

The beautiful is as useful as the useful.—*Victor Hugo.*

BIRDS

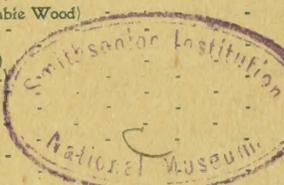


AND ALL NATURE

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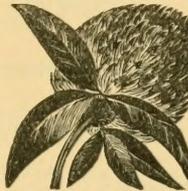
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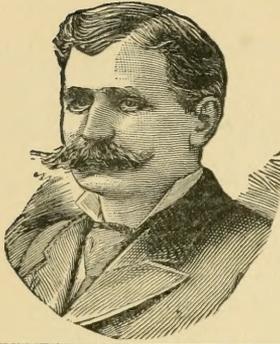
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BIRDS AND ALL NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

Vol. VII.

APRIL, 1900.

No. 4

APRIL.

These rugged, wintry days I scarce
could bear,
Did I not know, that, in the early spring,
When wild March winds upon their
errands sing,
Thou wouldst return, bursting on this
still air
Like those same winds, when, startled
from their lair,
They hunt up violets, and free swift
brooks
From icy cares, even as thy clear looks
Bid my heart bloom, and sing, and
break all care:

When drops with welcome rain the
April day,
My flowers shall find their April in
thine eyes,
Save there the rain in dreamy clouds
doth stay,
As loath to fall out of those happy
skies;
Yet sure, my love, thou art most like to
May,
That comes with steady sun when April
dies. —*Lowell.*

THE PROCESSION OF SPRING.

A morning of radiant lids
O'er the dance of the earth opened wide;
The bees chose their flowers, the snub
kids
Upon hind legs went sportive, or plied,
Nosing, hard at the dugs to be filled;
There was milk, honey, music to make;
Up their branches the little birds billed;
Chirrup, drone, bleat, and buzz ringed
the lake.
O shining in sunlight, chief
After water and water's caress,
Was the young bronze orange leaf,
That clung to the trees as a tress,
Shooting lucid tendrils to wed
With the vine hook tree or pole,
Like Arachne launched out on her
thread.
Then the maiden her dusky stole,
In the span of the black-starred zone,

Gathered up for her footing fleet.
As one that had toil of her own
She followed the lines of wheat
Tripping straight through the field,
green blades,
To the groves of olive gray,
Downy gray, golden-tinged; and to
glades
Where the pear blossom thickens the
spray
In a night, like the snow-packed storm;
Pear, apple, almond, plum;
Not wintry now; pushing warm.
And she touched them with finger and
thumb,
As the vine hook closes; she smiled,
Recounting again and again,
Corn, wine, fruit, oil! like a child,
With the meaning known to men.
—*George Meredith.*

THE AMERICAN BITTERN

(*Botaurus lentiginosus.*)

THIS curious bird has several local names. It is called the "stake-driver," "booming bittern," and "thunder-pumper," in consequence of its peculiar cry. It was once thought that this noise was made by using a hollow reed, but the peculiar tone is possibly due to the odd shaped neck of the bird. Gibson says you hear of the stake-driver but can not find his "stake."

We have never seen a bittern except along water courses. He is a solitary bird. When alarmed by the approach of someone the bird sometimes escapes recognition by standing on its short tail motionless with its bill pointing skyward, in which position, aided by its dull coloring, it personates a small snag or stump or some other growth about it.

This bird has long legs, yellow green in color, which trail awkwardly behind it and serve as a sort of rudder when it

flies. It has a long, crooked neck, and lengthy yellow bill edged with black. The body is variable as to size, but sometimes is said to measure thirty-four inches. The tail is short and rounded. In color this peculiar bird is yellowish brown mottled with various shades of brown above, and below buff, white and brown.

It is not a skillful architect, but places its rude nest on the ground, in which may be found three to five grayish brown eggs.

The habitat of the American bittern covers the whole of temperate and tropical North America, north to latitude about 60 degrees, south to Guatemala, Cuba, Jamaica and the Bermudas. It is occasionally found in Europe.

Frank Forrester included the bittern among the list of his game birds, and it is asked what higher authority we can have than his. The flesh is regarded as excellent food.

OUR LITTLE MARTYRS.

GEORGE KLINGLE.

Do we care, you and I,
For the song-birds winging by,
Ruffled throat and bosom's sheen,
Thrill of wing of gold or green,
Sapphire, crimson—gorgeous dye
Lost or found across the sky,
Midst the glory of the air;
Birds who tenderer colors wear?

What to us the free-bird's song,
Breath of passion, breath of wrong;
Wood-heart's orchestra, her life;
Breath of love and breath of strife;
Joy's fantasies; anguish breath;
Cries of doubt, and cries of death?

Shall we care when nesting-time
Brings no birds from any clime;
Not a voice or ruby wing,
Not a single nest to swing

Midst the reeds, or, higher up,
Like a dainty fairy-cup;
Not a single little friend,
All the way, as footsteps wend
Here and there through every clime,
Not a bird at any time?

Does it matter? Do we care
What the feathers women wear
Cost the world? Must all birds die?
May they never, never fly
Safely through their native air?
Slaughter meets them everywhere.

Scorned be the hands that touch such
 spoil!
Let women pity and recoil
From traffic barbarous and grave,
And quickly strive the birds to save.



FROM COL. F. NUSSBAUMER & SON,
A. W. MUMFORD, PUBLISHER, CHICAGO.

321

AMERICAN BITTERN.
 $\frac{1}{3}$ Life-size.

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NATURE STUDY PUB. CO., CHICAGO.

LITTLE GUESTS IN FEATHERS.

NELLY HART WOODWORTH.

A BROOKLYN naturalist who gives much time to bird-study told me that as his rooms became overfull of birds he decided to thin them out before the approach of winter. Accordingly he selected two song sparrows and turned one of them adrift, thinking to let the other go the next morning.

The little captive was very happy for a few hours, flying about the "wild garden" in the rear of the house—a few square rods where more than 400 varieties of native plants were growing. It was not long, however, before a homesick longing replaced the new happiness and the bird returned to the cage which was left upon the piazza roof.

The next morning the second sparrow was given his freedom. Nothing was seen of him for a week, when he came to the window, beat his tired wings against the pane, and sank down upon the window sill so overjoyed at finding himself at home that he was fairly bursting with song. His throat trembled with the ecstasy; the feathers ruffling as the melody rose from his heart and deluged the air with sweetness. His joy was too complete for further experiment.

The first sparrow was again released only to return at nightfall and go promptly to bed at the general retiring hour.

This hour, by the way, varied indefinitely; the whole aviary accommodating their hours to those of their master, rising with him and settling for the night as he turned off the gas. After this same bird was repeatedly sent out, like Noah's dove, coming home at evening, till after many days it came no more—an implicit confidence in the rightness of all intention doubtless making it an easy prey to some evil design.

A handsome hermit thrush from the same aviary, domesticated in my room, after an hour or two "abroad" is as

homesick for his cage as is a child for its mother.

When this bird came into my possession his open and discourteous disapproval of women was humiliating. His attitude was not simply endurance but open revolt, a deep-rooted hatred for the entire sex. When, after long weeks of acquaintance, this hostility was overcome he followed me about the room, stood beside me at my work, and has since been unchanging in a pathetic devotion.

He plants his tiny feet in my pen-tray and throws the pens upon the floor. He stands on tiptoe before the mirror, staring with curious eyes at the strange rival till awe is replaced by anger and the brown wings beat in unavailing effort to reach the insolent mimic. When shown a worm he trembles in excited anticipation, his little feet dancing upon the floor, his wings moving rapidly, while he utters a coaxing, entreating syllable. The song is sweetest when raindrops fall or when the room is noisy and confused. I notice, too, that he is more tuneful before a rain.

I must confess that he keeps late hours, that he is often busy getting breakfast when orthodox birds should be dreaming, his active periods being liable to fall at any hour of the night, more especially if there be a moon. An intensely sentimental nature may be unable to sleep when the beauty of the world is so strongly emphasized.

His last frolic was with a frog the children smuggled into the house, chasing it around the room, darting at it with wide-open beak, advancing and retreating in a frenzied merriment.

As the cage door is often left open he is sometimes "lost" briefly. At one of these times I decided that he had gone to sleep under the bed and would be quite safe till morning. Before daylight my mother called to me from the next room that there was "something in her bed," and, sure enough, the truant

stood upon her pillow, his wings almost brushing her face.

The song of an indigo bird, kept in my room, is often followed by from two to four subdued notes of exceeding richness and sweetness. Aside from the ordinary song, sometimes reduced to the syllables, "meet, meet, I'll meet you," words unheard save by aid of a vivid imagination, the bird has an exquisite warble, loud and exhilarating, as rounded and velvety as the blue-bird's.

When the bird became familiar with the room, its occupants and the sunshine streaming in through the window, his happiness crystallized in song, a rarely beautiful strain unheard before. The feathers on his throat would ruffle as a wave of song ran upward filling the room with a delicious music.

Unlike the hermit thrush, which has silent, preoccupied hours and is given to meditation, the indigo has no indolent days and is a happy, sunny-hearted creature.

His attitudes are like the catbird's—erecting crest, flirting body and tail, or drooping the latter in the precise manner of the catbird. Judged by indigo dress-standards, this bird is in an undress uniform, quite as undress as it is uniform; as somebody says, a result of the late moult.

For all this his changeable suit is not only becoming, but decidedly modern—

warp of blue and woof of green that change with changing light from indigo to intense emerald. Then there are browns and drabs in striking contrasts—colors worn by indigoes while young and inexperienced, the confused shades of the upper breast replaced by sparrow stripes beneath.

My bird is a night singer, pouring out his tuneful plaint as freely in the "wee, sma' hours," as when the sun is shining; its notes as sweet as if he knew that if we *must* sing a night song it should be sweet that some heart may hear and be the better for our singing. Later in the day a purple finch in the cedar tangle challenged the vocalist in notes so entrancing that one's breath was hushed involuntarily.

The same finch sang freely during the entire season in notes replete with personality, a distinct translation of the heart language. Others might sing and sing, but this superb voice rose easily above them all, a warbling, gurgling, effervescing strain, finished and polished in notes of infinite tenderness. Short conversations preceded and followed the musical ecstasy, a love song intended for one ear only, while wings twinkled and fluttered in rhythm with the pulsing heart of the melodist. No doubt he was telling of a future castle in the air beside which castles in Spain are of little value.

PLANTING THE TREES.

What do we plant when we plant the trees?

We plant the ships which will cross the seas.

We plant the mast to carry the sails,
We plant the planks to withstand the gales—

The keel, the keelson, and beams and knee;

We plant the ship when we plant the tree.

What do we plant when we plant the tree?

We plant the homes for you and me.

We plant the rafters, the shingles, the floors,

We plant the studding, the laths, the doors,

The beams, the sidings, all parts that be;
We plant the home when we plant the tree.

What do we plant when we plant the tree?

A thousand things that we daily see.
We plant the spires that outtower the crag,

We plant the staff for our country's flag,
We plant the shade, from the hot sun free;

We plant all these when we plant the tree.

ORIGIN OF THE EASTER EGG.

ELANORA KINSLEY MARBLE.

NOW is the time of year when we feel called upon to inform our readers that the peacock does not lay the pretty colored Easter eggs.

This valuable bit of information the great American humorist feels called upon to make year after year, and though we elder folk smile, and the young query, how many of us are familiar with the history of the custom of observing the closing of Lent with the egg feast?

One must go back to the Persians for the first observance of the egg day. According to one of the ancient cosmogonies, all things were produced from an egg, hence called the mundane egg. This cosmogony was received in Persia, and on this account there obtained, among the people of that country, a custom of presenting each other with an egg, the symbol of a new beginning of time on every New Year's day; that is, on the day when the sun enters Aries, the Persians reckoning the beginning of the new year from that day, which occurred in March. The doctrine of the mundane egg was not confined to the limits of Persia, but was spread, together with the practice of presenting New Year's eggs, through various other countries. But the New Year was not kept on the day when the sun enters Aries, or at least it ceased, in process of time, to be so kept. In Persia itself the introduction of the Mohammedan faith brought with it the removal of New Year's day.

Among the Jews the season of the ancient New Year became that of the Passover, and among the Christians the season of the Passover has become that of Easter. Among all these changes the custom of giving an egg at the sun's entrance into Aries still prevails. The egg has also continued to be held as a symbol, and the sole alteration is the prototype. At first it was said to be the beginning of time and now it is called the symbol of the

resurrection. One sees, therefore, what was the real origin of the Easter egg of the Greek and Roman churches.

From a book entitled "An Extract from the Ritual of Pope Paul V.," made for Great Britain, it appears that the paschal egg is held by the Roman church to be an emblem of the resurrection, and that it is made holy by a special blessing of a priest.

In Russia Easter day is set apart for paying visits. The men go to each other's house in the morning and introduce themselves by saying "Christ is arisen." The answer is "Yes, he is risen!" Then they embrace, exchange eggs, and sad to relate, drink a great deal of brandy.

An account of far older date says, "Every year against Easter day, the Russians color or dye red with Brazil wood a great number of eggs, of which every man and woman giveth one unto the priest of the parish upon Easter day in the morning. And, moreover, the common people carry in their hands one of these red eggs, not only upon Easter day but also three or four days after. And gentlewomen and gentlemen have eggs gilded, which they carry in like manner. They use the eggs, as they say, for a great love and in token of the resurrection whereof they rejoice. For when two friends meet during the Easter holidays, they come and take one another by the hand; the one of them saith, 'The Lord, our Christ, is risen!' The other answereth, 'It is so of a truth!' Then they kiss and exchange their eggs, both men and women continuing in kissing four days together."

There is an old English proverb on the subject of Easter eggs, namely: "I'll warrant you an egg for Easter." In some parts of England, notably in the north, the eggs are colored by means of dyeing drugs, in which the eggs are boiled. These eggs are called "paste" eggs, also "pace" and "pasche," all derived from "pascha"—Easter.

MORAL VALUE OF FORESTS.

A COMPARATIVELY untouched phase of the question of forest destruction is brought out in a book called "North American Forests and Forestry," by Ernest Bruncken, a prominent western forester. The author incidentally discusses the part which our forests have had in shaping American character and our national history. This phase of the matter is interesting both as a historical study and as a suggestion of the moral as well as economic loss which must come with the denudation of our forest areas.

All thinking Americans know that the forests are an important factor in our commercial life, and Mr. Bruncken makes an impressive statement of the way in which the lumber industry permeates all the nation's activities. But the part played by the vast primeval forests in creating American character is not so generally realized. From the earliest colonial times the forests have had a moral and political effect in shaping our history. In the seventeenth century England was dependent upon Norway and the Baltic provinces for its timber for ships. This was in various ways disadvantageous for England, so the American colonists were encouraged with bounties to cut ship timbers, masts and other lumber for European export. This trade, however, was found to be unprofitable on account of the long ocean voyage, so the American lumbermen began to develop a profitable market in the West Indies. This was straightway interdicted by the short-sighted British government, and the bitter and violent opposition of the colonists against this tyrannical policy ceased only with the end of British dominion.

From that time to the present the forests of America have exercised a

most important influence upon the nation, especially in creating the self-reliance which is the chief trait of the American character. The trappers, hunters, explorers and backwoods settlers who went forth alone into the dense forests received a schooling such as nothing else could give. As the forest closed behind the settler he knew his future and that of his family must henceforth depend upon himself, his ax, his rifle, and the few simple utensils he had brought with him. It was a school that did not teach the graces, but it made men past masters in courage, pertinacity, and resourcefulness. It bred a new, simple, and forceful type of man. Out of the midst of that backwoods life came Abraham Lincoln, the greatest example of American statesmanship the nation has produced. In him was embodied all the inherent greatness of his early wilderness surroundings, with scarcely a trace of its coarser characteristics.

As Mr. Bruncken says, mere remembrance of what the forests have given us in the past should be enough to inspire a wish to preserve them as long as possible, to stop wanton waste by forest fires, and even to repair our losses by planting new forests, as they do in Europe. The time has gone when the silence and dangers of the forest were our chief molders of sturdy character, but it is undeniable that the pioneer blood that still runs so richly in American veins has much to do with causing the idea of Philippine expansion to appeal so powerfully to the popular imagination. The prophets who see in the expansion idea the downfall of the nation forget that the same spirit subdued the American wilderness and created the freest government and some of the finest specimens of manhood the world has ever seen.

EASTER LILIES.

Though long in wintry sleep ye lay,
The powers of darkness could not stay
Your coming at the call of day,
Proclaiming spring.

Nay, like the faithful virgins wise,
With lamps replenished ye arise
Ere dawn the death-anointed eyes
Of Christ, the king.

—John B. Tabb.



FROM COL. F. KAEMPFER.
A. W. MUMFORD, PUBLISHER, CHICAGO.
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SCARLET IBIS.
 $\frac{1}{8}$ Life-size.

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THE SCARLET IBIS.

(*Guara rubra.*)

IBISES are distributed throughout the warmer parts of the globe and number, according to the best authorities, about thirty species, of which four occur in North America. The scarlet ibis is a South American species, though it has been recorded from Florida, Louisiana, and New Mexico. The ibises are silent birds, and live in flocks during the entire year. They feed along the shores of lakes, bays, and salt-water lagoons, and on mud flats, over which the tide rises

and falls. Their food consists of crustaceans, frogs, and small fish.

Colonies of ibises build nests in reedy marshes, or in low trees and bushes not far from good feeding-grounds. Three to five pale greenish eggs, marked with chocolate, are found in the coarse, bulky nest of reeds and weed stalks.

These birds are not so numerous as they once were. They have been wantonly destroyed for their plumage alone, the flesh being unfit for food.

CHIPPY—A BABY MOCKING BIRD.

MARTHA CROMBIE WOOD.

ONE bright day early in August I sat by my window writing. My attention was soon attracted by a pair of mocking birds which were flying back and forth between a peach-tree and a plum-tree near by.

These birds having been near neighbors of mine for some time, I had named them Jack and Jill.

A family quarrel seemed brewing, for Jack evidently found more good points in the plum-tree and scolded Jill for spending any time in the peach-tree, while Jill was equally impressed with the favorable aspect of the peach-tree. I thought they were trying to decide upon a location for a nest and was soon convinced that I was right, for Jack ended the family disagreement by taking a twig in his bill and carrying it to the plum-tree, where he began balancing it among some of the small branches. His mate continued to scold from her place in the peach-tree, but when he paid no attention to her and went on with his work she soon relented and flew down to offer her assistance.

With very little difficulty these birds could carry a twig six or eight inches long and a quarter of an inch in diameter. Several of these large twigs were laid loosely among the forks of three

small branches and then a more compact structure was placed upon this foundation. This was made of smaller twigs, with roots and stems of Bermuda grass twisted among them. A lining composed of horse hair, grass, cotton, a piece of satin ribbon some three inches long, bits of paper, string and rag completed the home.

There was very little weaving in the construction of the nest and the most wonderful as well as the most curious thing about it was how it could be made so loosely and not fall apart during the very high winds which we have in central Texas.

While the eggs were being hatched there was a violent storm which lasted all day, and several times I saw the tree bend nearly to the ground. Each time I was afraid I should see the destruction of this home, which had become so interesting to me. As I watched the tree writhe in the storm I began to appreciate the wisdom shown by the bird in the selection of the place for his nest, for it was in the part of the tree least disturbed by the wind and most thoroughly protected from the rain.

During the long nights the mocking bird often sang to his mate as she patiently sat on the nest.

Nothing can be more delightful than the song of our mocking birds, heard when the moonlight makes the night almost as light as the day and the south wind is laden with the delicious odors of roses and honeysuckle.

At last the eggs were hatched and five baby birds demanded food. The parent birds worked constantly from dawn till dark, but, from the loud "ce-ce-ce" which greeted them each time they neared the nest, one might suppose the supply of food never equaled the demand.

A young mocking bird seems all mouth and legs. He is a comical little creature with his scant covering of gray down, long legs, large feet and ever-open mouth, with its lining of bright orange.

As the old bird approaches the little ones squat flat in the nest, throw back their heads and open their enormous mouths, which must seem like so many bottomless pits to the parent birds when they are tired.

If my favorite cat, Mephistopheles, tried to take his nap anywhere in the vicinity of their nest Jack and Jill would fly at him, screaming, and, boldly lighting upon his head, try to peck at his eyes. He would strike at them and spit, but they would only fly upon the fence or rose-trellis and in a moment dart at him again. The battle would continue until Mephistopheles retired to a safer place.

I have seen many such battles, but never one where the bird was not victorious.

One morning, when the birds were still quite small, one of them tumbled from the nest. At first I thought the mother-bird might have pushed it out that it might learn to fly, but after seeing the feathers of its wings had only reached the tiny pin-feather stage, I knew it was too young for such efforts and concluded that the nest was overcrowded. I tried to put it in the nest for it was drenched with the dew from the grass.

Jack and Jill objected so seriously to my assistance that I had to give up this plan, for they flew at me just as they did at Mephistopheles. Fearing the cat would hurt it I was compelled to take it into the house.

Then my troubles began. It seemed to take all of my time to feed this one bird, and I could not imagine how Jack and Jill could take care of it and four others.

For awhile it seemed very much frightened, but at length began to chirp. The old birds answered at once and soon came to the screen on the window and called to it. Knowing they would feed it if they could reach it I had to keep it away from them, for, should they discover it was a prisoner, they would give it poison.

We named it Chippy and it soon became a great pet. Whenever anyone entered the room where it was its mouth flew open, and from its shrill "chee-chee-chee," one might easily imagine it was on the verge of starvation.

When I had had it a week it would try to fly from the floor to the lower rounds of a chair. When it had learned to fly, if left alone it would call until someone answered, and then follow the sound until it found them. I have known it to fly through two rooms, a downstairs hall, up the stair-steps, through the upper hall, and into my room in response to my whistle.

When it first made this journey it could fly only two or three feet at a time and had to fly from step to step up the stairway.

Soon after this I took Chippy out of doors. He was very much delighted when placed in a young hackberry tree, where he could fly from branch to branch. When he reached the top of the tree Jill flew into a tree near by and tried to coax him to come to her. I saw Chippy spread his wings and supposed I had lost my pet. Imagine my surprise when he gave a shrill scream and flew straight to me, lighting on my shoulder and nestling against my face.

Jill followed him, resting in a vine some three or four feet from me. When coaxing failed she flew away but soon returned with a grasshopper in her bill.

I drove Chippy away from me, hoping he would return to his own family, where his education could be carried on according to their ideas.

He flew into a tree, ate the grasshopper which Jill fed to him, and then flew on the roof of the porch outside my window, where he sat calling me. Go-

ing to my room I opened the screen to let him in, but this startled him and he flew away.

The sun had gone down by this time and I supposed he had at last returned to the nest. As I sat at the supper table I heard him calling to me and went outside.

He was in a tree in a neighbor's yard, but when he saw me he at once flew down on my head, and it was comical to see him try to express his joy.

After that he spent his days among the trees, but at sunset always came to the house and slept in a box in my room.

Whenever he was hungry he would come to the window and call for food.

His favorite resting-place was on my shoulder or head and he seemed to be very fond of company.

One morning I saw Jack and Jill flying from tree to tree with him and that is the last I ever saw of any of them.

BIRDLAND SECRETS.

SARA E. GRAVES.

Tell me what the bluebird sings
When from Southland up he springs
Into March's frosty skies
And to our New England flies,
Where, upon some sunny morn
Hear we first his note lovelorn.

Now he 'mong the maple flits,
Now upon a fencepost sits,
Lifting wings of heaven's own blue
As he warbles, clear and true,
Song so plaintive, soft and sweet,
All our hearts with welcome beat.

What the message full he brings
When in March's ear he sings?
Tell me what our robins think
When our April airs they drink,
Following close in Bluebird's train
With their blither, bolder strain.

Sit they high on maple tall
Chirping loud their earnest call,
Redbreasts glowing in the sun,
Then across the sward they run
Scampering briskly, then upright,
Flirt their tails and spring to flight.

Or, when drops the light of day
Down the westward golden way,
Robin mounts the tallest branch
Touched by sunset's quivering lance;
Carols forth his evening tune
Blithe as Earth were in her June.

Tell me what the sparrow says
In those first glad springtime days,
When the maples yield their sweet,
When Earth's waking pulses beat,
When the swollen streams and rills
Frolic down the pasture hills.

Winter birds and squirrels then
Grow more lively in the glen,
And, when warmer airs arise,
Sparrow sings her sweet surprise
From the lilac bushes near,
Song of faith and hope and cheer.

Tell me, when the longer train
Up from Southland sweeps again,
Filling fields and glens and woods—
Wildest, deepest solitudes—
With more brilliant life and song,
Golden lyre and silver tongue,
Bells that ring their morning chimes
Wood nymphs voicing soothing rhymes
Stirring all the sun-filled air
With hymns of praise and love and
prayer.

Tell me whence their motive power,
Tell me whence so rich a dower,
Tell me why are *birds* so gifted;
Whence their imprisoned spirits drifted;
Whither swells this tide of love
Flooding all the air above?
Whither these enchantments tend?
A brief bird life—is this its end?

THE MASSENA QUAIL.

(*Cyrtonyx Massena.*)

THIS beautiful species is said to be by far the most gentle and unsuspecting of our quails, and will permit a very close approach by man, showing little or no fear of what most animals know so well to be their most deadly enemy. While feeding they keep close together, and constantly utter a soft clucking note, as though talking to one another.

This species is about the size of the eastern variety. Its head is ornamented with a beautifully full, soft occipital crest. The head of the male is singularly striped with black and white. The female is smaller and is quite different in color, but may be recognized by the generic characters. The tail

is short and full, and the claws very large.

The quail makes a simple nest on the ground, under the edge of some old log, or in the thick grass on the prairie, lined with soft and well-dried grass and a few feathers. From fifteen to twenty-four white eggs are laid. The female sits three weeks. The young brood, as soon as they are fairly out of the shell, leave the nest and seem abundantly strong to follow the parent, though they are no bigger than the end of one's thumb—covered with down. The massena quail is an inhabitant of the western and south-western states.

IN THE OLD LOG HOUSE.

BY BERTHA SEAVEY SAUNIER.

THE big orchard on the Triggs place was also the old orchard. Grandpa Triggs had planted it long ago in his young days when the country was new. The year before he had hauled logs from yonder forest with his ox-team and built the strong little house that still stands at the foot of the orchard.

He brought young crab trees, too, and set them all about the house and though, after the orchard was started, he often threatened to cut them down, he never did it and they grew into a tangle of friendship and protection until the little one-roomed house was nearly hidden.

The house was desolate now. The catbirds built their nests in the crotches of the crabs and the jays came over from the woods across the river and quarreled with them. An old zigzag rail fence separated the orchard from the hay-field at one end and a tall uncared-for osage hedge did scant

duty at two sides. Once in a great while a sheep would leave the aftermath and step through the wide spaces of the hedge and, entering the doorless house, would walk curiously about and then return. But that was all—no, not quite all. The children built fires in the great fireplace and roasted potatoes or experimented at cooking carrots, artichokes, apples and occasionally a pair of kidneys rolled each in several thicknesses of brown paper and slowly cooked under the hot ashes and coals. To be sure, the smoke came out into the room and got into the children's eyes and passed out at the door—for the chimney had crumbled to half its old time height—but the playtimes went on in spite of that and the birds shouted and sang outside.

One would expect that all this activity above board to be happily interested without looking for new and startling circumstances under ground. But, withal, life went on among the "under-



FROM COL. F. KAEMPFER.
A. W. MUMFORD, PUBLISHER, CHICAGO

MASSINA PARTRIDGE.
♂ Life-size.

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ground lights," with its busy unconcern of affairs which it could not share or even comprehend. Rarely when the fire warmed the bricks about the fireplace did comely, plump Mrs. Acre Tidae fail to raise her song. She had a way of building a home had Mrs. House Cricket. She tossed out a few grains of earth from under the brick tiling of the hearth and presto! she entered in backward and sat down waving her long slender antennae with a happy content that would shame many a one who, having more, is not satisfied. Mr. Field Cricket, who happens also to be named Acre Tidae, had built his home at the edge of the path in the sandy loam just without the door. Two bodies of the same name and family would be expected to live in the same house, but they couldn't quite come to do that on account of tastes. For one thing they differed in the matter of dress, though that was the least objection one to the other. Mrs. House Cricket wore a grayish yellow dress, marked a little with brown and Mr. Field Cricket wore darker colors. He built his home deeper, too, which would never suit Mrs. Acre Tidae at all. Sometimes his home is twelve inches deep, and six it is sure to be. And then, big fellow that he is, quite a bit larger than she, he does not mind the cold. He snuggles down in the deep darkness as soon as he sees the dew frozen in the tiny crystals all over the long grass blades, and sleeps the time away, however long and cold the winter may be; and such a life is scorned by bright Mrs. House Cricket, who chooses the hearth on account of the warmth and who chirps joyfully throughout the year, except when the fire goes out, as it often does in the little old log house; for there were days and days when the children did not come to play. At such times Mrs. House Cricket was forced unwillingly to fall asleep. "Shameful!" she would mutter, as the last flicker of feeling departed. "Such a waste of time. If I had built in a bakery or by a brick oven how much busier I might be—and happier. I'm no better than those cousins of mine who make it a business to sleep half the year around." These last words

were so soft as she scraped them off on the ridges of her wing covers that the children, who were just going home, stopped and Linsey said, "Do hear the cricket—it says, 'Good night; good night.'"

"By-by, Crick!" called Harry, as he leaped through the hedge and ran to the brook to stamp on the thin ice with his heel. "I shall move out," moaned Mrs. Cricket with her faintest note. But moving day did not arrive for many weeks and Mrs. Cricket awoke and went to sleep as many times; and finally the long hot days found her contentedly basking in the field among the warm grasses, having forgotten the troubles of the winter. "Dear me," she was softly drumming with her wing covers as she stopped in her evening search for food. "Dear, dear! how that big cousin of mine does scream! Perhaps he calls it music, but I don't."

She crept along slowly and hid in a fold of rain-worn paper near the home of her much criticized relative. He was sitting in his doorway singing his evening song as loud as he could, for he was singing with a purpose. The source of his music lay within his wing covers. Nearly one hundred and thirty fine ridges were on the under side of one wing cover (which is hard and horny), and these are hastily scraped over a smooth nervure which projects from the under side of the other wing cover. And that is how he sings. His song is bound to be a love-song and Mrs. House Cricket finding a few crumbs within the paper and deciding to stay all night suddenly heard the loud, harsh tones softened and, looking out, she saw her big cousin standing close to another dark form like his own. He was crooning softly as he caressed her with his slender, delicate antennæ—his mate, whom he had won to himself with his song. Mrs. House Cricket looked on for a moment and changed her mind about staying all night. "I'll creep under a leaf," she said, "and leave the lovers to themselves." So she slipped away and saw them no more until, some weeks later, she passed and, seeing her cousin in his door, stopped:

"I have all my eggs laid," she said,

"and I'm going up toward the big house to stay until the weather gets cold."

"Mrs. Field Cricket has two hundred eggs right here under this long grass," he answered with great pride. "She is welcome," returned his cousin; "for my part I prefer quality to quantity." And she turned away to take a peep at the nursery which was warmed and nourished only by the sun.

"They will soon hatch out and dig homes each for himself like my own little ones," she said as she left them and began her long journey toward the farmhouse. "But mine will be wise enough to get near to a barn or house when they are grown up," she mused, "so that they need not sleep all winter, and they can be busy and useful to the world—busy, useful, cheerful, hopeful." She stopped to say one or the other of these good words often as she traveled on and sometimes she said them all at one time, as she pruned her wings

which when folded, extended beyond her body into long, slender filaments like the antennæ.

At length, just as the maple leaves, all brown and dry, were blowing into heaps against the rosebushes and the lilacs, Mrs. Acre Tidae reached the farmhouse and slipped unobserved into the warm, clean kitchen.

She found a wide crack in the floor near the big chimney and squeezed in, digging it out to suit her body.

"The babies are all safe in their little holes by this time," she said, "safe for the winter. Perhaps by next fall they will be with me and we will all go out at night to eat crumbs," and she began singing, "Useful, cheerful—busy, hopeful." "Do hear the cricket," said Linsey, "It sounds like the one in the old log house."

"They are all alike, I guess," returned Harry, who was eating apples. "They are always jolly sad, I reckon." "Useful, cheerful, hopeful," sang Mrs. Cricket.

ANIMALS AS PATIENTS.

M. LEPINAY, the presiding genius of the bird hospital in Paris, has found by experience that his feathered patients chiefly exhibit a tendency toward apoplexy—the dove is particularly addicted to this complaint; consumption follows in order of unpopularity, with internal complaints occupying the third place. In the case of apoplexy, blood-letting—so popular a remedy in the days of our great-grandparents—is resorted to by means of a diminutive lancet inserted in a fleshy portion of the bird, and this is followed by small doses of such drugs as quinine, bromide of camphor, etc.

Apropos of dog's teeth, about a year ago there was exhibited at a certain show a very interesting and aged schipperke, who was at that time the only dog in the world boasting a complete set of false teeth. His owner, Mr. Moseley, is a dentist as well as a lover of animals, and it is entirely due to his skill that the little dog is able to eat with perfect comfort by the aid of the artificial molars provided for

him by his master, who, on another occasion, provided a dog who had lost a limb in an accident with an artificial leg. The only horse possessing a full set of false teeth was the property of Mr. Henry Lloyd of Louisville, Ky., who had its diseased teeth extracted and replaced by a set of false ones.

A swan that had had a leg run over by a cart-wheel, causing a compound fracture, was recently successfully treated at Otley, England, while yet another swan had an operation performed at Darlington some little time ago that was very much out of the ordinary. In this instance, the unlucky bird had the principal bone in its right wing fractured in several places, the fracture presumably being caused by a brutal blow dealt by some unknown ruffian. A veterinary surgeon was asked to give his advice, and on his recommendation an amputation was decided upon, and this he successfully performed. The bird, sans a wing, was, when last heard of, well on the road to recovery.

THE TRIPLET TREE.

CHARLES COKE WOODS, PH.D.

MATTER *per se* is an evidence of mind. Every material thing enshrines a thought. Essential nature has no superfluities. To the thinker everything means something. In nature nothing happens. Everything is ordered. There can be no portrait of a landscape without a painter. There can be no landscape without a maker.

The visible forms that nature takes may be changed. Her invisible forms are changeless. The search for the changeless is the great and delightful task of art, literature, science, philosophy and religion. The ultimate in nature and in art is divine. The permanent principle survives the fleeting form. Nature's principles are relatively few. Her forms are multifarious. Tree life is true life. It is natural. It is therefore true. Nature's garb may be odd. It may even be deformed. But her inner self is never false. Sap, fiber, leaf, blossom, fruit; this is nature's apocalypse. It is Queen Beauty's progressive revelation.

Trees usually grow singly. Under certain conditions they may as naturally grow otherwise. The unusual is not necessarily the unnatural. Nature's resources are vast. She may at any time manifest herself in an unfamiliar form.

A triplet tree grows on what is known as "Green's Ranch" in Cowley County, Kansas. The ranch is located five miles northeast of Arkansas City. The trees are about three hundred

yards from the west bank of the Walnut River. They range in a line running north and south. They are between forty-five and fifty feet high. The first two on the north are eighteen inches apart. The third tree standing at the south end of the row is fifteen feet from the middle one. They are water elms, and average about three and one-half feet in girth. The tree standing at the north end of the row is hollow at the base and, leaning over southward intersects the central tree two feet from the ground; thence it extends to the one at the south end of the row, and intersects it with a limb from either side twelve feet above the ground. The segment of the circle described by the leaning tree is about twenty feet. At the points where the cross tree intersects the other two, it is not merely a case of contiguity, but of actual identification.

Another feature of the leaning tree is that half way between its base and the trunk of the second, and on the lower side is an unsightly knot about as large as a half bushel measure. Half way between the center tree and the one on the south, and on the under side of the leaning tree is another lump similar to the first, about half the size. These unsightly warts appear to have been produced by a congestion of sap in the tissue of the intersecting tree. This triplet tree is a curiosity. It presents a strange phenomenon in tree formation. But nature is everywhere full of mystery and surprises.

COUNTRIES DEVOID OF TREES.

ANYONE who has traveled through the comparatively treeless countries around the Mediterranean, such as Spain, Sicily, Greece, northern Africa, and large portions of Italy, must fervently pray that our own country may be preserved

from so dismal a fate, says President Charles W. Eliot. It is not the loss of the forests only that is to be dreaded, but the loss of agricultural regions now fertile and populous, which may be desolated by the floods that rush down from the bare hills

and mountains, bringing with them vast quantities of sand and gravel to be spread over the lowlands.

Traveling a few years ago through Tunisie, I came suddenly upon a fine Roman bridge of stone over a wide, bare, dry river bed. It stood some thirty feet above the bed of the river and had once served the needs of a prosperous population. Marveling at the height of the bridge above the ground, I asked the French station master if the river ever rose to the arches which carried the roadway of the bridge. His answer testified to the flooding capacity of the river and to the strength of the bridge. He

said: "I have been here four years, and three times I have seen the river running over the parapets of that bridge. That country was once one of the richest granaries of the Roman empire. It now yields a scanty support for a sparse and semi-barbarous population." The whole region roundabout is treeless. The care of the national forests is a provision for future generations, for the permanence over vast areas of our country of the great industries of agriculture and mining upon which the prosperity of the country ultimately depends. A good forest administration would soon support itself.—*From January Atlantic.*

SNOW PRISONS OF GAME BIRDS.

A LATE season snowstorm, with the heavy precipitation that marked the storm of Feb. 28, gives the heart of the sportsman as well as that of the bird protector a touch of anxiety on the score of the ruffed grouse and quail. A downfall of that kind, followed by a thaw and then by a freeze at night, means the death of hundreds of game birds. The quail simply get starved and cold killed, while the ruffed grouse, or partridges, get locked up by Jack Frost and die of hunger in their prisons.

There is a patch of woods not far from Delavan, Wis., where there was until recently an abundance of these game birds. There was a local snowstorm there late in February last year,

which was followed by a day of sunshine and then by a frost which covered the snow with a heavy crust. Grouse have a habit of escaping from the cold and blustering winds by burying themselves in the big snow drifts at the edges of the woods. There they lie snug and warm and are perhaps loath to leave their comfortable quarters. They sometimes stay in the drift until the delay costs them their lives, the crust forming and walling them in. It so happened to sixteen partridges in the woodland patch near Delavan. With the melting of the season's snows the bodies of the birds were found. They were separated from one another by only a few feet. It was a veritable grouse graveyard.—*Tribune.*

Warm grows the wind, and the rain
hammers daily,
Making small doorways to let in the
sun;
Flowers spring up, and new leaves flutter
gaily;
Back fly the birdlings for winter is
done.
—*Justine Sterns.*



FROM COL. F. NUSSBAUMER & SON,
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RING-BILLED DUCK.
5/11 Life-size.

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THE RING-BILLED DUCK.

(*Aythya collaris*.)

THIS duck has many popular synonyms, among others ring-necked, ring-billed shuffler, ring-necked scaup duck, or blue-bill fall duck (Minnesota), black jack (Illinois), moon-bill (South Carolina). It is found throughout the whole of North America, south to Guatemala and the West Indies; breeding from Iowa, southern Wisconsin, Minnesota

and Maine northward. It is accidental in Europe.

The chief variation in the plumage of this species consists in the distinctness of the chestnut collar in the male, which is usually well defined, particularly in front. There is very little in its habits to distinguish it from the other "black-heads." Like them, it usually associates in small flocks. Its flesh is excellent, being fat, tender and juicy.

A STRANGE BIRD HOUSE.

ADDIE L. BOOKER.

WRENS are famous for choosing queer places for nesting-sites. They will nest in almost any situation about the house or yard that can be entered through any semblance of a hole. I place all kinds of odd receptacles about the yard for them every spring, which they seldom fail to occupy. These friendly and interesting little creatures appreciate such thoughtfulness, and repay it by fairly bubbling over with grateful song.

But the pair that afforded me the most amusement pre-empted a home-stead that was not intended for them.

Our acquaintance began when preparing to remove the cook stove to the summer kitchen in May. In winter this kitchen is used as a sort of lumber room, and when clearing it of various odd and ends it was found that a pair of wrens had taken possession of an overshoe and laid the foundation of a home. The pair of overshoes had been tied together and hung on a nail in the wall, about five feet from the floor.

Needless to say they were left undisturbed, though not without many doubts of the feasibility of the enterprise, on account of the proximity of

the stove. The shoes were the ordinary kind, fleece-lined rubber, and were only a few feet from where the stove would be set. These conditions warranted the expectation of disastrous results from extreme heat—at least so it seemed to me, but my little neighbors thought otherwise, and nest-building progressed rapidly. Being remarkably industrious midgets, the nest of sticks was soon finished and lined with soft feathers from the poultry yard.

Wrens are noted for their industry; unless in a very restricted situation the outside dimensions of the nest are enormous when compared with the interior, or cavity. And the twigs that compose the structure are out of all proportion to the size of the architects. I have seen twigs a foot long and half the size of a lead pencil, used in the construction of their nests. That birds so diminutive could carry such burdens in their tiny bills is indeed wonderful. It is said that a single pair have been known to fill a barrel, but no nest quite so mammoth as this has ever come under my observation.

To return to the home in the shoes. After the completion of the nest five wee eggs were deposited therein, and

incubation began. And in spite of the heat everything went on happily in this unique domicile.

We soon became the most sociable friends. Their quaint and charming ways made them very amusing pets. They became so tame that they would approach me fearlessly, even alighting on my head, and would let me examine their nest without being frightened.

The wren is a very lively and active bird, and sings incessantly throughout the breeding-season, and these were not an exception, but were forever darting in and out, their actions accompanied by a sweet warble. Mr. Wren would positively quiver all over with delight, while regaling Mrs. Wren and me with his exuberant melody. They were the cheeriest little companions imaginable. Every morning as I entered the kitchen I was greeted heartily by my small neighbors, who bustled about in the preparation of the morning meal as busily as I. Meanwhile Mr. Wren merrily sang his innocent matin song, and spontaneously I would find myself singing too, as I went about my work.

One day there was great excitement in the shoe and, when I looked in, five featherless mites with huge mouths were to be seen. Mrs. Wren was now a veritable "old woman who lived in a shoe." But she did not treat her children as did the old woman of nursery fame, though she was kept very busy in supplying their wants, even with the assistance of Mr. Wren.

These birds subsist on small insects and consume a considerable quantity. With much satisfaction I watched them slay a host of ants that were invading the kitchen; running up and down the wall with much agility, they picked the ants off.

Real warm weather had set in by the time the nestlings were ready to try their wings, and I thought, of course, my friends would desert me for a cooler resort out of doors, in which to pass the heated term. But O, no, they were too loyal for that, so to make their house more commodious, another room was added by building a nest in the other shoe. And the family raised in the second shoe was not a whit less interesting than the first.

THE CHICKADEE.

SIDNEY DAYRE.

"Were it not for me,"
Said a chickadee,
"Not a single flower on earth would be;
For under the ground they soundly
sleep
And never venture an upward peep,
Till they hear from me,
Chickadee-dee!"

"I tell Jack Frost when 'tis time to go
And carry away the ice and snow;
And then I hint to the jolly old sun,
'A little spring work, sir, should be
done.
And he smiles around
On the frozen ground,
And I keep up my cheery, cheery
sound,
Till echo declares in glee, in glee,
'Tis he! 'tis he!
The chickadee-dee!"

"And then I waken the birds of spring—
'Ho, ho! 'tis time to be on the wing.'
They trill and twitter and soar aloft,
And I send the winds to whisper soft,
Down by the little flower-beds,
Saying, 'Come show your pretty heads!
The spring is coming, you see, you see!
For so sings he,
The chickadee-dee!"

The sun he smiled; and the early flow-
ers
Bloomed to brighten the blithesome
hours,
And song-birds gathered in bush and
tree;
But the wind he laughed right merrily,
As the saucy mite of a snowbird he
Chirped away, "Do you see, see, see?
I did it all!
Chickadee-dee!"

REFLECTIONS.

CHARLES C. MARBLE.

Vice often epitomizes ancestry.

The wisest are not so wise as silence.

Experience is the grave of enthusiasm.

Experience is the enemy of dogmatism.

Our faith is often nothing more than our hope.

Should we despise anything that God has made?

In bestowing benefits we imperil friendship.

Innocence and guilt are alike suffused with blushes.

If vice did not exist wisdom could not predicate itself.

Disappointment leaves a scar which hope cannot remove.

Success is an excellent proof of the wisdom which achieved it.

The vices of some men are more enduring than the virtues of others.

Beauty is a reproach without virtue, while virtue is itself the highest beauty.

The sun at noon gives no more light than at morn, but its glow has more warmth and power.

Without the accessories life were of little worth, and hope gives it its permanence and serenity.

Marriage should be in harmony with nature, in which what is seemingly discordant but illuminates and purifies it.

Our conduct toward one another should be based upon a conception of the infinite mischances of life and the exquisite poignancy of regret.

Misfortune seeks consolation in communicating itself. But when it no longer needs sympathy it is silent, and ashamed of its former volubility.

We can overcome even our prejudices where some interest is subserved by it. So much stronger is self-interest than color, social status, or education.

The poet should know, better than another, his limitations. Parnassus is always higher than our dreams, and his summit more radiant than the vision of any mortal.

The lily of the valley, which hides its chaste head in dewy leaflets, is a thousand times less modest than the maiden whose conscious blush reveals the innocence of reason.

If we were to judge all men by what they seem to have achieved, we would be harsh and unjust. We cannot always see the scar left by a heroic deed, and modesty conceals it.

Complete benevolence implies simplicity of living. The Christian cannot have it if he knows that others have not. Thoreau was perhaps the wisest man of his time; he practiced what he preached; and there are few examples of simplicity to compare with his.

Nothing, perhaps, is more humiliating than to observe the precocious development of the negative virtues, especially prudence. There is a subtle suspiciousness in early prudence which is at war with all generous impulses. Think of the pinched heart of a little miser.

There is a selfishness which deals generously with its own: my wife, my child shall be arrayed in the richest, shall feed upon the daintiest; my servant, my handmaid they are naught to me. Nature hath made nothing better than my desert; she hath made nothing poor enough for thee and thine.

In an old man conceit may be so comprehensive as to include the race. Has he been reasonably successful with the fair sex, all are the subjects of his whim or desire; and he will sententiously and confidently repel any claim of virtue or purity. So blind is he to the centuries made splendid by her virtue and self-sacrifice, and so little is his judgment affected by objects unconnected with self.

FOXGLOVE.

(*Digitalis purpurea* L.)

DR. ALBERT SCHNEIDER,
Northwestern University School of Pharmacy.

Pan through the pastures often times hath runne
To plucke the speckled fox-gloves from their stems.

—*W. Browne, Britannias Pastorals, II. 4.*

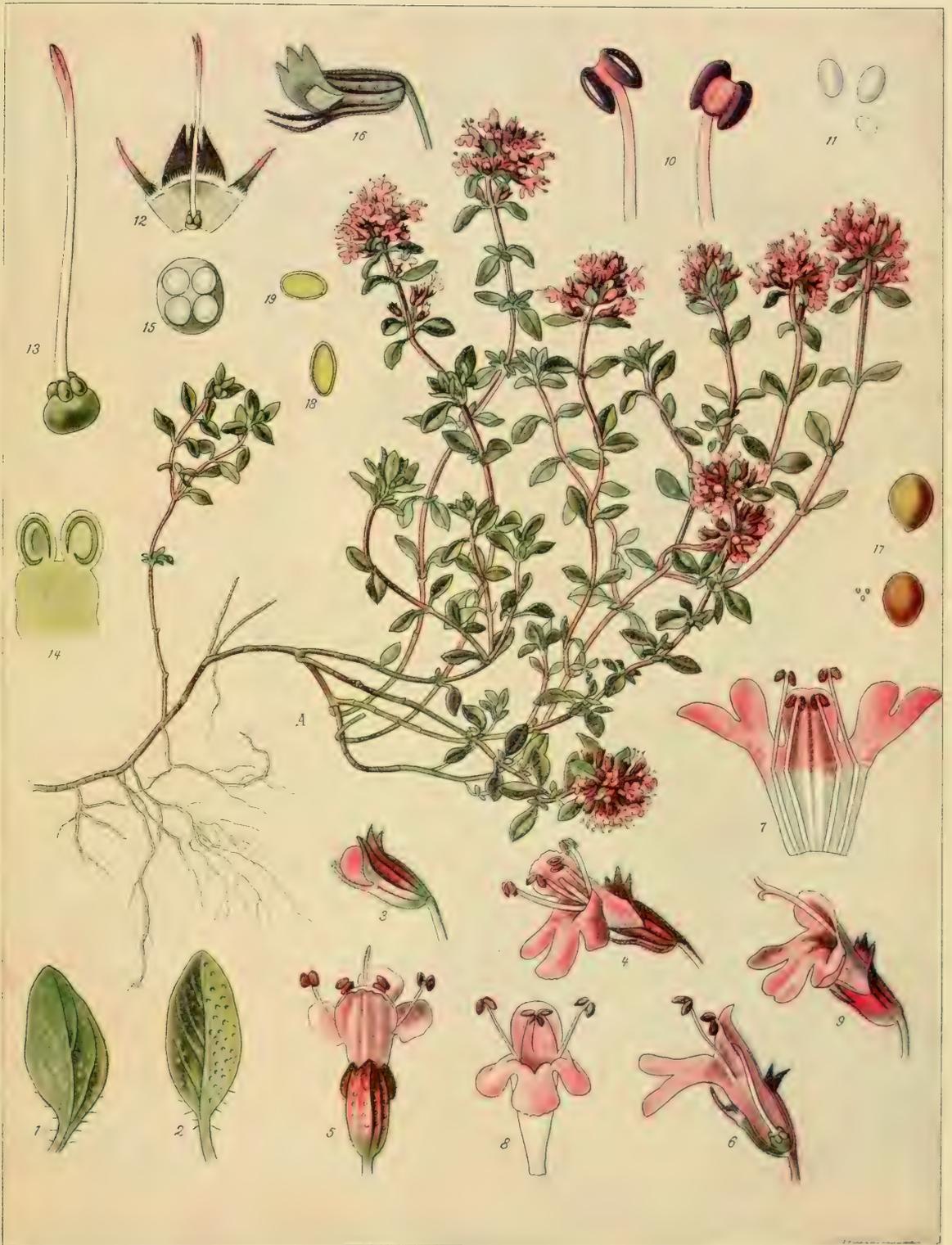
THE fox-glove is a biennial herb from two to seven feet in height with a solitary, sparingly branched stem. The basal leaves are very large and broad, gradually becoming narrower and smaller toward the apex of the stem and its branches, dark green in color, pubescent, margin dentate, venation very prominent. The inflorescence is very characteristic. The large, numerous flowers are closely crowded and pendulous from one side of the arched stalk. The corolla is purple and spotted on the inside. It is a very handsome plant, widely distributed, preferring a sandy or gravelly soil in open woods. When abundant and in full bloom it makes a beautiful exhibit. It is a garden favorite in many lands.

This plant is apparently not mentioned in the works of older authors. It was not known to the ancient Greeks and Romans. It was, however, used medicinally in the northern countries of Europe since very remote times. The Anglo-Saxon word fox-glove is derived from the Welsh (11th century), *foxes-glew*, meaning fox music in allusion to an ancient musical instrument consisting of bells hung on an arched support. In the Scandinavian idioms the plant bears the name of foxes' bells. The German name *Fingerhut*, meaning finger hat, hence thimble, is derived from the resemblance of the flower to a thimble. Still more poetical is the name *Wald-glöcklein*, meaning little forest bells, in reference to the inflorescence. In England the flowers are known as foxes' fingers, ladies' fingers and dead men's bells.

According to an old English work on medicine the early physicians of Wales and England applied this drug

externally only. It was not until 1775 when the English physician Withering began to use it internally, especially in the treatment of hydrophobia. Modern physicians consider digitalis one of the most important medicinal plants. It is a very powerful, hence very poisonous drug, its action being due to an active principle known as *digitalin*. Its principal use is in the treatment of deficient heart action due to various causes but especially when due to valvular lesions. The physician must, however, observe great care in its administration, not only because of its powerful action but also because of its "cumulative action;" that is, the effect of the drug increases although only normal medicinal doses are given at regular intervals, so that fatal poisoning may result, especially if the patient should attempt to rise suddenly. The physician guards against this by gradually decreasing the dose or by discontinuing it for a time and by requiring the patient to remain in a recumbent position while under the influence of the drug.

For medicinal use the leaves from the wild-growing plants are preferred because they contain more of the active principle. The leaves are collected when about half of the flowers are expanded and, since it is a biennial, that would be during the second year. The first year leaves are, however, often used or added. Like all valuable drugs it is often adulterated, the leaves of *Inula Conyza* (ploughman's spikenard), *Symphytum officinale* (comfrey), and *Verbascum Thapsus* (mullein) being used for that purpose. The odor of the bruised green leaves is heavy or nauseous, while that of the dried leaves is fragrant, resembling the odor of tea.



The taste is quite bitter. Formerly the roots, flowers and seeds were also used medicinally.

DESCRIPTION OF PLATE.—*A B*, plant

somewhat reduced. 1, flower; 2, 3, 4, stamens; 5, pollen; 6, 7, style and stigma; 8, 9, ovary; 10, fruit; 11, 12, 13, seed.

FRUIT BATS OF THE PHILIPPINES.

THE Agricultural Department at Washington is taking precautions to prevent the importation into the United States of any of the animal pests which are found in Porto Rico, the Philippines, and the other new colonies. Among these none is more feared than the great fruit bats which abound in the Philippines. A full grown specimen of the fruit bat measures five feet from tip to tip of its wings. The fruit bats live together in immense communities and feed almost altogether on tropical and subtropical fruits. They crowd together so thickly on the trees that sometimes large branches are broken down by their weight. In Australia they have increased so rapidly that great sums of

money have been spent in their destruction, one organized movement of the fruit growers of New South Wales recently resulting in the killing of 100,000 bats at a cost of 30 cents each. Another possible immigrant which is much dreaded is the mongoose, which abounds in Cuba, Porto Rico, and the other West Indian Islands. The mongoose was first brought to the islands for the purpose of destroying the rats and mice, which it did so thoroughly that it was soon forced to adapt itself to another diet. It was found that the mongoose thrived on young poultry, birds, and even young pigs and lambs, while it also consumed great quantities of pineapples, bananas, corn and other vegetable products.

MONKEYS AS GOLD FINDERS.

CAPTAIN E. MOSS of the Transvaal tells the following story of the monkeys who work for him in the mines: "I have twenty-four monkeys," said he, "employed about my mines. They do the work of seven able-bodied men. In many instances they lend valuable aid where a man is useless. They gather up the small pieces of quartz that would be passed unnoticed by the workingmen, and pile them up in little heaps that can easily be gathered up in a shovel and thrown into a mill. They work just as they please, sometimes going down into the mines when they have

cleared up all the debris on the outside. They live and work together without quarreling any more than men do. They are quite methodical in their habits, and go to work and finish up in the same manner as human beings would do under similar circumstances. It is very interesting to watch them at their labor, and see how carefully they look after every detail of the work they attempt. They clean up about the mines, follow the wheelbarrows and carts used in mining and pick up everything that falls off on the way."—*Tit Bits.*

A PLEA FOR THE TREES.

ANNE WAKELY JACKSON.

MUCH has been written, and more has been said, in regard to the "prevention of cruelty to children," and the "prevention of cruelty to animals;" but has anyone ever urged upon the public the prevention of cruelty to *trees*?

It is time someone did, for people nowadays seem to have no regard whatever for a tree's feelings, but saw and hack a limb off here or there at any season of the year the notion happens to seize them, and leave the poor thing maimed and disfigured, and perhaps pouring out its life-blood from the ugly wound.

If you are insensible to the beauty, the blessing and benignity of trees, there is no use in appealing to you. But surely you are not! Surely you can call to mind some old tree that brings up memories of the past, and appeals to you with almost human tenderness!

Then, for the sake of these old, tried, and well-beloved friends, look with compassion upon all trees, and discourage those who would spoil and disfigure them.

Have you ever thought how sad a tree must feel when it is transplanted from the forest to the city or town? How it must miss its tall and stalwart companions the shy woodland birds, and the flowers that spring up around it each year! The parting from them all is bad enough, but there is worse to come. It little dreams of the hideous and deforming "trimming" that will begin as soon as it commences to spread its tiny branches! Poor little

tree! I wonder it does not die of grief and pain!

Doubtless, it sighs and sobs out its longing for the old free home, in the ears of the passing wind, though we are too dull to understand its murmuring voice.

If the wind is in a good humor, he caresses it gently, and tries to comfort it; but sometimes he is angry, and then he shakes the poor tree fiercely. But it loves him always, whether he is gentle or rough.

I suppose it is sometimes necessary to trim trees. I hear people say so. But I think a tree of beautiful and perfect shape is more desirable than the little patch of lawn that might be gained by "trimming it up."

Ought not one to consider, and carefully study the tree, as a whole, before venturing to remove any of its branches? To examine it from every point of view? Above all, if your trees *must* be trimmed, see about it *yourself*, and don't trust them to the ruthless hands of people insensible to beauty—those to whom a tree is only so much wood! And be very sure your "cause" is "justifiable" before you allow them to be touched.

Remember that the finest trees are of slow growth; and if ever you are tempted to cut down a really fine one, just stop a moment and reflect that it may take half a lifetime to replace it.

If these people who have a mania for cutting down trees could but be persuaded to plant a new one for every old one they sacrifice, what a blessing it would be to future generations!

Then as a little helpless, innocent bird,
That has but one plain passage of few
notes,
Will sing the simple passage o'er and
o'er
For all an April morning, till ear
Wearies to hear it. —Tennyson.

The sycophant succeeds where the self-respecting man fails, yet the former is despised and the latter revered. The first is happy if he secure the favor of the great; the latter is content if he can secure that of himself.—Charles Churchill Marble.

"THAT I MAY HELP."

The depth and dream of my desire,
The bitter paths wherein I stray,
Thou knowest, Who hast made the fire,
Thou knowest, Who hast made the
clay.

One stone the more swings to her place
In that dread temple of Thy Worth,

It is enough that through Thy grace
I saw naught common on Thy earth.

Take not that vision from my ken;
O, whatso'er may spoil or speed,
Help me to need no aid from men
That I may help such men as need.
—Rudyard Kipling.

A TRAGEDY IN THREE PARTS.

PART I.—*The Bonnet.*

A bit of foundation as big as your hand;
Bows of ribbon and lace;
Wire sufficient to make them stand;
A handful of roses, a velvet band—
It lacks but one crowning grace.

PART II.—*The Bird.*

A chirp, a twitter, a flash of wings,
Four wide-open mouths in a nest;
From morning till night she brings and
brings
For growing birds, they are hungry
things—
Aye! hungry things at the best.
The crack of a rifle, a shot well sped;
A crimson stain on the grass;
Four hungry birds in a nest unfed—

Ah! well, we will leave the rest unsaid;
Some things it were better to pass.

PART III.—*The Weaver.*

The lady has surely a beautiful face,
She has surely a queenly air;
The bonnet had flowers and ribbon and
lace;
But the bird had added the crowning
grace—
It is really a charming affair.

Is the love of a bonnet supreme over all,
In a lady so faultlessly fair?
The Father takes heed when the spar-
rows fall,
He hears when the starving nestlings
call—
Can a tender woman *not care?*
—Anon.

STRANGE PLANTS.

ONE of the most remarkable growths in the government botanical gardens is the so-called barber plant, the leaves of which are used in some parts of the East by rubbing on the face to keep the beard from growing. It is not supposed to have any effect on a beard that is already rooted, but merely to act as a preventive, boys employing it to keep the hair from getting a start on their faces. It is also employed by some Oriental people who desire to keep a part of their heads free from hair, as a matter of fashion. A curious looking tree from the Isthmus of Panama bears a round red fruit as big as an apple, which has this remarkable

faculty, that its juice rubbed on tough beef or chicken makes the meat tender by the chemical power it possesses to separate the flesh fiber. One is interested to observe in the botanical green houses three kinds of plants that have real consumption of the lungs—the leaves, of course, being the lungs of a plant. The disease is manifested by the turning of the leaves from green to white, the affection gradually spreading from one spot until, when a leaf is all white, it is just about to die. Cruelly enough, as it would seem, the gardeners only try to perpetuate the disease for the sake of beauty and curiosity, all plants of those varieties that are too healthy being thrown away.

A BRIGAND BIRD.

THE kea is an outlaw bird of New Zealand for each of whose bills the government offers a reward of a shilling. The kea is a gourmand. It prefers the kidney of a sheep to any other part of the beast.

Coming down out of the mountains in winter, it attacks the sheep, alighting on their backs, and tearing away the hide and flesh until it reaches the titbits which it seeks.

How the birds learned to tear away the skin to get at the flesh forms a curious story of the development of bird knowledge. The birds had been feeding on the refuse of cattle and

sheep killed for human consumption. They learned to associate the idea of meat with the living animal, and now they kill the sheep for the meat without waiting for human aid or consent.

The Maoris have a legend about this bird to the effect that it used to be a strict vegetarian, building its nest on the ground. The sheep came and trampled on the nests, and the birds attacked them furiously, drawing blood.

They liked the flavor of flesh, and have ever since been eating it. The bird builds its nest in trees now, out of the reach of the sheep's hoofs.

THE BROOK.

Little brook, little brook,
You have such a happy look,
Such a very merry manner as you swerve and curve and crook;
And your ripples, one by one,
Reach each other's hands and run
Like laughing little children in the sun!

Little brook, sing to me,
Sing about a bumble-bee
That tumbled from a lily-bell and mumbled grumbly
Because he wet the film
Of his wings and had to swim,
While the water bugs raced round and laughed at him.

Little brook, sing a song
Of a leaf that sailed along
Down the golden braided center of your current swift and strong,
And the dragon-fly that lit
On the tilting rim of it,
And sailed away, and wasn't scared a bit!

And sing how oft in glee
Came a truant boy like me
Who loved to lean and listen to your lilting melody,
Till the gurgle and refrain
Of your music in his brain
Caused a happiness as deep to him as pain!

Little brook, laugh and leap!
Do not let the dreamer weep;
Sing him all the songs of summer till he sink in softest sleep;
And then sing soft and low
Through his dreams of long ago,
Sing back to him the rest he used to know.—*Anon.*



BY PER, HARRIET E. HIGLEY.
A. W. MUMFORD, PUBLISHER, CHICAGO

BLOODROOT.

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THE BLOOD-ROOT.

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

Thou first-born of the year's delight,
Pride of the dewy glade,
In vernal green and virgin white,
Thy vestal robes arrayed.—*Keble.*

THE true lover of flowers, though he may be enraptured by those under cultivation, finds a greater satisfaction in the study and observation of those that are developed only under the influence of Nature's laws. In the field, the forest, and even in the sea there are plants not only pleasing to the eye, but that are doubly interesting because of the wonderful provision made for them to assure their survival. Plants, like animals, have their enemies, and sometimes it seems that, with thoughtful care for its own protection, a species will gradually change its habits, thus conveying a sense of danger to its descendants.

Many of the peculiarities of plants, that fit them for existence, may be readily studied by the novice in botany as he tramps the fields in search of recreation. There is nothing more delightful and charming to the botanist than to seek the reasons for the beauties in Nature and to find why plants live and exist as they do.

Many delicate plants seek the shelter and protection of the borders of the forest. They do not penetrate far within, but remain near the open, where the sunlight can reach them. The blood-root (*Sanguinaria Canadensis*) is of this character. Beautiful and delicate, it seems to shun the storm and wind and to retire from the gaze of man.

The blood-root belongs to the poppy family (*Papaveraceæ*), which includes about twenty-five genera and over two hundred species. These, though widely distributed, are chiefly found in the temperate regions of the North. To this family also belong the valuable opium-producing plant (*Papaver somni-*

ferum), the Mexican or prickly poppy (*Argemone Mexicana*), the Dutchman's breeches (*Bicuculla Cucullaria*), the bleeding-heart (*Bicuculla eximia*) and the beautiful mountain fringe (*Adlumia fungosa*). A large number of the species are cultivated for ornamental purposes. The poppy is also cultivated for the commercial value of the opium it produces. All the species produce a milky or colored juice. Here, indeed, we may say that behind beauty there lurks a deadly foe, for the juice of nearly all the species has active narcotic properties. This property is a means of protection to the plant under consideration, for its acrid taste is distasteful to animals.

The red juice that exudes from all parts of the plant of the blood-root gives it both its common and its generic names, the latter, *Sanguinaria*, is derived from the Latin word *sanguis*, or blood.

This interesting plant is a native of Eastern North America, deriving its specific name from the fact that it is found in Canada. It blossoms in April or May. Usually but a single flower is borne by the naked stalk that rises from the underground stem to the height of about eight inches. The flowers are white, very rarely pinkish, about one and one-half of an inch in diameter. The number of petals varies from eight to twelve, and they fall very soon after expansion. The sepals disappear before the bud opens.

A single leaf is produced from each bud of the underground stem. It is wrapped around the flower-bud as the latter rises from the soil and does not develop to full size till after the period of blossoming is over. The necessary

food material for the production of the flower was stored in the underground stem during the preceding season. Thus the green leaf is not needed early in the growth of the plant.

The adult leaf is kidney-shaped, smooth, and five to nine lobed. When fully grown they are often more than six inches in diameter. The leaf-stalk, which may be over one foot in length,

and the radiating veins vary in color from yellowish to orange. Few leaves are more beautiful and graceful than these, both during their development and when fully mature.

It is said that the Indians formerly used the juice of this plant as a dye, and thus it is sometimes called red Indian paint and red puccoon.

TANSY CAKES.

MANY of our garden herbs still in common use for purposes of seasoning are in reality British plants, says Longman's Magazine. Among them may be mentioned mint and marjoram and thyme and calamint, all of which may be found in their native haunts. Fennel is abundant on sea cliffs in many places in the south of England. Wild hyssop is perfectly naturalized on the picturesque ruins of Beaulieu Abbey and wild balm used to be found within the ancient walls of Portchester castle. The garden parsley was formerly abundant on the shingly beach at Hurst castle, where it used to be gathered for domestic purposes. One native herb, however, much in use among our forefathers is now seldom seen in kitchen gardens—we mean *Tanacetum vulgare*, the common tansy, the dull yellow flowers of which are often conspicuous by the side of streams. The young leaves and juice of this plant were formerly employed to give color and

flavor to puddings, which were known as tansy cakes, or tansy puddings.

In mediæval times the use of these cakes was specially associated with the season of Easter and it is interesting to notice that in the diet rolls of St. Swithin's monastery at Winchester, which belong to the end of the fifteenth century, we come across the entry "tansey tarte." It has been said that the use of tansy cakes at this season was to strengthen the digestion after what an old writer calls "the idle conceit of eating fish and pulse for forty days in Lent," and it is certain that this was the virtue attributed to the plant by the old herbalists. "The herb fried with eggs which is called a 'tansy,'" says Culpepper, "helps to digest and carry away those bad humors that trouble the stomach." It seems more probable that the custom of eating tansy cakes at Easter time was associated with the teaching of that festival, the name "tansy" being a corruption of a Greek word meaning "immortality."

THE PARTRIDGE CALL.

Shrill and shy from the dusk they cry,
Faintly from over the hill;
Out of the gray where shadows lie,
Out of the gold where sheaves are
high,
Covey to covey, call and reply,
Plaintively, shy and shrill.

Dies the day, and from far away
Under the evening star
Dies the echo as dies the day,
Droops with the dew in the new-mown
hay,
Sinks and sleeps in the scent of May,
Dreamily, faint and far.
—Frank Saville in the Pall Mall Magazine.

OUR FEATHERED NEIGHBORS.

BERTON MERCER.

SOME few years ago, while living in the village of West Grove, Chester County, Pennsylvania, I observed an unusual number of different birds in our own immediate yard and garden, nearly all of which built their homes within the narrow limits of our property.

Being deeply interested in the bird kingdom, and appreciating their friendship and confidence, I carefully watched the progress of their daily labors and their respective traits and individual habits. Our buildings consisted of a house, small stable and a carpenter shop, and I was much gratified to observe so many pretty birds nesting at our very doors.

In the front yard stood three tall pine trees. In one of these a pair of black birds made their nest and reared two broods of young. A goldfinch also chose one of the lower branches of the same tree, in the forks of which the clever little fellow hung a most beautiful cup-shape nest. It appeared to be made of various mosses, lichens, and soft materials, closely woven and cemented together, and the lining inside consisted of thistle-down. Four pretty eggs were deposited in due course and, as far as I know, the young were safely raised and departed with their parents in the fall. I had the pleasure of seeing the entire family frequently perched on the seed salad stalks in our garden feeding in fearless content.

On both sides of the front porch was a lattice covered with woodbine. In the top of one of these a robin chose to build her home, and showed remarkable tameness during the entire nesting period. On the back porch, also covered with woodbine, a pair of chipping sparrows built their nest, a beautiful little piece of workmanship, displaying skill and good taste. A happy little family was raised here in safety. Not ten feet from the chipping sparrow's nest, we nailed up a little wooden

box which was tenanted for several years by a pair of house wrens, in all probability the same two. These little birds afforded us many hours of pleasure watching their cunning ways and listening to their cheery song.

In another box raised on a high pole in the garden, we had a pair of purple martins for two seasons and they helped to swell the population of our bird community. Placed in a hedge row bordering the yard, I observed the nest and eggs of a song sparrow, and their happy notes were to be heard all day long. In a small briar patch in the corner of the garden a cat bird made her home, and became quite tame, raising four little ones successfully. In the eaves of the shop (although not wanted or cherished) the English sparrows held sway and we destroyed their nests on two or three occasions, as they repeatedly tried to drive away some of our other pets.

Summing up we have a total of nine different birds which nested within our small domain, and in each instance they seemed to feel a sense of security and protection from all harm. In addition to those nesting on our premises, we were favored with frequent visits from many more, such as vireos, orioles, cardinals, indigo birds, chickadees, nuthatches, snow birds, sparrow hawks, flickers, etc., according to the time of year.

Prior to the summer in question, my father had been very ill, and as he was then getting better he spent many days on the porch. This afforded ample opportunity for him to study our birds, and they in like manner became so accustomed to his presence that they were quite fearless. Especially was this the case with the chipping sparrows above mentioned. They became unusually tame during the season and the mother bird finally ate out of father's hand or would sit on the toe of his boot and pick crumbs from his fingers.

THE BLUE GROSBEAK.

(*Guiraca caerulea.*)

THIS beautiful specimen of the finch family is found in the southern United States from the Atlantic to the Pacific, although very local and irregularly distributed. It is occasionally found north to Kansas, Illinois, Pennsylvania and Connecticut. The male is brilliant blue, darker across the middle of the back. The female is yellowish brown above, brownish yellow beneath, darkest across the breast, wings broadly edged with brownish yellow. Sometimes there is a faint trace of blue on the tail. The young resemble the female. Males from the Pacific coast region have tails considerably longer than eastern specimens, while those from California are of a much lighter and less purplish blue.

The blue grosbeak is a very inconspicuous bird. Unless seen under the most favorable circumstances the adult male does not appear to be blue, but of a dusky color, and Ridgway says may easily be mistaken for a cow blackbird, unless carefully watched; besides they usually sit motionless, in a watchful attitude, for a considerable time, and thus easily escape observation.

The blue grosbeak frequents the thickets of shrubs, briars and tall weeds lining a stream flowing across a meadow or bordering a field, or the similar growth which has sprung up in an old clearing. The usual note is a strong harsh *ptchick*, and the song of the male is a very beautiful, though rather feeble, warble. At least two broods are raised during a season.

ODD PLACES CHOSEN.

GUY STEALEY.

IT would seem that nature had provided enough space and a sufficient variety of nooks and corners for birds to choose from and build their nests in; yet it is a strange fact that many of them often prefer to follow man, and select, for their homes, some spot he has planned and made.

In the fields one often sees the nests of robins and blackbirds built between the rails of pole fences, and sometimes catbirds choose this situation for a home. Around the barns will be found the swallows and their curious nests of mud. Then there are those cheerful and always friendly little birds, the wrens, which think that our houses are just the homes they would like, too; and any box or can, or what is prettiest of all, a miniature cottage placed on a fence, will rarely ever remain unoccupied during the summer. Even the shy bluebirds, whose sheen of feathers seems to be borrowed from the sky, like to peep into these.

Of all the wild birds, I believe I love

the wrens the best. They are always so busy and yet so companionable. Last spring, when the days began to get warm, I left the window of my room open to admit the fresh free air; and on going in there one day I spied one of these spry little fellows peeping and hopping around the curtains, which were looped up, forming a cozy recess. He did not seem to be alarmed at my presence, but calmly went on with his inspection; and would you believe it, the next morning the pair of them were busy constructing their nest in this nook. I let the window remain open all summer, and they raised their family there.

But the strangest of all strange sites in which I ever found a nest was nearly at the bottom of a deep well! This well was walled up with rock and a couple of brown field birds carried twigs and grass down it and formed their nest on a projecting spur of stone. Why they should choose such a location as this it is hard to tell.



FROM COL. F. KAEMPFER.
A. W. MUMFORD, PUBLISHER, CHICAGO.

WESTERN BLUE GROSBEAK.
 $\frac{5}{6}$ Life-size.

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THE YOUNG NATURALIST.

THERE are other armies in South Africa besides the Boers and the British; armies of very little folk, which go out on foraging expeditions when their colonies stand in need of supplies—forays planned and executed with military precision, and, as a general thing, uniformly successful.

I speak of an army of ants.

A close observer, residing in South Africa, describes one of these forays in the following way:

"The army, which I estimated to number about fifteen thousand ants, started from their home in the mud walls of a hut and marched in the direction of a small mound of fresh earth, but a few yards distant. The head of the column halted on reaching the foot of the mound and waited for the rest of the force to arrive at the place of operations, which evidently was to be the mound of fresh earth. When the remainder had arrived and halted so that the entire army was assembled, a number of ants detached themselves from the main body and began to ascend to the top of the mound, while the others began moving so as to encircle the base of the mound.

"Very soon a number from the detachment which had ascended the mound, or lilliputian kopje, evidently the attacking party, entered the loose earth and speedily returned, each bearing a cricket or a young grasshopper, dead, which he deposited upon the ground and then returned for a fresh load. Those who had remained on the outside of the mound, took up the crickets and grasshoppers as they were brought out and bore them down to the base of the hill, returning at once for fresh victims. Soon the contents of the mound seemed to be exhausted, and then the whole force returned home, each ant carrying his burden of food for the community."

My very young readers will be surprised, no doubt, to hear me speak of wasps as cement-makers, or paper-makers, but such, in truth, they are.

You can form no idea of the industry and toil these little folk expend upon the structure they call home. Nothing pleases them better than to find an old fence rail covered with a light gray fuzz of woody fiber loosened from decaying wood by excessive soakings of rain. Dozens of these little pulp-gatherers will descend upon the rail, and as fast as each of them obtains a load away he flies to the place where the home building is already going on.

This may be in a clump of bushes near a stream, and as fast as they deposit their load of fiber down they fly to the stream, and having secured a mouthful of water back they go to the nest to beat the fiber into a thin sheet, which they deftly join to the main body, the jointure being imperceptible. Such a throng of workers coming and going, some to the fence, some to the nest, some to the brook, each addition to the structure being the tiniest mite, yet growing perceptibly under the united efforts of the little builders.

TAR.—One of the commonest substances met with in city or town is tar. A paper roof covered with tar makes a very good protection against sun and rain provided a suitable amount of gravel covers the tar. The kind of tar most used is called coal-tar or gas-tar. This is made at the gas factory from the distilling of soft coal. Tar that comes from different varieties of pine and spruce is used to cover ropes and hulls of ships. It is from his having some of it usually clinging to his hands and clothes that the sailor boy came to be called "Jack Tar," and from his fondness for the sea one of the royal family of England got the pet name of "Royal Tarry Breeks." It is strange that there has been no change in the work of getting this kind of tar from the wood for over twenty-three hundred years. The wood is placed in holes dug in the ground and covered carefully with turf so as to keep out the air and prevent too much burning. Some of the wood is left free so the air may get at it and burn it enough to make heat enough to distil the pitch from the rest

of it. This is gathered into barrels and is black because of the smoke that gets into it. It was this sort of tar that Benjamin Franklin had his experience with one time in Philadelphia. He was running along on the tops of tar barrels on the wharf one fine day with his Sunday clothes on. The head of one barrel was not in good condition, and so Benjamin went down into it. The next issue of his paper had a very amusing account of the accident in which Franklin used his powers to make puns to great advantage in making fun at his own expense.

ANTS.—Would you like to get a clean skeleton of any small animal? Place the body near or upon an ant hill and the little workers will clean it off for you perfectly, picking every bone as clean as if they were under contract with a forfeit for every scrap of flesh, skin, or sinew left upon any bone. They like meat so well that they will attack animals that are many times larger than themselves and carry the work to a successful end. There are three kinds of ants in an ant hill—males, females, and neuters. The males and females have wings and do no work to speak of. They are always waited upon very carefully by the neuters who have no wings, but are noted for their industry, skill, and strength. It has been said that the ant stores up large quantities of grain in the summer for winter use. Whoever said that was not well acquainted with his subject. In winter the ants neither eat nor work. Some of the neuters have their jaws, or mandibles, made much larger than the rest. These are the soldiers, and they fight with greater fierceness than any other creatures. Huber, the blind naturalist who told the world so many astonishing things about bees, describes a great fight he once saw between two colonies of these little warriors. "I shall not say what lighted up discord between these two republics, the one as populous as the other. The two armies met midway between their respective residences. Their serried columns reached from the field of battle to the nest, and were two feet in width. The field of battle,

which extended over a space of two or three square feet, was strewn with dead bodies and wounded; it was also covered with venom, and exhaled a penetrating odor. The struggle began between two ants, which locked themselves together with their mandibles, while they raised themselves upon their legs. They quickly grasped each other so tightly that they rolled one over the other in the dust. When night came they stopped fighting, but the next morning they went at it again and piled the ground with slain and wounded." Their stings hurt because they carry a liquid that is like that found in nettles and in the hairs and other parts of certain caterpillars. This is called formic acid, and is made by chemists for certain purposes. The red ant dislikes to work if he can get slaves to do it for him. Perhaps we should say if *she* can get it done for *her*, because these neuters are rather more like females than like male ants. They make war purposely to get into the homes of other colonies to carry away their eggs and baby ants. They bring these up to wait upon them. When they go on a journey the slaves have to carry their owners, and sometimes they even feed them until they refuse to feed themselves. They have been known to die of hunger with plenty of food within easy reach, but with no slave at hand to place it before them. In going out to fight for the offspring of other ants they go in regular columns, and those that are left after the slaughter return home in the same order, their solid trains sometimes extending more than a hundred feet. Some ants keep cows. Plant lice have honeydew in their bodies, and when well fed they give out a great deal of it. Ants are fond of it. They sometimes confine the plant lice, feed them, and milk the honey-dew from the bodies of their captors. A German scientist named Simon, has recently returned from Australia with some great stories about ants. He says he suffered much from their attacks. In trying to get rid of them in many ways he at last hit upon the idea of spreading a poison where they would have to pass across it. He used

prussiate of potash which is sometimes used in photography. Another name for it is cyanide of potassium. He says, "How astonished was I when I saw the whole surface of the heap strewn with dead ants like a battle-field. The piece of cyanide, however, had totally disappeared. More than one-half of the community had met death in this desperate struggle, but still the death-defying courage of the heroic little creatures had succeeded in removing the fatal poison, the touch of which must have been just as disagreeable to them as it was dangerous. Recklessly neglecting their own safety, they had carried it off little by little, covering every step with a corpse. Once removed from the heap, the poison had been well covered with leaves and pieces of wood, and thus prevented from doing further damage. The heroism of these insects, which far surpasses what any other creature, including even man, has ever shown in the way of self-sacrifice and loyalty, had made such an impression on me that I gave up my campaign, and henceforth I bore with many an outrage from my neighbors rather than destroy the valiant beings whose courage I had not been able to crush." In the extreme southwest of the United States are colonies of ants that have a peculiar custom of setting apart some of their number to give up their lives for their fellows in a strange way. They feed upon honey until they are unable to walk. Then their fellows take the greatest care of them and feed them so their bodies are distended enormously. A number of these ants when fed so highly look very much like a bunch of little grapes, they are so

round and translucent. When food is scarce later the other ants come to their heavy mates and eat them with great relish.

AIR.—The wear and tear in our bodies is replaced by new material carried to the spot by the blood. The heart forces the blood out along the arteries in a bright red current. It comes back blackened with the refuse material. It passes to the lungs, where it comes into contact with the air we breathe. It does not quite touch the air, but is acted upon by the air through very thin partitions much as the cash business is carried on in some houses and banks with the cashiers all placed behind screens, where they may be seen and talked to but not reached. Purified in the lungs by contact with fresh air, the blood goes back to continue the good work of making the body sound. But if the air has been used before by someone in breathing it has become bad and the blood does not get the benefit from contact with it in the lungs that nature intended. Ordinarily a man breathes in about four thousand gallons of air in a day if he is taking things easily, but when he is hard at mental or physical work he needs much more than this. Air that has been hurt by being breathed is restored to the right condition by the leaves of trees and plants. In large cities where people are crowded together there is a lack of good air. But nature is continually rushing the air about so that new may take the place of what has been used, rain washes it out, and the storm brings in from the country just the kind of air the city man needs in his lungs.

BIRD LIFE IN INDIA.

IN INDIA bird-life abounds everywhere absolutely unmolested, and the birds are as tame as the fowls in a poultry yard. Ring-doves, minas, hoopoes, jays and parrots hardly trouble themselves to hop out of the way of the heavy bull-carts, and every

wayside pond and lake is alive with ducks, geese, pelicans, and flamingoes and waders of every size and sort, from dainty beauties, the size of pigeons, up to the great unwieldy cranes and adjutants, five feet high.

IRELAND'S LOST GLORY.

THESE is perhaps no feature of Irish scenery more characteristic and depressing than the almost universal absence of those tracts of woods which in other countries soften the outlines of hills and valleys. The traveler gazing on its bald mountains and treeless glens can hardly believe that Ireland was at one time covered from shore to shore with magnificent forests. One of the ancient names of the country was "The Isle of Woods" and so numerous are its place-names derived from the growth of woods, shrubs, groves, oaks, etc., that (as Dr. Joyce says) "if a wood were now to spring up in every place bearing a name of this kind the country would become clothed with an almost uninterrupted succession of forests." On the tops of the barest hills and buried in the deepest bogs are to be found the roots, stems and other remains of these ancient woods, mostly of oak and pine, some of the bogs being literally full of stems, the splinters of which burn like matches.

The destruction of these woods is of comparatively recent date. Cambrensis, who accompanied Henry II. into Ireland in the twelfth century, notices the enormous quantities of woods everywhere existing. But their extirpation soon began with the gradual rise of English supremacy in the land,

the object in view being mainly to increase the amount of arable land, to deprive the natives of shelter, to provide fuel, and to open out the country for military purposes. So anxious were the new landlords to destroy the forests that many old leases contain clauses coercing tenants to use no other fuel. Many old trees were cut down and sold for twelve cents. On a single estate in Kerry, after the revolution of 1688, trees were cut down of the value of \$100,000. A paper laid before the Irish houses of parliament describes the immense quantity of timber that in the last years of the seventeenth century was shipped from ports in Ulster, and how the great woods in that province (290,000 trees in all) were almost destroyed.

The houses passed an act for the planting of 250,000 trees, but it was of no avail, and so denuded of timber had the country become that large works started in Elizabeth's reign for the smelting of iron were obliged to be stopped at last for want of charcoal. The present century has continued the deplorable story of destruction. In forty years, from 1841 to 1881, 45,000 acres of timber were cut down and sold. Every landlord cut down, scarcely anyone planted, so that at the present day there is hardly an eightieth part of Ireland's surface under timber.

BIRDS AND REPTILES RELATED.

Fossil remains have been found of birds with teeth and long bony tails, and also of reptiles, with wings; great monsters they must have been—veritable flying dragons.

In 1861, in the lithographic slates of Solenhofen, Bavaria, a fossil feather was found which was the subject of considerable discussion among naturalists. Again, in 1862, a curious skeleton was disinterred from the same place, in which most of the bones exhibited the marks of a true bird, but the skel-

eton had a most remarkable tail, containing twenty distinct bones. From each of these bones proceeded a pair of well-developed feathers, similar to the single feather which had been previously found. Here was an animal which could be called a birdlike reptile or a lizardlike bird, with equal propriety. Its twenty caudal segments or vertebræ were a bar to its entrance to every existing family of birds, while it was equally out of place among reptiles.



FROM COL. CHI. ACAD. SCIENCES
 A. W. MUMFORD, PUBLISHER, CHICAGO
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Root Murex
 Burnt Murex
 Purple Murex

Venus Comb

SHELLS
 Reduced $\frac{1}{10}$.

Apple Murex

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 NATURE STUDY PUB. CO., CHICAGO.

Branched Murex
 Horned Murex
 Two-colored Murex

THE ROCK SHELLS.

FRANK COLLINS BAKER,
Curator of the Chicago Academy of Sciences.

THE rock shells or murices are among the most beautiful and interesting of all the mollusks or shell fish, and are a favorite among collectors. Their peculiar spiny shells and brilliant colors caused them to be among the first mollusks studied by naturalists and we find them, therefore, described in the earliest works on natural history.

There are about two hundred different kinds of rock shells, mostly confined to the tropical and subtropical seas, although a few are found in temperate climes. The greatest number of these are found about rocks at low water but not a few are inhabitants of waters as deep as fifty fathoms or more. In our own country they are abundant along the coast of Panama, the Gulf of California, Florida and the islands of the West Indies, but the largest number of varieties comes from the Indian Ocean, Japan, the Philippines and Australia. The more brightly colored varieties are from tropical seas, while the dull, plain species are from subtropical or temperate climes.

The murices are peculiar in having their shells ornamented by numerous projections, which vary from long, needle-like spines to simple fluted frills. What these spines and frills are for would probably puzzle the ordinary observer, as they would seem at first sight to be in the way. In some cases they are simply ornamental, but in the main they are protective and enable the animal to escape being eaten by some voracious fish. This is known as protective adaptation and was probably brought about in this manner: the murices, or their ancestors, did not at first have spiny shells, and they fell an easy prey to the fishes. As time went on a few individuals, through some modification of environment, developed small spines or prominences. The animals having these were not eaten

by fishes as the knobs and spines caused the fishes pain when swallowed, therefore they preferred the animals with smoother shells. In time this modification caused a weeding-out process, the animals with smoother shells being exterminated and those with spiny shells increasing in numbers and becoming more spiny as one generation succeeded another. This continued until the present time and is going on even now.

Another interesting fact concerning the development of this ornamentation is that the smoother shells inhabit rocky shores where the waves are constantly beating in with greater or lesser violence, while the more spiny individuals live in protected and comparatively still water. This adds additional weight to the theory expressed in the last paragraph, for the fish which feed upon these shells do not, as a rule, inhabit localities where the water is rough, as along a rocky shore, but live abundantly in protected bays and lagoons in which the spiny murices are found.

There are shown on the plate eight species of rock shells, all more or less common. The first one for us to consider may be called Venus' Comb, (*Murex tribulus*) and is found in China, Japan and the Indian Ocean. It belongs to a group of shells which is characterized by a long snout or canal, and long, pointed spines. The color is yellowish; in one variety the spines are tipped with black.

A shell which is found on the mantel in every household is known as the Branched Rock Shell (*Murex ramosus*), which is widely distributed, being found in the Red Sea, the Indian Ocean, New Zealand, Australia and the Central Pacific Ocean, and attains a large size, some specimens reaching the length of a foot and weighing several pounds. The aperture is frequently tinged with a deep, beautiful

pink. In many households the large shells of this species are used for flower pots, suspended from a hook over the window by a set of chains, and for this purpose they are certainly very ornamental.

The Apple Murex (*Murex pomum*) is of home production, being found on the shores of Florida and throughout the West Indies. It is not as attractive as the shells just mentioned, but is very common, every collector possessing several specimens in his cabinet.

In the aperture of this species will be noticed a dark brown object which is known as an operculum or door, and its use is to close the aperture when the animal withdraws into its shell, so that the latter may be safe from its enemies. All of the rock shells possess this organ, which is attached to the back part of the animal's foot.

A peculiar and somewhat rare shell is the Horned Murex (*Murex axicornis*); found in the Indian Archipelago, whose shell is made up of many curiously fluted spines. The Burnt Murex (*Murex adustus*), is an inhabitant of the Indian Ocean, Japan and the Philippines, and its name, which signifies burned, is well chosen, for all its spines and frills and most of the shell are black in color and look just as though the shell had been scorched. The aperture is often beautifully tinged with pink or dark red.

A common rock shell found in the Mediterranean Sea as well as on the Atlantic coast of France and Portugal and the Canary Islands, is the Purple Murex (*Murex trunculus*). This is a light brown, three-banded shell about two inches in length and is famous as having been used by the ancients to

obtain their beautiful and rich purple dye. On the Tyrian shore these shells were pounded in caldron-shaped holes in the rocks, and the animals were taken out and squeezed for the dye which they secrete. If the animal of one of our common purpuras, a small shell found along the Atlantic and Pacific coasts, be squeezed, it will exude a purple fluid which will stain fabrics a reddish purple. It is probable that much or most of the royal purple of the ancients was obtained from these lowly creatures.

Although the most beautiful shells of this family are supposed to live in the warm, tropical seas of the Indian Ocean, it is nevertheless true that many of the most brightly colored rock shells live in the warm waters of Panama and Mazatlan. The Root Murex (*Murex radix*) is one of these shells, which attains a length of five inches and weighs several pounds. The shell is white or yellowish-white and the spines and frills are jet black, the two colors producing a peculiar effect. Another beautiful shell from the same locality (Panama) is the Two-colored Murex (*Murex bicolor*), a shell attaining somewhat larger dimensions than the last. The spines are reduced to mere knobs in this species, there are but a few frills, and only two colors, the shell being greenish-white and the aperture a deep red or pink, plainly showing whence the name, bicolor, two-colored. This shell is collected by thousands at Panama and shipped all over the United States to curiosity stores at summer watering places and other vacation resorts, where they are sold at from a few cents to a dollar each, according to quality.

SPRING HAS COME.

Would you think it? Spring has come;
Winter's paid his passage home;
Packed his ice-box—gone—half way
To the Arctic pole, they say.

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- 5 Australian Parrakeet.
- 6 Cock of the Rock.
- 7 Red Bird of Paradise.
- 8 Yellow-throated Toucan.
- 9 Red-rumped Tanager.
- 10 Golden Oriole.

FEBRUARY, 1897.

- 11 American Blue Jay.
- 12 Swallow-tailed Indian Roller.
- 13 Red-headed Woodpecker.
- 14 Mexican Mot Mot.
- 15 King Parrot.
- 16 American Robin.
- 17 American Kingfisher.
- 18 Blue-mountain Lory.
- 19 Red-winged Black Bird.
- 20 Cardinal, or Red Bird.

MARCH, 1897.

- 21 Blue Bird.
- 22 Barn Swallow.
- 23 Brown Thrasher.
- 24 Japan Pheasant.
- 25 Bobolink.
- 26 American Crow.
- 27 Flicker.
- 28 Black Tern.
- 29 Meadow Lark.
- 30 Great Horned Owl.

APRIL, 1897.

- 31 Rose-breasted Grosbeak.
- 32 Canada Jay.
- 33 Purple Gallinule.
- 34 Smith's Longspur.
- 35 American Red Crossbills.
- 36 California Woodpecker.
- 37 Pied-billed Grebe.
- 38 Bohemian Wax Wing.
- 39 Long-billed Marsh Wren.
- 40 Arizona Jay.

MAY, 1897.

- 41 Screech Owl.
- 42 Orchard Oriole.
- 43 Marsh Hawk.
- 44 Scissor-tailed Flycatcher.
- 45 Black-capped Chickadee.
- 46 Prothonotary Warbler.
- 47 Indigo Bird.
- 48 Night Hawk.
- 49 Wood Thrush.
- 50 Cat Bird.

JUNE, 1897.

- 51 Yellow-throated Vireo.
- 52 American Mocking Bird.
- 53 Black-crowned Night Heron.
- 54 Ring-billed Gull.
- 55 Logger-head Shrike.
- 56 Baltimore Oriole.
- 57 Snowy Owl.
- 58 Scarlet Tanager.
- 59 Ruffed Grouse.
- 60 Black and White Creeping Warbler.

JULY, 1897.

- 61 American Bald Eagle.
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- 63 Mallard Duck.
- 64 American Avocet.
- 65 Canvas-back Duck.
- 66 Wood Duck.
- 67 Anhinga, or Snake Bird.
- 68 American Woodcock.
- 69 White-winged Scoter.
- 70 Snowy Heron, or Little Egret.

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- 71 Osprey.
- 72 Sora Rail.
- 73 Kentucky Warbler.
- 74 Red-breasted Merganser.
- 75 Yellow Legs.
- 76 Skylark.
- 77 Wilson's Phalarope.
- 78 Evening Grosbeak.
- 79 Turkey Vulture.
- 80 Gambel's Partridge.

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- 82 Hermit Thrush.
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- 84 Yellow-billed Cuckoo.
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- 87 Phoebe.
- 88 Ruby-crowned Kinglet.
- 89 Mourning Dove.
- 90 White-breasted Nuthatch.

OCTOBER, 1897.

- 91 Blackburnian Warbler.
- 92 Gold Finch.
- 93 Chimney Swift.
- 94 Horned Lark.
- 95 Yellow-bellied Sapsucker.
- 96 Warbling Vireo.
- 97 Wood Pewee.
- 98 Snow Bunting.
- 99 Junco.
- 100 King Bird.

NOVEMBER, 1897.

- 101 Summer Tanager.
- 102 White-fronted Goose.
- 103 Turnstone.
- 104 Belted Piping Plover.
- 105 Wild Turkey.
- 106 Cerulean Warbler.
- 107 Yellow-billed Tropic Bird.
- 108 European Kingfisher.
- 109 Vermilion Flycatcher.
- 110 Lazuli Bunting.

DECEMBER, 1897.

- 111 Mountain Blue Bird.
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- 116 Flamingo.
- 117 Verdin.
- 118 Bronzed Grackle.
- 119 Ring-necked Pheasant.
- 120 Yellow-breasted Chat.

JANUARY, 1898.

- 121 Crowned Pigeon.
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- 124 Bob White.
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- 126 Short-eared Owl.
- 127 Rose Cuckatoo.
- 128 Mountain Partridge.

FEBRUARY, 1898.

- 129 Least Bittern.
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- 133 Sawwhet Owl.
- 134 Black Swan.
- 135 Snowy Plover.
- 136 Lesser Prairie Hen.

MARCH, 1898.

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- 140 American Coot.
- 141 Ivory-billed Woodpecker.
- 142 American Sparrow Hawk.
- 143 Silver Pheasant.
- 144 Scaled Partridge.

APRIL, 1898.

- 145 Ovenbird.
- 146 American Three-toed Woodpecker.
- 147 Bartramian Sandpiper.
- 148 Nightingale.
- 149 Roseate Spoonbill.
- 150 Dickcissel.
- 151 Dusky Grouse.
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- 153 South American Rhea.
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- 155 Black-necked Stilt.
- 156 Pintail Duck.
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- 158 Magnolia Warbler.
- 159 Great Blue Heron.
- 160 Eggs, Second Series.

JUNE, 1898.

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- 169 Wilson's Snipe.
- 170 Black Wolf.
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- 172 Prairie Hen.
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- 176 Apple Blossom.

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- 180 Loon.
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- 184 Mountain Sheep.

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- 185 American Herring Gull.
- 186 Raccoon.
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- 188 Red-should. red Hawk.
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- 191 Gray Squirrel.
- 192 Pectoral Sandpiper.

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- 193 King Bird of Paradise.
- 194 Peccary.
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- 196 Tufted Puffin.
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- 200 Golden Rod.

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- 205 Moths.
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- 207 Caspian Tern.
- 208 Flowering Almond.

DECEMBER, 1898.

- 209 African Lion.
- 210 Cacti.
- 211 Flying Squirrel.
- 212 Humming-Birds.
- 213 Silkworm.
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- 215 American Goldeneye.
- 216 Skunk.

JANUARY, 1900.

- 297 Virginia Rail.
- 298 Blue-winged Teal.
- 299 Yellow-headed Blackbird.
- 300 Black Squirrel.
- 301 Weasel (Ermine).
- 302 Quince.
- 303 Quartz.
- 304 Lily of the Valley.

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- 313 Peacock.
- 314 Willow Ptarmigan.
- 315 Stellar's Jay.
- 316 Ruddy Duck.
- 317 Muskrat.
- 318 Poppy.
- 319 Primrose.
- 320 Copper and Lead.

JANUARY, 1899.

- 217 Chimpanzee.
- 218 Puma.
- 219 Lemon.
- 220 American Mistletoe.
- 221 Nuts.
- 222 Whippoorwill.
- 223 Snapping Turtle.
- 224 Sandhill Crane.

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- 225 Ginger.
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- 227 Geographic Turtle.
- 228 White Ibis.
- 229 Iris.
- 230 Duck-billed Platypus.
- 231 Cape May Warbler.
- 232 The Coconut.

MARCH, 1899.

- 233 Tufted Titmouse.
- 234 Northern Hare.
- 235 Pineapple.
- 236 Hooded Merganser.
- 237 Cloves.
- 238 Common Ground Hog.
- 239 Common Mole.
- 240 Azalea.

APRIL, 1899.

- 241 Nutmeg.
- 242 American Barn Owl.
- 243 Kangaroo.
- 244 Hoary Bat.
- 245 Nashville Warbler.
- 246 English Grapes.
- 247 Swift Fox.
- 248 Hyacinth.

MAY, 1899.

- 249 Cedar Waxwing.
- 250 Hyrax.
- 251 Coffee.
- 252 Bonaparte's Gull.
- 253 Common Baboon.
- 254 Grinnell's Water Thrush.
- 255 Hairy-Tailed Mole.
- 256 Cineraria.

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- 311 Licorice.
- 312 Yellow Lady-Slipper and Painted Cup.

APRIL, 1900.

- 321 American Bittern.
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- 324 Ring-billed Duck.
- 325 Bloodroot.
- 326 Digitalis.
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- 260 Blue-winged Yellow Warbler.
- 261 Golden-winged Warbler.
- 262 Mourning Warbler.
- 263 Chestnut-side Warbler.
- 264 Black-throated Blue Warbler.

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- 272 Beetles.

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- 283 Towhee.
- 284 Canary.
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- 287 Peach.
- 288 Common Minerals and Valuable Ores.

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- 290 Coca.
- 291 Red-tailed Hawk.
- 292 Maryland Yellow-Throat.
- 293 Lye Bird.
- 294 Cow Bird.
- 295 Wild Cat.
- 296 Euro. Pean Squirrel.

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