

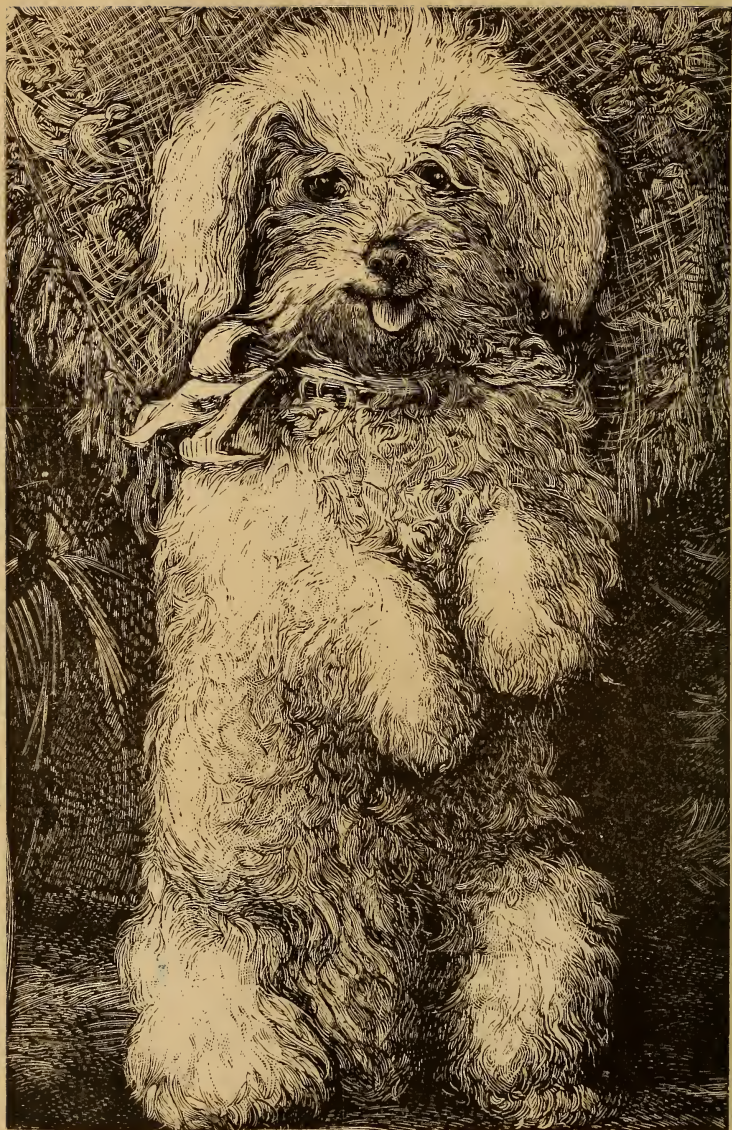


Class QL49

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A FINE DOG.

FOUR FEET, WINGS, AND FINS.

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BY MRS. A. E. ANDERSON-MASKELL.



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BOSTON:
D. LOTHROP AND COMPANY,
FRANKLIN STREET, CORNER HAWLEY.

[1879]
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PART I.
FOUR FEET.



FOUR FEET, WINGS AND FINS.

CHAPTER I.

TIRED.

“O, I am tired—just as tired as ever I can be!” exclaimed little May Ellerton, petulantly, as she flung off her sun-hat and threw herself upon the lounge.

“And I am ‘tarder’ ’an I tan be, lisped little five-year old Rose, brushing back her, damp, dishevelled hair with both chubby hands.

“I do wish you’d be careful, May,” snapped her brother Frank. “You have thrown your old hat right down upon my sail-boat.”

“Take your old boat,” cried May, snatching up her hat and giving it a fling in another direction.

“I don’t see why you children couldn’t have staid out until I had finished my story,” came languidly from another quarter.

“Mamma, I think it is real hard for you to make us to go out every day with that stupid Miss Claxton. She just scolds us the whole time; and to-day she went so far as to slap Rose.”

“Yes, mamma, just ‘betauth’ my foots were hot and I wanted to dip ’em down in ’e brook,” complained little Rose.

“And she won’t talk one word about anything nice. When we ask her about things she tells us to ‘not bother’ her,” said Frank.

Here a young, girlish looking lady, sitting on a low chair by the window, spoke:

“Aunt Myra, you know Miss Claxton is to go on Saturday, why can’t I teach the children after she leaves.

“You!” exclaimed her aunt.

“I know you doubt my qualifications, since I was brought up in such a tiny Western village; but you must not forget that my father was a teacher as well as a preacher.”

“O, Cousin Grace, if you only *would!*” exclaimed the children, clustering around her.

“I don’t know as I care, if you really wish it,” said Mrs. Ellerton, lost in her book again.

“You won’t make us take any more stupid walks, will you?” asked May, pleadingly.

“I expect our walks to be the most pleasant feature of my instructions,” smiled their cousin.

“Oh-h!” groaned the children in chorus.

“Why, you are not as wide awake as Pat Ryan,” laughed Grace. “He had his pockets crammed with curiosities he had picked up yesterday coming just in to Sunday-school, and right in the midst of the lesson he put a stop to everything by exhibiting one of them, his face one broad grin.”

“‘Well, what is it?’ I asked; for every eye in the class was turned from me to Pat.

“‘A hop-toad, ma’am,’ he answered, boldly.

“‘Is it alive?’ I asked, stretching out my hand for it.

“‘You better believe,’ said Pat.

“‘I wouldn’t touch it, Miss. It’ll make warts all over your hands,’ spoke up the smallest boy in the class.

“ ‘O, no, I guess not,’ said I—and then I began telling the children all I knew about toads. They all gave attention; but Pat amused me as he sat with open eyes and mouth drinking in every word.”

“ Why don’t you tell *us* something about the toad,”



asked Frank.

“ Wait until we find one some time in one of our walks. The history of toads is far more interesting than the most exciting fairy tale; besides being all

we should go take a walk *now*,” said May, eagerly.

“ You forget you are tired and never want to take any more walks,” laughed their mother.

“ After the toad subject had been exhausted,” continued Grace, “ Pat dived into his pocket and brought out a poor little dead mouse.

“ ‘ A ground-mouse—killed it with a stun,’ he grinned.

“ Then I talked about the mouse trying to interest him in such a way as to make him feel ashamed of his cruelty; but whether I succeeded or not, I don’t know. After the mouse, he drew out two live beetles and a dead musquito, carefully rolled in a leaf, saying: ‘ It’s the feathers, Miss, he is afther wearing on top of his head that takes my eye. I never noticed ’em till to-day; and the little fellow was waiting outside for me after Sunday-school and said he wanted to know su’tin’ about that musquiter.’ ”

“ I wondered Sunday what you walked along with that Pat Ryan for,” said Frank.

“ After becoming satisfied about the mosquito, Pat was full of other questions. During the short time I was with him he pointed out to me a bat, two spiders, a humming-bird, some ants and corn-weevils. Nothing seemed to escape his restless eyes.”

“Isn't it strange, that as a general thing, *poor* children take so much more interest in the study of nature?” said Mrs. Ellerton.

“The fact is due, I think, to rich children being too well supplied with playthings. They get their minds directed more to the skill of man, and are not thrown so much on their own resources for entertainment. I know that in my short walk with Pat he furnished me with enough subjects to represent nearly every department of zoology.”

“What *is* zoology?” asked Frank.

“If you'll get pencil and paper and note down what I shall tell you, it may be of use to you during our walks.”

“I can't write,” pouted little Rose.

“Come and sit in mamma's lap and she'll print for you,” said Mrs. Ellerton.

“*Zoology*,” said Grace, “as soon as they were all ready, “is that part of natural history which tells us how animals are classed, how they are made, what they do, and all about their homes. Think now that zoology will be interesting? For instance, suppose we take Pat's toad. Wouldn't you like to be able to tell how he is formed, what he does, and where he lives?”



A HUMMING-BIRD.

“I never thought anything about toads anyway,” said Frank, “but come to remember, I know they do do funny things, sometimes.”

“Now write under your heading of zoology: ‘The Animal kingdom embraces five sub-kingdoms, *Vertebrates*; *Articulates*; *Mollusks*; *Radiates*; *Protozoans*.’

“*Vertebrates* mean all animals that have brains and spinal cords; like men, horses, snakes and fishes.

“*Articulates* mean having the body and members jointed, like a beetle, a wasp, a crab.

“*Mollusks* mean having a soft body without joints, like snails and oysters.”

“Always thought snails and oysters were hard,” spoke up Frank.

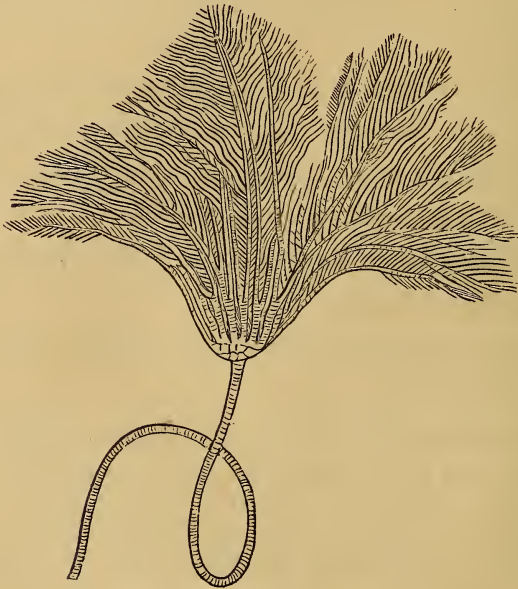
“The house they live in, you mean. Take a snail or oyster out of his shell and he is *very* soft.”

“O, yes! O, yes!” said Frank, coloring.

“*Radiates* mean animals which are something like flowers, having their inner organs as well as their outer, *radiately* arranged, that is,—tracing from a centre—their mouths are in or near this centre, and some of them seem to grow from a stem, like a flower. *Radiates* include corals, star-fishes and jelly-fishes.

“*Protozoans* are animals that have no proper mouths nor members, yet they eat and digest.”

“I don’t see how anything can *eat* without a *mouth!*” said Frank, with very wide-open eyes.



“There may be seen a depression or slight falling in of the surface when they are absorbing their food. You might call that a mouth, I suppose. The sponge with which you rub your slate is the skeleton of one

of these Protozoans. When found attached to rocks and shells under water, it is always covered with a soft, jelly-like skin."

"I've dot a piece of sponge," said Rose. "He's dot lots and lots of mouths. He tan't eat, but he can drink lots of water."

"Good for you," laughed Frank.

And Rose shook her curls and looked as wise as a little owl.

"I know I shall remember what *protozoans* are, they are so awful odd," remarked Mary.

"I know about *vertebrates*, for I had it in my physiology," said Frank.

"We had *articulate* in our reading lessons," added May, "but I didn't know it meant such things too!"

Frank laughed.

"No need to laugh," said Grace, "our word *articulates*, and reader-word *articulate*, are the same words only used in a different sense. *Articulate*, in zoology, is a noun, and means having the body and members jointed. *Articulate*, in your reading lesson, is a verb, and means to utter distinctly—that is, to have the sounds well-jointed, connected, yet distinct.

"There are two divisions of *Articulates* in zoology

—a Land Division and a Water Division. The Land Division breathe through pores arranged along their sides; the Water Division by means of their gills. Insects belong to the Land Division; crabs and lobsters to the Water Division.”

“ Then I have *vertebrates*, *articulates* and *protozoans* stowed away all right,” said Frank, tapping his forehead with his pencil.

“ I know *mollusks*, too,” said May, “ for the word seems like *mush* somehow, and mush is always soft. When I want to remember that word, all I shall have to do is to think of mush. There are *radiates*, too,—radiates have stems like flowers, isn’t that it, Cousin Grace ? ”

“ Most of them.”

“ Then, are they always stationary in one place fastened to something by their stem ? ” asked Frank.

“ O, no, they can move about. Each ray of their bodies is supplied with soft, fleshy tubes which they can push out and draw in again. With these tiny tubes they often attach themselves fast to the rocks with such force that you might think that they *were* stationary, but they are not. Suddenly they unclasp and float away. I saw a star-fish once which my

uncle brought home with him. It was about the color of straw and as large as the bottom of a common ink-bottle. It was a perfect star, and looked more like the work of art than nature. They are covered with a hard crust, and this crust defends them from the smaller animals. You see how God cares even for the least of his creatures.”

Rose was looking with great earnestness upon the speaker.

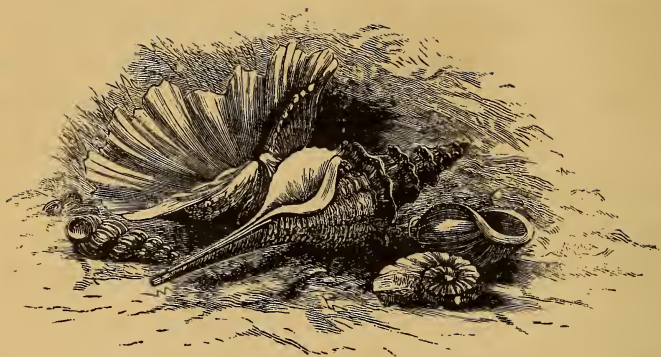
“What does mamma’s little sweet remember about it?” asked her mother, hugging her up tight.

“I dess I ’members mushy, soft animals the best,” said the child, with a little sigh.

“Wait until we come to watch and see what the animals do and go where they live and look at them—Rose will remember as much as anybody,” said Grace, encouragingly.

“Tell us more,” pleaded the children.

“Not this afternoon, your ideas will get mixed. ‘Little by little,’ you know. Come to me as soon as you are dressed to-morrow morning, and we will take our first walk as Wonder-seekers.”



CHAPTER II.

THE FIRST SUBJECT—*Felis-domestica*.

The next morning the children awoke to find it raining, and went down stairs with sour faces.

“I’m just as mad as I can be!” exclaimed May, the moment she saw her mamma and cousin.

“And I’m just madder,” said little Rose. “The naughty rain to tum when we was goin’ to take a wonder-walk.”

“Don’t be discouraged,” said Cousin Grace. “I think there are subjects on the premises for to-day.

“Yes, there is the old cat,” laughed Mrs. Ellerton.

“*My* kitties,” said Rose, smoothing down her little white apron.

“May has a hen, and I a dog,” laughed Frank.

“Good,” said Grace. “Why, we have enough to last us several mornings. Suppose we do begin with puss? Where is she?”

Rose trotted out into the kitchen and soon returned with the nice white mother and her three little, downy, snowy kittens.

“This is very nice,” said Grace, appropriating the purring matron to herself, leaving a kitten for each one of the children. “And now, what do we want to find out about cats?”

“How they are classed, how formed, what they do, and about their homes,” answered May, quickly, fearful lest Frank should be the first to reply.

“Well, to what sub-kingdom does our pussy belong?”

The children fell to studying their papers like little sages.

Cousin Grace rubbed her hand meaningly, straight down Pussy’s back.

“O, I know,” said Frank. “To the *vertebrates*, because she has a backbone.”

“Of course,” added May, quickly.

“Yes, puss is a *vertebrate*; and now we must next consider into how many classes the vertebrates are divided. To your pencils and papers now. VERTEBRATES, classes, four: MAMMALS; BIRDS; REPTILES; FISHES.

“That is easy,” said May.

“Well, then, to which class do cats belong?”

“Why—a cat isn’t a bird, nor a reptile, nor a fish. A cat *must* be a *mammal*,” reasoned May.

“What is a mammal?” asked Grace.

“It ‘thoundth’ like mamma,” said Little Rose, puckering up her forehead.

“Yes, so it does, little love, and both words come from the same source. *Mammal* means breast. All animals who feed their little ones from their own bosoms are *mammals*. Pussy is a *mammal* because she nurses her kitties.”

“I sawed her,” said little Rose, “and May’s hen wath in the nest, too, laying eggs, and there wath four kitties then. There’s only ‘free’ now.”

Grace looked enquiringly from one to the other.

“O, she says that,” May explained, “because the first time she ever saw her little kittens they were in



“THERE WATH FOUR KITTIES THEN.”

a great, big basket, which papa had fixed up for a hen's nest. Wasn't it funny, Cousin, that the cat should go in there with her kittens? And the funniest of all, the old hen wasn't scared a bit, but would jump on her nest, beside the kittens, and lay an egg every day."

"Why, that is as good as my cat and pigeon story," said Grace. "I had a pigeon once that used to nestle down in the straw every day beside the house cat and her kittens; and the cat seemed to actually enjoy the bird's society. Now to your papers again:

"*Mammals* are divided principally into four subdivisions: *Archonts*, *Megasthenes*, *Mecrosthene*s, and *Ooticoids*."

"Yow we're come to something hard," said May.

"*Archonts* refer to man alone. We will have nothing more to do with that word; but, please remember the other three. *Megasthenes* include the larger and more powerful mammals; *Mecrosthene*s, the smaller; and *Ooticoids*, mammals which have a pouch for carrying their young; such as the opossum and kangaroo."

"I suppose we can write it down," said May, "but I don't believe we shall *ever* remember.

“ Well, then, suppose we forget them all for the present except *Megasthenes*, for it is to this division of mammals that cats belong; and what I am going to tell you next is easier. To your papers, again. The orders of the *Megasthenes* are: First, *Quadrumanes*, which means animals like the monkeys, that have four limbs terminating in hands.”

“ I shall remember that,” said Frank, “ from the word *quadru* which means four, and *manis*, hands. *Quadrumanes* means four-handed, does it not ? ”

“ You are right. Then the second order are *Carniverous*.”

“ Flesh-eating,” spoke up Frank, quickly.

“ Yes; and they have four limbs furnished with strong claws, like the lions, dogs and bears.”

“ Then pussy is *carniverous*,” said May, “ because she feeds on mice, and she is *very carniverous* because she has very sharp claws.”

Grace gave the little girl an approving smile, and continued :

“ The third order are *Herbiverous*. Instead of having claws like *carniverous* animals, they have hoofs and *trifurcating* teeth, such as horses and cattle.”



STRANGE FRIENDS.

“What does *trifurcating* mean?” asked Frank.

“The word comes from *tri*, three, and *furca*, fork. Teeth with three forks. The fourth and last order are, *Mutilates*. They have fins in place of feet, and live in the water, like the whale and dolphin.”

“You don’t mean to say that the whale and dolphin are mammals?” cried Frank. “I thought they were fish.”

“No, they are mammals just as much as cats are. Mamma-whale never has but one little one to nurse at a time; but she is very, very tender of that one, nursing it until it is a year old.”

The children were much excited over this piece of information, and pleaded for more on the same subject.

“You forget we are talking about cats,” said Grace. “The last we learned about puss, was that she is *carniverous*. Now for something that is not so hard. Rosie, dear, look at kitty’s eyes. Are they like mine?”

“No, ma’am,” said Rose. “You have a round o in your eyes, but kitty has a I.”

The children laughed, but Grace replied: “That is a bright little girl. Kitty’s eyes are *not* like ours.

It is the strong light which draws the “o” up into a figure *one* in kitty’s eyes. At night the *one* expands into an o. Now you see why kitty can see better in the dark than in the strong light.”

“How funny!” exclaimed the children.

“It is wisdom,” said Grace, “for the retina of the cat’s eye is so very sensitive that it would be irritated by the rays of light had it not the power of contracting. In darkness it expands so that as many rays may pass as possible; therefore is it that kitty seeks her prey chiefly at night.”

“How is it with the eyes of the more powerful of the cat tribe, such as the lion? As he seeks his prey by night, I suppose the formation of his eyes are the same as in cats,” said the children’s mother.

“They possess the power of contracting and expanding, but the pupil is always circular. Cats and hares I believe, are the only animals whose pupils contract into an up and down line, though in horses, oxen and a few others it forms a transverse bar, that is, a bar across.”

“I am going to notice the eyes of everything I find after this,” said Frank.

“That is the best way to be certain,” said Grace.

“ And now, Rose, what do you suppose kitty’s whiskers are for ? ”

Rose looked puzzled.

“ Let me tell you ; when all of kitty’s whiskers are extended, they equal, from point to point, the width of her body, and then when stealing through a hole or any kind of covert though the light may be ever so imperfect, these whiskers, through the nicest feeling, point out the slightest thing in the way. With her whiskers she is enabled to approach noiselessly upon her unsuspecting prey. But shave kitty and she would lose her fine sense of feeling and tumble around as clumsy as the clumsiest. Now look at kitty’s claws and tell me why she keeps them folded when she walks ? ”

“ So her hooks won’t stick fast in the carpet, I dess,” said Rose.

“ And so they won’t grow dull,” smiled Grace ; “ for pussy needs to have them very sharp, as they are her principal weapons of defense.”

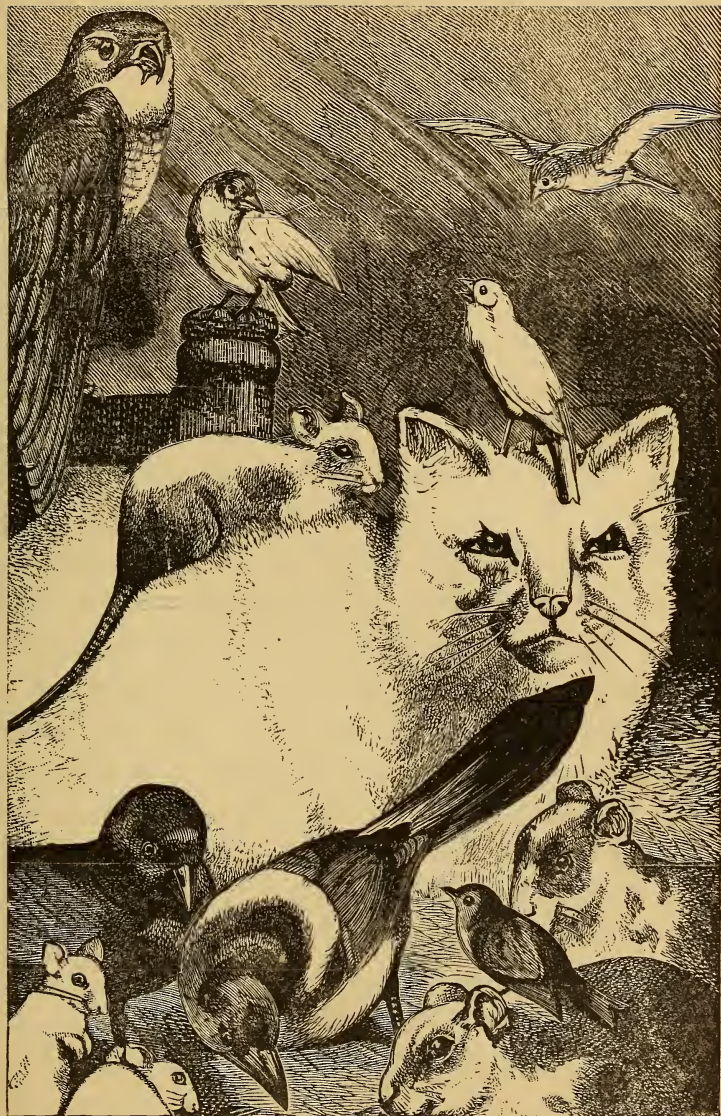
“ Cousin Grace,” said Frank, “ I have stroked a cat’s back when fire came out. How was it ? ”

“ The fur of the cat is generally so clean and dry, that it readily throws out electric sparks when stroked

in a dark room. That is what is called *Frictional Electricity*,—you will know all about it some day when you study natural philosophy. Kitty is very particular to keep herself clean, using her tongue both as a bath, sponge and a towel. As she cannot reach the top of her head or her ears with her tongue, she just wets a paw and then rubs it on all places which can not be reached by her tongue.”

“*Are* cats deceitful?” asked Frank.

“They have such a name. It is said they can charm a bird as well as a snake can. I don’t think they have so much attachment for our persons as do dogs. Still some who have owned pet cats deny this vehemently. But they do love the habitations of men. Their organ of locality seems more fully developed than that of any other animal. I remember that I owned a cat once that seemed remarkable for nothing but theft. She not only preyed upon us, but, also, upon our nearest neighbor. This neighbor became tired of the cat’s depredations, and, one day, being about to go several miles on a visit, tied puss up in a stout canvass bag and carried her eight miles before untying the bag and giving her her liberty, and then it was in a dense growth of wood. Some



A HAPPY FAMILY.

two weeks later, as I was sitting out on the back door-step, who should walk up but kitty, and rub her soft fur against my dress. I could scarcely believe my own eyes. Puss was a great pet for a long time after that. Then, again, she disappeared, and as the weeks and months flew by, without one word as to kitty's whereabouts, we never expected to see her again. I do think she was away some four months, when, one day, we heard a scratch at the door, and, on opening it, who should we see but old puss, and with her, six kittens. And, if we weren't surprised then we never were again."

The children laughed heartily.

"Cats can always be trained to be kind and affectionate, too, but they must be well fed," spoke up Mrs. Ellerton. "And if they are taken soon enough they can be taught to make companions of even birds and mice. That seems very strange, does it not? But I went to visit a place once where I saw a cat, two white mice, a rat and several birds all together. The rat was making a cushion of pussy's back, and a bird singing away perched right on kitty's head."

"That *was* wonderful," said Grace.

"Is kitty a native of America?" asked Frank, thoughtfully.

“ I am glad you asked that question. It proves I've waked you up. No; pussy is originally from the forests of Europe. It is believed they were first domesticated in Egypt.”

“ You don't mean to say that all cats were wild once like the wild cat ? ” exclaimed Frank.

“ I most assuredly do.”

“ Do wild cats look just like our cats ? ” asked May, looking down distrustfully upon the kitten in her lap as if thinking seriously of putting it down.

“ In the wild state they have a flatter and larger head, stronger limbs, shorter tail. Taking them into our homes and domesticating them sort of refines them both mentally and physically, and they grow more comely and graceful.”

“ Cousin Grace, Fanny Frost has a beautiful blue-grey cat that she calls a Maltese. It seems to be a different creature from my cat.”

“ Well; there *are* a great many varieties of domestic cats. The Maltese comes from the island of Malta, or *Melita*. You remember that was the island on which the Apostle Paul was wrecked. Then there are the black, yellow and white cats, called the Tortoise-shell. This kind is of Spanish origin.



OLD PUSS AND HER SIX KITTENS.

They were brought over to this country by some of our earliest settlers, perhaps on Columbus' ships. Then there is the Persian cat, with very long fur on its neck and tail. But, to my mind, the most beautiful of all the domestic cats is the Angora. She has long silken hair of silvery whiteness, and comes from Angora in Turkey of Asia Minor. The Apostle Paul was also connected with this place; for here he preached to the Galatians.

“ I once read a beautiful description of an Angora cat. A gentleman named M. Sonnini, while in Egypt, had an Angora cat in his possession for several years. This cat was entirely covered with long, silken hairs of dazzling whiteness, her tail forming a magnificent plume, which she could elevate at pleasure over her body. Her nose and lips were of a delicate rose color. Her eyes were large, round and sparkling, one of them being a light yellow in color and the other a fine light blue.

“ This cat was lovely in its manners and graceful in its movements. She was so gentle as never to try to resent an injury. She was very much attached to M. Sonnini, following him in his walks, and often caressing him, no matter if he was too much engaged

to pay her any attention. When he was absent she would call for him continually until he returned. In her sickness M. Sonnini remained beside her all the time, and when she drew her last faint breath, M. Sonnini's heart was filled with sorrow."

Little Rose took her mamma's face between both little hands and looked her coaxingly in the eyes: "Mamma, won't you buyed me a 'gora cat."

"If I ever come across one, it certainly will be a great temptation after what Cousin Grace has told us," said mamma.

"There are a number of large, powerful animals belonging to the cat tribe; but I will not tell you their names now, for we shall probably take them all up in the course of our lessons, and I wish to see if you are not able to designate them yourselves. Now, suppose we run up what you have learned to-day."

Frank began eagerly:

"Cats are known in zoology as *vertebrates*, because they have a spinal cord; of the class *mammals* because they nurse their young—" here Frank paused.

"*Megasthenes*," quickly spoke up May, "because cats belong to the larger and stronger animals; and *carniverous* because they are flesh-eating."

Here, as both paused, Grace added, “and of the genus *felis*, the Latin word for cat; species, *Felis-domestica*, domestic cat. Write the classifications down on your papers, and then we are done for to-day,” and Grace smiled approvingly upon each one of her little pupils, for she was very well satisfied with the ability they had displayed in this their first lesson.



CHAPTER III.

THE SECOND LESSON—*Canis-familiaris*.

“Did you ever?” cried May Ellerton, as she came down the second morning. “It is raining yet!”

“You don’t look quite so blue about it as you did yesterday,” said her mother.

“No, for I know Cousin Grace will make it all right.”

“All here?” asked Grace.

“I is,” said little Rose, stepping forward and holding up her lips to be kissed.



DOGS AND DOGS.

“And here comes Frank. Well, shall we talk about Frank’s dog or May’s hen?”

“About bidly,” said May.

“Then we’ll have to go out in the rain,” said Frank; “for who ever heard of a old hen coming into the house? Take Prince, he’s splendid, and will mind every word we say to him. We can bring *him* into the house.”

“Let us have Prince up then,” said Grace; and Frank went out to return proudly with his especial property.

“He’s just as smart as he can be, Cousin Grace,” said Frank, patting the dog on his head who stood wagging his tail at his master’s feet.

“I haven’t a doubt of it,” said Grace.

“I guess you’d say so if you know what he did last summer. You know Prince was grandpa’s dog, and when May and I were there last summer Prince made friends of us right away. The very first day we were there I ran about so much that my feet swelled so that I couldn’t get my boots off.

“Prince sat on the carpet watching me, panting too; but when I gave it up, off he trotted, and returned with the boot-jack, which he laid at my feet.

Wasn't that cunning? I thought so much of him after that, and he was so fond of me, too, grandpa made me a present of him when I came away; and he has been just as faithful to me ever since as he can be."

"Well," said Grace, "let us compare him with pussy and discover in what ways they resemble each other and in what they are unlike."

"He has a backbone like the cat, so he must belong to the *vertebrates*," said Frank.

Then little Rose astonished them all by saying: "And he's a *mammal* I dess, 'tause he gives his little dogs milk—I sawed him at Cousin Tommy's. They was all in a big basket, one big dog wiv his tongue out, and free cunnin' little bits of dogs, and Cousin Tommy let me hold one of the little dogs, didn't he, F'ank? And Cousin Tommy's dot a duck, a little white chicken and two white wabbits. I sawed 'em all."

Grace hugged her tiny pupil and kissed her many times, "because," she said, "that such a very little girl should tell to what class dogs belonged, all herself?"

"And they are *carniverous*," said May, "because flesh-eating."



WHAT ROSE SAW AT COUSIN TOMMY'S.

“Yes,” said Grace, “in those three respects they are like the cat. Now let us examine Prince’s teeth and see if *they* are like pussy’s.”

“You didn’t say anything about kitty’s teeth yesterday,” said May.

“No, because, as a general thing, cats don’t like to show their teeth; but Prince won’t care. I will first tell you what kind of teeth cats have, and then you can see for yourselves if dogs are like them. The cat has six front teeth in each jaw, and one canine tooth on each side in both jaws. They are all cutting teeth, and those at the sides are longer than the middle ones.”

“Well, Prince has twenty teeth in the upper jaw and twenty-two in the lower jaw,” said Frank; while May and Rose crowded to look in Prince’s mouth for themselves.

“The cat hasn’t so many back teeth, or grinders. That is all the difference. Linnœus has divided *Mammiferous* animals into seven orders, arranged principally according to their teeth. He classes dogs and cats both under the same order, called *Feræ*. He also says that ‘the *Feræ* have generally six front teeth in each jaw; and one canine tooth on each

side, in both jaws. Dogs, cats, bears, seals, moles, weasels, otters, kangaroos, shrews and urchins belong to this class. So far, dogs and cats seem to be alike. But now look sharply and you soon will note the differences. In the first place dogs' tongues are smooth and not prickly like those of cats."

"His eyes ain't like kitty's," said Rose.

"No, because it isn't necessary for him to see any better by night than by day," said Grace.

"His paws are not like the cat's, either," said Frank. "He doesn't fold them up when he walks."

"No, it doesn't matter how dull the dogs' claws become, since he never uses them in self-defence. His teeth and jaws are all the weapons he needs, they are so powerful. Of all the animals the dog seems to be man's greatest friend. He is devoted to his master, defends his property and remains attached to him until his death. He seems to love man with a sort of worship we can not understand. Numerous instances are known where a dog has laid down his life for his master and his master's property."

"Cousin Grace, are there any wild dogs?" asked Frank.

"Why, if you include wolves, foxes and jackals,

there are plenty, for these animals all belong to the dog-tribe. Indeed, some naturalists say our dogs are domesticated wolves and jackals. It seems that the most distinguishing physical mark between the dog and the wolf and jackal is the dog's recurved tail. A very little difference it seems, doesn't it? Sometimes, dogs have been lost and gone back to a wild state; but they never seemed to really change back into wolves and jackals. The dogs owned by savages, it is said, resemble the wolf in the shape of his head, in his straight, pricked ears, long, bushy tail, and rough, thick hair; and, moreover, instead of barking, they howl like a wolf or jackal; yet, it is said they are plainly distinct from both, and are called wild dogs. Of the *Canis-familiaris*, as Linnæus calls our dogs, there are a great many varieties. You have all heard about the Esquimaux dogs, how they draw heavily laden sledges over the snow, at the rate of eight miles an hour?"

"I have," said Frank.

"It is said that they present the first traces of a change from the wild type. Their legs are more sure. They are more steady and rapid, yet they prove their close relationship to the wolf in not being able

to bark. The Newfoundland dogs come next. They are fond of the water, like to fetch and carry, thus having saved many precious lives from drowning. Very closely allied to the Newfoundland dog is the Mount St. Bernard spaniel. It goes out into the snow and seeks exhausted travellers, tearing away the snow, and then rushing home to its master for assistance.

“From the form of the head, the spaniel and its varieties, the wolf dog, the shepherd’s dog, the Newfoundland and Mount St. Bernard and the Esquimaux dogs are classed in one family called *Sag-aces*, because they are so wise and sagacious. Write that down on your papers. The mastiff and its varieties, the Danish dog and the bull dog are *Pugnaces*, because they love to fight. Then the hounds, pointers and terriers belong to the family *Venantes*, because they love hunting.”

“To what family do the poodles belong?” asked Frank.

“They are the weakest of the family *Venantes*. It is said that the little pet-dogs are striking instances of the power which man has over nature. They have become so subject to man’s disposition that they have

forgotten all their previous likings and settled down as creatures of their master's will. How many different kind of dogs can you mention, Frank?"

"O, ever so many. There are the common dogs, the spaniel, the hunting hound, the blood-hound, the bull dog, the Newfoundland dog, the mastiff, the terrier, the shepherd's dog, the fox-hound, the little greyhound, the pointer, and I don't know how many more," exclaimed Frank, out of breath.

"Cousin Grace, I have seen a long, smooth dog spotted all over. I have seen them running under peddler's wagons," said May, "what kind of dogs are they?"

"Their proper name is the Dalmatian dog. Some call them coach dogs because they are so fond of being near carriages."

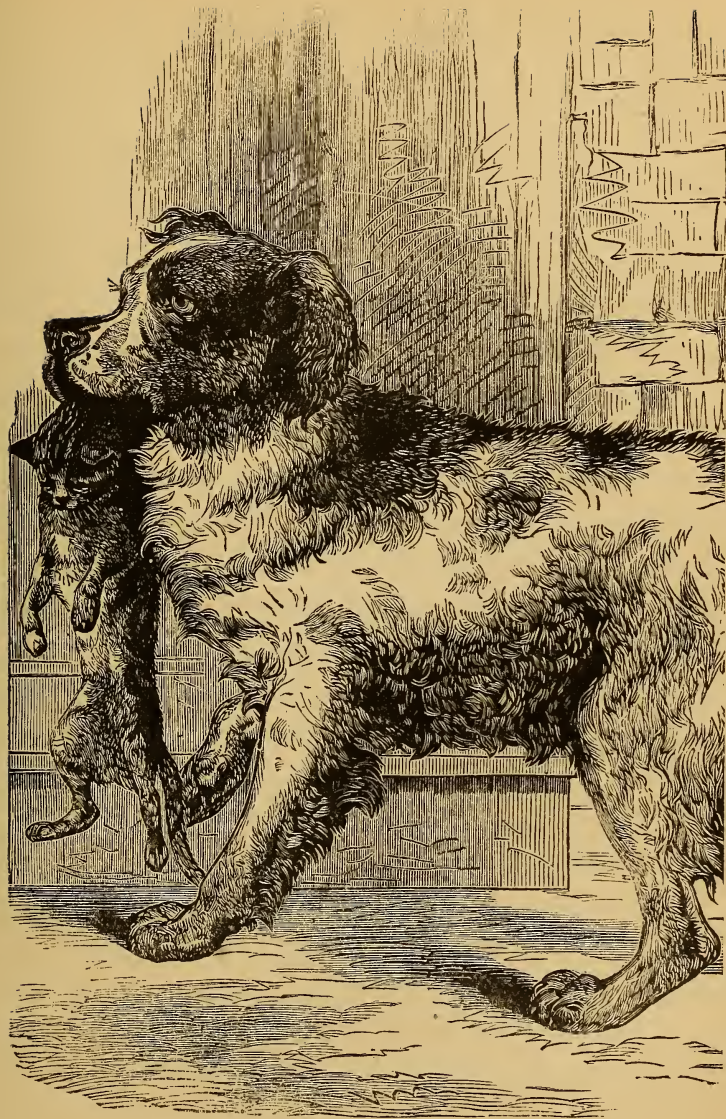
"What are they called Dalmatian for?" asked May.

"Because they are natives of Dalmatia, a group of islands along the Adriatic sea."

"Were dogs brought over to this country the same as cats?"

"Dogs are found natives in all countries; and I think the Newfoundland, a native of our own country,

the favorite specimen of all the race ; especially when I think of all the noble deeds he has performed. He has been known to return good for evil, time and time again. There is a true story of a Newfoundland dog which I think you will like very much. The dog's name was Lion, and when he was chained fast to his kennel he had a great tormentor in the shape of a neighbor's cat. When he was sleeping before his house, this cat would pounce down from the roof of a stable above and steal his food and then scamper away before Lion could regain his feet. When the dog was unchained the cat took good care to keep out of his reach. One day as Lion was walking out with his master, he saw his persecutor floating in a small stream of water. He plunged into the water without a word of bidding and soon returned holding kitty very carefully between his teeth. Instead of laying it at his master's feet, he trotted to the cat's home, and running up the steps with it, laid it at the street-door. He then gave two or three sharp barks to call out the cat's mistress. She came to find the dead body of Tabby lying on the top step, while Lion stood by wagging his tail, pleased with doing a good act, no doubt."



KING AND TABBY.

“He *was* a dood dog,” said little Rose.

“Cousin Grace, I saw a Mexican dog the other day. That was what the man called him. He hadn’t a bit of hair on his body, only right on top of his head and at the end of his tail there were a very few. His hide looked like an elephant’s and was all scratched up where other dogs had sprung upon him because they thought him such an oddity.”

“I never saw a Mexican dog,” said Grace.

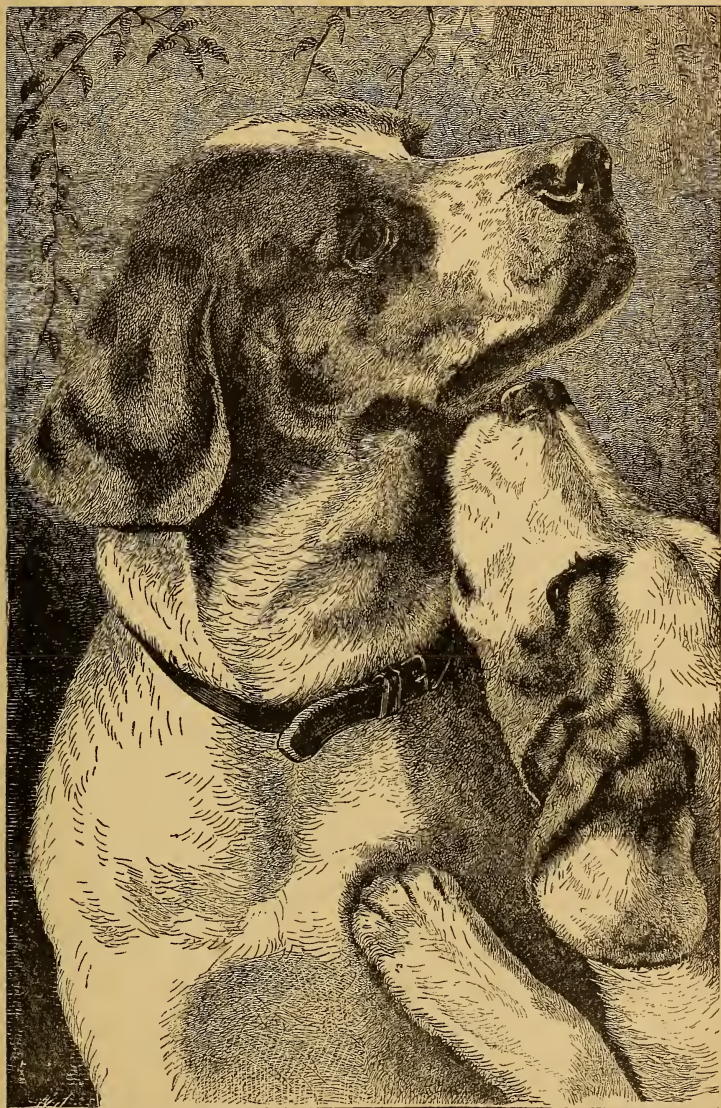
“I saw two nice dogs once,” said May. “They looked like brothers and loved each other dearly. One’s name was Diamond and the other Pearl. There were two little brothers that owned the dogs. One boy’s name was Dan and the other Jim.”

“O, I know who you mean!” exclaimed Frank, “Dan and Jim Dawson.

“Well, I was there once,” continued May, “when Jim and Pearl had been away for two months. Dan was awful glad when Jim came home, so was Diamond glad to see Pearl. You ought to have seen Diamond! He gave a little joyful bark and ran down the walk to meet his old playmate, and what did he do but spring up and lap Pearl right on the neck, just as if he was kissing him.”

“ I guess dogs are the most affectionate of all the animals,” said Frank.

“ They have shown the most affection for man, that is positive,” said Grace. “ I well remember a large dog that one of my father’s parishioners once possessed. I do think he was the kindest animal I ever met. When anyone came to the house he would run to meet them and hold up a paw to shake hands. His master had a beautiful colt that died when it was a year old, and it was dragged away off to a wood. Bounce watched the proceedings with seemingly much solemnity, nor would he leave the dead body until he was compelled by hunger to return to the house. He had been home but a short time when the whole sky off in the direction of the wood became black with turkey-buzzards. Bounce pricked up his ears and barked furiously, but being unable to get any one interested in the colt’s fate, he rushed back to the wood and drove all the buzzards away. In this way he kept guard over the poor colt’s body until its bones were bleaching in the sun. Indeed, I could not help crying over his tender faithfulness. Bounce deserved a gold medal if he only could have appreciated it, don’t you think so? ”



DIAMOND AND PEARL.

The children assented with one voice.

“ Now,” said Grace—

“ Please, cousin,” interrupted Frank, “ I want to ask how long dogs live? ”

“ From fifteen to twenty years—but seldom so long. They are born with their eyes shut, the same as kittens. About the tenth day they get them open, and reach their full growth at the close of the second year. It is said that if brandy be given to puppies they will never attain perfect growth, but remain in a dwarfed state. I knew a little boy that tried this experiment on two baby dogs, and he succeeded just so far as to kill them, no farther. It is very wicked to make any such unnatural experiments. Now let us see what we have learned about dogs.”

Frank and May began in concert: “ Dogs belong to the branch *Vertebrata* ; class—*Mammalia* ; order—*Carniverous*, *Megasthenes*, belonging to the larger and more powerful animals. Genus—*Canis*, the Latin word for dog. Species—*Canis-familiaris*.”

“ I guess somebody has been studying up our today’s subject,” said Grace, smiling approvingly.

“ Frank and I were hunting in a book about dogs last evening, and we committed those last words to

memory so that we might not have so much trouble when we took up dogs for our subject," confessed May.

"Very good. Now, can you tell me to what family of the *canis-familiaris* Frank's dog belongs?"

"He is a spaniel, I know," answered Frank, pausing a moment to think. "Why, he belongs to the *sagaces* because he is so intelligent."

"That is right. Now, May, can you give me a specimen of the family *Venantes*?"

"Hounds—and *Pugnaces*, the bull dog."

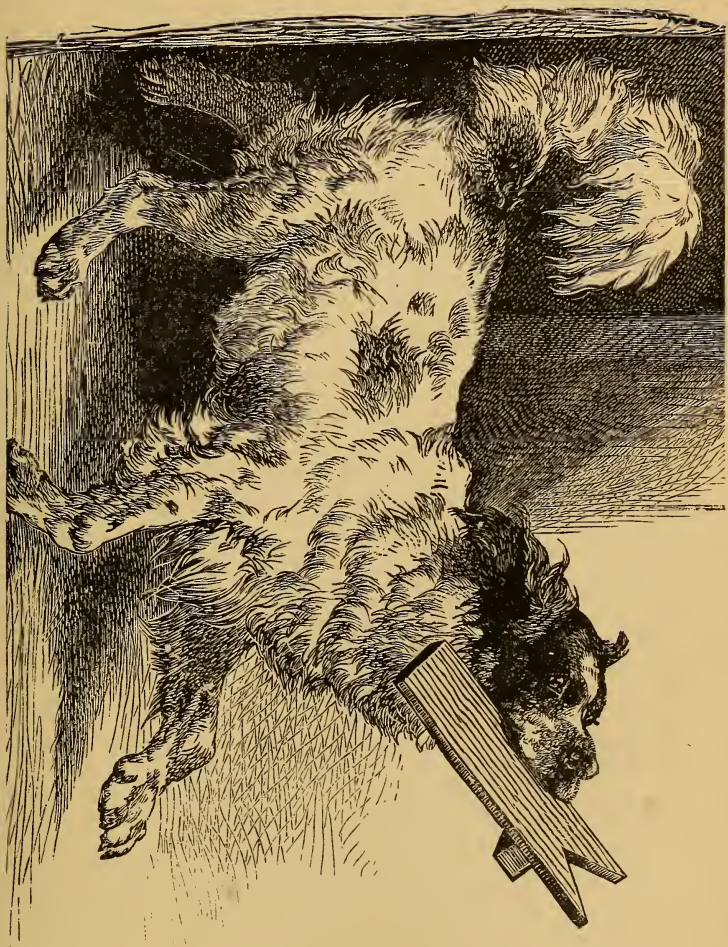
"I was going to ask Rose about the pug-noses," said Grace.

"Pug-noses?" said Rose, "I fought you said pug-faces."

"I was only going to call them *pug-noses* so that you would remember them better," laughed Grace. "Anyway the *pugnaces* can easily be distinguished from the shortness of their noses and jaws."

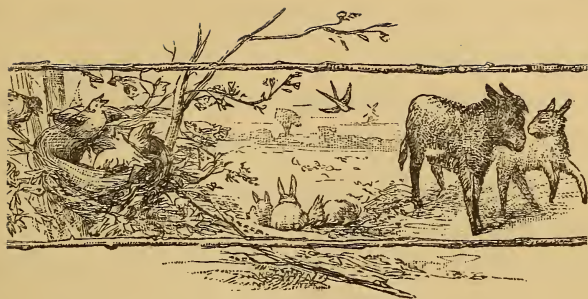
"I dess I'll know a *pugnace* then when I see him," said Rose, laughing gleefully.

Thus ended the second lesson.



PRINCE.





CHAPTER IV.

DOWN BY THE CREEK.

Very early the next morning Baby Rose, in her long, white nightgown, her little feet bare, stood before the window, her tiny pink nose flattened against the window-pane.

“What doing up so early, dear?” asked May, drowsily.

“’Tause I ain’t one bit sleepy; and ’tause I want to see if it’s waining.”

“Course it isn’t. It cleared off last night before we went to bed.”

“I fought maybe it was only makin’ b’lieve; but, O, May! it is all goldy off there—the sun *is* gettin’ up, I know. L’e’s dess and do down, and tell Cousin Grace.”

Grace was as glad as the children to see a bright, clear morning, but said, as long as the air was a little chilly, they had better postpone their walk until after breakfast.

“Where shall we go, Cousin Grace?” asked Frank.

“You shall say,” said his cousin, “since boys are supposed to know more about their surrounding neighborhood than women and girls.”

“I know where there is a nice little creek, and lots of pretty green trees all along the sides, but it is two miles, and Rose can’t walk so far. If we go, we will have to ride in the street-cars. They go nearly all the way.”

“That will be nice,” said Grace.

“And this will be nice,” said Mrs. Ellerton, putting up a substantial lunch in a little willow basket.

The party were soon in the street-cars, and the

children with their knees upon the cushions, looking out of the windows.

An old lady patted Rose's red cheeks, and asked her where she was going.

"Doin' to take a wonder-walk," said Rose, moving closer to Grace, and laying one cheek bashfully on her shoulder.

"*A wonder-walk!*" said the old lady. "What is that?"

"O you finds lots of won'ful and pretty fings, and have a dood Tousin Grace to tell you all about 'em."

After leaving the car, Frank led the way to a mossy seat, which Grace and May were only too glad to take possession of, at the same time plying their fans vigorously; but Frank lay down on the bank of the little creek, and began dabbling in the water, while Rose flitted in and out under the trees, seeking wonders for herself.

Presently, she came running back to Grace and May, exclaiming eagerly:

"There's tunnin' little squirrels out here—'tause I saw one. It had black eyes, and a long brush he hoisted over his back. He runned up the tree

fast as he could when he sawed me, and then peeped down to see if I was lookin’,” and she laughed glee-fully at the remembrance.

“How do you know it was a squirrel?” asked Grace.

“O, I know’d ’tause it’s in my picture-book.”

“Sit in my lap, Rosie, dear, and hear this story.

“Once upon a time two pretty, graceful little creatures with the blackest of black eyes, and carrying their soft, fine brushes over their backs—just such little creatures as Rosie saw to-day out in the orchard—were seeking around for a home. They explored one tree after another, but it took considerable time for them to find one suitable to all their wants. At last they found a fork in a tree, just a little decayed, so they could dig a nice little hollow. Then they brought sticks, moss and dried leaves and wove them together so stoutly that the hardest winds and rains could not move them. Then they built it up on all sides, just leaving a tiny hole at the top for a door; this opening just large enough to admit their bodies.”

“Did they have a door that would open an’ s’ut?” asked Rose.



FLYING SQUIRRELS AT HOME.

“ No, but they did have something like a little umbrella hoisted over their door, only a great deal stouter, so thick and strong no rain could drip through, though it tried ever so much. When their house was finished, it was roomy, warm and comfortable. Then they hunted for some cunning little hollow places in the trees, close to their house, to use as cupboards. Then the little things busied themselves for several days in filling their tiny pantries with nuts and acorns — not to eat so long as they could pick up their living in the woods — but for times of scarcity, prudent little squirrel-people that they were. When all the cupboards were filled, they dug places in the ground close to the roots of the trees as little cellars ; and when these were full then they seemed to know they were safe from want for the long winter. I saw a great number of chestnuts that were dug out of one of these cellars early in the spring. Every one was sprouted, and a little boy who tried to feast on them threw them away in a hurry.

“ Sometimes, from various causes, a number conclude to emigrate, and they begin their journey, traveling right over tree-tops as far as the trees are

close enough together for them to leap from one to another. When it is necessary to cross a stream of water, they find a piece of pine or birch bark, leap upon it, and consign themselves to the mercy of the waves, erecting their tails as a sort of rudder. If a storm comes, they are usually overturned and drown. Sometimes they migrate in such vast numbers that not one of them may be seen for a whole winter in localities populous with them the year before. They belong to the *Rodentia*, an order of mammiferous quadrupeds, and to the family *Sciuridæ*. There are a great many species of squirrels, fifty of which belong to North America.”

“I wonder if there are flying squirrels around here?” said Frank.

“Do squirrels ever have wings?” asked May, in surprise.

“No, but some of them have a hairy membrane extending from the tail and hind legs to the fore legs. When the squirrel is at rest the skin is wrinkled up at the sides, but when it wants to fly it stretches out this membrane and away it goes, not straight as though it had wings like a bird, but more like a paper-kite; and Frank, since they only

make their appearance at night, we shall not be apt to see them. They sleep in hollow trees during the day. They dislike the ground, and if tamed will run up a person's sleeve, or jump into his pocket, rather than stay one moment upon the ground."

"Did you ever see them at night?" asked Frank.

"Yes; I have seen them at home among the trees, at night, when I have been out with my father. They would fly from one limb to another, and from tree to tree, alighting upon the ground, occasionally, for a moment or so, but not often. They often had three or four little ones in their nests, and are very much like other squirrels in every respect, and belong to the same family. The prairie dog also belongs to the same order and family,"

"Why, I thought they were real dogs!" said Frank.

"They got the name, not because they look at all like dogs, but because they bark something like them when alarmed. They are found on prairies west of the Mississippi River. I visited one of their communities with my father. It was composed of thousands of hillocks, and when we drew near the town we found some of these funny dogs

stationed on top of the hillocks, and others gamboling around. The watching dogs really were sentinels, and, at our approach, there was a quick *yelp*, and then everywhere tiny feet twinkled in the air; and the next moment the busy town seemed utterly forsaken and desolate.

“How does the prairie dog look?” asked May.

“It is about sixteen inches in length; the upper part of its body is a sort of dirty red, tipped with a few gray and black hairs, the under part a dirty white; the whiskers long and black. The rattlesnake and the owl seem to share the prairie dog’s underground home—the owl, probably, because the darkness suits her, and from her wish to hide away from the enmity of other birds, but the rattlesnake follows her even there, and, no doubt, feeds both on her young, and that of the dogs.”

At this moment a rabbit crossed their path, evidently in great fear.

“Poor little thing!” exclaimed Grace, pityingly.

At that moment a terrific whoop was heard, and the little rabbit, overwhelmed with fear, stopped motionless as stone, and the next instant a farmer’s hired man sprang forward and picked it up.



A PRAIRIE DOG'S HOME.



“Why! if ever I saw anything like that,” said Grace, hastening forward.

The man laughed.

“He’s most skeered to death, sure. Just put your hand on his heart, Miss.”

When Grace felt the wild, quick throbbing of the little thing’s heart, tears came into her eyes, and she asked its liberty.

“Sure, Miss, and I’d like to oblige you, but my wife is uncommonly fond of stewed rabbit.”

“O, you won’t kill it — the dear little wabbit!” exclaimed Rose, indignantly.

“I will give you fifty cents if you’ll let me have it,” said Grace.

The man took the money gladly and walked off.

Grace and the children stroked and caressed the little thing, until its eyes wore a softer look, and then they let it go. It ran for a moment, then stopped, tremblingly; then again darted forward, and this time went on, disappearing down a hole into its home.

“Rabbits live in the ground. We have found that much out,” said May.

“Do they belong to the same family as the squirrels?” asked Frank.

“ No, their family is the *Leporidae*, from the Latin word, *Lepus* — hare. They live wholly on vegetable food, and are the most timid of all creatures. They are partial to sandy hillocks, because light soil is so much more easy to burrow. The grey rabbit is the most common to America.

“ Rabbits as white as snow originated in extreme northern latitudes. I knew a person, however, who had a pair of snow-white rabbits. They escaped and burrowed the ground in the carriage-yard, and soon, strange as it may seem, the farm seemed overrun, not only with white rabbits, but with black ones, and yellow ones, and black-and-white, and yellow-and-white. They soon became such a nuisance in stripping bark from trees that the farm-people were glad to shoot and eat them.

“ When I was a little girl I knew an old mother-rabbit who raised several families of children. When I first became acquainted with her, she was feeding on a grassy knoll with two of her rabbitkins. What had become of the the rest of the family, I never knew. These two, also, soon left her, and a few days afterwards *she* was missing. Searching around where I had seen her so much, I found a hole. Very



MRS. RABBIT AND HER RABBITKINS.

carefully I followed this up in a zig-zag direction with a sharp-pointed trowel until I came to a large, commodious, underground room, carpeted with a quantity of soft hair she had actually pulled from her own body. There I found eight wee blind naked baby-rabbits. The mother-rabbit will scarcely leave them for the two first days, and then, so the story goes, she has to hide them from papa-rabbit, who, perhaps disgusted with such forlorn-looking creatures, thinks the best thing he can do is to eat them up out of their helplessness! The mother even keeps their nest a secret, by covering up the hole every time she goes out, until the little rabbits are a month old. Then she takes them to the mouth of the hole, and brings them vegetables to eat. When papa-rabbit sees them, he is glad, and draws them beneath his paws, strokes their fur, and tries to show how *very* much he cares for them!

“As rabbits cannot articulate sounds, they have a way of thumping on the ground with their hind feet to announce danger to other rabbits under the surface.

“The march of improvement once brought its ties and laid three or four railroad tracks over a

henceforth barren waste of ground that had served for centuries as a home for these feeble folks in the woods. A mother-rabbit was in her home with her newly-born babies, when a locomotive went thundering over the ground, making poor Bunny quake with terror, and crouch closer to her little ones. But, as the sounds were heard again and again, and still unfollowed by danger, Bunny determined she would explore, and bring her little ones something to eat. Who can tell the terror she felt, when, for the first time, she beheld the snorting fire-horse! With just strength enough to tumble into her hole she lay at the bottom, panting for breath; but her little ones were growing, and they must be taken out and introduced to the world; so she brought them to the surface with their little heads and ears just in sight, while she sat upon her haunches and looked and listened. If there was no sight or sound of danger, then she ventured out with her little ones to gambol in the moonlight."

"I'd like to hear about a rat next," said Frank.

"No, let us have another story," said May.

"Suppose I gratify you both. One time a large, brown rat —"



AN INVADED HOME.

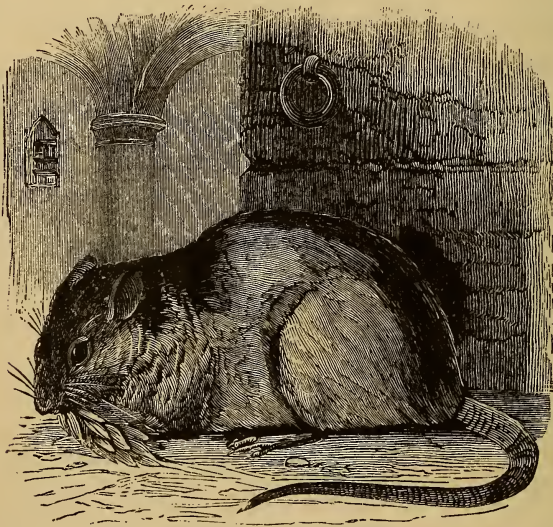
“Aren't all rats brown?” asked Frank.

“No, the black rat was the primitive one in our country, as well as in Europe. The brown rat used to belong wholly to Asia, but in 1737, crossing the Volga in large troops, it stocked Russia, and soon overrun all Europe. The black rat's original locality is unknown. He has always been a house-rat, and was introduced to America in 1544, though for what purpose we cannot conceive—probably came over, uninvited, in some ship. The brown rats are often called wharf-rats, because, during the summer, they reside principally in holes along banks of rivers, ponds and ditches, always seeking houses and barns for the winter, where they live in the walls and under floors. They can burrow very deep, throwing up great piles of dirt in their nightly work at house-breaking.

“But to return to my story.

“The brown rat found his way into the great long corridor of a prison one day, and finding some wheat-heads upon the floor immediately began to make himself at home. After he had feasted to his heart's content, he began to think of a hiding-place, and at last crept into a prisoner's cell. While he

was cowering in a corner under the bed, the prisoner came in and shut his door, thus making the rat a prisoner, also. In the night the prisoner awakened to hear a strange noise in his cell. By the light of the moon streaming through the one little window, he found the rat. He had a piece of bread in his pocket, which he took out and crumbled, flinging it



to the rat. So he fed her every day, and stroked and caressed her, until she would creep upon his knee, and sit upon his shoulder. In a short time

she made a nest, and had sixteen little baby rats. The prisoner opened wide his eyes with astonishment—he had a few more pets than he bargained for. But the mother-rat concluded to help him out of his difficulty by devouring her children.”

“O, Cousin Grace, was ever anything so unnatural?” asked May, disgusted.

“I hate wats!” cried little Rose.

“They are very destructive, and eat their own species right along. If it were not for that, they breed so fast, there would be no living with them. The black rats have been very plentiful, but in every country disappear before their enemies, the brown rats.

Well, at last, the rat, pining for company, no doubt, gnawed her way out of the cell, and, O joy, why could not the prisoner escape by the same means? How eagerly he thrust his arm down the long hole, and measured its depth! The rat was but an animal, and with only his teeth to work with, while he was a man with brains and hands. Do you blame him if he sought an implement with which to dig his way out?

“Some prisoners have dug their way out of prison

and escaped, but whether our prisoner was baffled in his efforts, or really did escape, I never learned, but I am of the opinion that he did."

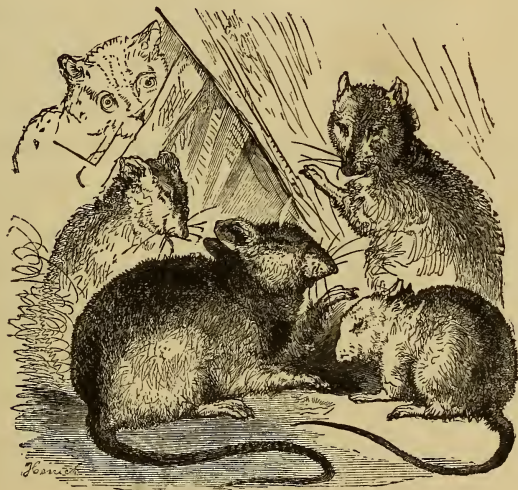
"I wish you were certain," said May.

"I wish I were," said Grace. "Well, the rat belongs to the family *Muridæ*."

"How about the mouse, Cousin Grace; isn't he a little rat?" asked Frank.

"No, though he belongs to the same order, the same family, and the same genus, yet he is a different species. Both belong to the genus *mus*, which is but the same word as mouse in another language. The species is *mus musculus* for our common mouse, and it is found in almost every country, though it is said to have been introduced into America by some of our European settlers,—a pet we could do without. It makes its home under floors, in walls, and so sharp are its tiny teeth, and so small can it contract its body, that it is able to eat through anything wooden, and creep through a very, very small hole, so that there is *no* place in the world sacred from its presence; yet it is a very fearful, timid little creature, sitting up on its hind legs and listening intently if it hears ever so faint a noise. I have

often watched them when they didn't see me, three or four in a group. One would be sitting up on his haunches, rubbing his fore feet together, another tapping its playmates upon the head with a fore-foot. It sometimes has happened that the old cat was watching too, and then, oh!—well, she was always sure to catch one of the merry creatures.



“The mouse has a trick of pretending it is dead, after all other means of escape have failed. The cat understands this dodge, and, in the cruelty of her heart, mocks at it. She will strangle it just a

little around its neck, and then fling it from her, where it lies as if dead. The old cat knows better, and is intently watching, though sometimes she will walk away and pretend to be indifferent; but let the poor little captive move one muscle and she is upon him in a flash. Then she plays with him as if he were a ball, flinging him from her and then springing upon him, until the little thing is dead with fright, if not from wounds; and then mistress cat feasts upon her prey, carefully washing herself after the meal. Poor little mice! they have more enemies than almost anything else in nature. Cats, owls, hawks, snakes, weasels, dogs, rats and men are continually destroying them; still they continue to multiply in our houses. They make a nest something as a bird does, and you may often find one filled with from six to ten little blind, naked, pink-y mice. They get their growth in three months.

“Of all the mouse-tribe, the little *mus muscorius*, or harvest-mouse, is the most dainty. A common mouse will weigh just six times more than this, the smallest of all quadrupeds. It is a smaller species of the common ground or field mouse. It measures little more than two inches, has the softest,



THE HARVEST MOUSE.

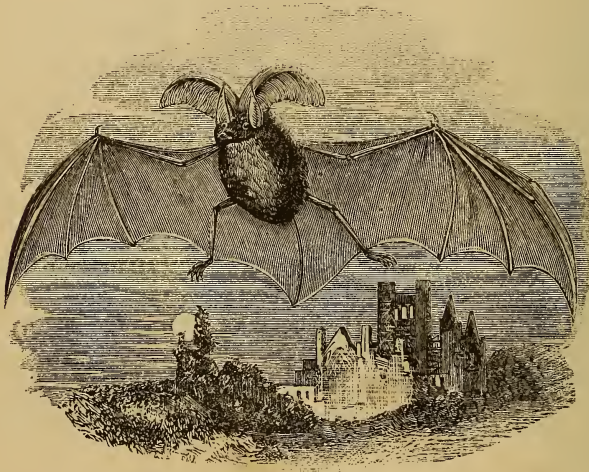
downiest, reddish-brown fur on its back, while its vest and stockings are white. Its eyes are dark. But the most wonderful thing is its mysterious nest. Round as a tiny ball, it is woven in among the stalks of wheat, and how the little mice get in and out, or how their mamma ever gets to them, often puzzles one, for the walls on all sides *seem* intact, and so solid is it that it may be rolled about upon the table without becoming disarranged. Eight little mice fill the nest full, and where the mother finds room is another mystery! Some naturalists say that there is a door just below the middle of the nest, and that at the mother-mouse's pressure against it, it opens, immediately closing after her. Another says that the mother gnaws little holes in the sides of the nest just large enough for her hungry little ones to take turns in nursing, and then rearranges the walls after they are through; but neither may be correct."

"I know Pat Ryan could find out," said Frank.

"Cousin Grace, do tell us something about the bat," said Mary. "Last evening while Frank and I were returning from the village in the moonlight, we saw an awful big bat, and I thought it was a bird,

something like a swallow, but Frank said it was a quadruped, and resembled a mouse. Now, cousin, which was right?"

"Naturalists were at a loss for a long time to know whether to class it among the birds or quadrupeds. Its powers of flight, with its feeding upon insects, like the swallows, made them think it was



a bird; but its form without the wings, and the fact that it nursed its little ones, made them think it was a sort of mouse with wings — a quadruped. At last they concluded to class it in a family by itself,

which they did under the name of *Cheiroptera*, from the Greek words *cheir*, the hand, and *pteron*, a wing. They form an order of mammalia, known by having its legs, and especially its hands (the fingers being lengthened and connected by a thin membrane), so arranged as to serve the purpose of wings. You can tame them like a mouse or rat, and they will learn to eat flies from the hand. During the day-time they are fond of clinging to old walls, flying about at night for their food. During the winter they remain in a torpid state under the roofs of churches and houses, and in old hollow trees. They seem particularly fond of old ruins. Instead of making a nest for their young, they drop into any hole they can find, and, by clinging to the sides with their hooked wings, they allow the little bats to nurse for two days; then, becoming hungry, they disengage the little fellows, and sally forth in quest of food.

“I remember, when a very little girl, that my mother unearthed an old bat with three of her young ones clinging to her, nor could she seem to see by daylight, but remained stupidly on the ground. ‘Blind as a bat,’ we often hear; but the

bat has eyes, though small ones, for I have seen them myself. But, it is said, if their eyes are covered, they can fly about readily, their ears being so formed that their sense of hearing is very acute indeed; but if their ears are closed they will fly about in the greatest confusion, striking against everything that comes in their way; but unstop their ears, and they are at ease again, avoiding every obstacle."

Wishing to encourage the children in the study of Natural History, Mr. Ellerton had a present for them when he came home at evening.

"Now, who can tell me their names?" he asked, as he put the little animals down in a large box, which contained plenty of parsley.

"He's 'bout as bid as a wat," said Rose, puckering up her little nose as she stuck it through the slats of the box to get a good view of the little strangers.

"It strokes its head with its fore-feet, and sits upon its hind legs like a rabbit," said May.

"They lie down flat on their stomachs, and turn around several times before they can settle themselves, like a dog," said Frank.

“And when they fight they kick up behind like a horse,” said Mr. Ellerton.

“And they must be so cleanly in their habits! See how they smooth and dress their fur,” continued Grace. “They must be something like a cat.”

“They are white wiv’ black spots on ’em,” said Rose.



“They certainly do move around like rabbits,” said Frank, as the children watched them moving along cautiously around the sides of the box, instead of crossing back and forth.

“And they squeal like pigs!” exclaimed May, “and their fur is more like a hog’s bristles, though very fine, than anything else. They must be little pigs.”

“So they are — little Guinea pigs — natives of Brazil and other places in South America, taking their names from New Guinea. They belong to the genus *Cavia*, and to the family *Hystrioidæ*,” said Grace. “And now, to pay papa for such a nice present, suppose you go over before him a summary of what you have learned to-day. Rose first, as the others can slip in what she forgets.”

“Little ’quirrels belong to the order *Rodentia*, ’tause they gnaw. They are quadrupeds ’tause they has four foots, and *mammals* ’tause their little ones likes milk,” said Rose.

“What family?”

“*Tuirrelidæ*, I dess.”

“*Sciuridæ*,” corrected May.

“The prairie dog belongs to the same order and family, so there isn’t much to tell about him,” said Frank.

“Rabbits belong to the family *Lepuridæ*,” said May.

“Duinea pigs are rodents, too, and they belong to the genus *Cavia*,” said Rose.

“And the family *Hystrioidæ*,” said May.

“The rat belongs to the genus *mus*, and to the family *Muridæ*,” said Frank, “and the mouse is just like the rat, only a different species; *mus musculus*, I believe you said, is the common mouse, but the harvest-mouse is *mus messorius*.”

“The bat forms an order by itself, being a mammiferous quadruped, called *Cheiroptera*. There are many species of bats, but no distinct families,” said May.

Mr. Ellerton was delighted, and gave each of the children a kiss by way of further encouragement.



CHAPTER V.

A RACCOON IN CHURCH.

As if to further the advantages for study, the next Saturday Mrs. Ellerton's Aunt Jerusha came into the city and insisted on taking Grace and the children home with her for a few days.

"O, Cousin Grace, it's just delightful on the farm! Let us go!" pleaded May.

"Yes," said Frank, "and it's just the place to study natural history."

Mrs. Ellerton also favored the invitation, and soon they were stowed away in the pretty carriage, little Rose and all.

It was evening of the same day, just a little after sunset, when the inmates of Aunt Jerusha's household were out in the front portico, with the exception of Rose, who was down among the flowers and bushes in the front yard.

Aunt Jerusha was just talking about the child, how she was "on the go" from morning until night, a little shining sunbeam, when she was interrupted by a cry of delight.

"What's up now?" said Frank, peering down into the yard.

"Here she comes," said May, "up that long, narrow, winding walk."

Her little hands were clasped tightly before her, and, with her eyes fixed on some object directly ahead of her in the path, she was calling:

"O, Tousin Grace, Fank and May! look and see what a pitty, funny kitty I found!" And, as a strange little creature ran sidling along past the portico, she jumped up and down, clapping her hands with delight.

The little stranger, peering at the people in the portico, took refuge up a tree. Its color was grey, mixed with brown, its face white, with a dusky stripe down the nose, and black patches around the large eyes. It was nearly two feet in length, its long, bushy, black-and-white striped tail, adding another foot to its length.

“It’s a raccoon, as sure as I live,” said Uncle John. “Now, if it don’t beat me where that coon came from! I haven’t seen one near these parts for many a long day. If that don’t beat the mischief!”

“O, Uncle Don, won’t you tatch it for me, and let me take it home to be my kitty?” asked Rose.

“Uncle John’s legs are too stiff and old to climb trees, my little girl,” he answered, patting her on the head. “The hired men would make quick work of it if they were here; but I am glad they are not, for I do like to see such things enjoy their liberty.”

“There’s a ‘hard man,’ now,” said Rose, pointing around the corner of the house, at a tall, red-whiskered man, who, as soon, however, as he saw himself observed, beat a hasty retreat.

“He’s Mr. Dumas, your Uncle John’s nephew,” said Aunt Jerusha.



THE COMMON RACCOON.

“Then why don't he come and sit wiv' us in the portito?” asked Rose.

“I didn't see him at the tea-table,” said Grace.

“No, he's afraid of girls,” laughed Uncle John. “He has only been with us about three months.”

“A dreat, bid man a'aid of womens and little dirls? He ought to be 'shamed hissself!” exclaimed Rose, indignantly.

Aunt Jerusha laughed. If Mr. Dumas could only hear her!

“He is a sailor, and is staying with us awhile for his health,” continued Uncle John, addressing himself to Grace. “He has never been used to ladies' society, and it makes him shy. But it is a real treat to get acquainted with him. He knows about things in different parts of the world, that we home-people never heard of.”

“We must manage to get acquainted with him in some way, musn't we, Rose?” said Grace. “A traveler is just the one we want, to help us in our natural history.”

“Is he 'faid of Aunt 'Rusha?” asked Rose.

“No, indeed,” laughed Uncle John.

Little Rose looked more mystified than ever, and

being unable to understand anything so unnatural she skipped down from the porch, out under the tree, where she contented herself by throwing up endearing epithets to the little creature above, until she was called into the house to go to bed.

The next day was Sunday, and morning and evening the whole family drove over to the village to meeting.

The pastor was in the midst of his evening sermon, when he was interrupted by suppressed laughter coming from one side of his church. Looking down the aisle he beheld a raccoon running towards him — up into the pulpit he came, and stood there, rubbing its fur against his legs.

At this instant, little Rose, excited beyond control, sprang up on the seat. “O, there’s my little ’coon!” she cried.

But, alas! for the little girl’s hopes. It soon transpired that a man who lived in the village, next to the parsonage, had a tame raccoon which he had caught in a steel-trap several weeks before. The clergyman, being very fond of pets, had fondled the animal as though it had been his own, never passing in and out of his yard without speaking to it, or giving it

something to eat. At last it had run away, and had wandered about for two or three days, seeking for its home, doubtless, until, hearing the voice of its old friend floating out on the still night air, it knew no impropriety in seeking him in person, and claiming his attention by entering the church.

Of course when the children came to talk about animals the next morning they began with the raccoon.

“Where does he live, when wild?” asked May.

“In hollow trees,” replied Grace.

“What do they eat?” asked Frank.

“Fruit, corn, sugar-cane, shell-fish and oysters.”

“How *does* he ever catch shell-fish?” asked May.

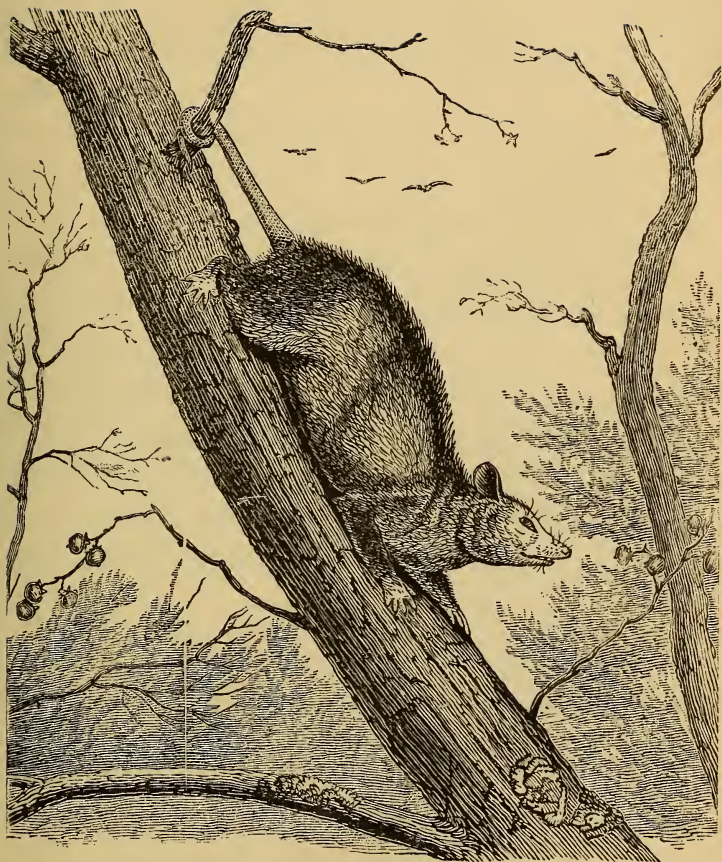
“When he wants crab for dinner, he just turns around and drops his tail into the water. The crabs, thinking it some kind of food, lay hold, and, as soon as the raccoon feels them pinch, he draws them up, and devours them. He is particularly fond of oysters. He will go down to the shore and wait for an oyster to open its shell. Then he thrusts in one paw, and scrapes out the contents clean, eating with great relish. He has to be quick about it, however, for sometimes the oyster shuts his shell with a

snap, and there is the poor raccoon fast; and as the oyster is not quick in letting go, the raccoon is more than likely to be a prisoner until the return of tide, when with a jerk he is drowned, unless he chooses to hobble away on three legs. He seeks his food by night, and sleeps during the greater part of the day. He sits upright when he eats, and carries food to his mouth with his paws, like the squirrels. The raccoon's fur is considered next in value to the beaver's, by the latter. Sometimes, too, it is used for linings, and when properly dressed can be made into gloves and upper leather for shoes. The slaves, South, eat the flesh of the raccoon, and they are very fond of it. It belongs to the genus *Procyon*, and to the family *Ursidæ*.

“Why, isn't that the same family to which the bear belongs?” asked Frank.

“Yes, and the badgers and wolverines belong to the same. They are all characterized by a stout body, pointed muzzle, and a rather long tail.”

Here the conversation was interrupted by Uncle John. He had something in his arms about the size of a small cat, its color a dingy white, the head long and sharp, the tail very long, covered with a



VIRGINIA OPOSSUM.

scaly skin, the legs short and blackish, and the toes armed with sharp claws, like individuals of the monkey tribe.

“What is it?” they all asked.

“An opossum.”

“Where *did* you get it?” asked the children.

“Down in a deep wood, two miles from here. I found it with the end of its tail coiled around a small branch of a high tree.”

“Is it dead?” asked the children.

“No,” laughed Uncle John. “It is only making believe. I captured it on purpose for you children to see; and now, to prove it is alive, we will lay it down here in the grass, and then hide to see what it will do.”

They had not been concealed long, when the 'possum scrambled to its feet so quickly that Rose laughed when it fell over again, and again feigned death.

“Poor creature!” said Uncle John, taking it up in his arms again. “When I found her, there were three little ones sporting about her, but when they saw me they scampered into their mother's pocket which is right here under her stomach.”

“O, Uncle Don!” exclaimed little Rose. “Tan’t you toax her to open one of her po’tits, so we tan see her ’ittle childrens?”

“No, dear; nobody can do that. I might whip her and beat her, or roast her alive, and *then* she wouldn’t let one of us see her babies.”

“Poor faithful mother,” said Grace, as Uncle John walked away with the opossum.

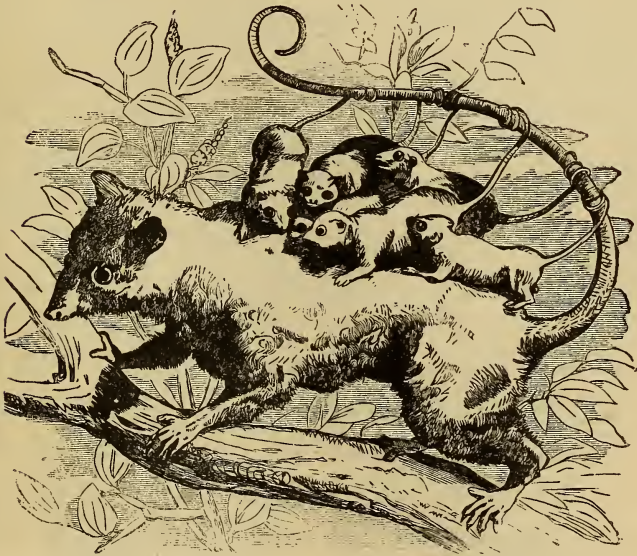
“Where are her babies born?” asked Frank.

“Down in the thick bushes, at the foot of some tree. With the help of her mate, she collects a quantity of fine, dry grass. This is loaded on her stomach, and then her mate drags her with her load to the nest, by her tail.”

The children laughed, heartily.

“When the little ones are first born, they are not much larger than beans, and immediately retreat into her pouch, all naked and blind as they are, and fasten themselves as close to their mother as if they grew there, in order to nurse. Soon as they get their strength, their sight, and their hair, they undergo a kind of second birth. After that they only run into their mother’s ‘pocket’ as a refuge in time of danger. If they are surprised and have not

time to scamper into this 'pocket,' they seize hold her tail, and try to escape with her in that manner. There is a smaller kind of opossum that has no pouch in which to carry her babies, and all the little ones scramble upon her back, and twist the end of



their little tails tightly around hers, as she carries it elevated over her back, and in that way they travel about with their mother, wherever she goes.

Opossums feed on fruit, eggs and insects. They belong to the order *Marsupiala*, and to the family *Didelphidæ*."

"Are the kangaroos related to the opossums?" asked Frank.

"They seem to be allied to the opossums in one respect, only — in being furnished with the pouch in which to carry their young. The kangaroo belongs to the order *Marsupiala*, the same as the opossum, but to a different family, called *Macropodidæ*. They are natives of New Holland, and are very much larger than opossums. They have been known to measure as many as nine feet from the tip of the nose to the end of the tail, and to weigh a hundred and fifty pounds. The fore-legs are scarcely ever more than nineteen inches in length, while the hinder ones are some three feet and a half long. From its formation, it is able to leap great distances, say twenty feet at a time, and thus eludes the fleetest hound. Kangaroos have great strength in their tails, using them sometimes as weapons of defence, striking heavy blows with them. The female gives birth to but one at a time, and so very small is it as to scarcely measure more than an inch in length.

THE KANGAROO.





It seeks its mother's pouch in the same manner that the opossum's little ones do, and pursues the very same course afterwards. Kangaroos live in burrows under the ground, and subsist on vegetables—chiefly on grass. They feed in herds of thirty or forty, generally with one stationed to keep watch for the others. There are but three species of kangaroos. But, singular as it is, all the *Mammalia* quadrupeds of Australia, of which there are more than a hundred species, are *Marsupial* animals—that is, have pouches in which to carry their young.”

“I wonder if there are any martens around here?” said Frank, suddenly.

“Not many, now, I guess. Their fur is too valuable. They have nearly all been killed. But I can tell you about them. They live like squirrels among the trees. They are about eighteen inches long, and of a dark chestnut color on their backs. The throat and breast of the common marten is white; those of the pine-marten, yellow. I have seen a pine-marten scrambling over a large, fallen tree, while one of the little ones was peeping from a hole where it was in its nest. The marten will often kill a squirrel, and then take possession

of its nest. It then enlarges its stolen home, lines it with softer materials, thus making ready for its own little ones, of which it has from three to four, but who soon become large enough to take care of themselves. The marten has only a small amount of milk, so brings live birds and eggs to her young, in abundance. As soon as the little ones are able to leave the nest the mother leads them through the woods, where they begin to seek food for themselves. They have a musky smell, which some people think very agreeable. There are about twelve thousand pine-martens' skins imported into England from Hudson Bay, and upwards of thirty thousand from Canada. Their fur is always shorter, and of a lighter color during summer. There is a black marten, but its fur is not near so valuable as those of the pine and beech-martens. They belong to the genus *Mustela*, and to the family *Mustelidæ*. The *Mustelidæ* comprise all the martens, sables, weasels, fishers, minks, otters, badgers and skunks. Nearly all the family have glands which secrete a fetid liquid, sometimes of a most disagreeable odor."

"I suppose there are plenty of weasels around here," said Frank.



THE BLACK MARTEN.

1875

“No doubt; and they are of much use in diminishing the number of rats and mice; still the poultry they destroy overbalances everything else.”

“What does a weasel look like?” asked Frank.

“It is a long, slender animal, sleek and smooth, so constructed as to be able to creep into holes. The color of its back is a pale, reddish brown, and



its breast white. The ears are very small, and the eyes black. Though measuring not more than seven inches, and not more than two inches and a half high,

it is very fierce, and not afraid of animals much larger than itself. It lives in holes under the roots of trees, and in the banks of creeks and rivulets, from which it issues near dark to steal into our poultry-houses. It is as fond of eggs as of poultry, and eats them by making a small hole at one end, licking out the yolk clean, and leaving the shell behind. It has a way of eating into the back of an animal's head until it is dead. It is a very active little animal, and runs by leaps. The poor little rabbits are so afraid of this animal when it attacks them, as to be actually crazed with fright, giving themselves up without the least resistance, at the same time making the most piteous cries. In the spring of the year the female makes a bed of straw for her new-born little ones. She is very attentive to them, and if she fears they may be stolen she will carry them around in her mouth, changing her retreat many times. Weasels have sometimes been tamed, and proved very amusing companions. The method is to stroke them gently on the back, and to threaten and whip them if they attempt to bite.

“The stoat, or ermine, is very much like the weasel, in its habits and manner of living. In winter



THE PINE MARTEN.



the soft coat of the stoat turns to snow-white, with the exception of its tail, and that is jet black. It is called an ermine, and is much hunted for its skin, which is used in making costly robes for kings and princes. There are very few ladies wealthy enough to possess a set of real ermine fur."

"Isn't the skunk a sort of weasel?" asked Frank.

"Yes, it is called the striated weasel."

"What does striated mean?"

"Marked in lines or stripes. The upper part of the skunk's body is striped with black and white. The neck and legs are very short. This animal is noted for emitting a terribly offensive odor, when irritated. Dogs run from it, and can hardly be made to attack one, while cattle will bellow dreadfully at the offensive smell. Yet it is said that these little animals can be tamed."

"Cousin Grace, is there any difference between the skunk and the polecat, or are both names applied to the same animal?" asked Frank.

"They are often so applied, but wrongly. The polecat, or fitchet, is a different animal from the skunk, though belonging to the same family. Its color is almost black, and in form it more closely

resembles the marten. In its habits it is very much like other members of the weasel tribe. It often carries the head of an animal away to its hole, leaving the body behind. Its smell is proverbially fetid, when it is enraged, but hardly like that of the skunk. Notwithstanding this, its fur is very beautiful and valuable.

“Now, let us sum up what we have learned this morning, for I wouldn't be surprised if Aunt Jerusha needed a little help in the kitchen.”

“Tousin Grace, let me tell about the 'coonie, please do — I said ober its family again and again,” plead Rose, eagerly.

“Yes, dear.”

“It belongs to the family *Ursidæ*; and Fank said it was just like the bear family. The genus was *Trocyon*.”

“*Procyon*, you mean,” said Grace, smiling at the child's eagerness.

“Rose calling the raccoon 'coonie' makes me think of the cony in the Bible. It cannot be that raccoon and cony designate the same animal?” said Frank.

“O, no; the cony in the Bible was not very much

larger than a mouse, and it had soft, velvety fur. 'The conies are but feeble folk, yet make they their houses in the rocks.' "

"The opossum," said Frank, "belongs to the order *Marsupiala*, and to the family *Didelphidæ*; and the kangaroo to the same order, but to the family *Macropodidæ*."

"The martens," said May, "belong to the genus *Mustela*, and to the family *Mustelidæ*."

"And weasels belong to the same family," said Frank.



CHAPTER VI.

THE FUNNY PIN-CUSHION.

Grace, Frank and May had volunteered to go out on the common to pick blackberries for Aunt Jerusha, and, as it was far, they left Rose at the farm.

Aunt Jerusha was busy, but poor little Rose at last bethought her of Fido, and took him with her into the garden for a romp.

Up and down the walks they ran, until, tired out, Rose sat down on a stone, while Fido betook himself to hunting around in the bushes.

Suddenly he seemed greatly excited over something he had found, and began barking furiously.

“I won’er what’s the matter wiv’ Fido?” she said to herself, as she left her seat and cautiously ventured down to the hedge.



“O, what a funny lookin’ fink!” she exclaimed, as she saw that Fido was making all this fuss over a queer little animal, not quite so large as a rabbit.

“ I do won’er what it tan be ! ” she exclaimed. “ I wish Tousin Grace was here. O ! yon’er is Mr. Dumas tying up the flowers ! I’ll do and ask him. ” And away she ran.

For a moment she spoke not a word, but regarded him in silence, her large blue eyes fixed earnestly upon him.

“ Well, little girl, what is it ? ” asked Mr. Dumas.

The child spread down the ruffles of her white dress, folded her hands before her, then, shutting her lips tight, regarded him with more earnestness than before. She had forgotten her errand, and was thinking of something else.

“ Would you like a flower ? ” he asked.

“ Yes, sir ; if you’ll div me one. Fank you — ” another silence, then she spoke again : “ Mr. Dumas, *are* you af’aid of womens and little dirls ? ”

He regarded her with surprise for a moment.

“ Who said so ? ” he asked, at last.

“ Uncle Don. ”

Mr. Dumas flushed scarlet. Then, with a twinkle in his eyes, he said : “ I scarcely think I’m afraid of such a very little girl as you. ”

“ An’ I wis you wouldn’t be af’aid of my Tousin

Grace? She's so tind she wouldn't hurt nossin — not even a spider. Don't you fink she's pretty?"

"I haven't seen her yet," said Mr. Dumas.

"Well, she is. She's dot dreat, bid blue eyes, and long, brown turls, and she finks you're real nice."

"When did she see me?" asked Mr. Dumas.

"O, we was lookin' out of the window at you ever so long yesser mornin' when you didn't know, and when Uncle Don told us all you knew about wond'ful fings Tousin Grace said we must break the ice, somehow, and I told her there ain't any ice, now; and, Mr. Dumas, Fido's barkin' at a funny fing under the hedge, and I want you to tell me what it is."

"What kind of a thing?" asked Mr. Dumas, as he took her hand and started for the ledge.

"O, *such* a funny fing!" she began, but just here they turned a bend in the walk and came face to face with Grace and the children.

Mr. Dumas flushed crimson, and endeavored to slip his fingers out of Rose's tight grasp, but she held on the tighter, exclaiming eagerly:

"O Tousin Grace, there's such a tweer fing that Fido's barkin' at, and Mr. Dumas's doin' wiv me to tell me what it is. It's some tind of an'mal."

“It is very kind of Mr. Dumas!” said Grace. Then, turning to him, she added: “As we came here on purpose to study natural history, and as Uncle John has told us of your interest in the same study, I trust we can take advantage of being in the same household, and consider ourselves as friends, or, at least, fellow-students, at once.”

Mr. Dumas colored and bowed, and then, did not run away, but led the way to the hedge. Rose chattered away as they went.

“I heard Fido barkin’, and when I went to see what was the matter, he was barkin’ to a funny fing on the dround, all full of needles. It was a little bidder than a wat, and had a long nose. Fido tept on barkin’, and pretty soon the funny fing wasn’t a wat any longer, but turned into a ’ittle wound pin-cushion.”

“What a story!” exclaimed May.

“It’s all true,” continued Rose, earnestly. “And Fido took hold of the pin-cushion, and tried to shake it, and some of the needles tuck in Fido’s mouth, and he runned away as fast as he tould, then he tome back again, and he’s barkin’ at it now.”

Mr. Dumas laughed. They had reached the

hedge, and sure enough there was the "pin-cushion."

"Now, to prove that Rose's cushion is alive, let us throw it into the pond; for he's such a stubborn little animal we can find him out in no other way."

He poked the ball of needles into the water, when, to the children's surprise, the cushion was transformed into a little swimming animal.

"You see it's a hedgehog," laughed Mr. Dumas. "I brought a pair from Europe as a present to Uncle John for his garden. They are very useful in clearing a place of insects. They are also particularly fond of cockroaches, and will become quite tame if kept in the kitchen."

"You have no pen for them?" asked Grace.

"No; they burrowed for themselves a home here under the hedge-row."

"Isn't it singular that they will always seek their home under something prickly like themselves, if they can find it?" said Grace.

"What do they do when winter comes?" asked May.

"Wrap themselves up in a warm nest of dried leaves and moss, and remain in a torpid state until spring. It is very amusing to see the mother with

four or five little ones in her large mossy nest of a home. It is well that they sleep all winter, for they are *Insectivorous* quadrupeds."

"Are hedgehogs and porcupines the same?" interrupted Frank.

"No, they do not resemble each other in anything save their spines or needles. The porcupine is larger than the hedgehog, and his spines much longer — indeed, they measure nearly two feet, real quills without the feathers. The hedgehog is found, originally, only in Europe and Asia, while one species of the porcupine is found in Canada and the northern part of the United States. If you'll go with me into the orchard, I will show you another pet that I brought here from India."

Grace and the children gladly followed, and beheld a strange looking animal covered with a stout armor. Mr. Dumas poked it with his cane, and it rolled itself up into a round ball, immediately.

"Another pin-cushion for you, Rose," laughed Grace.

"It's a ball all full of sharp knives," said May.

"He's on the defensive now," said Capt. Dumas.
"Even the tiger in his fury might tread upon and



THE PANGOLIN.

roll this ball about, and accomplish nothing, save wound himself with the ant-eater's hard scales."

"An ant-eater!" said Frank. "I thought ant-eaters were little animals with sharp noses, furry hides and bushy tails. This thing looks more like a lizard."

"There are several species of ant-eaters. They all feed upon ants in the same manner, but are different in construction. They are no relation to the lizards, but belong to the *mammiferous* animals. These scales, like the quills of the porcupine and hedgehog, are movable at pleasure. This species is called the pangolin, and is a native of India and Africa. Sometimes he is as many as six feet long. The armor of the pangolin is even stronger than that of the porcupine. The armadillo, a native of South America, is another ant-eater clothed with scales; but they all procure their food alike, all having very sharp claws with which they dig down ant-hills. Then the animal lies down and protrudes his great long tongue, which looks very much like a worm. The ants swarm upon it, and stick fast in the viscous fluid on its surface, then the ant-eater draws them in, and swallows them.

They are fond of wood-lice too, and often climb trees for the purpose of getting at them. They belong to the order *Edentato*, and to the *Armadillo* family."

"Do let us sit down, I'm so tired," interrupted May, flinging herself on the grass.

"Did you get many berries?" asked Mr. Dumas.

"About half as many as we should, I presume, had we not met with such a terrible scare," said Grace.

"What was it?" asked Mr. Dumas.

"I was so thankful Rose wasn't along," said Grace, hugging the little girl. "Tell Mr. Dumas about it, Frank."

"Why, there was a great black bear out there picking berries," said Frank.

"O-h-h!" exclaimed Rose, opening her eyes very wide.

"And we ran for our lives," said Grace.

"The bear didn't pursue?" asked Mr. Dumas.

"O, no; he seemed to take no notice of us, whatever, but kept on coolly eating berries, as we ascertained when we looked back to see if he was following."



A BEAR PICKING BERRIES.

“It must be the tame bear that belongs to a farmer in the neighborhood. Aunt Jerusha ought to have told you about it. He is perfectly harmless. The next time you go berrying, let me know, and I’ll go along.”

“We will,” said Grace, “but I don’t see how people can care to make pets of bears.”

“This is a very cunning bear, I assure you — full of pranks as he can be. One day he went down cellar and feasted on cookies and cream. In some way he upset a large pan of milk over himself, and looked funny enough when he came up, his whole face thickly coated with cream, his fur just dripping.”

“That makes me think of a bear story I once heard,” laughed Grace. “The person who told it — a clergyman — assured us it was strictly true. A family that owned a tame bear went to church one Sunday, and left Master Bruin at home. No sooner did his bearship find himself alone, than he went to the cellar and tapped the molasses barrel, lapping it up hungrily as it dripped to the floor. Pretty soon he had enough, and began rolling in the pool that was accumulating on the floor. Now, more than

likely, he thought molasses was as good to bathe in as water; but how was he mistaken! The sweet fluid left a most unpleasant stickiness, so he went up-stairs and rolled himself over and over on the carpet. But the stickiness still clung to him. He mounted the stairs to the chambers above, and tumbled on the beds over and over again, but all to no purpose. Instead, lo! when he arose the sheets were sticking fast to him; and, in that predicament, he went down stairs just as the good people had returned from church. Poor Bruin never cared for molasses any more."

"The bear that we saw picking berries is an American bear, isn't it, Mr. Dumas?" asked Frank.

"Yes, and the American bear differs considerably from bears in other parts of the world. It is smaller, has longer ears and a more pointed nose. The hair is smoother and blacker, and he is more gentle in disposition. He will attack and kill small animals if very hungry, but is fonder of sweet things. He is particularly partial to honey, likes sugar, molasses and fruit, and will never attack a man unless in self-defence. Bears pass the winter in caves and hollow trees, in a comparatively dormant state. It is said

all bears can climb trees with the exception of the grizzly bear, and he is also an American bear, being found in the Rocky Mountains, and the most savage of all the tribe. It is said no animal can outlive the grizzly bear's vice-like grip."

"Are there any other American bears?" asked Frank.

"Yes, there is the white, or polar bear, but he is found only in extreme northern latitudes. This bear is the most carnivorous of all the tribe. He is an excellent swimmer, and feeds largely on seals and young whales. The bears belong to the family *Ursidæ*. I believe I would much rather meet a bear than a hungry wolf."

"Do wolves like to eat peoples!" asked Rose.

"Of course they do," said May. "I once read in my school-reader that a great, big wolf found a dear little girl about as big as you, asleep. He covered her all up with leaves, and then ran away as fast as he could after his companions to help him eat the poor little girl; but a man who was chopping saw it all, and as soon as the wolf started away he uncovered the little girl and carried her to a place of safety. Soon, a whole pack of wolves came to eat

the little girl; but she was gone, and they were so angry with the wolf because they thought he told them a story, that they pounced upon him and tore him all to pieces. And you remember the story of 'Red Riding Hood,' Rosie?"

"Poh! that's a 'tory, 'tause mamma said so," answered Rose. "A wolf *tan't* talk, and a wolf *touldn't* make any 'ittle dirfs believe he was her grandma. I know he touldn't!"

"What a little owl!" said May. "But the other story was true, wasn't it, Mr. Dumas?"

"Very likely. A hungry wolf would as lieve cat a little girl as anything else; but Rosie needn't be afraid for there are none around here. I have seen them, however, many at a time, when I was a boy, bounding over the snow on a still winter's night."

"The wolf looks very much like the dog, doesn't he?" asked Frank.

"Yes, he is about the size of a large dog, but much leaner. The color is generally mixed, black gray and brown. The eyes are so constructed as to give a very fierce look. Cruel and cowardly in disposition, it does not seem possible that so noble and affectionate an animal as the dog ever originated



THE WOLF.



from it, nor do we know it as a fact. I am inclined to believe that the dog is a distinct species by itself though Natural Historians teach to the contrary," said Mr. Dumas.

"I can classify the wolf without any telling," said May.

"Can you?" asked Mr. Dumas. "I should like to hear you."

"Class *Vertebrates*, order *Carnivora*, family *Canidæ* and genus *Canis*. It is just like the dog."

"You don't mean to tell me that a little girl like you knows the meaning of all those words?" said Mr. Dumas, in surprise.

"Yes, sir. *Vertebrates* means having a backbone. *Carnivora*, flesh-eating. *Canidæ* like a dog, and *Canis* the Latin word for dog."

"We are making Natural History an especial study now," said Frank, "and Cousin Grace is our teacher."

"Mr. Dumas, too?" spoke up Rose. "He knows everyfing, don't he, Tousin Grace?"

But Mr. Dumas gave Grace no time to reply. He went on about the wolf. He said that if a wolf was excited by hunger there seemed no end to his blood-

thirstiness. He would attack animals much larger than himself, and even devour his own species. They had been known to follow a sleigh, and to actually begin devouring the horse's legs, while the people in the sleigh were fighting them.

"It seems strange," said Grace. "Now our western prairie-wolves are the most harmless of all animals. They are about as large as a big yellow dog, and disturb the night with their dismal howls, but they are not ferocious. Indeed, they are such great cowards as to run from almost everything, especially from human beings. I have seen prairie-wolves many a time."

"I should suppose the prairie-wolf looks somewhat like the fox," said Mr. Dumas.

"I think it does," said Grace.

"What difference is there between the fox and the wolf?" asked Frank.

"The greatest naturalists once classed the fox with the wolf and dog. But the most recent classifications place it in the genus *Vulpes*. It has a broader head, shorter limbs and a longer, bushier tail. It is considered the most cunning and crafty of all animals. It has a suspicious nature that no

amount of taming or training can obliterate. Even the wolf and jackal show more gratitude for favors than the fox."

"Now, children, you may classify what we have learned to-day, then we will go in the house," said Grace.

"Hedgehogs turn into pin-tushions and belong to the *Urchin* fam'ly, I 'member that," said Rose, proudly.

The pangolin belongs to the *Armadillo* family, and to the order *Edentata*," said Frank.

"The bear belongs to the *Ursidæ* family; and I have already classed the wolf," said May.

And then the day's lesson ended with a promise from Mr. Dumas to take them to visit a bachelor friend of his who owned a number of foreign animals.



CHAPTER VII.

AN OLD-FASHIONED VISIT.

Very early in the morning they started, just about daybreak, and after about two miles of public road the rest of the way lay through woods and brush, the narrow winding track filled with stumps and thin blades of grass.

The children were full of fun, and even Grace declared she didn't believe more than one wagon

had ever passed over the road, and that one without any kind of animal to pull it, since there were no footprints visible.

A tall, raw-boned woman with hard brown hands came out of a little, low, yellow-painted house, and gave them a welcome.

“If it ain’t nice to hev company once in a body’s life-time, then I dun’t know,” she said, leading the party into the house. “I dun’t know *when* I’ve seed a little gal before, and such mighty purty ones!”

The children stepped bashfully up to a long, red wooden settle, and sat themselves down.

“Hungry, I’m sure?” she said, going to the cellar-way, and returning with such enormous-looking rusks that May looked startled; and little Rose said she “never ate bread without butter.”

“It’s butter you want? This isn’t bread, little gal. It’s rusk, and got lots of sugar in it.”

Rose took the cake, and turned it dubiously in her hand, and May said they would go out of doors and eat their lunch.

“Are any of the wild animals prowling around?” asked Mr. Dumas.

“Law! no, not in the garden; besides all the

animals are perty well tamed anyhow. They never think of hurtin' Timothy and me. Timothy'll be up perty soon. He went to the swamp after a load of wood."

Meantime the children out in the garden were nibbling at their rusks.

Suddenly May caught little Rose by the hand, protectingly. "Hark, Frank, what's that?"

"What?" asked Frank.

"Why, something rubbing against the other side of the fence!" And very cautiously May and Rose peeped over the fence.

"Just the lovelies' little talves!" cried Rose.

"Poh! they're deer," said Frank, as he too, looked over.

"Deer?" said May. "Why, deers have great big horns."

"The females don't. That's a female over there with her two little ones."

"I thought deers were great, big things."

"Well, so they are, sometimes," said Frank, looking perplexed, in spite of himself.

"Let's go and ask Cousin Grace and Mr. Dumas." And away the children ran.



DEER.



“And why do you think they are not deer?” asked Grace.

“Well,” said Frank, “in the first place they are not large enough, and none of them have horns; and then there are two little ones, and I think there ought to be but one.”

“Let me see,” said Mr. Dumas. “The fallow deer is not nearly so large as the red deer; and then there is the little roebuck which weighs only about sixty pounds; yet it is not likely to be that since it is always a dangerous pet. The fallow deer was originally a native of Persia, from whence it was brought to England, where it is now thoroughly domesticated. It is very gentle in disposition and easily tamed. It is a dark bay color above, white beneath and on the inside of the limbs and under the tail.”

“The one out there hasn’t a sign of a tail,” cried May, triumphantly. “So you see, Master Frank, it isn’t a deer.”

“Not a fallow deer, perhaps,” smiled Mr. Dumas. “But it may be a roebuck. He is only about two feet and a half high. In summer his hair is short

and smooth, and of a bright red color on the upper part of his body. Its under parts are white."

"That's him!" exclaimed Frank. "Are you sure that the roebuck has two spotted little ones?"

"Yes; but, to satisfy you, Miss Montague and I will go and take a peep. Yes, it is a roebuck, and well is it that it is enclosed with such a high fence, for the roe is not by any means so gentle as she looks."

"What's the reason she hasn't any horns?" asked May.

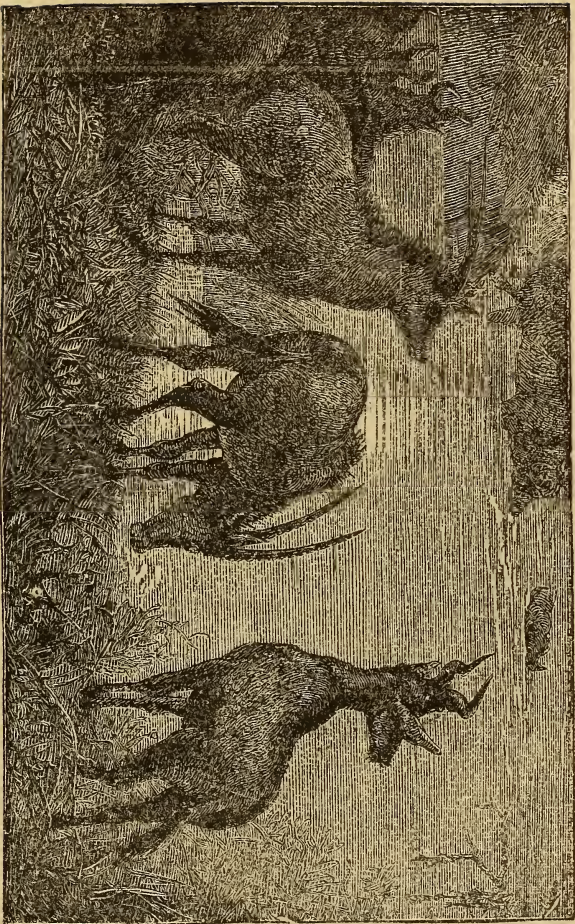
"Only the males have horns; and sometimes they are without; for all deer shed their horns once a year."

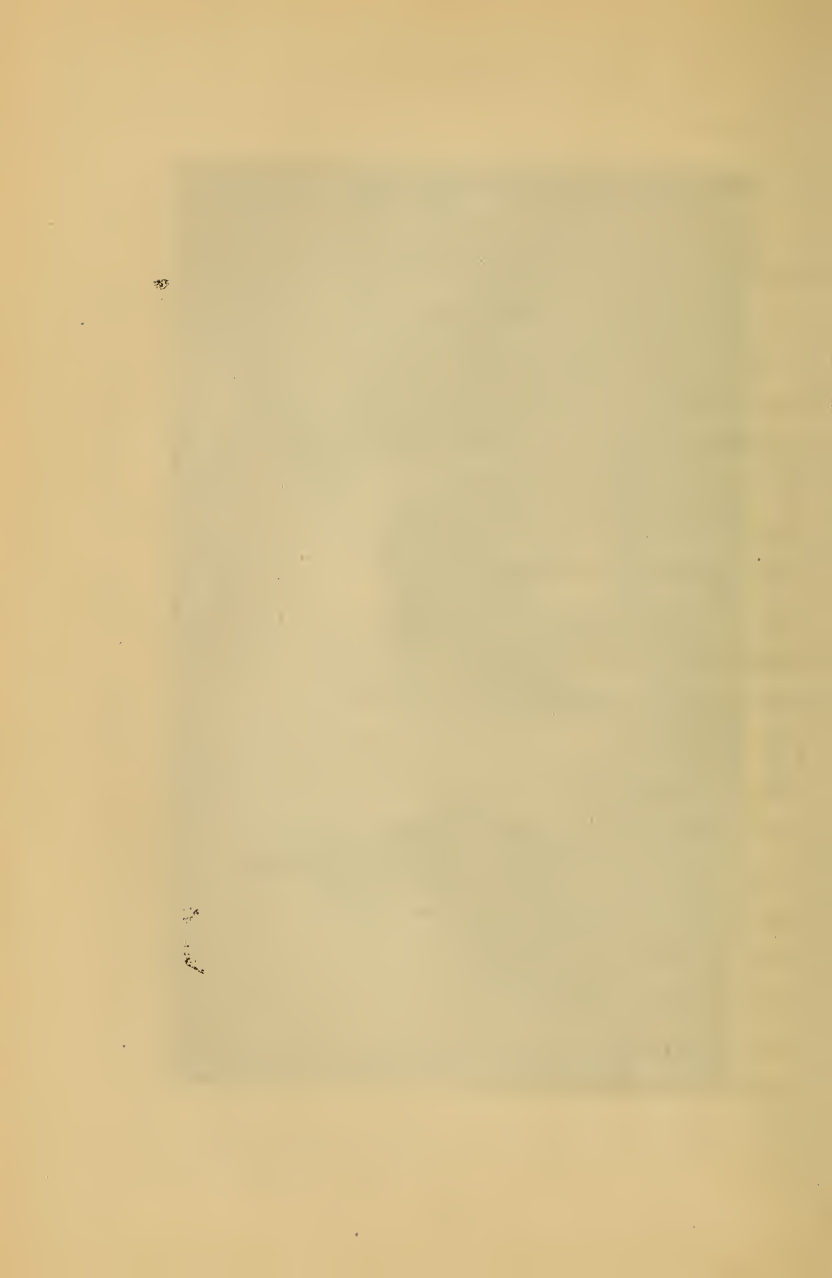
"Do tell us all about it, Mr. Dumas."

"When the deer is a year old, the first horn comes, straight and smooth; when it is two years old it loses the old pair and has another, with one snag added. In this manner it keeps adding a snag every year, so you see a deer's age can be accurately told by his horns. If there are nine branches he is ten years of age, and a noble-looking animal, indeed."

"But how do they come off?" asked May. "Do they get knocked off?"

ANTELOPES COMING TO DRINK.





“ No, it is a provision of nature. Every year, generally between November and March, the deer's horns loosen at the base and fall. The deer seems very much ashamed during this time and tries to conceal himself ; in a short time, however, new horns begin to grow, covered with a velvety or a mossy substance nearly the color of the animal's hair ; and they grow so rapidly that they are entire in a few days. All the time the horns are growing, the moss upon them is very tender, and this may be one reason that the deer hide in thickets until their horns have completed their growth and the moss upon them becomes dry and hard. When the antlers are fully grown and the moss is fully dry they come forth, and at once begin rubbing their horns against the trees until it all has peeled off ; then with a shake of their heads the animals are their own proud-looking selves again ; for the horns, as heavy and inconvenient to carry as they look, add much to the proud bearing of the animals. All the deer tribe are fleet of foot, thus making a very exciting chase ; besides, their flesh is delicious and savory, and their skins valuable for many uses. The little roes like the hills, the large deer the forests and plains. The Virginia

deer, called the fallow deer of America, is best known in our Northern and Middle States. It weighs about two hundred pounds. Its skin is largely manufactured into buck-skin mittens and gloves."

"Do the antelopes and gazelles belong to the deer tribe?" asked Frank.

"No, they seem to come in between the deer and goats. They may be distinguished by their horns being without snags and like those of cattle, hollow at the base and never shed. The antelope family consists of many species. Deer belong to the order *Ruminantia*, cud-chewers, and to the family *Cervidæ*, deer-like."

At this point a shaggy-haired and shaggy-whiskered man made his appearance with outstretched hand.

Mr. Dumas grasped it, saying, "I have brought the children over, Timothy, to see the animals."

"That's right," said Timothy. "If you'll step this way I'll show you some of their pens. "This is a puma," he continued, as they came to the first.

"What is that?" asked Frank. "Why, it looks like a panther!"

"So it is, a North American panther. It is called



THE PUMA.

catamount, too, sometimes. It is the largest of all the American cats with the exception of the jaguar. It is larger than the largest dog, and makes great havoc in the sheep-folds at night. It also feeds upon deer, horses, and, when pressed by hunger, has been known to attack men. One day, Semantha (that's my sister) and I had been away from home. It was in the evening, and just before reaching the house we heard the most horrible cries. As we came in front of the house we found our watch-dog and a large puma engaged in a fight. Poor Faithful was uttering his last death-cries, but no sooner did the puma see us than she leaped through an open window right into the house. Wasn't that a predicament? However, a musket was in the wagon; I always find it handy to have one with me; and after some skirmishing at various windows the puma was shot dead.

"And now," added Timothy, as he cautiously opened the door of an outhouse, "I'm going to show you the finest pet I have."

The company as cautiously peeped in. They beheld a young lioness lying beside a large basket

filled with straw. One of her hind paws was thrown around a little black dog, while another she held between her fore-paws, lapping its face caressingly. The mother of the tiny dogs stood near, watching the operation with a sort of pleased approval.

“Oh! the tunning ’ittle dogs!” exclaimed Rose, making a spring into the room.

The next instant there was a roar, and the lioness was crouched upon the floor, wagging her tail threateningly. Rose gave a scream of terror, and sprang toward the door; at the same time Timothy and Mr. Dumas both sprang forward, and Timothy, snatching her up, jumped to one side, just as the enraged lioness brought up against the boards opposite with a heavy thud.

Before she could see how the attack ended, Grace became giddy and faint, and sank upon the turf just outside the door.

Mr. Dumas was bending over her in an instant. He assured her again and again that “Rose was safe and in Timothy’s arms.” But he and Timothy were obliged to carry her into the house.

Semantha bustled around and made a bed on the



UNCLE TIMOTHY'S PET.

settle. "Who'd believe that lion would acted so? That's what yer get, Timothy, for hevin' all them wild critters about."

"O, I am not hurt," said Grace, a very faint smile flitting over her face as she drew a long sigh.

"Dear little Rose! I thought her last moment had come, and somehow it took my breath away," and Grace shuddered again.

Rose nestled close up to her cousin, and rested her cheek on the still pale one that was upturned on the pillow.

"Spoiled all our fun for to-day," said Frank.

"We should be very thankful indeed that dear little Rose was not killed," said Mr. Dumas. "The lioness could have crushed her with one blow of her paw. Why, even her tongue is covered with such stout, sharp prickles that they are capable of drawing blood."

"Is the lion any like the cat?" asked May.

"The lion *is* a cat — the largest of the cat tribe. Walks, lies down, and pounces upon his prey, in the same manner."

"The lion is considered the king of beasts, is he not?" asked Frank.

“ He has the name, and, really, is the most majestic looking of all the beasts,” said Mr. Dumas. “ But, after all that, he is a veritable coward, I believe. The tiger is three times as brave as the lion. It is true, the lion shows mighty strength when enraged, crushing and destroying everything before him. Yet what else is it than cowardice when he hides close to a stream of water to pounce unawares upon two weak, innocent little fawns as they come down to drink? The roar of his voice is terrible; the flash of his eyes like lightning; the lashing of his tail like a sapling bent in a mighty wind; yet this is simply noise, when he has nothing to fear from his gentle, timid prey.”

“ The female hasn't any mane, has she? ” asked Frank.

“ No, nor the male, until he has reached a certain age. The tiger is much the braver of the two. She fears to attack nothing, and her cry, when she springs upon her prey, is hideous. Yet, like the lion, if she misses her mark when springing, she seems ashamed and gives it up.”

“ The tiger is not so large as the lion? ” said Frank.

“ They are about the same size, but the tiger may



THE MIGHTY COWARD.

be distinguished from the lion in having a larger head, longer body, and by being beautifully striped. A tiger's robe is very beautiful indeed. The tigress, as well as the lioness, has four or five young ones at a time, and they are about the size of a large pup."

"Do you suppose the lioness out there thought those little dogs were hers?" asked May.

"I don't know. The lion and tiger both show a strong partiality for dogs. Numerous incidents have been given of their kindness to dogs. Both the lion and tiger show great gratitude towards their keepers. They will gently lick their hands, rub their sides against their clothing, and express their affection in every manner that is in their power."

"I have a young tiger," said Timothy, "but I suspect you don't care to see it now?"

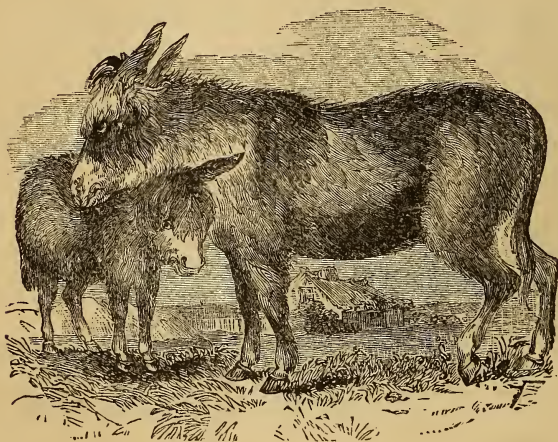
"O, yes we do," said Grace, "only I think we had better leave Rose in the house, then we shall know she is safe."

"Where did you get your tiger?" asked Frank.

"In a jungle in India. I came across a tigress and her three little ones cuddled up asleep, the mother watching. Several men were with me. We

succeeded in shooting the tigress, and I saved one of the little ones to bring home with me.”

After dinner, the party, with the exception of Semantha and Rose, went out to see the tiger. Rose loudly resisted at first, but was reconciled on being introduced to a basket of kittens, and was afterwards rewarded by a ride on a donkey. Rose



was delighted with the little rough shaggy animal, which was attended by a baby donkey, and as she was placed on the large one's back she said:

“ I know he isn't very pretty, but I s'all be p'oud



THE TIGRESS AND HER BABIES.

to wide on him 'tause it was the only an'mal the Lord Jesus eber wode on — wasn't it, Tousin Grace?"

The children took off their hats and cheered at the little girl's speech, and Mr. Dumas held her on the animal's back, while Timothy led him by a bridle.

"I wonder if the donkey of Bible times was just like this?" said Grace.

"I should think he would rather have had a horse," said Frank.

"Horses were very scarce in those days, in fact, almost unknown. The greatest of the land rode on white asses. Some think the ass on which our Saviour rode was the Persian animal. The wild ass of Persia is more symmetrical in form, stands higher on its limbs, has more of a mane, and its color is a silver-gray. In Eastern countries the donkey is still valued almost, if not quite, as much as the horse. It is more patient and surer-footed than the horse, being peculiarly adapted for traveling narrow passes where the horse would stumble and fall. There seems to be two species of the donkey—the common ass, which originated from the wild animal in the

mountainous deserts of Tartary; and the other, the more beautiful of the two, from the wild ass of Persia. The bray of the ass is proverbially hideous. The donkey, like the goat, can subsist on almost anything, feeding on thistles with as much evident relish as upon the daintiest of clover-tops. He belongs to the same family as the horse, but is really a distinct species for all that."

While they were riding home the children classified the different animals they had seen. Frank classed deer and antelopes with the order *Herbivora*, family *Cervidæ*.

May classed the puma, lion and tiger with the same order and family as cats, while little Rose knew all about the donkey family, *Equidæ*.



CHAPTER VIII.

THE MENAGERIE.

Grace and the children were getting ready to go to the menagerie. Grace was standing before the glass, in the hall, tying her hat, the children around her, when who should walk in but Mr. Dumas.

“I was just thinking of you,” said Grace, extending her hand with a pleased smile. “I was just thinking how nice it *would* be if we could only have you to go with us to the menagerie!”

“Well,” said Mr. Dumas, “since my time is my own I will go with you if you wish.”

Once at the menagerie there seemed no end of sights. The children stood face to face with nearly every animal they had talked about, and many more besides,

The first that particularly attracted their attention was an ourang-outang.

“Look at that man scwatching his head,” cried Rose.

“Sure it is a man?” asked Grace.

“He’s dot a face like black mens, but the west of him is wed and hairy all over,” said Rose doubtfully, after an attentive look.

“He does look like some kind of a man,” said Frank.

“Sometimes he *is* called the ‘Wild Man,’ but he is little like a man after all, except in his height. He is an animal through and through,” said Capt. Dumas.

“Doesn’t he walk upright, like a man?” asked Frank.

“Sometimes, but it is always in a knee-sprung condition. In reaching high objects, and when on



“SCWATCHING HIS HEAD.”



trees, they usually stand upright, that they may cling to the branches above them with their hands. Some historians say they have seen ourang-outangs walking upon their feet with their hands clasped at the backs of their necks, but *I* never did."

"O, Capt. Dumas, have you seen ourang-outangs in their wild state?" asked the children, excitedly.

"O yes, many times, in Africa, in China and in the East Indies. They all have smooth blue-black faces, are five feet in height when grown, and their bodies are covered with coarse red hair. They live on fruits and roots, and sleep up in trees. They are not very sociable in disposition, yet, occasionally, may be seen in family groups. Some historians describe them as being so strong that ten men could not control one when in the wild state; and it is said they actually do cover up the dead bodies of their species with dead leaves. Persons of rank often hunt these animals on the Island of Borneo, much in the same way as stags are hunted in Europe. Occasionally, a very young one is captured, tamed and taught to do a great many funny things; for of all animals the monkey-tribe possesses the greatest power of mimicry. I have seen ourang-outangs taught so

that they ate with knives and forks at the table, and covered themselves up in bed, tied a handkerchief about their heads for a night cap and showed many signs of affection to their masters."

Here the conversation was broke into by Pat Ryan who came up and gave the ourang a sly pinch.

Quickly turning, the creature brought her hand around with a violent blow on Pat's ear, at the same time chattering in anger.

"You naughty, bad boy, you've don and made her mad," said little Rose, indignantly.

"How did you ever come here?" asked Frank.

"Climbed over the fence," laughed Pat, returning Grace's kindly greeting with a blush and a bow.

"This is the lad who interested me so much in my Sunday school class, the other Sunday," said she to Mr. Dumas.

Pat blushed deeper than ever, and then said, very timidly, for him:

"I 'spect it wasn't right for me to climb over the fence, but I wanted to see the animals so bad, mum, and I couldn't raise fifty cents to me name, mum. And I see y'es all a-goin' in."

Mr. Dumas silently slipped fifty cents into the nòt

over-clean hand, and pointed to the entrance. Pat understood, was off like a dart, and back again with the same celerity, this time with a sunny face.

“Now, Pat Wyan, if you’s doin’ wiv’ us, I want you to be a dood boy, or I s’all be drefful ’shamed of you,” said Rose patronizingly.

“You shall lead me yourself, me jewel,” said Pat, taking her hand.

The party moved on, and next came to a monkey-mother with her arms wrapped very affectionately around the neck of her half-grown child.

Rose gave an exclamation of delight: “Why, dese monkeys dot tails! Where was the bid one’s tail, Mr. Dumas?”

“The large ourang-outangs belonging to the apes do not have tails, and comprise ourang-outangs, gorillas and chimpanzees. This mother and her little one belong to the tailed monkeys, and are just such as we see going around with hand-organs. It is far more pleasant to see them in their wild state, skipping about through the trees like very large squirrels, than to see them dressed up so gaudily for show. This is a Chinese monkey, so-called because its hair parts in the middle and

spreads over its head something like a Chinese cap. These monkeys are very fond of sugar-cane and cocoanuts. The natives of India often catch them by making a small hole in a cocoanut, and placing it where they will be sure to find it. The monkey



is always sure to see it, hastens forward eagerly to thrust a paw into the hole and get at the kernel; then the natives on watch spring out and seize her before she can get her paw out.

“I never thought there were so many different kinds of monkeys,” said May, as they went slowly from one monkey-house to another.

“Yes,” said Capt. Dumas, “they range from the size of a man down to the size of a tiny squirrel, and yet there are a great many species still unknown. Just glimpses of them have been caught, and that is all. Monkeys belong to the order, *Quadrumanes*. The monkeys of the Old world belong to the *Simiadæ* family, while those of the New world belong to the *Cebidæ*.”

“What difference is there between the monkeys of the Old world and those of the New, that they must belong to different families?” asked Frank.

“The monkeys of the American continent have no thumbs on their hands, have very long tails, have no cheek pouches, and there is more space between the nostrils. They are found principally in the forests of South America.”

“I don’t know what they want to rank a monkey next to man, for. Here’s an animal I admire much more,” said Frank, stepping up and patting a camel on its sides.

“And, see, here is a baby camel lying down beside its mother!” cried May, delightfully.

“What a great, noble, patient-looking animal she is!” exclaimed Grace, taking her turn to stroke the animal’s nose.

“Her powers of endurance are very great,” said Capt. Dumas. “But I am not so sure of her patience and good temper. My experience is that she is rather stubborn, and not at all grateful for kindness.”

“Faith! and what does the crayther have such ugly humps on his back for?” asked Pat.

“They answer several purposes. They are not hard and bony as they look, but soft as a cushion, being composed of fat. Some camels have two humps and others but one. When the camel has plenty to eat these humps are plumper and more expanded, but after a long journey through the desert they become mere ligaments because of the absorption of the fat, as, after everything else has failed, and every digestible thing has been taken up from the stomach, then the vital system falls back on these hunches of fat, which are frequently all that



CAMELS.

keeps the animal alive. The camel, like every other *genera* of its order, chews the cud."

"What *is* the cud?" asked Frank. "I've often watched cows lying down chewing their cuds, and wondered what they were. They seemed like round balls of something."

"I will try to explain it to you. Every ruminating animal possesses four stomachs. When he is eating grass, he swallows it without masticating. Perhaps, because none of these animals have upper teeth, they have not time to masticate their food as soon as they find it. They simply swallow it into the first stomach, from whence it is passed to the second where it remains some time to macerate into a half-chewed state, and, afterwards, when the animal is in repose she brings it up in small quantities to chew more thoroughly and then re-swallows it, it passing this time into the third stomach. Here, the water the animal drinks mixes with the food, and it becomes a pulp, and is passed on to the fourth stomach, the only stomach that contains gastric juice. It is next in size to the first stomach, and is not unlike that possessed by man."

“Sure, sir, and I niver heard the loikes of that before. Four stomachs! I shall think of it ivery toime I see anything chewing its cud,” said Pat. “*Four stomachs!*” he repeated again and again.

“The camel is famous for its powers of endurance. It can travel over the burning sands of Arabia without a drop of water for more than a week, and seeming to suffer no disadvantage therefrom. This is owing to an additional cavity in the stomach where it can receive a large amount of water and retain it unchanged for a long time. It often occurs when the wandering Arabs are perishing with thirst that they slaughter their camels and drink the water found within, thus saving their own lives. Indeed the camel, stubborn and sullen as he is, is almost everything to the Arabs. A large camel will carry over a thousand pounds across burning, scorching deserts. To receive their loads their masters make them get down on their knees. No wonder that the Arabians consider the camel a gift from Heaven, although they hold them in very different estimation from their horses. Without them they could not travel, they could not live. They eat their flesh,

they drink their milk, use their skins and weave their hair into cloth. They belong to the order of *Ruminantia* and to the family *Camelidæ*."

"O, here's a dreat bid el'phant!" exclaimed Rose, "I knows, 'tause I've seen one before."



"Faith, and the crayther has a tail both before and behind," said Pat.

"You silly boy! That one close to his eyes is his mouth; don't you see him drinkin' water?" said Rose.

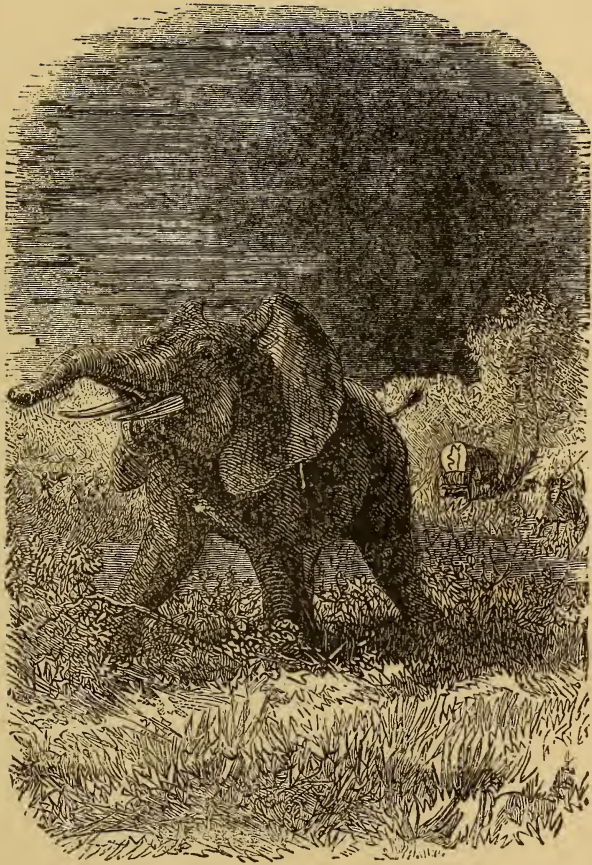
“ It looks more like a nose,” said Frank. “ How is it, Mr. Dumas ? ”

“ The elephant’s trunk is only a continuation of the canals of his nose. He breathes through it and smells with it. ”

“ Sure and what’s the use of hev’in’ sich a mighty long nose ? ” asked Pat.

“ It is a very handy thing for a clumsy animal like the elephant. There is a movable finger at the very end of this strange, funny, big nose, which he can use at his pleasure. It is strong enough to break off great branches of trees. He can untie knots with it, open and shut gates, and pick up things with it. He pumps up water with it, he collects dust with it and puffs it over his hide to protect him from flies, this dust coming in contact with his moistened skin, baking into a hard crust. With his trunk he passés his food up to his mouth. Here are some peanuts. Let us see how he eats them. ” And the party were entertained for a merry half-hour seeing the elephant eat peanuts. He even thrust his trunk in Mr. Dumas’ pocket for them.

“ What does he have such very long teeth for ? ” asked Mary.



ELEPHANTS.

“He hasn’t any front teeth at all, in either jaw. You are speaking of his tusks. They are weapons of defence, and for tearing up trees for food. He is a very peaceable animal if left alone, but will not bear too much teasing. While passing with a caravan through Africa, I have often seen them roaming at large. They are then the roughest and ugliest animals upon the face of the earth. They live to be a hundred and twenty or thirty years old. They belong to the order *Tachydermata*, which comprises the largest terrestrial animals that live, and to the *Elephantidæ* family. To this family belong the extinct genera *Mammoth* and *Mastodon*.”

“See what a dreat bid long neck that horse’s dot!” cried Rose, who had run on a step or two, still holding Pat’s hand.

“That’s a giraffe, or camelopard. It is more closely allied to the deer than to any other animal. Its head is somewhat like that of a horse except for the horns.”

“I don’t see any horns,” said May.

“Don’t you see those horns, about six inches long and covered with a hairy skin?” asked Grace.

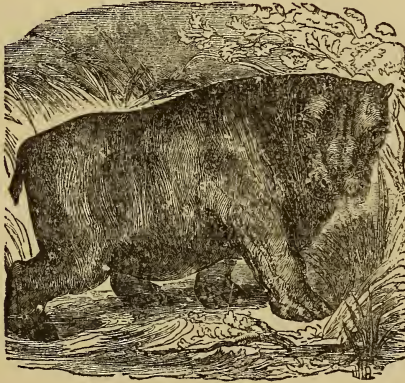
“ O, now I do. His head's so high up that it's hard work to see so far.”

“ The giraffe is full seventeen feet high when he is erect. With his long neck he seems especially



adapted for feeding on the leaves of trees. He has a long tongue which he can use something as the elephant use his trunk. He can twist it around a

branch and draw it down so that another giraffe can feed on the leaves while he holds it; and then he can eat, while his companion returns the favor by holding it down for him. The giraffe has a tail like a camel, and is spotted like the leopard. It is very inoffensive, and usually seeks to run away from its pursuer though it is capable of making a stout



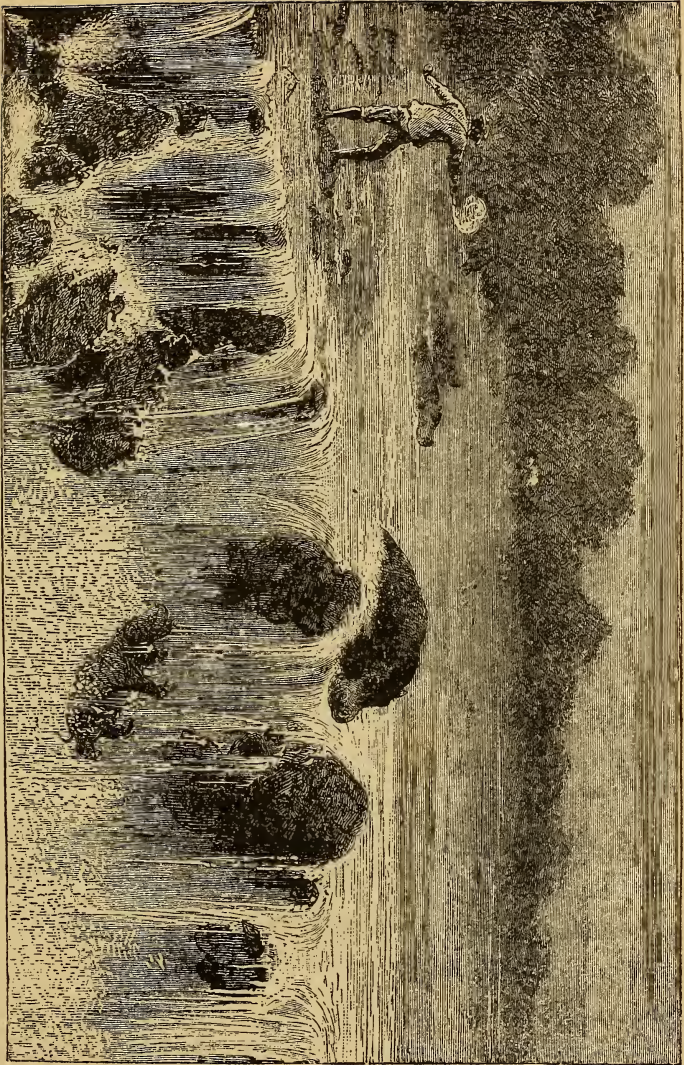
resistance by kicking. This animal belongs to the same order and families as the deer and antelope.

“And what ugly baste is that?” asked Pat.

“That is a hippopotamus, named from the Greek words, *hippos*, horse and *potamus*, river. The tusks of the lower jaws were for a long time used by dent-

ists in the manufacture of artificial teeth, it being both whiter and harder than ivory, The hippopotamus is as ugly as an animal can very well be, and if pursued on land, immediately takes to the water where it is at home. It can walk on the bottom of streams, occasionally raising its nose out of water to get a breath of fresh air. At night it leaves the water to seek its food, eating the herbage which grows on the banks. The hippopotamus is hunted for its tusks, but is difficult to shoot since its hide is so thick and tough. Sometimes, however, it is shot, if the marksman is able to take the animal in the eye or behind the ear. A whole herd may be attacked in water near a fall, as then they roll and tumble down the abyss in the greatest confusion.

“The natives take the hippopotamus with a harpoon as though it were a whale. A barbed iron point fits in at the end of a pole. The hunters go into a herd of hippopotamuses on a raft. When they are near enough they throw their whole weight on the poles and drive the barbed irons deep into the hippopotamus' body. Like the whale, he dives to the bottom, but cannot escape, since there is a long line attached to the pole which



SHOOTING A HIPPOPOTAMUS AT THE FALLS.

the men take to the shore and draw around a tree. When he comes to the surface they attack him with spears, or javelins, and soon make an end of him. Though his hide is nearly two inches thick, there seems to be no use made of it except to cut it into strips, to manufacture into whips. It belongs to the same order as does the elephant. All animals of this order are herbiverous."

"O, what a pretty little 'triped horse!" exclaimed Rose, who was running ahead drawing Pat with her.

"That's a zebra," said Frank.

"Faith, and he's a much handsomer baste than the donkey. Why isn't he tamed and made use of, to be sure?" said Pat.

"Because, he *won't be* tamed. He speeds over the inaccessible rocks and crags of Africa and snorts defiance. He may be petted and caressed, as they sometimes are when captured for menageries and museums, but all of no avail. His restive spirit cannot bear restraint, and he is vicious and ungovernable. Though shapely and graceful like a horse, he brays like an ass. His skin is like bands of satin ribbon, on the male, brown and yellowish-white, and

on the female black on a white ground. The zebra belongs to the family, *Equidæ*."

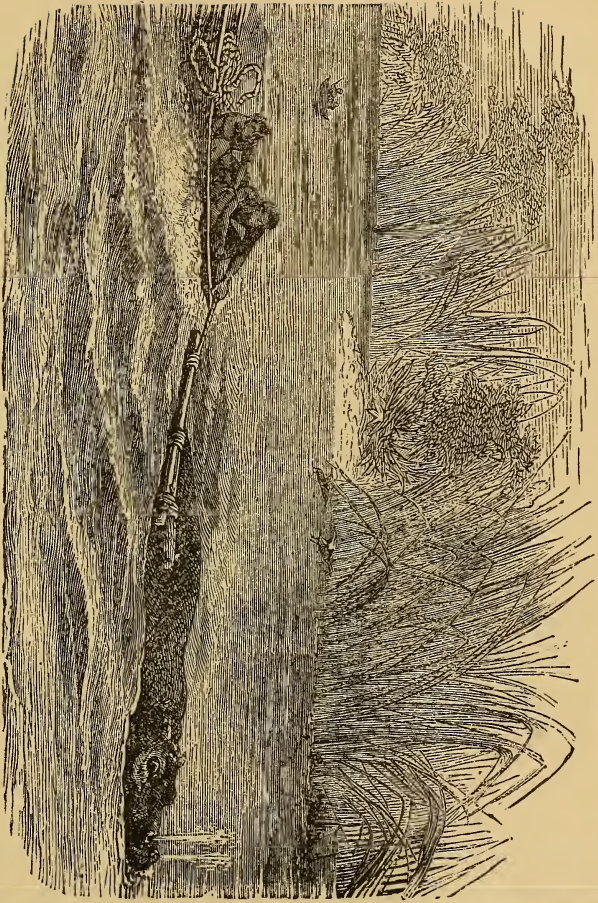
After the menagerie, the whole company, Pat included, took tea at Mr. Ellerton's, and while the children were at the table, they went over what they had learned, much to the gratification of the father and mother.

"The monkey-tribe are not quadrupeds, if they do go on all fours, are they?" asked Frank.

"No, they are *Quadrumanes*, the only creatures in the world that possess four hands," said Grace.

"With four hands I should think they might accomplish more than man, if they had the mind," said Frank.

"That's what is lacking," said Mr. Dumas. "They *haven't* the mind. They are in the image of man more than any other creature, yet, because they have not mind, they are, after all this resemblance, nothing but mere brutes. You can tame a monkey, beginning on the first day of his birth, and though you may succeed in teaching him some pretty smart tricks, you cannot make a *man* of him, try your best! Do you remember their families, Frank?"



HARPOONING A HIPPOPOTAMUS.

“O, yes sir; those of the Old world belong to the *Simiadae* family, and those of the New to the *Cebidae*.”

“The camel is the nicest animal we saw to-day,” said May. “He belongs to the order *Ruminatia*, and to the family *Camelidae*.”



“Sure, and I loiked the ilephant best,” said Pat, “but it’s meself can not be afther remimbering the hard names, sure.”

“To the order *Pachydermata*, and to the family *Elephantidae*,” quickly said Frank.

“Which did my little Rose like the best?” asked Mr. Ellerton.

“O, I liked the 'ittle 'triped horse the best. He was the prettiest, but not half as nice as Mr. Timothy's donkey, 'cause he let me wide on his back, and the little zebra wouldn't. He was too 'tross, Mr. Dumas said. He b'longed to the *Equidæ* family, dust like the horse and donkey.”

“The giraffe was a pretty animal,” said May. “It belonged to the same family as the deer; and the hippopotamus was the very ugliest of them all; uglier than the elephant, I think, and it belongs to the same order as the elephant, so we needn't wonder that it is so homely.”

PART II.

WINGS.



THE BIRDS' CONCERT.





CHAPTER I.

THE BIRDS' CONCERT.

One morning, at Aunt Jerusha's, Rose woke Grace and May with a shriek of delight. She was standing before an open window in her long, white night-dress, and by the time they fairly got their eyes open and comprehended where they were, Rose stood motionless with both hands over her mouth.

"What are you standing that way for?" asked Grace.

“To keep the squeal back so it won't frighten away the birdies. O, Tousin Grace and May, the birdies are holdin' dust the loveliest concert out here you eber sawed! Don't you hear?”

Grace and May came to the window and looked out into the great orchard. Every tree was alive with birds of all kinds and colors, and each seemed trying to make the most noise. There were thrushes and blackbirds, larks and cat-birds.

“And, O, there is a wobin, wight on this tree, closest to the window!” screamed Rose, “'tause I know it by his red breast. And, O, May! see that beyewful yellow-bird with black 'tripes on his wings. Is it a canary, Tousin Grace?”

“No, dearie, it's a goldfinch.”

“Tell about him, do,” pleaded the excited child.

“Get dressed first, and go wake Frank, then we will all go down into the orchard.”

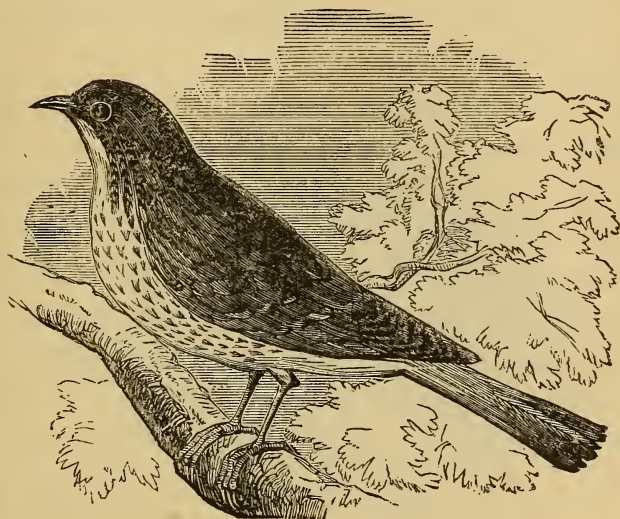
It did not take Rose many minutes to dress and she could hardly stand still for Grace to curl her hair. The last curl, however, was soon wound around Grace's finger, and then Rose darted away.

She soon returned, saying:

“Frank was up and gone. O, there he is now!”

she exclaimed, "out in the orchard wiv' Mr. Dumas. Do hurry, Tousin Grace!"

But, by the time Grace, in her fresh morning wrapper, with a cluster of scarlet verbenas and geranium leaves at her throat, and with each one



of the little girls by the hand, reached the orchard, Mr. Dumas had gone.

"How provoking!" exclaimed Rose.

"Never mind," said Grace.

"Please tell us about the wobin, first," said Rose.

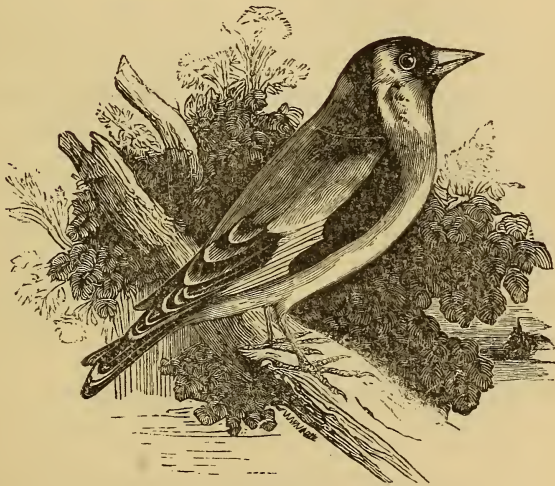
“The robin is the most common, as well as the most interesting of all our birds. Its name is from the Latin word *rubeo* — to be red — a name common to all red-breasted birds. It belongs to the family *Turdidæ*. It comes to us early in spring, and remains until late in autumn.”

“Why, Cousin Grace, I thought the robin staid all winter,” said May.

“Many of them do; but in that case, they keep on the sunny side of woods, or else try to protect themselves from the cold by seeking coverts in deep tangled thickets. Sometimes, intense cold and hunger bring them around our doors to seek for crumbs; and, again, if they find the weather very cold, many move just a little way farther South, as if disliking to quit their old home all at once. Their song is sweet and musical, and hearing it so early in the spring, before scarce any of the migratory birds have returned, we appreciate it. The American robin is also known under the name of the migrating thrush. They are often seen very late even in Massachusetts, until their store of winter berries gives out, and then they move farther South. The red-breast generally builds among the

roots of trees, near the ground. The nest is a bunch of dried leaves, hair and moss, and lined with feathers. In order to conceal her little home, the bird covers it with leaves when she has occasion to leave it."

"Now, tell us about the goldfinch. O, there's one, now!" exclaimed May.



"Why, that's just what we were talking about before you came out," said Frank, "Cousin Grace, Mr. Dumas knows more about birds than anything else. I had a tip-top talk with him. He says a pair of goldfinches have a nest here in the orchard ;

and when I become an expert climber I shall go up the apple tree and see it. He says their nests are wrought with much care, and are very small, the outside being formed of fine moss, curiously woven together with some other material, and lined with horse-hair, wool, grass and sometimes with down. There are five speckled eggs in a nest.

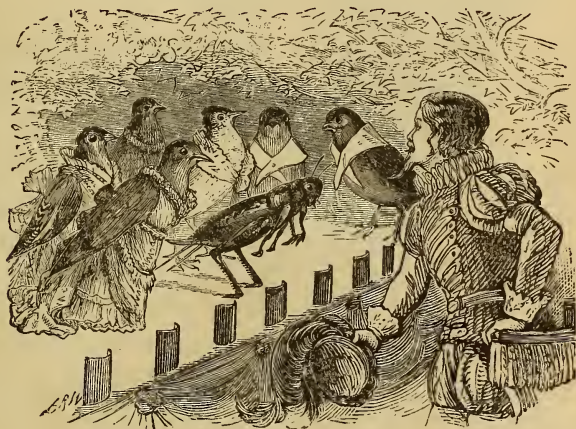
“ He says these birds are very easily tamed, and will just as soon go in a cage and make it their home as not, if you'll only leave the door open so they can go a-visiting when they wish. They have company, too, sometimes; other little goldfinches come to see them, and hop in and out of the cage perfectly at home.”

“ I'm doin' to see if Mr. Dumas won't det me a tage dis very day ! ” exclaimed little Rose.

“ I *know* the goldfinch is very teachable. I once saw an exhibition of goldfinches, linnets and canary birds. It was really surprising to see them around in silks and laces, to hear them sing, and see them pick up the boquets that were flung to them almost without number. One almost forgot they were birds, they looked so wise and knowing while they were warbling sweetest of notes. Goldfinches are

very sociable and like to look at themselves in a mirror, not because they are vain, but because they fancy they see other goldfinches; a fact that has been proved by their taking seeds close to the glass to give to the imaginary ones."

"How funny!" exclaimed little Rose, clapping her hands.



"Then, a goldfinch is almost equal to a mocking-bird in catching the notes of other birds. I once heard of a goldfinch that was even able to speak a few words. They frequently live to the age of twenty years. They belong to the family *Fringillidæ*

and are, perhaps, the gayest-plumed of all the birds in the temperate zones."

"Please, Cousin Grace, tell us something about the mocking-bird. Mr. Dumas was telling me this morning that a mocking-bird made her nest in an apple-tree close to the house, but because he just looked into it once, she would never come near it again. He says they are very shy."

"So they are, but are best known for their power of mimicry. They can imitate the notes of any known bird from the screech of the eagle down to the gentle buzz of the humming-bird. It can mew like a cat, and make a grating noise like the creaking of a hinge. The Mexicans call it, "The Bird of Four Hundred Tongues." They often begin with their own compositions, and finish by imitating every bird they have ever heard. They are sometimes so delighted with their own music as to dance to it. They belong to the family *Lioctrichidæ*, order *Insessores*. They are about the size of a blackbird, only more slender. The feathers are gray, and considerably lighter under than above. Now, Rose, do you think you will know it when you see it?"

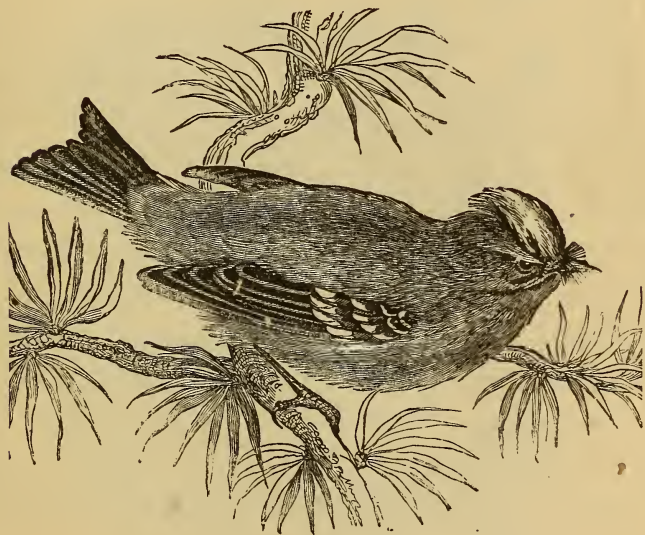


THE MOCKING-BIRD.

THE BIRDS' CONCERT

“I dess so. I know I s'all if it mews like a kitty. O, see that pretty little red bird with a bonnet on its head! There! there!” And Rose pointed to a new comer that had alighted on a twig near by.

“That's a ruby-crested wren,” said Grace. “I never saw birds so tame as they are here.



“That is because Uncle John and Aunt Jerusha won't have them hurt, Mr. Dumas says,” said Frank.

“You see that the head and upper part of the body of this wren are of a deep reddish brown.

Above each eye there is a white streak. The throat is of a yellowish-white color. This bird is a very sweet singer, its warble is something like a common wren's."

"O, I know what a tommon wren is," said Rose. "It looks dust like a little, tiny bit of a brown hen, with its tail hoisted up, don't it, May?"

"Yes, dearie."

"What do they eat?" asked May.

"Tiny insects which they find in the crevices of the bark of trees, or catch while they are flying. Their nests are very interesting, and resemble those of the chaffinches. They are frequently found among the tip-top branches of fir trees, swinging about in high winds like a pendulum. They are egg-shaped, very deep, and have little holes near the middle to serve as doors. They lay from a dozen to a dozen and a half of little speckled eggs, not much larger than peas. They remain with us during the whole year, and belong to the family *Turdidæ*, same as robins."

"Its nest must be something like the tailor-bird's," said Frank

"The tailor-bird displays more ingenuity in constructing her nest than any other known bird.

What can you tell us about the tailor-bird, Frank? ”

“Mr. Dumas told me such lots about birds this morning. He has been to India and seen the cunning little tailor-bird for himself.”

Is it very small? ”



“O yes, so small, its nest is made of two leaves hanging from the most slender twigs on the outmost branches of the trees.”

“ How does he form a nest from two leaves ? ”

“ Why, he actually sews, just like a woman. He tears off the thread-like filaments from plants or trees, and then with his beak sews the two leaves snugly together. He lines this bag with feathers and soft vegetable down as thick as he can, forming a cunning little purse-like nest, and there they lay two cunning little eggs, and rear two cunning little birds. Did you ever hear about it, Cousin Grace ? ”

“ I have read of them. An old lady once said she thought, with a little pains, the tailor-bird might be taught to sew. Just imagine how funny a little bird, not more than three inches in length, would look sitting in a rocking chair sewing on a lady's dress! The tailor-bird belongs to the genus *Sylvia*, family *Sylvicolidæ*.”

“ O, what a pretty name ! ” exclaimed May.

“ Yes, isn't it ? It means the warbler family. It comprises a large number of small *insessorial* birds, most of them noted for their powers of song. These little birds are the smallest in the world with the exception of the humming-birds. Groups of this family are distributed all over the world.”

“ What else did Mr. Dumas say ? ” asked Rose.

“He saw a curious bird in Australia, the hammock-bird.”

“That land of birds!” exclaimed Grace.

“He says the hammock-bird hangs its nest to a slender branch, as the sailor does his hammock.”



His nest is built of grass and wool, and lined with snow-white cotton, and there the hammock-bird sits and swings back and forth as lazily and comfortably as you please.”

“And, Rose, then he told me about a bird you

would like, I know; it was the bower-bird, Australian too. He says 'it builds a great long play-house, just to run up and down in'."

"Why-e-e, Frank Ellerton!" exclaimed Rose.

"Yes, they make a bower right through some tall grass, and the first thing they put in their nice parlor is a carpet they weave themselves out of coarse grass and sticks. After they get the carpet laid, and the walls arched to just suit, they hunt around for pretty things to decorate the room. They carry in broken bits of glass, china, pretty little shells, bright colored ribbons, in fact, all the white and bright colored objects they can pick up. They don't lay their eggs there, but run up and down, having a merry time many hours in the day."

"Wonder if 'em would let little dirls play wiv 'em!" remarked Rose.

"They'd think little girls were giants pretty likely. Did you ever hear of these birds, Cousin Grace?"

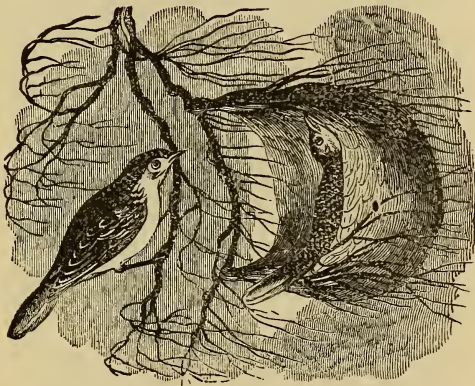
"I must confess that I never have heard of the hammock-bird before; but I have read of the bower-birds. They belong to the genus *Chlamydera*, family, *Sturnidæ*, or Starling family."

“O, there is a tiny, little bit of a bird all dreen and red!” exclaimed Rose.

“Where?” asked May.

“There, right there! He's dot his long bill 'tuck in a dreat, bid flower, and he teeps his wings doin' all the time, dust as if he hadn't any foots.”

“Why, it's a humming-bird. Isn't he a beauty, Cousin Grace?” asked May.



“He's a real, little sparkler, that's what he is!” exclaimed Grace, as delighted as Rose.

“Is he tissin' the flower—Tousin Grace?” asked Rose.

“His motions are graceful enough to make one think so, as he darts here and there; but he is

sucking honey from the flowers. Aren't they pretty little cups to drink from? No wonder he is so gentle with them."

"Do the humming-birds feed on nothing but honey?" asked May.

"It was thought so for a long time, but it has been found that they eat insects occasionally. They have tongues like the wood-peckers, which are capable of being darted to a considerable distance. The one Rose just now pointed out to us is the topaz-throated humming-bird. But the most common one, is the ruby-throated."

"How I should like to hold one in my hand!" exclaimed May.

"One rarely has the good fortune to catch a humming-bird, but I once caught two, and held them in my hand for a long time,"

"O Cousin Grace, how did you do it?"

"One of them flew into my sleeping room and couldn't find its way out, and I caught it struggling against a window pane, Another one I caught in the same way in a school-room. Poor little birds! they cannot understand the mysteries of glass. Why they cannot pass through into the air and sun-

shine displayed so temptingly without, is more than they know; so they flutter and tremble, their little hearts filled with a strange, awful terror. The little one I caught was so frightened as to faint, or else he feigned himself dead. They say they often do this, but immediately come to, if you relax your



grasp. Those I caught were both ruby-throated, but the green of their backs and breasts changed to purple, to blue, to gold, and I know not how many more colors in a moment. No brush could paint

the gorgeous interchangeable colors of these beautiful little birds. Let me read you from this morning's *Transcript* an experience of a gentleman with some humming-birds.

“TWO RARE VISITORS.

“*Lempster, N. H., Aug. 15, 1878.*

“To the Editor of the *Transcript*: While sitting at my study-table, Sunday morning last, I heard a slight rustle above, and, looking up, I saw a beautiful humming-bird alight on a picture in front of me. Softly approaching the little stranger, which seemed to be quite tame, it was easily secured. Placing it in a small bird-cage, it was found that its tiny form could slip between the bars with the greatest ease; so cotton strands were woven between them. Thinking we had got the bit of a bird secure, the cage was placed upon my writing-desk. Leaving the apartment for a few minutes, I found on returning that the delicate little fellow,

“Whose dim shape had quivered about
Some sweet rich heart of a rose”

so many times, had now escaped his prison and lay upon the floor, quite dead. Now comes the strangest part of our story.

“On Tuesday morning the windows of this apart-



THE TOPAZ-THROATED HUMMING-BIRD.

ment were raised, leaving the dead humming-bird in a small vase upon one of the sills. An hour or two afterward my youngest daughter, straying into the room, heard

“ ‘A hum like the eerie noise
Of an elfin spinning wheel,’

and, glancing around, she saw another gorgeous humming-bird darting between the folds of the lace curtains. This bird was probably the mate of the one that lay in its little alabaster vase upon the sill. Pet ran into the kitchen with the strange tidings, and another daughter hastened into the room and at once secured the bird, which, like the other, did not seem a bit frightened by the contact of a careful hand. This second pet was placed beneath a dish screen in a large flat pan, and, as soon as flowers dusted with sugar were put under, went busily to work with its long, slim bill gathering sweets, and did not seem the least surprised when curious little faces surrounded it. A deep glass dish was filled with water and placed inside, which was used as a bath-tub by the dainty creature as soon as it was espied by those eyes that looked so much like small bright black beads. Greatly to the amusement of the children, birdie would poise itself for an instant in mid-air, and then suddenly plunge into the dish,

shaking its glittering plumage as it emerged, so gracefully, again and again!

“ ‘And then, from the shape’s vague sheen
Deep lustres of blue would float,
That melted in luminous green
Round a glimmer of ruby throat.’

“ But, alas! while we were absent, having a wire netting placed inside the bird-cage for the security of our ‘half-gem,’ a neighbor drove up with his two red-cheeked little ones, and the eldest, a three-year-old Miss Mischief, spied the bird in a chair on the piazza, and there was a sudden rush, a lifting of the dish screen by its knob on the top, and our second prize was gone “over the hills and far away!”

“ We have again raised the window of the room, but shall we catch another humming-bird without salt! Ah, we fear it will be a long day, a distant twilight hour, ere such a dainty prize

“ ‘Fleetly across the gloom
With tremulous shape will dart’

into a humble poet’s study again.

“ GEORGE B. GRIFFITH.”

“ What a naughty baby!” said Frank.

“ Did you ever see a humming-bird’s nest?” asked Frank.

“ No, I never have had that good fortune. Their nests are very difficult to find, being formed principally of little moss-lichens, or cups, that grow on trees, and arranged so as to look like a mere knob on a tree. Of course, they are very small. There are only two eggs, and they no larger than peas. The humming-birds are ready to show fight on the slightest provocation. If you touch their young they will dart around your head and face with the greatest fury. They have been known to put an eagle to flight by darting at his head and between his wings. Their flight is so swift that they fear nothing so long as they are on the wing. It is a native of America, and for a long time we claimed sole possession of this beautiful little bird; but other countries came forward with *their* humming-birds. There are the African humming-birds, which construct a long, mossy-looking nest choosing some long blade-like leaves projecting over the water, and there they flit around seeming to be holding a consultation at times as to whether they shall line the nest or not; but, at last, they always make it just as soft and downy as possible, for the wee birdie-

babies to come. They belong to the family *Trochilidae* which contains over three hundred species."

"Cousin Grace, is the fork-tailed goat-sucker a humming-bird?" asked Frank.

"No; what made you think so?"

"I have seen the picture of a goat-sucker, but could get little idea of its size from that."

"If you would look at the bird's bill you would soon see it is no relation to the humming-bird. Goat-suckers belong to the family *Caprimulgidae*, the same as the whippoorwills. They feed upon insects which they capture while upon wing."

"But they have such a funny name. Why are they called goat-suckers?"

"From a silly superstition that they suck goats. Their mouths seem something like frogs, and look as if they would make good suckers, I suppose. In fact, these birds have, largely, the habits of owls."

"Tell us something about owls," pleaded May.

"No more time this morning. We must take up owls another time. Frank and May may now sum up what they have learned, and then we must go in to breakfast. Rose, what do you remember about the robin?"



THE AFRICAN HUMMING-BIRD.

“It has a beyeful wed breast, and its name is from *wubeo*, wed, I ’member that. It likes to pick up crumbs and we hear it sing early in the spring. I don’t ’member the family.”

“*Turdidæ*,” said May, and it is of the order *Insesores*.”

“Very good. Now, Frank, tell us of the mocking-bird.”

“It belongs to the class *Vertebrates*, order *Insesores*, family *Lioctrichidæ*,” answered Frank, readily.

“Let me tell about goldfinches,” said May. “They are of the class *Vertebrates*, order *Insesores*, family *Fringillidæ*. I remember this family from the word *fringe*.”

“*Fringillidæ* does not come from the word *fringe*, but means, simply, the *finch* and *sparrow* family. However, a good way to remember hard words is to connect them with something familiar. Now, Rose, what about the ruby-crested wren?”

“The one wiv a bonnet on his head—a wed bonnet?”

Grace nodded.

“I ’members *Vertebrates*, ’tause we’ve had that so much, and ’tause I know all little birds have a back

bone, and I dess he is an *Insessore*, too, 'tause he perches, but I don't know noffin' about his family."

"Don't you remember — the same as the robin?"

Rose shook her head.

"*Turdidæ*," answered May.

"The tailor, hammock and bower-birds?" asked Grace, nodding to Frank.

"Belong to the same class and order as the ones we have just spoken of. The tailor-bird belongs to the family—"

"*Sylvicolidæ*," interrupted May.

"Cousin Grace, there was nothing said about the hammock-birds' family, but I remember Mr. Dumas said it belonged to the family of honey-eaters. Then must it not belong to the *Trochilidæ*, the same family as the humming-birds?—I'm sure *they* are honey-eaters."

"Yes, I think you are right, but we will let Mr. Dumas settle that question."

"Then you said the bower-birds belonged to the family *Sturnidæ*, the starling family, and the goat-sucker belongs to the family *Caprimulgidæ*, the same as the whippoorwill."

"Very good. And there's the breakfast-bell."



THE COMMON SNIPE.



CHAPTER II.

THE SNIPE'S NEST.

“I have found a snipe's nest! Who wants to see it?” called out Mr. Dumas one morning, in cheery tones, as he came out where the children were at play in the orchard.

“I! I! me too!” cried all the children. “Where is it?”

“In the meadow. It is damp down there, so you all better put on your rubbers.”

"Tan Tousin Grace go, too?" asked Rose.

"Of course!" he replied, snatching up the little girl and kissing her.

May and Rose both ran to the house and soon returned with their cousin, all equipped for the walk.

"Now, if you'll be very careful, and not make too much noise, you may be able to see the snipe herself, for, through the day, she generally keeps close to the ground among the tall grass and rushes. Ah! there she stands. Now, just beside her, down on the ground, in a soft, green, mossy nest, are four pretty spotted eggs."

"What a long bill!" said May.

"Yes; its bill measures some three inches, and is very slender."

"He's got long legs, too," said Rose.

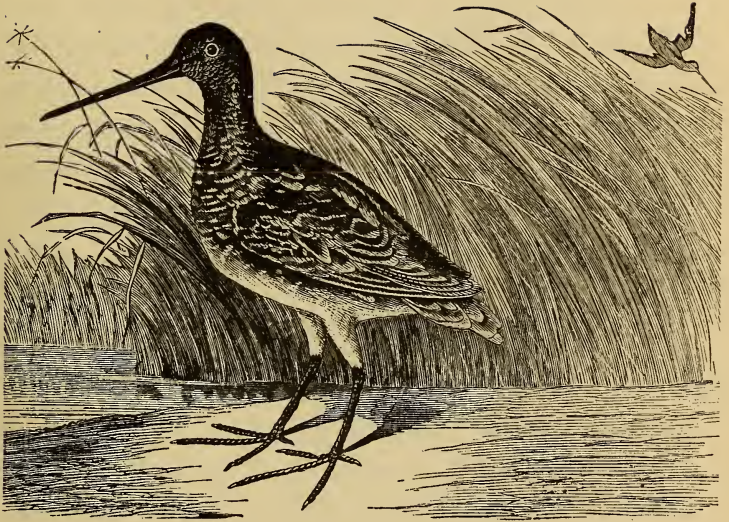
"Yes; long bills almost always go with long legs. Can you tell me why?"

"They have long legs with which to wade," said Frank.

"Then the snipe is a wading bird?"

"I suppose he wades some, judging by his legs."

"You are right. But why must long legs be accompanied by a long beak?"



THE SNIPE.

“ I think I know, sir. So that the bird can pick his food out of the mud or water, in which he wades.”

“ Yes; the snipe probes down into the soft moss bog, or mud, with his sensitive bill and brings up the insects, bugs and worms on which he feeds. His beak is endowed with the finest sense of touch, so that he picks up by feeling, for it is generally at night, in the darkness, when he seeks his food. When pursued, he keeps near ground, and has a funny idea that if he only hides his head under his feathers no one can see him.”

“ What a silly bird !” laughed May.

“ Yes, stupidity is characteristic of it. You can see that it has a stupid appearance. Though it keeps near the ground during the day it flies so high at night as to be almost out of sight. The snipe is considered one of the very best of game-birds. It is very fat, yet rarely disagrees with the weakest stomachs, and is a delicious and well-flavored article of food. It belongs to the family *Scolopacidæ*.”

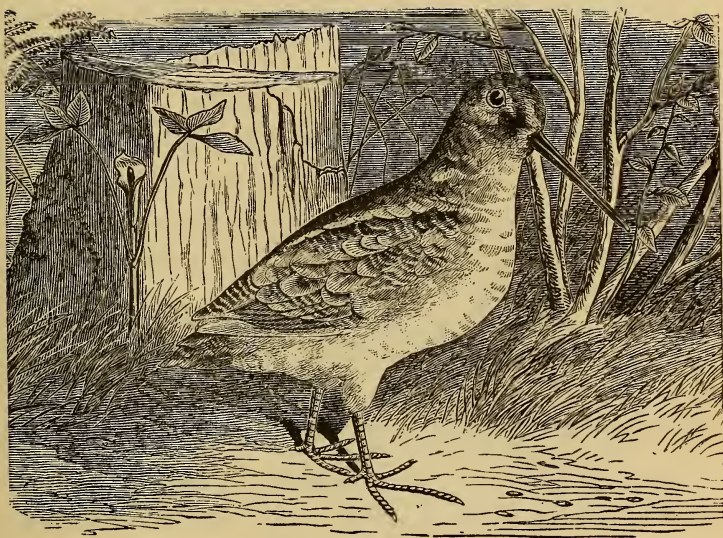
“ Isn't the woodcock very closely allied to the snipe ?” asked Grace.

“ Is very much like the snipe in many respects.

Its eyes are even farther back in the head, and though its bill looks the same, it is much stouter, and its legs are short, robust and feathered to the knees, consequently it doesn't wade much, but bores with its beak for its food which it finds on drier ground than does the snipe. Like the snipe, the woodcock keeps secluded in the woods by day, flying and feeding at night. It makes its nest down in the moss, or in some hollow stump, and lays the same number of eggs as does the snipe. The woodcock is a very faithful parent. She tends her young with the greatest care, and sometimes carries them on her back, or, in her claws, when she thinks they are threatened with danger. It belongs to the same family as the snipe.

"What kind of a bird is that, Mr. Dumas?" asked Frank, pointing to a bird running swiftly on the ground.

"Another marsh-bird, and the most beautiful of them all. Like the snipe and woodcock it is shy, and hides during the day, coming out early in the evening, or very early in the morning to seek its food. It is called the rail. It runs swiftly, as you see, and is distinguished by its long, slender toes.



THE WOODCOCK.

When pursued it often seeks refuge in the water by swimming out and diving under the surface so cautiously as not to be seen, and sometimes clings to the reeds under the water with its long, slender toes until often it can scarcely recover its breath. Even when wounded it often outwits its pursuer and makes its escape. They breed in thickets and marshes, near water, sometimes constructing their nests so that they will float. They feed upon insects as well as upon seeds and vegetables. They belong to the family *Rallidæ* and to the order *Nata-tores*."

"Are there any grebes around here?" asked Frank.

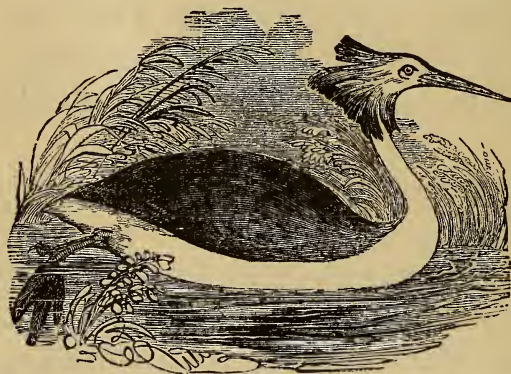
"What do you know about grebes?" asked Grace.

"May and I were looking at a picture of a crested grebe the other day. They are like ducks, are they not?"

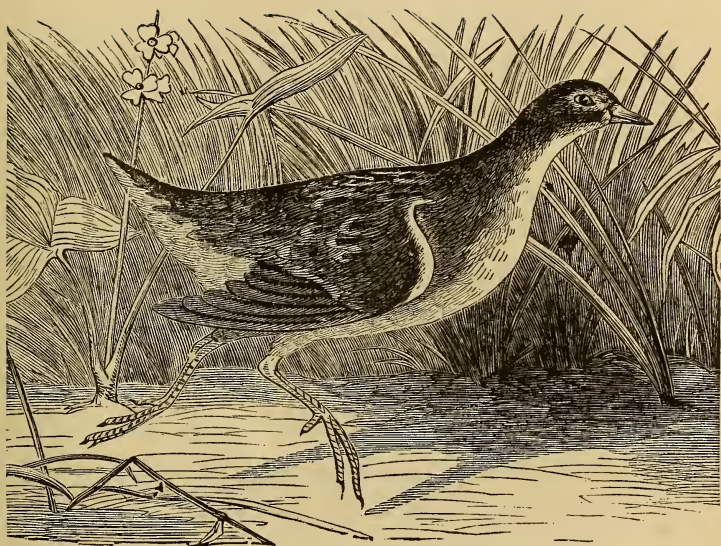
"They belong to the same family, though none of them are seen in the United States save in winter when they are journeying leisurely towards the South. They often migrate by water instead of on wing. Their feet are large and webbed. Like the rail, when alarmed, they seek the water, and

remain under it for a long time with only their bills exposed.

“ The nest of the crested grebe is made of rushes, and, like the rail's is so constructed as to float on the water, the female keeping fast to her nest during the highest rise of tide, amply protected by the thickness and oiliness of her plumage. The grebe is



as careful a parent as the woodcock. She often takes her brood on her back, or under her wings, if they are in danger, or show signs of fatigue. She feeds them partly with small fish and eels, and partly with vegetables. In Switzerland the young are killed and their beautiful skins, especially the



THE RAIL.

breast-covering, is dressed with the feathers on, and made into muffs and tippetts. It belongs to the family *Colymbidæ* and to the order *Natatores*."

"There's a queer looking bird standing yonder in the water. What is he doing?" asked May.

"That is the rufus-necked pelican of our country. Its prevailing color is white, as is that of the common pelican found in the old world; but there they are larger than a swan."

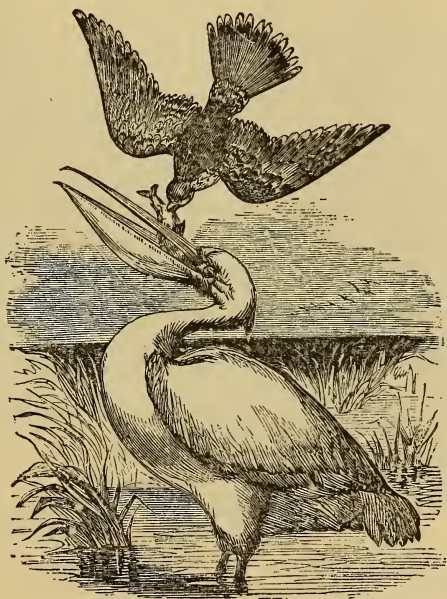
"What a funny bill he has!" said May. "And what is that bag under his lower bill for?"

"That is his pocket, or game-bag, which nature has furnished him, in which to stow away the fish he catches before swallowing it; and it is indeed surprising, the extent that this pouch can be stretched. It can be made to hold a great many fish. The pelican's mode of fishing is to rise upon wing about thirty or forty feet above the surface of the sea, keep one eye downward, intently scanning the water until a fish rises near the surface; then with unerring aim he darts down like a flash and stows that fish down in his pouch. In this way he continues fishing until his pocket is full. Then he returns to the shore and devours his food, first pressing his pouch

against his breast to empty it of the fish. 'This bird is one of the most sluggish and voracious of all the feathered tribes;' quoting from another; yet he is affectionate and kind, not only to his own family, but to any brother or sister pelicans in distress. The male bird makes a very tender husband, for he feeds Mrs. Pelican during the whole time she is sitting, as tenderly as though she was a helpless little one, unable to leave in quest of her own food. A writer of the History of Mexico says the natives have a trick of breaking a pelican's wing, then tying the suffering bird to a tree so they can gain a supply of fish without any trouble; for, you see, the wounded bird begins to scream pitifully with the pain in her wing and the efforts she makes to escape, until numbers of pelicans are attracted, each one disgorging some of the fish from his well-stocked pouch for the imprisoned bird. Then the men who have concealed themselves, suddenly spring out and bear away nearly all the fish. The American pelicans are often found fishing in shallow water; and, sometimes a fish-hawk hidden away on some high tree, watching all the movements of the fishing pelican, succeeds many times in stealing the fish that the pelican

was just about to stow away in her pouch. The pelican belongs to the *Pelicanidæ* family, and to the order *Anseres* or *Natatores*.

“There is a very singular bird I have seen in South America,” continued Mr. Dumas, “which



appears to have the power of walking on water. It belongs to the same family as does the rail, and is about the size of a pigeon except for its long legs, and extraordinary long and wide extended toes.

Now, you all know, of course, that a bird's swimming is simply a walking *in* water — that the duck or goose simply keeps putting one leg ahead of the other, just the same as if she was walking on land — but how are you going to account for a bird walking in water !”

“ It cannot be done,” cried Frank and May.

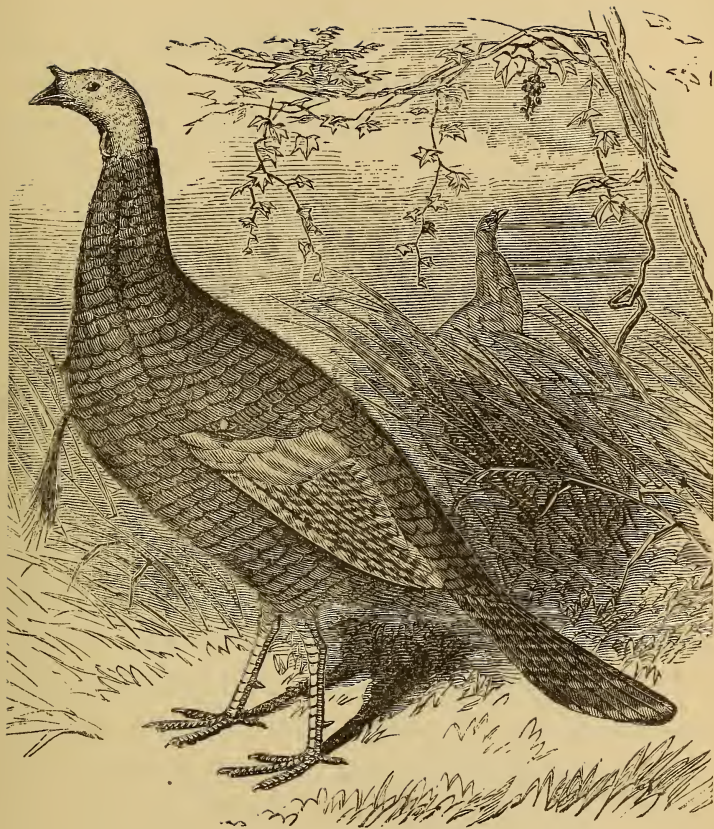
“ I will tell you how it appears so. This long-legged, long-toed bird, called the jacana, is so light of body, and her toes extend over so much surface, that she finds no difficulty in walking over the broad leaves of aquatic plants, her weight being just enough to sink the leaves a little way under the surface, making her look precisely as if she was walking on the water. They walk upon floating leaves for the sake of obtaining their food which consists of worms, insects and fish.”

“ Look there, Mr. Dumas! Isn't that a wild turkey ? ” asked Frank.

“ Yes; we are very fortunate to-day in seeing so many birds.”

“ That is the very first wild turkey I ever saw,” said Frank.

“ They are not very plentiful in this vicinity.”



WILD TURKEY.



“See the tints of bronze and green shining out from his coat of black!” said Grace.

“Why does he wear his whiskers so low down?” asked Rose, referring to the long tuft of black hairs on his breast.

“No accounting for turkey-taste. He is an American bird and was not introduced into England until the reign of Henry the Eighth. The tame turkeys are simply wild turkeys, domesticated. They are noble-looking, and have the power of raising and expanding the feathers in the tail until they look like a spread fan. The female generally hides her nest from the gobbler, lest in his loneliness and a desire for her company, he destroy the eggs. A gentleman tells the story of a gobbler becoming so dejected during the absence of the hen that he was placed on the nest beside her. This seemed to please the gobbler very much. He scratched out some of the eggs and sat upon them by her side. The gentleman seeing this procured a large number of eggs, and placed them under the gobbler. The bird seemed very proud of them, and would scarcely leave them long enough to take any food. At the usual period, twenty-eight little turkeys were hatched,

but the turkey seemed at a loss to know how to rear them, so they were taken away from him and raised by hand. The hen-turkey is gentler than the gobbler. She does not cover her young with her wings if any danger is nigh, but is always sure to see danger soon enough to warn her birds with a loud piercing scream, so that they have time to hide under bushes, or skulk close to the ground. Wild turkeys are gregarious, associating in flocks. They roost in the great swamps of America during the night, but leave about sunrise to search in the woods for acorns and berries. They are a *Gallinaceous* bird, and belong to the family *Phasianidæ*."

"What kind of a bird is *that*?" asked May.

"Ah! that is the cuckoo, little idler that he is," replied Mr. Dumas.

"Why do you call him an idler?" asked May.

"Because he is too lazy even to make his own nest, laying his eggs in the nest of another bird when the proprietress is absent. A mother-bird very often finds one of her birdies larger than the others but has not sense enough to know that this big fellow is only an intruder; and if he keeps on growing until he becomes so large as to crowd out

all her own little ones, she never knows any difference, but goes on feeding the one great bird that is left her. The cuckoo is about fourteen inches in length and twenty-five in breadth. His throat is pale gray, his back a dove-color, and his breast white, crossed with black lines."



"Mr. Dumas," said Grace, who had been waiting some time for a chance to speak, "do you know, some natural historians claim for the American cuckoo an entire absence of all the ugly traits ascribed to the European species? They say the

American cuckoo makes her *own* nest and rears her *own* young."

"So there are instances where the European cuckoo has been known to do the same; but, as a general thing, both species deposit their one egg in the nest of some small bird. Whether the mother-cuckoo thinks her time too short in temperate countries to construct her own nest, or whether she cannot find material or a position to suit her, I do not know; but I do know that I have often seen a cuckoo hatched in another bird's nest, and I have seen the greedy cuckoo-baby plough up under the little birds that have a real right to their nest, and get them, one by one, on her back, between her shoulders, and push with them to the edge of the nest, and then cruelly throw them over the edge to perish, while she remained behind to receive all the care and all the food from her foster-parents. The cuckoo belongs to the *Cuculidæ* family and the order *Scansores*."

Meantime, the whole party had come out into the public road and were walking leisurely along when they came to a little low brown farm-house. Here Rose declared she must have a drink of water, and they all entered the little front gate.

"Thirsty, are you?" said the mistress of the house. "Just come in and sit down and I'll get you as cold a glass of water as you ever drank."

Grace sat down in the rocking chair, the three children found a place on the sofa, and Mr. Dumas remained standing near the door.

May leaned forward to get a view of a picture on a little round table, when a voice was heard, "*You'd better look out!*"

The children were astonished and looked wonderingly from one to the other.

"*You'd better look out!*" came again from an unknown quarter, and directly after May felt a peck at the top of her shoe. Frightened she sprang up and cautiously gazed under the sofa, and what was her surprise to see a parrot! Again it cried: "*You'd better look out,*" and made a dash for Rose's little leg. Now the children were very much amused, and Mr. Dumas began to talk with the bird; but for some reason Polly was in a bad mood. She told the visitors to "Shut up," and that "they'd better go home," until the woman returned with the water and chided the bird for her inhospitality.

“The parrot always seems out of place in our country after having seen them so frequently under their own native skies,” said Mr. Dumas, when they had left the house.

“Do tell us something about them, Mr. Dumas,” cried the children.

“Many a time have I seen a little Hindoo boy swinging in his hammock under the grand, old trees, while the little squirrels perched on his hand to eat their nuts, and the parrots looked down from the branches above to chatter and scold.

“One little Hindoo boy, in particular, was so much beloved by them that all the animals seemed to vie with each other, as to which should receive the most favors at his hand. A green parrot used often to show the jealousy in her nature by ruffling her feathers and angrily calling out to the squirrels to beware! and if the warning was not heeded she would fly down and knock the squirrel from off the boy's hand. Parrots have very beautiful plumage, and can be taught to say more words than any other bird in the world; yet for all that there is always something disagreeable about Polly. She has a



THE JEALOUS PARROT.

wicked eye, and, for my part, I prefer a little singing-bird for a pet."

"So do I," said Grace. "Fine feathers are all very well to look at, but real heart-enjoyment comes from something which has the power to touch the emotions."

"I should like to understand how it is the parrot can be taught to speak so plain," said Frank.

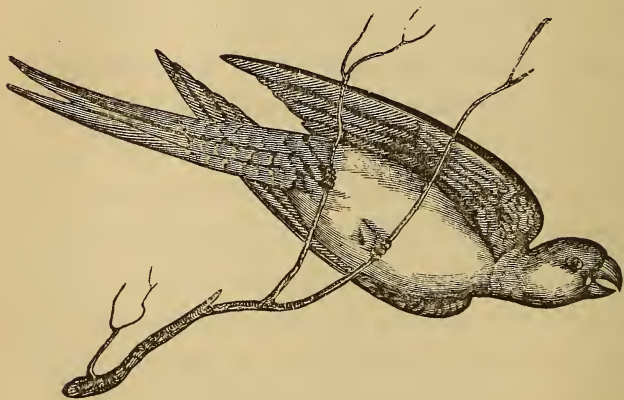
"It seems owing to the shape of their beaks and tongues. The upper division of the parrot's beak is not only hooked and pierced with nostrils at its base, but is movable. The bird can move the upper part of her beak in the same manner that we work the lower jaw. Then her tongue is broad and blunt, and besides being movable the upper mandible is toothed. Of all the parrots I consider the ash-colored the most intelligent. It seems to have the faculty of answering questions, one right after another, in the most sensible manner. Going up to a parrot that was making a great fuss one morning, I said, "Polly, what's the matter?" "Polly wants a cracker," she replied. "Want a cracker?" I repeated. "Yes, I do," she replied, eying me earnestly. As I had no crackers I passed on while she called

after me in the greatest rage: "You old fool, you! You old fool, fool, fool!"

The children laughed heartily,

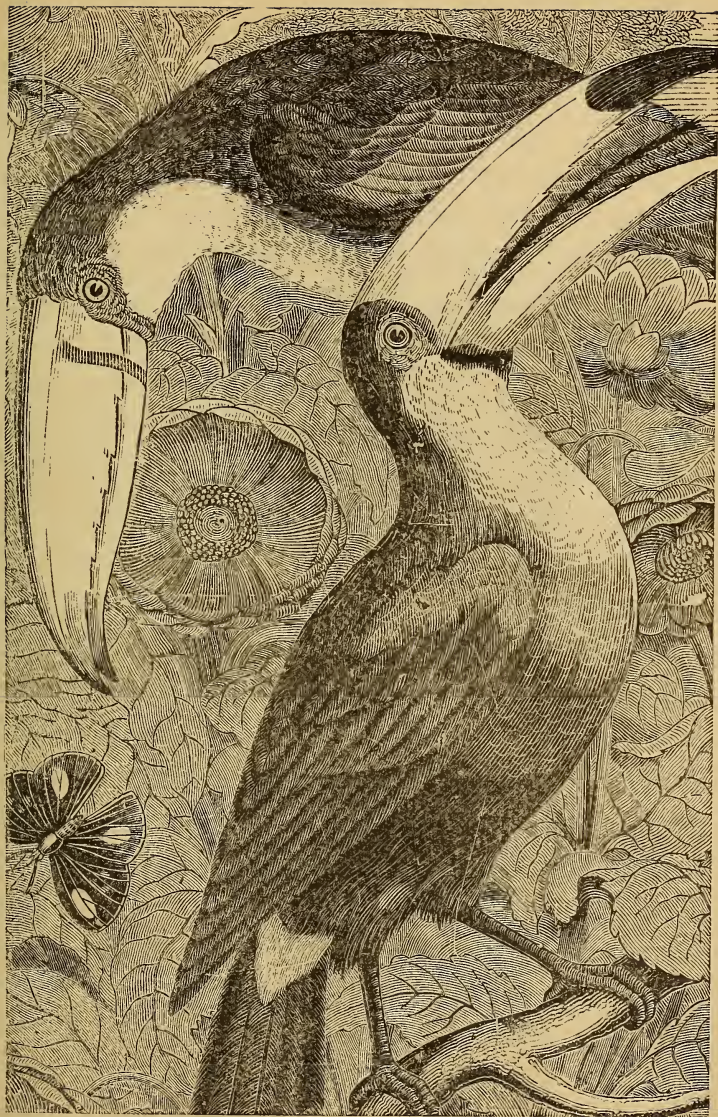
"The parrot belongs to the order *Scansores* and to the family *Psittacidæ*. This family includes cockatoos, lories, macaws, paroquets, etc."

"Why, I have seen a paroquet," said Frank. "It



is a beautiful bird, about as large as a dove, and has a longer tail than the parrot. Its feathers are a light green, tinged with blue or purple."

"The paroquet is the only species that is a native of the United States. Their favorite food is the seeds of the cockleburr, which grows in great quan-



THE TOUCAN.

tities on the banks of the Mississippi and Ohio rivers. Another bird belonging to the same order is the toucan. It has the strangest bill, broad and thick and long as its body, almost. In fact, it is immense. The toucan is found in South America, and is some times called 'Parson Toucan,' because one keeps chattering continually from his perch on some high tree, while a number of his companions sit on the branches beneath him, fast asleep. But the fact is he is only a sentinel keeping watch lest they be surprised by some of their numerous enemies—the monkeys being the most feared. The female builds her nest in the holes of trees, and there she sits in the hole defending herself and nest with her great beak. However, this beak looks more terrible than it really is, some natural historians saying that it is very weak, and only a shell to protect a more powerful tongue. Others say that the long beak is given to the bird to dive down into small birds' nests, and to draw up the eggs and the young for her food. The largest of these species is the toco-toucan. Such is the structure of their bills that there is no danger of mistaking them for any other bird. They belong to the family *Ramphasidæ*."

The children now began to sum up what they had learned:

“Snipes and woodcocks belong to the order *Grallatores*, and to the family *Scolopacidæ*. The rail and the jacana belong to the order *Natatores*, and to the *Rallidæ* family. The grebe and the pelican to the order *Natatores*, the grebe to the *Colymbidæ* family, and the pelican to the *Pelicanidæ*. Turkeys belong to the order *Rasores*, and to the family *Phasianidæ*. The cuckoo to the order *Scansores* and to the *Cuculidæ* family. Parrots to the same order as the cuckoo, and to the family *Psittacidæ*. The toucan to the order *Scansores*, and to the family *Ramphasidæ*.”



CHAPTER III.

BOB WHITE.

One day, the family at Aunt Jerusha's were sitting out in the vine-covered portico enjoying the fresh forenoon air, the children at play in sight, when Rose came running up to the house, slinging her little pink sun-bonnet by one string, while her face was red with heat.

"I tan't find him anywhere, and I've been huntin' an' huntin'!" she panted, stumbling up the steps, and finally ensconcing herself in Mr. Dumas' lap.

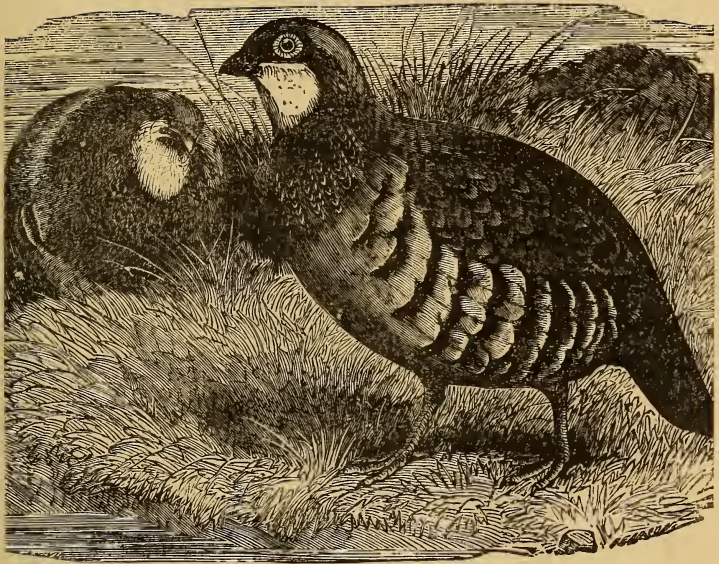
“ Whom do you want to find ? ” asked Mr. Dumas.

“ Why a little boy named ‘ Bob White. ’ I heard somebody call him eber so many times, and I hunted, too, and touldn’t find him. Do you know where he libs, Mr. Dumas ? ”

“ Wasn’t it a bird you heard ? ” laughed Mr. Dumas.

“ You *know* little birds tan’t talk ! ”

“ Some of them can, if they are taught. And some of the notes which untaught birds utter, sound distinctly like words in our language. There is a bird that says ‘ Whip-poor-will ’ as plain as anything, so that is what they named the bird. There is a bird that says ‘ Bob White, ’ and that bird is a quail. You can see them almost any time in grain-fields, for there, right upon the ground, is where they build their nests and fill them full of eggs — a dozen or more. But if any one comes near, they fly up, and flutter around just as if they were disabled, and make you believe you could easily catch them ; but, trying, you find it is not quite so easy as you thought, for they are only drawing you away from their nests, and as soon as they have accomplished their designs, you find out they were not lame at all, only



“BOB WHITE.”

making believe. As it comes near hatching time, they sit so constantly as to be scarce aware of danger though ever so threatening. I once knew a poor quail who would not leave her hatching brood until a reaping-machine actually cut off her legs and, with a cry of distress, away she flew without any legs. Whatever became of her no body ever knew; but the next day, a little girl, not much larger than Rose here, found a dozen cold eggs and a pair of quail's legs. The little thing carried them home and tried to blow them so that she could string them on a string, but not one of them would blow, because every one of them had a poor, dear little dead quail in it, just ready to hatch."

Rose gave a sigh of sympathy and laid her cheek down in Mr. Dumas' coat-collar.

"All little quails, however, don't come to such a sad end, for I often see papa and mamma quails stalking about grain-fields, followed by great families of little ones. Mr. Quail seems as fond of his chicks as Mrs. Quail, often scratching for food and calling them to it, and sitting down close with the mother-bird to help cover them when they are cold."

“ Mr. Dumas, what difference is there between the quail and partridge? ” asked Frank.

“ Some naturalists say they are the same bird, only in New England, New York, New Jersey, and westward, it is called the quail; while in Pennsylvania and southward it is called the partridge; I am not inclined to accept that statement. However the term partridge is so confusedly applied that it is difficult telling just where the dividing line comes. Both are Gallinaceous birds, both belong to the family *Perdiciidæ* and both to the same genus, *Ortyx*; yet they are different species. Quails are smaller than partridges. Partridges have a naked place between the eyes, and the figure of a horseshoe on their breasts; quails have not. Quails do not lay so many eggs as the partridge, and they are different in color; yet they feed, form their nests, and rear their young in the same way. Quails are so plentiful in some parts of the old world that a hundred thousand have been caught in one day within the space of three or four miles. Those which are found in the country through which the Israelites passed on their way to Canaan, are of remarkably large size. Twice, when these people murmured for flesh, large quan-

QUAILS AT HOME.



tities of quails were sent, until each family collected about eighty bushels, and they feasted and feasted until they became sick."

"I suppose, Miss Montague, coming from the West, you know more about grouse, than quails or partridges, though all belong to the grouse tribe?"

"I have seen a great many pinnated grouse, or prairie-chickens. *We* think it the queen of its tribe."

"Well, you are right, take it altogether. I suppose its flesh is most excellent?"

"Delicious. No other fowl can compare with it."

"How much will one weigh?"

"About three pounds. The male bird looks singular, because of a tiny pair of wings, composed of eighteen feathers, which are attached to his neck."

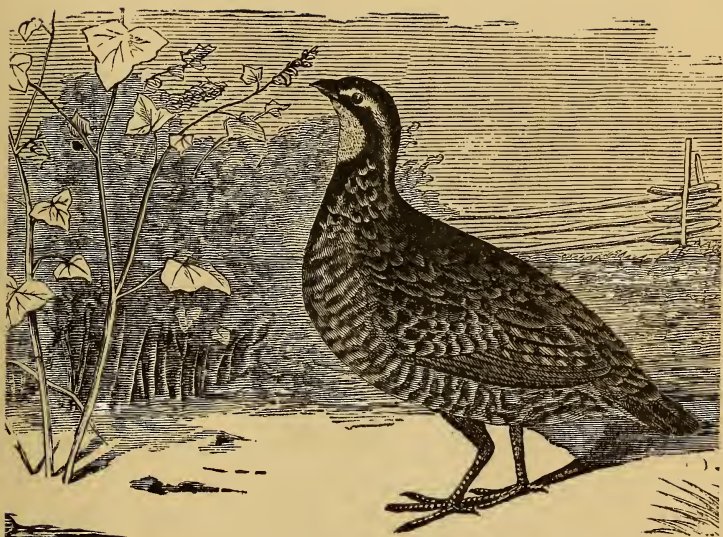
"Does he fly with them?" asked May.

"No; they only seem an odd sort of ornament; and in addition to these wings, right under them, are two loose, hanging, wrinkled skins, which, when inflated with air, resemble in size and color, a middle-sized orange. The chin is cream-colored, the upper parts of the bird mottled with black,

reddish-brown and white; the under parts are pale brown marked transversely with white. The female is less than the male, is without the throat-wings and the yellow skin on the neck, and is lighter in color. The noise made by the male is also peculiar. In fact, this noise is something like ventriloquism. It does not strike those who are near with much force, but deceives them with the idea that it is two or three miles away, when it is close by. The female protects her young in the same way as the partridge and quail. Grouse is the common name of the family *Tetraonidæ*, belonging to the order *Rasores*.

“ I think your western pinnated grouse somewhat resembles the ruffled grouse found north of Maryland ? ” said Mr. Dumas.

“ Not largely. The pinnated grouse are found on the open prairies, while the ruffled grouse prefer the woods, and love solitude, and wander forth alone in search of their food. This bird is sometimes called the ‘ drummer, ’ because it has a way of calling its favorite mate by striking its wings upon a log, on the ground, or against its breast, sounding very much like the roll of a drum. He gets his name from



AMERICAN PARTRIDGE.

the fact that when he raises his tail and struts like a turkey-cock, there is a ruffle of feathers which stands up around his neck. They lay their eggs by the side of fallen trees or the roots of standing ones and protect their young in the way common to the tribe."

"Did you ever see a ptarmigan or a white grouse?" asked Mr. Dumas.

"I think not."

"I have. They are not much larger than pigeons. In the summer their plumage is a light brown, somewhat spotted, the wings and under parts white, but in winter, after they have shed their feathers they become a pure white; besides every feather becomes double, and the legs, thickly feathered, so that they are well protected from the cold. Near the first of October they assemble in flocks of a hundred or more, and live among the willows, eating the tops. In December they leave the vicinity of Hudson's bay to seek mountain-berries. If the hen-bird be killed, the male will not leave her, but submit to being killed also."

"Mr. Dumas, did you ever see a lyre-pheasant?" asked Frank.

“ A lyre-pheasant? ” repeated Mr. Dumas, slowly.
“ You must mean the lyre-bird.”

“ Isn't it a pheasant? ”

“ No, it is not so large as a pheasant. It may be found in Australia, and belongs to the family *Menuridæ*, order *Insessores*. It is called the lyre-bird, because when displaying itself like a peacock, the tail takes the form of a lyre or harp, being composed of three kinds of feathers. It is shy and difficult to find. It is almost equal to our mocking-bird in its song, also in imitating other birds. It can even bark like a dog ”

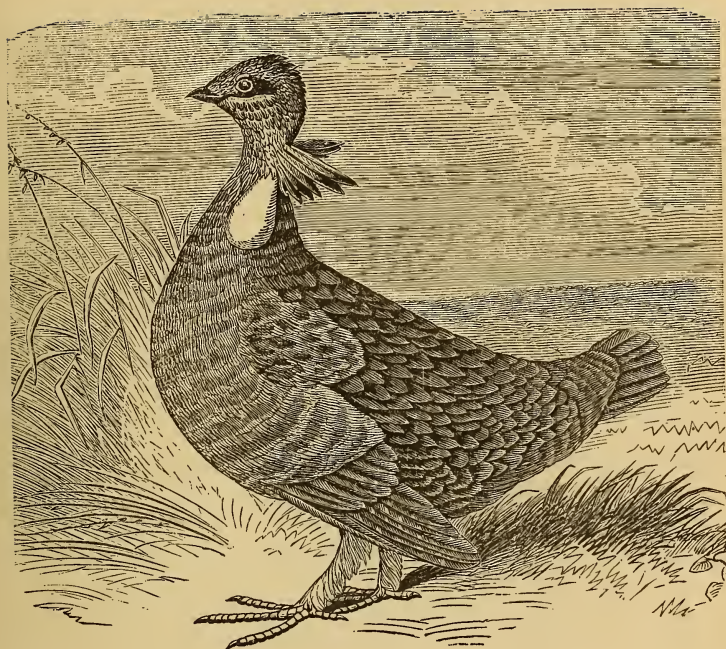
“ Mr. Dumas, since you have been everywhere, have you seen any real, live ostriches? ” asked Frank.

“ Plenty of them.”

“ Aren't they as large as a man? ”

“ O, a great deal taller than a man! ” exclaimed May.

“ Well,” said Mr. Dumas, “ they measure from seven to nine feet when their long necks are elevated. They are found in the sandy deserts of Asia and Africa. They are jet black, mostly, with the exception of a few, long snowy plumes, sticking in their tails and wings.”



THE PRAIRIE HEN.

“ I’ve dot a dreat, long white one all around my best hat,” spoke up Rose.

“ Are they ever found in our country ? ” asked Frank.

“ In South America ; but they are not so large as those of the Old world, and their plumage is very little valued, it being a dull gray and not half so finely formed. The ostrich lays its great eggs in the hot sand, leaving the heat to act upon them by day, but setting upon them at night. If a person so much as touches one of their eggs, it makes them so angry that they trample every one to pieces, and leave them forever. The ostrich can run faster than the fleetest horse. She raises her wings, which assist her flight, like two sails. The Greeks call the ostrich the camel-bird, and she can be tamed and taught to take the place of a horse or camel often bearing burdens on her back. It is no uncommon sight to see ostriches ridden by negroes. Sometimes a hungry ostrich will steal around a negro’s hut and feast upon the little ducks it finds about the door, the native woman only coming out in time to save a single little duck of a whole flock. I once went ostrich-hunting with a party of men.

We mounted horses and sallied forth with our fire-arms. The ostrich first attacked always runs in a circuitous direction, and such a time as we had running around, until we tired that bird down! I think a dozen of us tried it, and we tired our horses out. But at last it was accomplished, and the ostrich was shot. The natives take them by stratagem. One of them clothes himself with the skin of an ostrich, and thus is able to get near enough to surprise the whole flock. Two companions and myself once made a very hearty breakfast from a cooked ostrich egg.

“Are they good to eat?” asked Frank.

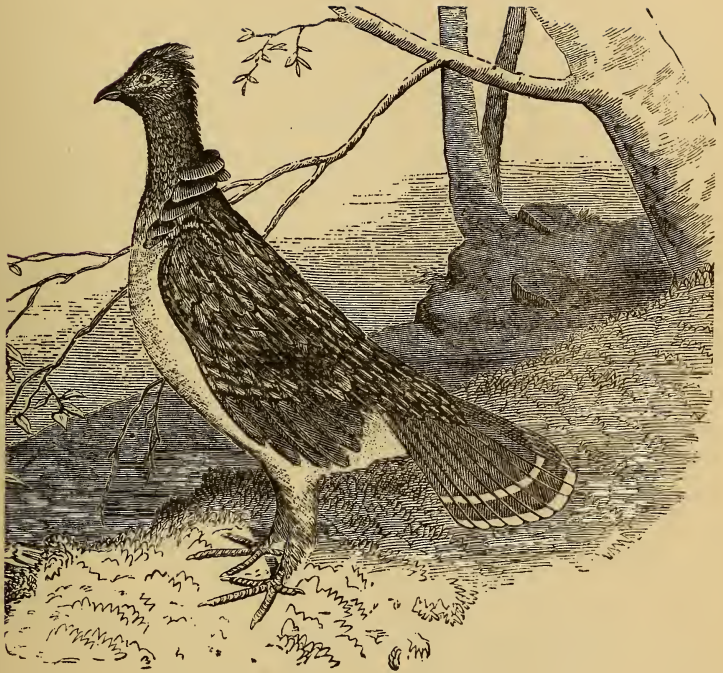
“They are considered such a great delicacy at the Cape of Good Hope, that they are sold for twelve cents a piece.”

“They must be enormous,” said Grace.

“They are; and from the great thickness and strength of their shells they can be preserved, even at sea, for a long time.”

“How do they cook them?” asked Grace.

“There are various modes; but the best way is to bury them in hot ashes, then make a hole in the upper end, large enough to admit a spoon or stick,



THE RUFFLED GROUSE.

and stir the contents until they are as thick as an omelet. Sometimes, a number of egg-shaped pebbles are found in the egg. Of course, they are very small, not much larger than a bean, but are exceedingly hard and of a buff color. I have found as many as twelve in one egg. I will show you some buttons made from them." Mr. Dumas soon returned and handed to Grace a small card to which were attached a dozen buttons, telling her she might like to keep them as curiosities.

He also presented Frank with a cup made from an ostrich egg-shell, and to each one of the little girls he gave a necklace made from bits of ostrich eggs, cut into the form of tiny rings, and linked together.

"I am afraid you have robbed your cabinet," said Grace.

"O no, I still have retained some feathers, and a piece of leather made by an Arab, from ostrich skin."

"But how do the buttons get inside of the egg? that's what I'd like to know!" said Frank.

"Some of their food, of course, goes to form the egg, and the ostrich swallows a strange medley of

stuff; I have seen them swallow nails, stones, rags and leather, with the greatest gusto. Still it may be that the pebbles are a formation natural to their eggs. Ostriches are very kind to persons with whom they are familiar, but fierce towards strangers. They act as if they thought strangers had no business to be in the vicinity, sometimes running after them and trying to trample them down. When fierce they hiss like a snake. When about being overcome by an enemy they cackle like a goose. At night they make a hideous, doleful sound something like the distant roaring of a lion. The ostrich runs very much like a partridge; and you can see that if the partridge had as long legs as the ostrich, how much greater speed he could attain!"

"I know the partridge can run faster than a man," said Grace.

"The ostrich belongs to the order of *Cursores*, and to the family, *Struthionidæ*, from the Latin word *Struthio*, an ostrich. To this family belong birds that only possess the rudiments of wings and have long, stout legs. The word *Cursores* comes from the Latin word *curro* to run."

"Mr. Dumas, May and I found a picture yester-



THE OSTRICH'S BREAKFAST.

day in Aunt Jerusha's scrap-book of some kind of a bird and there was no name to it. I don't know what people want to make pictures for without any names," said Frank.

"Describe it."



"It was a great, big bird, with long legs; and there were some little ones too. I will go and bring the book.

“The old bird doesn't seem to have *any* wings,” said Frank, as he opened the book and laid it upon Mr. Dumas' knees.

“I don't think this a very good picture; but if you look closely in the back-ground you will see two or three of the birds, standing on twigs, looking intently down in the water as if watching for fish. In one of Jules Michelet's books, I remember reading this: ‘In the morasses of the Carolinas, Alexander Wilson, in 1805, found families of the heron teaching their young birds how to fly and seek their prey. His was the first human face they ever saw, and they met him with clapping of wings and hoarse cries of welcome.’ The herons belong to the waders, and are of the family *Ardeidæ*. They have strong, straight beaks, long, slender legs with three toes in front, the two outer ones connected by a web, and one, back. Its plumage is a sort of a bluish-ash, its average length, from the point of its beak to the end of its tail, is about three feet. Their food is fish, and they often stand by the hour catching them by a single dart of their beak. They build their nests on trees with sticks, and line them with dried grass and wool. They lay five or six eggs of a



LYRE BIRDS.

greenish-blue color. They are said to live to a very great age. The stork, famous for the care and attention it gives to its aged parents belongs to the heron tribe: and the cranes—you've all seen a crane, I suppose?"

"I sawed one the uvver day down in the marsh. A dreat, bid bird walkin' on stilts—only Frank said there wasn't stilts, they was legs."

"That is true," laughed Mr. Dumas, "they are waders, and noted for their long legs. But the largest crane I ever saw was the adjutant or gigantic crane. They are found in Bengal and Calcutta, are from five to seven feet in height, and at a distance look almost like gray-haired men. The bill is immense, sometimes measuring sixteen inches round at the base. Its plumage is of the same color as the heron's. Its craw hangs down like a pouch.

"Its aspect is disgusting, yet it is a useful bird, destroying snakes, insects and noxious reptiles. They sometimes feed on fish, one of them eating enough for four men. They seem the most voracious of all birds. A man who had a tame one had constantly to watch, that it might not eat up every thing that came in its way. It would often snatch a

whole, roasted fowl from the table and swallow it at one mouthful. A shin of beef cracked in the middle made it two mouthfuls. They belong to the same family and order as the herons."

"I do not suppose adjutants can beat secretary-birds killing snakes?" smiled Grace.

"No; those secretary-birds are the true serpent-eaters. They belong to an entirely different order and family. The name 'secretary' was given to it by the colonists of Cape of Good Hope, because they fancied its crest of feathers which can be raised and depressed at pleasure, looked like a pen sticking behind a secretary's ear. It feeds on reptiles of all kinds, but prefers snakes. It is of a bluish-gray color, and in form resembles both the crane and the eagle, having a head very much like an eagle and a body somewhat like a crane. When standing erect it measures about three feet. The legs are long and stouter than those of a heron. It is a native of Asia, Africa and the Philippine Islands. Naturalists place it among the families of the *Falconidæ* and the *Vulturidæ*. Indeed, some call it the secretary-falcon altogether. Serpents are numerous in all countries which these birds inhabit. When



THE PTARMIGAN.

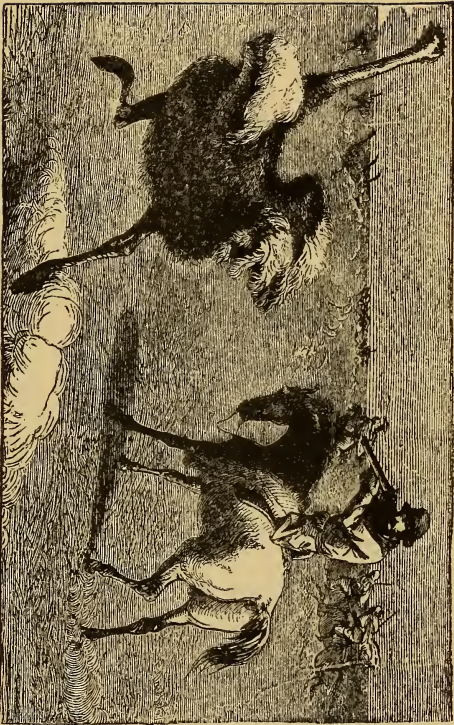
the secretary approaches a snake, it always carries the point of one of its wings forward, making the hard quills shield its breast from the reptile's venomous bites. Sometimes, it treads upon the serpent, again, takes it up on its pinions and flings it in the air until it is senseless, when it kills and swallows it at leisure, without danger.

"I have read M. Le Vaillant's account of a battle between a secretary-falcon and a serpent. It was obstinate on both sides. When the serpent found he was beginning to lose strength, he tried to reach its hole by all the cunning that is attributed to the tribe. But the bird cut him off upon every side until, at last, the serpent, perfectly exasperated erected itself and hissed terribly, its head swollen and its eyes inflamed with rage and venom. The bird, sometimes, seemed almost frightened, and again, would return to the charge, and covering her body with one of her wings, struck her enemy with the bony protuberance on the other. At last the serpent staggered and fell, then the bird rushed upon him, laying open his skull with one stroke of the beak. At this instant M. Le Vaillant fired and killed the bird. In her craw were found eleven large

lizards; eleven small tortoises, three serpents, each as long as his arm; and a number of locusts and other insects sufficiently entire to be preserved and added to a collection. In addition to all this there was a ball as large as the head of a goose, formed of the vertebra of serpents and lizards, shells of tortoises, and wings and claws of different kinds of beetles. The secretary-falcon makes its nest of twigs, lined with wool and feathers, near the top of some high tree, and so well concealed as not to be easily discovered. It lays two or three eggs almost as large as those of a goose. The young ones remain in the nest a long time because their legs are so long and slender they cannot easily stand upon them until they arrive at almost mature size."

"Now, children, cannot you show Mr. Dumas how well you remember what he has told you, not only the descriptive part but the scientific terms employed?" asked Grace. "Rose, first."

"Twails, partwidges and grouses, make their nests on the dround, and lays ever so many eggs, then they's makes b'lieve they's lame if anybody tomes too near 'em. Then the pretty lyre-birds hoist up their tails like harps. And the ostrich likes



HUNTING THE OSTRICH.

little ducks for its breakfas' and it eats stones, nails and old rags, and somehow or uver, the stones gets in 'em eggs, and Mr. Dumas dive some of the buttons to my Tousin Grace that was made of the little 'tones. The ostrich lays dreat bid eggs in the hot sand, and me and May's dot a pretty necklace made of their egg-shells, and Fank's dot a pretty cup. The ostrich runs faster than a horse, and will take anybody widing on his back if he's tame. Herons have dot dreat long legs like cranes, and 'em shows their little birds how to tatch fish. The 'jutant is a dreat, bid ugly bird, what looks like grandpapas, and they eats, oh! an awful sight. Then, there's the secretary-bird wiv lots of twills on his head, and he kills oh! lots and lots of snakes—and I wish he was here to kill all the black snakes so 'em touldn't eat all our pretty little birds up.'

Mr. Dumas was not only very much amused, but much surprised that "such a baby" had such a retentive memory.

Then Frank and May rattled away:

"Birds belong to the class *Vertebrates*. Quails and partridges belong to an order of birds called *Rasores*. Also are called gallinacious birds. They

belong to the family *Perdiciidæ*, and to the genus *Ortyx*. Grouse belong to the same order, but to the family *Tetraonidæ*. Pheasants belong to the order *Rasores*, and to the family *Phasianidæ*. Lyre-birds belong to the order *Insessores*, and to the family *Menuridæ*. Ostriches belong to the order *Cursores*, and to the family *Struthionidæ*. Herons are waders, therefore, belong to the order *Grallatores*, from *Grallæ*, stilts; and to the family *Ardeidæ*. Secretary-birds belong to the families *Falconidæ* and *Vulturidæ*, and are rapacious birds belonging to the order — I don't think you mentioned an order for the last-named bird, Mr. Dumas," said Frank as both he and May hesitated for a moment.

"To the *Accipitres* or *Raptores*," added Mr. Dumas, quickly. "Now, tell me, please, *how* you remember such hard names?"

"Why," said May, "when we have the meaning of the words, it helps us remember a great deal better. But when Cousin Grace does not think it necessary to tell us about the Latin and Greek roots, why, then we associate some familiar word with the one given, and thus remember it. Now, the word *Raptores*, is a very easy one to remember



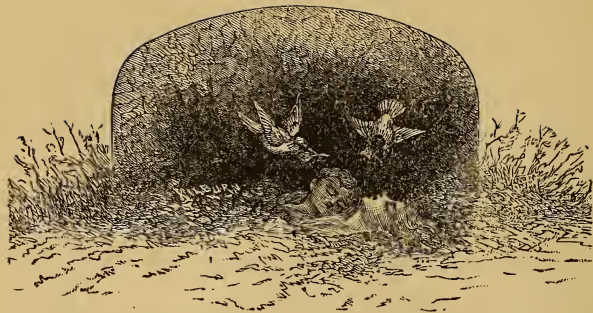
FEEDING HER BABIES.

from the word Raptures. We have only to think that the secretary-bird is so earnest in killing snakes and after her prey, that's it a sort of rapture to her, and then we remember it."

"Very good, indeed. Now let me tell you the meaning of the words. *Raptors*, the Latin is *plunderers*; and *Accipitres* comes from the Latin word, *Accipiter*, a hawk."

"To-day, has been just the nicest one yet," whispered May to Grace.

"That proves you are becoming more interested, for which we ought to thank Mr. Dumas," said Grace, aloud.



CHAPTER IV.

KENNY'S GOSLINGS.

Back and forth, now at Aunt Jerusha's, and now at their home in the city, Grace and the children spent the days until late in autumn.

One day a "wonder-walk" had taken them about two miles out of the city. They had just crossed a cool-looking stream, when they came suddenly upon Pat Ryan and a little boy of about seven years, sitting on the banks watching some geese and pretty little velvety goslings swimming about.



KENNY'S GOSLINGS.

KILBURN'S C.

Grace thought she had never seen a more beautiful child ; he had fair, clustering hair, pink cheeks and deep blue kindling eyes. He was carrying on an animated conversation with Pat about the geese.

Pat hastily got up and touching his hat, said :

“ Good mornin', mum.”

“ And who is this little boy you have with you ? ” asked Grace.

“ Me brother Kenny, mum,” said Pat, proudly.

“ Then you live near here ? ”

“ Yis, mum ; yonder's the house,” and Pat pointed out a little, old-fashioned, one-storied house, with two or three great, tall cherry trees in the rear.

“ O, pretty, pretty little ducks,” said Rose, planting her chubby little hands on her knees in delight.

“ Ducks ! ” laughed Pat. “ They are geese, sissy.”

The tiny student in Natural History was crest-fallen over her mistake, and shrank behind her cousin's skirts.

“ Never mind, darling,” said Grace, “ for they do belong to the duck tribe.”

“ Eh ! ” said Pat. “ Sure, an' I don't see any more why a goose is loike a duck than loike a chicken.”

“ Nevertheless,” said Grace, “ geese and ducks are

both *Anseres*. I mean by that they are swimmers. Kenny, boy, will you let us sit down, and see your little goslings?"

"O, yes, mem," said Kenny, so pleased that they liked his pets.

"What do you know about the pretty goslings?" asked Grace.

"I feed them," said Kenny, proudly.

"What else?" asked Grace.

Kenny hung his head.

"Please, mum, he doesn't loike to talk much before strangers. When he gets acquainted he'll talk fast enough, to be sure, now."

"Well, perhaps *you* know something of their habits, Pat?"

"Sure, there is not much to know jist about a goose. I could tell you ten things about a bee or an ańty-mire—but a goose—I'd 'no though but she do hev some curious ways. I loikes to help Kenny hunt their eggs. It's great, big eggs they lay, and kiver 'em all up so they think you can't find 'em, and if they catch a feller afther their eggs they'll pounce upon him and flounder 'em with their wings—don't they, Kenny?"

"Yes," said Kenny, gravely. "They don't know we want the eggs to take care of 'em and gin' em back to 'em agin."

"You see," continued Pat, "most ivery good goose will begin layin' by Valentine's day, and it's too cold to lave them out. Me mither puts them in a basket with cotton all over, and keeps them in a warm place till the goose is ready to sit on them."

"O, they're all comin' out of the water!" exclaimed Rose. "I am doin' to catch one of the little dooses," and away she ran, stooping to take up one of the goslings. The next moment she gave a scream and let it fall, for an old gander had given a hiss, and stretched out his long neck after her.

"That's the little gosling's papa," said Kenny, as Rose buried her face in her cousin's lap. "He don't like you to touch his babies."

"I don't love 'im a bit. He might know I wouldn't hurt his little doslings," pouted Rose.

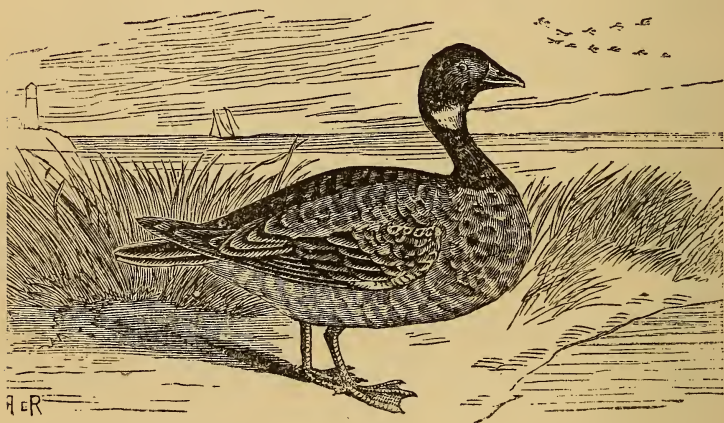
"Did you ever see a wild goose, Pat?" asked Grace.

"I hev. I've seen 'em fly over mony a time, great long strings of 'em, sometimes in the shape of a

letter T, sometimes loike a Y with a long tail, then, again, loike a V or a W."

"Indeed!" said Grace, "I thought it was *always* like the letter V."

"Oh, no mum. I've seen 'em many a time. They look loike strakes of silver against the blue sky they fly so high, mum."



"Do they always fly high?"

"Mostly; always when they are on their way down South—when they fly low it is a sign of a mould winter."

"Did you ever see them stop to rest?"

“ Yis, mum, but they're very skeery loike, always on the look-out. It's no aisy matther to catch a wild goose, mum.”

“ A 'wild-goose chase' is proverbial I believe; yet our tame geese originated from the wild geese.”

“ That so, mum? ”

“ Where do you suppose wild geese make their nests? ” asked Frank.

“ Down among sedges and coarse grasses in marshy districts, or on the banks of rivers and creeks. At least the snow-goose (*Anserhyperboreas*) does and the Canada or cravat-goose (*Anser-Canadensis*.) The Canada-goose is the common wild goose of the United States — a dark grey with a black tail, feet and bill. The snow-goose is pure white with deep, red feet and legs.”

“ Some of Kenny's geese are white and some grey,” said May.

“ Then Kenny has both species. There are several species, found in nearly all parts of the world. It was a good idea to domesticate them as there is no more useful bird, Their feathers and down are very valuable. We all know the luxury of a soft goose-feather-bed.”

"It's fun to pick 'em alive," laughed Pat. "You ought to see 'em squirm and writhe, mother a-wrapping their long necks tight in her apron, their under her arms, and then they looks so funny-loike runnin' off afther they are picked!"

"I think that's cruel," said May.

"Why, they'd shed their fithers if we didn't pick them, sure, Miss, and besides when the wither is so warm-loike they feel nice and cool afther they're picked."

"Cousin Grace, you said geese belonged to the duck tribe. Please tell us something about ducks too."

"Well take notes then."

The children got out their books and pencils, and Grace began.

"*Anatidæ*, the duck tribe, are an extensive family of birds of the order *Anseres* or *Natatores*; *Anseres* means *Swimmers*, *Natatores* an order of birds that are web-footed, with a thick coat of down under their feathers, an oily secretion covering their feathers which keeps them from getting wet."

"Sure, mum, and I've often wondered why you could never wet a duck," said Pat.

“*Natatores* are divided into eight families; *Anatidæ*, or ducks; *Alcidæ*, or auks; *Laridæ*, or gulls; *Sulidæ*, or gannets; *Plolidæ*, or darters; *Colymbidæ*, or divers; *Tachypediæ*, or man-of-war-birds; *Procellaridæ*, or petrels; *Phalacrocoracidæ*, or cormorants.”

“Whew!” exclaimed Frank, succeeding in getting the last-named family down after asking his cousin how to spell it for about the tenth time.

“Sure, mum, and it must be *Goose-Latin* you are afther teaching the children now,” laughed Pat.

“Goose-Greek, I guess,” laughed Grace, “from the Greek terminations all the words have.

“Please, Cousin Grace, I want to learn *Doose-drease*, too.” pleaded Rose,

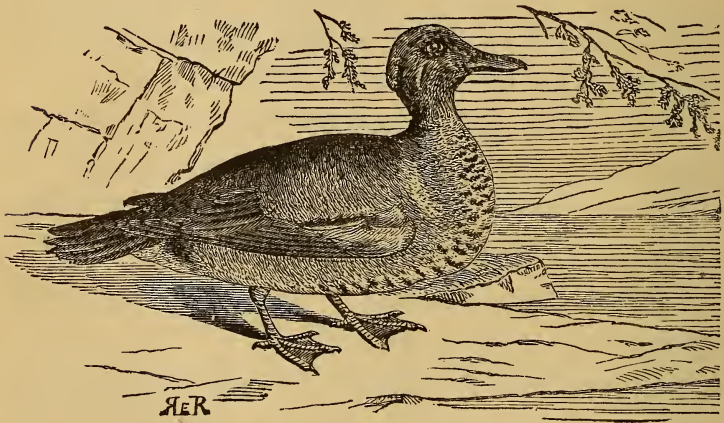
“Goose-grase,” roared Pat, rolling on the grass in his merriment, while the others laughed almost as heartily.

Poor little Rose didn't relish being laughed at quite so frequently, so she buried her face in the neck of her cousin's dress.

“We've got plenty of *goose-grase* in the house to be sure. It's illigant for croup or the sore throat. I hope the little darlint wont need it,” said Pat.

“I think you're real naughty to laugh at such a little bit of a girl,” spoke up Kenny.

Rose peeped at her defender slyly, and Grace resumed: “I knew a gentleman that used to be fond of hunting wild ducks. He had wooden decoy ducks that he used to put out on the water to attract

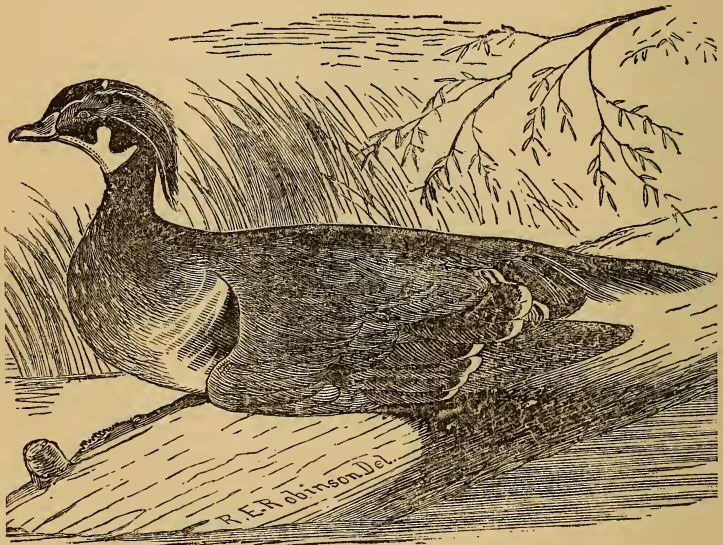


other ducks. Just how, I do not know, but he used to take a great many; but I never relished them much, they tasted fishy. But almost everybody is fond of them. There are a great many species of ducks. Among the handsomest is the green-winged seal. It is common to the temperate zones of

both continents. It feeds on seeds, aquatic plants and insects. It constructs its nest of coarse grasses, and lines it with feathers. The female takes the whole charge of her brood. Then there is the wood-duck, a perfect beauty, with green and gold, and purple and black, and sometimes white, in its feathers. It builds its nest in a hollow tree, often choosing the deserted hole of a big woodpecker. So naturally do ducks take to the water that almost the very moment they hatch, the little ones scabble to the edge of the nest, and if they see water under them they let themselves drop, daring little birds that they are! If the nest is away up high, then the old bird takes them up in her bill, one by one, and carries them to the water. They are crowned with a flowing crest, which I suppose the great naturalist, Linnæus, thought resembled a bridal veil, since he gave this species the title of *Spousa*, or the Bride. But the most beautiful of all the duck tribe are the swans. Poets have raved about their grace and beauty, and natural historians expatiated on it. There are several species of swans."

"Don't swans look like geese?" asked Frank.

“Yes, only the goose is clumsy and awkward while the swan is the embodiment of grace and dignity. The neck is much longer than the goose’s, and curved beautifully. There are the whistling swans, the mute swans and the black swans.”



“I never heard of a black swan. I thought they were all snowy white,” said May.

“In Australia, that greatest of all places to turn out strange birds, jet black swans have been found,

and some few captured and domesticated. The most remarkable thing about the whistling swan is its windpipe. It is formed like a trumpet, enabling the swan to utter a loud, clear note. The Icelanders compare it to the notes of a violin when heard away up above them in the air."

"Cousin Grace, is it true the swan sings the sweetest when she is dying?" asked Frank.

"So the ancients thought. But the tame or mute swan is unable to utter a sound, save a hiss on being provoked. The swan is able to swim faster than a man can walk, and when they are flying before a strong wind, proceed at the rate of a hundred miles an hour. They are also very strong, being able to knock a man down with a single stroke of a wing. They make their nests the same as wild geese and ducks, among the grass and reeds. The little young ones are called cygnets. The swan is said to live a hundred years.

"Now, children, what can you tell me about the duck tribe?"

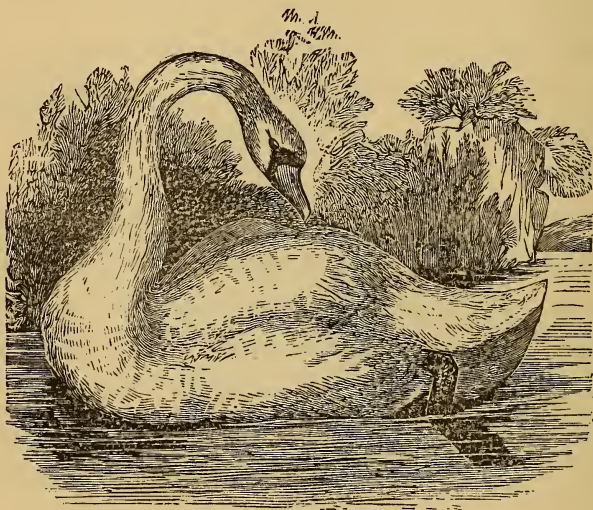
"I know they are *Oviparous Vertebrate* animals," said Frank.

"I know they are *bipeds*, two-footed," said May.

“I was just thinking whether they were carnivorous or herbivorous said,” Frank.

“Birds, like quadrupeds, are distinguished into kinds or classes, *graniverous* and *carniverous*.”

“Then the duck tribe are *graniverous*, as they feed principally upon grain,” said May.



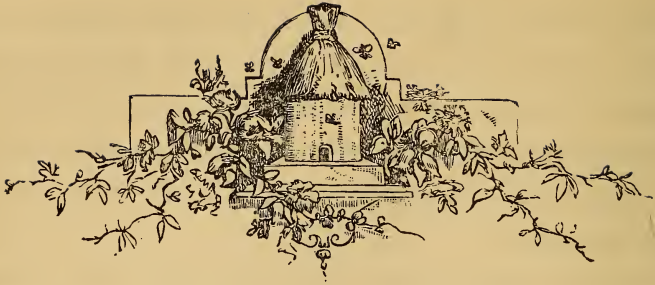
“Write this in your books: “Birds are divided into six orders, namely — *Rapacious* birds, *Passerines*, *Climbers*, *Gallinaceous*, *Waders* and *Palmipedes*, the latter being the same as *Natatores*. It is very easy to remember the word *Palmipede*, when we

think of its origin, for it comes from *palma*, the palm of the hand, and *pedes*, foot, and means broad-footed, having the toes connected by a membrane, just adapting the duck tribe for swimming."

"Pat, have you any chickens?" asked Grace, turning the subject.

"O, yis, mum, stacks of 'em, runnin' all around the barn and door-yard, sure, now. Will you go and see 'em, mum?"

"Not to-day, I guess. We will come, sometime, however. But we will eat lunch here, and you and Kenny shall be our guests, if you will. Then we must go into the wood to gather mosses."



CHAPTER V.

THE DUTCH WOMAN AND HER PETS.

“Don’t let us go and see Pat, to-day,” said May. “I know a little girl who lives almost out in the country, and I want to go there.”

“Very well,” said Grace, “you shall be the guide.” So May took Rose, while Grace and Frank walked behind with the lunch.

It was a long distance and little Rose soon became tired.

“Let us step in this shop and rest,” said Grace. “If we buy some of that molasses candy in the window, the old woman will let us sit down while we eat it.” So the children followed their cousin and stood beside her before the counter while she made the purchase.

“Can we sit down and rest awhile?” asked Grace. “Little Rose, here, is very tired.”

The old woman brought four chairs and the party sat munching their candy in silence until Rose broke the silence:

“Cousin Grace, what’s that?”

“What, darling?”

“Why, that noise. It sounds like a little wooster crowin’ down cellar.”

The old woman heard the little girl and answered: “Reeng-dopes! reeng-dopes!”

But none of the party understood her. She pointed behind the counter, saying, “Here dey are.”

They were all soon standing before a latticed box looking at two beautiful amber-colored birds with a ring of white feathers around their necks.

“Pigeons?” said Frank.

“Reeng-dopes, reeng-dopes,” repeated the woman.

“They are ring-doves,” said Grace. “We might know by the white ruffs they wear.”

“But they belong to the pigeon tribe, don't they?” asked Frank.

“O yes, they are a pigeon just as much as those which fly about the city that we see every day, only they are a different species. All our tame pigeons originated from the rock-dove—doves which live in rocks instead of among trees, and for whom man builds a wooden-box called the dove-cot. The rock-dove, *Columba-livia* is gray with changing hues of green and purple around the neck and throat. These are the first ring-doves I ever saw. How long have you had them?” asked Grace, turning to the woman.

“Most a year. They takes all de sickness from de house.”

“The what?” asked Grace.

“De seeckness. When I be in de old country I was seek mit de head-ache all de time. Got de reeng-dopes and I neper hab de head-ache any more.”

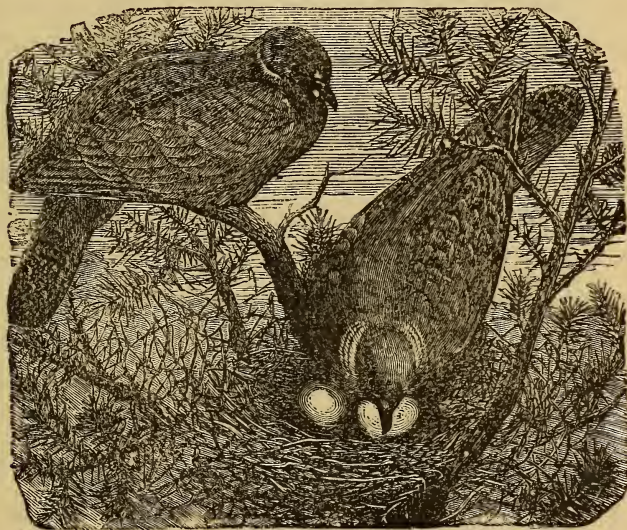
“Why, how is that?” asked Grace.

“I don't know,” replied the woman shaking her head mysteriously, “but it is so. When I was in

de old country I hab pains in me eyes, got de reeng-dopes and neber hab bat eyes any more."

Grace smiled, and then asked "Do they breed here?"

"Ya. Got some squaps out in de garden."



"What does she mean?" asked Frank.

"Squabs are young pigeons or doves."

"Coom dis way ant I shows you," said the woman.

The party, very much interested, followed the old woman.

“ I don't see how you can get ring-doves to breed in a box,” said Grace, “ for they live among trees, building their nest on boughs as a general thing.”

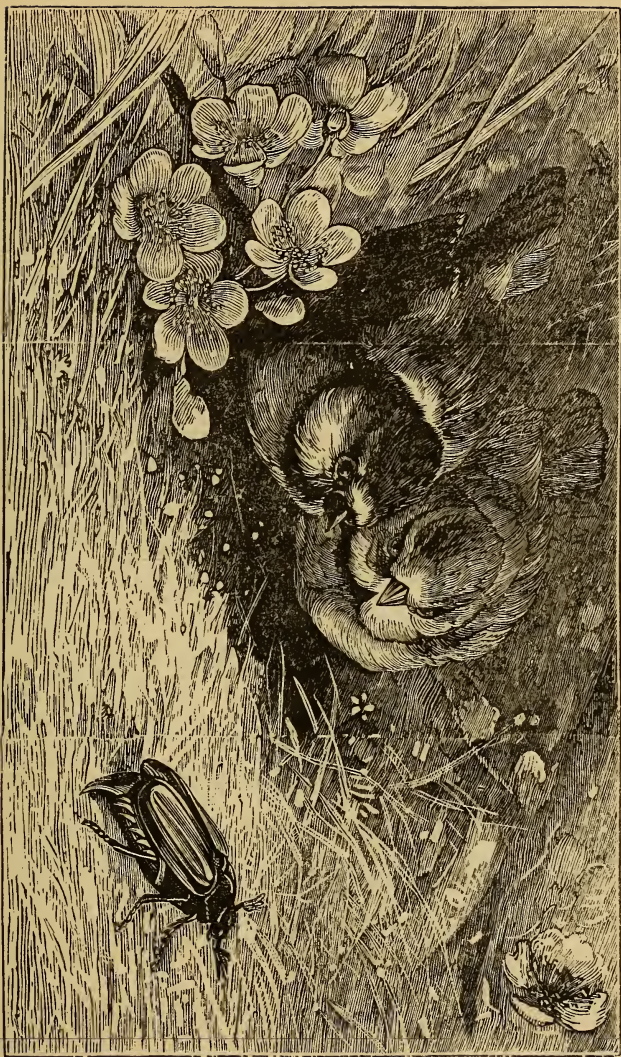
“ I did hab trouple at first, but after awhile dey comp out all right.” Parting some bushes, they beheld two fat little doves standing so close together their feathers mingled, and right before them, creeping slowly along as if entirely unconscious of danger, was a great green and bronze rose-chafer.

“ Looking for their breakfasts,” whispered Grace.

Rose pressed forward, her eyes round and big with intense surprise. The little birds were evidently holding a consultation as to whether the immense beetle was too large for attack. At last one little bird made a venture and pecked the beetle's hard-shelled back. But the beetle evidently did not like the idea of making a breakfast for two hungry little birds, so he stretched a pair of gauzy wings and with a loud “ hum-m ” flew away.

“ Poor little disappointed birds !” exclaimed Grace, taking the cover from the lunch-basket, and scattering a few crumbs before them.

“ Did you eper sees a peacock ? ” asked the Dutch woman.



LOOKING FOR A BREAKFAST.

“No, no,” cried the children. “Have you one?”

“Vell, comes dis way and I shows you.”

“I want to ask you a few more questions about the ring-dove,” said Grace. “I believe doves and pigeons never hatch more than two young ones at once?”

“No, ma’am, dey lays deir eggs in tree days and hatch dem in pifteen more. De pemale sets all night and te male in te tay-dime: but tey hab seberal broods in te year, because, you see, de old birds only hap to keep ’em warm tree days, and feed ’em den tays, then dey ish ready to dake care tem-selves.”

“What do the old ones feed their babies with?” asked Grace.

“While te hen ish settin’ her crop swells, and dere ish milk in her crop likes curd, and for tree tays she feeds de babies dis curd from her bill. Den after dat she gives ’em somefing else mixed mit te curd. Dat’s te way she feets tem, Miss.”

“Thank you very much.”

“Tere ish no one knows more ’bout pigeons and dopes dan I do. I have had lots of pigeons in my life-dime. Dere ish one feller, I likes to show ’im

but haven't got 'im now. He wash te pouter. He would get as proud as a puffed-up pull-frog, and fill his crops wit air until he looked as if he would purst, den te utter pigeons would get jealous and pick de pouter's crop to let te wind out, and den de pouter would die. Neber could keep a pouter, no way. Da ish too proud."

"Did you ever see a carrier-pigeon?"

"Blenty of tem in te old country. Te carrier-pigeon ish dark plue or plack, and you may always knows him py te pig ring of naked skin around his eyes. Dish is te way dey do it. A lady pays a visit to her frend who keeps carrier-pigeons. She tinks she'd like to sends her frend a letter right quicks soon as she gets home, so she dakes a carrier-pigeon and soon as she gets home mit it, she writes a letter and dies it unter te birt's wing, den lets te birt go. Te birt flies straight back to its home, and its meestrees gets de letter. Te carrier-pigeon can flies tirty miles in an hour."

At this moment the harsh screech of a pea-fowl was heard, and the party moved on to the bottom of the yard. There they found Mr. Peafowl, perched on the fence, his long, magnificent train of sparkl-

ing hues touching the very ground in its richness.

“O-h-h!” exclaimed little Rose, clasping her hands tightly, and almost holding her breath.



“O, I wish he would hoist up his tail like I’ve seen it in pictures!” exclaimed May.

“His train is *not* his tail, but a continuation of

the feathers on his back," said Grace. "If he would but lift up his cloak, you might see a row of stiff feathers sticking up all around for a tail. They also give support to his long train."

The Dutch woman then talked to the pea-fowl until he began strutting proudly, and at last raised his glittering, sparkling train, until it stood all out around his neck and head like an immense, a very great, immense fan.

"O, the beauty!" exclaimed May.

"He doesn't belong to the pigeon tribe, does he?" asked Frank.

"No, indeed," said Grace. "There are but four known species of peacocks. The common kind, such as we see here, came either from Asia or Africa. Then there is a species peculiar to China, another to Thibet, and another to Japan. You may hunt for those places on your maps to-night."

"He's not quite so proud in the fall when all his prettiest feathers comes out. You ought to sees him skulk out of sight as if he was ashamed mit himself, but in te spring he gets dem all pack prettier tan eber.'

"Can he see out of all his eyes?" asked little Rose.

“What do you mean, dear?” asked Grace.

“Why all his eyes on his tail?”

“O, they are only pictures of eyes,” said Grace.

“Did Dod paint ’em there?”

“Of course,” said Grace. “It is God who makes everything pretty.”

“I wish Dod would paint all little birds’ tails so.”

“If all the little birds were burdened down with such tails they couldn’t fly. The peacock can scarcely fly at all. When he wants to get up he has to climb. Now which would you rather have were you a little bird, a beautiful dress or be able to fly!”

“O, I should want to fly,” said Rose.

“Have you any little pea-fowls?” asked May.

“No, I ain’t got ground enough to keeps a flock. Den de male is always cross to his little birds. He kills dem ofden. Te female has to hide her nest, always.”

“We’ll not bother you longer, now” said Grace, as the sound of the bell on the shop door was heard.

The children’s minds were full of the peacock as they stepped out of the shop “Was there any other bird in the world so beautiful as the peacock?”

Then Grace gave an account of some birds-of-paradise she had seen at the Zoological gardens. " Ever so many years ago when the Portugese found the Moluccas, or Spice Islands, the natives exhibited the dried skins of birds, and so bright and glorious were they that the Portuguese were awed and called them ' Birds from Heaven,' and ' Birds of the Sun.' Afterwards other travelers thought they were remnants left of the Garden of Eden and so called them ' Birds of Paradise.' This name has clung to them, and it is a very appropriate one; for that Adam and Eve ever looked on more beautiful birds is beyond the imagination of man to conceive. Just imagine the forests of those islands which lie in the Southern Ocean between Asia and Australia, thronged with these beautiful birds, glimmering in crimson and gold! One of these birds called the ' king-bird ' is no larger than the crow, its body a russet brown, its head and neck yellow, its breast green, its crowning glory two long tufts of hair-like feathers, projecting from under its wings, just the color of the sun, almost too bright and glorious to look upon, and when the owner is in motion these feathers are raised up like the peacock's tail, over-shadow-



THE BIRD OF PARADISE.

ing the rest of its body. The nest of the bird-of-paradise has never yet been found, and this has given rise to many fables. Different writers report that these beautiful birds never touch the ground, that they roost suspended by their two long feathers to a tree; that the eggs are deposited by the female in an orifice in the male's body, where they are hatched. These stories are very absurd; at least I have seen these birds standing upon the ground my own self, and as for food, they are exceedingly fond of cockroaches, thus proving they are earthly. It seems that nearly all the grandest adjectives and richest superlatives in language have been heaped upon these birds of gorgeous plumage. One is called the 'greater bird-of-paradise,' another, the 'golden-bird-of-paradise,' another the 'superb bird-of-paradise,' the 'king bird-of-paradise,' the 'magnificent bird-of-paradise,' etc., etc. The skins of these birds are very valuable, being sent to all parts of India and Persia to adorn the turbans of people of rank. They are also sold to ornament trappings of horses.

"Now let us sit down under this great tree, and see if we can classify the birds we have been talking about this morning. Let us begin with the dove."

“All birds are *Oviparous Vertebrates*, so it is not worth while for us to repeat that any more, is it?” asked Frank.

“Not when you are speaking of birds, if you have it thoroughly fixed in your memory. But I believe I did not give you the meaning of the orders I mentioned yesterday, did I?”

“We went to the Dictionary with our words, and found out for ourselves,” spoke up May.

“That was right. I am glad to see you take so much interest. You are going beyond all my expectations, good children that you are. Then I suppose you both can tell me to what order pigeons and doves belong?”

“To the *Passerines*,” said Frank.

“They are *Gallinaceous* birds, it seems to me,” said May.

“Let us hear a reason from you both.”

“Why, *Passerine* birds have their bills of a conical form, pointed at the end, and the feet are formed for perching and hopping. More birds belong to this order than to any other.”

“Very true. Now, May, why do you think pigeons belong to the *Gallinaceous* birds?”

“ Because — because — well, because they run about so much, and seem like poultry, I suppose,” said May, hanging her head.

“ Well, let me tell you what a great naturalist says of the pigeon tribe, in general. He says it forms a connecting link between the *Passerine* birds and poultry; so that you see neither one of you are so very much out of the way. Now to what family of the *Passerines* do they belong? ”

“ *Columba* is the Latin word for dove,” said Frank.

“ Then they must belong to the family *Columbidæ*. To what order does the proud peacock belong? ”

“ To the *Gallinaceous* birds,” quickly replied both Frank and May.

“ And you may write down to the family of *Phasianidæ*.”

“ What is the meaning of *Phasianidæ*? ” asked the children.

“ The pheasant family; having the feet and legs bare, the male with one or more spurs, and the tail-feathers more than twelve.”

“ Birds-of-paradise are perchers, therefore they must belong to the *Passerine* birds,” said Frank.

“ Family *Paradiseidæ*, genus *Paradisea*.



CHAPTER VI.

KENNY'S CHICKENS.

A few days after, Grace and the children went to call on Pat and Kenny again, but they were nowhere to be seen on either side of the creek.

“Let us go up to the house,” said Grace.

As they drew near they saw bright-faced Kenny tugging along a great pan of warm chicken-feed, while his mother, with a paddle in her hand, stood calling: “Chick! chick! chick!”



KILBURN sc

KENNY'S CHICKENS.

“Sure, mum,” said Mrs. Ryan, “yees find me out with Kenny. It’s much pride the darlint takes in the biddys.”

Rose went on with Kenny and watched the chickens feeding with intense interest. A little chick pecked the nail of Kenny’s big toe, at which Rose laughed merrily.

“They think my toe-nails are grains of corn,” said Kenny.

“Aunt ’Rushy *does* have torns on her toes — I wonder if they’d eat them?” said Rose, gravely.

Kenny laughed then. He told his little play-fellow he didn’t think those were the kind of corns his chickies liked.

“Are your chickens named?” asked May.

“Course,” said Kenny straightening up. “One’s Top-knot, one Biddy, one Jennie and this one is Brave, and the very nicest hen in all the lot.”

“Why do you call her Brave?” asked May.

“Because she is, isn’t she, mither?”

“Can’t ye tell the leddies the story of the nine little chicks?” said Mrs. Ryan.

Kenny blushed prettily. “Mither says it is jist as good as a story in a book, and it’s true, ivery word.”

Grace whispered in his ear, coaxingly, a moment. After a little bashful hesitation Kenny began his story :

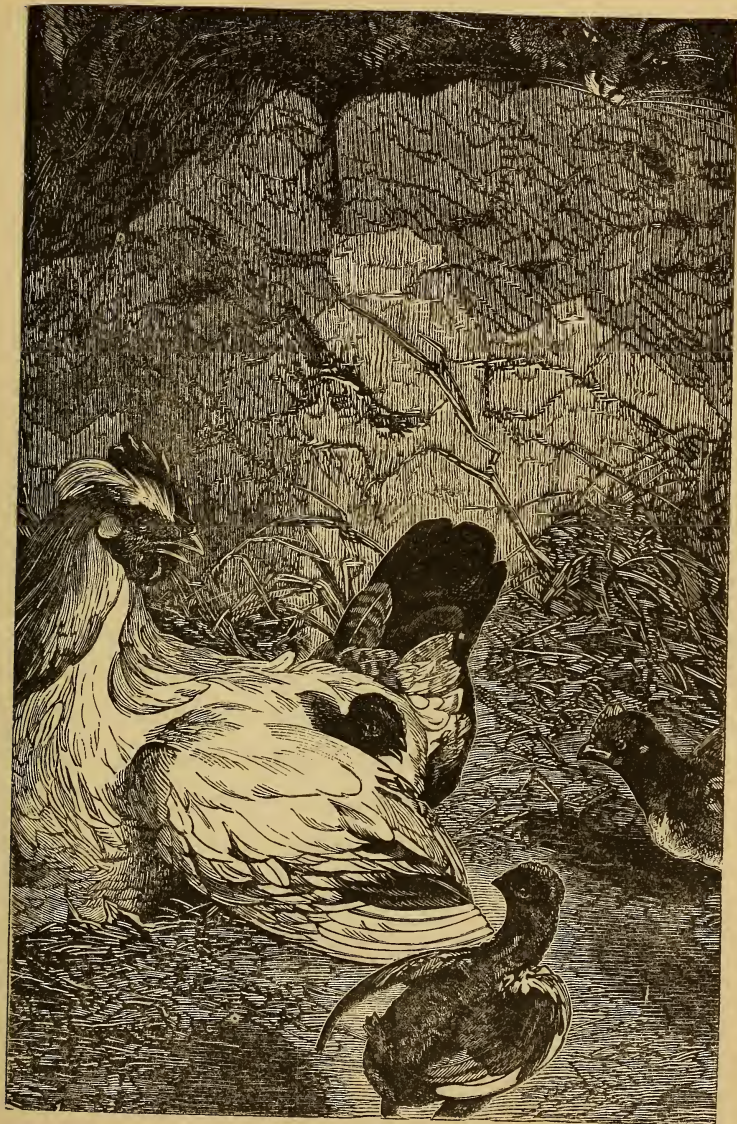
“ This old hen what’s name is Brave, looks like a rooster around her head, but she ain’t, niver a bit, because she lays iver so many eggs and has had iver so many chicks of her own, hasn’t she, mither ?

Mrs. Ryan nodded.

“ Well mum, Top-knot, the white one over there, has had lots of chickies, too, but she most always weans them before they ’re big enough to take keer of thimselves. Last spring, she had nine just as pretty chicks as you iver seed in yer life, and she hed a nice little coop all to herself, but, jist like hersilf, when they was only three or four weeks old she ran off to the great big hen-roost and left the little chickens all alone in the coop.”

“ How tould she ! ” exclaimed Rose, indignantly.

“ Well, she did it, any way,” continued Kenny, “ and the little chicks peeped as hard as they could, and ran to the roost and poked their little heads in at the door, and there was their mother away up on the roosting pole with the hens and roosters, and wouldn’t even so much as look at her



"TAKE US IN."

own little chicks; so they peeped the harder, and then ran back as fast as they could to their coop, and huddled up close together in one corner, without any mither's wings over thim at all. The next mornin', there was only four little chicks. Something had caught and eaten five of them in the one night. And, when the next night come the little chickens didn't know what *to* do, for they were so afraid to sleep in that coop any more; and, what *did* they do, but go to Brave and ask her to take keer of thim."

"O, are you sure, right sure, Kenny?" asked Rose, looking him straight in the face.

"Yis, because she was setting on a nest full of eggs of her own, and they went up to her and stuck their little heads under her feathers, and peeped as loud as they could. At first Brave didn't want them. She was afraid they might break her eggs, and then she wouldn't have any chicks of her own, and she tried to drive them away, but they coaxed and they cried the harder, until she saw a great, naughty cat watching out for them, and then she clucked two or three times and let them all get under her wings, and they wint to her ivery night and she kivered

thim up ivery time, until her own chicks were hatched, and by that time they was big enough to take keer of thimselves."

"A very nice story, indeed," said Grace, giving the little boy a dime.

"Can't ye tell the leddy anither story about Brave," said Mrs. Ryan.

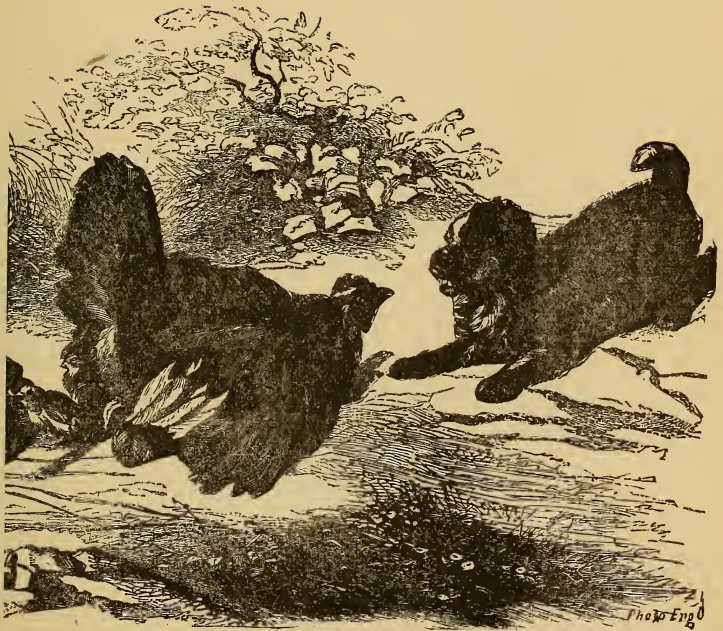
"At first, we didn't call her Erave, but the second time we thought she ought to hev some particular name to hersilf. There used to be a naughty little dog prowling around, and ivery time he saw Brave and her little chicks he would bark and scamper after them as hard as he could, just scaring the little chicks to death. Well, at last, Brave got tired of it and one day she pitched into the dog and give him such a whipping as he niver had in his life, before. He ran off yelping as hard as he could and niver come back any more."

"Hurrah for Brave!" exclaimed Frank, taking off his hat and waving it in the air.

"Huwah for Bwave!" echoed Rose.

"Don't the hawks ever disturb your chickens?" asked Grace.

"Some, and the owls, too. But they'd rather have



BRAVE AND THE DOG.

mice and rats when they kin catch 'em, mum; and there's plenty of the loike around to be sure," said Mrs. Ryan.

"Please, cousin Grace, tell us something more about fowls before going to hawks," said Frank.

"What more do you wish to know?" smiled Grace.

"Whether they are American birds."

"No; they came from Persia and India."

"It doesn't seem that anything with which we are so familiar, ever came such a long distance," said Frank, in surprise.

"It proves how highly valuable they are. There are riches in the business of raising them. Their flesh, as well as their eggs, common as they are, still remain a delicacy appreciated by all. There are several species. The common, or dung-hill fowl, seems to be a mixture of different birds. They belong to the order *Rasores* and to the family *Phasianidæ*."

"Why didn't you let us say it? We knew, for it is just the same as the pheasants," said May.

"Well, now let us turn to hawks again. You say the hawks and owls would rather feed on rats and

mice. You must have reference to the sparrow-hawk?'

"A hawk that's about a foot long, I should judge, mum. The breast-feathers is a yellowish-white, and its back, a dark brown."

"Yes, that's the sparrow-hawk. Some naturalists say that they never attack poultry."

"Yis, but they will. They'll eat a little chicken any day, if they can get it away from its mither. But I've seen them pick up rats and mice much oftener, though."

"Where do they nest?" asked Frank.

"In some hollow tree, usually. Sometimes they occupy a deserted crow's nest, and lay four or five eggs," said Grace.

"But isn't there a large hawk called the hen-hawk? I've seen them hover over a poultry yard ready to make a swoop, when some one rushing out and crying '*Shoo! Shoo!*' they would take themselves off as leisurely and sulkily as you please."

"If Pat wus here now, he'd tell yees all ye want to know," said Mrs. Ryan.

"Where is Pat?"

"Sure and it's meself don't know," Mrs. Ryan



SPARROW-HAWK.

replied, with a sudden frown, "That bye is the trial of me life."

"Why, what does he do so very bad?" asked Grace.

"Sure, mum, he fills the house with live craythurs! He brings black ants into the house to put on Kenny to make him scream, 'an he brings in bees an' wasps 'an first I know they are in me bread-risin'! an' he brought in owls to hoot the life out of me! an' some swallows to fill me bads with bad-bugs! and to-day I found some ear-wigs and thousand-legs! Sure, there is niver a bug in blissed old Ireland, thanks to the howly St. Pathrick; and what the bye is thinkin' of, or who he takes afther, I can't tell ye, sure! I narly bate the life out of him and it does no good, mum!"

"Can't you in some way let him have his course? Pat seems to have an inquisitiveness, that if well trained, may make a remarkable man of him," said Grace, very seriously.

"Sure, mum, and I think the less one knows about bugs and snakes and the likes, the better it is for him! But come in and rist a while and bring the childthers."

Grace accepted the invitation, and Mrs. Ryan continued: "He's the plague of me life, sure, mum! an' sure, mum, and me little bye Kenny is a light to me eyes and a joy to me heart. Pat says he wants to go to sea, and good luck go with him, I say!" — Here the conversation was interrupted by Pat appearing in the doorway.

A glad shine filled his eyes when he saw the visitors.

"Sure, and I'm glad to see ye," he exclaimed. "I've been stuffin' some birds, mum, and if mither'll let me take you up-stairs I'll show them."

"And sure it's meself that doesn't keer, but you'll find it a dirty place, mum. It's there he goes with all his live craythers."

"We were talking about hawks as you came in, Pat. Can you tell us anything?" said Grace.

"If ye'll come here to the window I'll show ye a fish-hawk's nest. It's clane two miles away, mum, and ye can see it plain."

"O, O! Where, where?" cried the children.

"Away yonder on the very tallest tree of the woods. Don't ye see something black on the tree, mum?"

“Why, isn't it remarkable that we can see it at such a distance?” said Grace. “But I certainly do see it.”

“Sure, mum, and ye ought to see it, for there's a wagon load of sticks in that nest, and some of them, the foundation of the nest, are as long and thick as bane-poles. That same nest has been on the top that same old tree for years and years, and the last time I was close to it the female was there with her little ones, and the male was carrying a great big fish up to the nest, while the black-birds gabbled and gabbled as they flew in and out of their places.”

“Where *were* the black-birds?” asked Grace.

“Why, mum, the fish-hawk's nest is five or six feet in height, and the sticks are interwoven with corn-stalks, straw and leaves, and it is so large that the black-birds just build their nests all around on the sides. There are plenty of holes between the sticks, mum, and all the black-birds have to do is to just line them with hay and horse-hair.”

“I should think they'd be afraid of such a big bird as the fish-hawk,” said Frank.

“Most small birds are afraid of large birds like the hawks and eagles, to be sure; but the black-bird is a

saucy little fellow — he isn't afraid, not he! and the hawk never interferes with him — I've watched out for some such thing, but he don't."

"Do you ever see the fish-hawk catch a fish?" asked Grace.

"Mony a toime. He flies around and around above the water, moving slower and slower, till, he only seems to keep himself up by just flappin' his wings. Thin all to once he shoots down into the wather, and comes up with a big fish in his claws, shaking the wather from his feathers, and screaming as hard as he kin."

"What does he scream for?" asked May.

"Bekase he wants his wife and children to know he's coming with breakfast, I s'pose. But, sometimes, the bald-headed eagle hears him, and comes to breakfast, too. Away he puts after the hawk, an' the hawk fights, but he generally gets tired out, and has to drop the fish, and then the eagle pounces down and grabs the fish before it reaches the water."

"What does the poor hawk do then?" asked Rose.

"O, he has to catch another one."

"Hasn't the eagle dot *any* fevvers on top of his head?" asked Rose.



QUEER NEIGHBORS.

"Yis, to be sure; but they call him bald-headed because the feathers on top of his head are white."

"I should fink they ought to call him *drey-headed*," said Rose, seriously.

"How does the fish-hawk look?" asked Frank.

"Well, he's about two fate long, and when his wings are spread I think they would measure nearly five fate from tip to tip. The upper parts of his body is a mixed reddish-brown, while the lower parts are white. Then he has a rough, shaggy foot with long hooked nails."

"It is sometimes called the *Osprey*," said Grace, "and belongs to the family *Falconidæ*."

"I'll write that down," said Pat. "An' now, I'll show ye me owls. I found a nest, and I brought the old owl and four young ones home with me, and mither wouldn't let me kape them because she heard them hooting in the night, and said they would be getting out and ating the chickens up, so I killed and stuffed them."

"Who taught you to stuff birds?" asked Grace.

"Sure, mum, and I went to a taxidermist's. He let me help him skin birds, and one thing or another,

until I was sure I could stuff one all meself, and so I have, mum, several, and they look rale nateral."

"What kind of owls are they?" asked Frank.

"The common barn-owl. I found the nest in a hollow tree, which grew close up to an old house.



Two boys found them first, though, and took two of the young 'uns off with them. But the two homesick babies disappeared in the night, and the boys went back to get some more next mornin', and,

mem, the very same birds they had taken home with thim the night before was back agin, snug in their



nests! The boys were just goin' to take thim home agin, when a large owl came out of the ruined

house after the boys, with such a flappin' and hootin' they dropped the little ones and ran. I didn't say anything when they tould me, but I wanted to know about owls, mum, so I made up my moind I'd hev thim young birds and their mither, too, along wid 'em to kape 'em content, an' I did, the same day. The old owl I stuffed as a present for you, mum, but the young owls are so comical, mum, that I've made a glass case for thim for mesilf. I want mither to hev 'em on the settin'-room table, but she wont,"

"You have mounted this owl beautifully," said Grace. "I shall put it a-top of the bookcase in my room, and a thousand thanks to you, Pat."

And then they looked at the little owls in the glass-case. Grace laughed heartily.

"But how is it, Pat, the owls are not all of a size? I thought you said they came from the same nest."

"And they did, mum. Afther two or three of her children are hatched, the old owl often lays some more eggs, and they hatch out because the feathers of the young owls keeps them so warm, mum. The taxidermist tould me that, mum."

"I wish I had one of 'em little howls," said Rose.

"Sure, Rosie dear, and that would be a corriect

name for the hooting craythers," laughed Pat. "I'll give you a prettier bird than these before ye go home."

"What do they have such awful big eyes for?" asked May.

"So they can see better, of tourse," replied Rose.



"No, Rose, notwithstanding his immense eyes, the owl can see scarcely at all in the day time. He has to creep away in the dark all day long, and then come out at night after his rats and mice, for then is it he can see perfectly. You remember when we

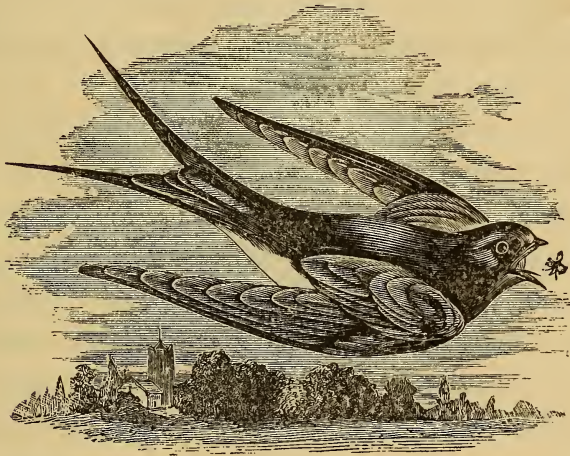
were talking about cats I told you all animals have the power of contracting or dilating the eyes to some extent, just as their necessities require; but to no creature is this power so largely given as to the owl. In fact, the head of an owl is much like that of a cat. There are about fifty species of owls. In winter they sleep the time away in holes of trees or in very old buildings. They belong to the order *Raptores* which includes all the nocturnal birds of prey, and to the *Strigidæ* family."

"Here is a chimney-swallow, mum," said Pat.

"I suppose you caught that when it fell down the chimney?" said Grace.

"No, mum, for it's not the big birds that fall often, and if they do they fly up right away; it's only the nests and young birds that fall sometimes, during damp weather. I'll tell ye how I got this bird, mum. Farmer Hough, where I works, has a lightning-rod on his best chimney. The swallows seem to know that the parlor is shet unless there's a weddin' or funeral, an' ivery spring when they come back, before they've paired off like, they make that chimney their home; hundreds of 'em, mum, and I've often sat in the barn-door watchin' 'em

come out in a long string just about sunset, as if for a good airing afther being shut up all day in such a smoky place, but the most fun is watchin' thim go back down the chimney. A hundred of thim, or more, commence by flyin' in wide circles around the mouth of the chimney, a long string of swallows



a-windin up round and round, and if any in the line miss the mouth of the chimney, they go back and join the circle and try it over agin, and the fewer there are left, the harder it is for thim to sail straight for the hole. I've often seen three or four of 'em tryin' to hit it late as nine o'clock, mum. Well, one

night, mum, when the long string was passin' down the hole one of 'em brought up with great force on the point of the lightning-rod — speared sure as anything. Mrs. Hough and the girls come out there, and we had a long ladder put up, and I went up there to bring the bird down; but it was clane dead, the point of the lightning-rod clane through it from breast to back. Nobody seemed to care about it, so I kept it and stuffed it."

"When they come out at night," said Grace, "it is not only to air themselves but to seek food, which is always insects. They suck these into their throats while on the wing. I, too, have been amused in seeing them pass down a chimney. Where there is no chimney, they always choose a hollow tree, but they prefer chimneys, because the sides form a better foundation for their nests which are made of small sticks glued together with the bird's saliva and a sort of sticky stuff secreted in two glands on the sides of the head. These nests they attach to the side of the chimney wall. Besides, they are then safe from birds-of-prey. They lay about four eggs and raise two broods during the season."

“When I heard them in the chimney I used to think it was thundering, until mamma told me,” said May.

“They belong to the order *Insessores*, and to the family *Hirundinidæ*.”

“The next one I hev,” said Pat, “is a sparrow. It fell from its nest and got hurt, so I thought I’d bring it home to Kenny for a pet. It got so it could fly about all around the house. But one day



it got scared, and tried to fly through a window-pane, but the shock was too much for it, or else the poor little thing’s heart was broke, for it fell back to the floor, stood a moment, then threw back its little head and just died.”

“Poor, poor, little thing!” said Grace taking it up tenderly in her fingers.

"We've seen lots of sparrows," said May. "The city is full of them."

"Isn't it strange how they adapt themselves to any home? But they are a bold, crafty set, and do not seek the residence of man because of any particular fondness for him, but for the advantages such places offer by way of food. The sparrow is a European bird, and has lately been introduced to this country. It belongs to the order *Incessores*, and to the family *Fringillidæ*. The finch and sparrow family feed chiefly upon grain and seeds, according to the farmer, but naturalists and all keen observers know they destroy enough and more insects to make up for all the grain they eat, and it is the same with most other birds. It has been estimated that a pair of sparrows, in a single week, while they are feeding their young, destroy about three thousand, three hundred and sixty caterpillars."

Pat now brought out a tiny glass case, carpeted with moss, with two little birds mounted side by side on a stout twig, and made to look as if both were about to seize a snail that was half-buried in the moss.

“Beautiful!” said Grace.

“It’s for Rosie,” said Pat, proudly, “and ’m goin’ to try my hand on stuffin’ a pair of squirrels, and if they’re nice, they’ll belong to Mister Frank and Miss May.”

The little natural history class thanked Pat in a body, and then they took their books and wrote :



“ Domestic fowls of the order *Rasores*, family *Phasianidæ*. Hawks of the order *Carnivora* and the family *Falconidæ*. Owls, to order *Raptores* family *Strigidæ*. Swallows, order *Incessores*, family *Hirundinidæ*. Sparrows, order *Incessores*, family *Fringillidæ*.



CHAPTER VII.

PAT AND THE WASPS.

The very next time the children were out they came across Pat again. He hastily concealed something in his pocket as they drew near, and met them with a broad, good-natured smile.

“ I believe you *live* in the woods, Pat, don't you ? ” said Grace.

“ Much of the toime, mum.”

“ And what have you found this morning ? ”

“Nothing much,” he answered, yet with a look of mischief in his eyes. But presently he drew a tin box from his pocket. “Don’t you want to see what I’ve got in there?” he said to Rose.

The little girl who naturally trusted everybody was delighted. Quickly pulling off the lid before Pat could prevent her, her lap was covered with red wasps, one great big fellow alighting on her chubby bare arm. A piercing shriek rent the air, and the child sprang up shaking her clothes violently.

Grace tried to scold, and Frank and May jumped about crushing the wasps under their feet. Frank was very angry. “See here, Pat Ryan,” said he, “if you *ever* do that again I’ll give you a good lickin’!”

At this, Pat rolled over on the grass, and laughed.

“I am surprised you should be so rude to such a little girl,” said Grace, taking the terrified child in her arms, and assuring her that every wasp was gone.

“You might have frightened her into fits,” frowned May. “If just one of them had stung her, I don’t know what she would have done.”

Then Pat explained:

“But they couldn’t hev stung her, for I pulled the stings out of ivery last one of ’em. But still I didn’t mean to let ’em out on her.”

“You dought to told me,” said little Rose, pouting.

“I hev some in another box, with the stings all in, the varmint! I’m goin’ to tek ’em home and scare Kenny!”

“Please don’t be such a vexing boy,” said Grace. “Tease yourself with them, if you must tease anybody.”

“But I ain’t afraid of ’em. I kin pick up a live wasp any toime, and he’ll niver sting me a bit. Would you like to see me take the stings out?”

“No, I’d rather see you kill them outright,” said Grace, firmly.

But Pat opened the other box and let a wasp slip to the ground.

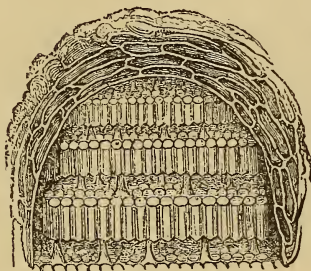
“Now,” said he, “see me pick up this wasp and without it’s iver stingin’ me!” He took up the wasp in the palm of his hand, closed his fingers over it, at the same time drawing in his breath and shutting his lips. He held it for several seconds, then put it back into the box. And then he looked around like a young Rarey.

“Where did you get it?” asked Grace, taking it in her own hands.

“Sure, mum, and hev n’t I jest been afther destroyin’ a wasp’s nest? It was right in that bush there, an’ how mad they all was,”

“What do wasps make their nests of?” asked Grace. “Haven’t you ever watched them building?”

“Many a time. It seems to me they chaw up fence rails and mix it up into paper.”



“I have watched them,” said Grace. “A mother-wasp starts out all alone for herself. In fact, none of the wasps survive the frosts of winter save the queen wasp. She has found a hiding place where she has lain torpid, but as soon as the bright spring sun has warmed her she crawls out and begins forming a new colony. First, she scrapes old fence-

rails with her teeth, and gnaws off the fibres from plants, then, mixing these substances with the saliva in her mouth, she begins the foundation of her nest. The first chamber is about as large as a thimble with the opening hanging down so that she can pass in and out. Then she begins at the top again and lays another covering of paper over the first. When she exhausts the supply of paper in her mouth she flies away for more, and as she often alights on pieces of paper I judged she as lieve find her paper ready made; but on examination I find she chews the paper and makes it over. The second paper shell is about as large as a quail's egg, the third as large as a hen's egg and so on, until the whole structure is about as large as a goose egg. Then she tears down the partitions inside, excepting two or three, and then builds it full of paper cells, all the cells opening downward. You can see these cells in this section of the wasp's nest which Pat has furnished us. In these cells she lays her eggs. As soon as they are hatched she has the grubs to feed, their cells to enlarge, more cells to make, and more eggs to lay. The little worm-like grubs are very helpless, being destitute of feet. When they become

grown they stop eating and spin a little silk sheet over their cells. In these retreats they change from grubs to *pupæ*—called *pupæ* because they look somewhat like a babe in swaddling clothes. As soon as they get their wings and become perfectly formed wasps they break their way out and immediately go to work. As among bees, all the wasps that are first hatched are neuters, or workers. The queen wasp feeds the grubs with flies. Perfectly formed wasps are fond of honey, sugar and fruit as well as of many kinds of smaller insects.”

“How many kinds are there?” asked Frank.

“Several. There is the hornet, the yellow-jacket wasps that build on trees, wasps that build underground—then there is the mud wasp.”

“I hev seen ivery one of them,” said Pat. “The hornet is the crossest of all. I loikes the mud wasp best for he hardly iver stings,—and I loikes to see ’em go down to a gutter, get his mouth full and fly back to a garret where he builds his mud nest fast to the roof. Sure, and I’ve often broke ’em open and found ’em full of fat spiders!”

“Yes,” said Grace, “to feed the little grubs with as soon as they are hatched.”

“What kind of a nest does a hornet make?” asked Frank.

“I’ve a hornet’s nest up to the house as large as a wash-basin, most, and it’s paper like the red wasp’s nest.”

“Do bees belong to the same family as the wasps?” asked May.

“Not to the same family, but to the same order. *Hymenoptera* of *Articulata Insecta*.”

“What is *Hymenoptera*?” asked May.

“It comes from *hymen*, a membrane; and *pteron*, a wing. *Hymenoptera* are characterized by having four membraneous wings; that is, all the females possess four wings, but in some of the families the neuters have more, ants for example.”

“Do any ants have wings?” asked May.

“O yes, the females have four, the males, two, but the neuter, or workers, have none. Now among bees both the males and females have four wings each, while the workers have but two.”

“Tell us about the honey-bee! I loikes to hear about insects,” said Pat.

“The bee belongs to the family *Apidae*, and the wasps to the family *Vespidæ*. *Apidae*, is from the

Latin word, *Apis*, bee. *Vespidæ*, comes from the Latin word *Vespa*, wasp. Naturalists have been interested in the study of bees for more than two thousand years, yet are still learning something new. There are a great many kinds of bees: the *Andrenidæ*, for instance, a family of *Hymenopterous* insects, differing from the *Apidæ* in having shorter proboscides."

"What are 'boscides'?" asked little Rose.

"The little tongues or bills that bees eat with. Haven't you ever seen the fly eat sugar?"

"The 'ittle flies got trunks like elphants?"

"Somewhat."

"Again, the *Andrenidæ* do not live in societies like the *Apidæ*, but only as males and females, forming their nests in the ground."

"I have seen them many a toime!" exclaimed Pat.

"Take notes now, while I am talking. There are the *Melectidæ*, *Megachilidæ*, *Panurgidæ* and *Scopulipedes*. *Melectidæ* or cuckoo-bees, are parasitic, making use of the nests of other bees. *Megachilidæ*, or mason and upholsterer-bees, embrace a number of species. Among these the genus *Anthocopa*, or the

tapestry-bee, forms its nest of bright colored flowers, the poppy being predominant; the species, of the genus *Megachile*, form their nests in the trunks of decayed trees lining them so accurately with leaves that they are honey-tight. *Panurgidæ*, or solitary bees, are very little known, but much resemble the *Andrenidæ*. The *Scopulipedes* are named from the females, having their hind legs covered with a thick coating of hair. Among these are the carpenter-bees and the *Xylocopa*, which tunnel into posts and palings, and then there is the good old-fashioned bumble-bee. But the most important of all the bees is the *Apis-mellifica*, the hive-bee. A whole volume might be written on this little insect. I will, however, speak of the structure of the hive-bee. Instead of having a little trunk, or sucker, to suck up his food like the flies, he has a long, hairy tongue and laps up his food. He laps honey from flowers, and then swallows it into his nice, clean honey-bag, where it undergoes but little change before he disgorges it into the nice little waxen cells he has already constructed in his line. The pollen which he gathers from big yellow flowers he kneads into a dough mixed with the saliva of his mouth, and

when this is found among honey it is called bee-bread, and is quite ugly to the taste. By some internal process, wax oozes out between the little bee's abdominal wings—those under his stomach. It is from the honey that the bee retains for his own nourishment, that the wax is formed. There are three kinds of creatures among bees, same as among wasps; queens, drones and workers, When the queen-bee is laying her eggs, she has twelve attendants, who feed her with honey, and often caress her by lapping her *antennæ*, her mouth and eyes. You might almost think, these faithful little worker-guards were encouraging her with kisses. For nearly a year the queen lays eggs that will produce only drones and workers; after that she lays eggs that are to be queens. If the queen-bee in a hive should be destroyed before she has laid any eggs to produce queens the workers hasten to the cells that contain eggs of workers and break three of the cells into one, a single egg being allowed to remain in the bottom. As soon as this egg hatches the workers feed it with royal bee-bread, which is never fed to any of the maggots save those which are to make queens, The little

bee-maggots undergo the same transformation as is common to wasps, and which I have already told you about."

"Sure, now, and if I ever heard the like about a bee before!" exclaimed Pat, his eyes sparkling with the interest he felt.

"Don't bees sometimes escape from their hives and go to the woods and make nests?" asked Frank.

"When there comes a new queen, the old queen leaves with the most loyal of her subjects, and if there is no empty hive prepared for her she goes to the woods. Indeed, her natural state was to construct her nest in hollow trees; but the hive-bee is now pretty well domesticated."

"Cousin Grace, I know a lady who has several hives of bees and they will let her or any of the family, pick them up; but if a stranger touches them they are sure to sting. Isn't that queer?" asked Frank.

"The bee is very sagacious. It is said that there is an odor about some people that they detest, while others can approach them boldly, even in the wild state, and not be stung. A man whom the bees seem to recognize as a friend, may go up to a hollow

tree and take his hands full of honey, the bees surrounding and covering him yet not offering to sting, while his friend must stand with folded arms in the distance, not daring to approach."



"All this from the wasp's nest Pat had in his pocket," smiled May. "Pat, have you anything more?"

Pat laughed and thrust his hand into his pocket and drew out a large pill-box in which he had a locust confined.

“Ugh!” exclaimed Grace, “I have seen so many of them west that the sight of one makes me shudder!”

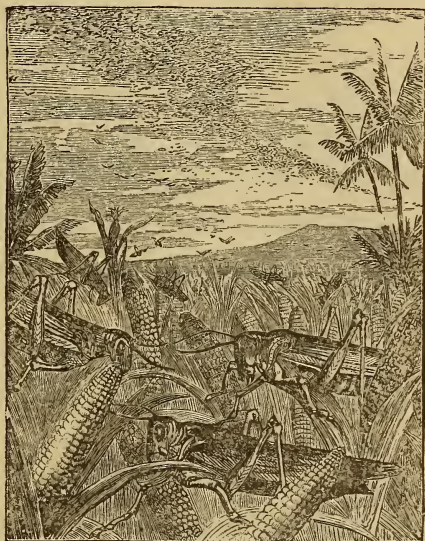
“Will ’em bite?” asked Rose, nestling closer to Grace.

“Not you, pet—but oh! if anybody had seen the ripe, golden corn-fields covered with them while the whole air was black with more coming in the distance, I think they would shudder with me. It meant death by starvation, unless some outside aid reached us.”

“I thought it was the grasshopper that was so troublesome out west?” said Frank.

“Locusts and grasshoppers are so much alike that few but naturalists know the difference. They both belong to the same order—*Orthoptera* from *Orthos*, straight, and *pteron*, wing: *Orthoptera*, straight-winged. Both have the same general shape, both take long leaps. The difference in looks seems mainly in the *antennæ*. The *antennæ* of the locust are short, and project in front, while those of the grasshopper are long and folded back, reaching even

beyond their long hind legs. Both locusts and grasshoppers deposit their eggs in the ground— These eggs remain until spring, when they are hatched; the little locusts and grasshoppers being at first no larger than gnats. However, the grasshopper attains its whole growth in one season, while



the locusts are three years in arriving at maturity. They do not undergo the change so common to most of the insect tribe, but come forth perfect little locusts and grasshoppers, excepting wings. They keep continually changing their skins as they grow

larger, at the same time their wings becoming more and more prominent. They are very greedy, and as soon as they have consumed all that is green around them, fly away in search of more food, leaving blackness and desolation behind them."

"The ugly baste! but I'll fix him as soon as I gets home, to be sure. I'll stack a pin clare through his body and that 'll be the last of him, mum!"

"If anything must be destroyed, do it as quickly as you can," said Grace, "and without torture."

"Sure, mum, and didn't I see lots of butterflies and beetles and the loikes at the centennial, an' ivery blissed one of 'em with pins stickin' through 'em. Sure, mum, I did."

"Those were all quickly killed with a drop of chloroform applied to their heads before the pins were stuck through their bodies, Pat. Why, just imagine how you would feel with a great nail stuck through your body, fastening you to a board — and while you are alive."

"I'll buy the chloroform," said Pat.

"Are you making a collection of insects?"

"I've got lots of 'em at home, but they don't look foine as those I saw to the centennial."

“Did you earn enough money yourself to go to the centennial?” asked Frank.

“Sure and I worked the corn all summer for Farmer Hough, for that same thing. It was a long time before mither would let me go. An’ that was the grandest sight I iver saw in my life, mum. It was loike a new world to me, mum, and I wished I’d never to go home.”

At this moment Pat saw an ant-lion, and throwing a stone with sure aim, he brought it to the ground.

“I hope it will sting you,” said May, as Pat took the writhing form up in his hand.

“It has no sting,” said Grace. “But see how you have hurt it, Pat. How can you bear to harm so beautiful a creature as the ant-lion?”

“An ant-lion!” said Frank. “I thought it was a dragon-fly.”

“It does look like one. In fact both insects belong to the order *Neuroptera* from the Greek word *Neuron*, nerve and *petron* wing, *Neuroptera*, nerve-winged. Some call them net-winged, and others lace-winged, for see how like net and beautiful lace are its wings. Let us hunt around here in the sand and see if we cannot find some baby ant-lions.”

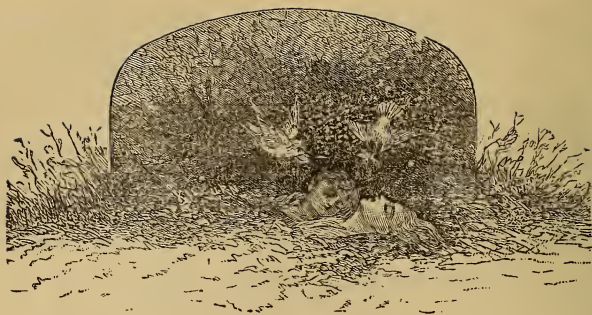
“ I thought it was like the mosquito and laid its eggs in water,” said Frank.

“ You are thinking of the dragon-fly. This is the ant-lion or *Myrmeleon* from *myrmos*, ant and *leo*, lion. He is called so because he feeds extensively on ants. It is interesting to see the larvæ obtain their food. The ant-lion deposits her eggs in the sand. As they are hatched the little maggot-like creatures scoop out tiny pits about two inches deep, in which they lie in wait with open jaws to devour any insect which may tumble down into their pits. If the insect tries to scabble back, the little fellow throws sand after it, brings it down again; then it sucks the juice and throws the body outside. The larva remains in this state for two years, after which it makes a cocoon of sand lined with silk, and after three weeks comes out a perfect insect. There are two ant-lions, now. Let us search around on the ground for some of the little fellows' pits.”

“ I have found one,” she soon cried. “ Your pen-knife, Frank, and we will explore this ant-trap.”

The exploration proved such a grand success that the children were obliged to make their notes on their way home:

Wasps: *Articulata-Insecta*; order, *Hymenoptera*, membrane-winged; family, *Vespidæ*, wasp-like. Bees: *Articulata-Insecta*; order, *Hymenoptera*; family, *Apidæ*, bee-family. Locusts: *Articulata-Insecta*; order *Orthoptera*, straight-winged; family, *Locustidæ*, locust-like. Ant-lions: *Articulata-Insecta*; order, *Neuroptera*, net-winged; family, *Myrmeleon*.



CHAPTER VIII.

MORE ABOUT INSECTS.

“See what a nice butterfly!” exclaimed little Rose rushing into the house the next day. “I want a ‘wonder-talk’ about it! “Where’s Tousin?”

“O Rosie, you’re going to have a new dress! See the worm measuring off the yards!” laughed May, calling the little girl’s attention to a long slender worm which was slowly moving over the sleeve of her dress. First, it would plant its six fore legs



BUTTERFLIES.



firmly down, and then draw up its four hind feet directly after its fore feet, thus forming a high loop in the middle of its body, this portion being destitute of legs.

“Take it off!” said Rose, shrugging her shoulder.

“It won’t hurt you, besides, Rosie dear, they say it is a sign you’re going to have a new dress. We’ll go and show the worm and the butterfly to Cousin Grace,” and away the little girls ran for a “wonder-talk.”

“Two very interesting subjects,” said Grace. “Go after Frank and then I am ready.”

“In the first place,” said she after Frank came, “this is not a butterfly but a moth.”

“A moth!” repeated May. “I thought moths were little bits of creatures, and ate our furs and woolens.”

“Moth is a name given to a numerous division of *Lepidopterous* insects, embracing some of the largest insects of this order.”

“What is *Lepidopterous*?” asked May.

“It comes from the Greek words *Lepis*, a scale, and *pteron*, wing. All butterflies and moths have their wings covered with scales. They are easily

discernible with a microscope. Even the little measuring, or span worm, on Rose's dress, is but the larva of a slender-bodied moth with large wings and tapering *antennæ*. I will tell you how you can tell a moth and a butterfly apart. The horns or *antennæ* of the moth are almost always comb-shaped, branching out like two beautiful feathers from the top of its head, while those of the butterfly are not so handsome, being simply little tubes terminating in knobs; and the wings of the butterfly, when at rest, are folded back, while the wings of a moth droop down."

"Tell us all about the little measuring worm, won't you?" asked May.

"It lives among the leaves in the trees. When it wants to get down it spins a web like a spider and lets itself swing. Sometimes it will ascend by the same thread. When it is time to undergo its transformation, these little worms let themselves down to the ground, and creeping in the earth form the cocoons in which they are to remain a short time as chrysalids, before emerging as a perfectly-formed, graceful little moth.'

"What kind of a moth is this white one Rose has

found?" asked May, taking it up in her hand. "See what a long tongue, coiled up under its chin like a piece of rope!"

"It belongs to the family *Sphingidæ*, the hawk-moth family, and were you to see the tongue uncoiled



you would find it a great deal longer than the whole body of the insect. It feeds on the honey of trumpet-shaped flowers, and then is it that it uses its tongue uncoiled. The caterpillar, or larva of this

moth, is a large, thick, light green worm. It has sixteen pairs of legs, and is remarkable for the *Sphinx-like* attitude it will maintain for hours together, getting its name from this fact. It grows to the length of three or four inches and has a short horn on the last ring or segment of its body. It feeds on potato vines, and at the close of summer enters the ground and becomes a chrysalid, with a tube, like a pitcher handle, projecting from the head to the breast. These pupæ may be found on digging in any potato-patch at the close of summer or early spring. The species is called *Quinquemaculatus*, from the five round orange-colored spots you see on this poor dead moth."

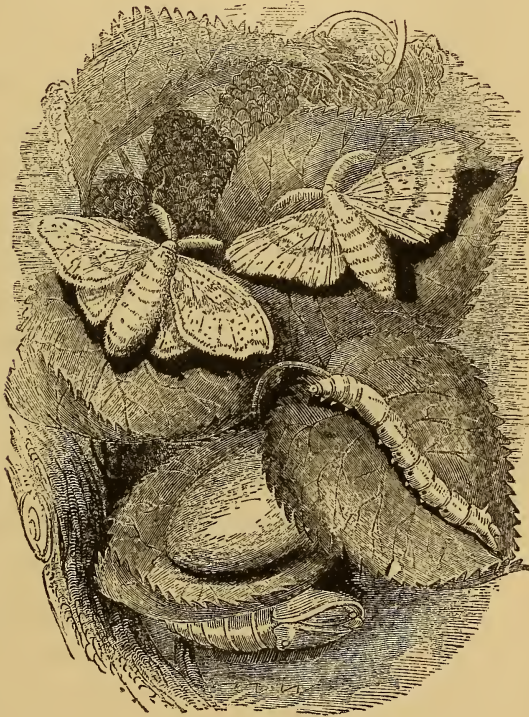
"Cousin Grace, are silk-worms moths?" asked May.

"Certainly, in their perfect state. They belong to the family *Bombycidæ* and came from China. They are of a cream color with a brown band and two or more curved lines crossing the upper wings."

"We have seen them many a time," said May. "Papa has a friend in the country who makes a business of raising them. He has lots of mulberry trees, and the silk-worms eat the leaves."

"They are very voracious I have seen silk-

worms in all their stages. The eggs are about the size of mustard seeds and it takes them but a few days to hatch. The little things begin eating at



once. In about two months they arrive at maturity. They change their skins four times while growing.

After the last casting of its skin it measures about two inches in length. Then, for about ten days, it eats ravenously, growing greatly both in length and thickness; but soon a change comes. All at once the little thing loses appetite and begins spinning its shroud or cocoon, the operation taking some three or four days. The thread in a cocoon measures from six hundred to a thousand feet. The worm remains a chrysalid for about three weeks, then emerges a perfectly formed moth with a thick, heavy body, dusty, powdery looking wings, and feathered *antennæ*. The males fly in the evening, but the females are inactive, living but a short time after they deposit their eggs on the mulberry leaves. The shape of the cocoons is like a long egg. The outside layer is composed of a substance called floss; within, the thread is more even, and close to the body of the worm the silk is very hard, and much stronger. The silk winds off irregularly, first from one side and then from the other. Some of the cocoons are of a pure white, others of a bright yellow. As soon as all the cocoons are formed they are gathered and baked in order to kill the worm, because a cocoon torn by the moth in emerging is

good for nothing. The silk is so fine that eight or ten threads are wound off as one. The cocoons are put into kettles of water over the fire, and the ends of the silk found by brushing them over with a



whisk made for the purpose, and there is a hole made near the edge of the kettle, through which the silk passes to keep it from getting tangled.”

“Doesn't it seem strange that all the silk in the world is made by worms?” said May.

“Now about butterflies!” said Frank.

“They are so closely related to moths that there is little to tell. They fly about in the sunshine, instead of at night like moths, but you may find them on trees, the old ones laying their eggs, and the caterpillars undergoing their *metamorphosis* in the same way as does the silk-worm, only their cocoons are useless to man. Butterflies are more elegant in form and graceful in motion than moths. They feed on the nectar of flowers, which they suck up with their long proboscides. The large white butterfly lays its eggs on the under side of cabbage leaves, the caterpillars being very destructive to the plants. The butterfly called the purple emperor lives upon the topmost branches of the great oak; its caterpillar is green with oblique white lines. Then there are the peacock butterflies and the marsh fritillaries and many others. A very pretty sight in summer is a cluster of roses around which butterflies are flying as if in an ecstasy of pleasure. Many a gay creature gets entangled in the cruel thorns and during its efforts to escape loses, per-





chance, a wing, perchance its own bright pretty life. And now I will tell you a story true in every respect, of my four butterflies, or moths, as I afterwards found them to be. On coming home from school one night I found a grey chrysalid on a fence-rail. I tore it from the rail, to the surprise of my little companions, who said there was nothing in it but some ugly spiders, but I assured them there would a butterfly come out sometime, and I wanted to see what kind of a one it would be, so I took it home and placed it on the mantel-piece in the dining-room. I had found it early in April, but no signs of a butterfly were seen until the middle of June. I had almost lost faith and interest in my chrysalid, when one night, on coming home from school I saw something clinging to the blue netting that was wrapped around the mirror. It was not a butterfly, but a large moth, with an immense body, and with great broad wings, the insect measuring, from tips of wings across, fully six inches. The color was a dark brown, edged with curved lines, three or four shades of paler brown, one broad line of bright red, and one of white. Then there were four large spots, white centers surrounded with rings of red,

finished up with black. There were also two round black spots on the extreme tips of the upper wings. The body was covered with thick red feathers, and the *antennæ* were two large reddish brown feathers branching out from each side of its head. I was delighted, and I thought with pleasure of the company that was to meet at our house that night to practice Sunday-school music, for I wanted all my friends to see my beautiful moth before I let it go out in the garden.

“They admired it as I expected they would, then we went into the brilliantly-lighted parlor to sing, leaving the rest of the house in darkness. We were all singing away when some one exclaimed, “O, here is your butterfly!” It fluttered about for a few moments and at last alighted on the bosom of a young lady’s white dress. She placed her hand over it gently and we went on with our singing. As soon as the hymn was finished I took it and shut it up in the kitchen. A few moments after, while we were singing, there appeared two more beautiful moths. Very much surprised we captured them as soon as they alighted and bore them out to the kitchen. There we had the great large beautiful

moths, all alike, sitting in a row on the kitchen mantel-piece. On going back to the parlor through the dining-room, there was my own moth still on the netting of the clock, as it was as yet unable to fly.

“The next morning we put them all together in the parlor, thinking we would keep them as long as they would stay with us. But when I came home from school at night they had all escaped, but one of them had left a number of eggs sticking fast to the table legs. Now, what surprised me the most was to know how those strange moths knew of my moth. Did they know by scent?—or was it by hearing? By the way, some naturalists think their feathered *antennæ* serve as ears. If such be the case their hearing may be very acute, enabling them to distinguish sounds which we can not hear at all.”

“I thought their *antennæ* were feelers,” said May.

“It is now thought they are so constructed as to serve them but little for that purpose. They fly around boldly, not seeming to feel their way— not like a blind worm, thrusting out first one feeler to find if there is an obstacle in the way, and then another to see if both sides are clear.”

“Are worms blind?” asked Frank.

“Most of them. They seem to move entirely by feeling.”

“Then how great the change when they can see and fly and suck honey from flowers! I like to think of it,” said May.

At this moment the party was interrupted, Mrs. Ellerton ushering Pat into the room.

“What have you there?” asked Grace, as Pat removed a lid from a very large assortment of butterflies and moths arranged in the forms of stars, circles and squares.

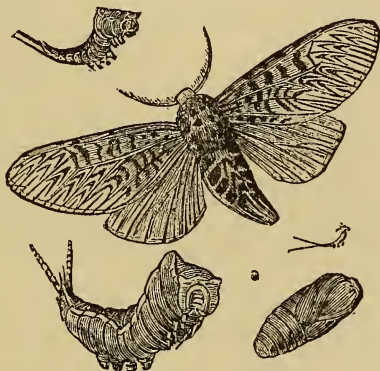
“So pretty and so cruel!” cried Grace. “How did you catch so many?”

“With my hat, mum. I thought it too cloudy for yes to come over to the creek to-day, and so I thought I’d bring you these.”

“I see you have a great many of a kind. In this star, you have twenty little white butterflies all alike — and at the corner of each star you have a large purple emperor. Now, one of each kind would have been sufficient for study, would n’t it? I am so fond of the lovely creatures that I wouldn’t shorten one moment of their bright existence for anything. When possible, I would rather study my lessons

from nature, alive. It makes me sad to see so many beautiful creatures with pins stuck through their bodies, Pat.”

Indeed it was sometime before she looked at them again. Pat said he was sorry he hadn't realized that one of a kind was enough. At last Grace took up the “wonder-talk” again.



“See if you can tell which are butterflies and which are moths in Pat's collection.”

The children did so without making one mistake. Pat was very much interested and wanted to know the name of each insect in the box and the origin of all the names. “I would loike to know,” said he, “why ye call this one a puss-moth !”

“ Because its soft grey color spotted with black resembles the coat of the tabby-cat. Children, you remember those odd-looking worms that are so thick upon the willow trees? ”

“ The ugly things! ” exclaimed May.

“ I think their apple-green complexion quite pretty, ” said Grace.

“ O but the ugly hump on their backs, and the two horrid horns on their tails! I just know they would like to sting, and I wouldn't have one get on me for a hundred dollars. ”

“ Well, the puss-moths are these ugly, horrid, green worms, as you are pleased to term them, in the perfect form. Now will you ever be so afraid of them again? ”

“ I don't know. I've seen them poke out their horns many a time when I accidentally got too near. ”

“ They *are* cross after they have changed their skins for the last time, but as they increase in size they become more gentle.

“ They ate their skins, all but their heads, after they shed 'em, for I've seen them, ” said Pat.

“ Yes. The head is probably too tough or they would swallow that, too. You have a large collec-

tion of clothes-moths. Here are gray, white, yellow, black and striped. There is no insect in the world more hateful to the house-wife than those tiny, harm-



less-looking creatures. With all her care they will manage to deposit their eggs among the woolens

and furs so that their little ones may have these substances to feed upon and wrap themselves up in as soon as they are hatched. Haven't you often noticed tiny little bags hanging from the ceiling?"

The children thought they had not.

"Then you have not become very close observers yet. I think I see one now," and mounting a chair she plucked it down and exhibited it to the children.

"Let us see what is here," she continued, taking a needle and carefully opening the bag.

"Why, a 'ittle bit of a worm!" cried Rose, who was pulling her cousin's sleeve to obtain a perfect view.

"Yes, a little worm. The larva of the clothes-moth."

"How does he get up to the ceiling, I'd like to know," said Frank.

"As soon as he is hatched he begins a little house for himself. His mouth, like that of many worms, is like a tiny pair of scissors, opening from side to side instead of up and down like the mouths of most everything else in nature; so, you see, he can easily clip off bits of woolens and furs for the outside of his home, spinning a silk with which to line his home. Then he is ready for work and can travel about at his will."

“But I don’t see how he can walk when he is all wrapped up in such a sheath,” said May.

“He leaves a hole to poke his head and six fore-feet out of; then hooking his hind feet into his house, he drags it along after him. When he wishes to become stationary, he takes some glue that is secreted in his jaws and sticks his house fast to the wall or ceiling. When he grows too large for his old home, instead of shedding it and forming another, he makes a slit in it, down the back, and sets a neat patch in. Sometimes the patch will be red, on a grey ground; that is because the little creature in his grey house may be working in red flannel at the time he feels in need of enlarging his residence.”

“How funny! how interesting!” exclaimed the children.

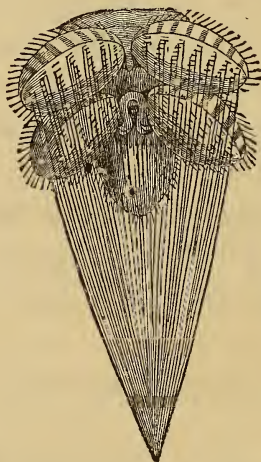
“I’ve often thought I’d like to know how such spinning is done,” said Pat. “I’ve often watched a spider, but could niver tells where his thread comes from. Perhaps you can tell that!

“I know!” exclaimed little Rose, her eyes bright with interest. “Spiders have dot spools of fread inside of ’em, and when ’em wants to tome down

they unwinds some, and when 'em wants to do up they winds it up."

The children laughed heartily.

"I will tell you!" said Grace. "Under the spider's stomach are four fleshy protuberances full of little holes. Inside of these spinarets is a



liquid which seems gummy and pasty. All around each little spinaret there are about a thousand of minute bristles. From these bristles, about four thousand in number, drop little drops of liquid, which, the moment they reach the air become dry and form so many threads. All these threads

uniting in one, form the one slender thread of the spider's web. The insect uses her hind legs to reel off the threads."

"Sure, now!" said Pat, with big eyes.

"There is also something very curious about a spider's eyes. They have no less than eight, arranged on the backs of those which have the whole body exposed, but clustered together in a group upon the heads of those which live in dark holes."

"Sure, and if I iver heard the loikes of these things!" said Pat, shaking his head.

"I just guess you don't know how insects breathe," said Frank.

"I do," said Rose. "They've dot six and eight little holes along their sides, which 'em breaves frough. Tousin Grace told us. Them's dot all their noses in their sides."

"Now, haven't we talked enough for to-day?" asked Grace.

"Please, mum, while yer about it, would ye moind tellin' me somethin' more about the 'skeeter yes were tellin' me about one Sunday."

"I can tell you how the mosquito lays her eggs in the water. This is the way she does it. She

rests on a bit of leaf, clinging to it with the first and second pair of legs, then she crosses her hind legs to catch the eggs as soon as they are laid. A gum adhering to these legs cements the eggs together, forming a sort of little boat composed of three or four hundred eggs, higher at the sides and ends than in the middle. This egg-boat she leaves on the water. There is no danger that it will sink; and in about three days the eggs hatch, send-



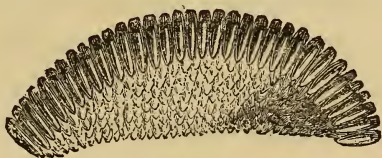
ing the little wigglers to sport down in the water.”

“O Tousin Grace, I’ve seen ’em many a time!” exclaimed Rose. “I’ve seen ’em in wain-water.”

“The strangest thing about the wiggler is that his nose is in his tail. He has to come frequently up to the surface of the water, and stick the tip end of his tail out, so that he can breathe.”

“Faith!” said Pat. “Sure, now!”

“Soon he changes into a pupa, turning himself completely over, and now he breathes through tubes in the side of his head which look as if they might be his ears. He now has the tail of a fish, and can swim. In about fifteen days another change comes. He rises to the surface of the water, and bursting the skin that enfolds him comes out a tiny winged creature, no more to partake of the impurities of stagnant water, but to fly about where he will, among sweet flowers, or in leafy shades, having the privilege of quaffing fresh, red wine every day from the



veins of the very lords of creation. Kings and queens cannot escape. He often feasts on royal blood, I dare say.”

“Are the males and females just alike?” asked Frank.

“Not exactly. The males and females both have two long plumes branching out from each side of their heads, but between these two feathers the

female possesses a proboscis as sharp as a needle with which she can suck blood, while the male, in place of the sharp needle, has his proboscis tufted with two tiny feathers so that he never bites. Now, Frank, what could you tell an ignorant person about butterflies and moths?"

"They are *Articulata-Insecta*. Order, *Lepidoptera*, scale-winged. Butterflies fly in the sunshine, moths in the evening and through the night. Butterflies have long, slender *antennæ* with knobs at the ends, moths have feathered *antennæ*. The caterpillars of butterflies are, for the most part covered with hair, and undergo their change, their chrysalids attached to trees. The caterpillars of the moths are always smooth, those of the *Sphinges*, or *Hawk-moths* having a horn near their posterior extremities, and their chrysalids are, for the most part, found under ground."

"Very good. Now, May, the mosquitoes?"

"They are *Articulata-Insecta*. Order, *Diptera*, two-winged. Family, *Culicidæ*, from the Latin word *culex*, a gnat."

"Are mosquitoes gnats?" asked Frank.

"Yes; a large variety of the common gnat."

“ Please, mum, and did you tell how the mosquito makes such a humming noise? ”

“ Insects can make very little, if any, noise distinguishable to our ears, save what they make with their wings. It is so from the great green katy-dids down to the tiny mosquitoes. The motion of their wings makes all the noise.”

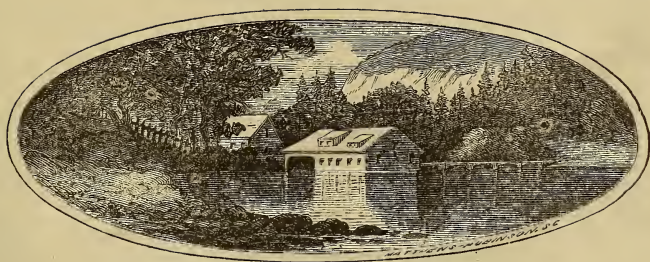
“ And sure, mum, didn't you say that all insects breathe through holes in the soides of their body? ”

“ I did, Pat.”

“ Thank ye, mum, and I must be goin' now. It's mesilf that niver be afther knowin' so much before, and I'll niver forget it, sure,” and Pat left the house feeling his consequence as he never had done before, while Grace said to herself: “ I must speak to Mr. Dumas about that boy. I must not forget.”

PART III.

FINS.



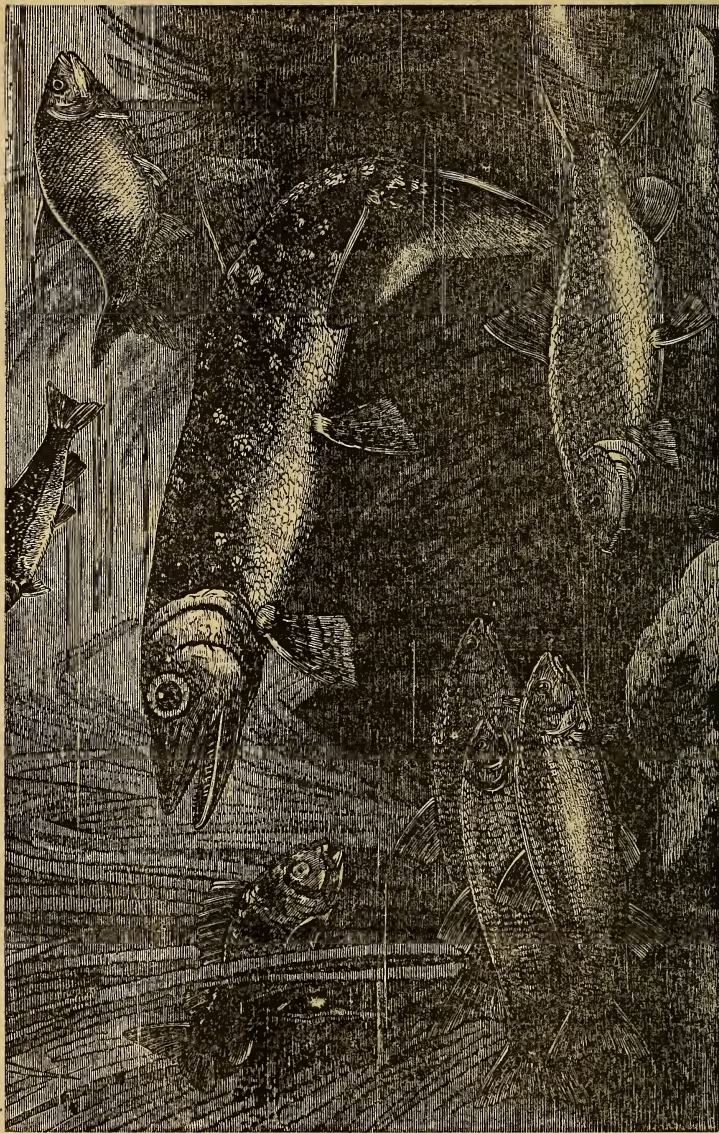
CHAPTER I.

THE FISHING PARTY.

Frank, like almost all boys, was fond of fishing. One day he persuaded Grace and his little sisters to accompany him. The first fish caught was a fine speckled trout.

“Isn’t he booful!” exclaimed little Rose, dancing around the tub of water in which the shining creature had been placed.

“You certainly are fortunate,” said Grace. “I



A COOL RETREAT.

didn't know trout were to be found here; but they are found in great quantities in the eastern and western states."

"Thanks to our fish-commissioners that we do find them here," said Frank. "There are more sun-fish, cat-fish and perch than anything else."

Rose was amusing herself by taking up the fish in her hands and commenting on how easily it slipped through her fingers.

"What makes it so slipp'y?" she asked.

"The slime," answered Grace.

"But where does the s'ime come from?" she asked.

"Suppose, Frank, you stop fishing for awhile that we may talk a little. In what way is a fish different from other animals, Rose?"

"'Em haven't any necks nor hair, and 'em's dot lots of scales on 'em. And I tan't see any nose nor ears. 'Em 's dust dot two bright eyes without any winkers, and a dreat bid mouf."

"Their fins are their legs and arms; and now write down upon your papers the names of all the fins. The two fins at the sides which you might almost fancy to be ears, are the *pectoral fins* and

answer the purpose of fore-legs or arms. One fin under the breast is called the *ventral*, the other the *anal*. The fins on the back are called the *dorsal* fins, and the tail is the *caudal* fin. It is with the last named fin that the fish moves through the water, the office of the other fins being to balance and direct the body. In watching a fish swim have you not noticed how gracefully it waves its tail, while the other fins seem just spread out for aids?"

"I have," said Frank.

"But where does the slippery stuff come from?" asked May.

"I am coming to that directly. Do you notice the line down the sides of the fish? All the scales of this line have tiny holes in them through which the slime escapes to cover the body of the fish so that it can move more easily through the water. There are also tiny mucous holes in the head, surrounding the nostrils, where much more slime escapes than from the lines down the body. This mucous is a sort of defensive secretion which the water always carries backwards over the whole surface of the fish's body!"

"How very strange!" exclaimed May.

“What makes him open and shut his mouf all the time for?” asked little wide-awake Rose, peering down into the tub.

“That is the way he breathes. Air is mixed with the water, and some of it he retains, but the rest of it passes out of the gills with the water.”

“Has he really no ears?” asked May.

“None that appear; and most naturalists believe they only *feel* sound. Water is a much better conductor of sound than air, so that fish do not require a development of ears, perhaps. If they had such ears as we, what a tumultuous world it would seem to them! There is within the fish, however, an internal organ serving the purpose of ears, much the same as though our ears were entirely covered over with a thick skin. Do you understand?”

The children thought they did, and Grace continued: “Trout belong to the *Salmonidæ* family.”

“Do tell us something about salmon,” said Frank.

“Salmon belong principally to the sea, but enter the rivers to deposit their spawn. It is then they are caught in such large quantities for the table. They are partial to clear, rapid rivers with strong bottoms. Male and female both ascend the rivers,

and both unite in forming holes a foot or two deep. After the spawn is placed in these receptacles they are covered up carefully, and the salmon return to the sea lean and emaciated. These myriads of little eggs lie in their holes until the next spring, when they are hatched. The common, or river trout, like the one we have here, resembles the salmon in its habits. September and October are their months for spawning. They are often found under a stone or log. The best bait for trout is flies. Now, Frank, suppose you try your luck, again. You and May fish, while Rose and I talk."

May soon caught a large perch.

"Be careful," called out Frank, "or it will stick its fins into you."

"Is the perch so pugnacious as that?" asked Grace.

"Yes, indeed; see every fin on its back bristling with rage —"

Here Frank interrupted himself by drawing up a good-sized sun-fish.

"I wonder what they call this a sun-fish, for?" he said, as he took it from the hook.

"It is not the true sun-fish," said Grace. "This

is only a species of the perch family. The real sun-fish is found in the Atlantic ocean. It seems all head, and is supposed to be called sun-fish because it is shining and round like the sun."

"Is it a small fish?" asked Frank.

"By no means. Some of them will weigh five or six hundred pounds."

"Our little sun-fishes are pretty if they don't look like the sun," said May.

"Them's dot pitty wed fins," said Rose.

"So has the perch," said May.

"Perch are the hungriest fish I ever saw," said Frank. "If you once get into a school of them, and have plenty of bait, you can catch every one if you are careful."

"Are they any hungrier than pike," asked Grace.

"I didn't think of them when I spoke; but a pike daresn't touch a perch. A perch is always ready for him."

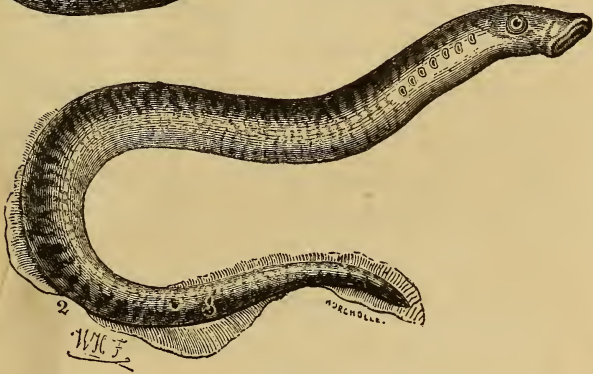
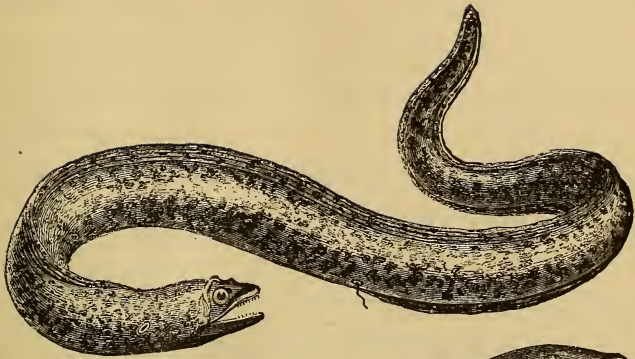
"Do you ever catch any pike, here?" asked Grace.

"We catch them down in the mill-pond in winter-time. A hole is cut through the ice and the bait let down. They are so hungry that great numbers are caught. The pike is a long, slim fish."

“The pike,” said Grace, “is the biggest eater of all the fish, eating anything it can swallow. Many a time it has choked to death trying to swallow something larger than itself. The pike, as well as the pickerel of the New England states, belongs to the *Esocidæ* family. They have large mouths, sharp teeth and soft fins.”



“Is a pickerel as large as a pike?” asked Frank
“Didn’t you know pickerel is the diminutive of pike? I have heard that pike live to be two or three hundred years old. I doubt it though.”



1. MURÆNA (*Muraena helena*). 2. LAMPREY (*Petromyzon marinus*).



“How I wish we had some way of catching fish without a hook!” said May. “I think the little sun-fish would look almost as pretty in an aquarium as a gold-fish. He would be just as entertaining, anyway.”

“O let’s tatch some dold-fish!” exclaimed Rose.

“You would have to go to China to do that,” said Frank.

“No,” said Grace. “It is true they are natives of China, but they were introduced into England, and from there were brought to the United States. A great number of them are raised in artificial ponds in both countries, until they have become so cheap anybody can afford to keep one or two. When first hatched the gold-fish is entirely black, afterwards it becomes white, and again changes to a gold color. Some of them are a beautiful red, sprinkled with gold; others are white, like silver, and others white, spotted with red.

“Gold-fish will live a long time upon nothing else than the animalculæ they can collect from frequently changed water. They will, however, eagerly sieze bread crumbs. They belong to the *Cyprinidæ* family. The roach also belongs to this family —”

A startling cry from May, interrupted.

Her hook had suddenly disappeared from sight, and fearing the fish would get away she had given her line a spasmodic jerk, only to feel an eel switching its cold body about her neck. She was nearly frantic with fright. Frank sprang to her rescue.

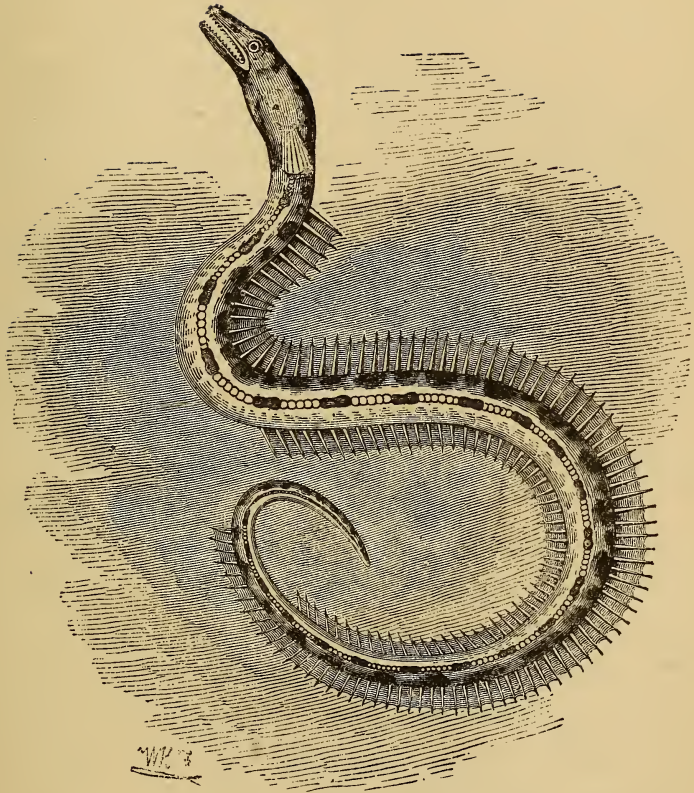
“It is nothing but an eel! Let me get it off the hook. You’ll never do it in the world. Well, I declare, if he hasn’t swallowed the hook clear down! I’ll have to cut his head off to get it.”

“Let the hook go, and the horrid creature, too,” exclaimed May, in great excitement. “I’ll never fish again as long as I live.”

“Nonsense!” exclaimed Frank. “Eels are just as good as cat-fish.”

“It’s a horrid water-snake,” exclaimed May. “The very meaning of the word ‘eel’ is ‘serpent’.”

“Yes,” smiled Grace, “but this is an eel of the *Anguillidæ* family, a fresh-water fish with pectoral, anal and dorsal fins. Then if you will examine him closely you will find scales imbedded in his thick, soft skin. He will be a delicious morsel for our supper, ugly as he looks. The ancients were very fond of eels. They were deified by the Egyptians, and



SEA-SERPENT (*Ophisura*).

made much account of by the classic Greeks. There were the *Muræna* and *Lamprey* that figured so conspicuously on the tables of the Romans. They are found in the Mediterranean sea. The *Ophiseridæ* family, the snake-eels, are distinguished by the tail ending in a round fin without a point."

"Cousin Grace, did you ever see a sea-serpent?" asked Frank.

"No; but they are a species of the *Ophiseridæ* family."

"What, the snake-eels?" asked Frank, in surprise.

"Yes; why not?"

"Why, I thought a sea-serpent was something immense — say a hundred feet long."

"There has often been great agitation in various parts of the world over an imaginary sea-serpent. Hundreds testified to having seen these monsters following in the wake of ships; but when sailors were bold enough to thoroughly investigate, the sea-monster was often discovered to be no more than floating sea-weed. There is a real sea-serpent, however, but it belongs to the same family, genus at least, as the snake-eel. The real sea-serpent is not thicker than a man's arm, nor does it measure more

than six feet in length. It has a long and pointed nose, and fins which extend all the way down the back of the animal, as well as nearly all the way under it. It breathes by means of gills, like a fish."

"Cousin Grace, did you ever see a flying-fish?" asked May

"Yes," said Grace.

"Do tell us all about them," said Frank, hauling in his line, and flinging himself down on the grass.

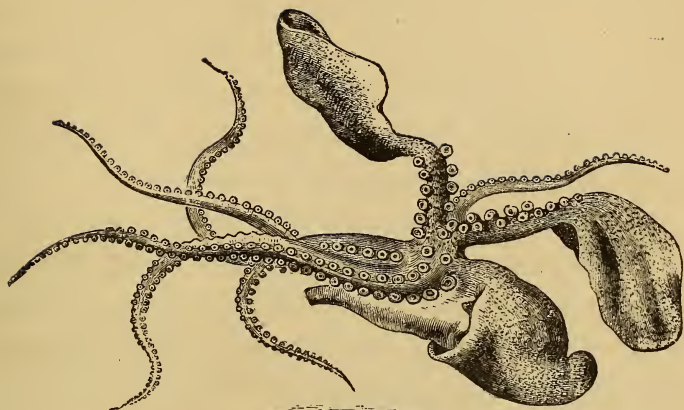
"Of all the fish, I think a fish with wings must be the most interesting," said May.

"Have 'em dot fevvers on their wings?" asked Rose.

"No, their wings are nothing but great long fins. Their pectoral fins are composed of seven or eight ribs, connected by a transparent, glutinous membrane. These little fishes can raise and flap their wings like little birds."

"Are they little?" asked Frank.

"There are many species, ranging from three to twelve inches in length. Swimming in the water they have much the appearance of swallows, only they always swim in straight lines. They have black backs, white stomachs and long forked tails like the swallows."



ARGONAUTA, IN THREE POSITIONS.

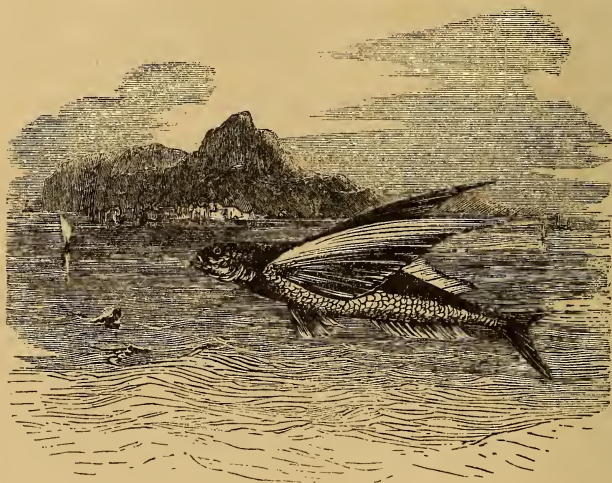
“ But what do fish have wings for? ” asked Rose.

“ Because they have so many enemies, I suppose. They live in large shoals, and the dorado, thunny and many other fish get into a shoal and devour large numbers. The little creatures cannot fly fast enough in the water, so they leap into the air, flying fifty or sixty yards at a time, scarcely ever more, as when their fins become dry they drop back into the water. Sometimes, they plunge beneath, rewet their fins, then continue their flight. But enemies await them here. Sea-birds often pounce upon them, too. The eyes of these fish protrude so that they can see danger from every quarter. Sometimes when flying, they become suddenly exhausted, and fall with such force upon decks of ships as to be killed in great numbers. One of the most singular of the flying-fish is the dragon-fish, or *Pegasus-draco*. It looks something like a crocodile with fan-like wings upon each side. It is three or four inches in length, and belongs to the sea-horse pipe-fish genus. The males carry the eggs in their coat-tail pockets until they are hatched,”

“ Now, Tousin Grace, you’re jokin’, I just know!

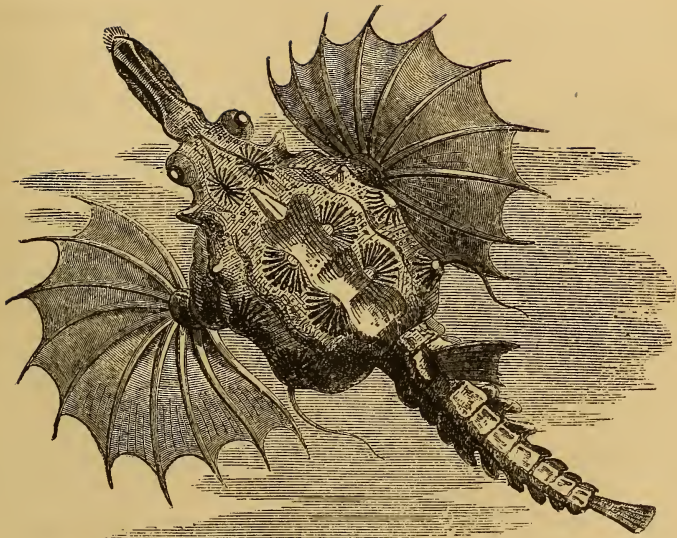
'Tause no little fish have toat-tails. They don't wear toats, at all," said Rose.

"Not cloth ones," laughed Grace, "but shining scaly coats, so thick on the dragon-fish as to form a sort of armor. Their coat-pockets are pouches on their tails — a sort of sack."



"I should think they might call it an angel-fish as well as a dragon-fish, or is it so very ugly?" said May.

"Not near so ugly as a fish that really bears that name," said Grace.



W.F.

SARGENT.

THE PEGASUS DRAGON (*Pegasus-draco*).

“Then there is really an angel-fish?” exclaimed May, delightedly.

“Yes, one of the ugliest of fishes, and it cannot fly at all.”

“Perhaps it gets its name from its gentle disposition,” suggested May.

“No; it is very fierce, voracious and dangerous. Nobody likes to approach it. It is longer than a man and weighs a hundred pounds.”

“O dear! Then what do they call it an angel-fish for?” asked May.

“Just a satire on its extreme ugliness I suppose; or it may be called that from its clumsy, awkward-shaped pectoral fins. It has another name which may be a little more appropriate, and that is *monk-fish*, from the supposed hooded resemblance to a monk’s head. It is a very singular-looking fish indeed. It belongs to the *Sycralidæ* family, the same as does the shark and sword-fish.”

“I was reading in the morning paper to-day that sharks were unusually thick this season along the Atlantic coast. Some little boys were bathing, when some fishermen came up in a boat, telling them that there were sharks a short distance away.

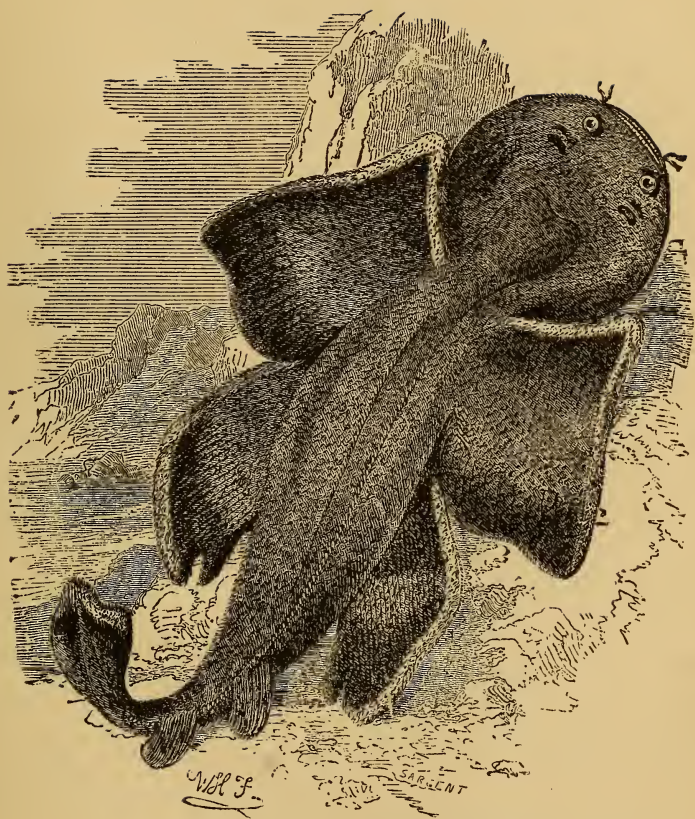
The little boys were so frightened that they couldn't get their clothes on fast enough. I'd like to have seen Pat Ryan scared by such a yarn; and I think I wouldn't mind seeing one myself," said Frank.

"I wouldn't," said May. "They're terrible. They have such great teeth and large mouths that they can just bite a man in two at one snap of their jaws, can't they, Cousin Grace?"

"They are the most dreaded of all the fishes. The white shark is the most terrible, reaching sometimes the length of twenty or thirty feet. The mouth with its six rows of bristling teeth, looks terrible indeed. He will outstrip the swiftest vessel, and his perseverance is indefatigable. One will follow in the wake of a ship for days, to pick up the refuse thrown overboard."

"Don't sailors ever catch them?" asked Frank.

"O yes. A very large hook is baited with a chunk of salt pork and let down from the ship's side. The shark no sooner sees it, than he swims up, throws himself over on his side and gobbles it down, the hook becoming fast in his throat. A harpoon is plunged in his body, and the animal lifted from the sea, and speedily finished with handspikes



SQUALIDA, OR ANGEL-FISH.

and axes. His thick skin is made into sheaths and cases, and his liver yields an oil for dressing skins. Their bodies emit a phosphoric light in the dark. There are more than thirty species of sharks, but none so much dreaded as the one we have just been speaking about. The basking shark, though as large as the white shark, is perfectly harmless. It loves to lie on the surface of the water, sometimes on its stomach and again upon its back, basking, and will allow itself to be patted and stroked. Then there is the blue shark, the fox shark and others. The oddest looking of all the sharks is the hammer-heads. It resembles the white shark, except in the curious formation of its head, which is like a sort of a double-headed hammer, with eyes in each end, giving to the creature an extended power of sight."

Grace then examined the papers of her little class, and found the following facts :

"Fishes are cold-blooded, *Vertebrated* animals, have fins in place of limbs, and breathe by means of *Branchial*, or gills.

"Trout belong to the *Salmonidæ* family, and therefore to the same order as the salmon, *Malacopterygious* fishes.

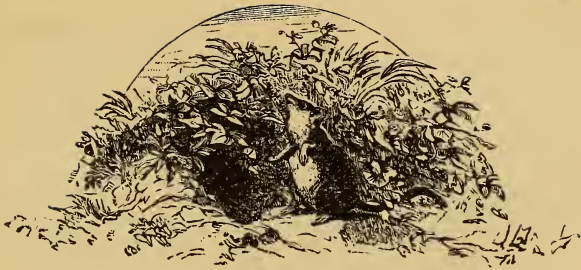
“ Pike and pickerel belong to the *Esocidæ* family, and to the same order as the trout.

“ The gold-fish and the roach belong to the *Cyprinidæ* family.

Eels belong to the *Anguillidæ* family. Sea-serpents and snake-eels to the *Ophiscridæ*.

Flying-fish are *Malacoptergious* fishes, and belong to the *Exocætidæ* family.

Angel-fish and sharks belong to the *Squalidæ* family, and to the *Chondropterygian* order.



CHAPTER II.

CATCHING LOBSTERS.

A favorite place of resort for the little students of natural history and their teacher, was a mossy rock projecting a little way over a clear, sparkling stream of water; and as it was in the vicinity of Pat's home, they often found him there before them.

One day they found him standing ankle deep in the water, and as Frank flung aside his straw hat to meet the cool, gentle breeze, he cried out: "What are you doing there, Pat?"

“Catching lobsters,” said Pat, touching his funny home-made cap awkwardly in the direction of Grace and the little girls, who stood in the back-ground,

“How do you catch them?” asked Grace.

“Aisy enough, mum. I jist puts my hand down inter the wather and they takes hold of my finger, mum!”

“Why, Pat, don’t they hurt?”

“Hardly a bit, mum. You see I’m always keerful which one of the nippers they take hold with.”

“Is there a difference in their two pincers?” asked Grace.

“O yis, mum, one of his pincers is full of teeth loike the edge of a saw; the other one has knobs in place of teeth. When the lobster is eating he uses the pincers with the knobs to hold on by, while he cuts up his food with the one that is full of teeth. I’m always keerful, mum, that the lobster shall use his knobby pincer in taking hold of my fingers. I’ll show ye, mum,”

So Pat peered down to find a lobster. “There goes one, mum. Wait a minute and I’ll have him,” and the next moment Pat did draw up his hand with a lobster clinging fast to the nail of his fore-finger.



HUNTING FOR LOBSTERS.

“ I guess it hurts a little,” laughed Frank, “ the way you show your teeth.”

“ The pesky thing does hold on uncommon tight !” exclaimed Pat, shaking his hand violently. Not succeeding in making it loosen its hold, he deliberately broke off the claw that was attached to his finger, letting the lobster drop back into the water.

“ How cruel !” exclaimed May.

“ Pho ! that’s nothin’,” said Pat. “ It’ll grow on again.”

“ I dess you’s a big stowy teller, Pat Wyan,” said little Rose, indignantly, “ for didn’t Willie Brooks get his finger chopped off—and it never, *never* grew on again !”

“ Pat is right,” said Grace,

“ To be sure I am, mum. Why, sometimes they bite them off themselves—and I kin tell you something quarer than that, I kin. I’ve been doon here when it thundered, and when a purty hard clap come: what did the lobsters be afther doing but shooting up their claws jist as if they were nearly skeered to death, so skeered that their claws dropped off ! I’ve seen their claws drop clane off many a toime ; but they always grow on again.”

The children looked questioningly towards their cousin.

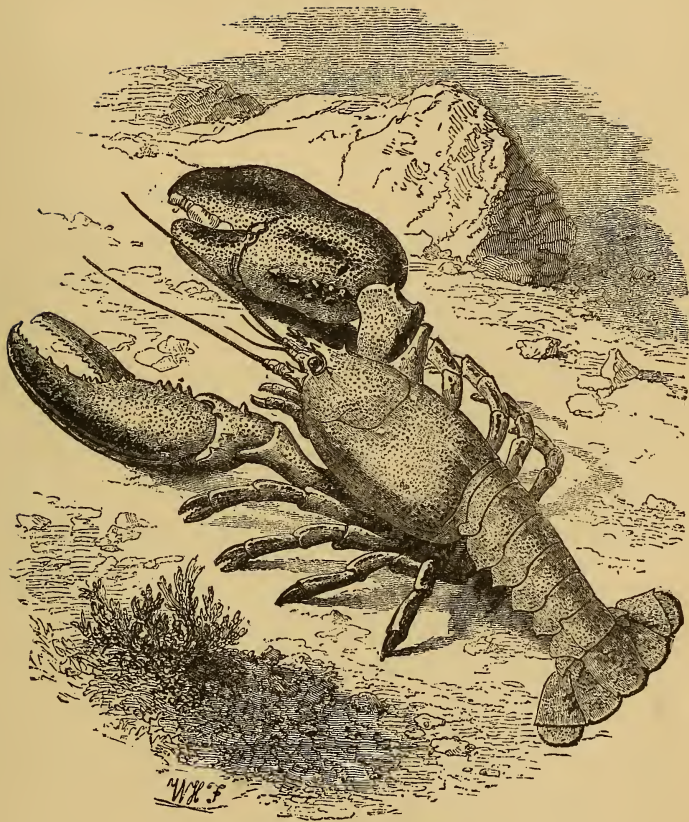
“I think we shall have to let Pat be teacher for to-day,” said Grace. “I have read of such things, but never saw them.”

“I’ve laid on this rock and watched them for hours and hours. I’ve skeered ’em, sometimes, and then, Miss, you ought see ’em jump back’ard. They shid their shells, too, mum, ivery year. They seem to be sick for a while before their old shells come off. For three or four days afther the old shells come off they have to hide under rocks and cracks or else they would git eaten up by fish. Durin’ that toime they’re growin’, too, and when they gits on their nice new shells they’re almost as big agin as when they had on their old shells.”

“This is all very interesting, Pat,” said Grace, seating herself upon the rock with her little cousins around her. “Can you tell me what lobsters feed upon?”

“They ates plants under the wather, and little fish,” replied Pat.

“Do they nurse their little ones with milk?” asked Grace.



AMERICAN LOBSTER.

Pat looked surprised. "Ye must be afther jokin, Miss. It's thousands upon thousands of eggs they be afther stickin' in the sand to hatch. They carry them under their tails so quare loike 'fore they lay 'em."

"I see, Pat, you are a close student of nature."

"What's the difference between a lobster and a scorpion?" asked Frank. "I've got a picture of a scorpion in my pocket, and it looks just like a lobster."

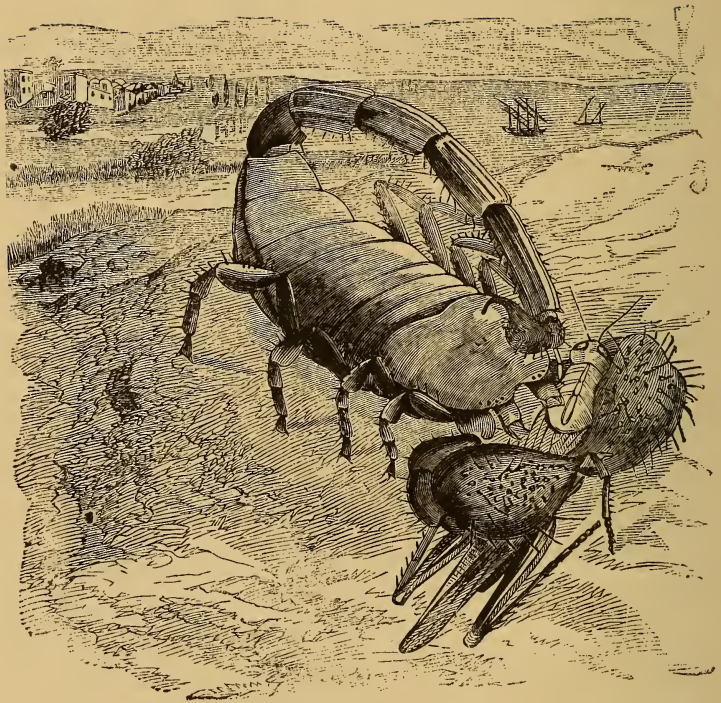
"Not quite I guess. A scorpion does not belong to the crab tribe," said Grace. "He is more like a spider."

Frank drew the picture from his pocket, and the children clustered around him to see it.

"You see the scorpion has a long tail, and in it a curved sting. In your picture he has caught a locust and is preparing to sting it. You can see that the sting is curved. That little, fleshy protuberance near the sting contains the poison. The scorpion is not near so large as the lobster, except in very warm countries, and there it would nearly reach the size of a common lobster. The sting of the larger kind is very venomous, often causing

death. These large ones are sometimes over a foot in length. The most common species are little more than an inch in length. The stings of the smallest are fatal to small animals and extremely so to man, and require the most careful dressing to prevent mortification. Scorpions have claws very much like lobsters'; but their feet are like spiders'. In fact they are more like a spider than anything else, belonging to the same family. Some of the scorpions have six eyes and others, eight. Though it is so ugly and has such a bad name, it is very tender of its young. The scorpion-mother seeks a retreat where her little ones will be out of all danger and for several days carries them upon her back. You see there is scarcely a thing in nature howsoever disagreeable but that has some good trait. But let us go back to creatures of the water. Do you ever catch crabs, Pat?"

"Yis, mum, but there's none in fresh wather. You'll foind them near salt wather, to be sure. I often go with Farmer Hough down to the salt marsh and there's a place they call 'the drowned marsh,' becace the wathers have overflowed it; well, mum, the crabs are thick enough down there."



THE CRAB.

“ How do you catch them ? ”

“ I takes a long line and ties a piece of mate or chicken to the end of it and lets it doon in the wather when, sure, mum, sometimes, two or three will take hold at once and then I puts my crab-net under thim and jist hist thim out aisy loike, mum.”

“ Are they like lobsters ? ” asked Frank, very much interested.

“ They have pincers like the lobsters, and are covered with a shell; but they are round as a spider. The head is fastened to the brist without any jint and it has little eyes which look as if they was tryin' to pop out of its head. The crabs have eight legs and don't look as if they had any tail at all, as it is bent under the body, in a hollow betwixt the legs.”

“ Arn't they any larger than a spider ? ” asked May.

“ O yis, they're as big as my hand, and when all the legs are broke off and the shell — the mate is as white and swate to ate as any flesh you iver saw. We boil the pincers, too, thin crack them and suck out the white mate. They shid their shells once ivery yare, like the lobster, and seem to be jist loike the lobster in all their habits. They ate

all koinds of dead flesh that comes in their way. Sometimes they foight loike the nation. breaking off each other's claws in their fury."

"Isn't there a land-crab?" asked Grace.

"O yis, mum, there's the little fiddler—he's a land-crab."

"Does he fiddle?" asked Rose, opening her eyes very wide.

"He makes a noise that sounds something like a fiddle, I've heard him mony a time to be sure. They look like a wather-crab only they're not so large, thin they only hev one pincer. They burrow in the sand and live in families."

"But don't land-crabs breathe like fish, same as water-crabs do?" asked Frank.

"Yes, they breathe by means of gills, yet are not aquatic," said Grace. "It is necessary, however, that their homes in the sand contain enough moisture to prevent their gills from becoming too dry. There are several species of crabs, one of which lives in hollow trees, clefts in rocks, and in holes which they dig for themselves in the sides of mountains. But when it comes time for them to lay their eggs, they travel by the million down to the sea-coast. This is



PSEUDOCARCINUS GIGAS.

during the months of April and May. The whole ground seems swarming with them, and if they meet any impediment in their way, so straight do they march that though it be the walls of a house they attempt to scale it. They are, sometimes, three months or more in reaching the shore. Their eggs resemble the roe of a herring, and are about as large as a hen's egg. They leave them near the edge of the water to be hatched by the heat of the sun. Not more than one-third reach maturity. After the old ones have deposited their eggs they are feeble and stupid—so much so that they are obliged to dig holes in the ground and remain there for sometime to recuperate. During this time they shed their shells, after which they become very fat. Then they move slowly back to the mountains.”

“Have crabs fins?” asked Frank.

“Sure, and it's paddles he has for his hoind legs,” said Pat.

“They answer the same purpose as fins,” said Grace. “They are flat and green, resembling the jointed branches of a cactus, without the prickles. more than anything else I can liken them to. They can paddle themselves along nicely with such fins

But of all the crabs, the hermit-crab is the queerest. It has no shell of its own, so at once takes possession of a deserted shell of some other animal, making many ludicrous attempts before it can find one that will exactly fit. Sometimes, two fight over the same shell, the strongest one coming off victorious, when he crows over the weaker one by parading back and forth on the shore right before his eyes. Sometimes, a parasite attaches itself to the shell, the hermit-crab has appropriated to itself. This parasite is a sort of a sea-sunflower, so-called because it resembles this flower, though it is more commonly known as the *sea-anemone*, a family of *Polyps*. The hermit-crab makes many efforts to get clear of his burden, but when he finds it impossible he gives up and patiently bears his queer-looking load. But talking of the hermit-crab and his parasite, makes me think of the spider-crab. He is a little sea-animal, looking some like a spider, but much more like a little crab with eight legs, pincers and pop eyes. He plants tiny trees on his own back. He first covers his body with a mucilage from his own mouth, then sticks sea-weeds and marine plants on his back where they grow into a



HERMIT CRAB AND PARASITE.



thick swamp of little trees. Imagine a tiny forest of trees moving along the sea-bed!"

"An' I niver heard the loikes of that, mum!" exclaimed Pat, taking off his cap and scratching his head so funnily that the children burst out laughing.

"Tell us something more about some more queer fellows," whispered May in her cousin's ear, with a sidelong glance over at Pat.

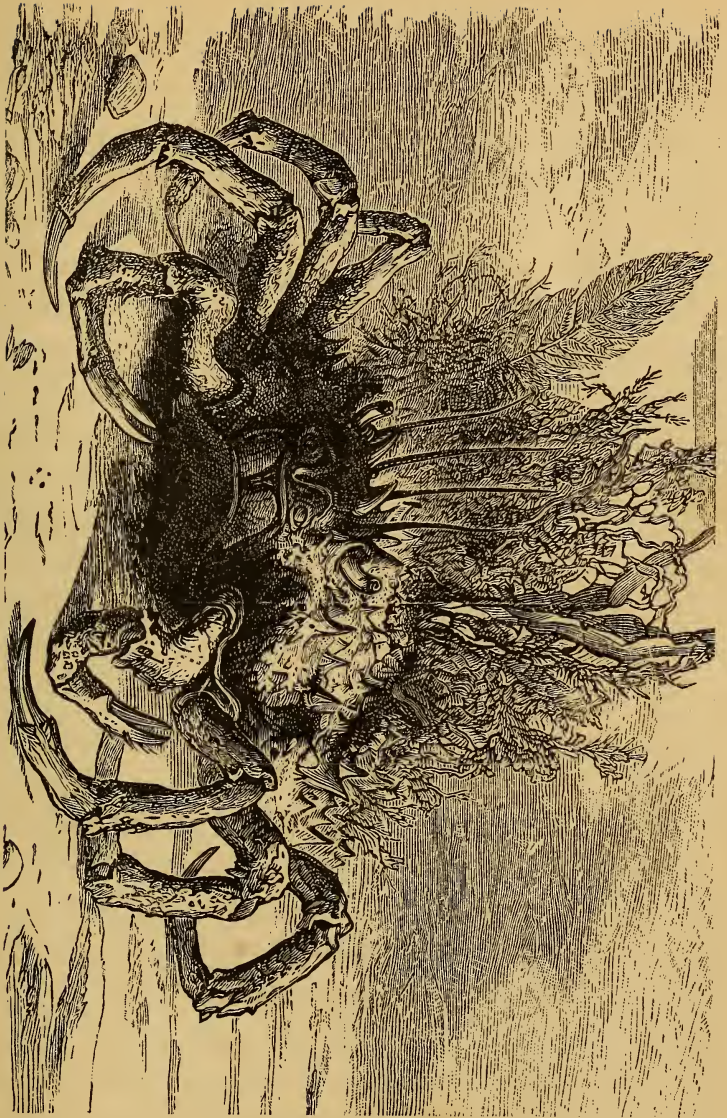
Grace understood that the children relished Pat's quaint expressions, and so went on:

"I will tell you about some of the *Cephalopods*. They are a class of *molluscous* animals, with eight long crooked legs projecting out from around their heads. The cuttle-fish is the most remarkable of all the *Cephalopods*. Besides their eight legs they have two feelers much longer than their arms or legs. All these arms and feelers are set with strong circular cups or suckers. The eight-armed cuttle-fish, in hot climates, is, sometimes, twelve feet across its center, and each one of its arms measuring between forty and fifty feet. It is then called the devil-fish."

"Well, now!" exclaimed Pat, scratching his head again.

“When it seizes its prey it stretches out its long arms and applies its suckers to the surface of the body, then, drawing them up in the center, a vacuum is formed, and they are fixed fast by the pressure of external air. Like crabs and lobsters, it is more easy to tear off their arms than to separate them in any other way; and like the crabs and lobsters their arms will grow again. Their mouths are so strong that they can easily break in pieces the shells of animals on which they feed. The ancients were fond of the cuttle-fish for food, and the Italians eat the monsters yet. Sometimes, when the Indians go out in their canoes, a great devil-fish will come along, and, spreading out its arms over the boat will sink it and its crew. The Indian is usually careful to take an axe along, so that the arm or arms of the fish may be instantly cut off the moment they appear upon the boat. The most curious thing, though, is that it is said to have three hearts, and always carries an immense inkstand under its throat. When frightened, it throws its ink out all around it, making the water so black it can easily escape, unseen. This ink is also so bitter as to drive off all its water-enemies.”

AN ODD TREE-PLANTER.



“Another foine tale, mum. Sure, and I loikes to hear such quare things. If Kenny was only here, I should loike it much.”

“Another strange *Cephalopod*, is the paper-nautilus or argonaut. The shell is as white and delicate-looking as paper, and though it becomes very brittle on being exposed to air, it is quite flexible in water, thus escaping destruction. It has eight arms, two of which are membranous. The most singular thing about this little fish is its power for sailing on the water. When the sea is calm, great numbers may be seen sailing about like little boats. It is said these creatures furnished the original idea of navigation.”

“But how do they do it?” asked Frank.

“When they want a sail, all they have to do is to discharge enough water from their shells to make them sufficiently light to float, then they raise the two membranous arms for sails, and throw out the other six over the sides of their shell for oars. They are not attached to their shells, and for a long time it was thought that they took possession of deserted shells like the hermit-crabs, but since they have the power of repairing any injury done to their shell

it is more than likely that the shell is its own especial property. When anything disturbs the little sailors, they draw in all their oars, take down their sails, fill themselves with water and sink to the bottom. Large quantities of these animals are found in the Indian Ocean and in the Mediterranean Sea."

"Such a foine tale as that!" exclaimed Pat, admiringly. "Surely, mum, and it's the wish of me life that I can sometime go to sea. Then I could see all the craythers for mesilf. But sure, mum, and I must go now. My mither sint me out to pick up sticks, and I jist stopped to look at the lobsters and forgot mesilf," and, hastily disappearing, Pat was soon heard breaking up sticks among the brush.

"Now," said Cousin Grace, "what have we been talking about this morning?"

"I know," said little Rose, eagerly.

"Well, dear?"

"About lobsters and a 'tinging-bug and a crab-spider what plants trees on his back, and a awful big thing with free hearts and eight, oh! dreat big arms, as long as a dreat high house, and a little fish that sails on the water — a paper-fish!"



A DEVIL FISH.

“Cousin Grace, you told us of several kinds of crabs; are there as many of lobsters!” asked Frank.

“There are prawns, shrimps and craw-fish which look very much like the American lobster. Prawns and shrimps are usually found among seaweed, a little distance from the shore. Shrimps are much smaller than prawn, and therefore are not so much prized as an edible. The craw-fish are found in every river and creek in England. In fact, these three last mentioned fish belong more particularly to England, yet species are found in all parts of the world — even in the Mammoth Cave of Kentucky.”

“Cousin Grace, is it true that the fish in the Mammoth Cave have no eyes?” asked May.

“What would be the use of eyes if it is all dark there?” answered Frank.

“Some of them, it is true, have no eyes at all. Others have eyes, but are entirely blind. That is a strange, dark river that flows through the Mammoth Cave. The little craw-fish in this cave have eyes, but can not see. Now, what can you tell me about the animals we have had to-day?”

“They are *Articulates*, because they are jointed,”

said Frank, "and they belong to the water-division of *Articulates*, because they breathe by means of their gills, and not through holes in their sides like insects."

"*Articulates* are divided into how many classes?"

"Five: insects, spiders, myriapods, crustaceans and worms," answered May.

"What are myr'pods?" asked Rose. "I've fordot?"

"Don't you remember the long worms with so many legs?" asked May.

"The centipede?" asked Rose.

"Yes, from the word *cent*, a hundred, and *pede*, foot — the worm with a hundred feet. Now I wish to know to which one of these classes lobsters and crabs belong?"

"To the *Crustaceans*, of course," said May. "I know from *crust*, the first part of the word; for lobsters and crabs are covered with a hard crust."

"Write this: "*Crustaceans* are divided into *Decapods*, *Tetradecapods*, *Entomostracans*, *Cirripeds* and *Rotifiers*."

"What jaw-breakers!" exclaimed Frank, shrugging his shoulders.

"*Decapods*," continued Grace, "have ten feet with



HAMMER-HEADED SHARK.

claws, and are of large size. *Tetradecapods*, have fourteen feet, and are not more than one inch in length. *Entomostracans*, have an irregular number of legs, and are either large or small. *Cirripeds*, have shells like mollusks, but have jointed legs as well as a body. From the opening of the shell, the animal throws out its legs looking like a delicate curl, whence the name of the group. *Rotifiers*, are animalcules destitute of limbs, and moved by cilia."

"What are *Animalcules*?" asked May

"Very tiny animals, indeed. So small as to be scarcely visible to the naked eye. Some of them however, are as large as a grain of sand."

"What are *Cilia*?"

"*Cilia*, are little hairs which edge the wheels of *Rotifiers*; for, you see, these little animals have two horns which they thrust out when hungry, and on the edge of each horn is a wheel — but we have no more time for this at present. We were talking about crabs and lobsters — large *Crustaceans*. Now, to what order of *Crustaceans* do crabs and lobsters, belong?"

"To the *Decapods*, I should think," said Frank.

"You are right, Now, the *Decapods* are of four

species: 1st. *Brachyural*, the short-tailed, the abdomen being small. 2d. *Anamoureal*, with irregular abdomen; the hermit-crab belongs to this class, and the common crab to the first mentioned. 3d. *Macroural*, the long-tailed species, as the craw-fish and shrimps. 4th. *Anomobranchiate*, having the gills external, or else wanting, as the mantis-crab, which has a shell only on the fore part of it. The spider-crab and the cuttle-fish are of another tribe. The body of most of them is cylindrical, and is covered with a fleshy sheath instead of a hard shell. The cuttle-fish is a mollusk, the same as oysters. Now suppose we try our lunch."



CHAPTER III.

REVELATIONS OF THE MICROSCOPE.

Pat came running up to the house the next day, followed by the children.

Well, Pat, what have you in your tin cup? asked Mr. Dumas, who was sitting with Grace upon the front piazza.

“Sure, sir, and that’s just what I was wantin to know. They must be some kind of fish, yer honor, because I found them in the wather.”

“ Everything is not fish that lives in the water.”

“ Sure, and I brought the craythers up to Miss Grace. She kin tell me, I know.”

“ O Tousin Grace, they’re tunnin’ little fish with shells, ticks and little bits of ’tones all ober ’em !” exclaimed Rose.

“ Frank says, he don’t believe that they are fish at all,” said May.



“ Then what are they ?” said Grace, taking the cup, and carefully examining the subjects.

“ They look more like some kind of a worm,” said Frank.

“ You are right, for they are *Caddis* worms. They are the larvæ of the *Caddice* fly.”

“ Were they hatched with those shells and sticks on their backs ?” asked May.



FORAMINIFERA (*Fossil Shells*).

“No, they made those cases for themselves. They are the houses which the little worms live in.”

“How did they stick them together?” asked May.

“By silken threads secreted in their own bodies. The insect, in a perfect state, is a fly with four hairy membranous wings and long *antennæ*. They frequent marshy places, being very active in their movements, though awkward in their flight. They belong to the family *Phryganidæ* and to the order *Neuraptera*.”

“If you will wait until I go to my room,” said Mr. Dumas, “I will bring down a microscope that we may examine these little cases more minutely. One case is composed entirely of shells, another of bark, and this one of sticks and seeds,” added Mr. Dumas, handing over the microscope to Grace.

Then the children took their turns at the glass, and were much entertained.

“Isn't there something else that we can look at through the microscope?” asked Frank.

“Why, yes, you can spend all day with it if you like. Here is a box of sand I would like to put under the instrument. It came from the sea-shore.”

“Why,” exclaimed Grace, “it is half shells; and to think that all these tiny shells once held a living occupant

“They are *Foraminifera*,” said Mr. Dumas. “A name given to a group of tiny organisms having calcareous shells. They were, until recently, called microscopic *Cephalopods*, but are now regarded as *Protozoa*, the pores in the shells being for the tiny occupants to thrust out their delicate filaments in order to take in their food or to aid them in locomotion. Recent *Foraminifera* are beautiful subjects for the microscope, but they are found more plentifully in the fossil state. In the fossil state, these tiny shells may be found in rocks of all formations. The grandest city in the world is said to be built of them, since they constitute the stones of which the city is built. Even the pyramids of Egypt are said to be composed of these *Foraminifera*, massed together into the stone work, and there are mountains largely composed of just such tiny shells.”

“Now, children, when you see the world is full of creatures that you cannot see at all without a glass,” said Grace, “don’t you think your lifetimes too short for the study of natural history?”

“The world is teeming with animal life even beyond the power of the most powerful microscope,” said Mr. Dumas.

May took a pin, and tried to touch one of the little shells, which only appeared to be a grain of sand.

Rose watched her intently, then puckering up her forehead, said :

“How *tan* God make such *little* fings?’

“A mystery that has puzzled greater philosophers than we,” said Mr. Dumas.

“I was about to show you,” added Mr. Dumas, “what moves in water unseen, or unnoticed, since we have been talking so much about water-creatures in the few days past. Who will bring me a drop of stagnant water upon a leaf?”

The children all ran to a little pool, but Pat was foremost with a cup full.

Mr. Dumas placed a drop on a single leaf, and placed it under the microscope.

“What *do* you see, Rose?” asked Frank, impatiently, as the little baby-student kept them waiting a long time for their turns.

“O, eber so many fings! There are fishes and worms, and little snakes and lots of jumpin’ fings!”

“ Well, let somebody else see these wonders,” said Frank.

“ What is that thing with a feather on the end of its tail ?” asked May, when she got the glass. “ It looks something like a wee bit of a lobster.”

“ Well, so it is. It is called *Cyclops Quadricornis*. *Quadricornis*, because it has four horns or *antennæ*, and *Cyclops*, because it has one eye. It belongs to



a genus of minute *Crustaceans*, and to the order *Entomostraca*. They may be found in clear or stagnant water, and are some of the animals which help to make the sea luminous. Now, let us cut off the tail of this little lobster, and place it under a reflecting microscope, for you see I have one glass just for very small objects. The feathers at the end of the two-pronged tail, are the *Cyclops'* fins or

Cilia with which he swims. Now, do each one of you notice those two little purses on each side of the mother *Cyclops*' eggs, and if you will observe closely, you will see the *Cyclops*' young in several stages. They look like little crabby bugs. The smallest one has just been hatched. Another, a little larger is eight days old; another, fifteen, and another more than a month old. You see the largest one is beginning to take the form of its mother.

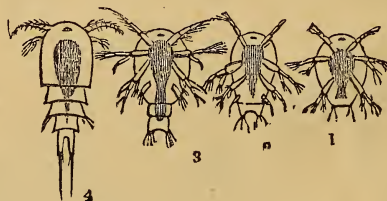


Each one of the mother's bags contains as many as forty eggs. All of the *Entomostraca* are covered with hard, horny shells. Here is a *Cypris* which seems to be a tiny bivalve, for it has its body enclosed in a shell of two horny pieces. They have feathered legs and *antennæ* which serve them for fins and *Cilia*. They are a very common species, and swim with great rapidity. Remove its shell

and you have an animal like this. Do you see that beautiful red object? That is a *Daphnia*, and it is a genus of mollusks belonging to the order *Brachiopodo*. This is always a favorite microscopic object."

"Please, Mr. Dumas, are such little creatures as these any good?" asked May.

"Certainly they are; for nothing God has wrought is for naught. They are very useful in cleansing



stagnant water from decomposing matter. Nothing but mites, yet a mission to fill."

"Faith, sir, and I'd loike to ask what koind of craythers they are with the little wheels spinnin' around. They are the purtiest and the oddest of 'em all to be sure," said Pat.

"They are wheel-animalculæ or *Rotifiers*. There are a great many species. They belong to the branch *Protozoa*, and were placed by Ehrenberg among the *Infusoria*."

“What are *Infusoria*?” asked May.

“They are the animalcules which tinge stagnant water with green.”

“And is it animals which makes the wather green? Sure, and I’ve wondered mony a toime where the green scum come from,” said Pat.

“So have I,” said May.

“Their nutriment consists of decayed vegetable and animal matter, hence why we find them in



stagnant pools of water. Their various motions are exercised merely for the purpose of obtaining their prey. The rotation of their wheels causes an eddy in the water, which attracts into its vortex animalcules which are swimming near. Then it contracts its tentacula, and has them fast. These *Rotifiers* may be kept for months out of water, appearing like a little round grain of sand, yet coming to life and motion on being replaced in water. These wheel-bearers frequently change their

shapes. They can withdraw their wheels at pleasure and become a globule. I have seen an animalcule called the *Protean Vibrio*, which first had the appearance of a tiny graceful swan. It changed its form many times. Sometimes it would draw its head and long neck entirely out of sight, and take the form of a cone, then it would throw out a wheel and appear to be a *Rotifier*."



"Does it belong to the same species as the wheel-bearers?"

"It belongs to the branch *Protozoa*, the same; and are ranked among the *Rhizapoda*, which move by minute tentacular filaments."

"I see some little green balls moving about in the water. What are they?" asked Frank.

"*Volvox Globators*. They roll over like a ball,

spin like a top, or glide along. They seem to be studded with a great many green spots which are surrounded with tiny hairs or *Cilia*. These spots are globulets which contain their young. When they are properly matured, the exterior membrane bursts, and the little ones begin an existence of their own."

"Mr. Dumas, what are these things on this leaf?" asked Frank.

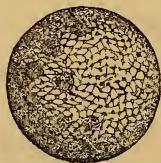
"Those are *Hydræ* or *Polyyps*. They have a long tubular body fixed at the base, and their mouths are surrounded by arms or tentacles. They are cer-



tainly one of the most wonderful productions of nature. The long-armed and green *Polyp* will speak for the whole class. They affix themselves to the under parts of leaves and to the stems of vegetable matter that grow immersed in water, and feed upon small worms for the most part, and swallows them leisurely, though they may be three times larger than themselves. Sometimes two *Polyyps* com-

mence swallowing the same worm, one commencing on each end until their mouths meet, then the largest *Polyyp* gapes, and swallows his foe and all; but, instead of suffering any by the process, he remains in his brother *Polyyp*'s stomach for an hour, when, strange to say, he comes out unhurt, and very often with the prey which he was contending for."

"If I iver heard the loikes of that, sure, in all my born days!" exclaimed Pat, throwing himself down



and rolling over and over with laughter, which he was joined in by the others until the tears rolled down their cheeks.

"Sure, now!" said Pat, again.

"Another very astonishing thing about these little creatures is, that if they are all cut to pieces, not only the parent-stock will remain uninjured, but every piece, though there are hundreds, will become a distinct animal. The head of one species may be

engrafted on the body of another, forming one creature. Both tails may be cut off, and the two head portions of the animal be engrafted together and they will form one animal with two heads. These creatures are very active for most of the year, but when it becomes very cold all action is suspended, and they remain torpid until warmer weather comes."



"Were the *Hydræ* we were talking about as being the mothers of some of the little baby jelly-fish the *Hydræ* you have been telling us about to-day," asked May.

"Those were marine *Hydræ*. These are fresh water ones," said Mr. Dumas.

"Let me see if I can name over everything we

have talked of and seen to-day," said Frank. "First, there was the *Caddis* worm, then the *Foramniifera*, *Cyclops quadricornes* belonging to the order *Entomostraca*, and then the little baby *Cyclops*, the *Cypris* the *Rotifiers*, the *Volvox Globators* and the *Hydræ* or *Polyps*."

"That will do," said Mr. Dumas. "Now bound away to your play."

The children did not need a second invitation and Mr. Dumas and Grace were left alone.

"O, Mr. Dumas, how can I ever thank you enough, for the interest you have taken in the children?" said Grace, earnestly. "I am sure our lessons will grow dull when we take them up at home alone."

"It has, indeed, been a happy summer," said Mr. Dumas, "and I am glad if I have in any way helped make it so."

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