up a great many little Rabbits in her nest in the course of the year, so that there are plenty left to live and enjoy themselves when men have taken as many as they choose for food. Indeed, if they were not killed, their numbers would be so great, that they would eat the food of man from the fields. The fur of tame Rabbits is of many colours—black, white, yellow, or grey; the wild are of a brownish-grey colour; they are generally smaller than the tame.

Hares.

There is a great likeness in the Hares to the Rabbits; but there are some things in which they are different. Rabbits, for some days after they are born, have hardly any fur, and do not open their eyes. The young of Hares are born quite covered with fur, with their eyes ready to look about them at once. Hares do not burrow; neither do they live in companies as the Rabbits do, but each Hare lives by itself, except at pairing time. The Hare chooses a warm snug place, under a bush or bank, with plenty of soft grass or moss. Here it makes for itself a little nest, which is called its "form." It will sometimes keep to the same form for many months, resting there during part of the night and the greater part of the day. Their nursery is usually under a tuft of grass or a bush, or perhaps among standing corn or potato ridges. The young are called Leverets. They no not remain in the nursery above two or three weeks before they are fit to run about, and get their own living, and choose their own homes. We may suppose the little ones in the picture are about that age, and just considering whether they are not quite old enough to go and see the world for themselves. The old father seems to be gravely advising them how to behave themselves, and the mother looks down at them as if she did not quite want them to go yet.

The Hare is formed for running with speed. The hind legs are very much longer and stronger than the fore legs; thus it can spring and bound, and outstrip the dogs in their running. Under their feet they have soft pads of woolly hair, so that they are too well shod to be hurt by the ground they pass over, however hard it may be. The colour of their fur is yellowish-brown, like the earth, or withered grass and leaves, over which they run, so that it is very difficult to see them, and their sight and hearing are so quick that they are able to escape many of their enemies. Hares are sometimes kept tame like Rabbits. One was so fond of the children that kept it, that it was seldom in its hutch through the day, but would follow them in their walks like a dog, and at meal times would spring on to a chair and sit between them up to the table in the most orderly manner, enjoying its bit of bread while they ate their food; and, if it was shut out, it would thump against the door with its foot until it was opened. Very likely you have heard of the three Hares kept by the poet Cowper, called Tiny, Puss, and Bess. Of Tiny Cowper writes:—

"His diet was of wheaten bread,
And milk, and oats, and straw;
Thistles, or lettuces instead,
With sand to scour his maw.

"On twigs of hawthorn he regaled;
On pippins' russet peel,
And, when his juicy salads failed,
Sliced carrots pleased him well.

"A Turkey carpet was his lawn,
Whereon he loved to bound,
To skip and gambol like a fawn,
And swing himself around.

"His frisking was at evening hours,
And then he lost his fear,
But most before approaching showers,
Or when a storm drew near.

"Eight years and five round rolling moons
He thus saw steal away,
Dozing out all his idle noons
And every night at play."

Beavers.

It is said that many years ago Beavers lived in our own country. They are still sometimes found in Germany and other parts of Europe and Asia.

But they are most abundant in North America. They are hunted for their soft and glossy fur. A full-grown Beaver is three feet or rather more in length, and its tail is about a foot long. You can see by the picture what a broad flat tail it is; it is covered with horny scales, and not with fur like the body. The hind feet of Beavers are webbed, fitting them for living in the water. Beavers are wonderful builders. They can work like carpenters. The following are said to be their tools: "Their fore teeth are cutting pincers or double chisels, with which they can cut a moderately thick twig as clean across as if it were done with a knife. The grinders are adapted for bruising bark; the fore paws are the most useful working instruments, and are used also as hands. The hind feet are most effective as swimming-paddles, and the tail is a rudder in the water, and occasionally a supporting prop, when the creature needs to use it as such." Beavers dwell in colonies by the water-side, each family building and using a separate house, but all joining their labours to build and keep their water-dams in order. These they make with timber, mud, and stones. They use their sharp chisel-teeth to get the trees they want. They are not climbing animals; they sit on the ground and gnaw round a tree as high up as they can reach, and when it falls they manage amongst them to get it to the water; in doing this their fore paws or hands are brought into use. The dams are made to prevent the water from flowing into their houses. They pile up together many layers of wood one upon the other; and the little openings where the water might get through are filled up with earth and stones.

"— The woven bough of many a tree,
And a wall of fairest masonry;
The waters cannot o'erpass this bound,
For a hundred keen eyes watch it round;
And the skill that raised can keep it good
Against the peril of storm and flood.
And yonder the peaceable creatures dwell
Secure in their watery citadel."

Beavers work with surprising quickness, and chiefly in the night; some say that they work under the orders of one director. A gentleman who tamed a young Beaver gives a very interesting account of its amusing ways, and especially of how its natural instinct for building showed itself. It would drag along a large sweeping-brush or a warming-pan, grasping the handle with its teeth, so that it came over its shoulder, and so carry it to the point where he wished to place it. The long and large materials were always taken first; two of the longest laid crosswise, with one of the ends of each touching the wall. The space between he would fill up with hand-brushes, rush baskets, books, boots, sticks, clothes, dried turf, or anything he could carry. As the work grew high he supported himself on his tail, which propped him up admirably. He used to carry small things between his right fore leg and his chin, walking on the other three legs. Heavy things, which he could not grasp with his teeth, he pushed forward, leaning against them, with his right fore paw and his chin. This Beaver was fond of bread, milk, sugar, fruits, and roots. In a natural state Beavers feed in winter on such roots as they can find growing at the bottom of the water, and the bark of such sticks and wood as they can get at. In summer they fare better, adding the new growth of herbage to their dinners.

Beavers are inoffensive to man, and peaceable among themselves. They are shy and timid. It is said that the cry of their young is very like that of a child.

The Alpine Marmot.

The Marmot is very common in the Alps of Switzerland, the Apennines in Italy, and many other parts of Europe. They are sometimes carried in our streets by Italian boys. These playful little creatures are about sixteen inches long, with a bushy tail. They have large heads, and round short ears almost hidden in the fur, which is a tawny ash colour on the upper parts, and fawn colour beneath. When they are angry they give a shrill piercing whistle. They sit up while they eat, lifting their food to their mouths with the fore feet, and will sometimes walk on the hinder feet. They burrow underground, and always make a large storehouse in which they lay up food for bad weather and the winter, when snow covers the ground. They are merry, lively creatures through the summer, and as winter approaches they go into their burrows, close up the openings with earth, and sleep away the time, until a warm sun wakes them up again. They live together in large companies, and always place one or two old Marmots to keep watch, whilst the others play together. At the least appearance of danger the sentinel gives a shrill whistle as a warning, when they all rush into their holes till they suppose it to be safe to come out again.

PLATE IV.

ANIMALS.

The Ibex.

THIS Goat, with such long ringed horns and bearded chin, is two feet and a half in height, and is extremely active and vigorous, bold and powerful. It inhabits the Alps, the Apennines, and the Pyrenees. It is very watchful and wary, as it needs to be to escape from the hunters. It will lead them, if they will follow, over steep and rugged mountains and chasms, and along the brink of precipices. If it sees no other way of escape from its pursuers, it will sometimes turn quickly upon the hunter, and striking him with its powerful horns, will hurl him down the rocks. It has a wonderful power of leaping from crag to crag, and of standing in places where it would hardly be possible for man to put his foot. Rock Goats, as the Ibex is also called, live together in small companies. During the night they go from the barren rocks to graze on the pastures below, but at sunrise they return to the bleak mountain tops. Their colour is a yellowish grey, with a black streak down the spine. The hair in summer is short, in winter long and thick. The hunters try to take these Goats for the sake of the flesh, hair, and skin, all of which are valuable for food or clothing; as well as the horns, which are useful for many purposes.

The Chamois.

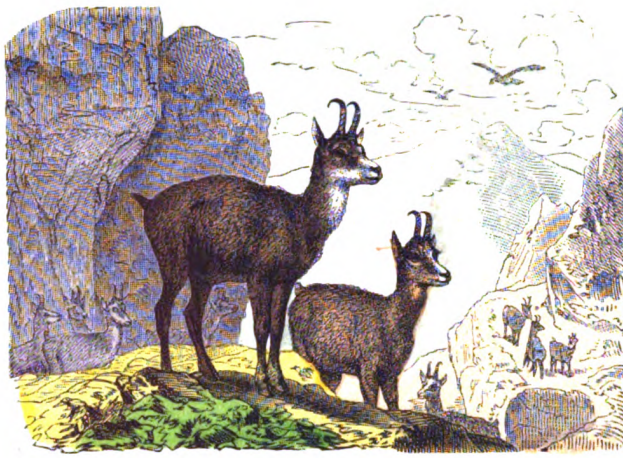
The next picture is of the Chamois, a kind of Antelope which lives upon the higher parts of the Alps and Pyrenees. They keep together in small herds, and browse upon the sides of the mountains. The whole body is covered with long hair, which is in winter of a deep brown colour, but much lighter in summer. Underneath the head and neck the fur is nearly white. Like the Rock Goat it has a very short tail, and feet that enable it to spring up to and stand upon the rocks in a most surprising manner. It can seldom be captured alive, and it is a difficult matter to tame it, or make it thrive in captivity.

The Chamois hunters often follow it amongst the loftiest mountains, and over ice and snow, for many miles.

It is exceedingly dangerous work for the hunter. He sets off with his gun, a bag of provisions, an iron-pointed staff to help him climb or leap, and an axe to cut places for his feet, in the masses of ice that cover the mountains where the Chamois live. Thus provided, he travels for days and nights over the mountains; and great are the rejoicings when he returns to his own home again, safe from all the perils of the chase. The Chamois usually place one of their number on the look-out, to warn the others of any approaching danger. This he does by making a loud hissing noise, which causes them all to bound away, springing from crag to crag across deep hollows or over masses of ice with a speed greater than can be imagined.

Perhaps you have heard the fable of two quarrelsome Goats that met on such a very narrow ledge in the mountains that there was not room for them to pass each other. Neither of them would give

Steinbok.



Chamois.

Fallow Deer.

Red Deer.

Wild Boar.

Roebuck.

way or go back as they might have done. They fought until they fell over the ledge into the gulf below and were killed.

It is told of a Chamois, which had two little kids, that she saw a hunter coming towards her and her little ones. The only way they could escape from him was by leaping over a cleft into the rock which was wider than the little ones could manage. The mother leapt backwards and forwards several times to show the little ones the way, making wild cries all the time to warn them of their danger. But they could not or dared not leap across; at last she fixed her hind legs firmly on the rock behind, stretched her body to the utmost length, planted her fore feet on the rock beyond, and they walked over her body to the point of safety; whence they all three bounded away, just in time to escape the hunter. How much better is it to help one another kindly and lovingly than to quarrel and fight.

The Stag, the Fallow Deer, and the Roebuck.

Our next pictures represent various animals of the Deer tribe. They are very elegant and graceful creatures, are very nimble in their movements, run very swiftly, and leap to great distances. They live upon grass, clover, the leaves and young shoots of trees, and almost all vegetable substances. Acorns, beech-nuts, chestnuts, and wild fruits of all kinds, are their favourite food. Seen in a park, roaming about under the trees, or galloping across the greensward, or leaping amongst the fern, they are exceedingly beautiful.

We first notice the Stag, or Red Deer. This is the largest animal of the Deer tribe found in Europe. In the days of Robin Hood, of whom we read in old ballads, it was common all over England. There were forests and large open spaces without houses, or farms, or hedges, in which it could wander wild and free. But now it is only to be found in a few parks, in Exmoor, and in the Deer forests of Scotland. It is about the height of a small bullock, but has longer legs and a more slender and graceful body. Its colour is a reddish brown, with white under the throat and belly, and some black about the face and back. The speed of these animals is very great, and they can swim for a great distance. When attacked by dogs or hunters, if they cannot escape they fight fiercely with their horns and fore feet, and often inflict dangerous wounds.

The Fallow Deer are the beautiful creatures that ornament our parks, in which they are enclosed by high fences to prevent them from escaping. If the fences were not very high, they would spring over them with ease. It is very interesting to watch the light and active bounds, and runs, and leaps that they make, gliding along as easily and almost as quickly as a bird through the air. Fallow Deer, although they are shy and timid, are often very tame. They vary in colour, sometimes being black, sometimes a light fawn-colour spotted with white, and sometimes pure white. The young are called Fawns, the mother a Doe, and the father a Buck. They are occasionally kept in stable yards, and a few years ago one kept in this way became so fond of the horses that it used to go with them when they were taken out to exercise.

The Roebuck was formerly common all over Great Britain, but it is now seldom seen farther south than Westmoreland and Cumberland, where there are still undisturbed woods, and there it is abundant. It is the smallest of all the European Deer. It is wild and shy, and does not live in herds together with its companions, but each Roebuck feeds and lives alone. It is about two feet three inches in height. In winter its hair is long, and the lower part of each hair is ash-coloured, then there is a little black, and the tip of the hair is yellow. Its summer coat is short and smooth, and bright red, with some parts of a yellowish white.

All these animals shed their horns every year, and new ones quickly grow in their place. The horns are very useful for knife handles and other purposes. Their flesh is eaten as a great luxury, and is called venison.

Wild Swine.

Now we have to look at some very different animals—different in appearance and different in habits. They are Wild Boars. Our tame Swine, which live in pigsties, are supposed to be descendants of wild ones. They are not the most engaging and elegant of animals, but these wild ones are even less beautiful, for they have not the comely roundness that fat might give them.

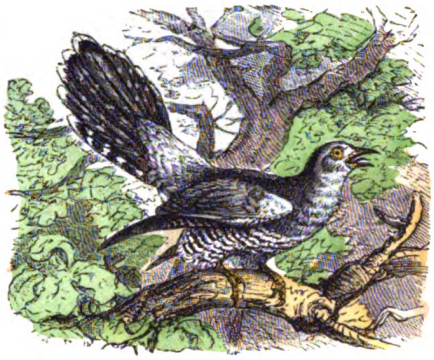
We have no Wild Swine in England now, but they are still found in the larger forests of Europe. The Wild Boar is a formidable animal. His strength and his tusks make him a dangerous enemy, as is sometimes found in Germany, Russia, and the south of France, where he is hunted. The Sow is said to

be very attentive to her little Pigs, and to take care of them for months. The flesh of Wild Swine is good for food. Swine, you know, are not covered with soft warm fur, but have thick tough skins, with bristly hairs. In a wild state they are of a dark grizzly brown, with black streaks. The bristles are valued by the brush maker, and the skin is used for strong leather. If they are not very handsome, they are useful animals—at least, when they are dead. Of the Pig in the stye, it may be said, as it has been of a lazy two-legged animal,—

> "He eats, and drinks, and sleeps, and then,
> He eats, and drinks, and sleeps again."

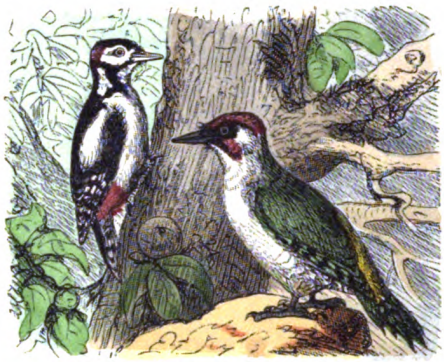
In their wild state Swine are not inactive animals. They do not have their food brought to their mouths, but have to keep walking and grubbing about to find it for themselves. They are not very particular what sort of food it is, for they will eat almost anything, but they like a good deal of it. They feed on what they can find upon the ground, choosing acorns and beech-mast in the autumn, and any sort of vegetables, grain, or roots; but if in their rambles they come upon any dead animal they devour them up, besides munching up an small live animals or birds that may be withi reach of their mouths, not excepting snakes, whic they seem to be very fond of; they are not hu by their bite.

Sometimes they wander from the wild wood i which they live, and go into cultivated groun where they are very destructive, for, besides eatin all they can, they rout up roots and trample dow the earth, leaving the place in desolation. Thes destructive habits are referred to in the eightiet Psalm, where the Psalmist, speaking of the persecu tions which the people of God suffered from th heathen, compares their condition to a neglected vin yard, and says, "The Wild Boar out of the wood doth waste it." In the parable of the Prodigal So our Lord describes the misery of the sinner by speak ing of him as being sent into the fields to feed Swin And he tells us further that the wretched young ma who had left the happiness and plenty of his father house, would now have been glad to fill his bell with the husks that Swine eat. The Swine of tha country are nearly as wild and savage as Wild Boar Learn the misery of sin in this sad history.



Cuckoo.

Hawk.



Woodpeckers.

Sparrow.

Golden Eagle.

Bullfinch.

Horned Owl.

Screech Owl.

PLATE V.

BIRDS.

BIRDS, because of their variety, their habits, and the beauty of their plumage, are reckoned by some naturalists as the most interesting objects of the animal world. Adapted, as they are, either for rapidly cleaving the air, or for making their way over the waves, their motions excite our admiration; and the construction of their bodies has given valuable ideas to men in the building of ships and the invention of machinery.

The Divine Teacher also reminds us of birds, as teaching lessons of trustfulness in the great Creator and Lord of all. "Behold the fowls of the air: for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them. Are ye not much better than they?"

Although there are many hundreds of different birds over the world, they are all alike in some respects. They all have two legs and two wings, and they are all covered with feathers; and this dress of feathers is called their plumage. They all first come to life from an egg with a brittle shell, such as you may have seen brought in from the poultry-yard. The eggs differ in size and strength of shell, according to the size and habits of the different sorts of birds. They are mostly hatched by the warmth of the parent bird sitting upon them for some days or weeks; but in a few cases, as with the Ostrich, they are left to the warmth of the sun to hatch them. And, in one case, the egg is hatched by neither its parent bird nor the warmth of the sun, and the bird which is so hatched is the one whose picture we have now to notice, and is called

The Cuckoo.

This bird comes to our shores early in spring, usually before the middle of April, and sometimes startles, but always charms, the cheerful dwellers in the country with its short and oft-repeated song of "Cuckoo, cuckoo," because its song, short and monotonous as it is, seems to say, "The winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land." On a mild evening, after a warm spring rain, you may walk near a wood, and be soothed by the low murmurs of the cooing Turtle Dove, building in the trees, and may see a Cuckoo flying steadily, but not very quickly, across an open space, from tree to tree, repeating her cry as she goes.

But Cuckoo is not going to look for a nice place where she may build a nest; that is not her habit; and as she acts according to the instinct given to her by her Creator, we will not blame her for it, although we may say that, compared with all other birds, she has a strange way of doing things. She does not take the trouble to build a nest at all, but just peers about until she sees one that pleases her fancy, and in that, while the rightful owner is gone away, she drops an egg, and then flies off again, singing "Cuckoo, cuckoo," as though she had performed some remarkable feat, and something to be proud of.

As to the bird to whom the nest belongs, she patiently and quietly goes on in her accustomed way, without suspecting the trick that has been

played upon her, until, in due time, the Cuckoo's egg is hatched. And then, before it is old enough to open its eyes, the young Cuckoo, in the absence of its foster-mother, feels about the nest with the tips of its wings; and when they touch an egg, or another little bird, it does not rest until it has succeeded in jerking egg or bird out of the nest.

Sometimes there may be several eggs or nestlings; and in that case the young Cuckoo is two or three days in clearing them all out. But, sooner or later, it accomplishes its purpose, and gets rid of everything but itself; and there it remains, opening its mouth impatiently for every worm or insect the parent birds bring for their own progeny. The mother bird also continues her attentions to the intruder, never dreaming that she is expending her maternal instincts on a stranger. Thus she keeps the young Cuckoo warm at night, until it is able to take care of itself.

The nests of Water-wagtails, Titlarks, and Yellow-hammers are often chosen by the Cuckoo to place her eggs in; oftener still, the Hedge-sparrow's. But one thing the Cuckoo observes, with wonderful and unerring instinct, and that is, to place her egg in the nest of an insect-feeding bird, which is the sort of food that Cuckoos like, and not in the nest of a bird that would carry it acorns or grain, which it would not like. Besides worms and insects, Cuckoos like soft ripe fruit; and an orchard is a likely place where to see and hear them.

The young Cuckoos remain in England until September, and then are not seen here any more until they come again in April, having in their absence learnt the song of Cuckoo. Old Cuckoos go a month or more before the young ones. Very likely you have heard the little ditty of—

> "In April, come he will;
> In May, he sings all day;
> In June, he alters his tune;
> In July, he prepares to fly;
> In August, go he must."

There is a good deal not clearly known about the habits of the Cuckoo, especially as to its migrations. It is supposed, however, to go to Northern Africa from this country.

The size of the bird is fourteen inches in length; that is, from the tip of its beak to the tip of its tail; and it is twenty-five inches across, from tip to tip of its wings, when they are stretched out. The feathers of its head, neck, back, and wings are ash-coloured; the breast and belly are nearly white, marked with wavy black bars.

This is all we have to say about the Cuckoo. We come next to a bird famous in many a story.

The Falcon and the Hawk.

In former times, in England as well as in many other countries, one of the sports of the nobility and gentry was that of Falconry. Just as dogs are now trained to hunt the Fox and Hare, or as sportsmen go out on a September or October morning, with gun and pointer, to bring down the Partridges or Pheasants,—so, in days before gunpowder was invented, birds of prey were brought under the control of keepers, by whom they were trained for the gratification of their masters, in the pursuit of game.

There are several species of Falcons. The Peregrine Falcon is one of the strongest and most beautifully formed birds of the kind, and was oftenest used in "hawking," as the sport was called, not only on account of its courage and strength, but also because of its tractability.

No amusement was ever followed with more eagerness than that of hawking. In almost every country of Europe, and from the earliest times, it was the favourite pastime of kings, princes, and grave ecclesiastics as well. And such care was taken of the hunting birds, that to take a Hawk's egg subjected the culprit to imprisonment for a year and a day. Every young man of rank was taught the mysteries of Falconry; and even ladies followed the sport as eagerly as gentlemen. The amusement was sometimes indulged in solitarily and on foot; but frequently parties assembled on horseback to have a day's hawking, just as now we hear of "a meet" for a day's hunting.

Among the various descriptions of game which were hunted and caught by the Falcon, was the Heron, a famous water-bird. This was the hardest game of the Falcon in this country, because of the height at which it flies, and the difficulty the Falcon had in getting above it. The Heron strives to keep above its enemy, because, while it does so, it is perfectly safe. When, however, it is mastered in that, it has the resource of doubling back the neck, and projecting its sharp-pointed bill upwards, by which means it preserves its head and neck from the Falcon's stroke, and also presents a point on which, should he strike, he would be probably pierced through.

This fashion of finding amusement and sport in the pursuit of game, gave way in time to other

forms of the same indulgence; and now, in consequence of the disappearance of wastes and commons, and the gradual thinning of woods, the shy birds are becoming scarcer and scarcer, as they like to make their homes in solitude.

The Goshawk, another variety of the same family of birds, is now seldom met with in this country; but it is often seen in France and Germany, sometimes also, though not so frequently, in Scotland. It preys upon Hares, Rabbits, Squirrels, and birds, and the farmer knows that it is fond of poultry. It makes its nest in lofty trees, lays three bluey-white eggs marked with brown. The colour of its plumage is different shades of brown, and as you may see by the picture its breast is nearly white, streaked with black. It strikes its prey while moving, and will watch the same animal for hours, until it runs or flies, so that it may pounce upon it. It is told of one, that it watched a Pheasant from one evening until ten the next morning, and all this time the Pheasant had not dared to stir, but remained fixed with terror: the gamekeepers drove the Hawk away, and the Pheasant gladly flew off. Hawks have very bright eyes, dark in the middle and bright shiny yellow all round, and from their appearance the name of Hawkweed is given to a pretty yellow flower.

Woodpeckers.

There are several sorts of Woodpeckers in England. Those in the picture are the Pied Woodpecker and the Green Woodpecker. Their bills are long, strong, and sharp, shaped like wedges, that they may work them into the bark of trees. Some one speaking of a summer evening's walk says—

> "Every leaf was at rest, and I heard not a sound
> But the Woodpecker tapping the hollow beech-tree."

But what does it peck and tap there for? It pecks and taps until it makes a hole through the bark of the old hollow tree. It has a very long narrow tongue, which it can stretch out a great way, and this it puts into the hole it has made with its bill, and draws out upon it and eats the insects and their eggs, which are abundant in old trees. And, besides feeding on the insects, it taps and pecks until it makes one larger hole, and through this hole it goes to the decayed part, which is all soft and crumbly, and puts there five or six green-coloured eggs with black spots, which it sits upon and hatches.

In Northumberland these birds are called Pick-a-Tree. Their little toes have strong hooked claws, by which they can cling firmly to, and run over, the trees in all directions; and if you try to look, your eye can scarcely follow them, they run so quickly round and up the branches, that when you might think they were on one side, they would have darted to the other.

The Pied Woodpecker is rather more than nine inches in length. Its plumage is very beautiful, being a mixture of black and white, with a bright crimson spot on the back of the head, and crimson at the underneath part near the tail, and a buff forehead. The Green Woodpecker is four inches longer than the Pied: its bill is two inches long. Its plumage is a handsome mixture of green and crimson, with the under-wings and tail barred with black and white. The Green Woodpecker may sometimes be seen upon the ground digging its bill into Ants' nests, which it will clear of all the inhabitants by eating them up.

The Eagle.

Now let us look at the middle picture of this plate, where sits the king of all birds, the Eagle; the bird that gives us the idea of courage, strength, and fierceness. It measures, from the point of the bill to the extremity of the tail, upwards of three feet, and from tip to tip of its wings above eight feet, and weighs from sixteen to eighteen pounds. Its sharp hooked bill is of a deep blue colour. Its eyes sparkle with extreme brightness, and it can see its prey and dart upon it from a long way off. Its claws are very large, the middle one being two inches long. Its general colour is deep brown.

This bird, although so large, flies with extreme swiftness; and Job, to express the rapid flight of life, says, "My days are passed away as the swift ships, as the Eagle that hasteth to its prey." The Eagle was formerly common in many parts of England: it is now to be found in the Highlands of Scotland and some parts of Ireland. It makes its nest, which is called its aerie, on the tops of high steep mountains. When a pair of Eagles has two Eaglets in their aerie, and they seldom have more, they are more fierce than at any other time, and birds, deer, sheep, lambs, and rabbits are all carried up in their terrible claws, to feed the Eaglets. Sometimes, but very seldom, and only when there has been a scarcity of animals for their prey, they have

tried to carry off little children; and a pretty poem has been written about such a thing happening once in Scotland, when the people were busy out of doors getting in the ripe corn:—

"A mother's kindly hand had smoothed a pillow for her child,
And gently she had laid it down, and artlessly it smiled,
As on its pleasant couch of hay it stretched each tiny limb,
Ere yet, in infantile repose, its laughing eye grew dim.

"When, lo! an Eagle from the height, keen-glancing where it lay,
Plumed its dark pinions for the flight, and darted on its prey!
Vain, vain the cry—he soars on high—his lofty nest is won,
Beyond the draught of bowman's shaft, or fowler's practised gun.

"Oh, who will heed a mother's prayers? Stout hearts are in the vale;
Will none, with desperate effort, strive the precipice to scale?
Gold would be poor reward to his, who plants his tread secure
Upon the crest that holds the nest, and makes the lost one sure.

"A seaman, trained to dizzy heights, alone hath nerve to try,
Well used to cope with shifting rope, or mount the mast-head high;
When stiffening breeze hath tossed the seas, his venturous post hath been
On trembling shroud, or spar that bowed, its loosened joints within.

"Soon flags his power no easy task are Scottish cliffs to climb;
They want not man their clefts to scan, untracked from earliest time;
Nor will thine Eagles, mountain land, their airy dwellings make,
Save where the gale alone can scale, and nature's music wake.

"The seaman fails, but *one* prevails—the mother leaves behind
The well-trained head and dauntless heart, that fears not wave or wind!
Oh! every eye is fixed on her—to crag and spray she clings;
Wild bird of heaven, she'll gain the point, for which thou needest wings!

"Her hand is on the Eagle's nest. She dares him to the fight;
But her brave heart hath daunted his, and put the foe to flight.
The babe is rescued from his grasp, and answering cheers convey
The victor's meed to crown the deed a mother did that day!

"There is but One hath greater love. A mother *may* forget
The child that to her bosom clings, or in her arms is set;
But Jesus cannot cease to think on those he died to gain,
Each living spoil of his own toil, and trophy of his pain."

The Bunting.

The little birds amusing themselves on the sprays of red-berried bryony are a pair of Buntings. Buntings are distinguished from other birds by a peculiarity of their bills. The opening is not in a straight line. If you look at the bird, which is picking a seed from the berry, you may see that as one beak points one way, the other goes in the contrary direction, something like the Crossbill. Inside the top of its mouth there is a strong knob, which is of great use to it in breaking the harder kinds of seeds and kernels on which it feeds, as well as on all sorts of small insects.

The bird is about seven inches in length; it is common and abundant in most parts of the country. The plumage is so like that of the Lark that numbers are sent to market in company with Larks, which bird is much esteemed for food. The feathers are white at the throat, olive-brown with black streaks on the back; the under part yellowish-white, with dark brown streaks and spots. It is not a melodious bird, but, while at rest on the topmost branches of hedges, it makes a harsh, monotonous noise with very little music in it. The nest of the Bunting is found in thick grass on the edges of banks, and sometimes in cornfields.

The Bulfinch.

The Bulfinch is found in most parts of our country; but it abounds more in the mountain forests of Germany. It is a handsome bird, and is sometimes called the English Parrot. The upper part of its head and round the bill is a rich glossy black; the back is ash-grey; the breast and all the underneath part is a bright red; and the wings and tail are black. The contrast of red and black gives the bird a very attractive appearance; and when, in the early spring, before the leaves have covered the bushes, five or six are together on a small garden bush, it is worth going to the window to look at them. They have been so seen on a little shrub that bears the snowberry, the seeds of which berries they industriously pick out. Unfortunately they are

very mischievous in gardens; and small will be the crop of gooseberries in any garden the Bulfinches visit in spring; for they clear the bushes of the fruit-bearing buds. They serve the plum-trees in the same way; in the woods they feed upon the buds of the hawthorn, the larch, and birch.

The Bulfinch builds its nest of small twigs, stringy roots, and moss, in thick bushes, or on the small boughs of the spruce pine, or silver fir. You may see the bird in the picture is resting on a silver fir, with a fir cone hanging below. The four or five eggs laid by the hen bird are a bluish-white, spotted with brown.

The notes of the Bulfinch are low and not very varied, but there is a pleasing, simple wildness about its song. It is one of those birds which have been found to possess a great power of imitation, and may be taught to whistle a variety of tunes; for this amusement, and for its bright plumage, it is sometimes kept in a cage. But, in confinement, its bright colours not unfrequently disappear, and the bird becomes black. The cause of this is that, in a cage, it cannot have just the sorts of food and the fresh air that it requires.

This bird has a short, thick bill with sharp edges, fitted for cutting off buds and picking up grain. It is larger than the Bunting, of a thick make, and about eight inches in length.

The Owl.

Here we have two pictures of birds much larger than either Bulfinch or Bunting. If you have never seen a live Owl, you very likely have heard of its great round, staring eyes, its hooked beak, and its knowing look.

Owls have sometimes been called feathered Cats, and Cats furry Owls; and, indeed, the habits, as well as some of the features of the two animals, are not very unlike. They both are very much given to dozing during the daylight; and then they wake up in the dusk of the evening to seek after their natural prey. For this purpose they are furnished with eyes just suited to their wants. All night birds and beasts of prey have very full and large eyes; and the iris (the circle round the pupil of the eye) is much more susceptible than in the day animals. In a strong light, therefore, the Owl, as well as the Cat, seems to close the pupil, and be half-blinded and bewildered.

Then, again, just as the Cat moves stealthily along the ground, especially when it spies a mouse or a small bird, so the Owl glides quietly through the air on its broad feathery wings, so as to dart with swift, unerring suddenness on its prey.

Owls are as useful to man in farmyards and fields as Cats are in houses, by keeping down the number of Rats and Mice, and other animals of a like sort, which, but for them, would multiply and increase, very much to the farmer's loss. It must be acknowledged, also, that Owls have no objection to take home a young chicken for supper, if such a delicacy should fall in their way.

See how daintily the Owl, in one of our pictures, has caught up a Mouse in its hooked, horny beak, and how longingly her three little Owlets are staring at her, wanting to know when she will turn round and let them taste it.

This Owl, with her Owlets, is one very common in England. Its length is fourteen inches, and the spread of its wings nearly three feet. The white feathers round the eye are exceedingly soft; and all the plumage of Owls is particularly light and downy. It hides itself through the day in dark and unfrequented places, such as old church towers, ivy-covered ruins, old hollow trees, and not seldom in the roofs of old farmhouses, where it sometimes frightens those who sleep near, by a curious blowing noise that it makes, very much like the snoring of a man. It is apt, too, to make a screeching noise, when taking its evening flights, which has sometimes frightened people, because they can hear it without being able to see where the sound comes from.

Owls are, as we have said, very useful birds, at any rate in England; and yet there are strong prejudices against them in some country places. Here is part of a song which was written a good many years ago, in which the Owl claims pity and protection against its persecutors. It says:—

"Once I was a monarch's daughter,
And sat on a lady's knee,
But am now a nightly rover,
Banished to the ivy tree;
Crying, 'Whoo, whoo, whoo, whoo, whoo,
My feet are cold!
Pity me, for here you see me,
Persecuted, poor, and old.'"

A gentleman (Mr. Waterton) who had heard this song in the nursery, resolved that he would do something for the poor Owls in his park, which, till then, had had a sad time of it, owing to the ill-feeling there was against them. So he made a sort of dwelling for them on the ruins of an old gateway,

and trained some ivy round it, so as to conceal the place. In about a month, after everything was ready, a pair of barn Owls came and established themselves there, making it their home. This succeeded so well that he provided similar places, which were also soon occupied. He so contrived the first recess in the gateway that he could examine it whenever he pleased, and the birds soon became quite familiar with their protector, who took great pleasure in observing their habits.

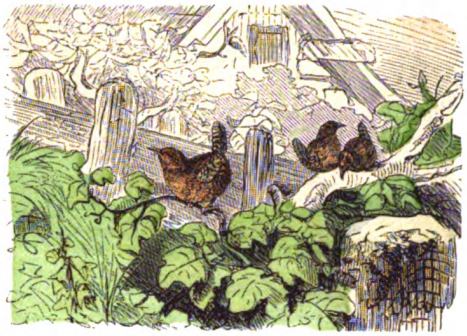
Among other things, he discovered that Owls like fish as well as flesh. One fine evening he was standing on the middle of a bridge, watching one of his pets as she brought mice to her nest for her young ones, when, all of a sudden, she dropped plump down into the water. Fancying that the poor bird had fallen down in some kind of a fit, his first thought was to go and fetch the boat, to rescue his favourite from a watery grave. The next minute, however, he saw the Owl rise out of the water, with a fish in her claws, with which she triumphantly flew away to her nest.

It was not this gentleman, but some other, who wrote a song beginning with—

"Of all the brave birds that ever I see,
The Owl is the fairest in her degree;
For all the day long she sits in a tree,
And when the night comes, away flies she,
Crying, 'Tee-whit, tee-whoo.'"

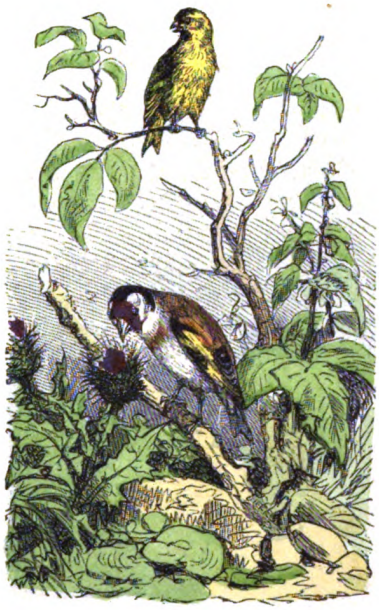
Harmless as Owls are in England, they are not altogether so in other countries. In Germany, for instance, they have the Great, or Eagle Owl, which is accused of carrying off young roes and fawns, as well as hares, rabbits, and winged game; and of committing sad depredations in poultry-yards. Now if it would be content with rats, moles, and "such small deer," there would be no reason for persecuting and killing it; but as it takes so many of the animals that man wants for his own use, he tries to shoot it, and one of our pictures shows how this is done. On a sort of post and perch is a Great, or Eagle Owl, chained, so that it cannot get far away. By-and-by other Owls come to it, to inquire why it does not fly away with them into the woods. And then a man who has been watching inside the barn fires at them through a hole in the roof. This Owl seems to have two large ears, and indeed is sometimes called the Eared Owl, and so it has ears to hear with, as all birds have, but they cannot be seen through the feathers. Those two tufts that look like ears are only a few feathers standing up, and when the bird chooses it can lay them down amongst the rest of its feathers. The colours of Owls are mixtures of brown, grey, black, and white, mottled or streaked. Sometimes they build nests and hatch their Owlets in old buildings or trees, but sometimes they take possession of a magpie's nest instead of troubling to build for themselves.

Starling.



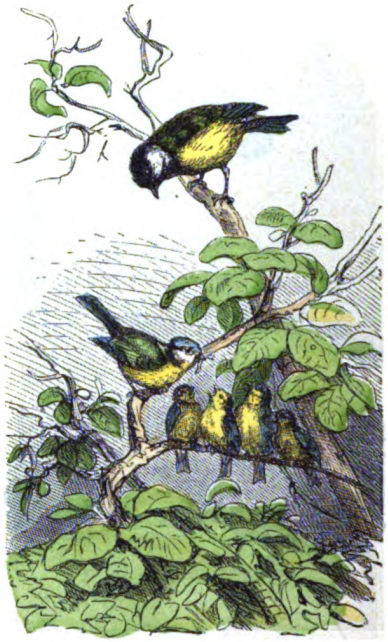
Wren.

Water Wagtail.



Greenfinch and Goldfinch.

Magpie and Raben.



Titmouse.

Crossbill.

Blackbird.

PLATE VI.

BIRDS.

Starlings.

Most likely you have heard, in some story or other, of a tame Starling. There was the famous one that used to hop up and down in its cage and surprise passers-by with saying, "I can't get out, I can't get out." They are often kept in cages, partly perhaps because they are of a pretty form and plumage, but more because they are able to imitate sounds, both of tunes and of words, and because they have very knowing and amusing ways. A cage for a Starling should be very large, or it will wear away its tail, and ruffle its beautiful plumage, so that some of us would rather the poor bird were at liberty in its own native air.

The plumage of the Starling is like that of no other bird; it is dark, and seems to reflect hues of green, purple, copper-colour, and violet, according to the way the light shines on it. Each feather of the upper part has a small distinct spot of pale grey, having a star-like appearance, and it is said that these spots give it the name of *Star*ling. Although it is eight and a half inches in length, it weighs only three ounces, for its feathers are thick, and its tail is longer in proportion than that of many other birds; so you see it is a pretty-looking bird, and not a very large one. It has a bright, restless eye, and a long, strong beak, with which it digs worms, beetles, and grubs out of the ground. It is a large-eating bird; we might almost call it gluttonous, only that it is its nature to devour much food; and besides any creatures it can get from the ground it will catch flies and moths, and eat many seeds and berries. It gathers cherries, more for its own advantage than for that of the owner of the tree; and it is very fond of the berries of ivy. Indeed, an old wall covered with ivy gives it food and shelter both; and those who have ever lived near such a wall, with a few Starlings building their nests there, will tell you that they make, by their continuous chattering, a noise that some would call a hideous din, hardly leaving off all the night through.

But we must not suppose that an ivied wall is the only place Starlings would choose for their home. They do not seem to be very particular, but will build in the hollows of trees, in rocks, and among the cliffs that overhang the sea. In any of these places they build nests of dry leaves and hay, or the fine stalks of plants, and line them with feathers. In these nests, twice in the season, they lay some greeny blue eggs, and rear a family of little Starlings. When these young Starlings are all pretty strong, a good many family parties join company, and small flocks of Starlings fly together, wherever they are likely to find food. They will go in meadows where sheep are feeding, and clear the place of flies and insects that might be very tiresome to the sheep. Then, of a sudden, they will all take wing together, and be lost to sight in the branches of the cherry-trees. A Starling may thus be often seen on a sheep's back, with its head buried in the wool, the sheep seeming quite to enjoy the companionship and good offices of the bird.

It is of a Starling the following fable is told. One day, being near a flock of sheep, the Starling saw an Eagle swoop down and carry off a Lamb in its talons. "Ho, ho," thought the Starling, "I can

do that too." So flying down on to the back of a large old ewe, it made great efforts to fly away with it. But the more it tried, the more the sheep did not move, and at last the Starling's claws were so entangled in the wool, that it could not release itself, and the shepherd caught it, and killed it and ate it for supper. This fable is meant to teach us not to form too high an opinion of our own cleverness; and not to attempt to imitate what is too high for us.

Starlings are altogether sociably disposed birds, and they often fly and feed with rooks and daws. Towards the end of autumn these small flocks join and form larger ones, and they may be seen flying together as if they were but one mass, and wheel round and onwards in the air, as if governed by one mind. They are common in most parts of England, but abound more in the marshy parts. In some of the marshy countries of Europe they are much caught and eaten when young, as pigeons are with us. And in country places here, they are sometimes eaten with other small birds. Cats, however, fond as they are of birds in general, will never eat Starlings. The young birds do not have their full bright plumage during the first year. And, as is the case with many other birds, the bill is dark and brown while young, and bright yellow afterwards. To tame a Starling and to teach it to speak, it must be taken from the nest, and put to school before it learns its own language.

The Wren.

The Wren is the smallest of the English birds. It is only three and a half inches long from the point of its beak to the tip of its tail. It is not gaily attractive in its clothing, the colour being only brown, but it is prettily waved and shaded. It is a very pleasant sight to watch the active little creature hopping and fluttering about from twig to twig, looking for spiders and caterpillars and other insects, of which it eats a great many. Its sharp eyes spy them out as they move on the trees, or on the stems of tall grass, and its bill is so narrow and sharp, that it can follow them into almost the smallest holes and crevices. So it darts and pecks, and pecks and darts, with ceaseless activity, until it feels a little tired, or quite satisfied, and then it rests on a twig and warbles forth a pretty song of happiness.

The Wren belongs to the family of birds called warblers, and it is continually singing as it hops and flutters about in the hedgerows. Not only in spring and summer, but all the winter through, it enlivens us by its sprightly little note; for then, like the Robin, it keeps nearer to the habitations of man; and although it feeds principally on insects and worms, it does not object to vary its food, by picking up any crumbs or bits that may be thrown to it from the house.

Sometimes the Wren will make its nest in shrubs quite near to a house door, but more frequently in the woods, where it builds in low bushes, sometimes in the grass under the trunk of a tree, and sometimes in a hole in the wall. A Wren that has built near to a country habitation will return to the same spot year after year. But there are not many bird's nests just like the Wren's, which has a nice dome above and a deep little basket below, and it is by no means a small nest in proportion to the size of the builders. Indeed, for so small a bird we may call it large, and in it the Wren often brings up a large family, seventeen being not an unusual number. The eggs, which are very small, not much larger than a pea, are white, with a sprinkling of red spots at the thicker end. The complete nest is oval shaped, with only one little opening just large enough for the mother bird to pop in and out. It is beautifully warm inside with wool and feathers, while the outside is woven of moss and grass, and such things as grow near the spot, so that the nest has a good deal the colour and appearance of the things around it, and is easily overlooked.

Although so little, the Wren is a very bold bird, and often drives away those of double its size, if they intrude their company when they are not wanted; and it is very fierce indeed, should a Sparrow or Robin try to pick up a crumb to which it thinks it has a right. In different country parts the Wren goes by the name of Jenny or Kitty, although we can scarcely tell why it should be so. Bewick, who has told us so much about birds, calls it Kitty. Kitty has a cousin in the woods of much the same habits as herself, but with brighter clothes and a pretty orange-coloured tuft of feathers on the head, known by the name of Golden-crested Wren.

The Wagtail.

If you have ever been in the country on a warm showery day, and sat where there was a nicely-shaven lawn before the window, you have most likely seen a Water-Wagtail, for then and there it

loves to run along and nimbly leap a little way from the ground, and catch in its long sharp beak the little insects that the warm moisture has just drawn from the ground; or if it does not happen to see one flying, it puts its beak to the ground, and draws out a worm or small chrysalis, or perhaps picks up some emmets. But a lawn is not the only place for the Wagtails; you may see them following the plough to pick their food from the newly-turned earth; and in the sheep-folds, which generally abound with many sorts of insects; you may see them running over cows as they sit chewing the cud, and either picking up the flies that may settle on the cows, or using the cows themselves as mountains to raise them to the insects that are flying above them. And so light a bird is the Wagtail that the cow is in no way annoyed by its running over it. Wagtails may also often be seen by the edges of horse-ponds without being at all disturbed by the activity of the farmyard. And, from early spring until late in autumn, they are by the banks of rivers; and here they are not content with insects only, but will hover over the water, and, with quick cleverness, dart their sharp beaks into minnows and other very small fish that swim near the top of the water.

Wagtails do not fly very high or very far at a time, and they take their short flights in a sort of jerking manner. They make their nests of dry grass, moss, or roots, lined with hair or feathers. The places where they build are various—often in the grass and rushes by the water-side, sometimes in a hole in a wall, or under roofs of old buildings. Their eggs, generally five in number, are white, spotted with brown. The old birds are very attentive to the young ones for some time after they are able to leave the nest. In early spring the Wagtail sings sweetly, but its song is not loud or long; and it makes a twittering note when flying from place to place.

The body of this bird is small, for, although it is seven inches in length, its very long tail is a great part of it. It also has very long legs, and the German name for it means Brook-stilts. Indeed, the bird has as many names as it has feathers in its tail, and some of them are as long. By some it is called Shaketail, which name, like that of Wagtail, is given to it because of the constant movement of the tail. In many country places it is known by the name of Patty Washdish, no doubt because of its habit of paddling about by the water. But, whatever name it goes by, it is a bright, pleasant, and inoffensive bird.

Magpie and Raven.

Now we come to the middle picture, which shows us a Magpie flying, and a Raven perched upon—what is it? A block of wood? No, but a Mole! for you can see its snout, and one of its hands, and a hind foot. Most likely the Mole has been caught in a trap and left upon the ground, and now the Raven is going to eat it. The Raven will eat flesh of any sort that it can get, and will eat so much that, when persons are very hungry, they sometimes say they are ravenous, which means they could eat as largely as Ravens do. A Raven is an unclean feeder, and seems to like carrion or dead flesh best; but, if that is not in its way, it will destroy Rabbits, Ducks, and Chickens, and eat eggs, worms, reptiles, and shell-fish, and perhaps anything else that comes in its way and it has power over. And it is very powerful, as well as bold.

A full-grown Raven is about two feet long from the tip of its beak to the end of its tail, and four feet from tip to tip of its wings. It flies high and builds high. At one time, Ravens' nests were not uncommon in the high trees of England; but now it is a scarce bird here, building only occasionally on jutting parts of the cliffs over the sea. The nest of a Raven, like the Eagle's, is called an aerie; it is loosely made of sticks and wool. Any one near can tell if there are young Ravens in the aerie by the clamorous noise they make for food. No doubt you have heard or read the beautiful story told in the seventeenth chapter of the first book of Kings, of Ravens being miraculously sent by God to feed his prophet Elijah. Such hungry creatures as Ravens are, would perhaps be the last messengers we should have thought of sending with food; but God chose them for his servants on that occasion, and so guided and overruled the usual habits of the birds, that, morning and evening, they carried to Elijah food that was sufficient for him.

The plumage of the Raven is very thick and glossy, a sort of burnished black or "raven-grey." Its natural voice is a hoarse croak; but it is one of the birds that may be made to talk or to speak a few words. And there are many instances and stories of Ravens being tamed, and making sad trouble in houses, by exercising a habit, which they have in a wild state, as well as when they are tamed, of running away with, and hiding up in some secret hole, any hard small thing that glitters, such as rings, brooches, or money, keys or knives. It is told of a wild Raven that it was shot while flying away with

something in its mouth, and that was a lock off a chest, most likely one that had been wrecked, and the Raven had picked up on the sea-shore. It seems strange that Ravens should have such a habit of hiding and hoarding; but it is a great deal more strange that human beings should ever be misers, and hoard up anything without using it themselves or letting others use it: in them it is not only strange but sinful.

Another name for the Raven is, the Great Corbie Crow. The Raven is the largest and fiercest of all Crows, of which there are three sorts in England, the Common Rook of our fields being one of them.

When on the ground, the Raven hops from place to place; and very knowing and curious he looks, turning his head this way and that, as if he were telling those who have tamed him that he knows all about it, and will make himself quite at home.

The same pair of Ravens will keep together for very many years, building and rearing their young on the same spot year after year. And if no untimely accident destroys them, it is said they will live at least a hundred years.

The Magpie is a black-and-white bird, with a very long tail, which, in flying, spreads out something like a kite, and seems as large as the bird itself. Although, with us, the bird is only black and white, there are some in China and other countries which have colour about them. It is about eighteen inches long, with a very strong bill and bright brown eyes. In many of its habits it is exceedingly like its companion in the picture, the Raven. It will eat anything of almost any sort, but being smaller, it does not venture on such large animals as the Raven does; but it will kill Rats and poultry, and eat the eggs of any bird. Like the Raven, it is often tamed and taught to speak words; it has many amusing and cunning tricks, and its hole contains as many stolen and hidden articles as the Raven's.

A Magpie's nest is usually found at the top of a tall tree; it is large and loosely built outside, but inside is a soft bed of wool, for seven or eight pale green, black-spotted eggs. Whatever the bird may be made to say when it is tamed, it is, in its natural state, continually chattering; it is not a singing but a chattering bird—

> "From bough to bough the restless Magpie roves,
> And chatters as she flies."

And sometimes, when little people talk faster than they should, they are called chatter-pies, which is also another name for the Magpie.

Goldfinch and Siskin.

Here is a very pretty picture of a Siskin perched on a small bough, and a beautiful Goldfinch, ready to put his beak into a thistle-flower. These birds are much alike in their habits. They are active and lively; they have a pleasant plumage, and an agreeable twittering song. Orchards, heaths, and coppices are their favourite abodes. Although they eat worms and caterpillars, and rear their young on them, their chief food is seed of various plants, such as hemp, rape, poppy, groundsel, and especially thistles. For its fondness for thistle the Goldfinch is called also Thistle-finch.

The colours of the Siskin are black, yellow, and green. The Goldfinch is gaily dressed with a rich scarlet on the forehead and under the bill, and its wings are marked with a bright golden streak. Black, white, and cinnamon-brown make up the rest of its plumage.

Goldfinches are not uncommon in England, and live with us all the year through, building neat little nests, tightly woven of moss and grass, and lined with hair and thistle-down. They build in bushes near the ground, and have five or six eggs with purple spots. The Siskin is not a native of England, but is common in Germany, sometimes, however, visiting England in flocks, and being known in the country as Barley-birds. In London the Siskin is sometimes called Aberdevine.

Both the Siskin and Goldfinch are kept in cages, and are said to bear the confinement very well; and some few persons have spent much time and pains in making them learn various tricks; but they are naturally active, restless birds, and it is pleasanter to think of them enjoying life in their natural state. There is a pretty little poem to the Goldfinch, that says—

> "Spread thy plumage, trim and gay,
> Glittering in the noontide ray,
> As upon the thorn-tree's stem
> Perch'd, thou sipp'st the dewy gem.
> Fickle bird, for ever roving,
> Endless changes ever loving;
> Now in orchards gaily sporting,
> Now to flowery fields resorting;
> Chasing now the thistle's down,
> By the gentle zephyr blown;
> Lightly, on thou wing'st thy way,
> Always happy, always gay."

The Blue Titmouse.

This busy little bird is often seen in our gardens and orchards, and a very useful bird it is there; for it runs up and down the branches of fruit trees, pecking away little insects and their eggs, which, if left, would eat the bloom of the tree, and prevent a crop of fruit next year. A pretty sight it is to watch it running along the twigs of the trees, holding on to them with its back towards the ground as easily as any other way. It is as nimble as a Mouse, and not unlike one in its movements; this may, perhaps, have given it the name of Mouse. It is also called Tom-tit and Blue-cap. Pretty and useful as this little bird is, we are sorry to say it has one bad propensity; it is a Bee-eater, and will sit and watch the Bee-hives, making too hearty a meal of the industrious insects as they are flying off in search of honey, or as they return laden with it.

It uses its short, but pointed and strong bill, as the Woodpecker does, to make holes in a wall or tree, so that it may have a snug little place for its nest, where it sits upon little white eggs with red spots. It is a furious little bird, and if anything frightens or offends it, it ruffles up all its feathers, and shuffles itself about, making noises like the hissing of a Snake or the spitting of an angry Cat. And sometimes it will fight with birds larger than itself until it kills them.

The colours of the Titmouse are a mixture of blue, green, and yellow. It does not sing, but makes a quick, shrill chirp as it moves about. Its length is not more than four inches and a half.

The Crossbill.

The gay little birds whose parrot-like plumage enlivens the pine forests of Germany, Switzerland, Sweden, and other neighbouring countries, are rarely met with in England. It is said that they have sometimes been known to breed in the larch plantations of Gloucestershire; but they are not a common English bird. Occasionally, in the autumn, flocks of Crossbills have come over to England and have done great mischief in the apple orchards. There was such a flock in the year 1821, and old books tell us of the same so far back as the year 1254, and again in 1593.

Its great peculiarity is its bill,—the upper and lower parts, or *mandibles*, as they are called, being hooked and crossed over each other, as you may see by one in the picture. The other bird is using its bill, in their favourite employment of picking the seeds from the pine cones. The pine-trees give these birds both food and shelter, for it is on their branches that they build their nests, and rear their young. When they get into orchards they use their crossbills like a pair of scissors to cut the apples open, and daintily hook out the seeds or pips, which they eat, and leave the apples entirely spoiled.

The Blackbird.

The soft soothing song of this black-coated warbler is one of the pleasures of the country, though the country people know that its continued song betokens showery weather. The bird is both shy and confiding; having confidence enough in man to build its nest in the garden shrubs quite near his house; but is shy and careful enough to conceal it in the thickness of the shrubs, so that it is not until the young are hatched in it, and the old birds constantly fly to and fro to carry food to the little ones, that the whereabouts of the nest is detected. Then, by-and-by, with what proud delight they sally forth with their four or five young ones, rapidly picking up insects and drawing worms from the grass to feed them with. But an untaught eye, looking at them, might say, "There is a Blackbird and some Thrushes;" for the hen, or mother Blackbird, and her young ones have not black but brown plumage.

But is it only worms and insects that Blackbirds use for food? No, no, they are fond of ripe cherries and currants, and indeed any soft ripe fruit. But if they do take a little ripe fruit, they pay for it with a sweet song. And more than that, they help to secure a crop of fruit by industriously eating the numbers of creatures that would otherwise destroy it, from the little grubs that would eat the buds off the fruit bloom, to the flies and snails that would spoil or eat the ripe fruit. So who would look angrily at even a pair of Blackbirds with their whole family hopping about on the lawn? But it is not only on shrubs and lawns that Blackbirds build and feed. The woods are full of their melody; and there they find insects, and berries, and fruits; but as they are good flying birds, they do not think it too much trouble to take occasional flights to the nearest orchards or gardens.

The Blackbird is also called the Ouzel. Its length is about ten inches. The eggs are a bluish-green, marked with dusky spots.

PLATE VII.

BIRDS.

The Redbreast.

Why is this pretty warbler, with his red waistcoat and glossy brown coat, a favourite with every one? It cannot be altogether because he has a red waistcoat, although there is no doubt that looks very pleasant when seen in contrast with the freshly-turned earth or the newly-fallen snow. But the little creature has such winning ways; it looks and seems to say, "I am not afraid; I mean you no harm, and I do not think you will do me any. If you will only let me be near you while you dig the earth, I will pick out the worms and the insects, and that will give me a meal and be of use to you." This he does in summer, sometimes carrying off the worms to his nest of little ones near, and paying the gardener with a song. In winter, when other birds are silent and far away in the woods, Robin stays near the dwelling-house and cheers us with his plaintive notes: then a few crumbs are well bestowed in return for his sweet music; and the confiding manner in which he takes them, makes him a favourite at once.

Redbreasts build their nests of moss and dry leaves woven together with hair, and lined with feathers; the eggs, five or six in number, are dull white, with reddish spots. While the mother bird sits hatching the eggs, Cock-robin is perched near, singing to her his loudest and sweetest songs, watching all the time that no other bird comes too near the nest. Should one come closer than he approves, he angrily chases it away. Indeed, our little friend is of rather a quarrelsome habit among other birds.

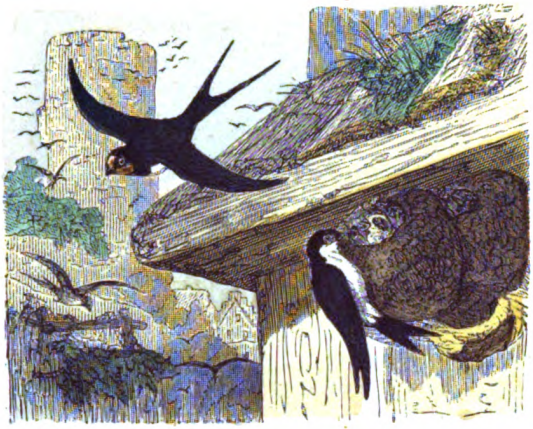
As to where Robin may choose to build his nest, there is no reckoning with certainty. It may be in a hole in an ivy wall, or it may be in a hollow among the roots of a large tree, or among the grass on a bank, or in low shrubs in the garden—almost anywhere but in high branches of trees. One Robin, though he must have been more of a town than a country Robin, flew in and out of a museum where the window was usually open, and, without any fear, called his mate, and they built their nest in the open mouth of a stuffed Crocodile, and in this curious place they reared a family of little Robins. Another pair had their nest in a snug corner of a ship that was being built in a busy dockyard, and went on with their operations, which no doubt were of more importance to them than all the din and bustle around, till their nest was completed and furnished with eggs.

Many pretty things have been written about Robin Redbreast. "The beautiful and brave little Robin," one says, "the earliest of the song birds, advances alone, to give a greeting to the new year, with notes clear and brilliant as his eyes, bold and abrupt as his resolute hoppings and determined stand. He might be called the Winter Nightingale, only that he never sings after the bright twilight.

"From a comfortable room, at this dead season, it is delicious to look out upon a Robin, as he perches on a near tree, among naked shoots, barren as lances, jerking his sweet notes upon the stillness.

"In a walk before the grey of evening, it is a still higher gratification to find him far from the

Robin Redbreast.



Swallows.

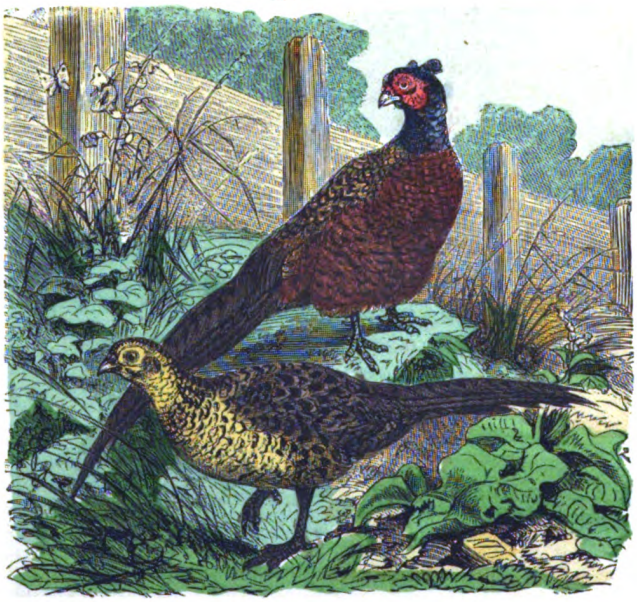
Nightingale.

Wild Dove.

Heathcock.

Quail.

Partridge.



Pheasant.

haunts of careworn men, upon a slender spray of some high bank, seemingly unconscious of other living things; pouring upon the dreariness of the dell short liquid carols, with long intervals between; converting the frozen waste and frowning steep into a solemn place of devotion: winning the child-like passenger to contemplation and thanksgiving—

'And now another day is gone,
I'll sing my Maker's praise.'

"In infancy, the Robin was our favourite and familiar; and through life every remembrance of him is pleasurable. We had in our hands before we knew how to use a book, the fabled 'Death and Funeral of Cock Robin,' and learned it by heart before we could read. Then followed the important ballad-story, 'The Children in the Wood,' showing how their parents died, and left them to the care of a cruel uncle, who hired two ruffians to slay them in a wood; how the ruffians quarrelled and fought 'about the children's life;' how he that was of mildest mood slew the other, and then led them farther into the wood, and left then, saying he would bring them food when he came back, and how—

'These pretty babes, with hand in hand,
Went wandering up and down,
But never more they saw the man
Approaching from the town.
Their pretty lips, with blackberries,
Were all besmeared and dyed;
And when they saw the darksome night,
They sat them down and cried.
Thus wandered these two pretty babes,
Till death did end their grief;
In one another's arms they died,
As babes wanting relief.
No burial these pretty babes
Of any man receives,
Till Robin Redbreast painfully,
Did cover them with leaves.'"

Another old writer says:—"As oft as I hear the Robin Redbreast chant as cheerfully in September, the beginning of winter, as in March, the approach of summer, why should not we give as cheerful entertainment to the hoar-frost hairs of our age's winter, as to the primroses of our youth's spring? Why not to the declining sun in adversity, as to the rising sun of prosperity? I am sent to the Ant to learn industry, to the Dove to learn innocency, to the Serpent to learn wisdom; and why not to this bird to learn equanimity and patience, and to keep the same tenor of my mind's quietness, as well at the approach of the calamities of winter, as of the spring of happiness? And, since the Roman's constancy is so commended, who changed not his countenance with his changed fortunes, why should not I, with a Christian resolution, hold a steady course in all weathers, and, though forced by cross winds to shift my sails, and catch at side winds, yet skilfully to steer, and hold on my course, by the *Cape of Good Hope*, till I arrive at the haven of eternal happiness?"

And now here is a pretty little poem to the Redbreast, called—

"THE WINTER ROBIN.

"A suppliant to your window comes,
Who trusts your faith, and fears no guile,
He claims admittance for your crumbs,
And reads his passport in your smile.

"For cold and cheerless is the day,
And he has sought the hedges round;
No berry hangs upon the spray,
Nor worm, nor ant-egg can be found.

"Secure his suit will be preferred,
No fears his tender feet deter;
For sacred is the household bird
That wears the scarlet stomacher."

These are only specimens of what has been written, at different times, about this favourite English bird; but we cannot take up more room, even for the Redbreast, and must go on to the next picture.

Swallows.

This picture represents the Chimney Swallow on the wing, and the Martin or Window Swallow busy at its nest, under the eaves of a house, one of its favourite places for building. It is wonderful how it can so cleverly, with only its little beak for a tool, fasten up the mud and straw, and form such a comfortable dwelling. Those who have opportunity may watch these very quick flying birds, go to and fro while they are building, and carry mud from the edges of ponds or ditches, and if there happens to be any building going on near they take many a beakful from the bricklayers' mortar. When the nest is formed, the Martin lines it well with feathers before the hen bird puts her dusky white eggs there.

The Chimney Swallow is rather larger than the Window Swallow, and has a longer forked tail and a chestnut-coloured forehead and chin, if a bird may

be said to have a chin: the rest of its plumage is the same colour as the Martin's; black with a green or purple hue, and white.

The Chimney Swallow, as its name implies, builds in chimneys, a foot or so below the surface. Sometimes it has happened that a little Swallow has fallen over the edge of the nest, and come tumbling down into the room below, all covered with soot. One that was so found appeared to be dead, but it was carefully washed with warm water, and smoothed and petted, and gradually became quite lively again. It perched upon the finger of the person who had washed it, and took flies that were caught and held near to his beak. After a time it was placed upon a stick for a perch, and remained there quietly all night. The next day it amused itself by flying about the room and pecking up every insect that appeared, and taking from the hand all that were carried to it. It made as though it would continue a family pet; when, all of a sudden, it seemed to remember the nest it had left, and with a chirp and a twitter it darted through the open window, and was soon at the chimney-top again.

Swallows are ever on the wing, catching flies, of which it is said they each eat several hundreds in a day. Swallows come to our country in the spring, and fly away again in large flocks in the autumn. For some days before they go, they gather together in large companies and practise flying about, teaching the young ones to join in the flight. Then, as soon as it is light on a favourable day, a large flock goes to the sea coast, and flies away over the sea, leaving the green meadows of England for the orange groves of Italy, and for the plains of Africa. One poet has thus written of its departure:—

"Swift birds, that skim o'er the stormy deep,
Who steadily onwards your journey keep,
Who neither for rest nor slumber stay,
But press still forward, by night or day—
As in your unwearying course ye fly
Beneath the clear and unclouded sky;
Oh! may we, without delay, like you,
The path of duty and right pursue."

Another poet has thus welcomed the Swallow's return:—

"Welcome, welcome, feathered stranger!
Now the sun bids nature smile;
Safe arrived, and free from danger,
Welcome to our blooming isle.
Still twitter on my lonely roof,
And hail me at the dawn of day,
Each morn the recollected proof
Of time that ever fleets away.

"Fond of sunshine, fond of shade,
Fond of skies serene and clear,
E'en transient storms thy joys invade,
In fairest seasons of the year.
What makes thee seek a milder clime?
What bids thee shun the wintry gale?
How knowest thou thy departing time?
Hail, wondrous bird! hail, Swallow, hail!

"Sure something more to thee is given
Than myriads of the feathered race;
Some gift divine, some spark from heaven,
That guides thy flight from place to place.
Still freely come, still freely go,
And blessings on thy vigorous wing;
May thy fast flight meet no rude foe,
Delightful *Messenger of Spring*."

The Nightingale.

This pleasing warbler is another of those birds of passage which visit us in spring, and fly away again in autumn. The young reader may never have seen a Nightingale, for it is a wild and timid bird, and is heard oftener than it is seen. It is not a large bird, although it is the largest of the warblers, being rather more than six inches in length, and eleven from tip to tip of its wings. Its form, and the shading of its plumage, have a mild and pleasing appearance, although there is no colour but brown, shading to white.

The name of Nightingale means night-singer, and its song is heard chiefly in the night, when other songsters are still. But it is well known to those who live in country houses, surrounded by shrubberies and copses, that if the situation attracts the birds at all, there are many of them, and they sing at any hour of the twenty-four. Their song is a sweet trilling, a stream of music, varied in notes as the ripples on the water.

Early in April is the time to listen for the Nightingale. It then visits many parts of England, but not all. In Kent, Oxfordshire, and Berkshire, it is very abundant; but in some of the northern counties it is not heard. In low, thick bushes, it builds a well-concealed nest of leaves and moss. When the young ones are hatched, the old birds are too busy feeding them to have much time for singing, and long before they fly away from us in August they have quite left off their song. It is said that they go from us to Egypt, Syria, and the northern parts of Africa. Caterpillars and other insects, as well as berries and ripe fruits, are eaten by these pretty songsters. This common enough

propensity in birds is referred to in the following pleasant fable of—

"THE NIGHTINGALE AND GLOWWORM.

"A Nightingale, that all day long
Had cheered the village with his song;
Nor yet at eve his note suspended,
Nor yet when eventide was ended,
Began to feel, as well he might,
The keen demands of appetite;
When, looking eagerly around,
He spied far off, upon the ground,
A something shining in the dark,
And knew the Glowworm by his spark;
So stooping down from hawthorn top,
He thought to put him in his crop.
The worm, aware of his intent,
Harangued him thus, right eloquent—
'Did you admire my lamp,' quoth he,
'As much as I your minstrelsy,
You would abhor to do me wrong
As much as I to spoil your song;
For 'twas the self-same power Divine
Taught you to sing, and me to shine;
That you with music, I with light,
Might beautify and cheer the night.'
The songster heard his short oration,
And, warbling out his approbation,
Released him, as my story tells,
And found a supper somewhere else.
Hence jarring sectaries may learn
Their real interest to discern;
That brother should not war with brother,
And worry and devour each other;
But sing and shine by sweet consent,
Till life's poor transient night is spent,
Respecting in each other's case
The gifts of nature and of grace.
Those Christians best deserve the name
Who studiously make peace their aim;
Peace both the duty and the prize
Of him that creeps and him that flies."

The Wild Dove.

The Dove, from its harmless and endearing manner, has always been a favourite with man. Very likely the name of Dove reminds you of the story in the eighth of Genesis, about Noah sending the Dove out of the Ark, when he wanted to know whether the waters of the great flood were getting less; and how it returned and returned to him because it could not find rest for the sole of its foot, until the third time it went back to him carrying in its mouth an olive-leaf plucked off. Did ever any bird carry more joyful tidings? The sight of the olive-leaf told Noah what he so much wanted to know. And even to this day the picture of a Dove with an olive-leaf means peace. And we can hardly fancy a more peaceful, soothing sound, than the soft cooing of the Dove.

There are several varieties of Doves or Pigeons. The plumage of the Wild Dove is of a deep bluish ash colour, with fine changeable green and purple, and bars of black on tail and wings. It is larger than the domestic Pigeon, and some pet Doves. It inhabits the woods, and builds its nest of a few dry sticks on the boughs of trees. The pair of Pigeons take it in turns to mind the nest and sit upon the eggs. They never have more than two eggs at a time, but they breed more than once in the summer. Pigeons' eggs are just like those of common Fowl, only much smaller. They are very nice to eat, and so are the young birds; and where they are abundant, as they are in some parts of England, they are shot for food.

This Wild Pigeon loves its native woods, so that when the eggs have been hatched by a tame bird in a dove-cot, the little wild ones have flown off to the woods as soon as they were strong enough. Pigeons are remarkable for strength of wing and swiftness of flight. In autumn, the Wood Pigeons, both young and old, join together in flocks, and keep so until the spring. They feed in flocks over the stubble fields, or on beech-mast or acorns; and sometimes a flock may be seen feasting in clover or turnip fields, eating both leaves and roots.

Wood Grouse.

This bird is common in Germany and Russia, and places where pine forests abound; but now is rarely, if ever, met with in Great Britain. It eats the leaves and cones of the Scotch fir, and cranberries, blueberries, and all other berries that abound in northern forests. The bird is three feet in length and four in breadth, often weighing ten or twelve pounds, and is valued for food. Although it gets much of its food in the pine-tree, and frequently sits in the branches, yet it is much on the ground through the day, and makes its nest there.

The Quail.

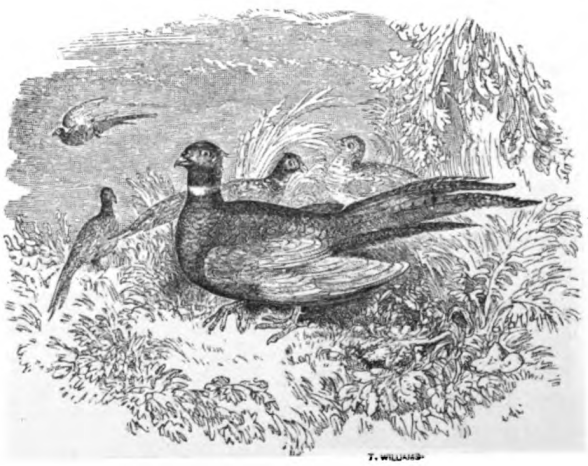
Quails are small brown-feathered birds, highly esteemed for food. They are not very numerous in England, although broods of them are occasionally found, especially on parts of the sea

coast. They feed upon grain and insects. They are abundant in many parts of Asia, Africa, and the southern parts of Europe. They often take long flights, and in some seasons are so numerous that they appear like large clouds darkening the air. The people of Israel in their journeyings through the wilderness were supplied with Quails for food.

Partridges.

Partridges are of much the same form and appearance as Quails, but very much larger. Quails are about seven inches long and Partridges thirteen. Walking through the cornfields in early spring, when only the green blade is showing, you would be very likely to hear the twit-twitting of Partridges. They would then seem to be talking about making their nests. But they do not, like Magpies, fly to the tops of high trees and build there. Indeed, they are contented with a little hollow in the ground, slightly covered with a few old leaves and little twiggy bits of grass or stubble. They sometimes choose a hollow under a bush on a bank, or inside a chalk-pit, but oftener on the ground of corn, clover, or grass fields. They lay from fifteen to twenty greenish-grey eggs.

If you should walk again through the same field when the corn is getting ripe, you might be startled with a sudden loud whizzing noise, and see a pair of Partridges rising from the ground, accompanied by many young ones, and these would be called a covey. The larger the covey the better a sportsman is pleased, for he means on the first of September to try his skill in shooting them, and he knows that he and his friends like to see them on the table. There are several sorts of Partridges, but that best known in England is called the Common Grey Partridge. The general colour of the plumage is brown, mixed with black, and each feather is streaked down the middle with buff colour.



Pheasants.

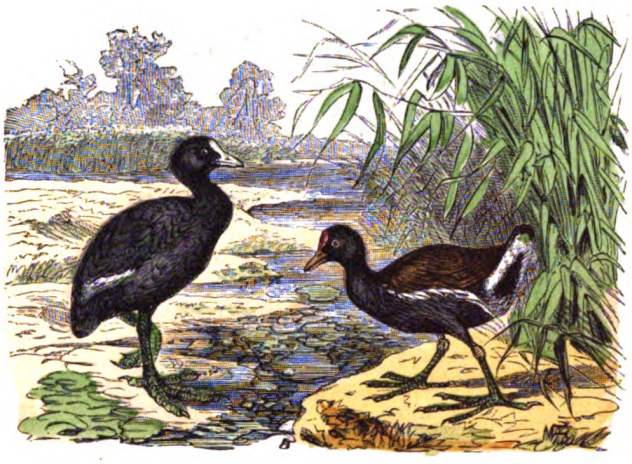
Pheasants are the most richly coloured birds that breed in English woods. They originally came from Asia; and now, although they breed in the woods, as they would do in their native country, we cannot call them wild birds, for they are looked after and taken care of by a keeper of the woods, as much as the poultry in a farmyard are cared for by a farmer. Although they will feed on acorns and wild berries, they are fond of corn, peas, and especially buckwheat; all these things are grown within their reach, or carried to them; and they will often come to the keeper's whistle.

Our picture is of a pair of Pheasants. The cock, as with our common poultry, is by far the larger and gayer bird. He has a fine bright scarlet rim round his eyes, of feathers so small that it seems like velvet: then he has purple, green, and blue, red, black, white, cream-colour, orange, and reddish brown, all beautifully intermixed. He is

> "The gaudy Pheasant, rich with varying dyes
> That fade alternate and alternate glow,
> Receiving now his colours from the skies,
> And now reflecting back the watery bow."

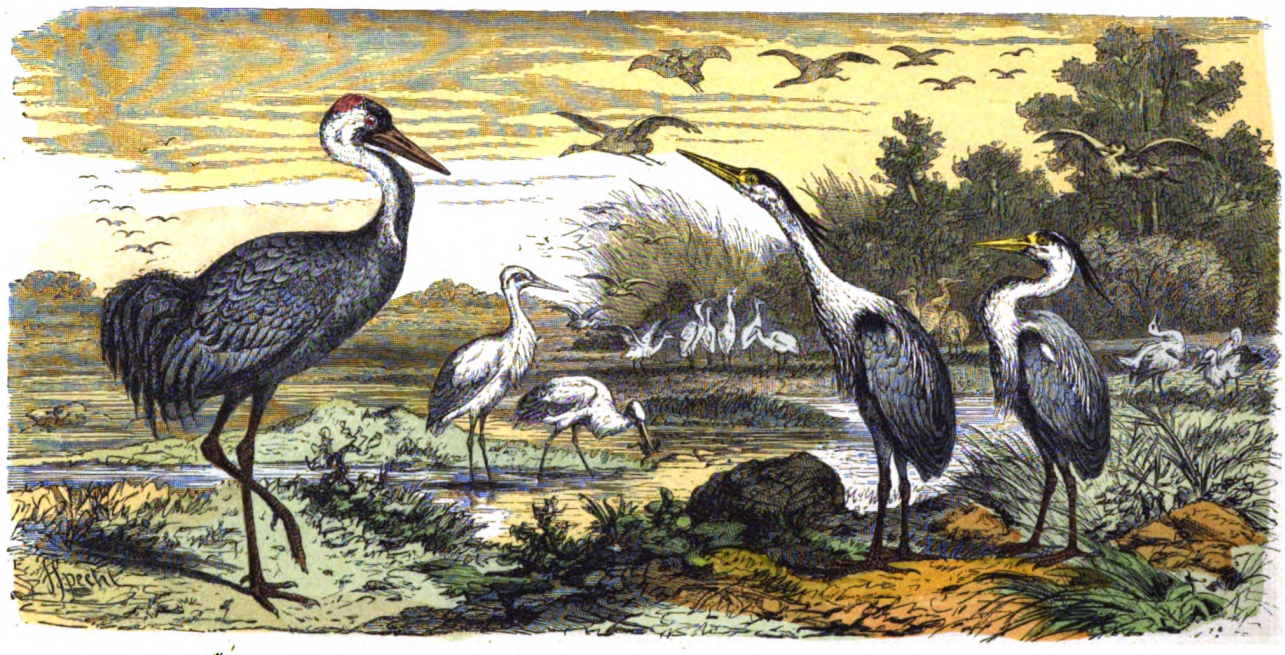
Indeed, he has the colours of the rainbow, and is a very handsome bird, although called the Common Pheasant. There are many varieties. Some gentlemen have in their woods a kind as white as snow; then there are the Gold and Silver Pheasants, which may be seen in aviaries.

Pheasants may often be discovered in spring by the noise which the cocks make in crowing and clapping their wings, which may be heard at some distance. They often run out of the woods, and sport about on the fields around; at night they return and roost in the trees. Pheasants make their nests in much the same places and manner as Partridges; and, like Partridges, they are much esteemed for food. From the beak to the tip of the tail they measure two feet eleven inches.

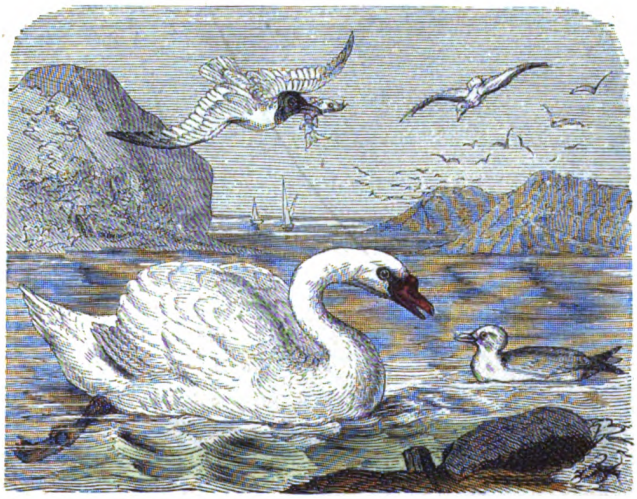


Water Hens.

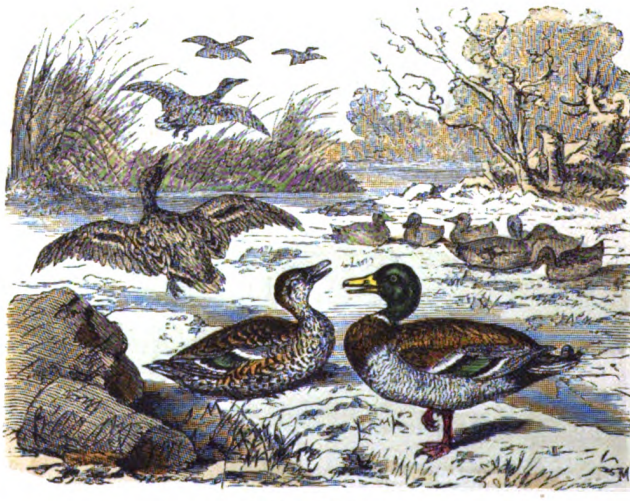
Woodcock.



Crane. Stork. Heron.



Swan and Seamew.



Wild Ducks.

PLATE VIII.

BIRDS.

The Crane, Stork, and Heron.

THE large middle picture on the eighth plate, and the two smaller ones above, are of Wading Birds. They do not swim much, and are not seen on the surface of deep open water. They have not webbed feet, as swimming birds have, but they have very long legs admirably adapted for walking in shallow water on the margin of rivers and lakes or ponds, and among the reeds and rushes of swampy places. Some of them also have very long necks, so that they can dip down deep in the water, or into the muddy bottoms, to catch fish, or to reach water plants, or such living creatures as they feed upon. Although they all have wings, and some of them take very long flights through the air, they are more birds of the water than of the air.

The largest wader in our picture is the long-legged, long-necked CRANE, with his tuft of feathers overhanging the tail, giving him a little the appearance of an ostrich. He is a large bird, measuring five feet in length. His plumage is black and white and ash colour, sometimes showing red on the head, where it is not thickly covered with feathers. Cranes were formerly abundant in the fens and marshes of Great Britain; and in the time of William the Conqueror they were used for food. Long since then they have occasionally paid us visits, but are never found here now. They are well known on the continent of Europe, as well as in Asia and Africa, choosing the cooler places in summer, and migrating to the warmer in winter. In these migrations the Cranes fly in large flocks, very high in the air, so as to be scarcely seen; but their course is easily traced by the trumpet-like loud noise they make.

Cranes feed upon Frogs, Lizards, Worms, Slugs, and other inhabitants of water and mud. Besides which, by way of variety, they will readily eat grain and vegetables. And sometimes they do great damage to farmers by settling on newly-sown fields of corn, and digging up and devouring the seed.

Their nests are found among the flags and reeds of the waterside, and sometimes in old ruins.

The STORK does not build by the waterside and in solitary places, as the Crane does; but has its nest on the tops of tall buildings, such as steeples, high towers, or the uppermost branches of the fir-tree. In some countries where the inhabitants regard the Stork as almost sacred, they put boxes on the roofs of the houses, and there the birds will make their nests, and return to them year after year. They fly to the margins of pools and to marshes for their food, which, as with the Crane, consists chiefly of Snakes, Lizards, Frogs, and small fish. Holland is one of the favourite places of the Stork. It is not known in Great Britain now. Like the Crane, it migrates from place to place, so as to avoid extremes of heat or cold. Before taking their departure, Storks gather together in large flocks, and seem to be forming the plan of their flight. The Stork is much smaller than the Crane, and its plumage is mostly white, with some black about the wings and tail. There is one species almost entirely black; but this is much rarer than the white.

The reason why Storks are general favourites

where they abound, as in Holland and other parts of Europe, is that they very much assist in keeping the towns free of what would otherwise be offensive, by feeding on refuse; and as they are very gentle and familiar and trusting, they may be seen walking about the streets without fear, and congregating on the roofs of houses in the busiest thoroughfares.

The Jews used to call the Stork by a name meaning "pity," or "mercy," on account of their great attachment to each other, and the kindness shown by the young to the older birds. It is said that when the parent birds become feeble or sick, or in any way disabled, the young ones will bring them food and carefully tend them. In this they set a good example to us, to be kind, and loving, and helpful, and sympathising towards all who are in adversity; and especially to honour our parents when age and infirmity and feebleness come upon them. It is seen, also, that the parent birds are more than ordinarily attached to their young, and have been known to perish voluntarily in the flames of a burning house rather than desert their unfledged nestlings.

The Stork is three or four times mentioned in the Bible; and its migrations are thus spoken of by the prophet Jeremiah: "The Stork in the heavens knoweth her appointed times; but my people know not the judgment of the Lord." It is very sad when any person becomes so unconcerned, or so unwilling to be taught of God, as to be put below a poor bird in respect of wisdom and obedience. Let us take care that it is not said of us.

The Common Heron is found in almost every part of the world. It may often be seen by the edges of rivers in England; but it is not nearly so common as it used to be, when much more of the country was undrained, and the bird was looked for as game and hunted by the Falcon, as already described. It has a very long bill, and taking in the length of that, it is more than three feet long, and five feet from tip to tip of wing, but it has so much feather and little flesh that it weighs hardly more than three pounds. It frequents waters which are near to tall trees. At one time English people used to have heronries as they now have rookeries. Herons are famous fishers, their necks and bills serving as line and hook; sometimes they may be seen with almost the whole length of neck in the water, when they will fetch up eels, or any other sort of fish; at other times they may be observed, while flying suddenly, to dart to the surface of the water and bring out a fish without stopping in flight. They are very noisy through the night, which is their chief feeding-time. Their cry is shrill and unpleasant, not very unlike the noise of Geese. The plumage is black, white, and ash colour; the front of the neck is white, handsomely spotted with a double row of black feathers. They have a curious appearance when flying, as they draw their heads between their shoulders and stretch their legs out like tails.

The Moorhen and Coot.

These birds are very much alike in their habits: they both hide themselves through the day among the rushes or weeds of swamps, or on the edges of large unfrequented pools. In the evening they come out to feed upon the herbage, insects, and small fish. They build their nests of coarse weeds well worked together, and lined with soft fine grass. The nest of the Coot is sometimes found floating on the water, on a little island of weeds or rushes which have been uprooted from the river's bed. But, in this case, the old bird continues to sit upon her eggs, until they are hatched into what look like little sooty-coloured lumps of down. Then the mother bird has to guard them as well as she can from the Pike, which is said to devour great numbers of young water birds as soon as they go into the water, or almost directly they come out of the shell. The Coot does not fly high, and, indeed, seldom quits the water and its edges. It is what is called fin-footed: you may see in the picture that its feet are different from those of the Moorhen, which, like the other wading birds, have an edging or fringe to each toe, and sharp, long talons. The flesh of both these birds is good for food.

The Snipe.

With a bill a quarter as long as itself, the little Snipe is constantly digging and nibbling in the soft mud in search of food. It finds various worms and insects in the bogs and wet grounds where it lives. It makes a nest of withered grass and a few feathers, under the stump of an old willow or any tree that may be there; and it would be content to lead a leisurely life with its mate and young ones, just as you see it in the picture; but the sportsman and his dog are too fond of going to look after it to allow of this. Its plumage has various shades of

brown and yellow, with some black and white; and, in autumn, it is not unlike the withered leaves and herbage. It would seem as if the little bird was aware of the similarity, for when anything is near that frightens it, it sits motionless amongst the leaves until it thinks the danger to be very near; then it gives a feeble whistle, and flies away in a zig-zag direction, sometimes almost out of sight, when its noise is something like the bleating of a goat. It is most likely that which gives it the other name it has, of Heather Bleater. It is twelve inches in length, and weighs four ounces; and because it is liked for food, the sportsman tries to find it.

The Swan and Grebe.

The two lower pictures of this plate represent web-footed birds, which swim far out upon the open waters. The largest of them is a Swan. You may perhaps have seen Swans gracefully sailing on some of our own rivers or lakes: they are called the Mute Swan, and are not exactly the same sort as the one in the picture, which is a Wild Swan, and is also called the Whistling Swan, from a shrill harsh noise that it makes.

Wild Swans are found in the northern parts of both Europe and Asia. In very severe winters they come south in small flocks to the fresh waters near the shores both of England and France. Wide morasses, lakes, or the mouths of rivers or inundated grounds, are their abodes. Their down is very valuable, and, as well as the feathers, is obtained in great quantities by the Icelanders, who hunt the Swans through the month of August, when they are changing their plumage; and then not having their wing feathers they cannot fly away. The Icelanders go in parties on small horses trained to travel on boggy ground, and they take their dogs with them to assist in the capture. The flesh and eggs of the Wild Swan are highly esteemed for food. A small Grebe is swimming near the Swan, and a black-headed Gull, having captured a fish from the water, is flying upwards with it to its home on the cliffs.

Wild Ducks and Drake.

Wild Ducks are found in Asia and America as well as in Europe. In summer they choose the lakes and marshes of the north; and towards winter fly in large flocks to warmer parts. Those that are in England generally remain all the year through. There are very many in the Lincolnshire fens. They live in large flocks, and hunting them affords a sport as well as a business to many. If you look at the picture of the male bird, or Drake, on land, you may see what is meant by webbed feet—a skin joining the toes together. You may see, too, that he is beautifully marked: the head and upper half of the neck are of a glossy, changeable green, with a white ring in the middle of the neck; the lower part of the neck, the breast, and shoulders are chestnut-coloured; and the wings have beautiful streaks of bright green and purple, edged with black and white. Wild Ducks are esteemed for food, but they are not so large as the Domestic Duck.

The following poetical address will agreeably serve to garnish this group of birds.

"To a Water-Fowl.

"Whither, 'midst falling dew,
While glow the heavens with the last steps of day,
Far through their rosy depths, dost thou pursue
Thy solitary way?
Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As, darkly painted on the crimson sky,
Thy figure floats along.

"Seekst thou the plashy brink
Of weedy lake, or marge of river wide,
Or where the rocky billows rise and sink,
On the chafed ocean's side?
There is a Power whose care
Teaches thy way along that pathless coast,—
The desert and illimitable air,—
Lone wandering, but not lost.

"All day thy wings have fanned,
At that far height, the cold thin atmosphere;
Yet stoop not, weary, to the welcome land,
Though the dark night is near.
And soon that toil shall end;
Soon shalt thou find a summer home, and rest
And scream among thy fellows: reeds shall bend
Soon o'er thy sheltered nest.

"Thou 'rt gone. The abyss of heaven
Hath swallowed up thy form; yet on my heart
Deeply hath sunk the lesson thou hast given,
Nor will it soon depart.
He, who from zone to zone,
Guides through the boundless sky the certain flight:
——In the long way that I must tread alone,
Will lead my steps aright."

PLATE IX.

REPTILES.

Newts, or Efts.

THE first picture in this page of Reptiles shows a Crested Newt and a Smooth Newt, varieties of *Salamandra* bred in our ponds, ditches, and standing waters.

The eggs of the future Newts are laid on the leaves of water-plants. When hatched, the little animals begin their existence as Tadpoles, and are some weeks in arriving at the perfect state. At first, instead of four legs, they have only two little claspers, by which they can hold fast to anything in the water until they have the means of swimming about. In three weeks these holders have given place to a pair of limbs, with four toes, and eyes have appeared; then the little creature quickly glides along the water with its long flattened tail; and, in a few more days, the hind legs, with feet and five toes, have sprouted out. The Tadpole has tufted gills to breathe with, but these gradually transfer their office to inward lungs, and then the creature has occasionally to pop its head out of water for a supply of air.

When Newts are completely formed, they may be called *amphibious*, which means capable of living on land or water; for, like Frogs and Toads, they often take distant journeys from the water, and may be found hid up under stones or rubbish in damp places. In such places, or buried in the banks by the water, they pass the winter, and, as is the case with Snakes, although they live separately during the season of activity, they may be found in their winter quarters a good many together.

These Newts are about six inches long; they have sharp teeth, and devour worms, insects, snails, and even tadpoles, in much the same snapping manner that Snakes eat. Should they lose their tail or a limb, another will grow to supply its place. The colours vary from almost black or dark olive to a pale bluish-grey above, and orange with black spots on the underneath.

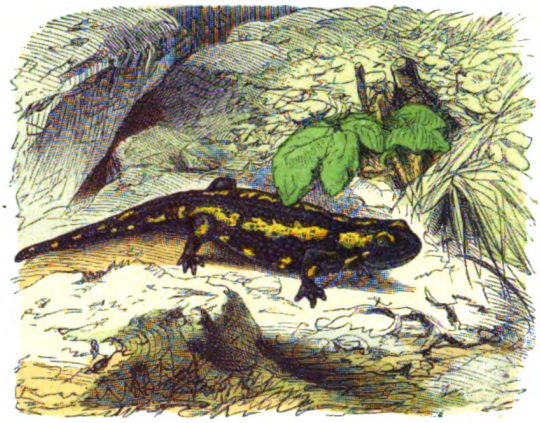
The Salamander.

Our next picture is of the Common Salamander. There are many sorts, and this is the largest of the European varieties. Although found in France and many of the warmer parts of Europe, it is never met with in the British Islands. The colour is black, with bright yellow spots on the upper part of the body; and the underneath is of a greyish-blue tint. The yellow spots, as you may see, are in nearly regular rows on each side.

This is the little creature about which many strange fables have been invented, so that we were likely to imagine it to be at least as large as a Boa-constrictor, while really it measures only a few inches in length, and is as undeserving as it is unconscious of the stories told about it. Among other strange matters, the Salamander was said to be able to withstand any amount of heat; and so far from being burnt by a fire, it was declared that a very hot fire would breed them. An increased knowledge of natural history has taught that all this is untrue as it is unreasonable.

The Salamander has rough dark spots over it; and from these spots, when it is alarmed, it can squirt

Newt.



Salamander.

Lizards.

Ringed Snake. Viper. Blindworm.

Frogs.

Toads.

a milky fluid a distance of several inches. This fluid is poisonous, and will kill small creatures, and is not likely to do any good to human beings, but it can scarcely do sufficient harm to account for the terror and dislike with which this creature, in common with the Newts, is often regarded. Although Salamanders are not found in England, Newts bearing much resemblance to them, both in form, colour, and habits, are not unfrequently discovered in damp, shady places, close under walls, or among heaps of stony rubbish, where they might live without doing the slightest harm; but so great is the terror generally felt concerning them, that to be seen is to be killed, supposing any one on the spot can be found with sufficient heroism to be the executioner.

Not very many years ago there was a young ladies' playground, into which these Newts would occasionally intrude. No matter what lessons were being learnt, or what interesting game or talk might be going on, when the alarm was given that a Newt was present, all were left, and a sudden rush was made to the spot where the poor reptile was. What was to be done then? Matilda, the heroine on these occasions, was implored once more to rid the place of such a terrific foe, and, we are sorry to say, she would take a spade and chop the poor creature into many pieces; and then others of the scholars would bury it a foot deep in the ground, some believing that, unless buried deep, each piece would come to a perfect creature again. After some time and much talk concerning the event, the scholars would separate, feeling as though a great battle had been fought, and a victory won; or perhaps with as much satisfaction as we may suppose those to have felt who had the power and the ignorant bigotry to burn a "heretic," their ignorance leading them to believe that they had performed a meritorious action;—indeed, done God service. It is a great pity when young people imbibe vulgar prejudices against any living creatures, only because those creatures happen to offend their taste, and to be considered ugly or disagreeable. It is especially sad when it leads to acts of deliberate cruelty.

The Salamander passes through the Tadpole state in the water, though it lives on land after it has become a Salamander. It is of very timid habits, and usually lives in solitude, eating worms, slugs, and other creatures of a like sort, but would never willingly put itself in the way of man, and therefore is not at all likely to jump down his throat, as ignorant fear used to suppose.

Lizards.

The Lizards in the next picture, although they look a good deal like Salamanders and Newts, are not of the same class of animals. One respect in which they differ is that the Lizards are covered with small scales, while the others have a smooth shiny skin, except where they have rough spots. The young of the Lizards do not pass through any Tadpole state, but are complete and active on first entering life.

The highest in the picture is called the *Viviparous* Lizard, because it brings forth its young alive. The other is the Sand Lizard, which places eggs in the sand to be hatched by the heat of the sun, and on this account is called *Oviparous*. The latter is found in Ireland, and is common in the warm parts of Europe, but does not live in England.

Unlike the Newts, Lizards enjoy life on dry heaths and sunny banks. The little Viviparous Lizards are very common in Kent, and many other English counties. You can hardly take a walk on a bright spring morning without seeing some basking in the sun; but so prompt and rapid are their movements, and so easily are they disturbed by noises, that it requires great quickness and some experience to catch them before they have darted away among the herbage. Should you take one in your hand you will find it quite harmless; if you hold it by the tip of its tail, it will prove to you that it cares more for liberty than for its tail, by leaving the latter between your finger and thumb. And for the rest of its life it must go without a tail; but the part where it is broken off will heal over, and the only consequences will be, that the creature will look less graceful and move less rapidly than before.

Lizards have exceedingly quick, brilliant eyes, long darting tongues, and sharp little teeth. They feed on small insects, and have been kept in a room, and seen to run over the windows, after flies or earwigs, which they soon swallow. Sand Lizards vary a good deal both in size and colour, some being brown and others a beautiful green. This, or a very similar sort, has lately been brought in some numbers from Jersey, to ornament ferneries and vivaria.

Lizards bury themselves in warm dry spots through the winter, to appear again in the springtime. During the summer they shed their outer skin, which may be found with the impression of each scale upon it, and the part from the claws looks like a little fairy glove.

The Slow-worm, Ringed Snake, and Viper.

The next picture places before us three reptiles, all common in the woods, copses, or hedgerows of various parts of England.

It is very natural and not unwise to feel a dislike of being near to, or handling, this class of reptiles, until education or opportunity of observation has made us acquainted with the powers and properties of each.

Now the smallest of these three is perfectly harmless. It is commonly known by the names of Slow-worm or Blind-worm; it is also called *Anguis-fragilis*, or Fragile-snake, though modern naturalists say that it is neither a Worm nor a Snake, but a Lizard.

It is called fragile because it easily snaps off at the tail if suddenly struck or caught by that part: in this it is like the Glass Lizard. Either of them may frequently be found with a portion of the tail gone. It has brilliant little black eyes, which it uses keenly in looking out for its prey, so it does not deserve to be called blind; and, from observation of its movements, we should say it hardly more merits the name of slow.

Slow-worms may be found basking in the sunshine of warm spring mornings, upon grassy banks, or on the short grass of chalky commons, sometimes in company with eight or nine little ones, an inch or two in length, which, however, rapidly attain their full growth of about a foot.

Should you succeed in catching one, you may take it in your hand, and should it give you a gentle nip with its little mouth, it cannot hurt, but will only be asking you for its liberty. If put in your garden it may be useful in eating the little slugs which are often so mischievous there. It will also eat flies and many other small creatures, not excepting even butterflies, which it will dexterously dart upon when they fly low. One kept in a garden was fond of raising itself into the top of a wall-flower plant, and there lying in wait until an unwary butterfly would come for a drop of sweet from the flower, and then our little friend would soon show that it was not blind by snapping it in, as a Snake would a Frog.

In colour the Slow-worm is a yellowish grey, with a silvery cast, and with a dark line down the back. It is covered with very fine scales.

Now we look at the picture of—

The Ringed, or Grass Snake.

It is just catching a Frog, which it will not bite into pieces before swallowing, but draw into its mouth, slowly and gradually, and so have it whole in its inside. It serves Lizards, Mice, and other small animals and insects, in the same way.

Bird's-nesters are sometimes startled by finding one of these reptiles coiled in a nest. Having glided up the bush, which it can easily do, and frightened the old bird away, it eats all the eggs or young birds, and then gets into the nest, and rests there while it digests its meal. So the poor bird would hardly call it what we do, "a harmless Snake."

But to man it is harmless, only offending him by its strong, poison-like smell, which, after handling, will keep about the hands after many washings. But we suppose schoolboys do not mind this smell, for they not unfrequently make pets of these Snakes, and endeavour to tame them.

The place to find this kind of Snake is in moist woods, meadows, or damp hedgerows. It likes the water, and can swim and dive in it with very graceful movements. It is from the water that it appears to have caught the Frog in the picture. It is fond of milk, and will go into dairies to find it.

It rarely exceeds three feet in length, and three inches round at the widest part, gradually tapering to a pointed tail. It has rows of small sharp teeth, besides some on the roof of its mouth, which, pointing backwards, assist it in keeping a fast hold on anything it has caught.

It lays a string of eggs, sometimes as many as twenty, in a warm place, very often a manure heap, and leaves them to hatch. These eggs are about the size of a damson, and, to look at and feel, are not unlike a hard-boiled egg with the shell taken off; they are laid in the autumn, and not hatched until the following spring, during which time many have been destroyed, or this Snake would be much more abundant than it is. Its colour is a silvery grey, lighter underneath than above.

The third reptile in this picture is the

Adder, or Viper.

This animal is better avoided than offended. Happily for us, it is the only venomous reptile of our land, and, from its timid and retiring habits, it very rarely exercises its venom upon man; when it does do so, it is because man has in some way or

other intruded upon it. And then it injures him not with a sting at the tip of the tail, as some imagine, or with its long darting forked tongue, which others take to be a sting, but with two teeth or fangs in its upper jaw, at the root of each of which is a bag of poison. It is not very often that death is consequent upon the Adder's bite, but it is dangerous, and causes much suffering and inconvenience. The dogs of woodmen sometimes get bitten and die.

The Adder is from one foot and a half to two feet long, and three inches round at the thickest part, so it is shorter and thicker in proportion than the Common Snake, and its tail is much less pointed. Its head also is blunter and flatter than that of the Common Snake. In colour, some Adders are more russet brown and some more grey than others, while some very ill-looking ones are almost black. There is a zig-zag black line along the back, and a row of black spots down each side; and the head has a black mark, something the shape of a horse-shoe. The belly is paler than the upper part, and generally a slate grey. The upper jaw is whitish, with small spots of black, and the under jaw yellowish. The eyes are small and bright.

Adders live in warm, dry woods, and among the gorse or furze bushes of a common. The earliest warm sunny mornings in March—if the wind be not easterly—draw them from their retreats, and they may be seen upon the grass of the common, or on the banks outside the woods, coiled in various forms, generally a few feet distant from each other. Here they will quietly remain until towards noon, when they glide again into their holes in the hollow trees, or under the dry leaves and moss. Sometimes they are coiled upon the stumps of old trees, when only an experienced eye can readily detect them, they look so much like a knotty part of the tree.

In Staffordshire and some northerly counties of England they are seldom found; but in the warmer counties, especially where the soil is chalky, they are by no means scarce.

The food of the Adder is much the same as of the Common Snake, and it will rob bird's-nests in the same way.

Unlike the Common Snake, but like the Slow-worm, it brings forth its young alive, and takes care of them for some time.

All the three reptiles we have described have long darting tongues, which are useful in securing their prey, but not hurtful. They all sleep through the winter, and are very inactive in the cold days of summer. They are also alike in shedding the outer covering of their skins once a year, and, in autumn, these gauzy-looking cases, as they may be called, may be picked up beautifully complete, but turned inside out.

Frogs and Tadpoles.

Frogs are so common that most likely you have seen them, and have perhaps at the same time heard or uttered a scream, for it is surprising how many persons are frightened of these little creatures, which singly are perfectly harmless. It is true that Frogs were one of the plagues sent by God over Egypt, when Pharaoh hardened his heart, and would not release the people of Israel from bondage. But in what manner were they a plague? Did they bite or poison the people? God caused the river to send forth Frogs so abundantly that they covered the land, and entered every dwelling-house and even palace: they were in the bed-chambers, ovens, and kneading-troughs. So it was by their numbers, and being out of their ordinary places, that they became a plague even while they were alive. But when they were permitted to die, the plague was not ended. A dead Frog soon putrefies, and the hundreds of thousands that lay rotting over the land of Egypt caused pestilence and death, even while the people tried to clear them away. David, in the seventy-eighth psalm, says, "God sent Frogs, which destroyed them." So you see that, when God so chooses, he can use even the most apparently unlikely objects to work his will.

Frogs, in their natural place in creation, have no means of hurting us. True, they have teeth, but they only use them for taking the small creatures that are their food. Their skin is of a fine brown, prettily spotted and smooth. Their eyes are very bright and quick in seeing any one approach. When they move, their hind legs being very long, they leap a considerable distance, sometimes two feet or more. Frogs are multiplied by eggs, which are laid in the water and hatched into Tadpoles, and pass through much such stages as the Newts. If you look at the water in the picture, you may see Tadpoles in various stages.

The perfect Frogs live upon land until the winter approaches, then they bury themselves in the mud on the banks or bottom of ponds and still waters, until spring invites them up again. Then you may hear them, as if rejoicing in renewed life,

with anything but an ugly croak, for you may listen long, and wonder whether what you hear is the cooing of Doves or the music made by Frogs.

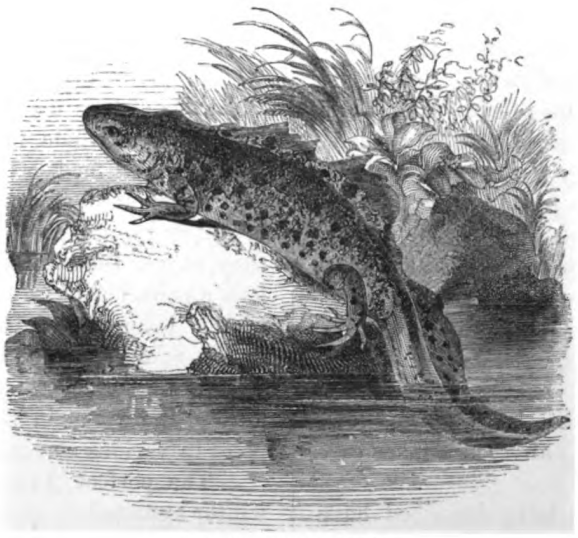
A Frog, not many years ago, came from its winter quarters rather sooner than it should have done, and a child passing by saw it stretched out stiff and cold on the bank of a pond. It seemed to be quite dead, but the child begged to "carry it indoors and warm it." It was bathed in warm water, and, contrary to all expectations of the older folk, after a little time the creature began to soften, and gradually to show signs of life. Before night it was considered to be sufficiently recovered to be laid upon a bed of dry leaves in the corner of the cellar; there it was found the next morning, and after being fed it seemed to make itself comfortably at home, to the great delight of the child, who called the new pet Brownimore. And Brownimore lived there many weeks, visited and fed by the child, and eating the wandering insects of the cellar. It became very tame, and might have continued to be a source of amusement, had not a Cat caught and killed it.

Toads.

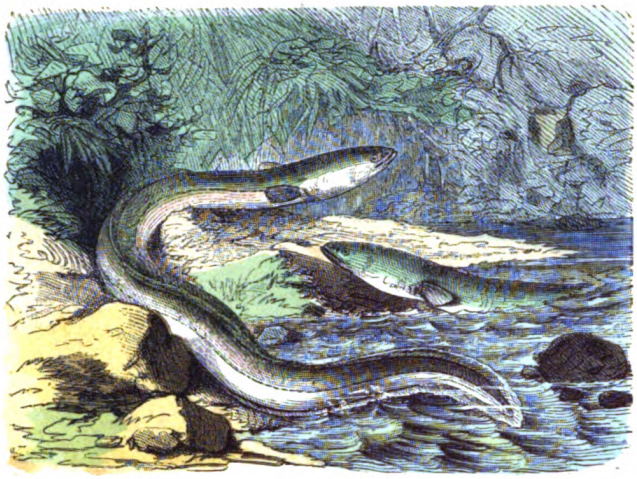
Toads, though not nearly so common as Frogs, may frequently be met with in nearly every part of England, and there are various sorts all over the world. Those we have in England are not smooth-skinned, like the Frog, but rough and warty; and from these warts the creature can send a sharp, half-poisonous juice, much as the Salamander does, and a Dog or any creature seizing a Toad in its mouth would soon feel the effects of it. It is, therefore, not a pleasant creature for any one to handle, but it is otherwise very harmless; and, indeed, to the gardener it is very useful by the quantity of vermin it will devour.

Toads do not leap as Frogs do, but walk or crawl in a very leisurely manner, and will remain a long time in nearly the same spot, keeping themselves cool among the leaves, until the evening, when they become more active in feeding. They have not any teeth, and use their front paws in holding their prey. They shed their outer skin, and, instead of leaving it about in an untidy manner, they get it into a ball with their useful fore paws and swallow it out of the way. This may seem strange, but it is quite true.

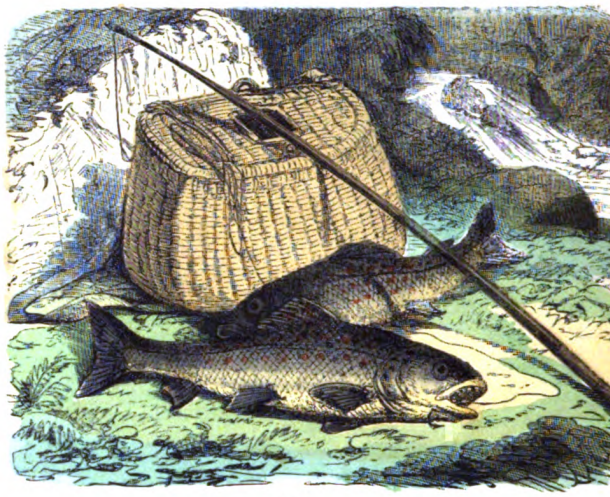
Toads are remarkable for exceedingly bright eyes, and most likely this has given rise to the saying that they carry a jewel in their heads. They are multiplied by eggs laid in a long string on the banks of stagnant waters, often in the same places as Newts, and uninformed persons have an idea that the tails shed by the Tadpoles of the Toads turn into Newts.



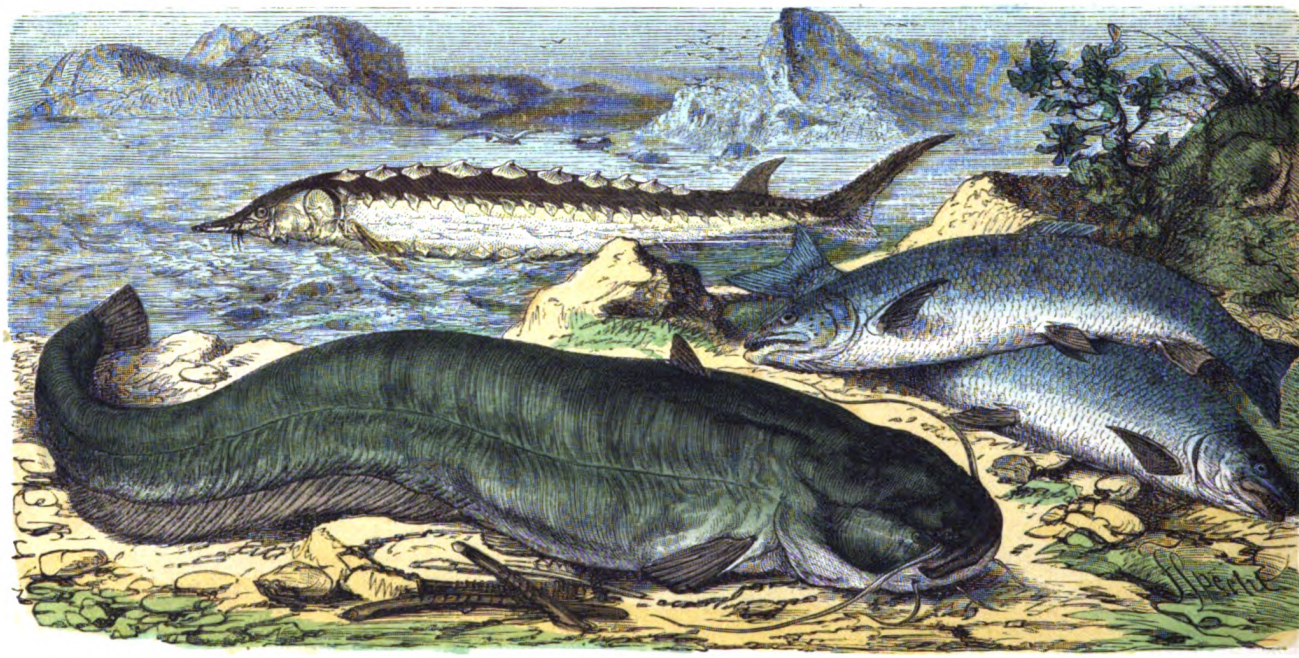
COMMON WATER NEWT.



Eel.

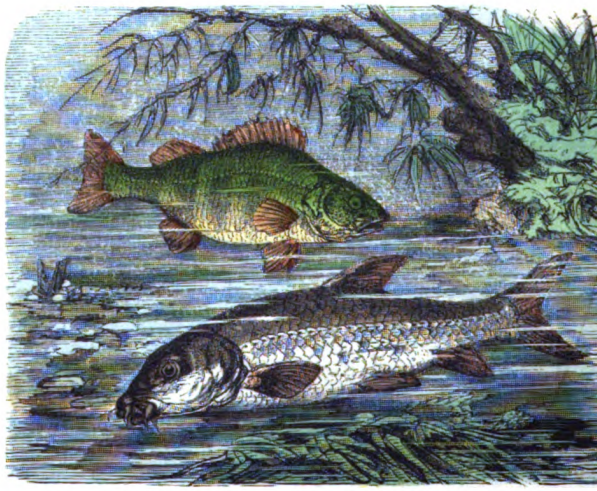


Trout.



Sly Silourus. Sturgeon. Salmon.

Carp. Pike.



Perch. Barbel.

PLATE X.

FISH.

Silurus, Sturgeon, and Salmon.

Our tenth plate shows us pictures of a very few out of the numerous varieties of the finny tribes which inhabit the great waters. These few are all common in the rivers of England, or found on European coasts.

Fish, as indeed do all the creatures of God, display his wisdom and goodness in creating them entirely suited for the places in which they have to live and move. Most fish have long slender bodies, pointed at the head, so that they may more easily cut their way through the water. And their strong skins, whether smooth or scaly, have a covering of half-liquid slime, which, besides helping them in their rapid movements, serves them for protection and clothing in their native element. There is also much oil under their scales, as well as all through their bodies, which both makes them lighter in the water and helps to keep up necessary warmth.

But fish have neither legs, arms, nor wings; how then can they move, and how do they catch their prey? They do this with their mouths. Their fins serve all the purposes of legs and wings, or rather, they are to them what they need, namely, rudders and oars. Most fish have a pair of fins called *pectoral* fins, near the head; another pair, called *ventral* fins, which are on the under part, a little nearer to the tail; then there is the *dorsal* fin, which is whatever runs along the top of the back; the *anal* fin, which is the one underneath, near the tail; and the tail itself, which is called the *caudal* fin. All these fins they can open and shut, something after the manner of a lady's fan: those near the gills they can move to and fro, as a boatman does his oars; and all of them are useful either in keeping the fish in balance or in working themselves on; and this they can do with as much ease and quickness as the bird in the air or the roe on the mountains. But they could neither move nor guide themselves without their finny rudder, the tail.

Most fish are supplied with a bladder of air inside their bodies, the supply of which it is supposed they can regulate, according as they wish to be higher or lower in the water. The breathing power of fish is that comb-like substance on each side of the head, called gills: they swallow water through their mouths and let it out at their gills, thus breathing water as we breathe air.

Fish are very voracious creatures; a Cod will swallow a quart of small shell-fish and half a dozen Whitings or Herrings, and then look around for more, as is known by what the fishermen find when they prepare them for market; and they swallow them so whole that often there is not a mark of a tooth upon them. But most fish have very sharp teeth.

The large fish in our middle picture is one not much known to us; one of which many have perhaps never even heard the name; it is called Silurus, or the Sly Silurus. It is abundant in the rivers which fall into the Black Sea and the Baltic. In Sweden it is dried for winter food; and the fat, which is like hog's lard, is made use of as such.

According to one writer, the Silurus is a very

ugly fish, lazy and lumbering in form, and repulsive in appearance, while its flat head, half-round mouth, with the long barbels or feelers, and the small and projecting eyes, give it an appearance very unlike that of any other fish. It forms a hole for itself in the mud at the bottom of the river, and spends its time there, watching to seize upon smaller fish for its prey. It is most likely from the manner in which it hides and catches its prey, that it has the name of Sly. If you look at the picture you will see the long feelers about its mouth. When the fish is lying with its body hidden in the mud, it keeps moving these feelers about; and as they have very much the appearance of worms, the smaller fish come to eat the worms; but the Sly Silurus just snaps them into his great round mouth instead.

The Silurus is one of the thick-skinned slimy fish which have not a covering of strong scales. It has very sharp teeth, and although the dorsal fin is so small, the spines of it are very sharp and strong, so as often to hurt the fishermen who take it. These fish are supposed to live and keep on growing for a great many years, and have sometimes been found to weigh as much as eighty pounds.

The Sturgeon appears more in the distance, resting upon the water. You can see what a long pointed snout it has, and its mouth, which you might be puzzled to find, opens underneath, almost in its throat. It has no teeth, though underneath its snout it has some feelers, which it most likely uses as the Silurus does his. The Sturgeon is sometimes taken on different parts of our coasts, and the flesh is said to be like veal, more than like fish. In the northern waters of Europe there are great fisheries for the Sturgeon, and they are very valuable. The fish, when caught, is skinned, and the skin, in Russia and Turkey, is tanned, and makes very good leather. Then, besides eating the flesh fresh, much of it is salted for store food. A sort of delicacy for eating, called caviare, is made of the roes; and the sounds or air-bags, and other parts of the fish, are made into isinglass.

The other two fish in our middle picture are Salmon, the clean and pleasant-looking fish which is so generally esteemed for food.

Salmon used to be caught very abundantly in the Thames, but they are very seldom found there now. They are taken in the Severn and the Tweed, and in Scotland and North Wales. A Salmon's life is divided between the sea and the fresh water. In the autumn the perfect fish leave the sea and swim up the rivers for the purpose of putting their spawn or eggs in the gravelly banks of the rivers they choose. With their snouts they make furrows in the gravel, and having placed the eggs there, they cover them up and leave them to become hatched. After a time the fish return to the sea again. Much of the spawn or eggs is eaten by fish and other creatures, but such of it as remains perfect is hatched about March or April; in May quantities of very little fish may be seen playing about in the shallow water. As they get bigger, which they do very quickly, they go into deeper water towards the sea, and by the end of June they have all followed the old fish into the sea, to remain there until they come themselves to the fresh water to place spawn there. Salmon grow to maturity very quickly, and are not long lived. Of late years a plan has been adopted of taking the spawn from the rivers where deposited (as we see it in the picture at the end of this chapter) and carefully transporting it to other rivers in which the Salmon has not been known. This plan has been successful; and it is hoped that, after a few years, this fish will be more widely known and more easily obtained for food than it has been of late years.

Eels.

Our next picture shows us a pair of Eels, such as may be found in almost every river or stream where the bed is muddy. They work themselves some inches into the mud, and will lay up there all the winter, or during any weather that is not quite agreeable to them. Sometimes, on warm dewy nights, they leave the water and travel over the meadows, feeding on worms or frogs or other small creatures they may find. Night is the Eel's most active time, and it is then they are caught in nets or baskets, or on hooks baited for them in the evening and left in readiness to tempt them. Another way in which Eels are caught is by darting three-pronged spears into the mud where they are known to lie, and the spear is drawn from the mud with the fish securely caught between the prongs.

Eels, as you may see by the picture, are long snake-like fish; they have tough slippery skins, without scales. Those with which the London market is largely supplied are sent from Holland.

It has been told by a traveller to the South Sea Islands, that in Otaheite Eels are great favourites, and are tamed and fed until they attain an enormous size. These pets are kept in holes two or three feet deep, partly filled with water. On the side of these

pits they generally remain, excepting when called by the person who feeds them. The traveller says he has been with a young chief when he has sat down by the side of the hole, and, by giving a shrill sort of whistle, has brought out an enormous Eel, which has moved about the surface of the water and eaten with confidence out of his master's hand. This incident reminds us of the words of the Apostle James: "Every kind of beasts, and of birds, and of serpents, and of things in the sea, is tamed, and hath been tamed of mankind." This is said in the seventh verse of the third chapter of his epistle; and in the eighth verse he tells of one little thing that is harder than all these to tame; and, indeed, no one can tame it without the help of God's Spirit, and yet it is quite necessary for the happiness of all around that each person should tame one for himself. What can it be?

Trout.

Now we come to a pretty picture of a fisherman's basket, and his rod and line, with which we may suppose he has tempted and taken the two Trout now laid on the bank. No doubt he covered the hook with something that looked to the Trout like a fly, or a worm, or a little fish, for all these things are food for the Trout; and a very famous fisherman tells us of one Trout that had got a hundred and twenty-six minnows or small fish inside it when it was caught. This must have been a large Trout to have made such a large breakfast. Some Trouts weigh from twelve to fifteen pounds, and others not a pound: they grow much larger in some rivers than in others. The Common Trout is of yellowish-grey colour with red spots. It is considered a great delicacy for eating, and its flesh is pinky, rather like the Salmon's.

In the early summer days, when the Dragon-flies, with their gay wings, are darting through the air, and the Bees are humming and working in the flowers of the trees that overhang the streams, then if you could stand by the trees and look upon the water near, you might see something lying straight along, a little below the surface, and hardly know whether to call it a fish asleep or something without life; but should a fly come near, you would see a Trout dart upwards and swallow the fly. Or should you throw anything in the water or startle it with a noise, the Trout, which is always shy and wary, will dart into his hole in the bank or under some overhanging stone, or into a mass of water-weeds. Trout are a favourite fish, and are found in many English rivers and streams. Our next picture shows us a

Carp and Pike.

Carp are now found in most of our lakes, ponds, and rivers; but are said to have been introduced to them from the continent, as is told in the rhyme:—

> "Hops and Turkeys, Carp and Beer,
> Came into England all in one year."

The Carp is a fish rather thick in proportion to its length. It is of a yellowish-olive colour, and has large coarse scales, browny-red fins, and a tinge of gold all over it. Indeed, the Gold-fish, which are sent to us from China, and look so beautiful in the glass globes of water, are a sort of Carp.

Carp like to live in ponds and lakes with muddy bottoms, where they will bury themselves through the winter. They are slow growing fish, weighing about three pounds when they are six years old; but it is said they will live more than a hundred years; and in waters that suit them they will grow to weigh as much as eighteen pounds. They are wholesome for food, but as they often taste of the mud of the river, they are not always liked. When caught, it is usually in nets dragged along the bottom of the water, for the angler knows that he may try many hours with his rod and line and not get a Carp. They have been kept in ponds, and become so tame as to take food from the keeper's hand, when he called them to the top of the water by ringing a bell. They have small mouths without teeth, the teeth being in the throat.

Pike are great enemies to Carp and other fish, and, because of their fierceness and voracity, they are sometimes called Fresh-water Sharks. In some respects, indeed, they are like Sharks; as in the form of their jaws, and the sharp teeth with which they catch their prey. They hide under the shelter of water-plants, or in the shade of an overhanging willow, until some unwary fish is swimming past, and is seized with unerring aim. But sometimes, perhaps when he has eaten as much as he can, Mr. Pike drops asleep while basking in the sun, and is caught by a man who has a loop of wire on the end of a long stick, and draws the wire over his head, and jerks him out of the water. Pike are also caught by angling, and in nets, and are esteemed for food; they live to a great age, and continue growing for many years. A small Pike is called a Jack.

Besides feasting themselves on small fish, Pikes will eat Moorhens and Water Rats, and, indeed, will snap at any living thing that comes within their reach, whether it happens to be the hand of a man or the head of a Swan. Swans, you know, when they feed, sometimes dip their bills and long necks deep into the water. Once a Swan was noticed to remain with its neck a very long time in the water, and when its owner went to look at it he found that a Pike had seized its head, and in its greedy haste had swallowed so much of it that the fish was choked, and the Swan smothered to death.

Perch and Barbel.

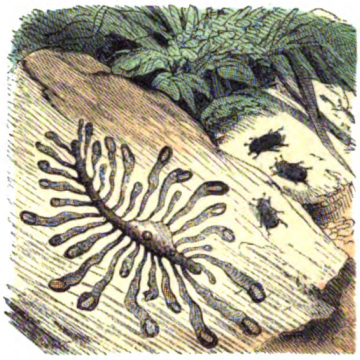
The little bright-eyed PERCH, represented in our last picture, usually lives in company with many of his fellows. There are often thirty or forty in one hole by the river bank, and they are the easiest fish for the angler to take, for they have sharp teeth, and will snap greedily at anything that comes before them, whether it be worms, frogs, or small fish; and they will often follow one another to the bait and the hook as quickly as the fisherman can draw them out. They are not often caught weighing more than three-quarters of a pound, though it is said they are sometimes found much heavier.

The Perch has two fins on his back, and he is one of the few fish that the Pike does not like to attack, for he has a habit of defending himself by setting up the spines of his fins, as a Hedgehog sets up its prickles, and these spines, being very sharp and strong, are not pleasant to even the Fresh-water Shark. He has strong, large scales, and is of a greenish-brown colour, shading off to a yellowish-white.

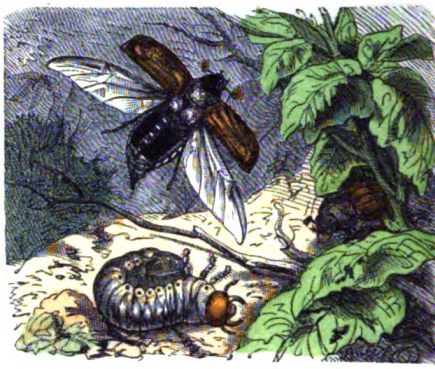
The BARBEL is a sort of Carp, olive coloured on the back, and bluish-white below. It sometimes measures three feet, and weighs from fifteen to eighteen pounds. It is good for food, but is considered coarse. Like its companion in the picture, it has very strong sharp spines in its back fin, which make it a dangerous enemy. You will see by the picture that he has four feelers, or barbules, by his mouth, and these give him the name of Barbel. He is one of those fish which, like the Silurus, will root and dig with the nose in the bottom and banks of rivers, and lie in wait there for his prey, which no doubt his feelers assist him in enticing and conveying to his mouth. Barbel live in shoals or companies, and during the summer they are in the shallow parts of rivers, but in winter they hide up, numbers together, in holes in banks, or under masses of weeds; but chiefly they like to be amongst the old woodwork of locks, where they are sometimes found grown to a very great size.

COLLECTING FISH SPAWN.

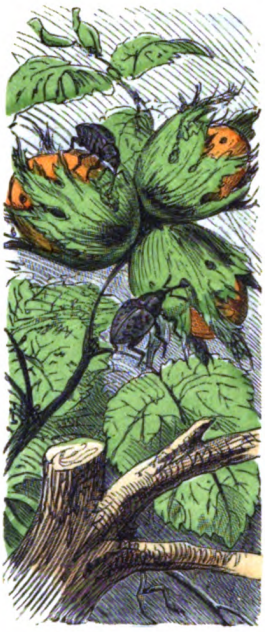
Willow-beetle.



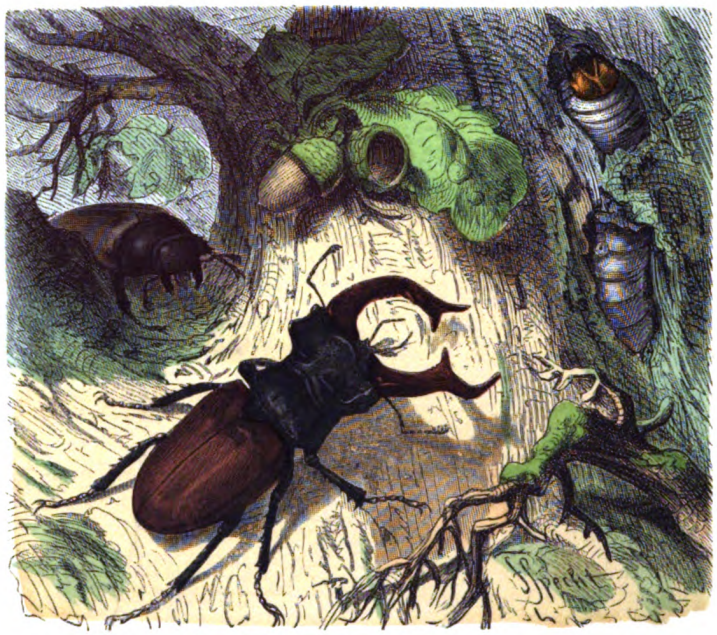
Bark-weevil.



Cockchafer.



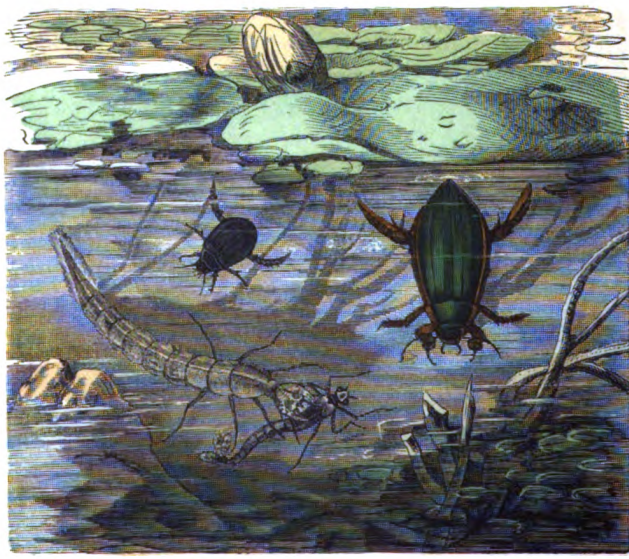
Nut-weevil.



Stag-beetle.

Rosechafer.

Burying-beetles.



Water-beetles.

PLATE XI.

BEETLES.

In the plate now before us we have a few specimens of a very numerous family of living creatures. One naturalist tells us that there are at least one hundred thousand sorts of Beetles in the world.

The word *Coleoptera* means a sheath and a wing, and is a name given by naturalists to Beetles, which are insects with four wings, two of which may be described as sheaths rather than wings, as they are more or less hard, never fold over each other, and are not used in flying. These sheaths are usually glossy, and sometimes beautifully coloured. The true, real wings are folded up under these sheaths, and are of the texture and appearance of the wings of the common house fly.

The mouth of a Beetle is furnished with strong jaws, which move like the sharp parts of a pair of shears. They have two *antennæ*, or feelers, and six jointed legs. These parts belong to the perfect Beetle, which, like other insects, first exists in the imperfect state.

There is first the egg, then the *larva*, then the *pupa*, from which comes the perfect insect. By a wonderful instinct, the Beetle always places her eggs where the young, on being hatched, can find an abundance of food. When the egg breaks into life, the larva appears from it in the form of a soft worm or grub; it is at first very small, but it eats very largely, and, as it grows, sheds its outer skin. The time of remaining in the larva state varies from weeks to years in the different sorts of Beetles. When the proper time arrives, it leaves off eating and enters the third or pupa state. In this it remains some weeks or months, wrapt up, as if lifeless, in a sort of shroud or covering of its own preparing; but life is going on within, and, by-and-by, the perfect winged insect comes forth already the full size and with all its powers. The picture of

The Stag-Beetle,

which is in the centre of the plate, shows both the male and female, and also the grub or larva on the oak-tree, where we may suppose there are many more such grubs, and that they are doing great mischief to the tree. The Stag-Beetle is one of the largest of these winged insects found in Europe. It measures two inches and a half from the tip of the jaws to the end of body. It is common in many parts of Oxfordshire, and is often found in Kent and Surrey.

This insect, though it might, from its ferocious aspect, deter any one from touching it, is gentle in disposition, and apparently playful in its movements. Its jaws certainly can pinch with some force, but are not much, if at all, used for the destruction of life. Its food consists mostly of the juices of plants, and sometimes, perhaps, of caterpillars and juicy insects, which are wounded by its sharp jaws, so as to cause the sap or juice to flow. If you look at the picture, you will see, in the very centre of its jaws, a little orange-

coloured brush, which it uses in sweeping these juices into its mouth.

The female is smaller than her partner, and has, in the place of his fine branching antlers, only short curved horns. She lays her eggs in the crevices of the bark of trees, usually willow or oak, on the wood of which, when hatched, the grub or larva feeds very voraciously, and that for a long time; some naturalists say for three, others for as many as six years. The boring of the grub into the heart of the trees does great mischief, reducing the wood to a sort of sawdust. The grub is of a whitey-yellow colour with a yellow horny head. After years of boring and tunnelling in trees, having reached its full length of four inches, it leaves the tree for the earth, where it encases itself in an oval ball of mould, which it forms by frequently turning itself over and over, and using a glutinous fluid for moistening and binding together the mould. This ball, though rough without, is perfectly smooth within. Here, in the pupa state, it remains for three months, coming out in July or August a perfect Stag-Beetle.

These Beetles have been known to fly into houses on summer evenings, to the great though needless alarm of the inmates. They are exceedingly strong; and one is said to have carried a wand half a yard long and half an inch thick, and fly with it several yards. If the Elephant were strong in proportion to the Stag-Beetle, it would be able to pull up rocks by the roots, and level mountains. But our all-wise and benevolent Creator has manifested his almighty power in these little creatures, by showing us what he could have done had he so willed, and his goodness in not enduing the larger animals with a proportion of power equal to that of the insects. Truly his works are "with skill and kindness wrought."

The Goatchafer or Musk-Beetle.

There are various kinds of these Beetles, which are very splendid. They are remarkable for the extreme length of their feelers, they being double the length of the body, and for that reason are classed by naturalists under the term Longicorn. The one in our picture is of a black-brown colour. It lays its eggs in the rotten part of an oak-tree, which, of course, the larva feeds upon, and bores in every direction.

Another of the same species lays its eggs in the willow-tree. It is remarkable for the beauty of its sheaths, which are sometimes of a shiny red, and sometimes of a metallic green, resembling so much the leaves of the willow, that it is difficult for the eye to detect its presence. But the musky and goat-like smell which gives it the name will soon lead the experienced seeker to find it. This Beetle is not uncommon in England; but there is one, a native of Amboina, which shows horns or feelers four times the length of its body.

Wood or Barkchafer.

The curious object in the middle picture at the top, which looks like a long-bodied animal with many legs, is not one creature, but the home of many. Three of its inhabitants are just walking abroad on the wood near, and others you may see about to push their way through the extremities of various passages to gain their liberty, as their three companions or relations have done. That which might appear to be the long body of a creature is a burrow, where a row of eggs has been placed by a small Beetle of the Weevil sort, known to naturalists as the *Scolytus destructor*. This Beetle is not the sixth of an inch in size, but, by the constant activity of numbers, valuable trees, indeed forests of trees, have been destroyed.

It is between the bark and the trunk of the trees that the larvæ of these insects work. The picture represents a part of the tree with the bark removed: here the row of eggs deposited by the tiny Beetle has been hatched, and each grub has eaten for itself a passage, quietly working its way with its mouth in a well-directed course. There is no confusion amongst them, one grub never interfering with another; but as they need a larger passage, they gradually widen the space between each, and eventually work their way out to pass through the pupal state. Becoming complete insects, they feed upon the leaves of the tree, and in their turn deposit more eggs upon the bark of it. Should you see an old decayed tree, it is most likely that you might, by removing the bark, find some of these little creatures, or traces of them.

The Cockchafer.

The Common Cockchafer is known to most children who have been where there are trees, especially sycamore or lime trees, in the evenings of May or June. They would be first attracted by a

humming, whirring sound, and, looking up, might see around the trees scores and sometimes hundreds of these pretty creatures, with their feathery feelers, brown glossy sheaths or outer wings, and their black-and-white sides. They are about an inch long, and occasionally may chance to knock against us in their flight; but if so, it is only an inadvertence on their part, and will do us no harm.

They are said, during their short lives, to feed upon the foliage of trees, so that occasionally trees are stripped by them; but this is only when they are unusually numerous; and at all times their number is greatly thinned by the Nightjar, or Farm Owl, which catches and eats them with rapidity. In their grub or imperfect state, however, they certainly are injurious. The eggs are placed in the ground, and, as soon as they are hatched, the grubs begin eating away at any roots near them. By this means young trees are sometimes destroyed, and grass lawns and meadows sadly damaged. The Cockchafers have a long time in which to work such mischief, for they continue as larvæ for three years. During this time their numbers are greatly diminished by the keen scent and strong bill of the Rook, who, with unerring aim, will dig its beak into the ground and pull out these grubs.

Nut Weevils.

No doubt one or other of our young readers remember the time when, having cracked a filbert, he was unable to eat it because he saw there, instead of the plump kernel hoped for, only the remnant of one, some brown, unpleasant-looking dust, and a fat white maggot. How the maggot came there has been a puzzle to more than one little head. Now, if you will look at our picture of a bunch of filberts, you will see two little Beetles, each busily engaged in boring a hole in a nut. In each of these holes an egg will afterwards be placed. This egg will hatch into the maggot found in nuts; it will feed upon the kernel, and when it has attained its full size and strength, will gnaw itself out of its prison by making the larger round hole that we sometimes find in a ripe and empty nutshell. If it accomplishes its escape before the nut is gathered, it drops through this hole by a fine web to the ground, and there burying itself, turns into the pupal state, and so remains until the next year's nuts are green, when it comes out a Nut Weevil, which is a small sort of Beetle. There are many sorts of Weevils; some infest the green-pea pods, others injure corn; and, indeed, every grain, seed, or nut is liable to be injured by its own peculiar sort of Weevil. The long snout with which that in the picture is boring, and at the point of which are its strong little jaws, distinguishes this insect from other Beetles.

The Rose Beetle.

The Rose or Golden Beetle much resembles the Common Cockchafer in form, though it is somewhat smaller. Those who have seen it will not need to be told why it has the name of Golden, for its beautiful golden sheaths, so exquisitely blended with green, will be a sufficient explanation. And if they have been so fortunate as to see it in its apparently happy state, resting for hours in an open damask rose, with the June sunshine upon it, while it sips honey from the yellow centre, they will know why it is called Rose Beetle. A dozen or more may sometimes be seen together on a plant commonly known as Aaron's rod, feasting on its feathery yellow flowers.

In the same garden they appear more plentifully every third year, probably because they remain in the imperfect state for three years. The egg is laid in the ground, and during three years the grub feeds on roots and decayed wood.

The Beetle can extend its under wings and fly without separating its sheaths. Should you place one in your hand it will remain for a time as if dead, and then startle you by suddenly flying off with a humming whirr.

Burying Beetles.

These Beetles, on the Mouse, are called *Necrophagæ*, or Burying Beetles. They are truly among nature's scavengers, clearing away carcases of birds, moles, or, as in our picture, mice. This they do, not by eating them, as the Hedgehog would, but by burying them in the earth. They burrow under the dead creature, and work away the earth so as to form a hollow into which the body gradually sinks; they then lay their eggs in the carcase and cover it up. In a very few days these eggs will turn into larvæ, which will eat the flesh of the buried animal, and then, passing through the pupal state, will leave the ground again as Burying Beetles. By their comparative size with the Mouse you will see they are not large Beetles; but the work is done by numbers.

Water Beetles.

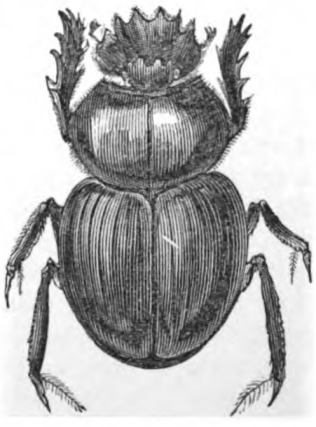
Of Water Beetles there are many sorts, and they may be seen in great numbers on a summer's day, playing in and over the water; sometimes crawling on the leaves of water-plants, where they lay their eggs, or, if disturbed, darting rapidly underneath. Towards evening they spread their wings and fly abroad in the air, remaining playing about until morning, when, as soon as they perceive the surface of the water, they fall into it, and have been known to drop upon glass surfaces, apparently mistaking such for water.

The two specimens in our picture are specimens of the largest sorts of Whirligig Beetles, so plentiful in still water, overshadowed by trees; where they may be observed until the observers are tired, performing incessant whirls and dances.

Observing the legs of these Water Beetles, we see that they are different from the Land Beetles, being curved and widened almost like oars, to assist them in their watery way. They take in a supply of air before going into the water, and, when that is exhausted, they rise again for more; this makes the bright little bubbles which we see amongst them.

These Beetles, and especially their larvæ, are very voracious. In the picture you may see the larva of the larger beetle seizing the more nearly perfect larva of the smaller one, which it will eat without any compunction. Towards August or September, the larvæ enter the pupal state, and enclose themselves in cocoons that look like grey paper; so they will remain until the next summer's sun brings them forth to play their part as perfect Water Beetles.

Another celebrated Beetle, the *Scarabæus Sacer*, or Sacred Beetle of Egypt, although not in our picture, must have a word of notice. It is a foul feeder, and differs little from the Dor or Dung-Beetle of England. It is black and shiny, from one to two inches in length. It is met with, not only in Egypt, but in the south of France, Spain, and Italy. After digging a hole in the ground to the depth of two and sometimes three feet, it encloses its eggs in a ball of cow-dung, and this ball it rolls into the hole already prepared. When the eggs hatch, the grubs feed on what is around them, and after passing the usual stages, ascend to the surface of the earth as perfect Beetles. What is it, then, that makes this Beetle so celebrated?



The Apostle Paul, in writing to the Romans, tells of those who, "professing to be wise, became fools; changing the glory of the uncorruptible God into an image made like to corruptible man, and to birds, and to four-footed beasts and creeping things."

At one time in the world's history, there were no people more learned or cultivated than the Egyptians; and yet at an early period they departed from the true and living God, and "worshipped and served the creature more than the Creator." They sinned against God by breaking his commandments; and then they did not like to retain God in their knowledge. They were afraid to think much about him, for while they disobeyed him they both hated and dreaded him. So that with all their worldly learning they were unhappy and unsatisfied. To take the place of God, they made images of living creatures, and of monsters of their own imaginations, and worshipped them. Also they worshipped their beautiful river the Nile, and they called the Frog a sacred creature. Indeed, the objects of their adoration were almost numberless, and amongst them was the *Scarabæus Sacer*, or Sacred Beetle. But why should they have chosen such a creature as a Beetle for worship? Perhaps they knew that it acted as nature's scavenger, and cleared from amongst them much that was offensive; and they thought they were thankful to it. Or perhaps they had seen vegetation destroyed by the larvæ of Beetles, and so they worshipped them as creatures whose power they feared. At all events, they did worship it, and images of it were constantly sculptured on their temples and painted on their mummy cases. It appears to have engaged their utmost attention and homage, and its figure was carved out of blocks of the hardest rocks, and polished with the greatest attention and care.

How is it possible that learned men could act such folly? It was because that "when they knew God they glorified him not as God, neither were thankful, but became vain in their imaginations, and their foolish heart was darkened." Let us take warning from their example.

Silkworm.

Red-riband Moth.

Woolly-bear and Moth.

Red Admiral Butterfly.

Death's-head Moth.

Swallow-tail Butterfly.

Brimstone, Orange-tip, and White Butterflies.

Apple Moth, Gooseberry-Caterpillar and Moth.

PLATE XII.

MOTHS AND BUTTERFLIES.

MOTHS and Butterflies are classed by naturalists under the term *Lepidoptera*, from two Greek words meaning insects with scaly wings. That these wings are wonders of elegance and beauty in form, colour, and pattern, no child needs to be told; and has he ever been successful in catching one with his hat and hand, he knows also that this beauty is very easily injured. He may, perhaps, have been reminded of the words of David in the thirty-ninth psalm, "When thou with rebukes dost correct man for iniquity, thou makest his beauty to consume away like the moth."

When the beautiful scales, or, as they are sometimes called, feathers, are removed from the wings, the uncovered part is transparent, not unlike the wings of a common fly. Could you largely magnify this uncovered part, you might see many small tubes, each of which has held a scale. The scales in their undisturbed state are in rows overlapping each other like those of a fish; they are of varied forms, and the hue and colour of the insects depend upon these forms.

But a volume might be written on the wonderful creation of a Moth's or Butterfly's wing. We will here only add a few words on the flight of these insects. They can fly rapidly, but birds can fly yet more rapidly. It evades its pursuer by flying, not in one continuous line, but in jerks, now higher, now lower, and then a little onwards, so that when the bird would dart upon it, it often misses its aim.

Butterflies and Moths undergo transformations very similar to those of the Beetles already described. The eggs, often two and three hundred at a time, are laid by the parent insect on the plant or substance that will serve the larvæ, or caterpillars, for food when they come out of the egg. These eat and grow until they have attained their full size, and then turn into the pupal state, when they are called chrysalids, or each of them a chrysalis. The case of this chrysalis eventually breaks, and releases a perfect insect with four wings and six legs. These wings and legs grow out of the chest, which is exceedingly strong, so as to bear their movements, and is but a short part compared with the length of the body. The eyes of these insects are very powerful and bright; in some they glisten with such lustre that, in twilight or a dusky wood, the shiny spark will betray its owner.

You may distinguish Moths from Butterflies by their antennæ, or feelers. Those of Butterflies are like fine threads, tapering to a kind of knob or knot at the tip, while the antennæ of the Moths taper gradually from the base to a pointed extremity.

The first picture in this page is of the Moth and cocoon of the Silkworm.

A cocoon is a covering which the pupæ of some Moths have outside the shiny case of the chrysalis.

The Silkworm, while it is yet a worm, spins this cocoon, and then resting in it, the shiny shell of the chrysalis is formed.

" Silkworm on the mulberry-tree,
Spin a silken robe for me:
Draw the threads out fine and strong,
Longer yet—and very long;
Longer yet—'twill not be done
Till a thousand more are spun.
Silkworm, turn this mulberry-tree
Into silken threads for me!"

There are upwards of forty sorts of silk-producing Moths in different parts of the world, some much larger than the one in our picture, which is of the Common Silkworm, cultivated very largely in many parts of Europe for use, and not unfrequently for praiseworthy curiosity in many of our English homes. Those who have had the pleasure of rearing these interesting little creatures may have been amused in watching the worm commence its spinning, and have known by the scratching sound it makes with its horny mouth that it was fixing its web in preparation. Having done this, it begins to unwind a continuous thread about a thousand yards long. It is composed of fibres which are drawn from its own body, and uniting near a small hole in the under lip, through which it passes, the worm continues to draw it by moving its head to and fro, and a small oval yellow ball is the result. It has been reckoned that, in making this ball, it will have moved its head three hundred thousand times.

Which of us could wind a thousand yards in a neat little ball, so that it might be unwound without entanglement or breaking, as the ball of this little insect may be? But it must be done before the Moth is ready to leave its prison, or it will find its way out and make the task very difficult. The eighth day is best for this unwinding. The cocoon must be put into milk-warm water to free it from a sticky matter which surrounds it; and then, with the cocoon still in the water, the silk thread may be quickly, though steadily and gently, taken from the chrysalis and rewound on a reel or card. The chrysalis will not appear to be inconvenienced, and if put into a little bran, will turn to the perfect moth. The cocoon and moth are represented on the leaves of a mulberry-tree, which are the favourite food of the caterpillar, or worm. But for home keeping, when mulberry leaves cannot be had, the lettuce makes a very good substitute.

The moth of this useful little creature, though beautifully shaded, is not gorgeously coloured; it lives but a short time, and does not take any food; it lays eggs for a new succession and dies. There is a poem on the Silkworm that ends thus:—

" Well were it for the world if all
Who creep about this earthly ball—
Though shorter-lived than most he be—
Were useful in their kind as he."

The Admiral Butterfly.

The next picture below represents one Admiral Butterfly flying, and another on a bunch of grapes, showing the beauties of the underside of the wings, as all Butterflies do when in a state of repose. In this they may be distinguished from Moths, which usually rest hanging downwards, with their wings folded. This handsome Butterfly is seen more plentifully towards the end of summer, and is more easily caught than some others. It is difficult to judge whether the bold and handsome colouring of the upper part, or the elaborate pattern and the inexpressibly beautifully-blended colours of the underneath, are most to be admired. During its short life, in which it cannot fail to give pleasure to beholders, it flies from flower to flower, and from fruit to fruit, sipping sweets, by inserting its trunk and pumping up the juices into its mouth.

The caterpillar of this insect is very dark brown or black; it is covered with prickles or spines, and has pale yellow spots on the sides. It is usually found solitary on a stinging nettle, where it feeds; there also the chrysalis may be found, hanging by the tip to the underneath of a leaf. It has a blackish bronze-like appearance, with golden spots. The eggs of the Peacock and Tortoise-shell Butterflies are also laid upon stinging nettles, but unlike the caterpillars of the Admiral, they may be found in great numbers, sometimes, while they are very little, as many as a hundred in one web-like bag. Some of these, if taken home and fed upon stinging nettles, would reward their captors by giving them an opportunity of seeing the changes these creatures pass through, and also of possessing the beautiful Butterflies without the trouble of chasing them, or the pain of injuring or crushing them.

The Swallow-tailed Butterfly.

This very handsome Butterfly on the opposite side of the plate, is not common in all parts of England, but may be met with in East Kent, where indeed most English Moths and Butterflies may be found; it also frequents the fens of Cambridgeshire and Norfolk and Suffolk. It may be seen flying

over and feasting on the fields of lucerne and sanfoine, and also in gardens and woods.

If you observe its shape you will see that it is from the form of its hind wings that this butterfly takes its name; they are notched, and one of these notches continues so as to form a resemblance to the tail of a swallow; the front wings are not notched, but have rounded edges. The wings are patterned with black and yellow; near the edge is a broad black band dusted with blue; yellow spots run along the border, ending in a scarlet spot.

The larva or caterpillar of this Butterfly is smooth, with rings of black sprinkled with orange spots. As represented in the picture, it feeds upon carrots, fennel, and other plants of that sort; the chrysalis, of a light green or grey, may be found attached to a stalk.

Brimstone, Orange-tip, and Cabbage Butterflies.

Next we notice the picture of three Butterflies, the Brimstone, the Orange-tip, and the Cabbage. The last takes its name from the plant where the fly lays its eggs, and which the caterpillars eat so voraciously: they are of a colour much resembling the leaf of the cabbage, with three yellow stripes running all along, and little black hairy spots between them. These caterpillars come to maturity rapidly, and as there are many successions of them during the season, the Butterflies, although each so short-lived, may be seen from early summer to the end of it. The colour of this Butterfly is of a dull white, spotted and veined with black.

The Orange-tip, although not nearly so common as the Cabbage Butterfly, may frequently be seen flitting along the borders of woods and lanes, and hovering over the bushes that dot warm chalky hills. It has its name from the outer half of the upper wings being coloured with orange, and tipped with black; the outer wings are marbled with green. This Butterfly is not much seen through the whole summer, but chiefly during the month of May.

The Brimstone Butterfly is not uncommon, and may be occasionally met with the whole summer through. The wings are lemon-colour, with an orange spot in the middle of each; the body is black, with silvery hairs. These, like all other Butterflies, will be seen in the day time; and in that respect are unlike Moths, which usually choose the twilight for the time of their activity.

The Red-underwing Moth.

The Red-underwing, at the top of the page, is one of a numerous class of night-flying Moths, numbering, in England, about three hundred varieties; their upper wings are usually of brown or chocolate-colour, shaded so as to form defined patterns. Their under wings are of various colours, some white, some yellow, and others, like that in our picture, of an orange-red. This Moth is often an intruder into a bedroom, should the window be left open late, and will sometimes startle a child by the knocking and buzzing that it makes against the window when it is shut down and a light brought into the room. This Moth likes to dip its trunk into honey or any sweets. The caterpillar may be found amongst herbs, feeding upon the roots and young shoots, as well as upon smaller insects that may come in its way.

Tiger Moth.

Next to the Red-underwing is a black-and-white Tiger Moth, and its pupa, familiarly known by the name of Woolly Bear. These Woolly Bears may be observed, in great abundance, on the banks of hedges, in April and May; and, indeed, there is hardly any time, until quite autumn, when some may not be found. They are often near to the common dumb-nettle, which seems to be their usual food and shelter, although they eat many other kinds of foliage, and are particularly fond of apple and plum leaves.

When moving, which it does very quickly, this caterpillar looks not unlike a small Porcupine or Hedgehog; and, like the Hedgehog, when touched it curls itself into a round ball. It is a very hardy caterpillar, and may easily be kept by any young naturalist until it turns to a chrysalis, if it be only well supplied with fresh leaves. But the pasteboard box, or any other case in which it is placed, should be securely covered with a piece of net or perforated zinc, otherwise Woolly Bear may make his escape, and perhaps be found where he would not be welcome. It is better not to touch this caterpillar with uncovered hands, as its long stiff hairs come off and greatly irritate, if they do not poison, the skin.

The chrysalis of this Moth is covered with an oval-shaped cocoon, resembling, both in material and colour, fine brown paper.

The body of the Moth and its under wings are

of bright scarlet, marked with glossy black; the head and upper wings are black, marked with white. The effect of the marks is a resemblance to the stripes of a tiger, which gives it its name. In Kent, and some other parts of England, there is a much larger and handsomer Tiger Moth, which is cream-coloured where this is white, and a rich chocolate-brown where this is black.

May not the wonderful and incomprehensible changes which we see in these little insects convince us that the Creator can effect what he will with any of his creatures? And knowing that he has said our bodies shall be changed, shall we not try to be like those of whom the Apostle Paul speaks, when he says, "Our conversation is in heaven, from whence also we look for the Saviour, the Lord Jesus Christ: who shall change our vile body that it may be fashioned like unto his glorious body, according to the working whereby he is able even to subdue all things unto himself"?

Death's-head Moth.

The large Moth in the centre picture, with its caterpillar and chrysalis, is called the Death's-head Moth. This name has been given to it from certain marks at the back of its head, which bear a fancied resemblance to a human skull. These marks are in light yellow on a black ground. The front wings are of a blackish-brown colour, with lighter irregular bands, varied with brown and grey above and below, and have a white dot in the middle of each wing. The hind wings are of a fine yellow, with two black bands. This Moth is remarkable for making a shrill squeaking sound when disturbed or alarmed. Like most other Moths, it is fond of sweets, and is a sad robber of bee-hives.

The caterpillar of this Moth is the largest of all European caterpillars; it is as much as four and a half inches long; it is smooth, without hairs. Its colour is lemon-yellow above, changing into a green below, ornamented with seven slanting sky-blue bands, tinted with violet and edged with white. Besides this, it has little black spots all over it. Like the larvæ of all the Hawk Moths, of which this is one, it has a curious horn or tail; and any one on first seeing the caterpillar might be puzzled to know at which end to look for the head. It may soon be told, however, by finding the six true legs, which are joined in pairs to the trunk near the head: the five pair of stumps or fleshy legs are to the back, and will be lost in the perfect insect, while the three pair of true legs will remain. It lives chiefly on the potato leaves and privet or tea-tree.

The picture will show the shape of the chrysalis: it is rather smaller than the natural size, and it has no cocoon. This chrysalis is not likely to be found, unless it should happen to be dug up, as, in the autumn, the caterpillar goes some inches into the earth and undergoes the change there, where it remains until the following June.

Apple Moth and Magpie Moth.

In the last picture on this page we notice, first, the Apple Moth. It is one of a sort, of which there are many, remarkable for their small size and great beauty; they are exquisitely shaded and patterned, and though not of gay colours, some of them are of a brilliant metallic hue, with lines of gold. Among them are the Plum, Cherry, Hawthorn, and Oak Moth. But it is the Apple Moth we have now to do with; so, having praised its beauty, we must say that it derives its name from what seems to us to be its mischievous propensity; for it is through its means that we sometimes find an unwelcome maggot in an apple. When you experience this disappointment you may know that this tiny Moth, when the apple was very small, had placed an egg there. This egg had hatched into a white maggot, which fed and grew; and, as the apple ripened, the maggot became ready to eat its way out, as you will see the one in the picture is doing. If the apple be not gathered, it crawls to a leaf, which it cleverly draws round itself and confines by fibres something like a spider's web; there it turns into a tiny chrysalis, and if it escapes being picked up by a bird, or, when the leaf falls, eaten by a mouse, it will turn in summer to another Moth, and be ready to spoil another apple.

The other Moth in the same picture, with its caterpillar, is the Magpie or Currant Moth. Those who go into a fruit garden have most likely seen this Moth resting under the leaves of currant or gooseberry bushes, or on the hazel nut. It is most likely putting its numerous eggs there; these soon turn to caterpillars, which devour the leaves, and sometimes cause the branch or even the whole bush to wither.

The caterpillar of this Moth is one of those

called "looper caterpillars," from the manner in which they move. Having only the ordinary three pair of real legs, and not nearly so many of the stumps, or false legs, as many caterpillars have, and these being near to the tail, when they want to walk they cling by these hind legs, and then, stretching themselves out to their full length, they take hold with their front legs and draw their hind legs up to them, thus forming an arch or loop. Some caterpillars that move in this way are so nearly the colour of a little brown twig that you may often see them without guessing them to be living creatures. The Currant or Gooseberry Caterpillar is, however, rather conspicuous on the bushes, as it retains the colours that mark the Moth—bright yellow, black, and white. The chrysalis, too, by its yellow markings on its black case, shows that it belongs to the Magpie Moth.

Not one of the moths we have described, nor hundreds of others that might be mentioned, are such as would eat our clothes, or do us any harm. The Clothes Moth is about the size of the Apple Moth; and you will know now that it is not the Moth itself, but its larvæ, that eats the stuff. Every vegetable or animal substance, and every fabric made from them, has its own peculiar Moth; and to know this makes us see more force in our Saviour's words: "Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt—but lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, for where your treasure is, there will your heart be also."

THE AILANTHUS SILKWORM AND MOTH.

PLATE XIII.

INSECTS, Etc.

Bee, Humble-bee, Hornet, and Wasp.

THE four insects in the middle picture of the accompanying plate are some of those termed *Hymenoptera*, from two words meaning membrane and wing. Their two pairs of wings are neither horny, like the Beetle's, nor scaly, like those of Butterflies, but thin and gauzy, or membraneous, and, when at rest, they lie flat and straight along the body. They have very strong jaws.

You need not be told which of these four is our useful, modestly-dressed little friend, the Honey Bee. There it is, in the position you will always see it when taking the juices from flowers. As it alights on a flower, it quickly puts its trunk or tongue, which it can lengthen or shorten, and twist all about, into the middle of the flower, and takes up with it the sweet juices; these it puts from its tongue into its mouth, and swallows them into its honey-bag. It has to go to many flowers before this bag is full; but when it is, it flies back to the hive, sometimes a mile or more, and empties it into one of the little waxen cells of which the hive is composed. With what wonderful skill and accuracy these cells are made, and how and with what it is all done, might fill more pages than are in this book. We cannot think about it without feeling quite sure that these useful and wondrous insects are made and taught by wisdom higher than the highest of man's wisdom. It is the wisdom of our God, the Creator of all things.

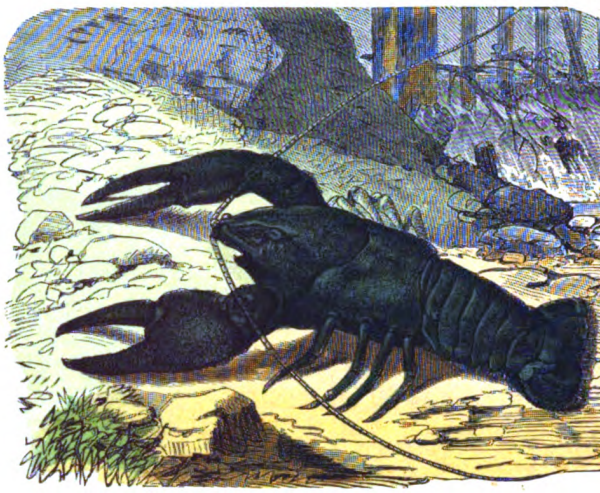
The Bee gathers not only the juices for honey, but also the pollen, or dust, which it rubs off the flowers on to its hairy body; with this, after having gathered it from its body on to its hind legs, it flies away home, and puts in certain cells of the hive, and it is used for feeding the young Bees.

But how do the young Bees come? Besides the cells for honey and the cells for bee-bread, there are cells in which the Queen, or Mother Bee, lays eggs. These eggs are not many hours before they are hatched into white grubs, which remain in their cells, and the Working Bees feed them with bee-bread for five days, and then close them up in their cells, where they spin for themselves a silky cocoon, and turn from larvæ into pupæ. In less than a fortnight they leave the cocoon, pierce through the wax that shut them in the cells, come out perfect Bees, and, after a few hours of welcome and attention from the rest of the hive, are ready to begin their useful labours. It is said that a Mother Bee will lay as many as between twenty and thirty thousand eggs in one year, as there are many broods in succession; and if the hive gets too full, a large party flies away and makes new cells somewhere else: this is called "swarming."

The little bag in which the Bees carry honey is also useful for the conveyance of water; for they want some in the hive to mix with the pollen when they are feeding the young, and for other purposes.

Most likely, if you were to go into the garden to find a Bee, you would look upon a honeysuckle or rose, or the most sweet and beautiful flowers you could find. You might meet with a Butterfly there,

Green and Red Grasshoppers.



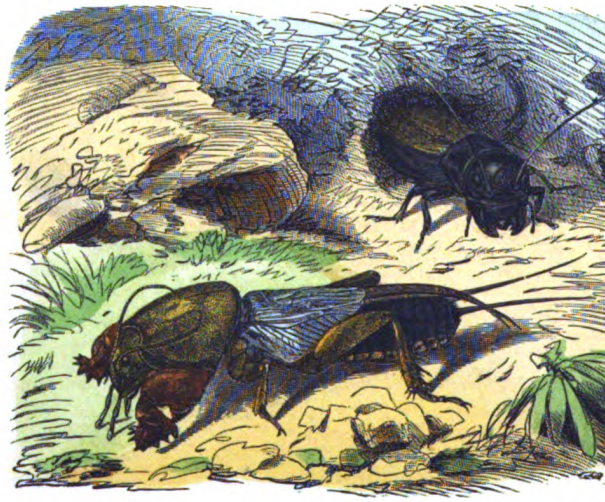
Crayfish.

Gall-fly.

Bee, Hornet, Bumble-bee, and Wasp.

Dragon-flies.

Spider.



Mole Cricket and Field Cricket.

but the Bees would more probably be in the kitchen garden, settling in great numbers on the seed flowers of cabbages or onions, or almost any common vegetables. The bloom of all flowering trees is also very welcome to them, but their chief harvest is in clover-fields, and among the various flowers of the meadows.

The cleanliness of Bees is very remarkable, and their plans for clearing the hive of litter or dead Bees is admirable. When small insects creep in, they kill them, and carry them out of the hive; but if a Snail or Slug should come, and be too heavy for them, they cover it with wax, and fasten it down to the floor of the hive, where it may stay as a warning to others not to enter.

A hive of Bees affords an illustration of the psalmist's remark, "Behold, how good and how pleasant it is for brethren to dwell together in unity!" The Bees seem to have signs by which they can understand one another, and they act in concert. If it were not so, they would have no honey to spare for us, even if they could get enough for themselves through the winter, when they cannot work.

Humble Bees are known by their great size, their short, robust body, encircled by bands of very bright colours, and by the noise they make in flying. This noise some persons say has given them their name, which used to be Hummel, as it is now in German, and not Humble. Of all trees where they may be found in greatest numbers in a garden, the red-flowering currant is first. Their nests, however, are in fields, or near the outskirts of woods. They are not very particular about these habitations, but will use a hole at the root of a tree, or an old rabbit-burrow, where they live through the summer, in families of about a hundred. They are, in make and manner of living, very much like the Honey Bee, except that, as they do not live through the winter, they do not store up any food; the few that live just to lay eggs in the spring, bury themselves in the earth, and lie dormant through the winter.

There are many sorts of Wasps, of which the Hornet is the largest European species, and the Wasp, which annoys us by flying into our houses in search of food, is the most common. A hole in a bank is the most frequent place for a Wasp's nest, which is about three feet in circumference, containing thousands of cells, all used for breeding in, as they do not store up food. During the summer they multiply very fast, but heavy rain, or the cold of winter, kills them, as it does the Humble Bee and Hornet, only a very few remaining through the winter; and they sleep in the ground.

Wasps form their cells, not of wax, but of paper, which they themselves make by working up with their sharp, strong jaws the fibrous bark of trees, or morsels of old wood, until a soft sticky pulp is obtained that can be shaped into cells like those of the Bee, and which soon hardens. The whole of their nest is covered over with overlapping pieces of wasp's-paper of a grey colour.

The Hornet's nest is very similar to that of the Wasp, but the paper is coarser and of a yellowy-brown instead of grey. It is generally placed in a hollow tree, or in the roof of old houses.

Wasps are very voracious, and a nest of them in a garden will destroy more fruit than the Blackbirds. They will eat sweets of any sort, and are very apt to rob Bees of their honey, as well as cooks of their stores of good things. They have been seen to fly from the kitchen with pieces of meat between their jaws, twice as large as themselves; they also eat small creatures. The home of Bees is called an apiary, of Wasps a vespiary. They all have sharp stings and poison bags, and it is much better to avoid them than to get in their way.

Gall Fly.

Who would guess, without being told, that the round balls on the oak leaf, as shown in another of our pictures, could be caused by the little flies in the same picture? These little flies are a species of *Hymenoptera.* They pierce the leaf, and put their eggs there, and the result is, that this ball grows up round the eggs and nourishes them until they are full-grown grubs, which afterwards turn into chrysalids, and then into Gall Flies.

Another sort of Gall Fly puts one egg at a time in the young and tender bark of the oak twigs, and a rather different-looking ball grows round it. Those on the leaves are called oak apples, and of course drop and wither with the leaves; those on the stalks may be seen all the winter through. They are hard and shiny, and have one hole where the grub has eaten its way out. These last are used for making black and green dyes and ink.

Dragon Flies.

Our next picture shows us a Dragon Fly. The French call these insects "Demoiselle," because they think their shape so elegant and their movements so graceful. They certainly are often very beautifully coloured, some showing all the tints of the rainbow, and others beautiful metallic colours.

Dragon Flies appear first in the month of May, on those fine sunny days when we are especially disposed to admire everything that has life. They play along the banks of streams and edges of woods, and we are charmed with them. But when we catch them and look at them closely, the ferocious appearance they present is enough to make us thankful that they are no bigger than they are. Their appearance indicates their habits. Their large eyes enable them to see everywhere, and to seize upon flies and butterflies as well as upon each other, and their strong jaws soon tear and devour their prey. The eggs are laid and hatched on the edges of the water, and the larvæ is much the form of the perfect fly, only without wings. While in that state they remain in the water, and feed upon small fish, water-snails, worms, and insects; and do not at all object to eat their own species. They are able to catch and hold their prey with a wonderful pair of pincers, which they can throw from under their mouth to a length greater than themselves.

The Spider.

"'Will you walk into my parlour?'
Said the Spider to the Fly,
'Tis the prettiest little parlour
That ever you did spy.'"

We may fancy the Spider in our picture to have been giving this invitation, for one Fly has just settled on his web, which we may call his parlour; and, try as it may, it will not be able to draw back again; for the stickiness of the web, and the hairiness of its own little feet, will keep it there until the Spider turns round and holds it fast. If he is not hungry just then, he will spin some web over it, and bind it up a prisoner until he wants his dinner. But if he happens to be hungry, he will quickly suck all the juices out of its body, and leave the skeleton, like that of the other Spider in the picture.

The Spider has very great power of sight, so that he can see his prey in every direction. He has two pincers on the fore part of his head, with stron teeth like a saw, and ending in points like the clav of a cat. His legs are jointed, and have claws at th tips. His fore legs are called arms, and he us them as such in seizing and managing his prey He has no wings, but it is wonderful to what a grea distance he can throw a string of his web, an seem to fly across with it from the place where he beginning to spin to the place where he wants fix it next. He is provided with a small bag glutinous fibre, which, as he goes, he can draw fro himself and guide it with his hands, and crochet h beautiful web.

There are many sorts of Spiders. Some do n spin webs, and are called Hunting Spiders. Of tho that spin, the different sorts choose various places some come into the houses and make "cobwebs; others, in great numbers, spin sheets of silvery we over the grass meadows. The Spider in our pictu is the "Large Garden" or "Autumn Spider." H looks very handsome in his web, and will remain it for weeks in the autumn, enjoying himself in th middle of it on a fine evening; but in damp or rai taking shelter under anything near the outside his web. Spiders are hatched from eggs.

The patience and perseverance of Spiders admirable and proverbial. Perhaps you have hea the pretty poem about Bruce of Scotland watchin a Spider fail six times in fixing its web where wished, and feeling encouraged under his own dif culties when he saw the Spider succeed in h seventh attempt:—

"One effort more, his seventh and last!
The hero hailed the sign!
And on the wished-for beam hung fast
That slender silken line;
Slight as it was, his spirit caught
The more than omen, for his thought
The lesson well could trace,
Which even he who runs may read,
That perseverance gains its meed
And patience wins the race."

Grasshopper.

The picture of the Grasshoppers at the top the page shows one to be quietly resting, an another in the act of flying.

Those who have walked over dry grass on fi summer days can hardly have done so witho being attracted by the zic-zic sound of the Gras hopper as it springs and hops about their feet.

The sort so seen and heard in our favoured land is a harmless little insect, although it is a species of that much-dreaded scourge of some countries, the Locust.

Grasshoppers have outer wings, which are long, narrow, and half horny; these serve as cases for the under wings, which are thin in texture, very broad and veined, and, when open, are something the shape of a fan, and, when not in use, are doubled up like a fan. You can see the shape of both these wings if you look in the picture at the Grasshopper flying. That sword-shaped instrument which you may see under the picture of the one that is at rest is very sharp and strong, and is used by it for cutting openings in the earth to put the eggs in. These eggs are in spring hatched by the warmth of the sun, when an insect comes out, much the shape of the old one, but small and without wings. After moulting, or shedding its outer covering, four or five times, it has almost reached its full size, and its wings begin to appear. It then moults once more, and the wings are set free, the insect being now in its perfect state.

It is by means of their hind legs being so much longer than the others that Grasshoppers can spring and leap as they do. You, perhaps, think that it chirps with its mouth when it makes the noise which amuses us? But it is not so, it is by rubbing the cases of its wings one against the other.

There is a Grasshopper called the Great Green Grasshopper, as nearly as possible the size of the largest in the picture. It is not very common, and, when found, is usually solitary, not in numbers like the smaller sorts which sometimes seem to swarm over warm chalky commons. This larger sort is said to harbour in trees during the day; but it is often found on the cliffs by the sea-side. Grass and herbage are the chief food of these insects.

Crickets.

Crickets, like Grasshoppers, are of a class of insects called *Orthoptera*, from Greek words meaning straight and wing. And what we have said of the wings of the Grasshoppers, as well as of their coming from the egg to the perfect insect, will apply to Crickets. Of the two in the picture the larger is the Mole Cricket, and the smaller the Field Cricket. The Field Cricket lives alone through the day, in a hole which it digs in the ground, always making the opening to the south. At night, it goes in search of food and company; and any one walking along country roads on a summer's evening, and indeed during any part of the night, may hear the shrill chirp of this Cricket, which is louder and more incessant than that of the Grasshopper. Its hind legs are longer than its fore legs, but there is not so much difference as in those of the Grasshopper.

You can hardly look at the picture of the Mole Cricket without noticing the strange-looking pattern of its fore legs. By these legs it is distinguished from all other insects. They are wide and indented, so as to be like the "hands" of the Moles; and, like that animal, it uses them for digging. By means of these fore legs, which we might call spades, they dig long galleries for themselves in the earth, making separate chambers, and placing their eggs in one of the inner ones. The eggs, about three hundred at a time, hatch in one month, but do not come in to the pupal state until the following spring. Some naturalists say it is three years before the wings and all parts of the insect are complete. It is also said that the Mole Cricket watches over her young with great care, and carries them food. They are found in wheat-fields and nursery or kitchen gardens. Crickets and Grasshoppers are food for Snakes and small reptiles.

The Lobster.

Those who have seen or heard of Lobsters only as they appear on the table or in fishmongers' shops, will hardly suppose that the black-looking crustacean or shell-fish in our picture is exactly the same thing. But it is the Common Lobster in its natural colour. Is it then afterwards painted to please our sight? No: it turns to the pretty red colour we see by being boiled. The hot water, with a little salt, mixes with the juices that are in and under the shell, and turns them red.

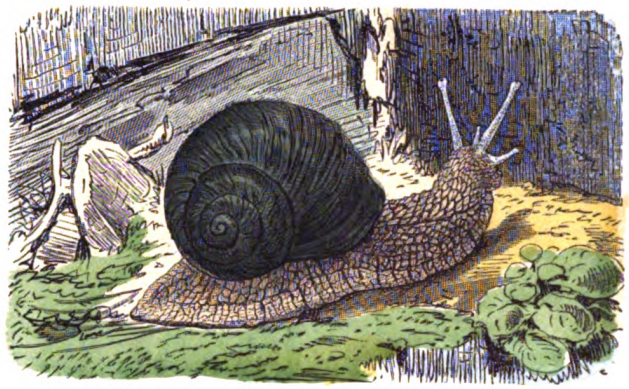
Lobsters live in clear water among the rocks. Some come to table from our own shores, where they are found in great numbers; thousands also are brought from Norway, and many from Scotland. They multiply very rapidly, a naturalist having counted more than twelve thousand eggs to one Lobster. They come from the eggs in July and August, and may be seen at low tide swimming in the little pools among the rocks, sometimes not more than half an inch in length. As the baby Lobster grows larger, the shell naturally opens down the

back, and, without much trouble, the fish comes completely out, claws, feelers, and all. It has then a very soft skinny covering, which rapidly hardens into another shell. Again and again, as the Lobster grows, it sheds it shell until it attains its full size.

The limbs of Lobsters are divided into three sets. Five on each side of the mouth are called foot-jaws, and are used to turn about the food and put it into the mouth. Then there are five pairs of true limbs, which are necessary for crawling over rocks and sands: the front pair of these is the great pair of claws which you may see in the picture. Another set of five pairs is under the tail: these are used in swimming. The pincers of one of the Lobster's large claws are furnished with knobs, while those of the other are notched with teeth like a saw. This natural arrangement gives the Lobster the power of holding and cutting up its food, knife and fork fashion. The fisherman sometimes knows this to his pain and cost, when a Lobster catches hold of his hand. When any accident takes off the limb of a Lobster, a new one gradually grows in its place, so that it is not unusual to find the two claws of different sizes on the same animal.

The eyes of Lobsters are so raised and so movable that they can see readily every way, and no doubt their long and strong feelers give them notice of approaching objects. Fishermen say that, when alarmed, Lobsters will dart tail foremost a distance of many feet as fast as a bird can fly, into their holes in the rocks. They are caught in traps and nets baited with raw flesh. There is a small shell-fish caught in the Thames and other rivers that is very much like a Lobster in appearance and habits, but only three or four inches long; it is much esteemed for food, and is called Cray- or Craw-fish.

LOBSTER FISHING.



Vineyard-Snail.

Slug.

Earthworm, Ants.

Garden Snails.

Leech.

Marine Animals on the sea-bottom.

PLATE XIV.

SNAILS, WORMS, SEA ANIMALS.

SNAILS are called *molluscous* animals; that is, they are soft-bodied creatures without bones, unless their shells be called their bones, as they sometimes are. They are attached by a strong muscle to the inner part of the shell, and so cannot entirely separate themselves from it. But they can, as the picture shows us, and as most children know, stretch themselves out of their shells, and "show us their horns," or feelers. The upper pair of these feelers is largest, and has at the tips little black specks, which are supposed to serve as eyes; but whether these are eyes which enable the creature to see, or whether it is by extreme sensitiveness to touch that these feelers are useful, naturalists do not yet agree. They have a small breathing-hole at that part of the body nearest to the shell. That the mouth is not far from under the feelers may be known to any one who happens to go in the garden and see a Snail on a cabbage, or other nice young juicy leaf. He will eat from this by seizing it with his strong sharp jaws, and taking out a clean circular piece the size and shape of his mouth; and such a large clean slice he will take out of a ripe strawberry when he can get into a strawberry bed!

In warm dry weather Snails are not much seen, they are gone into holes under hedges, or amongst stones and roots, to wait for a shower of rain, that they may have the degree of moisture necessary to enable them to move about. They also are torpid through the winter, when they shut themselves into their shells by putting out a creamy fluid, very sticky and very strong; with this they make a layer over the opening of the shell, and, in about an hour, it hardens like dried glue. There is a very small breathing-hole left in it. In a somewhat similar manner, the Snail has the power of mending any hole or crack in his shell.

In their enclosed state a hundred or more may often be found together, and, so shut up, Snails pass the winter, caring little for wind or weather, and have been known, when taken indoors and kept in a dry situation, to retain life for years; and when put into water, to crack their little enclosing lid and quietly come out of their shells, without showing more surprise than if it was the first spring after they had shut themselves in.

Snails lay eggs a little below the surface of the earth, where they may be found from fifty to a hundred in a mass, looking something like small round sugar plums damped, and so sticking together. They are white, and, when near hatching, they become almost transparent. The outer part of the egg opens and forms the shell of the living creature; so it does not leave its shell, like a bird, but in warm, moist spring weather, it crawls, shell and all, out of the earth. The shell, which is at first exceedingly thin and soft, thickens and hardens, and the Snail begins eating and growing rapidly. Very many of these young ones are eaten by small birds; and Thrushes and Blackbirds destroy many of the older ones.

There are more than fourteen hundred species of Snails, some of which are known in almost every part of the world.

The large brown Snail in our picture is the

Edible or Eatable Snail, and the largest of the garden Snails. It is comparatively scarce in some districts, abounding more where the soil is chalky, and in those localities formerly inhabited by the ancient Romans, who kept pits for fattening them. These pits they called *cochlearia*, and fed the Snails in them with meal or bran soaked in wine. By this means the Snails grew so fat and large that it is said one was sufficient for a meal.

Although it goes against our English ideas to eat Snails, they are even now cultivated and eaten in many parts of the continent; and are often taken from the hedges and cooked and eaten by the poor, who find them to be very nourishing and strengthening.

The four Snails in the middle picture are all varieties of garden Snails, and may be found in more or less abundance in our different English counties, in gardens, fields, or woods. They do not differ materially from each other in anything but size and colour; and some of them, especially the ringed or belted one, feed upon insects and flesh as well as leaves and fruits. This sort is numerous in the north-eastern counties, where the large brown one is scarce. The habits of the Snail are prettily told in the following verses:—

"To grass, or leaf, or fruit, or wall,
The Snail sticks close, nor fears to fall,
As if he grew there, house and all
Together.

"Within that house secure he hides,
When danger imminent betides
Of storm, or other harm besides
Of weather.

"Give but his horns the slightest touch,
His self-collecting power is such,
He shrinks into his house with much
Displeasure.

"Where'er he dwells, he dwells alone,
Except himself has chattels none,
Well satisfied to be his own
Whole treasure.

"Thus, hermit-like, his life he leads,
Nor partner of his banquet needs,
And if he meets one, only feeds
The faster.

"Who seeks him must be worse than blind,
(He and his home are so combined),
If finding *it*, he fails to find
Its MASTER."

The Red Slug.

The Red Slug is another of the mollusc family, and looks not unlike the Snail without its shell. It has a small portion of shell on the fore part of its body, but not such as is easily seen. It has four feelers, and the little black specks like the Snail. It has a breathing-hole on the right side of the lower part of the hood or mantle that covers its head, also a mouth furnished with teeth and a tongue. These, and indeed all kinds of slugs, are very voracious; and their devastation in the larder, when they can gain admittance, is not small. Bread or pastry, cooked or uncooked meat, are equally welcome to them, and the quantity they consume is astonishing, leaving their slimy track on all. Out of doors they will eat worms and many small insects, as well as leaves and fruits. They hide up in the day-time in damp shady holes, or among the thick roots of any undisturbed plants, either in gardens or field hedges. They lay eggs in the earth as the Snail does, and may be commonly found in most parts of England.

The Leech.

The Leech is one of a class of creatures called *Annelida*, because they are formed of rings at certain distances from each other. These rings are so joined by muscles that the creatures can twist and move in various directions. They are covered with a moist, soft skin, so thin that, as in the picture of the Leech, you may see the rings through it.

The Leech has been made useful to man by its peculiar power of suction. Its mouth, or sucker, has three small sharp teeth, with which it cuts the skin before it begins to suck, and those who have felt the teeth know that they give only a momentary prick, and leave their marks in three triangular spots. It has ten very small black eyes, ranged in the form of a crescent. In its own home, amongst the weeds, on the banks, and at the bottom of waters, it feeds upon tadpoles, worms, larvæ, and such small things. When Leech-fishers set to work, they put pieces of raw meat in the water, and the Leeches crowd upon it and are caught. Some fishers make baits of themselves by walking with their legs uncovered in the streams where Leeches are, and soon feeling the prick of their teeth, they take them off and put them in their baskets. Many millions are sent every year from Brittany to England and other countries.

A coarser variety of Leech, called the Horse-Leech, is common in our own small streams and

ditches. And another sort, in Chili and Ceylon, lives in the woods, on trees and shrubs.

Leeches lay eggs in little bunches, among the weeds of the water-side, and each egg opens with a small lid, when the Leech comes to life. They may be kept a long time alive in water with a little bank-weed and earth; but as they are exceedingly clever in making their escape, they will need to be covered over, or, true to nature, they may be found rapidly travelling to the moistest place on the premises.

Earth-Worm and Emmets.

The EARTH-WORM, like the Leech, is of the class *Annelida*. But unlike the Leech, it has short stiff bristles, eight on each ring; these bristles enable it to move through and over the earth. You have most likely seen an Earth-Worm, and would hardly suspect it of having bristles to travel with. But the microscope shows this among thousands of other wonders, which a glance of the unassisted eye cannot perceive. Truly, the wonders of God's creatures, and yet more, the marvels of his love and mercy, show new objects for admiration and adoration the more they are studied; and what the microscope is to our eyesight, the Spirit of God must be to our minds, before we can perceive or understand in even a small degree the wonders of his grace.

You all know that the Earth-Worm lives under ground, and no doubt it has a very happy life there in its way; but it likes now and then to move upwards, and sometimes on dewy nights Worms may be seen in hundreds above ground; or rather, they may be heard, for they make a knocking, clicking sound, as if they were all dancing and singing at a Worm's ball. But if you fetch a light to see what causes the noise, you will frighten them into their holes, so that you will hardly have time to see the last retreating ring. But the next morning, if the ground is hard, you may see their holes plainly enough.

Moisture and darkness are necessary to the life of a Worm; and if one is placed in the sunshine it quickly dies, and then shrivels up, unless the Burying Beetles put it underground, or other creatures make food of it. You may see two Emmets are upon the Worm in the picture; they are most likely planning to carry it to their home, as a contribution to the general food of the family. If they are not strong enough to accomplish it without further help, they will soon find a companion or two to help them, and in a short space the Worm will be carried away. That one red patch round the Worm shows that the gardener's spade, or some accident, has severely wounded it; perhaps even cut it in two, and that, as is the case with Worms, the separated parts have grown together again.

ANTS or EMMETS feed upon both vegetable and animal substances. They are very strong, and you will be less surprised to think of their carrying away the Worm when you know that they will attack and kill living things ten times their own size. Through a microscope you might perceive, under their black eyes, two small horns, or feelers, composed of twelve joints, covered with fine silky hairs; on the mouth, two crooked jaws turning outward, and very strong and sharp; the breast and six legs hairy, and on each leg two small claws. These "little people" dwell in colonies, and conduct their affairs with regularity and order. Solomon says, "Go to the Ant, thou sluggard; consider her ways, and be wise, which having no guide, overseer, or ruler, provideth her meat in the summer, and gathereth her food in the harvest." Very likely you have read the poem that tells us of the Ants:—

"They don't wear their time out in sleeping and play,
But gather up food on a sunshiny day;
And for winter they lay up their stores.
They manage their work in such regular forms,
One would think they foresaw all the frosts and the storms,
And so brought their food within doors.

"But I have less sense than a poor creeping Ant,
If I take not due care of the things I shall want,
Nor provide against dangers in time.
When death and old age shall stare in my face,
What a wretch shall I be at the end of my days,
If I've trifled away all their prime.

"Now, now, while my strength and my youth are in bloom,
Let me think what will serve me when sickness shall come,
And pray that my sins be forgiven:
Let me read in God's word and believe and obey,
That when death turns me out of this cottage of clay,
I may dwell in a palace in heaven."

The bite of the Ant is very sharp, and, with us, slightly poisonous. There are stronger sorts in hotter countries, and their bite is very hurtful. Of the Ant, as well as of the Bee, a volume full of interest might be written. Here we can only add that they come from small eggs, as grubs, and turn to a sort of white chrysalis or pupa, from which the perfect insect comes. Should you happen to be where an Ant's nest is turned up, you would see many of these white pupæ; and as quickly as pos-

sible each full-grown Ant would seize one and carry it to a place of safety.

Sights on the Rocks.

Our last picture consists of a group of various curiosities, such as you may have seen in aquariums or by the sea-side. There are a Sea-Star, a Sea-Anemone, a Sea-Urchin, two Mussels, and two Oysters, one of them having something not unlike a ram's horn attached to it. This ram's-horn-looking thing is called a Serpula; it may be found at low tide in pools among the rocks, joined sometimes to the rocks, and sometimes to loose stones or shells, as the one in our picture is to an oyster-shell. The little inhabitant of this narrow, crooked house is called, not inaptly, a Tube-maker, for the tube or horn from which it is now peering out is of its own making. Those plumes on each side of its head are the parts with which the creature breathes, and they can be spread in fan-shapes; they are coloured a fine red, varied with orange and violet. The part farthest out of the shell is a sort of sucker not unlike that of the Leech, and the creature is also an *annelid*—you can trace the rings on the shell. It is not joined to its shell like the Snail, though it does not often quit it; but when the shell is once fixed to an object, it must remain there, and when it happens to be upon the shell of a living thing, it must go where that will take it.

Oysters, you know, are the *bivalved*, or two-shelled, fish that are so much liked for food; a few stray ones are sometimes found upon the rocks; but for use they are cultivated in large numbers, in what are called oyster-beds.

Mussels, too, are bivalves, and are used for food, though they are not considered so great delicacies as Oysters. Sometimes there is even danger in eating them, for in some states they are quite poisonous. They are generally found in large numbers attached to rocks or stones.

There is also the Crab, which, when boiled, is good for eating. Small Crabs are often found in holes among the rocks; but the larger ones are taken from deeper water. They shed their shells, and are, in most respects, excepting shape, very like the Lobster.

Next are two small specimens of Sea-Anemone, of which there are many sorts. You see these as they appear when fastened by suction to the rocks. When they are so fastened, they put out their feelers or arms, which you may plainly see round the top of one of them, and with these arms they catch any small shell-fish that may be passing by, and put an end to their journey by popping them into their own mouths. It is said that they are very voracious, and very sensitive to weather, drawing themselves in, even when a dark cloud passes over.

The colours of the Sea-Anemone are very variable and very beautiful; sometimes yellow and sometimes green, but more often a pinky violet. In very early mornings in autumn, they may be seen abundantly on sandy sea-shores, where at first sight they have more the appearance of a moulded jelly than of a living creature, and the children call them Jelly Fish. As they lie upon the sands they are of no particular size, as they can spread themselves out or draw up at their pleasure.

That curious ball, looking like a rolled-up Hedgehog, is called a Sea-Urchin, or Sea-Egg. The spines which give such a Hedgehog appearance are set on a round, thin, brittle shell; these spines can be moved in any direction by the inhabitant of the shell, and are very useful to it, when it chooses to burrow in the sand. When under the sand, as it frequently is, it may be sometimes found by a slight hollow which it leaves above it. The few that are found on our coasts are looked upon simply as curiosities, and we can hardly imagine them to be good for food; but you shall hear what a traveller says about them in the Bay of Naples. "I had not swum very far from the beach before I found myself surrounded by some fifty or sixty human heads, the bodies belonging to which were invisible, and interspersed among these were perhaps an equal number of pairs of feet sticking out of the water. Down went a head, up came a pair of heels; down went a pair of heels, up came a head; and as something like a hundred people were all doing the same, the sight was laughable and puzzling. It proved that the men were diving for Sea-Urchins, which are especially valued for eating just before they deposit their eggs."

There are many varieties of Sea-Urchins, and many wonderful things have been observed in their habits.

That radiated circle near the Crab is a Star-fish, one specimen out of a very great variety, many of which are common on our own coasts. If you pick one up it seems soft and powerless, and you would hardly think it possible that it could eat Mussels, shells and all. But this it does, as well as many

other shell-fish, even Oysters, when they are not very large. And when an Oyster is firmly fixed to the rock, it will not be prevented by that difficulty from taking what it chooses. It just climbs upon it and puts all its arms to work, and gets it from its hold and draws it by suction into its mouth. Sometimes it eats only the Oyster and leaves the shells, as described in the following lines:—

"The prickly Star-fish creeps with fell deceit,
To force the Oyster from its close retreat,
Whose gaping lips their widened void display;
The watchful Star thrusts in a pointed ray,
Of all its treasures robs the rifled case,
And empty shells the sandy hillocks grace."

The Star-fish is not, however, always content with bivalves, but will seize upon the fisherman's bait, and give him much trouble in finding, instead of the fish he wished for, only a Star-fish, which he did *not* wish for. But you may ask, "Where is its mouth?" It is exactly in the centre of the circle, underneath. In the water it glides gracefully along, and if it chooses to push through a narrow passage between stones, it will put one arm forward, and hang the others all backward in a very little space. These fish will sometimes stand "tiptoe" on the points of all their arms, looking like little stools, as high as the length of their arms. They can lose one or more of their arms without being much troubled. They are of a reddish colour, lighter underneath than above, and covered with small spines. These and Sea-Urchins, when dried, may be kept for years.

CONCLUSION.

It will not be supposed that this volume was intended to give a full description of all the animals of Europe, nor indeed so much as to mention even a hundredth part of them. It is hoped, however, that the information given respecting some of the beasts, birds, fishes, and insects of our part of the world, may be not only interesting but instructive.

Among the pleasant paths in which all persons (but especially the young) may find recreation, there is perhaps none more interesting, and indeed fascinating, than in observing the works of nature. Every natural science has its peculiar charm; but, while some students are attracted by the glories of the heavens and the hidden wonders of the bowels of the earth, almost all are fond of Natural History, as opened in the various forms of life around us; and can understand—

> "The charming song
> Which in the breeze can find a tongue,
> While insects of each tiny size
> Delight us with their melodies."

Indeed, the hum of insects and the song of birds are resting and soothing even to those who hear them without greatly heeding them. And the beauties of the gay Butterfly please and delight when it is watched or chased by the child, who thinks little more about it than that "it is very pretty."

How much greater, then, is the intellectual zest and enjoyment of those who have even a small knowledge of the names, habits, formation, and uses of the creatures that attract their attention!

"The works of the Lord are great, sought ou
of all them that have pleasure therein." But t
have the full pleasure that may be derived from an
of the works or ways of the Lord, they must b
sought out or studied.

He who seeks them out will never forget them
for everything of God's forming is done in such
way as to strike the imagination, interest the senses
and charm and edify the intellect, and to plainl
prove that none other than the Divine hand an
skill could have made them.

> "All nature owns with one accord
> The great and universal Lord,
> Insect and bud, and tree and flower,
> Bear witness to his wondrous power;
> And 'God is with us,' all reply,
> Creatures that creep, walk, swim, or fly,
> God reigns on earth, in air, and sky."

In our researches into the wonders of nature
we are greatly aided by the use of the microscope
Take for instance a little drop of water, such as may
be lifted on a pin's point, and with the aid of
strong microscope we may discover that this little
globule is a miniature of the universe, instinct with
living creatures, which no arithmetic can count; and
in them organisation and life are, according to their
species, as perfect as they are in the largest animals
which walk the earth or sport in the waters; and
the animalcule in the drop of water is just as much
adapted and at home as the Elephant in the jungle
or the Whale in the sea. Without the microscope's
assistance, the most patient and laborious naturalis

would never have been able to discover and inform us that in one sort of Beetle "there is no crop or gizzard, but the stomach is fringed on each side, and there are three pair of bile vessels; while in another Beetle the stomach is dilated into a crop, which includes a gizzard so minute as scarcely to exceed a large pin's head in size, and yet is provided internally with more than four hundred pairs of teeth, moved by a far greater number of muscles. The object of this extraordinary structure is that the Beetle may reduce to powder the timber which it has to perforate and probably devour." Why it perforates or bores holes in the timber you have already been told. But even an ordinary microscope in unlearned hands will show wonders and beauties that can hardly be imagined, and cannot possibly be perceived by the unaided eye.

So the young scholar may find pleasure in studying God in his works, and the more he studies the more he will perceive that much of God's glory shines in them, and that he is right to observe it.

"There is a book who runs may read,
Which heavenly truth imparts;
And all the lore its scholars need—
Pure eyes and Christian hearts.

"The works of God, above, below,
Within us, and around,
Are pages in that book to show
How God himself is found.

"The glorious sky, embracing all,
Is like the Maker's love;
Wherewith encompassed, great and small
In peace and order move.

"One name above all glorious names,
With its ten thousand tongues,
The everlasting sea proclaims,
Echoing angelic songs.

"The raging fire, the roaring wind,
Thy boundless power display;
But in the gentler beeeze we find
Thy Spirit's viewless way.

"Thou who hast given me eyes to see
And love this sight so fair,
Give me a heart to find out Thee
And read Thee everywhere."

But may the student safely stop here? Will he study the beauties and the wonders of the creatures that perish, and forget his own imperishable immortal soul?

The light of the knowledge of the glory of God which shines in creation is a beautiful light; but it does not supply man's great want. It was never meant to do this. It cannot enlighten the mind on its way to a happy immortality. The study of the book of creation can never lead to a saving knowledge of God, who can only be thus known, in that revelation which he has given us of himself; and that is in his Son Jesus Christ.

In this Christian land and land of Bibles, the knowledge of the fall of man and of the sacrificial death of Christ, of his sojourn on earth and his ascension into heaven, is as easily acquired as knowledge of the mind. But that is not a saving knowledge of Christ. The words of Jesus to Nicodemus apply to every human being. "Ye must be born again," born into a new life, a spiritual existence. In the history of the first creation, it is said that the earth was empty and shapeless, or "without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light." So before we can be born again our spirits must be breathed into by the influence of the Holy Spirit of God; then they will be enlightened and expanded and become able to "comprehend and know the love of Christ which passeth knowledge:" which is valuable immeasurably above all other knowledge.

But this Holy Spirit's influence must be sought in humble trusting prayer. Christ promised the Holy Spirit to those who prayed for His influences; and no gift can be compared to this. All that is done for man, by the way of calling his attention to eternal things, sanctifying the heart, and preparing the soul for the presence of God, here and hereafter, is done by the Holy Spirit as the agent. "Ask, and it shall be given you; seek, and you shall find."

The young Christian student of "Animal Life" will find great pleasure and advantage in reading every reference made in the Bible to many of the beasts, birds, and insects with which we are more or less familiar, either as emblems, or for sacrifice, for food or labour, or clothing, or as the instruments of God's just punishments.

Those who read with attention will find that every remark or allusion made, or account given, in the Bible, shows a perfect knowledge of the subject. There is not the slightest word or statement that is contrary to the knowledge of the learned, or to the facts that are known to us to exist, or to have existed, or which contradicts one single principle that experience has established. In this the Bible is distinguished from all books that were ever composed by mere human ability.

So while the Bible will confirm correct know-

ledge, that knowledge will often assist the reader to perceive the force or meaning of its passages. If you read in the forty-second Psalm, "As the hart panteth after the water brooks, so panteth my soul after thee, O God. My soul thirsteth for God, for the living God: when shall I come and appear before God?" how much more fulness and depth of meaning and feeling is shown in the words to the student who knows that the Hart is an animal very dependent for its existence on a supply of clear or living water; and that every evening, and constantly, it seeks the streams; and whenever unusual heat has parched the ground or dried the streams, it suffers extremely, and "pants for the water brook," and perhaps feels faint and despairing of reaching it.

Or when David again, in the fifty-fifth Psalm, says, "Oh that I had wings like a dove! for then would I fly away, and be at rest; I would hasten my escape from the windy storm and tempest," it is interesting to know that Doves are remarkable for the swiftness and perseverance of their flight; that they thus both hasten and secure their escape from the evil that pursues them; that they do not, like other birds, when weary with flying, alight on a rock or tree to recruit their strength, but when fatigued they alternately rest on one wing and fly with the other, by this means gaining the distant covert, and escaping pursuers. To know this, and that the flight of the Dove is not only exceedingly swift, but as direct as possible from the point of its starting to the point of its alighting, shows the beauty of the comparison being made to the wing of the Dove rather than of any other bird.

There is, too, in the early part of the first chapter of the book of the prophet Joel, in which is foretold the approaching calamities of the backsliding people of Judah, a wonderful description of the invading power of Locusts. Such a description as we should scarcely think could possibly apply to creatures so small, if we had no previous acquaintance with their natural history; but it is well known that the description is as correct as it is terrific. They consume like a general conflagration: wherever they have fed, it is as if all were parched with fire; though all before them is beauty and fertility, they leave it as a barren wilderness. After devouring the herbage, with the fruits and leaves of trees, they attack even the buds and bark, and spare not so much as the reeds which thatch the cottages. Their coming is heard at a distance like the crackling of burning stubble, and they are noted for the order and regularity of their movements; and no obstacle will stop them.

These are but a few instances of the references made in Scripture to animal life; and, in others, the force of many allusions, the propriety and beauty of many passages, cannot be fully appreciated unless we are acquainted with the habits, instincts, or real character of the natural objects referred to.

Thus, looking up through nature to nature's God, and in the revelation which in those Scriptures he has given of himself as a just God and a Saviour, we may suitably close this book in the language of David,—

"O Lord, how manifold are thy works!
In wisdom hast thou made them all:
The earth is full of thy riches.
So is this great and wide sea,
Wherein are things innumerable, both small and great beasts.
There go the ships:
There is that leviathan, whom thou hast made to play therein.
These wait all upon thee; that thou mayest give them their meat in due season.
That thou givest them they gather:
Thou openest thy hand, they are filled with good.
Thou hidest thy face, they are troubled:
Thou takest away their breath, they die, and return to their dust.
Thou sendest forth thy Spirit, they are created:
And thou renewest the face of the earth.
The glory of the Lord shall endure for ever:
The Lord shall rejoice in his works.
He looketh on the earth, and it trembleth:
He toucheth the hills, and they smoke.
I will sing unto the Lord as long as I live:
I will sing praise to my God while I have my being.
My meditation of him shall be sweet:
I will be glad in the Lord."

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