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BIRDS AND ALL NATURE.

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A RARE HUMMING BIRD.

HOW ONE OF THESE LITTLE FAIRY CREATURES WAS TAMED.

P. W. H.

INSTANCES are very rare where birds are familiar with human beings, and the humming birds especially are considered unapproachable, yet a naturalist tells how he succeeded in catching one in his hand. Several cases are on record of attempts to tame humming birds, but when placed in a cage they do not thrive, and soon die. The orange groves of southern California abound in these attractive creatures, and several can often be seen about the flowering bushes, seeking food or chasing each other in play. "Once, when living on the slopes of the Sierra Madre mountains, where they were very plentiful, I accomplished the feat of taking one in my hand," says the naturalist.

"I first noticed it in the garden, resting on a mustard stalk, and, thinking to see how near I could approach, I gradually moved toward it by pretending to be otherwise engaged, until I was within five feet of it. The bird looked at me calmly and I moved slowly nearer, whistling gently to attract its attention, as I began to think something was the matter with it. It bent its head upon one side, eyed me sharply, then flew to another stalk a few feet away, contemplating me as before. Again I approached, taking care not to alarm it, and this time I was almost within reaching distance before it flew away. The bird seemed to have a growing confidence in me, and I became more and more deliberate in my movements until I finally stood beside it, the little creature gazing at me with its head tipped upon one side as if questioning what I was about. I then withdrew and approached again, repeating this several times before I stretched out my hand to take it, at which it flew to another bush. But the next time it allowed me to grasp it, and I had caught a wild bird open-handed without even the use of salt!"

One of the curious features of humming birds is that they are never found in Europe, being exclusively American, ranging in this country from the extreme north to the tropics, adding to the beauty of field and grove, being veritable living gems. Nothing can approach the humming bird in its gorgeousness of decoration. It is especially rich in the metallic tints, seemingly splashed with red, blue, green, and other bronzes. Some appear to be decked in a coat of mail, others blazing in the sunlight with head-dresses and breast-plates that are dazzling to behold and defy description. The smallest of birds, they are one of the most beautiful of the many ornaments of our fields and gardens.

In some islands of the south Pacific birds have been found that had never seen a man before, and allowed themselves to be picked up, and even had to be pushed out of peoples' way, it is said, yet they must have been very unlike the birds that are generally known, or they would have been more timid, even if they had not learned the fear of man.

THE LADY'S SLIPPER.

WILLIAM KERR HIGLEY,
Secretary of The Chicago Academy of Sciences.

THIS interesting plant belongs to that remarkable family of orchids (*Orchidaceæ*) which includes over four hundred genera and five thousand species. They are especially noted for the great variety of shapes and colors of their flowers, many of them resembling beetles and other insects, monkey, snake, and lizard heads, as well as helmets and slippers, the latter giving rise to the name of the plant in our illustration. The variety, singular beauty, and delicate odor, as well as the peculiar arrangement of the parts of the flower, make many of the species of great financial value. This is also enhanced by the extreme care required in their cultivation, which must be accomplished in hothouses, for the majority of the more valuable forms are native only in the tropical forests. Many, too, are rarely found except as single individuals widely separated.

There are many parasitic species, and in the tropics a larger number attach themselves by their long roots to trees, but do not obtain their nourishment from them, while those belonging to temperate regions usually grow on the ground.

In the last sixty years the cultivation of orchids has become a passion in Europe and, to a great extent, in America.

It is said that "Linnæus, in the middle of the last century, knew but a dozen exotic orchids." To-day over three thousand are known to English and American horticulturists.

Though admired by all, the orchids are especially interesting to the scientist, for in their peculiar flowers is found an unusual arrangement to bring about cross-fertilization, so necessary to the best development of plant life. It is evident also, as shown by Dr. Charles Darwin, that this was not so in the earlier life of the family, but has been a gradual change, through centuries, by which the species have been better prepared to survive.

No other family of plants presents as much evidence of the provision in nature for the protection of species and their continuance by propagation.

Few of the orchids are of economic value to man. The most important ones, outside of a few used in medicine, are the vanillas, natives of tropical America and Africa.

The lady's slipper belongs to the genus *Cypripedium* (from two Greek words meaning *Venus* and *a buskin*, that is, Venus' slipper).

There are about forty species found in both temperate and tropical countries. The one used for our illustration is the "showy lady's slipper" (*Cypripedium reginæ* or *spectabile*) and is a native of eastern North America from Canada nearly to the Gulf of Mexico. It grows to a height of from one to three feet, and is leafy to the top. It grows in swamps and wet woods, and in many localities where it is extensively gathered for ornamental purposes it is being rapidly exterminated.

Those living before the era of modern investigation knew little of the functions of the various parts of flowers. We find an excellent illustration of this ignorance in the following peculiar account of a South American lady's slipper, written by Dr. Erasmus Darwin, father of Dr. Charles Darwin, in the latter part of the last century.

In his notes on his poem, "The Economy of Vegetation," he says: "It has a large globular nectary * * of a fleshy color, and an incision or depression much resembling the body of the large American spider * * * attached to divergent slender petals not unlike the legs of the same spider." He says that Linnæus claims this spider catches small birds as well as insects, and adds: "The similitude of this flower to this great spider seems to be a vegetable contrivance to prevent the humming-bird from plundering its honey."



A. W. MUMFORD,
PUBLISHER, CHICAGO.
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LADY'S SLIPPER.

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JIM AND I.

BY ELANORA KINSLEY MARBLE.

WOULD'N'T the little readers of *BIRDS AND ALL NATURE* enjoy a talk with a mother-bird? The father-bird, it seems to me, has done all the talking hitherto. Because he is handsome and can sing is no reason why Jim, my mate, should write up the history of his family. It would have been a sorry attempt had he tried, I promise you, for though he is a Hartz Mountain Canary—pure yellow and white like the lower bird in the picture—he is not at all clever. My mistress says I have more sense in one of my little toes than Jim has in his whole body.

"You cute little thing," she exclaims when I kiss her, or take a hemp seed from off her finger, "you are the dearest and wisest little bird in the world."

Jim sometimes taunts me because I wear such sober colors—black and brown with green and yellow mixed—like the upper bird in the picture—but I retort that I am a Hartz Mountain bird, also, and have just as good German blood in my veins as he has. Neither of us ever saw the Hartz Mountains, of course, for we were born in Chicago, but our great grandmothers did, I am sure.

A good husband? No, I can't say that Jim is. He is too quarrelsome. My mistress says he is a bully, whatever that may mean. He has a fashion of standing by the seed cup and daring me to come and pick up a seed; the same with the drinking-water and the bathing-dish. Then again he is very gracious, and calls me pet names, and sings at the top of his voice every love song he knows. Sometimes I try to imitate him, when he flies into a rage and sharply bids me "shut up." I am too meek to return the compliment, even when I have grown weary of his music, but my mistress shakes her finger at him and calls him a "naughty, naughty bird."

She can't tame Jim, all she may do. Few canary birds will resist a hemp seed when offered on a finger. My mistress used to crack them between her teeth and coax and coax him to take one, but he never would. That's the reason she calls him stupid, for we love hemp seed just as you little folks love peanuts, you know. That's the way she tamed me, and that's the way you can tame your canary if you have one.

I have had a rather eventful history for a bird. In the first place—but let me begin at the beginning and tell you the circumstance just as it happened.

It was about four years ago, so far as I can recollect, that I caught my first glimpse of the world and tasted the sweets of freedom. One balmy morning in June, I escaped from my cage, and the window being open, out I joyously flew into the bright sunshine. I was a little dazzled at first and frightened. How immense the world seemed! How far away the tender blue sky over which the fleecy clouds sailed, that sky which I had thought a mere patch when seen from my cage in the window! How many houses there were, and how inviting the green trees and grass-plots! I fairly danced with joy, and chirped, "I'm free, I'm free," as I flew from place to place, my wings, never tiring, bearing me from tree to housetop and from housetop to tree.

Ah, that was a day never to be forgotten. How I escaped the dangers which lurk about the steps of the unwary and innocent has always been a marvel to me. The hostile sparrows, for instance, the green-eyed, sharp-clawed cat, the sling-shot of the cruel boy, the—but why linger over horrors which might, but did not happen?

In this way the morning passed joyfully, the pangs of hunger, as noon approached, however, advising me sharply it was near dinner time. From housetop to housetop I flew, from tree to tree, but nowhere could I find a little china cup filled with rape, hemp, and canary seed, or a tiny glass vessel filled with water that I might slake my thirst.

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What should I do? A bird brought up as I had been, I reflected, could never descend to work for a living, as the sparrows did, and other wild birds which I had met among the trees. Some of them ate insects—fact, I assure you—and one red-headed bird, wearing a coat of many gay colors, simply tapped and tapped on a tree with his hard bill whenever he wanted his dinner.

"Come in," said the bug, innocently, who was making his home between the bark and the tree, "come in."

Nobody appearing, the bug ventured out to see who his caller might be.

"Good morning," grinned the woodpecker, and then politely gobbled the poor bug up.

But I was not brought up that way. I could not eat bugs, neither could I rummage in the garbage boxes as the sparrows did. Oh, how unwise of me, and how ungrateful to run away from a home where my every need was faithfully served by a kind mistress. Like the prodigal I would return. Surely I would know the house, the very window from which I had fled. Yes, I would start at once, and off I flew in the direction which I thought I had come.

But, alas! how alike all the houses in that neighborhood seemed. Vainly did I fly down on many a window-sill and peer in. No mistress' face greeted me, no empty cage swung idly between the curtains. At length, faint from hunger and fatigue, I flew down and perched upon the railing of a porch where two ladies were sitting.

"You dear little thing," said one of the ladies—I want to say here that I am much smaller than the dark Hartz Mountain bird who sat for her picture—"I never saw a sparrow so tiny, or marked like

you before."

"It's a canary, not a sparrow," said the other lady, "doubtless, somebody's lost pet," and she held out her hand, and chirped and talked to me very much like my lost mistress had done.

"Poor little wanderer," she at length said, as I looked at her, but made no effort to fly away, "I have an idea you came to us for food," and then she went into the house and shortly returned with a cage in the bottom of which she scattered seed, placing it upon the ground very close to me.

"Rape, hemp and canary," I chirped, "the seed I am used to," and down I at once flew, hopped into the cage, and, the next moment, was made prisoner.

Sorry?

Well, really I don't know. My period of freedom had been so brief, and attended with such anxiety and fear, that I hardly knew whether to laugh or cry. The next day, however, I knew that my lines had indeed fallen in pleasant places. My first mistress had been kind, but oh, how much more tender and thoughtful the new one proved to be!

"I was a helpless little creature," she said, "and upon her depended my entire comfort and happiness." Never for one day did she neglect me. Though my regular bill-of-fare was bird-seed, yet she varied it as she did her own. Cracker, lettuce, apples, grapes, cherries, sugar, and always in the summer, pepper-grass. If you little folks have a canary never fail, I beseech you, to give them of the latter all they want to eat. It costs nothing and may be gathered in any vacant lot fresh every day.

What pleasure so kind a mistress could find in keeping me in a little gilt cage, I could not see, for there were screens in the window, and even if there had not been I don't believe I should have cared to fly away. Something in my appearance one day suggested the thought to her, I am sure, for looking at me earnestly, she said:

"You are not happy, my birdie, I fear. Neither would I be, cooped up in a cage like that," and so she opened wide the door and out I flew, never to be a prisoner again—till, well, I will not speak of that just here, but keep it for the close.

What famous times we did have after that, to be sure. Whenever I felt lonesome down I'd fly upon the desk where my mistress sat writing. She would pretend not to see me till I had hopped upon the very sheet over which her pen was gliding.

"Why birdie!" she would then cry, as though very much astonished, and off I'd fly, as she made a dash for me, to the window where I would hide behind the ruffle of the sash curtain.

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"*Cheep, cheep*," I'd cry, just as you little folks cry "whoop," when all is ready, "*cheep, cheep*."

"Where can my birdie be?" she would say after awhile, dropping her pen. "Where can she be?" and then she would look here and there, till presently approaching my hiding-place, out I'd fly, with a gurgle, into an adjoining room, where I'd again crouch behind the curtain. Between you and me I believe she knew all the time where I was hiding and only pretended to search for me here and there. Anyway it was capital fun, and I never tired of it, though mistress did.

"I can't play with you any more," she would say, "you quite tire me out," and then she would go to writing again and so our game of "hide and seek" would end for that day.

"Everything needs companionship," she said one morning to my master, "birds, children and men," and so that day he brought home a large wooden cage in which was as handsome a canary bird as you would want to see. That was Jim, and oh, how happy I was, when, a few days after, he asked me to be his mate. I said "yes," almost before he had got the song out of his mouth—I didn't know what a tyrant and bully he was till afterward, you know—and so we went pretty soon to housekeeping in the wooden cage.

My mistress understood what I wanted when she saw me picking up threads and pulling her chenille table cover to pieces, and so in one corner of the cage she put a nest made of wire and covered with a bit of muslin. Near by were little heaps of cotton-batting, wrapping-cord, and hair. Dear, dear, how busy I was for days! Jim, as I have said before, did nothing much but sing—and criticise. More than once I dragged all the furniture out of our wire home, because he thought I should have put the hair in first, and the cotton and strings in afterward. For a newly wedded couple, on their honeymoon so to speak, we did a vast amount of quarreling. The nest, however, was at last made cozy enough to suit us, and so one day I climbed in it and sat for quite a while. Then I called to Jim and I must say he seemed to be just as proud as I was of the little blue speckled egg which lay there so snug in the cotton. The next day but one I laid another, and then one every day till I had laid five. My, how I felt when I gathered them up close under me and sat down to brood. If all went well, after thirteen or fourteen days, we would have five dear birdlings. For fear the eggs might get chilled I left them only a few minutes at a time, hurriedly eating a few seeds, then back on the nest again. Jim could have helped me very much by brooding the eggs while I took exercise and my meals, but he was too selfish for that. All he did was to fly about and sing, bidding me to keep my spirits up. If it hadn't been for my mistress I should have fared badly, you may believe. She fed me crackers soaked in milk, cracked hemp seeds and placed them around the edge of the nest, besides other delicacies in the vegetable line too numerous to mention. When the birdlings were born Jim appeared to be very proud indeed. He

couldn't sing long or loud enough, leaving me to feed the five gaping, pleading red mouths every day. Ah, no one knows better than a mother how much trouble and worry there is in bringing up a family. I'm sure I have had experience enough, for since that time I have had so many birdlings I can't count them. One season I had eighteen, three nests, and six in the nest each time. They were considered such fine birds that my mistress had no difficulty in selling them as soon as they learned to sing.

Now I am coming to a period the thought of which fills my heart with sorrow. For some reason that I am not able to tell you, my mistress concluded to part with me and Jim. She shed tears over it, I know, but nevertheless we felt ourselves being borne away one night, and in the morning, lo! we found ourselves in a large, bare room, on the floor of which was painted an immense ring or circle. I was sitting on six blue, speckled eggs at the time, and didn't mind it so much, but Jim was very cross and restless, for the cage door was fastened and he bitterly resented imprisonment. Alas! from that time forth we never were to know freedom again; from that time forth we had to accustom ourselves to many, many changes.

About nine o'clock the door of the room opened and in came a little girl, followed by a little boy. Then more little girls and boys, till I counted, as well as I could, seventeen. All one family? Oh, no, I'm not talking about bird families now. As many as could crowded about the cage and stared at me with wide-open eyes. The cage was on a low table so they could peep into the nest. Oh, how frightened I was. One little chap thrust his finger through the bars, and down I flew, leaving my precious eggs exposed. That was what they wanted, and oh how they did exclaim! I went back pretty soon, however, for I began to understand that they did not mean to harm me or the eggs either. However, it was many days ere I got over the feeling of fright when stared at by so many eyes, but by the time the birdlings were hatched out I had grown quite used to it. Indeed I felt somewhat proud of the interest those wee tots took in my babies, my manner of feeding them never failing to call forth cries of wonder and praise.

"She just chews up the seeds and swallows 'em," said a little chap one day, "then when the baby birds cry for something to eat she brings it up and stuffs it down their long throats with her bill. My! it's ever so much better than a spoon."

The teacher laughed and patted the little fellow on the head.

"That is your first lesson in nature-study, Victor," said she, and then a lady at the piano struck up a march and off they all trooped two by two.

"Where do you suppose we are?" crossly said Jim, hopping excitedly from one perch to another, "it looks like a lunatic asylum to me."

Jim, as I have stated before, is a very stupid bird. The words "lesson" and "nature-study" held no meaning for him.

"It seems to me," I said, watching the little tots marching with an observing eye, "that we are in a kindergarten."

"A kindergarten," echoed Jim, "what's that?"

"Why," I explained, "a school where young children are taught to love everything and everybody. Surely we have nothing to fear."

And so it turned out to be, a kindergarten, in which, I am proud to say, for purposes of nature-study, I have raised many and many a brood.

WHY AND WHEREFORE OF THE COLORS OF BIRDS' EGGS.

THE why and wherefore of the colors of birds' eggs, says Ernest Ingersoll, has been a favorite theme for speculation, from the quaint surmises of Sir Thomas Browne to the solemn guess-work of Shufeldt, in his ten "biological laws explanatory of the variation in color of the shells of the eggs in class Aves."* Hewitson piously concludes that the beauty of these elegant and often exquisitely attractive objects is intended for the delight of human eyes; hence, as he says, eggs simply white are put out of sight in holes! He also sees in the larger number of eggs laid by game-birds a provision by a benevolent Providence for the joy of the sportsman and the delectation of the epicure. Next comes a man who assures us that the colors of eggs are due to the influence of their respective surroundings on the imagination of the hen birds—the old story of Jacob's little trick on Laban in the matter of young cattle. This school instances as an example the red blotches prevalent on the eggs of falcons, regarded by it as a record of the bloody experiences of the parents; but it does not explain why the equally rapacious owls produce pure white eggs, or the blood-thirsty skuas and shrikes lay greenish ones. Other equally fallacious theorizings might be noted.



FROM KEHLER'S
MEDICINAL-
PFLANZEN.
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TEA.

CHICAGO:
A. W. MUMFORD,
PUBLISHER.

TEA.

Camellia Thea Link.

DR. ALBERT SCHNEIDER,
Northwestern University School of Pharmacy.

The gentle fair on nervous tea relies,
Whilst gay good nature sparkles in her eyes.
—Crabbe: "Inebriety."

THE highly esteemed drink referred to in the above lines is made from the leaves and very young terminal branches of a shrub known as *Camellia Thea*. The shrub is spreading, usually two or three meters high, though it may attain a height of nine or ten meters. It has smooth, dark-green, alternate, irregularly serrate-dentate, lanceolate to obovate, blunt-pointed, simple leaves. The young leaves and branches are woolly owing to the presence of numerous hair-cells. The flowers are perfect, solitary or in twos and threes in the axils of the leaves. They are white and rather showy. Some authors state that they are fragrant, while others state that they are practically odorless. Stamens are numerous. The ovary is three-celled, with one seed in each cell, which is about the size of a cherry seed.

The tea-plant is no doubt a native of India, upper Assam, from whence it was early introduced into China, where it is now cultivated on an immense scale. It is, however, also extensively cultivated in various parts of India, in Japan, Java, Australia, Sicily, Corea, and other tropical and subtropical countries and islands. It is also cultivated to some extent in the southern United States, as in Carolina, Georgia, Mississippi, and California, but apparently without any great success. The plant is extensively grown in green-houses and conservatories on account of its beauty.

According to a Japanese myth the tea plant originated as follows: A very pious follower of Buddha, Darma, vowed that he would pray without ceasing. He had prayed for some years when finally the Evil One over-powered him and he fell asleep. When he awoke he felt so chagrined and humiliated that he cut off both his eyelids and threw them from him. From the spot where they fell grew two plants endowed with the property of dispelling sleep. Chinese writers maintain that priests of Buddha introduced the plant from India. Some authorities are inclined to believe that the plant is a native of China; others, that it was brought from Corea to China about the ninth century.

Tea-drinking was supposed to have been discovered by a servant of Emperor Buttei, 150 B. C., but concerning this there is much uncertainty. It is said to have been in use in Japan as early as 729 of our era. The first definite information about tea-consumption in China dates from the year 1550, when a Persian merchant brought tea from that country to Venice. At a little later period we find tea mentioned in various letters and documents of travelers and merchants, yet it is evident that it was a costly and rare article as late as 1660. In 1664 the East India Company presented the queen of England with two pounds of tea. In fact, it was not until the beginning of the eighteenth century and later that tea began to be used in different parts of Europe. During the latter part of the seventeenth century and the beginning of the eighteenth century tea-houses were established in various cities of Europe, especially in England. At the present time tea-houses, like coffee-houses, have become practically extinct in civilized countries, but that does not imply that tea-drinking and coffee-drinking are on the wane. Among the English and Slavs tea-parties are all the rage. The favorite Gesellschaft *Kaffee*, coffee-party, of German housewives indicates that they give coffee the preference. The biggest tea-party on record was doubtless the so-called Boston Tea Party, at which tea valued at £18,000 sterling was destroyed.

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In spite of the tropical origin of the plant the largest quantities of tea are consumed in northern countries, notably in Russia and Asiatic Russia. Large quantities are consumed in England and the United States.

Most authorities are agreed that the different kinds of tea on the market are derived from the same species of plant. Some admit a variety *C. Thea var. viridis*. The following are the principal teas of the market and the manner of their preparation:

1. *Green Tea*. After collecting the leaves are allowed to lie for about two hours in warmed pans and stirred and then rolled upon small bamboo tables, whereupon they are further dried upon hurdles and again in heated pans for about one hour, accompanied by stirring. The leaves now assume a bluish-green color, which is frequently enhanced by adding Prussian blue or indigo. Of these green teas the most important are Gunpowder, Twankay, Hyson, Young Hyson, Hyson skin, Songla, Soulang, and Imperial.

2. *Black Tea*. The leaves are allowed to lie in heaps for a day, when they are thoroughly shaken and mixed. After another period of rest, two to three days, they are dried and rolled much as green tea. In the storing process the leaves undergo a fermentation which develops the aroma and the dark color. The following are the principal varieties: Campoe, Congou, Linki-sam, Padre Souchon (caravan tea), Pecoe, Souchong, and Bohe.

In some countries the teas are scented with jasmine flowers or orange flowers. This is, however, no longer extensively practiced. The essentially Chinese custom of coloring teas with Prussian

blue, gypsum, and indigo is dying out, at least so far as the export trade is concerned, because intelligent civilized consumers are beginning to prefer the uncolored teas. Competent authorities maintain that there is not enough of the coloring substances added to be harmful. The workmen preparing the better qualities of tea are not permitted to eat fish, as the very enduring and penetrating fish-flavor would be transmitted to the tea in the thorough handling. It seems, however, that a more or less distinct fishy flavor is perceptible in many teas, even the better qualities.

Tea-dust consists of remnants from tea-chests, dust from the working tables upon which the leaves are rolled—in fact, tea-refuse of all kinds. It is certainly not a desirable article. Besides true tea there are leaves and other parts of a great variety of plants which have been used as tea. To enumerate and describe these would be impracticable in this paper. The following are a few of the more important: Paraguay tea, or maté, is highly esteemed in South America. The Koreans prepare tea from ginger. The poor Siberians use cabbage leaves. Teas are made from the leaves of a great variety of herbs which are supposed to have medicinal or stimulating properties similar to those of tea. Peppermint tea and chamomile tea are greatly esteemed in certain localities.

Concerning the adulteration of tea there seems to be considerable difference of opinion, some authorities maintaining that adulteration is common, while others maintain that it is very rare, indeed. There is, however, little doubt that used tea is frequently redried, rerolled, and resold as good tea. Willow leaves, strawberry leaves, and mulberry leaves are said to be added occasionally.

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Every housewife knows that *good* tea is expensive. Since the different teas are all from the same species of plant why should there be such a difference in price? The expensive teas consist of the very young leaves and terminal branches and are carefully dried and prepared under special supervision. The young leaves and branches have a more delicate flavor. To determine whether a sample of tea consists of young leaves or not soak it in water, carefully roll out the leaves, and measure them. If the majority of leaves measure an inch or more in length it is a poor quality. It must be remembered that even fair medium qualities are mixed; that is, they consist of mature and immature leaves. The best and most expensive teas are often sold at one hundred dollars per pound. They are never exported, but consumed by high Chinese officials. Imperial tea is prepared under the direct supervision of royal government officials.

Tea owes its stimulating properties to an active constituent known as thein, which is in all respects similar to caffeine, the active constituent of coffee. The flavor which is developed by the drying process is due to several constituents. Besides these substances tea also contains considerable tannin. Tea consumed in moderate quantities is beneficial rather than otherwise. Its injurious properties are due to the tannin, which affects digestion. If consumed in large quantities for a long time the thein causes nervousness and the tannin causes various dyspeptic conditions. In China some chew the leaves treated with arsenic to improve the complexion. The whitening of the complexion is, however, due to the arsenic and not the tea.

Tea is prepared in different ways in different countries, nevertheless the preparation of a good cup of tea is comparatively simple, leaving out of consideration the many paraphernalia used by different nations and which really have no effect except that upon the imagination. The following is Emperor Kien Lung's (1680) recipe for making tea, and which is frequently found upon Chinese tea cups: "Over a moderate fire place a vessel with three feet, showing by its color and form that it has been much used; fill with clear water of melted snow and heat it until the water will turn a fish white or a lobster red. Pour this water into a cup containing the leaves of a select variety of tea; allow it to stand until the first rising vapors, which form a dense cloud, become gradually less and float over the surface as a faint mist. Drink this precious liquid slowly and thou wilt find it a powerful dissipator of the five sorrows which disturb our minds. The sweet and peaceful rest which we owe to this drink we may taste and feel, but may not describe." This recipe, although two hundred years old, has not been improved upon. Stated in a little simpler form the recipe would read: In a cup with good tea leaves pour clean boiling water and allow to stand five or six minutes; decant and drink slowly.

Tea leaves should never be infused for a long time for several reasons. The flavor dissipates and the objectionable tannin is more and more extracted, imparting to the tea astringency and a bitterness, which are not only disagreeable to the taste but also cause indigestion and constipation. After the tea is prepared as indicated it may be taken hot or cold, with or without sugar, with or without cream or milk. Iced tea, with a little lemon juice added, is a delicious drink for hot weather. It is cooling besides having a tendency to check excessive perspiration. Tea has also been found valuable as a wash for inflammation of the eyes.

In conclusion, I wish to refer the reader to an article in the July number of the *Cosmopolitan* on "Tea-drinking in many lands," by Laura B. Starr, in which are related many interesting customs relative to the use and preparation of tea.

Explanation of plate: A, flowering branch, nearly natural size; 1, flower in section; 2, stamen; 3, ovary in transverse section; 4, pistil; 5 and 6, fruit, with seed; 7, seed; 8, seed in sections.



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TOWHEE.
½ Life-size.

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THE TOWHEE; CHEWINK.

(*Pipilo erythrophthalmus.*)

BY LYNDS JONES.

THE home of my childhood and early youth nestles in one of the gems of woodland which are so characteristic of the rolling prairies of central Iowa. This hundred-acre grove covers five main hills, with their valleys and the lesser runs which divide each of the five hills into two, three, or four lesser hills. The hills radiate in a semicircle to the north and west from the height on which the old home stands, rolling away to the creek which bathes their feet. Here are tall, heavy woods, without underbrush, covering the north slopes; lower, more open woods with patches of plum, and wild crab apple trees, with some hazel brush on all lower slopes of the hills; and finally a liberal fringe of low, brushy trees—hawthorn, plum and crab apple trees—and dense hazel brush on the uplands and on lower lands away from the creek. This dense growth also fringes the county road which extends from end to end of the grove, and it was from this roadside that towhee first heralded his arrival from the south, during the bright days of late March or early April. Later, when the frost had left the ground, and his mate was growing anxious to be selecting a nesting-place, he might be seen on the topmost twig of one of the taller small trees in every brushy place on every hillside. I have sometimes wondered if the towhee household did not have some disagreement about the family name, for the male, from his elevated perch loudly calls *towhee-e-e-e*, while his spouse on the ground below no less vigorously reiterates *che-wink*. But if danger seems to threaten his lordship quickly descends to join his mate in earnest warning that this small bit of earth belongs by right of discovery to *che-wink*. How earnestly both birds emphasize their claim by the nervous fluff of the short, stiff wings and the quick spreading of the long tail, as if the large patches of white at its end would startle the intruder away. But the male bird does not always confine himself to the iteration of the name he seems to love so well. Instead of the single first syllable there may be two or even three, no two in the same pitch. It has been a surprise to me that persons unfamiliar with the towhee's song do not realize that the two parts proceed from the same bird. To them the first part seems to resemble some part of the wood thrush's song and the last part—the *he-e-e-e*—the rattle of downy woodpecker. My ear persistently renders the whole song, *towhee-e-e-e*, or *towhe-hee-e-e-e-e*, or *O towhe-he-e-e-e-e*. Others render it *chuck burr pilla-will-a-will*. But towhee is not limited to this variety of vocalization. Besides the abbreviation of his *che-wink* alarm note to *swink*, or even *wink*, and a *chuck, chuck*, when the nest is threatened, he sometimes sings a rarely beautiful ditty which is totally unlike any of his other performances. I have heard it only shortly after his arrival from the south, before his mate had joined him, and have tried in vain to describe it. The bird moves slowly and sedately about among the fallen leaves in a soliloquy over the happenings of the long journey just ended, with apparently no thought of the absent mate. The manner of its utterance indicates that this is the bird's private song, egotistic if you please, while his tree-top rendition is evidently his altruistic performance.

The ordinary song and call and alarm notes are well rendered in the local names bestowed upon the bird: Towhee, che-wink, joreet, joree, charee, pink-pink, and wink-wink. His chestnut-colored sides and lowly habits have given him the names of ground robin and swamp robin, and his red iris, red-eyed towhee.

Nesting begins about the first of May in northern Ohio. The nest is almost always placed on the ground, often in a slight depression made by the birds, rarely in a bush up to seven feet from the ground. It is made of material easily accessible in the region of the nest, of dry leaves for a foundation upon which plant stems, dry grass, grape-vine bark, or like material is arranged, and the whole lined with fine rootlets. The material will vary somewhat with locality and situation of the nest, as a matter of course. Rarely the nest may be covered, with the entrance in the side, but it is usually not covered. The nest site is preferably some distance from a road or foot-path, often in moderately deep woods where there is little underbrush, but more often in the shrubbery fringing the woods, either on a hill-top or side hill or bottom land. Here at Oberlin, Ohio, I have found more nests in the low second growth near swampy places than elsewhere.

The nest complement is from three to five eggs, usually four. The egg seems to be a rather rounded ovate, running to nearly spherical on the one hand to elongate oval on the other. The ground color is white, not seldom tinged with pink or blue, with sprinkling of reddish-brown dots, spots, and blotches. It is a common experience to find eggs of the parasitic cowbird in nests of towhee. Twice I have found nests on which the mother towhee was serenely sitting with four eggs of the cowbird beneath her and none of her own. Two eggs of the cowbird and two or three of the towhee in a nest are common. Sometimes the parasitic eggs so closely resemble those of the parent that it is not easy to distinguish between them, but often the difference is very marked.

The towhee is a fairly common inhabitant of the whole region east of the Rocky Mountains and north to the northern border of the United States, breeding everywhere north of northern Alabama.

WEE BABIES.

ELLA F. MOSBY.

THE past summer I saw the most charming baby-bird of my life. He was so tiny and silvery, his upper feathers such a lovely olive-green and the under plumage such soft white, and over the bright, innocent little eyes a beautiful curving line like an eyebrow. I did not at first recognize him, but the next day I saw two, probably of the same flock, hunting very industriously over an old tree, and I knew they were the young red eyed vireos. Their feathers were all new and fresh, and that made them look so silvery and the tints seem so clear.

The same summer I became very well acquainted with a different set of bird-babies. They were still younger, for their feathers had a soft, downy look, and fluffed out so that they really looked larger than their tiny parents. They were silver gray, the little blue-gray gnat-catchers, and nothing could be more charming than the way they twinkled about the bushes, or turned somersaults in the air to catch flying insects on the wing. Their little songs, as low as whispers, their call-notes "like a banjo-string" *ting!* and even their low scoldings, were very pretty, and seemed to belong to them perfectly. Someone, who did not know birds very well called them little wrens, and they really had a good many of the restless movements and alert attitudes of these birds, but their habits are totally different. For instance, their life begins in a lichened cup high up among the top boughs and it is only in the late summer, when birds break their rules and go as they please for a brief holiday time before the migration, that you will see the gnat-catchers come down to the low bushes. I can hardly believe it myself, but I once saw a young one picking away on the ground.

One charm about the tiny birds, gnat-catchers, chebecks, vireos, kinglets, and the like, is that they are not usually so shy as large, handsome birds, and I have often had them almost within touch, singing, feeding, preening their feathers, in the loveliest and most confiding way.

WISH-TON-WISH.

EMMA M. GREENLEAF.

ONE bright May morning Wish-ton-wish sat on the mound in front of his family burrow. Wish-ton-wish was a lively young prairie-dog and he wanted to talk with someone.

Presently Madam Talky came out of her burrow and ran up to the top of her mound.

"Good-morning," called out Wish-ton-wish; but Madam Talky did not even turn her head his way. I dare say she thought to herself, "Humph! A chit of a fellow like that isn't worth my time."

Now Wish-ton-wish was an only boy in a family where there were five other children, so that he had come to believe, as only sons often do, that he was wise enough to talk with a very Solomon of prairie-dogs. The silence of Madam Talky didn't hurt his feelings in the least. Presently he called out again and this time with greater tact: "How are your charming daughters this morning?"

O, you should have seen the change in Mrs. Talky. She turned her whole face toward Wish-ton-wish now and fairly beamed upon him.

"Very well, indeed, thank you," she answered; "you must call to see us."

And this time I dare say she thought to herself, "Why, I can hardly realize that the young fellow is about grown up; how fine he looks, too; his family must have great confidence in him to let him be sentinel when he is so young."

Wish-ton-wish thanked her politely for the invitation, and said that perhaps he might call that afternoon.

"Have you heard that Mr. Grizzle Prairie Dog has been found?" asked Madam Talky.

"No, where?" said Wish-ton-wish.

"O, in a very strange place," madam answered.

"It was Mr. Talky that found him. At least we feel pretty sure that he did. It was this way: Mr. Talky often has attacks of dyspepsia, and last night he ate so much timothy hay for his supper that he had to run back and forth in our burrows for exercise, ever so long before he went to bed. He put his head out at the end of the longest burrow to see if the moon was full and there stood two boys with a gun and a dead hawk. He heard them say they wanted the hawk for a 'collection.' Then one of them said, 'Wish we could have shot it before it caught that prairie-dog.' Mr. Talky was so dreadfully startled that he whirled round and fairly flew back through the burrow to his nest, but we feel sure it was Mr. Grizzle that the hawk had caught."

"How many enemies our race has!" said Wish-ton-wish with a sigh. "Have you told Mrs. Grizzle the sad news?"

"Yes, I told her before sunrise this morning; but she's got used to it now and doesn't feel so bad. He had been missing two days, you know. I saw her going after clover with Mr. Reddy Prairie Dog. You remember Mrs. Reddy was eaten up by a coyote last week."

"Dear me, dear me," sighed Wish-ton-wish again, "how many enemies our race has!"

Just then there came a warning yelp from a sentinel some distance away. Madam Talky and Wish-ton-wish and every other prairie-dog in sight echoed the yelp and then each one of them leaped into his burrow like a flash. They must have turned a double-quick somersault, for, like another flash there were the little heads and bright eyes looking out at the very openings where their tails had vanished an instant before. Scores of curious little faces were peering out and their owners were anxious to know what made the first prairie-dog call out, "Danger, danger!"

Again came several quick calls from the distant sentinel; then all the little animals disappeared into their burrows.

No, not quite all of them. Way over on Last street there was an exciting scene. Mr. Silence Prairie Dog sat upright in front of his door fairly shaking all over with anger. His body shook, his tail shook, his head shook, and he yelped and barked—turned and popped into his burrow—turned again and popped out of his burrow in the same instant, and acted like one going crazy.

No wonder! Crawling slowly along through the short, dry grass, came a large rattlesnake. Nearer and nearer it glided to the door of the burrow. When it was almost there, Mr. Silence Prairie Dog keeled into his house, the snake slid after him, and then silence fell.

That night the village heard the rest of the story—how Mr. and Mrs. Silence Prairie Dog bit at the rattlesnake with their sharp teeth and scratched at him with their sharp claws, but could not drive him out of their nest where lay two baby prairie dogs. These two he ate for his dinner and then lay down in the deep, soft, warm nest of dried grass. How Mother Silence crept back after a long time and found the greedy old snake lying dead. Yes, truly; killed by the fierce bites of Mr. and Mrs. Silence.

Now all these sad affairs made young Wish-ton-wish quite blue.

Besides, when he went that afternoon to call on the Talky misses, he found that the plumpest one had gone after timothy with another young fellow. All at once he made up his mind that life was a failure and that he would run away from home.

When the prairie-dog folk found out that he was gone they were very sorry. They felt sure he had been eaten by some bird of prey or by a sly coyote.

"He was so wise and so handsome and so brave," said his mother; "there was no young fellow in the village who could be named in the same day with Wish-ton-wish."

Most everybody praised him now that he was dead, or now that they thought he was. I wonder if it isn't rather a poor plan to wait until people are dead or far away before we say the kind things that might have made them happy when they were near?

"We must not neglect our duties even in sorrow," said the father. "It is going to rain. Let us go out and put our mound into good order so that the water may not run into our burrows." They worked with a will, and found out, as everyone always does, that nothing helps sorrow and trouble so quickly as hard work.

When morning came the very first one to be out of a burrow was Wish-ton-wish's mother. Perhaps she had not slept any all night.

She went up to the top of the mound, then stood still with astonishment and joy; for there, on the other side of it, was Wish-ton-wish, hard at work. He was patting and smoothing the sides and making them even after the rain.

"O, where have you been all night, Wish-ton-wish?" cried his mother.

"I went over to the next village; I thought they might not have so many troubles as we have and perhaps I'd stay. But they have even more, mother; they have snakes and hawks and owls and coyotes and *men*, for yesterday some *men* came there with a great tank of water and poured five barrels into one burrow. They said they were making an 'experiment.' Of course they couldn't drown anybody because the burrows run down and up in every direction. So I thought I'd come home again."

"My son," said his mother, "you have learned a wise lesson. It is of no use to run away from trouble, hoping to find a place where there isn't any. Trouble comes everywhere; and so does happiness."

"Yes, mother; I believe it," said Wish-ton-wish, and he looked with soft eyes over toward the burrow of the plumpest Miss Talky.

THE BEE AND THE FLOWER.

MRS. G. T. DRENNAN.

VIRGIL, in his "Pastorals," beautifully alludes to the industry of the bee in culling its sweets from the flower. Perhaps we do not definitely know more of the mystery of the flower's secreting the nectar, and of the bee's making the honey, than was known in ancient times. There are differences of opinion on the subject. Darwin considers the honey secreted by the nectary to be the natural food with which the stamens and pistils are nourished. Others assert that the only use of honey with which flowers are supplied is to tempt insects, which, in procuring it, scatter the dust of the anthers and fertilize the flowers, and even carry the pollen from barren to fertile flowers. Linnæus considered the nectary a separate organ from the corolla; and every part of the flower which was neither stamen, pistil, calyx, nor corolla, he called a nectary; but what he called nectaries are at present regarded as modifications of some part of the flower; in some cases a prolongation of the petals, and in others an inner row of petals, or modified stamens adhering to the corolla. The term disk is now applied to whatever appendages appear between the stamen and pistil, formerly called nectaries. The form of the honey sac, or nectary, differs with different flowers. In the lily it is a mere cavity, or gland. In the honeysuckle a golden fluid is secreted at the end of the tube, without the sac. Few things in nature can be more beautiful than the nectary and the honey drops in the crown imperial. Each one is a shallow cup and pearly white. From each cup hangs a shining drop, like a tear. The tint of the cup gives the drop its hue and each one looks a splendid pearl fastened in the crown of each of the flowers of the crown imperial which, hanging down, only display the pearly honey drops when we look up into the flower. The buttercup is one of the most interesting flowers that secrete nectar. It belongs to the *Ranunculus*, or crowfoot family, which numbers many wild and some of the choicest of cultivated flowers. The nectar-cups are under the petals, and the mission of the flowers seems to be to feed the bees. It is well known that beyond the realm of romance and poetry the buttercup is a plant abhorred by the cow that gives the milk that makes the butter. The lovely yellow color of the buttercup no doubt suggested the name. Apiarists know that certain kinds of flowers make certain grades of honey. They know also that while the bee makes its honey from the flower, it will also make honey from sugar and molasses. The drainings of molasses casks are given the bee for winter food, and it is one of the unsolved mysteries how the bee makes its honey. The nectar in the flower is not honey. The bee makes the honey from what is abstracted from the flower, and also preserves life and makes honey from sweets that are given it for food. Buckwheat is an example of dark, rich honey and white clover and raspberry blooms of clear, translucent honey. Also the fact is, that abstracting the nectar in no wise impairs the beauty nor the fruitfulness of the flower. Instance the rich, productive buckwheat, how profusely it yields its flower; and raspberries ripen sweet and juicy from vines that have had the bees hovering over the snowy blooms from the time they open till the berries form. Honey bees are not always safe in their selection of flowers to feed upon, for Xenophon, in his "Retreat of the Ten Thousand," describes the honey of Trebizond as having produced the effect of temporary madness, or drunkenness, upon the whole army. Mr. Abbott, writing from the same country in 1833, says he witnessed the same effects of honey upon those partaking of it as Xenophon describes.

This would indicate that the honey undergoes some chemical change in the making, as the bees, in these instances, were not injured by the flowers, yet the honey they made from them was injurious to man.



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CANARIES.
Life-size.

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THE CANARY.

(*Serinus canarius.*)

C. C. M.

THIS favorite singer and cage bird is a native of the Canary Islands, Madeiras, Azores and other small islands near the western coast of Africa. The islands are in the latitude of Florida and the climate may be said to be of a tropical character, though varied by lofty mountains. The canary in its native habitat is chiefly found in the mountainous districts, often several thousand feet above the level of the sea. The wild birds mate about the latter part of March. The nest is built in the tall trees of the evergreen species, frequently in the tops of these trees, and never less than eight or ten feet from the ground. We have seen it stated that they build on the ground, but this has been found to be an error.

The first canaries known to Europeans were brought from there by a merchant ship trading with the Canary Islands as a part of her cargo, several thousand of these birds having been trapped in the hope that they could be sold for a good price as song-birds. The ship was wrecked near the coast of Italy, but by the thoughtfulness of a sailor the cage containing the birds was opened and the birds liberated. They flew at once to the nearest point of land, which happened to be the island of Elba. The climate was so propitious that the canaries multiplied rapidly. In a very short time their superiority as songsters attracted attention and their domestication followed. The shipwreck referred to occurred early in the sixteenth century. The Italians were the first to breed these birds, and they were by them shipped to Russia, Germany, Belgium, and England. They were first described in an English book on natural history in 1610. The rage for breeding the canary with home birds became curiously popular and resulted in a curious intermixture of colors. In Italy they were bred with the citril and serin; in Germany with the linnet, green finch, and siskin. Mr. C. N. Page says, in his "Feathered Pets," a very valuable book for bird fanciers, that in an English book published in 1709 there are twenty-eight varieties of canaries mentioned, comprising nearly all those known at the present time and some which have become extinct. The climate has also had much to do with the change of color in these birds. The canary, which in its native home at Teneriffe is almost brown, becomes yellow and sometimes nearly white after being bred a few years in France, and it has been observed by naturalists that the winter fur of animals and feathers of birds become thicker and lighter in color in proportion to the coldness of the climate which they inhabit.

In England and Germany canary societies have existed for upwards of a century, and annual shows or exhibitions are held with prizes offered for the best birds.

Of the many varieties of canaries the most popular in the United States is the German. It is smaller than the English canary and is a much finer singer, being bred and trained for song and not for size. They are called Hartz Mountain canaries, and experts consider them the most satisfactory bird for the people. They are bred by the peasants in ordinary living-rooms high up among the Hartz Mountains of Germany. These birds are even more hardy than the American-bred canaries. They are brilliant singers. We had one for five years, and while its voice was wonderfully clear, full, and musical, it was too loud and was not admired by our neighbors. The shrill and piercing note of some of this species renders them somewhat objectionable as house pets. The birds are happy in the cage, require very little care, and if properly attended to are said to be free from diseases. Most of the Hartz Mountain canaries are somewhat mottled with dark, greenish-brown, though many of the birds are clear yellow, and few have crests. In the canary-breeding section of Germany, almost every family keeps a few cages of these birds, or has a room devoted to their breeding. The German people are very fond of birds and there are many of them in the United States who have many cages of rare specimens.

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Milwaukee supplies the United States with the bulk of the Hartz Mountain canaries, and there is no great crime in the deception, for the Milwaukee bird is really an improvement on the imported article, having just as fine a voice and being much hardier.

Experience has shown that the imported singer loses the power of transmitting his voice to the young after passing through an American winter. This is the case also, it is said, with Tyrolean singers who come to this country, their voices losing the peculiar yodling quality when they have been here a year. The native canary is hardier than the imported one, and, with proper training, is every bit as good a singer.

Before they are mated the hen birds are kept in separate cages in the music room, carefully fed and made to listen to the music of the singers and the machine used in training their voices. In this way the hen is enabled to transmit the best musical quality to her offspring. The music-room is a large one, with a south exposure, and is kept with the same scrupulous neatness as the breeding-room. In the corner of this room is the bird organ, and with it the little birds are given their vocal training.

When the machine is started the notes emitted are wonderfully like the song of the untutored canary. These notes are known to bird-trainers by the term *pfeiffen*. Gradually the whistle strikes onto a different line. It is an improvement over the *pfeiffen*, and is called the *klengel rolle*. A higher step still is called the *klengel*, and a still higher step *hohl klengel*. Lastly comes what is called *hol rollen*, and a bird whose voice has been developed up to that point is worth \$50 in the market any day.

In this country there are only three importers of canaries. Each of these firms employs "bird-pickers" who travel over the mountains in Germany and gather together a supply of birds which are selected from the stocks of the small breeders.

There are several varieties of English canaries. The Norwich is a general favorite. It takes its name from the city of Norwich, where for generations it has been bred and cultivated. It has a brilliant, deep, reddish-yellow plumage. It is regarded as the most beautiful of all the canaries. Its color is frequently so dark that it is called the red canary. This color is produced artificially by feeding them during the moulting season a large amount of cayenne pepper mixed with hard boiled egg and cracker crumbs.

Canaries have many pretty ways and can be taught many pretty tricks. One that belonged to the writer had been deprived of its feet. Its wing feathers never grew out, hence it could not fly or perch and was obliged to stump about on the floor like an old veteran on his crutch. But it was healthy and vigorous, and so pugnacious that on our return, after the day's absence, it would fly at us, or try to, poor thing, and peck our outstretched fingers, even while taking offered hemp seed greedily. The bird watched and waited for our coming and we became so much attached to it that its death was a real loss.

The little birds can fill our hearts
As full as larger creatures' arts.

The nest of the canary is a pretty, neatly formed structure of any soft material it can find. Five bluish eggs are usually laid, and three or four broods are raised between February and September, though the female will sometimes persist in building until much later.

THE PAROQUET.

"I AM SO SORRY," wrote a little girl from Tarrytown, N. Y., to the editor of BIRDS AND ALL NATURE, "not to find in your magazine any more the bird-talks to the little folks. I used to read them with so much interest. Are there to be no more of them?"

Other little folks have written to the editor in much the same strain, so that this month the paroquet will speak for himself.

"From my photograph," he says; "you will notice that I am fond of gay dress, green, blue, yellow, orange-chrome, and red being my favorite colors. From my brilliant coat you would judge me to be a tropical bird, but I'm not. I was born and raised in the United States, as was my family, therefore I am an American citizen.

"In appearance I greatly resemble my cousin, the glib-tongued parrot, but for some reason, though my tongue is thick and short like his, and my bill as charmingly curved, I cannot talk—that is, not to be understood by the human family, I mean, for among ourselves we keep up a very lively conversation, in very loud tones—a mark we think, as do some other folk, of good breeding. On the other hand there are people unreasonable enough not to like it, and they say we 'scream' and that our notes are 'ear-splitting' and that, though we are beautiful to look upon and extremely docile, our voices render us undesirable as cage birds or pets. The idea! As though we do not consider that very fortunate!—for a cage is a prison, no matter if the bars are gilded. For my part I prefer to be free even if I do have to hustle for a living and, between you and me, I think that a bird that can screech and doesn't screech when shut up in a little cage doesn't deserve to live. He ought to be killed and stuffed and set up in a museum for people to gape at. Don't you think so, too?

"It is a great pity, but we paroquets are fast being exterminated. In some regions, where less than twenty-five years ago we were very plentiful, not a paroquet is now to be seen. We were once quite common in Ohio, Indiana, Illinois, Pennsylvania, and other parts of the United States. We are now to be found, in diminished numbers, in remote localities only of the lower Mississippi Valley and the Gulf States and in some regions of Florida. To escape from our enemy, the plume-hunter, we make our homes in practically uninhabitable regions. That is a long word for you little folks, but spell it out slowly, as I did, and you will understand what it means.

"Our nesting-time is during February and March. Then colonies of us paroquets, sometimes numbering a thousand, flock to a cypress swamp and build our flimsy nests in forks of trees, near the end of a slender, horizontal branch. Often there are fifty nests in one small tree, each containing from four to five pretty, greenish-white eggs. It is a good thing we build our nests in wild and unsettled places, for they are so flimsy that the eggs are plainly visible from beneath. What a temptation to the bad boy they would be, and to the bad man, also! Some paroquets, however, choose a hollow tree in which to deposit their eggs.

"Well, I have told you about all I know of myself and family, so will close by reciting in my very loudest and prettiest screech, so that all the neighborhood may hear, a few lines about a Mr. Macaw who was silly enough, after escaping from a cage, to return to it. He is a cousin of mine, a *distant* cousin, for he was born in South America; but he wears the same colored coat and vest as I do, his tongue is just as thick, and his bill curves like a parrot's, also:

MR. MACAW'S LESSON.

'Mr. Macaw was tired of his cage—
Too much of a prison for home;
Mr. Macaw was in a great rage,
And so he *settled* to roam.

The cage-door was open, the window too
(Strange chance, both open together!),
So he took his chance and away he flew;
But, alas! it was wintry weather.

Wind from the north, ground covered with rime,
A frost that made your limbs shiver;
Poor Mr. Macaw! this was not like the clime
On the banks of the Amazon River.

So Mr. Macaw grew wise, as do men,
When taught by experience bitter;
He flew back to his cage, and determined then
He would never again be a flitter."



FROM COL. CHI. ACAD.
SCIENCES.
A. W. MUMFORD,
PUBLISHER, CHICAGO.
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CAROLINA PAROQUET.
Life-size.

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THE CAROLINA PAROQUET.

(*Conurus carolinensis.*)

BY LYNDS JONES.

FEW birds indeed can lay claim to such beautiful and varied dress as our native paroquet. But for this dress and for certain habits which will be spoken of more particularly a little later, he has had to pay a most severe penalty. Once an abundant bird over the whole southeastern portion of the country, ranging commonly as far north as southern Ohio and Illinois, and sometimes even as far north as southern Michigan and New York, and as far west as eastern Colorado, his numbers and range have been reduced to a few individuals in the wilds of the Indian Territory and the adjacent parts of Texas, and the fastnesses of the Florida swamps. The region over which he ranged so numerous in advance of civilization, suffers a distinct loss in his extermination.

It is hardly fair to lay the blame for the disappearance of this bird solely at the door of the plume-hunters and collectors, for it must be admitted that the paroquet was a real menace to the fruit-grower and farmer when he was abundant. Even his extreme fondness for the fruit of the cockle-bur, thistle, and a few other noxious plants, could hardly atone for the complete ruin of the apple crop, or his serious inroads upon the wheat or corn field. One could not stand tamely by while a flock of these birds, with all their beauty, stripped his orchard of every blossom and bud.

The food of the paroquet was entirely vegetable, consisting of the seed of the cockle-bur, as already stated, sycamore and cypress seed, pecan and beech nuts, the fruit of the pawpaw, mulberries, wild grapes and various other wild fruits as well as cultivated fruits, the seeds of pine cones and the burgrass. Grains of various kinds were eaten while in the milk, and Mr. Frank M. Chapman found them eating the seeds of thistles. So varied a diet enabled these birds to pass the winter in the northern parts of their range as well as farther south. It has been stated that paroquets have been found hibernating in hollow trees in the coldest winters. If they were actually found in such places they were undoubtedly simply taking refuge from some severe storm, to issue forth again when it had passed.

The paroquet's strong, hooked beak was probably so formed for the cutting of stems and husks of plants and the crushing of seeds and nuts, but he also finds it useful in climbing about trees as an aid to his yoked feet, and as a partial support while he sleeps in some hollow tree, the bill being hooked over a projection or into a convenient crevice.

Major Charles E. Bendire describes the flight as undulating, like that of the woodpeckers, but very swift, accompanied by a continuous chattering while on the wing. The birds remain together in flocks of from six to twenty individuals (before they became so scarce, by hundreds), and are very devoted to each other. The cries of a wounded companion will always recall the whole flock to his aid, thus enabling the hunter to kill every bird in the flock. It is this characteristic, no doubt, which has very largely caused the rapid disappearance of the birds before advancing civilization.

The nesting-habits of the paroquet are in some doubt, but the evidence seems to indicate that the birds may rear their brood either in a cavity in a tree or build a slight nest after the fashion of the mourning-dove. Such nests seem to be largely confined to the cypress swamps of Florida. The eggs, several of which have been secured from birds in confinement, are pure glossy white, smooth, and rather ovate in shape, somewhat larger than those of the mourning-dove, and averaging 1.39×1.07 of an inch.

These birds seem to nest in colonies, a fact which led Major Bendire to suggest that when the colonies were very large the birds were forced to build open nests from a lack of suitable nesting-places in cavities.

The cry is described as "shrill and disagreeable, a kind of grating, metallic shriek." One call resembles the shrill cry of a goose. They sometimes give utterance to low conversational notes while perched.

It seems almost incredible that scarcely more than half a century has witnessed the passing of a once abundant species of our native bird. Like the bison, the paroquet has been swept away by the rushing tide of progress, leaving only fading memories where once they were characteristic features of the landscape. We may congratulate ourselves that there are few of our birds and mammals that find it so impossible to survive the advance of civilization.

WHAT THE WOOD FIRE SAID TO A LITTLE BOY.

What said the wood in the fire
To the little boy that night,
The little boy of the golden hair,
As he rocked himself in his little arm-chair,
When the blaze was burning bright?

The wood said: "See
What they've done to me!
I stood in the forest, a beautiful tree!
And waved my branches from east to west;
And many a sweet bird built its nest
In my leaves of green,
That loved to lean
In springtime over the daisy's breast.

"From the blossomy dells,
Where the violet dwells,
The cattle came with their clanging bells,
And rested under my shadows sweet;
And the winds that went over the clover and wheat,
Told me all that they knew
Of the flowers that grew
In the beautiful meadows that dreamed at my feet!

"And the wild wind's caresses
Oft rumbled my tresses;
But, sometimes, as soft as a mother's lip presses
On the brow of the child of her bosom, it laid
Its lips on my leaves, and I was not afraid,
And I listened and heard
The small heart of each bird,
As it beat in the nests that their mothers had made.

"And in springtime sweet faces,
Of myriad graces,
Came beaming and gleaming from flowery places.
And under my grateful and joy-giving shade,
With cheeks like primroses, the little ones played;
And the sunshine in showers,
Through all the bright hours,
Bound their flowery ringlets with silvery braid.

"And the lightning
Came brightening,
From storm skies, and frightening
The wandering birds that were tossed by the breeze,
And tilted like ships on black, billowy seas;
But they flew to my breast,
And I rocked them to rest,
While the trembling vines clustered and clung to my knees.

"But how soon," said the wood,
"Fades the memory of good!
For the forester came, with his axe gleaming bright,
And I fell like a giant all shorn of his might.
Yet still there must be
Some sweet mission for me,
For have I not warmed you and cheered you to-night?"

So said the wood in the fire
To the little boy that night,
The little boy of the golden hair,
As he rocked himself in his little arm-chair,
When the blaze was burning bright.

—*Atlanta Constitution.*

THE MISSISSIPPI.

W. E. WATT.

AMERICANS like to boast of the things of this country that are larger, longer, more valuable, or more wonderful than anything of the kind in the world. They have recited in school such a number of statements about the Mississippi river that the great stream has become one of the essential points of our nation's honor.

You may be able to make the average man believe that Washington was not always as truthful in his youth as Weems in the cherry-tree story tried to make him; that Captain John Smith drew somewhat on his imagination when some sixteen years after the expedition into the woods he told the story of his rescue by Pocahontas; that perhaps, after all, we did not whip the entire British nation twice in open warfare—but it will be hard to make any native-born American admit that the Mississippi river is not the longest in the world.

He may listen to your argument in favor of the Nile or the Amazon, but he will tell you that he still thinks that if the Mississippi had been measured correctly at first, taking the source of the Missouri as the source of the Mississippi, we would have been the possessors of the longest river on earth.

And if that should seem a trifle weak he will at once tell you that the great river is more wonderful than all others because its source is several hundred feet nearer the center of the earth than its mouth. In other words, the river flows up hill. The curvature of the earth is not the true arc of a circle from the equator to the poles, for the axis of the earth is shorter than its diameter at the equator by about twenty-six miles. It is thirteen miles less from the north pole to the center of the earth than from any point on the equator to the center. So the river flows towards the equator with an apparent fall as estimated from the sea-level, but with an actual rising away from the earth's center just as the sea rises round this shoulder of the earth.

So the Mississippi is a source of joy and boastful conversation to every citizen of the United States.

The Acadian settlers of Nova Scotia whose praises have been sung by Longfellow in his "Evangeline", were the earliest to reclaim land from the sea in America. Being weaker than those who used the ax to fell the giants of the forest primeval, they were more skillful with the spade. They took advantage of the extremely high tides of the Bay of Fundy and its branches, and when the water was low threw up embankments which prevented the sea from covering part of the rich red mud flats before the village of Grand Pre.

At the time of their painful dispersion they had secured all the land between the original shore and the island which stood out in the basin of Minas.

Though they could not take these rich lands with them in their exile, many of them carried the knowledge of dike-building down to the lower courses of the Mississippi, and taught the rest of the Americans there how to get the fat lands of the river bottoms by means of levees.

When General Pakenham gave up his life and lost a fine British army to General Jackson after the treaty of peace had been signed in the War of 1812, his right rested on the bank of the Mississippi where there was a levee a little over five feet high.

This levee cut off the waters from spreading when the freshet was on. It was sufficient at that time. Extensions of levee work cut off more and more of the bottom-lands from the spread of the high waters till now nearly four-fifths of the area over which the waters of the June freshet used to spread are protected by these structures.

The levees are not now the low banks of earth which once kept the waters back. The great mass of water that comes from the melting of snows in the Alleghenies and the Rockies must either spread out or pile up. Confining within less than a mile of width a surplus of water that formerly spread itself for a hundred miles makes it necessary for the water to rise and rush forward with greater violence.

Year by year the levees have crept up the sides of the great river, choking it into narrow walls. Year after year it has risen in its wrath and burst its bounds to destroy the cities and plantations which have been fattening in the mud of its alluvial flats. Every year the levees are put up higher, and as the works extend to the northward and more effectually close up the southern places of spreading out there is an average increase in the stage of high water and in velocity of the current. When it was allowed to wander over great stretches of country the water seemed in no hurry to get to the gulf, but now it goes tearing madly through its narrowed banks, and it has become a question with Congress which will take much deliberation and experiment as well as great financial outlay to solve.

It has been proposed that great reservoirs be constructed in the mountain districts to hold back the waters that are wasted in their rush to the sea. If there could be made in the Bad Lands in northern Wyoming a reservoir that would hold all the waters accumulating there during the months of spring, that reservoir would "skim off" the top of the Mississippi river two thousand miles away and save the people there from the perils that threaten them whenever the water mounts toward the danger-point.

It would require a vast artificial lake to hold these waters, but there are mountain ranges that could be utilized to form the barriers and the land taken from profitable grazing could be paid for with much less expense than the cost of one inundation of Mississippi bottom lands when a levee breaks.

Instead of one vast reservoir it will probably be found expedient to lay out a great number of works for retaining the western waters, as well as others in the eastern mountains and some in the beds of other tributary rivers whose sources are in the great basin between.

If these stores of water could be utilized for irrigation it is probable that the works would eventually pay for themselves in the increase in value of cultivated lands. The water at present is largely wasted because it rushes past the lands that need it before their distress of drouth comes, and its bulk is fairly spent when they need most the water that has passed. Adequate systems of reservoirs would also prevent largely the wearing away of banks and the changing of the course of the channel and even of the river itself which now sometimes tears away the foundations of cities, obliterates landmarks, and carries off bodily many well-tilled farms. Navigation could be much improved if the stages of high water could be moderated.

The Kansas farmer complained that the Missouri river is too thick to drink and too thin to plow. Control of surplus water near the sources would make this river so moderate that commerce would move along its surface. Varying moods and shifting sands now prevent navigation on that great river almost completely.

The Chinese have a problem similar to ours. Their government esteems their board of public works as one of the highest in their country. This board has charge of the canals and embankments along the great rivers. But it is a Chinese board.

The Hoang Ho resembles our great water course in that it rises in mountains and flows for hundreds of miles through comparatively level country in its lower courses. It deposits mud along its way through the great plain so that the people are continually obliged to construct levees higher and higher until nature no longer will put up with such treatment and the great yellow river breaks its bonds and travels across the country to find a new outlet at the seacoast.

In 2500 years it has altered its general course nine times with terrible destruction of life and property. Its last great breach occurred in 1887, when it tore through the empire a new channel that caused its waters to reach the sea through the mouth of the Yangtse-kiang five hundred miles away from its present mouth. More than a million lives were lost and the devastation of the country has never been approximately estimated. The gap torn in its embankment was two-thirds of a mile in width. Efforts to close it were ineffective except in low water, and when it was at last almost accomplished the celestials had a narrow but constantly deepening breach to mend, its depth during the last days of the work being so great that a torrent sixty feet deep fought with gigantic might against the endeavors of the men. At times the bed of this river has actually stood above the level of the surrounding country, its walls having risen with the rise of the bed due to the deposit of mud till it seemed as if the great river had risen to take a look over the surrounding plain to see where it could wreak the direst vengeance on those who prevented it from running unvexed to the sea.

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We may learn from the wide experience of the Chinese that there is no safety for us in merely building higher the walls to restrain the Mississippi. The nation must take hold of the matter with a strong hand. Possibly forty or fifty millions will be necessary to construct the works which will moderate the flow and distribute its waters to those who need it in their irrigating ditches. Even though it cost thrice the sum paid to Spain in settlement of the Philippine question, the people would more gladly give it.

Nothing short of a great ship canal along the bed of the Mississippi will satisfy Americans. There is but one objection to the work, and that is its great expense. But we have recently seen that the cost of one great inundation along the Brazos was far more than the figures here named, and no account need be made of the loss of life and the suffering that followed that great disaster.

Our great river must be controlled. Not in the Chinese fashion, which we know to be merely the storing of wrath against the day of wrath, but it must be done intelligently and with patience, with faith in ourselves and a determination to prevent the great loss of life which will be imminent every time there happens to be the coming of a flood from the eastern mountains and another from the western at the same time.

Our great water way, when properly controlled and protected by permanent revetments and masonry, will furnish the farmers of the great plains a natural outlet to the sea for all their produce. This will be monopolized by no railway trust; no combination of steam-boat men will put the farmer into the hands of corporations seeking to rob him of the best part of his crop on the way to market, for there will be docks along every man's water front, and the rudest flatboat will always rely upon the favoring current to bear its cargo to the sides of independent vessels plying the seas to the uttermost parts of the earth.

INDIAN SUMMER.

Withal there comes a time when summers wane,
When from the sunshine something seems withdrawn,
And pensive shadows lengthen on the lawn;
White bindweed wanders lonely in the lane,
The one sweet thing that now unwithered doth remain.

But there is beauty in autumnal bough
No less than in dear April's dewy leaves,
When with its store of golden-girdled sheaves
Piled stands the wain where one time passed the plow,
And ripened labor reaps fulfillment of its vow.

Then, though no more the oblivious cuckoo calls
From land to land, nor longer on the spray
Of yellowing elm the throstle vaunts his lay,
The ringdove's mate, as fades the leaf and falls,
Reiterates its note of love that never palls.

Though fluttereth still the soul-like lark aloft,
There is a quiet in the woodland ways,
The retrospective hush of vanished days,
And around garden close and orchard croft
A something in the air celestially soft.

From hamlet roofs blue spires of smoke once more,
As dies the day in mist along the dale,
And widowed evening weeps behind her veil,
From log-replenished ingle heavenward soar,
And lamps are early lit, and early latched the door.

—*Alfred Austin.*



FROM COL. F. M.
WOODRUFF.
A. W. MUMFORD,
PUBLISHER, CHICAGO.
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CHIPMUNK.
Life-size.

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NATURE STUDY PUB.
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THE CHIPMUNK.

(*Tamias lysteri*.)

C. C. M.

NATURALISTS, as well as many ordinary observers, it is said, recognize numerous varieties among the chipmunks of the United States, founded principally on the markings of the fur; for in their habits they are all very similar. Elliott Coues describes four varieties found in this country.

The American chipmunk, hackee, or chipping squirrel (*Tamias lysteri*) is distributed all over the United States. The face is of a reddish brown tint, with darker spots on the forehead and cheeks; the nape of the neck is ashen gray, the hind-quarters reddish brown, the under surface whitish; there is a dark-brown stripe on the back, a black stripe over the eye, with white above and below it, and there is a wide white side-streak edged with blackish brown; the upper surface of the tail is dark-brown, the base being grayish yellow, the tip whitish and the lower surface a ruddy hue.

This description may seem superfluous, in view of our picture of the lively little animal; we think, however, it may induce closer observation of the markings of its fur.

The chipmunk is visible at all seasons of the year, but late in summer it may be seen running about, "its cheek pouches filled and its eyes beaming with the satisfaction which its riches afford it." According to the different months in which they mature, it gathers its varied stores, for the most part consisting of buckwheat, hazelnuts, maple seeds, and corn. During the winter it hibernates to some extent, but it seems to stand in need of food during the whole winter. Audubon dug up a burrow in January, and at the depth of about four feet he found a large nest of leaves and grass in which were three chipmunks; others seemed to have disappeared in the lateral passages at the approach of the diggers. The animals were overcome with sleep and not very active, but they were not as torpid as true hibernating animals are, and they snapped viciously at the naturalist, who tried to handle them. The animal does not become torpid before November. It does not leave its subterranean home during the winter, but keeps a passage open. When the snow melts it begins its activity above ground.

The young are born in May, and a second litter usually in August. It is said the males engage in fierce combats during the breeding-season.

The farmer is not very friendly to this animal, which he regards as a pest. It is hunted extensively. A whole army of enemies is constantly engaged in its pursuit. "Boys utilize it to practice the noble sport of hunting; weasels pursue it both on and under the ground; cats deem it a prey equally as good as rats and mice, and all larger birds of prey carry it off whenever they have a chance. One of these birds has even gained for itself the name of squirrel-hawk, because of its attacks on the chipmunk." The rattlesnake, according to the observations of Geyer, also follows the poor little creature with a great deal of perseverance. Winter often causes sad havoc among the numerous young brood born in summer. Yet they are very plentiful, at least in favorable years, the great fecundity of the female making up for the losses. Their chief protection against enemies is the difficulty in finding them and the amazing nimbleness they display as they dart between and under hedges like wrens.

The beauty and gracefulness of the ground-squirrels render them interesting pets, but as they never become quite tame, are timid and addicted to biting, and gnaw everything in the cage they are not very desirable to keep. Their care presents no difficulties, and they thrive well on the simplest diet of grain and fruit.

Greenwood Cemetery, Brooklyn, N. Y., is suffering for the second time in its history from a too great increase in its colony of chipmunks. Eighteen years ago they became such a nuisance that a trapper was employed, and 28,000 small striped pelts were the results of his first year's work.

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This year it was noticed that an unusual number were about, even in the early spring, when the chipmunks first appear after a winter's sleep. Now it is estimated that there are at least 20,000 chipmunks in the cemetery, and a great deal of damage has been done. Through their burrowing habits they have undermined the gravestones, and even in many cases caused graves to sink in, when rainwater has helped to hollow out their burrows.

The chief enemies of the chipmunks are the florists, for the animals nip growing plants at the roots to reach the sap. One Brooklyn florist says that since Decoration Day he has had to put in 250 new plants to keep up an original plat of 150. Florists with contracts to keep graves in condition have entered strong protests, but outside florists, who work by the piece, have been making money.

The eight special policemen on the grounds have been furnished with poisoned nuts to scatter about. No diminution has yet appeared in the chipmunk army, as they reproduce three or four times a year and increase fourfold in a season if not checked. But if poison fails another trapper may be called in.

Our Animal Friends says that some children were feeding chickens with some stale bread one day, and two or three chipmunks appeared. They wanted the bread, too, and every time the children threw a bit down, both chickens and chipmunks would make a rush for it; and nearly always the chipmunks got it. One of them was particularly smart; he gathered all his pieces in a

little pile between two stones, and he seemed to keep one eye on them and the other on the lookout for fresh pieces all the time. At last one of the chickens saw the pile and made a run for it, but its owner got there first, and he just sat right down on the top of the heap and *chattered*. The chicken kept on coming nearer and looking rather as if he would fight for it, so Mr. Chipmunk sat straight up, twirled his tail, and just seemed to shake with anger. Then another came along to help him, and the two tucked all the pieces into their pockets and off they darted, leaving the poor chicken looking awfully disappointed.

TED'S WEATHER PROPHET.

GRANVILLE OSBORNE.

Flittin' along from tree to tree,
Chipper 'n friendly ez he kin be;
Dancin' erbout on the'r talles' lim',
Jes' the likeliest place fer him.
Bound ter foller 'n seems to know
Very bes' places I like to go;
Bobbin' his head 'n winkin' his eye,
'S if he knew all erbout ther sky;
'Nen he nods an' sez as plain,
"Goin' ter rain; goin' ter rain!"

Little feller 'ith coat all brown,
Vest uv red wher' the wings come down,
Primpin' his feathers 'n winkin' at me,
Mincin' er-round so he kin see;
'Taint no use ter hide erway,
'At's a game what two can play;
'Course he finds me, 'nen he tries
Ter make believe he's awful wise.
All uv a suddin he sez again,
"Goin' ter rain, goin' ter rain!"

Climbed way up ter his nest one day,
"Better be careful," I heard him say;
Ruffled his coat 'n looked so mad,
I didn't 'spose he could be so bad.
Coziest nest 'at ever you seen,
Snuggled way up amongst ther green;
Four little eggs, ther purtiest blue,
Didn't touch one uv 'em, honest 'n true!
Robin hops on 'n begins ter explain,
"Goin' ter rain, goin' ter rain!"

THREATENED EXTERMINATION OF THE FUR SEAL.

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THE fur-seal herds of the north Pacific breed on islands situated in Bering Sea and belonging to the United States and Russia. On these islands, Pribilof and Komandorski, for nearly a hundred years they have received all necessary protection from attacks on land. The existence of the herds, however, demands the further protection of the females when they are feeding or migrating in the open sea beyond the usual three-mile limit of territorial jurisdiction. The animals visit certain islands in the summer. They breed on them and make them their home. The young remain there until driven away by the storms of winter. The adults leave the islands in summer only to feed, going to a distance of one hundred to two hundred miles for that purpose. The winter is spent by the entire herd in the open sea, their migrations extending from one thousand to twenty-five hundred miles to the southward of their breeding-resorts.

For many years, both under Russian and American control, the herds have, as I have said, received absolute protection on land, the killing for skins being restricted to the bands of superfluous males. As only one male in about thirty is able to maintain himself on a rookery or to rear a family, about twenty-nine out of every thirty are necessarily superfluous. The survival of one male in a hundred is sufficient for all actual needs of propagation. The young males on land are as easily handled and selected as sheep, and no diminution whatever to the increase of the herd has arisen from selective land-killing. The number of females in the herd bearing young each year was, in the earlier days, about 650,000 on the American islands and perhaps half as many on the Russian. The numbers of males and of young were together about twice as many more. This gave an annual total on the American, or Pribilof, islands of about 2,000,000 animals of all classes, while on the Russian, or Komandorski, islands there were about 1,000,000.

About 1884 different persons, known as pelagic sealers—chiefly citizens of Canada, but some of them from the United States—began to attack the herd in Bering Sea. Here no selective killing was possible. The females were always in the numerical majority, as the males had become less numerous on account of land-killing and as they left the islands less frequently in the summer. Each female above two years, when taken in the sea, died with her unborn young. Most of the adult females so taken after July 1 had left their young on the islands, and these orphan pups invariably starved to death.

Beginning with this increase of pelagic sealing in 1884 the fur-seal herds rapidly declined in numbers. In 1897 there were about 130,000 breeding-seals on the American islands, or about 400,000 animals of all classes, while on the Russian islands there were less than 65,000 breeding-animals, or less than 200,000 of all classes.

For this great reduction in numbers there is but one cause—a cause plain, self-evident, and undeniable—and that is the slaughter of breeding-females at a rate largely in excess of the rate of increase. While other causes have been assigned, none of them is worthy of the slightest consideration in explaining the decline.

Even in 1893 it was evident, to all capable of forming an opinion, that pelagic sealing was the sole known cause of the decline of the fur-seal herds. It was also evident that as an industry it must be self-destructive, since, if permitted to exist on any scale which would make it profitable, it must destroy the herd on which it operated.—*"Lessons of the Paris Tribunal of Arbitration,"* by President David Starr Jordan, in *Forum*.

THE PEACH.

WILLIAM KERR HIGLEY,
Secretary of The Chicago Academy of Sciences.

THE peach (*Amygdalus persica*, L.), is one of our most important and best-known fruits.

It is not found in the wild state, in its present form, though in some localities it propagates itself, having escaped from cultivation.

It is probably a native of China, where it has been cultivated for centuries and where it is said to reach its greatest perfection, although Darwin holds that the evidence seems to indicate that the wild almond of Persia is the original source of the cultivated almond, the peach, and the nectarine. The specific name *persica*, has its origin in the fact that the peach was obtained from Persia, both by the Romans and the Greeks.

Dr. Willis tells us that "it was introduced into Italy from Persia by the Romans, in the reign of Claudius Cæsar. It was introduced into Great Britain during the sixteenth century, and thence brought in 1680 by the settlers of Virginia to America."

The number of varieties seems to be unlimited. Over four hundred have been catalogued, though less than one hundred of these are constant. The nectarine is considered a variety and closely related to the peach and the plum, the apricot, and the cherry.

The tree itself, when bearing its beautiful rose-colored, five-petaled flowers, is highly ornamental. It seldom grows higher than twenty feet and its branches form a symmetrical top. One very ornamental variety produces double flowers and bright, shining leaves, but no fruit.

This valuable plant is generally placed in the family *Rosaceæ*, which includes many species of economic and ornamental importance. Besides those already mentioned, here belong the rose, the strawberry, the raspberry, the blackberry, the apple, the pear, and the quince, as well as many beautiful wild forms.

The thousand or more species usually classed in this family may be readily separated into distinct groups, to which are given distinct family names by some authorities. Thus, the peach, the cherry, the plum, and the almond, which resemble each other in regard to the structure of their fruits and in their chemical constituents, may be placed in a family by themselves.

It is of interest to note that this luscious fruit was not always considered free from noxious qualities. Pliny states that it was considered by some that its presence in Egypt was due to its introduction there by the Persian king for the purpose of poisoning his enemies.

The Chinese writings refer to the peach as early as the fifth century before Christ, and it is given the name "tao" by Confucius. We are also told that in these writings "the peach tree holds the same place that the tree of knowledge does in the sacred scriptures, and that the golden Hesperides, apples of the heathen, hold among the western nations."

In Chinese mythology a peach tree is mentioned which was thought to possess the power of causing immortality but which produced its fruit but once in a thousand years, and another, which grew on a mountain and which existed in the early history of China, was said to be guarded by a number of demons.



CHICAGO:
A. W. MUMFORD,
PUBLISHER.
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PEACH.
½ Life-size.

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THE TRANSFORMATION OF THE VICEROY.

(*Basilarchia archippus.*)

REST METCALF.

UGH! The ugly worm! Crush it! Wait a moment, listen, while I tell you a more excellent way. Notice on what your worm is feeding; take a branch of it home and place it in a bottle of water with the worm on it; then place the bottle with its contents in a large box, fastening a wire securely over the box, to prevent the escape; then watch your worm. Perhaps your worm will be the one so often found on the milkweed (*asclepias*) with black and yellow stripes around his body, two little horns in front on his head and one at the tail. If you keep him well supplied with fresh leaves, in a short time he will eat all he wishes and then, and not until then, will he leave the plant on which he is feeding and travel many a long journey up and down and all around the box, until you may imagine he has gone crazy from his confinement; but that is not the case, as you will soon see. When he finds just the right place, he will remain quite still to all appearances, but really he is very busy with his bobbin of silk and glue bottle weaving a small silken mat and fastening it very securely to the top of the box, and the next thing you will see him hanging by his tail from this mat, with his head recurved. Watch him and you will notice that he makes little jerky motions. For about twenty-four hours he remains in that same position, when suddenly he drops down his head so that he hangs straight down; now don't leave him for a moment, for very soon after taking that position, his black and yellow striped coat begins to split open, right between those two little black horns on the head, as evenly as though cut with a sharp knife and a pale green globular object comes into sight. With a few contortions of the body the little fellow pushes up his old coat, folding each stripe, just as Japanese lanterns fold up, then with a dexterous movement he fastens the end of his beautiful green chrysalis to the mat, dropping his old clothes, so closely compacted together that you would hardly recognize them. Now for two hours he exercises by little shrugs until the beautiful green chrysalis hangs complete, with gold band and pure gold spots, the most beautiful chrysalis I ever saw. Everyone exclaims, "How beautiful!" and wonders how an ugly worm could so transform itself into a thing of beauty.

For ten days we can see no change in the looks of this chrysalis; then it grows darker and darker until you can distinguish the veins on the wings of the future butterfly. Then this little fellow, tired of his close quarters, opens the door of his beautiful chrysalis and creeps out, clinging fast to the empty nest. O, what tiny wings! But as you watch they dry out and lengthen to three times their first size and you behold the beautiful large Viceroy—orange-red wings with black lines along the nervures and a row of white spots along the outer margin, his black body beautifully spotted with white.

Or perhaps you may find, on the carrots in your garden, a worm with black and green stripes around his body, the black stripe being decorated with yellow spots. He will spin a long silken mat the length of his body and to that mat fasten a swing to hang around his body, so that by using a little glue at the end of his body the swing will hold his chrysalis in place. This chrysalis is not as beautiful as the Viceroy, but very interesting in its odd shape and in its development and will well repay all the interest taken in it. Perhaps you may be surprised by not seeing a beautiful butterfly emerge from your chrysalis, but instead an Ichneumon fly, for often the Ichneumon fly deposits her egg in the caterpillar's back, and he can not say her nay; after he is nicely settled in his chrysalis this egg hatches and develops rapidly, needing so much food that nothing is left of the poor caterpillar or worm, but the fly prospers and soon comes forth full-grown, from a round hole which he makes in the side of the chrysalis.

Each variety of worm and caterpillar will reward you with a different chrysalis or cocoon. If you are not sure of your worm place a box of dirt in your box, for some worms go into the dirt to make the great change. After watching these changes you, too, will say: "Don't crush the worms! For are they not a symbol of our own death and resurrection when we shall awake in His glorious likeness?"

BIRD LORE OF THE ANCIENT FINNS.

IN the *Bulletin of the Michigan Ornithological Club* H. S. Warren says that nature and nature-worship form the center of all the life of the ancient Finns, and he quotes freely from Crawford's translation of "The Kalevala," the national epic of Finland. He says that, "as the English language is not strong in diminutives, and therefore lacks some of the most effective means for the expression of affectionate, tender, and familiar relations, in this respect all translations from the Finnish into English must fall short of the original, the former being the language of a people who live pre-eminently close to nature, and are at home among the animals of the wilderness, beasts and birds, winds and woods and waters, falling snows and flying sands." The metre is like that of "Hiawatha," and is the characteristic verse of the Finns.

As to birds, the duck lays the mundane egg. "Then the water-mother finds a place upon her own knees for the duck to rest, where it lays an egg which rolls into the sea. There it breaks and is transformed into the earth."

From one half the egg, the lower,
Grows the nether vault of Terra;
From the upper half remaining
Grows the upper vault of heaven;
From the white part come the moonbeams,
From the yellow part the sunshine.

* * * * *

Wainamoinen, wise and ancient,
Made himself an ax for chopping,
Then began to clear the forest,
Then began the trees to level,
Felled the trees of all descriptions,
Only left the birch tree standing,
For the birds a place of resting,
Where might sing the sweet-voiced cuckoo,
Sacred bird in sacred branches.
Down from heaven came the eagle,
Through the air he came a-flying,
That he might this thing consider—
And he spake the words that follow:

The eagle inquires of the ancient singer, Wainamoinen, why he has left the birch tree only standing; and upon being assured it was left solely for the use of the birds, he commends Wainamoinen's "hero-judgment." There is a lesson in forestry for the modern day.

Wainamoinen, old and trusty,
Turned his face and looked about him;
Lo! there comes a springtime cuckoo,
Spying out the slender birch tree—
Rests upon it, sweetly singing:
"Wherefore is the slender birch tree
Left unharmed of all the forest?"
Spake the ancient Wainamoinen:
"Therefore I have left the birch tree,
Left the birch tree only growing,
Home for thee for joyous singing;
Call thou here, O sweet-voiced cuckoo,
Sing thou here from throat of velvet,
Sing thou here with voice of silver,
Sing the cuckoo's golden flute-notes;
Call at morning, call at evening,
Call within the hour of noontide,
For the better growth of forests,
For the ripening of the barley,
For the richness of the Northland,
For the joy of Kalevala."

Thus is the cuckoo looked upon as a prophetic bird, or perhaps a mediator between the man and his gods.

The woodpecker is another sacred bird of "The Kalevala." In that epic he is not directly named, perhaps, because he was so very sacred, but the minor wood god, Nyyrikki, upon whom Lemminkainen calls in his distress to help him track the elk, is, like his father, Tapio, evidently a survival of Pikker, the woodpecker.

O Nyyrikki, mountain hero,
Son of Tapio of forests,
Hero with the scarlet headgear,
Notches make along the pathway,
Landmarks upward on the mountain,
That the hunter may not wander.

F. SCHUYLER MATHEWS says, in an article in *Popular Science*, that the bird not only possesses an ear for music but the mind to produce it. As our own conventional conception of music does not at all correspond with the wild bird's song, we are apt to consider the latter as foreign to art. If, however, we choose to consider the bird's conception of music a lawless one, we must show that he ignores all fundamental principles. This it is impossible to do, for he invariably resolves his effort to a perfectly intelligible, logical, musical idea. His music is, therefore, an art at least in part.

"There are," Mr. Mathews continues, "three woodland singers who will perfectly illustrate my idea of the underlying principle of bird-music. These are the chickadee, the white-throated sparrow, and the hermit-thrush. The chickadee sings, or I may say, calls his mate, with a perfect musical third, or with two notes separated by a complete musical interval. One bird may sing the third; another may answer in two descending notes. The remarkable thing about this simple example of melody is that the intervals between the notes are correctly measured. The result of his effort is a combination of tones in perfect accord with a law of music, and we are bound to accept it as an example of melody.

"The chickadee, too, it should be remembered, is not a high type of bird; there are many steps of progression between him and his more gifted cousins, the thrushes, who are, indeed, musicians of a high order. But, just here I might as well call attention to the fact that bird-music should not be overestimated. Its character is fragmentary, and its unconventionality is obvious. The wild songs of the woods and fields are not musical compositions; they are at best but detached bits of melody imperfectly conceived, although often replete with the suggestions of a complete musical idea.

"For instance, the white-throated sparrow or Peabody bird sings a perfect musical phrase which we may harmonize as we please, because it certainly suggests harmony. This is absolutely no more than the bird sings. The musical intervals, the pitch, and the lengths of the notes are all correctly sustained. In other words the bird suggests a complete musical idea. But the little Peabody bird seldom attempts a more difficult or elaborate task. He knows his limitations, and keeping within these, his attempts are musically both consistent and perfect. But let us turn our attention to the more gifted songster of the northern woods, the hermit thrush. His capacity for simple melody, his technical mastery of tone intervals and note values, his phrasing and his brilliancy as a performer, are certainly not exceeded by any vocalist of nature.

"But we must again studiously heed the limitations of the bird's idea of music. We are still in the presence of the untamed singer, who is amenable only to his own elastic laws. The hermit thrush starts his song with a prolonged keynote (often it is A) and then springs upwards in thirds and fifths with such rapidity and ease that we are amazed at the accuracy of the performance. Not only are the tones correctly given, but they are embellished with subsidiary or tributary tones.

"The last note, C, too faint to be heard at any distance, is rendered in a gyrating, suppressed way, impossible to describe, but comparable to the soft tones of a harmonicon. This note is an excellent example of bird lawlessness regarding music. It is quite antipodal in character to the initial note (A) with which the bird slowly begins, as if desirous to found upon it a solid musical phrase; but he fails most utterly at the last and subsides into an exquisite, elusive, compound tone—I do not know what else to call it—which he rounds off in a plaintive pianissimo. He is not satisfied; he begins the same strain again, now in another key, and with no better success in the final than in his first effort. So he starts again with a variation, this time striking an initial note higher than before. Then he makes another attempt; but still he seems dissatisfied and, after a short rest, three tiny high notes come from his throat, full of perfect melody, as simple as that of the chickadee."

The bird is a transcendentalist, ever attempting what he cannot satisfactorily accomplish, but failing, only to delight us with the strange sweetness of the imperfect performance. The highest form of bird-music is unquestionably revealed in the songs of the thrushes. Here we have not only a simple fundamental rule, amply demonstrated, but also a partially developed series of musical ideas, strung together with a well-chosen relationship. Of course, musically considered, the development of the melody and the connection of the phrases are more or less imperfect; but that does not matter. The truth is, the bird is an accomplished singer who cares less for conventional rules than he does for the essence, or the soul of the music; but above all he succeeds in inspiring his listener. What more, may I ask, could be expected of a musician?—*School Journal*.

STORY OF A NEST.

ANNA R. HENDERSON.

Far away in the beautiful land of Brazil,
Where the birds are all singing o'er valley and hill,
Two little children walked out 'neath the trees,
Talking in musical Portuguese;
And if you will listen to what I say,
I'll tell you in English their words that day.
"Sister," said Manuel, "often I've heard,
That the trees scarce have room for the nest of each bird;
For this is the land of these beautiful things,
And the air seems alive with their songs and their wings;
And I think that I know of a little bird breast,
Which was puzzled and troubled for place for a nest."
"Now, brother," said Lena, "don't tell me a word,
Let me hunt for the nest of this crowded-out bird,"
So away they went roving o'er hill and through dell;—
Of the nests that they found 'twould take hours to tell.
There were nests in the orange trees, blossoming white,
There were nests in the coffee trees, glossy and bright,
There were nests in the hedges, the bushes and grass,
In the dark, hanging vines, by each roadside and pass.
There were blue eggs and speckled eggs, brown eggs and white,
And yellow throats opening with chirpings of fright.
"Search no longer," said Manuel, "'mid bushes and trees,
'Tis a stranger place, sister, than any of these."
"I give up," said Lena, a shade on her brow,
"Come, hasten, dear Manuel, I'll follow you now."
Then away to the garden the little feet sped,
And he showed her the nest in a big cabbage head!

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Pyrites
Limonite
Hematite

Magnetite

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[Pg 191]

COMMON MINERALS AND VALUABLE ORES.

THEO. F. BROOKINS.

I.—IRON MINERALS.

PROBABLY many a bright youth, accustomed to wander through the fields in enjoyment of nature, has been thrilled with pleasurable anticipations on finding, in some outcrop of crystalline rock, a mineral substance that glittered as gold. That his anticipations were premature should not deter the ambitious youth. Men far beyond him in experience have been deceived by that same "fool's gold." History records that shiploads of the valueless yellow iron pyrites were sent to England by explorers of America on the supposition that they were accumulating gold.

Of the various compounds of iron occurring in nature, but four may be considered as relatively common—pyrite, magnetite, hematite, and limonite. Pyrite consists of iron and sulphur; magnetite, hematite, and limonite are oxides of iron. The first-named mineral differs largely from the others in external appearance as well as in composition. The others are, however, readily differentiated. We will discuss each of the four minerals in the order mentioned above.

The sulphide of iron, pyrite, occurs in many crystalline rocks; but, owing to the difficulty of separating the iron and sulphur, is not used as an ore of iron. The mineral much resembles in external appearance a yellow ore of copper, called chalcopyrite, from which it may be distinguished in that it will strike fire with steel. A specimen of pyrites containing large crystals is an interesting subject of study. These crystals are cubical in shape, but generally massed together so that no single crystal form may be observed as complete. Peculiar striations on the cube faces may often be noted. The striations of no two adjoining faces are continuous; but rather a striation of one face bears to that of another in direction the relation of the stem of a printed T to the top, or vice versa. Owing to the affinity of each component element for oxygen, pyrite often changes to vitriol, or else forms the oxide of iron, limonite, described below.

The black oxide of iron, magnetite, occurs widely distributed. As its name indicates, it sometimes displays the properties of a magnet. If a fragment of unequal dimensions be suspended freely by a string, the longer dimension will gradually swing into a north and south direction. The property possessed by magnetite of attracting other bits of iron appears to have been known to the ancients, and by them the name lodestone was applied to the mineral. Since the power to attract other particles of iron is not apparent in all specimens of magnetite we must consider other more distinguishing characteristics. The ore is very heavy; particles of it are attracted by an artificial magnet, in which regard it differs from the other minerals we have mentioned; if a piece of the ore be scratched across the surface of a harder substance, *e. g.*, smoky quartz, a black "streak" will be left. Pure magnetic iron ore is intensely black, with no coloring.

In a series of ore beds formerly operated by a mining company of northern New York, four distinctions of the crude ore were made, two varieties of blue, one of black, and one of gray. The blue coloring is apparently due to the presence of impurities; the black ore is evidently magnetite; and the steel-gray mineral, failing in the characteristic properties of magnetite, finds its class place under hematite. Hematite differs from magnetite in representing a higher degree of oxidation. It is often found, as indicated above, in beds distributed in close conjunction with those of magnetite. This ore is a valuable source of iron. Hematite commonly occurs in earthy materials, as red ochre. Its streak is red. All rocks of a reddish or red color owe the color to this oxide of iron.

When hematite rusts, the brownish-yellow or yellow iron oxide, limonite, results. The streak of limonite is yellow, thus distinguishing it from hematite. Disseminated through beds of clay, limonite gives them the characteristic yellow color. Such clays turn red when heated, since the water of the limonite is driven off, leaving hematite as a residue. This is the explanation of the usual coloring of bricks. Yellow ochre is impure, or earthy, limonite.

WHEN ANIMALS ARE SEASICK.

PHEBE WESTCOTT HUMPHREYS.

ANYONE who has traveled extensively has had an opportunity in some of the ocean voyages to witness the seasickness of animals, and many queer stories are told from time to time of their actions at such times—how lions become un-kinglike, monkeys ape humanity, and dogs are especially woeful—and one realizes that human beings are not the only ones that suffer from seasickness, by any means.

One hears a good deal about pangs that have filled the men and women with woe, but little is said of the menageries brought to America every year, or carried hither and yon in wave-tossed boats.

Lions and tigers may be majestic when they have unwavering earth or rock against their paws, but a seasick cat of these tribes is as forlorn as any man ever was, and doesn't look a bit more kingly than a wet rabbit. Even its roars and growls have a weeping sound in them, quite in keeping with the general appearance of the beast.

A monkey is as pitiable an object when it is seasick as any other beast so stricken, and its forlorn facial expression is so humanlike and the way it clasps its paws across its stomach is so natural that the man who is not seasick necessarily sees something to laugh at in the misery of the creature. Not so with the seasick man. If he sees a seasick monkey he is sure to get very angry, thinking the poor thing is mocking him.

It takes a dog to be woeful at sea. It has a way of doubling all up, with its tail between its legs and its head hanging down that shows a deep-seated pain. To free itself the dog goes through all sorts of contortions. It will stretch out on the deck, groan and whine, sometimes rising on its haunches and lifting its head and howling long and miserably, as some dogs do at the sound of music.

Many other animals show signs of great distress when on the water in rough weather, and any animal that is thoroughly seasick will show almost human signs of distress and appeal for sympathy, yet one can scarcely help laughing at their actions, even in the face of their evident suffering.

Transcriber's Note:

- Minor typographical errors have been corrected without note.
- Punctuation and spelling were made consistent when a predominant form was found in this book; otherwise they were not changed.
- Ambiguous hyphens at the ends of lines were retained.
- Mid-paragraph illustrations have been moved between paragraphs and some illustrations have been moved closer to the text that references them.
- "... the shells of the eggs in class Aves."* (Page 152.) A footnote is indicated but missing from the text.
- The Contents table was added by the transcriber.

*** END OF THE PROJECT GUTENBERG EBOOK BIRDS AND ALL NATURE, VOL. 6, NO. 4,
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