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Little nature studies for little people

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LITTLE NATURE STUDIES

VOLUME II.

• A SECOND READER •
• and • A THIRD READER •

From
John Burroughs.



EDITED BY

MARY E. BURT

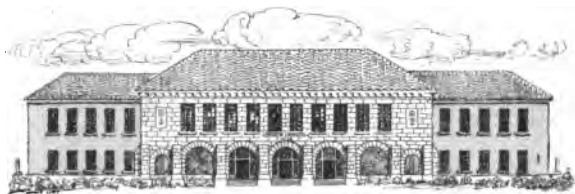
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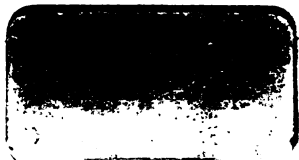


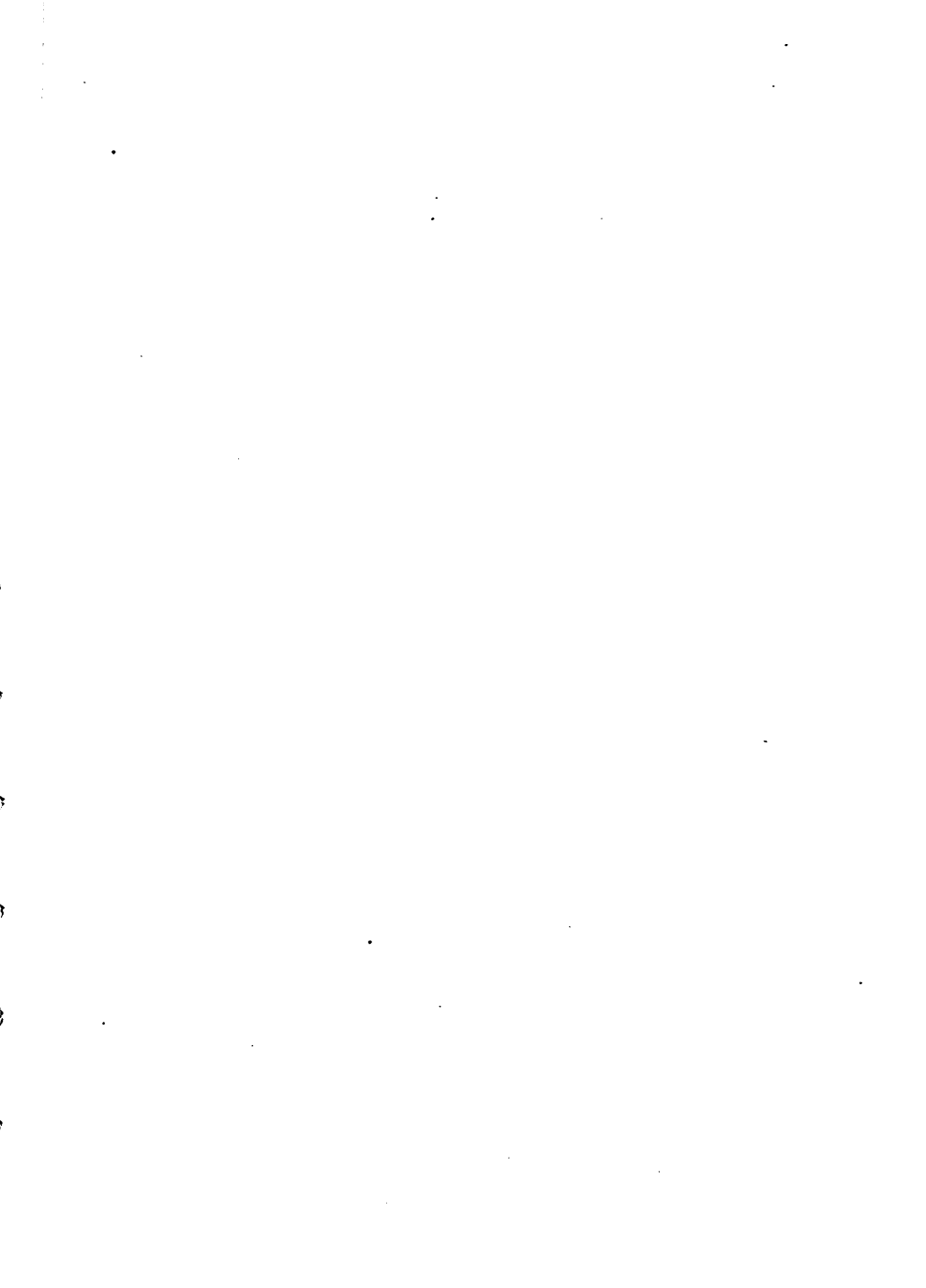
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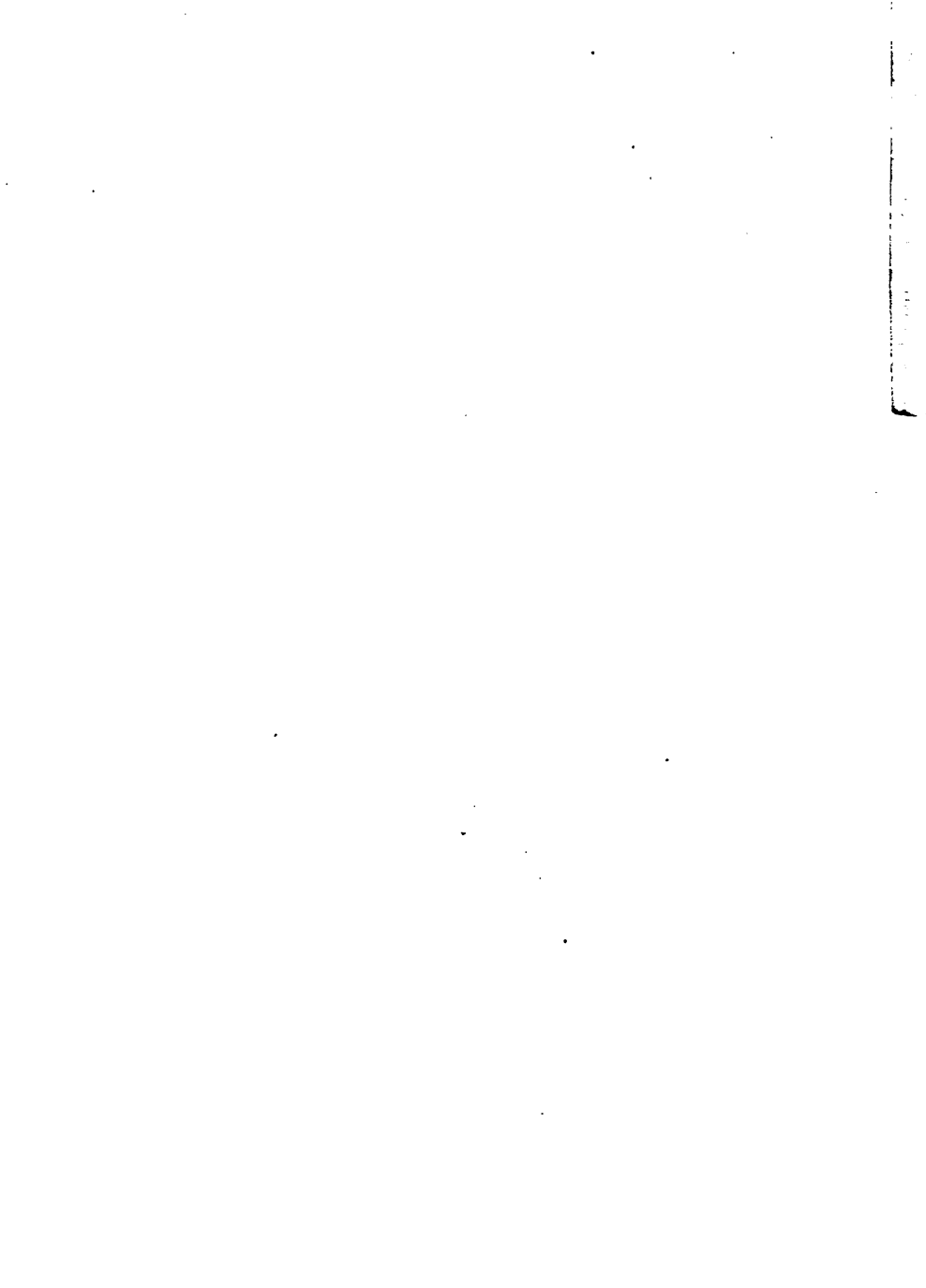
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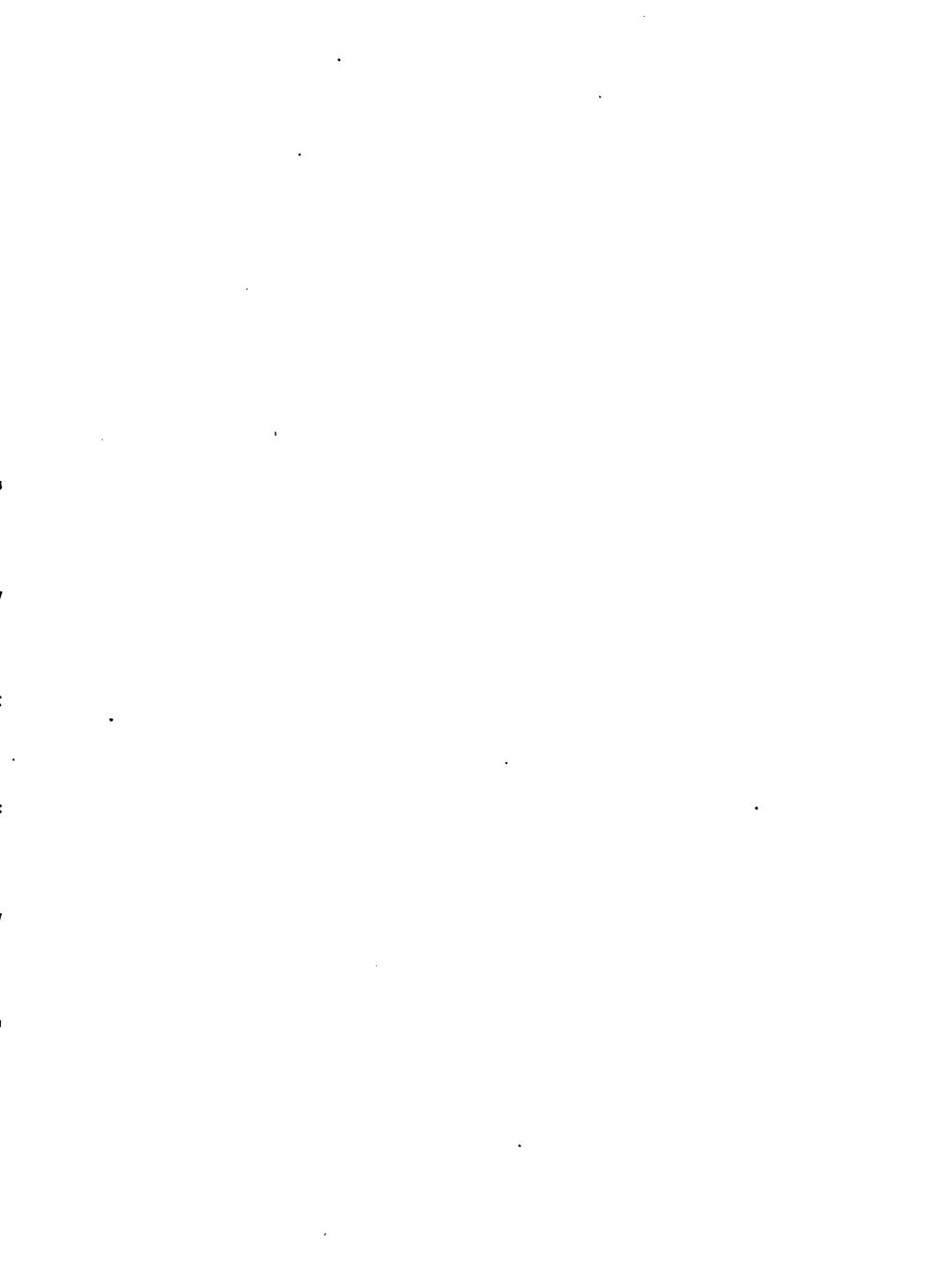


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JOHN BURROUGHS'S STUDY AT RIVERBY, WEST PARK, N. Y.

LITTLE NATURE STUDIES

FOR

LITTLE PEOPLE



FROM THE ESSAYS OF

JOHN BURROUGHS

VOLUME II.

A SECOND AND A THIRD READER

EDITED BY

MARY E. BURT

AUTHOR OF "LITERARY LANDMARKS," "STORIES FROM PLATO," ETC., ETC.
FORMERLY TEACHER OF LITERATURE, COOK CO. NORMAL SCHOOL

Revised Edition

BOSTON, U.S.A., AND LONDON
PUBLISHED BY GINN & COMPANY
1896

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PREFACE TO REVISED EDITION.



WHEN Little Nature Studies was first edited it was designed only as a book to be placed in the hands of children in the first year's work at school, as an aid to the teacher to create and cultivate in her pupils a love for nature, and to induce in them the naturalist's careful method of observation. It was presumed that the child would incidentally learn to read while learning to observe and think, since the simple monosyllabic sentences of John Burroughs's elegant diction unconsciously carried with them all the simplicity and other desirable elements so eagerly sought by professional manufacturers of first-reader and primer reading-matter combined with the yet more desirable qualities of profound insight and masterful strength. As education progresses in our country, as the public mind awakens to the importance of managing a child's time in school with thrift and in such manner that his ability may be conserved, as educators acquire a quickened pedagogical sense, the inane puerility of the reading-matter forced upon children in the last few decades will, more and more, arouse contempt and aggressive opposition.

The first edition of Little Nature Studies was received with enthusiastic commendation from a large majority of our professional educators whether or not they had competing books before the public, and extended criticism was invited by the editor and

the firm from teachers and superintendents with the most interesting and friendly replies. There were requests from many teachers that the number of "pages for teachers" be increased, that the book be divided into two parts, each part to be bound separately, that diacritical marking be made a larger feature, and that the essays be broken up into lessons. All of these points have been carefully considered and acted upon.

Many thanks are due teachers and superintendents who have so generously interested themselves in the work.

It is only through the unceasing vigilance of patriotic teachers and citizens that our schools can be preserved from the commercial deluge of the manufacturer of "children's reading."

M. E. BURT,
Editor.

Thanks are extended to Messrs. Houghton, Mifflin & Co., for such extracts as they have permitted from their copyrighted editions of the Essays of John Burroughs.

INTRODUCTION.



I SUPPOSE that no sensible person would plant weeds in a garden, instead of flowers. He would not do it even if you told him that weeds are just as natural as flowers and that Nature is indifferent as to the kind of vegetation with which she clothes the soil. He would say that as he wanted flowers for beauty and for use, he was obliged to discriminate about the vegetation he encouraged in his garden. If you see a dooryard grown up to unsightly weeds, you draw an unfavorable inference as to the character and habits of its owner. In a village, where people talk about each others' affairs, they say he is thriftless, and has no taste, and that his place is a blot upon the street.

It has always seemed strange to me that people should not take as much pains about the minds of their children as they take about their gardens. They allow anything and everything to be sown in the susceptible and fertile soil of the virgin mind. If they do not do it themselves, they permit the school "authorities" to do it. One reason for this negligence is that the weed-seed sellers have got on hand a lot of weed-seed, in fact that they have invested in a costly plant for producing weed-seed, and that there is a profitable and vested right in weed-raising; besides this sort of seed is cheaper and it will grow just as well

and faster in the tender mind. This may be true. But this seed is not cheaper for those who receive it. It is a wearisome task to restore a neglected garden in which the weeds have got the mastery ; and it takes years for the adult mind to hoe out and destroy the false tastes, the vicious growth implanted in childhood, to restore the tone of the enfeebled mind, and to acquire a taste and a power for the cultivation of that which is sweet and natural and beautiful in literature.

The only way is to begin right, to follow the rule of experience in the matter of diet, by giving the mind the most wholesome and nutritious food it can assimilate ! For a generation and more we have been doing exactly the opposite of this. Instead of literature we have been pouring a flood of reading slops into the public schools, and the product of these schools shows it in the sort of reading it likes and in its lack of discrimination or discernment of good literature.

This futile education has led the young minds just as far from the love and appreciation of nature as from literature. It cultivates neither the power of observation of nature, nor, what is more important, the knowledge of what to observe. It neither stimulates nor instructs. Thank Heaven, a reform has begun, and it is sure to be radical when the public understands what it is. Such books as this Little Nature Studies need no commendation to people who have given any thought to what the education of people should be, and who know that it is just as easy to sow good seed in their minds as poor seed.

The editor has been very fortunate in finding such an author as John Burroughs to illustrate her method and bring about the desired reform. His unaffected simplicity, which has captivated

his adult readers, appeals to children. The purity of his style is a plate glass through which we see nature without the least distortion. His expression is as lucid as his knowledge of nature is exact. He never patronizes nature, or uses her for word-painting and impressionist effects ; he never poses before her or asks her to pose before him in order that he may manufacture wearisome descriptions of her aspects and moods. He simply lives with her, and makes us like to live with her in natural and enjoyable relations. And out of this unconstrained life comes a pure stream of joyous literature, as winning to the child who welcomes the morning, the birds, and the dew and the flowers, as to the old man who sits in his doorway to watch with placid enjoyment the setting sun. What a generation that would be which should see nature with eyes like his, and be in love with a literature that is virile and pure and without affectation !

CHARLES DUDLEY WARNER.

HARTFORD, Jan. 1, 1896.

PHONIC SYSTEM USED IN LITTLE NATURE STUDIES.

<p>ā, long a, āte. ä, Italian a, äh. ą, broad a, ąll. ǎ, short a, ǎt.</p> <p>à, short Italian a, àsk. â, unaccented long a, pref'âce. ą, short o sound of a, ąhat.</p> <p>ē, long e, mē. ě, short e, sět. ě, wave e before r, hěr. ě, unaccented long e, ěmit. ę, long a sound of e, ęight, prey. ę, circumflex e, whêre.</p> <p>ō, long o, nōte. ǒ, short o, nǒt. ô, broad o, nôt. ọ, short soft o, wọlf. ơ, long soft o, đơ. ỏ, short u sound of o, cỏme. ỏ, unaccented long o, ỏmit. ồ, long double o, mồn. ồ, short double o, tồk.</p> <p>i, long i, ice. ĩ, short i, ĩt. ỉ, long e sound of i, or Italian i, machĩne.</p>	<p>ĩ, wave i, bĩrd. ỉ, unaccented long i, bĩ-ol'-ogy.</p> <p>ỹ, long y, mỹ. ỹ, short y, pitỹ. ỹ, wave y, mỹrtle. ỹ, long e sound of y, ỹës. ỹ, unaccented long y, hỹ-e'-na.</p> <p>ũ, long u (or ē ồ), ũse. ǔ, short u, ǔp. ư, short soft u, full. ư, long soft u (or ē ồ), rưde. ư, circumflex u, ưn. ư, unaccented long u, na'-tũre.</p> <p>w, ồ, wet (ồ-ě'-t).</p> <p>ç, soft c, çipher. c, hard c (the Greek c or k sound), cery.</p> <p>g, soft g (or j sound of g), large. g, hard g, gỏ.</p> <p>ŋ, the ng sound of n, unçle.</p> <p>z, the z sound of s, his.</p> <p>th, soft th, bathe.</p>
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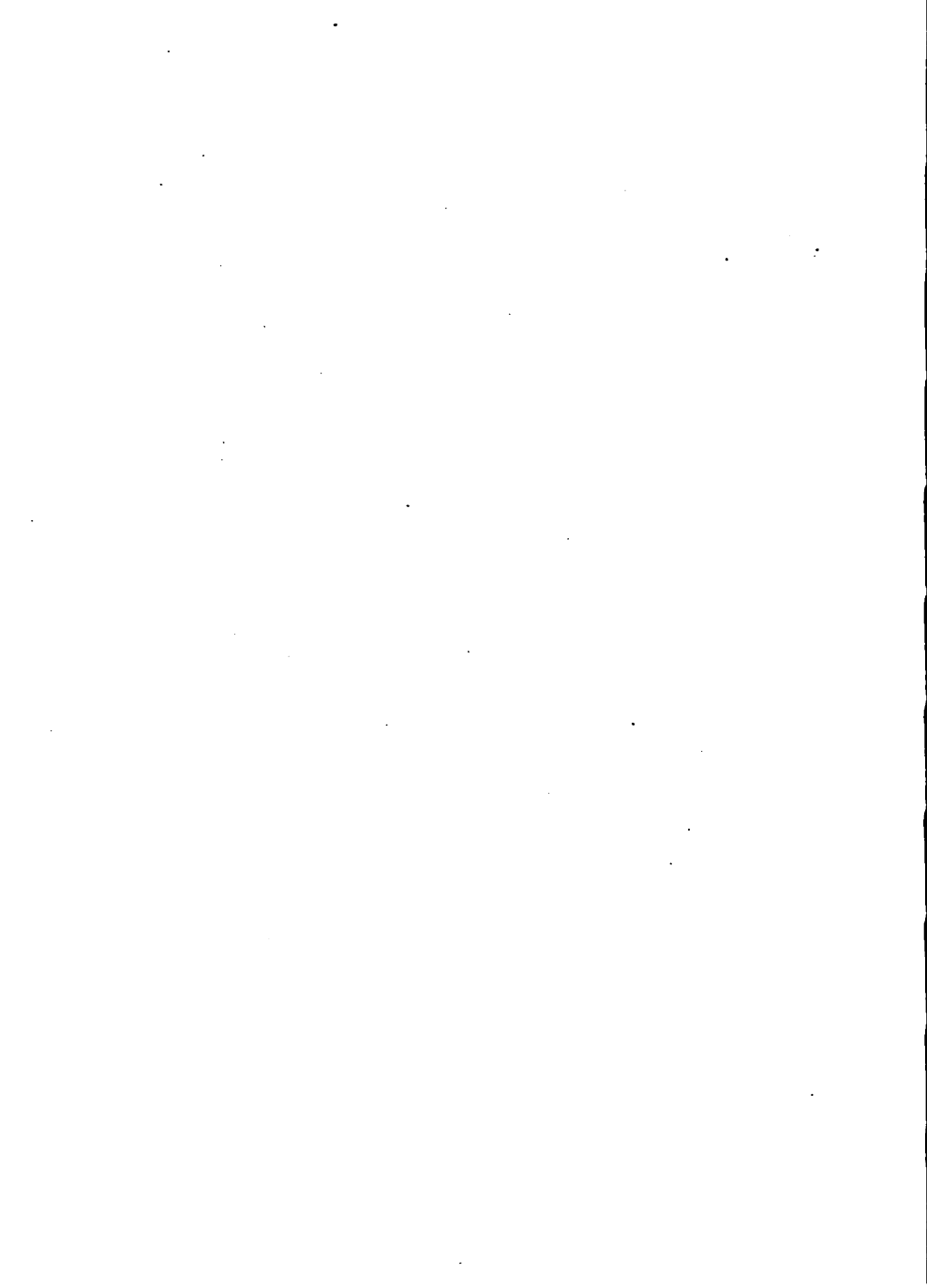
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PART III.



A SECOND READER.



LESSON I.

(The teacher's page.)

SHAM NESTS.

MANY people have seen the marsh wren, without suspecting at all its cunning habits of nest-building. Last summer while rowing with some friends on the Calumet River near the southern end of Lake Michigan, my attention was attracted by numbers of these birds in the marshes on either side; a little russet bird with a harsh song sometimes delivered on the wing as it hovered for a moment above the dense marsh grass, or else uttered while at rest amid the sedges. Let us find the nest, I said, for it has a curious habit of building a little village of nests only one of which it occupies. As we rowed slowly along near the edge of the marsh we scanned the tall grass for the signs. Several times we thought we had discovered it, but were disappointed till finally, some denser spots than usual attracting our attention, we pushed the boat a few yards into the marsh, and there were the cunning little structures woven into the grass a foot or more above the sluggish water; not one merely, but five or six of them, only a few feet apart.

Only one of the nests was real; all the rest were sham nests, the result apparently of the mere bubbling over and superabundance of the domestic instinct on the part of the male. He was such a happy and whole-hearted husband and father that he would doubtless have filled all these structures with his progeny. Or was it a rude attempt at concealing the genuine nest, by surrounding it with so many sham nests? The first, second, and third we tried were counterfeits; then a structure a little more elaborate than the others, with a little dry grass showing in it, was examined, and found to hold the eggs. One could just feel them by pressing the finger into the little opening at the side. The sham nests were all built by pulling down the blades of the grass that grew on the spot and weaving them together; the genuine nest was made in the same way with a little extra material in the way of dry grass, added.

CONVERSATION.

Different methods of building nests. The instinct of self-protection. Let each pupil tell what he has seen any animal do to protect himself.

LESSON II.

SHAM NESTS.

(The child's page.)

ām
shām

six
hăb' it

fēet
rē' al

rĕst
wřen



The marsh wren has a cunning habit. He builds five or six nests a few feet apart. Only one of the nests is real. All the rest are sham nests. How are the sham nests built?

LESSON III.

(The teacher's page.)

THE PARTRIDGE.

AN interesting incident to me the past season was seeing, on two occasions, a partridge sitting upon her nest in the woods. It was an incident which one does not witness every season.

One of the partridges had come up out of the dense woods and nested near a path on the edge of a large cemetery. A bevy of schoolgirls, after wild flowers in May, first discovered her. Their skirts almost brushed her before she stirred. Her nest was at the foot of an oak a few yards from the open ground. She could command the approaches in all directions, and fly whichever way she chose.

My friend and I approached to within a few yards of her, and stood and regarded her to our heart's content. Her color so blended her with surrounding objects that she was quite invisible. On such occasions the bird is as motionless as a stone, till she springs from her nest and is off on booming wing.

We did not disturb her this time, but withdrew as gently as we had approached. The brood was soon out and off, and I hope prosperous.

The other partridge was sitting upon her nest in the woods near an old road but little used. As it was late in June, it was probably her second attempt at rearing a family. This is the more probable as she was sitting upon only five eggs, when from twelve to fifteen are the usual number. Indeed, it may have been her third attempt.

Under the guidance of Martin, a boy who lived near by, we approached and observed her from the road a few paces away. Martin had a task to pilot our eyes to the exact spot. One had to pass his eyes over the ground as he passes his hand over a table in the dark to find a pin.

She, too, was at the foot of a tree, but the red leaves and the gray bark and the brown fragments of wood were all copied in her plumage.

Presently we made her out, and then we wondered we had not seen her before. After some moments we took a few steps toward her, when she went humming away. As she left the nest, she fanned the dry leaves so with her wings that several of them sprang up and settled upon the eggs, quite covering them.

I have observed this before. It is probably the result of design on the part of the bird. The nest is usually little more than a depression in the dry leaves, but its simplicity may be the result of a shrewd wisdom. If the bird ran from her nest before taking flight, she would seem to run less risk of breaking her eggs by the sudden withdrawal of her feet from among them; but in that case they would not be covered up by the leaves, as they usually are when she takes flight directly from the nest.

CONVERSATION.

The appearance of the partridge's nest. Her method of hiding her nest. Why she is red, brown, and gray in color. Compare her habits with those of the wren. Other birds which the child has noticed compared with the partridge.

LESSON IV.

(The child's page.)

THE PARTRIDGE.

(The same essay continued.)

ěmp' ty

hăatched

ō'clock'

nō' ticed



Martin kept his eye on this nest for me.

He noticed how long it took for the young to come out of the shell.

One morning he went to see them at nine o'clock. The young were just out.

They were still moist. They had all hatched at the same time.

At noon he went to the nest again and found it empty. The little birds were a few rods away.

They are not helpless long. After they can run they have little need of wings.

LESSON V.

(The teacher's page.)

THE PARTRIDGE.

Continued.

MARTIN kept his eye on this nest for me, and noted what time elapsed after the young were out of the shell before they were led away by the parent bird. One morning he visited them at nine o'clock, and the young were just out, as they were still moist. Apparently they had all hatched at the same time.

At noon he visited the place again, and found the nest empty; the brood was a few yards away. So brief is the period of helplessness of these creatures! After they can run they have little need of wings. The tactics of the mother and their own wit and protective coloring shield them most effectively.

As you come suddenly upon them, does the mother bird flee and tell her young to follow? Not a bit of it. She springs up with spread wings and tail, and would fain fill the space all about you with her presence and the sound of her wings and voice. She makes herself just as conspicuous and noisy as possible, and sets every dry leaf in commotion all about her.

Under cover of this bluster the young scatter and hide in a twinkling. Before you have got over your surprise they have vanished like spirits, and the parent bird, lame and halt and apparently blind, flutters along before you, tempting you to stoop and pick her up, till she has lured you a few yards away, when she suddenly recovers herself and is gone.

Seeing how you have been fooled, you return to the spot and search for the young; but I have never known a person to find one under such circumstances.

I once caught one by refusing to have my attention turned away by the mother. One of them squatted amid the leaves which its parent's wings had set in motion, and I picked it up, when it squatted in the palm of my open hand.

After they can fly, the brood when disturbed scatter in all directions. The mother gives the signal, when up they all spring like an explosion.

The hardiness and the cunning of the partridge will probably ensure its continuance in our woods in the face of all the guns and traps that are brought against it. It takes advantage of every circumstance. Think of it plunging beneath the snow and passing the night there, snug and warm; or of sitting down and letting the falling snow bury it.

CONVERSATION.

How Martin knew that the birds were just out of the shell. Why were they moist? How did he know that they had all hatched at the same time? What pupil can read from the teacher's page? How long is a kitten helpless after it is born? How long before the chicken can run alone? How long before a baby can run alone? ("The greater the intelligence, the longer the infancy," says John Fiske.)

LESSON VI.

(The child's page.)

PARTRIDGE.

(The same essay continued.)

hünt' ěr
pär' tridge

süd' den
ěn' ěmǔ

haw̄k
ěx plō' sion

The hunter sometimes comes upon the partridge when she is under the snow.

Then there is a sudden explosion at his feet as if a frost cannon had gone off.

The partridge darts off like a brown cannon ball.

Sometimes the partridge gets frozen in as she sits under the snow.

When she cannot get food upon the ground, she can get buds from the trees.

The fox loves the taste of the partridge, but he does not often catch her.

He is her enemy, and so is the hawk.

CONVERSATION.

How the snow becomes crusted over the partridge. The food of birds in the winter. What they get upon the ground. What buds they like best (birch or apple).

LESSON VII.

RAIN.

gō
gō' ĭng

bŭt
bŭds

rŏb
rŏb' ĭn

sŭn
sŭn' shĭne

Is it going to rain?

Rain is life to the grass.

How the buds swell!

Hear the Robin laugh!

The moon has sunshine, but it has no
rain, hence it is a dead world.

TOPICS FOR DISCUSSION.

Effect of sunshine on life. Effect of rain on life. Would sunshine alone make the plants grow? Why the moon has no rain. Has it sunshine? Has it light? Has it an atmosphere? If you were on the moon would you be in light or darkness? Can there be light and no atmosphere? The moon gives back or reflects its sunshine but cannot use it. Why? The use of motes in the air.

LESSON VIII.

A STORM.

pōol
sōon

wōods
tōok

tēase
bēat' en

ō' vēr
ěx plōd' ěd

Out in the woods!

A black sky!

The lake was a pool of ink.

Little puffs of wind began to steal in
and tease our fire.

Soon a bomb-shell exploded in the tree-
tops over our heads.

The air was full of water.

The fire was beaten down.

TOPICS FOR DISCUSSION.

The coming of a storm. How it looks at a distance. "See it walk across the field." Storms that move straight ahead. Storms that whirl. Use of storms. Storms that rage on the surface of the sun.

LESSON IX.

ROOTS.

rōb
rōbs

trēē
trēēs

thrēē
dēēp

bīg
līt' tle



Trees carry their wars deep into the earth.

There are hot battles among the roots.
How the big tree robs the little one.
The big tree gets all of the rain.

CONVERSATION.

The battles of roots. How they push each other to take up the rain. How the roots feed plants and trees. Why the farmers hoe out the weeds on cornfields in gardens. Rain, — what it does for plants, flowers, and so on. (See "Is it Going to Rain?" Houghton, Mifflin & Co.)

LESSON X.

A CHIPMUNK.

lōok
lōoked
cōok

ōld
fōre
stōle

all
paws
fōre' paws

fōr
mōrn
mōrn' ing



Once a chipmunk went out
to steal corn.

He saw me. He sat
up to look at me.
He clasped his
forepaws over his

breast as if they had been hands,
and the tips of his fingers were in
his vest pockets.

Suddenly he turned tail and rushed for
his hole. A shrike shot like an
arrow at the hole and looked in. The
chipmunk stole no corn that morning.

CONVERSATION.

Birds of prey. The shrike. The difficulty with which small animals gather food. Let each child tell what he has seen in the way of animals capturing their food.

LESSON XI.

TWO ROBBERS.

pöck' ěts

chĭp' mŭnk

bĕr' rĭes

böb'-täiled

As I stopped to drink at a brook one day, a chipmunk set himself on the rim of my cup to eat my berries.



He ate two and then began to fill his pockets.

Two, four, six, eight!

His cheeks swelled out.
But all the time he kept on eating as
if not a moment was to be lost.
Then he went off and told a friend,
and in a minute a bob-tailed chip
came and began to load up.
But I had now got tired of the joke
and moved off.

TOPICS FOR DISCUSSION.

The chipmunk. His habits, food, house, and so on.

PHONIC DRILL.

The sounds of a. — ā, āte; ă, ăm; ä, äh; a, all; à, àsk.

LESSON XII.

ON FOOT.

cǎr' rŷ
cǎr' riĕd

gōld
gōld' ěn

cǎre
stǎre

proud
ground



How we stare at a big foot!
We are proud of a small
foot in a fine shoe.
A little foot never yet carried
a great man.

The man who goes on foot
has a warm heart.
He does not look
down on anybody. He is not asleep.
He knows the ground. Wind, frost, rain,
heat, cold, are something to him.
The wild apples by the roadside are his.
Each step brings him the golden age.

CONVERSATION.

Mr. Jackman in his "Nature Study" recommends the study of the human body in primary grades. His experiments are usually conducted by comparison with the bodies of other animals. Human foot compared with foot of horse, dog, cat, bear, bird, and so on. The right of the body to exercise, to loose clothing, to good care. The beauty of the body if left to its natural development. The real meaning of the lesson. The beauty of freedom. The democratic spirit of the true American. The vulgarity of showy externalities. (See "City Life.")

LESSON XIII.

A COON HUNT.

nīght
drīves
while

cōon
cōon'-dōg
mōon

puṭ
puḷḷ
puḷḷs

cōok
bōok
fōot



The coon comes out at night. He eats corn. While the corn is yet green he pulls the ears down like a hog. He tears open the husks and eats the tender kernels.

The coon-dog steals through the corn-field in search of him.

The coon pricks up his ears and runs
to a stone wall. Hear the stones
rattle!

If the dog does not find him, he comes
back and says, "No coon there!"

If he does find him, he drives him up
a tree. Then there is a pell-mell
rush to the tree.

The first thing now is to make a fire.
Then you sit all night at the foot of
the tree.

CONVERSATION.

The animals that are called "nocturnal." Why some animals come out at night. Owls. Bats. Rats. Insects. Night-hawks. The coon. Where he lives. The children in city schools know very little of animals except as they see them in parks and menageries. Of the wild, happy creatures that live in the woods and fields they know almost nothing,—the animals that help to make country life what it is in America. If possible, take the children to the woods in the early autumn or spring and let them see whatever may chance to come in their way of these native animals.

PHONIC DRILL.

The long sounds of a, e, i, o, u.

LESSON XIV.

MARCH.

hūge
ūse

there
where

put
su' gar

còme
sòme



March came in like a lamb.

The sun poured himself into the earth
as into a cup.

The frogs left their eggs in the pools.

The sound of the axe rang through the
woods. Ah, I am there now!

I smell the dry leaves!

The world is full of sap!

I see the huge kettles boil and foam!
I dip the sap into them!
I tend them all day.
I would like to make sugar every day
the whole year round.
March went out like a lamb.

CONVERSATION.

March, the stormy month. March, the month of Mars. What the farmer does in March. Sugar making.

PHONIC DRILL.

The short sounds of a, e, i, o, u.

măn, măn, sît, nôt, ũp.

Tell me all the words you can think of containing short a. Let us put them on the blackboard. Now let us try short e, in the same way.

LESSON XV.

MY SQUIRREL.

glēē
trēē

săp
tăpped

wĭth
whĭch

sômētĭmes
tôngue

sĭr
squĭr' rĕl



I have a squirrel that lives in my study wall.

He sometimes gets the apples which I put for the little rabbit that lives under the floor.

My squirrel has tapped a maple tree for the sap. He licks the sap with his tongue.

Once he jumped into the snow on the roof. The snow gave way and he fell with a large mass of it to the ground.

He came out of it and ran up the tree with great glee.

CONVERSATION.

This lesson is repeated from a teacher's page in Part I. It is a long time since we read that lesson. How many of us since then have made any observations of squirrels? If possible let the children study the squirrel from life. I find that my own squirrel will eagerly chase a stick that has a mere suggestion of sap in it. He will lick my hands after I have handled lemons. He will eat candy or apples until he is sick, when he will cross his little paws over his white vest and cry "Oh!" He laps milk like a kitten and licks my fingers with his rough little tongue. Let any child report what he has seen a squirrel do.

LESSON XVI.

LARK.

ärm	Lärk	óth' ěr	call	hěr
was	más' těr	once	called	stěrn' lý

I always called Lark "the dog of the gentle heart." He did not like to give pain.

If I looked sternly at him he would throw himself on his back and up would go his paws. "Oh, master, what have I done?" he would seem to say.

He once went with me on a trip. He sat beside me on the seat of the wagon. There he was very bold. He called out to all other dogs to clear the way. But when he was on the ground he was very friendly, and if the other dogs came at him he ran under the horses where he was safe.

CONVERSATION.

This lesson is a review from Part I. Let each child contribute his own observations of his pet dog if he has one.

PHONIC DRILL.

The short vowel sounds. — ä, ě, ĭ, ō, ů, ǔ, ǖ, ǘ, ǚ, ät, mĕn, ĭt, ōn, ůp, loók, mǎnlĕ.

LESSON XVII.

THE TROUT.

lũck
ũn' dẽr

fôr
fôrmed

out
trout

could
would

There was a big trout that lived in a pool formed by a spring.

He used to lie under the bank with only his head showing. His wide-open eyes shone like jewels.

I tried to catch him. I would creep up to the edge of the pool where I could see his sharp eyes looking out.

I took a grasshopper and threw it over to him. Then there was a splash in the water and the grasshopper would be gone.

I did this two or three times. Each time I heard the rush and splash and knew the bait had been seized.

So I put the same bait on my hook and threw it over. But all was silent. The fish was an old one and had grown very wise.

I did this day after day with the same luck. He knew there was a hook hidden in the bait.

CONVERSATION.

Why the trout lives in a deep pool. His habit of leaping out for flies. Why he was "wise." The trout compared with other fish. Let each child tell what he has seen living fish do.

NOTE.—The study of the fish is one of the most interesting and practical nature studies that can be introduced into the schoolroom. A globe of gold fish may be easily obtained and fine specimens of fossilized fish are inexpensive and numerous.

LESSON XVIII.

FIELD-MICE.

pāth
cow'-pāthṣ

grāss
lāst

smōoth
mōon

hěrr
pěrr' fěct lŷ

The field-mice sometimes build their nests under a big snow-bank. They are perfectly warm there. It suits them well.

When the snow melts, in the spring, they go to some other place.

When the snow melts, it uncovers their little city and we see as on a map all their nests and streets.

They make little roadways all through the grass, little smooth winding ways, like the cow-paths of Boston.

When the snow goes, they flee to their summer dens beneath the stones and rocks.

Last spring I found such a spot near my study. There it was, all spread out, like a map. It looked like a deserted city.

CONVERSATION.

Mr. Burroughs compared this little city to Pompeii, whose streets are all open and deserted. Mr. W. S. Jackman, of the Cook County Normal, used to keep a box of ants in the schoolroom, so arranged that the children could occasionally see them at work laying out their streets and building their city. The weasel and the prairie dog have long winding streets. Let the discussion turn on the habits of animals in building.

This lesson is edited from a conversation with the author and not from anything he has ever written or published, as are also the lessons on The Squirrel, Lark, and The Trout. Mr. Burroughs talks as he writes of the interesting things he has seen out of doors.

LESSON XIX.

WHIP-POOR-WILL.

wōods

pōor

rēal

lēaves

One day in May I came upon the nest
of a whip-poor-will in the woods.

The nest is not a real nest.

There were two eggs on some dry leaves.

When my foot was near the nest the
mother bird flew away.

After the young birds are hatched, all
of the wit of the mother comes into
play.

She fans the leaves so that they hide the
nest.

The whip-poor-will walks like a man in
a bag.

CONVERSATION.

Is the whip-poor-will a common bird? Have you heard a whip-poor-will sing? His song. His color. Habits. Why the mother fans leaves when she springs into the air. Methods of protecting the young adopted by different birds. Awkwardness of the whip-poor-will. (See "Sharp Eyes," Houghton, Mifflin & Co.)

LESSON XX.

cǝm' pōsed'

dē-cǝm-pōsed'

cār-bǝn'-īc



The young bird breaks its own shell, with a little drill on the top of its beak.

The drill is a small scale which falls off. The shell is composed of lime which is decomposed by carbonic acid gas.

The gas eats the shell and makes it very brittle.

Hence the ease with which young birds free themselves.

CONVERSATION.

The ways young animals have for helping themselves. The bird, kangaroo, mouse, bee, etc. Experiment with acid eating egg-shells. Helpfulness. Self-helpfulness.

LESSON XXI.

THE SONG-BIRD AND THE COW-BIRD.

“The little bird sits at his door in the sun.”—LOWELL.

buıld

yoũng

rē moves'

rōom

The song-birds nearly all build low.

Their cradle is not in the tree-top.

The cow-bird finds a song-bird's nest and drops her own egg in it.

There is no doubt that in many cases she removes one or two eggs to make room for her own.

The young of the cow-bird is large and hoggish.



CONVERSATION.

Why the cow-bird is so called. Comparison between parasitical birds and plants. Why the cow-bird steals into other birds' nests. Greediness and laziness. Why the cow-bird is shunned by other birds. (See "Tragedies of the Nest," from which this lesson is adapted, Houghton, Mifflin & Co.)

THE COW.

pŭmp' kĭns
dĭs trăct' ĭng

vĭr' tŭe
brŭsh

through
grănd' fā ther

pāth' fĭnd ěr
pāth' mā kěr

There is virtue in the cow. She is full of goodness. The cow is the true pathfinder and pathmaker.

Follow her through the woods and you have the best road. How she beats down the brush and wears away even the roots of the trees.

My grandfather went out one night to look up a missing cow, when he heard something in the brush and out stepped a bear into the path before him.

You may guess what became of the bear. The cow is one of the most delightful feeders among animals.

It makes one's mouth water to see her
eat pumpkins, and to see her at
a pile of apples is distracting.
But she looks sad when she loses her
cud.

CONVERSATION.

The cow as a pathfinder. Story of Boston and its streets. (See "A Farm Life.")

PHONIC DRILL.

The sounds of e. — ē, mē; ě, řed; ě, hēr; sēē, sēt, fēr.

LESSON XXIII.

THE BIRCH TREE.

bīrch
bīrch-'bārk
thīrst ŷ

cōat
wāist'-coat
tāst' ed

pīne
gī'ant
fū' ěl

When the pine tree goes the birch comes.
A giant goes but a man comes in his
place.

The birch is a stay-at-home tree.

It is a tent, a roof, a boat, a cup, a plate.
It gives you spoons, paper for letters,
candles and fuel.

Ask it for a coat and it gives you a waist-
coat also.

When it rained we had a birch-bark
umbrella.

When we came to a stream we drank
from a birch-bark cup.

Water never tasted so sweet. The cup
just fits the mouth.
It makes me thirsty now to think of it.

CONVERSATION.

A little bird was building a nest close to my study window. I noticed that it came to a grape-vine frequently and, perching on the vine, carefully selected a long and strong fibre to carry to its nest. It stripped off the outer, scaly bark and reached carefully for the strong green inner part. Occasionally it picked out some tiny insect and ate it. The fibres which the bird carried away were often a foot long. The bird evidently was well posted in regard to the various kinds of bark. I once saw a fine collection of different kinds of bark, which had been made by some little children in Boston. Each specimen was carefully mounted and so arranged as to show that the children had won a great deal of knowledge of trees and their coverings in making the collection. There is perhaps no more interesting study for the child while out in the country for his summer vacation. Birch-bark is almost sure to be the first to attract his attention. It is so common that pupils can easily make a study from the object and compare with the bark of other trees. Topics for discussion. What tree has a bark that looks like a net-work of diamond-shaped meshes? It is very common. Do you know of a tree whose bark is in large scales? What noted poet loved the birch tree and made use of it in one of his poems? (See "Hiawatha" by Longfellow — *The Building of the Canoe*, — also *A Taste of Maine Birch* in "Signs and Seasons," Houghton, Mifflin & Co.)

LESSON XXIV.

STRAWBERRIES.

tāste
dāi' lý

straw' bĕrrĕ
bōb' ō link

līn' ĩng
sĕa' son

fĕld
hū' man



Oh, the strawberry days! How they
come back!

When I was a lad and went to the
fields with my hoe or a cow in the
strawberry season, I was sure to come
back at meal-time with a lining of
strawberries in my hat.

They were my daily food. I could taste
the song of the bobolink in them.

The strawberry is a little human heart.

CONVERSATION.

Berries. Difference between berry and nut. How the berry grows. Size. Color, shape, use. (See essay "The Strawberry.")

LESSON XXV.

AS SNUG AS A BUG.

lēaf	ēat	frōze	cōn tāin'
lēaves	ēat' en	frōz' ěn	māk' ĩng
crēa' tūre	bēat' en	bōard	bōd' ies

I found a little frog in a bed of frozen leaves where he had slept all winter. He was not frozen but his joints were stiff.

Young crickets and ants are found in frozen ground in the winter, but their bodies contain no frost.

Young creatures have warm blood.

Their winter homes are snug.

The grub has a snug home in the bark of a tree.

The bird raps at his door in spring.

A young man told this story: "I sat at my drawing-board making a sketch when I took an apple from my pocket and cut it in two.

"An apple-worm fell upon the drawing-board and started at once for the edge of the board.

"It crawled over and went into a hole which some other worm had eaten there long before, when the board was yet part of a tree.

"In a short time a thin silky web was spread like a veil over the door of the hole."

CONVERSATION.

How did the worm know that the hole was there? Cocoons. Metamorphoses of insects. Security of animals in their winter quarters. Let each pupil tell what animal he has found in its winter home under leaves, stones, in the mud, or beneath the bark of trees.

LESSON XXVI.

THE POND LILY.

līl' ŷ
rēp' tīle

fān' cīes
mā tūre'

bu' rīes
bē nēath'

chärm ĩng lŷ
pū' rī tŷ



See the pond lily with her golden heart
open to the sun. She rocks on the
water.

What a queenly flower! She is the type
of purity and sweetness.

Its root, like a black ugly reptile, clings
to the slime, but the flower is like a
star.

The closed bud makes its way up
through the water to meet the sun,
and after its brief life it closes itself
up again and slowly buries itself
beneath the dark wave.

One almost fancies a sad, regretful look in it as the stem draws it downward to mature its seeds on the sunless bottom.

The pond lily is a flower of the morning. It closes a little after noon.

If you pluck it and carry it home, it still feels the call of the morning sun, and will open to him if you give it a good chance.

Coil their stems up in the grass on the lawn, where the sun's rays can reach them, and sprinkle them well.

By the time you are ready for your morning walk, there they sit upon the grass, almost as charmingly as upon the wave.

From The Century Magazine.

CONVERSATION.

The pond lily. Its flower. Petals how different from petals of other lilies. The leaf. Size. Color. Habits.

LESSON XXVII.

AS SILLY AS A LOON.

lōon
gōose

lōok
lōoks

dōes
ōnce

sīl' lŷ
stŭffed

The loon has red eyes and a black head. He has a doleful cry at night and a strange laugh by day.

The loon does not look like a silly bird unless you see him stuffed and in a collection. There he looks like a goose.

Nature never meant him to stand up or to use his legs or feet except for swimming.

The loon can catch a large fish, but he cannot eat it under water. I once saw a man eat a cake under water.

CONVERSATION.

Why is the loon generally called "silly"? Habits of swimming birds. Web-footed animals.

LESSON XXVIII.

THE BIRD IN THE LOOKING-GLASS.

mír' rōr
rōost' ěr

cá nā' rŷ
prē' ví oŷs

im āg' ĩned
ĩn quis' ĩ tĭve

plĕ bē' ians
ār ĩs tō crāt' ĩc



A western writer tells me that she knew an interesting case of a rooster that was highly enraged at his own image in a looking-glass.

“A little girl had been told to watch a large mirror which was left in the yard while the family was moving into another house.

“A rooster seeing himself in the glass, imagined a rival near, and rushed upon him.

“The little girl tried to put him to flight, but he ran about in a circle and came back to the enemy, pouncing upon him in a new attack. The child chased him to the rear of the house, when he eluded her, ran entirely around the house, and flew at the mirror, breaking it to pieces.”

The same correspondent writes me that she once put a looking-glass down on the floor in front of a canary-bird's cage. The poor canary had not had any companionship with his own kind for years.

He used often to watch the ugly sparrows — the little plebeians — from his aristocratic gilded palace. I opened his

cage, and he walked up to the looking-glass, and it was not long before he made up his mind.

He collected dead leaves from the house plants, twigs, bits of paper and all sorts of stray bits and began a nest right away.

Several days after in his lonely cage he would take bits of straw and arrange them when they were given him.

I thought what different emotions this bird's reflected image awoke in its little breast from those aroused in a male blue-bird last summer that so disturbed the sleep of my hired man in the early morning.

The bird with its mate had a nest in a box near by the house, and after the manner of the blue-birds was very inquisitive and saucy about the windows.

One morning it chanced to discover its reflected image in the windows of the hired man's room. The shade, of some dark stuff, was down on the inside, which aided in making a kind of looking-glass of the window.

Instantly the bird began an assault upon the supposed rival in the window, and made such a clattering that there was no more sleep inside that room.

Morning after morning the bird kept this up, till the tired plowman complained bitterly, and declared his intention to kill the bird. In an unlucky moment I suggested that he leave the shade up and try the effect. He did so and his morning sleep was thenceforth undisturbed.

CONVERSATION.

Why was it an unlucky moment when the writer suggested to the man that he leave his shade up? Did the man arise earlier to his work or later? Did that make any difference in the amount of work done? What characteristic did the rooster show when he saw his image in the looking-glass? Have you ever seen an animal act jealous? I have seen a dog jealous of his master. What lesson did the action of the little canary-bird teach? Cruelty of confining birds or other animals without their own kind as associates.

LESSON XXIX.

THE TAME HIGH-HOLE.

sēarch
nāil'-hōle

tóngue
gráss' hōp pēr

A friend sends me
these notes about
a tame high-hole.



He says:
“The high-hole never eats anything that
he cannot pick up with his tongue.

“ At least that was the case with a young one I took from the nest and tamed.

“ He never used his beak.

“ He would search everything with his tongue from a nail-hole to a kitten’s eye.

“ I took the bird and the cat on my knee so that they would become friends.

“ The high-hole thrust his tongue at the cat’s eye and she ran away.

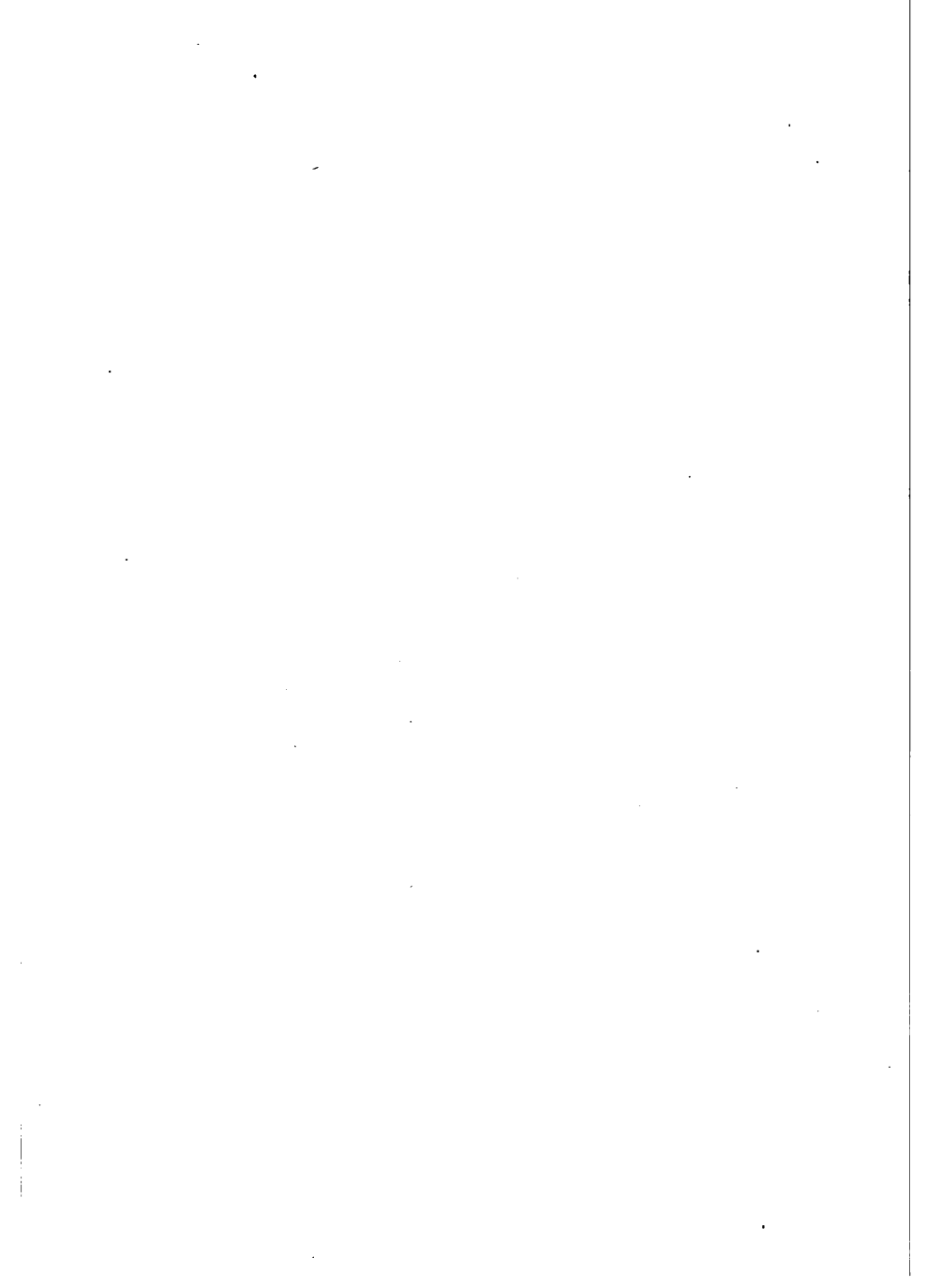
“ The high-hole will not eat a grasshopper.

“ His ‘best hold’ is ants.

“ I would dig up an ant-hill for him and he would lick up the ants.”

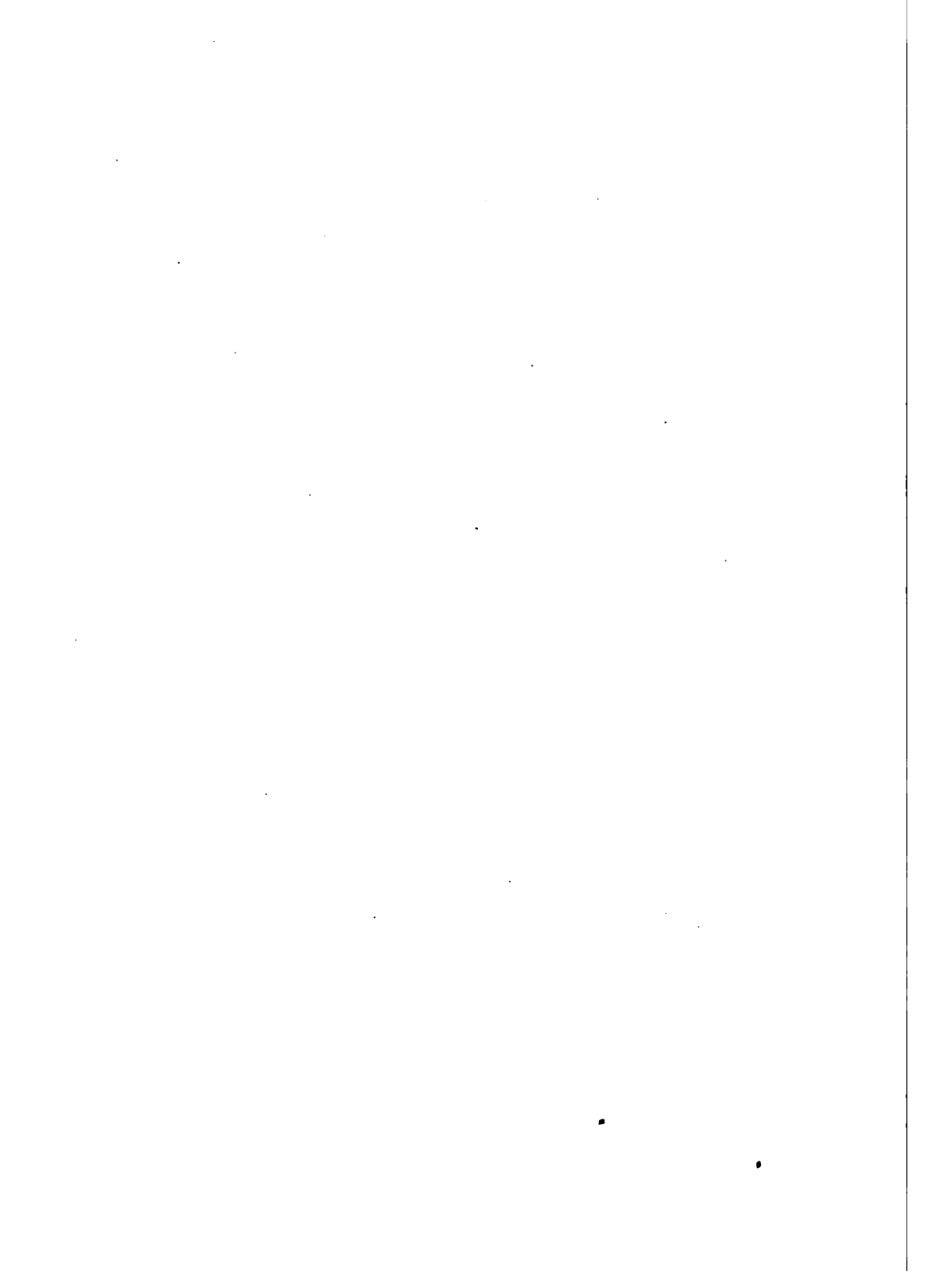
CONVERSATION.

Friendliness between the man and the bird. Is it possible for people and animals to be friends? Is it better for them to be friends? How many birds are sacrificed yearly for trimming hats? The high-hole is a woodpecker. Why called high-hole? Did the high-hole hurt the cat? Why did the high-hole use his tongue instead of his beak?



PART IV.

A THIRD READER.



LESSON XXX.

HOW TO OBSERVE NATURE.

õb sërve'
õb sër v ā' tion

něc' ěs sā rŷ
à dĕpt'

spõn tā' nĕ õs
õ' rĭ õle

To teach young people or old people how to observe nature is a good deal like trying to teach them how to eat their dinner. The first thing necessary in the latter case is a good appetite; this given, the rest follows very easily.

And in observing nature unless you have the appetite, the love, the spontaneous desire, you will get but little satisfaction. It is the heart that sees more than the mind.

To love nature is the first step in observing her. If a boy had to learn fishing as a task, what slow progress he would make; but as his heart is in it, how soon he becomes an adept.

The eye sees quickly and easily those things in which we are interested. A man interested in horses sees every fine horse in the country he passes through; the dairyman notes the cattle; the bee culturist counts the skips of bees; the sheep-grower notes the

flocks, etc.



Is it any effort for the ladies to note the new bonnets? new cloaks upon the street? We all see and observe easily in the life of our business, our tasks, our desires.

If one is a lover of the birds, he sees birds everywhere, plenty of them. I think I seldom miss a bird in my walk if he is within eye or ear-shot, even though my mind be not intent upon that subject.

The mind of an observer is like a gun with a hair-trigger — it goes off at a touch, while the minds of most persons require very vigorous nudging. You must take the hint and take it quickly if you would get up any profitable intimacy with nature.

Above all, don't jump to conclusions. Look again and again; verify your observations. Be sure the crow is pulling corn and not probing for grubs before you kill him. Be sure it is the oriole stealing your grapes and not the sparrows, before you declare them your enemies.

I one day saw humming-birds apparently probing the ripe yellow cheeks of

my finest peaches, but I was not surprised till I saw a bird hovering over a particular peach, and then mounting up the ladder I examined it, when sure enough, the golden cheek was full of pin holes.

The orioles destroy many of my earliest pears, but it required much watching to catch them in the very act. I once saw a phoebe-bird swoop down upon a raspberry bush and carry a berry to a rail on a near fence, but I did not therefore jump to the conclusion that the phoebe is a berry-eater.

What it wanted was the worm in the berry. How do I know? Because I saw it extract something from the berry and fly away.

CONVERSATION.

In many schools "kodak experiments" are made, placing objects before children and withdrawing them quickly to test their powers of rapid and accurate observation. It requires the habit of observation or great powers of concentration to recognize swiftly. Let the pupils make experiments of this kind. It is a psychological principle that the person interprets his own real character in what he observes. "A man is worth so much as that is worth about which he busies himself."

LESSON XXXI.

A WOLF IN FEATHERS.

cū' rī oūs
stēalth' ĭ lŷ

in' cĭ dēnts
sūs pēct' ěd

vĭr' ě ō
stānd' point



How many curious little incidents in the lives of the birds are happening all about us which we do not see, or, if seeing, do not understand.

Walking along a path the other day, I saw a bird's egg, that of a chippie, lying upon the ground. It was fresh and had probably been dropped there but an hour or two before. It had two small holes in it about one-quarter of an inch apart, which puzzled me.

What made these holes, and how came the egg to be placed there upon the ground so carefully as not to break it?

A few days after a little incident came under my observation that threw light upon the stray egg.

I was sitting in my summer-house one June day when I chanced to see a cow-bird fly out from the branches of the maple above me and go down to the ground among the grape-vines below me with something in her beak.

The bird alighted upon the ground and remained motionless. I kept my eye upon her. Presently she lay down her burden and stepped along a foot or two. She seemed watching to see if she was herself watched.

I went down to see what she had deposited there so stealthily. It proved to be the freshly laid egg of the red-eyed vireo.

It was yet warm and was punctured with two holes, like the egg of the chippie I had found.

I had suspected there was a nest of the vireo in the maple above me and had searched for it several times without success.

Not half an hour before I witnessed the incident of the cow-bird I had seen the two vireos leave the tree and fly with a peculiarly happy air down the hill toward a little maple grove.

They went as if hand in hand like two children. The female had probably just deposited an egg in the nest, and the happy couple were off for a midday lunch together.

The cow-bird was probably on the watch somewhere, and stole to the nest the moment the owners were away. The

newly laid egg she seized and bore away, that she might put one of her own in its place.

I renewed my search for the nest. I began to inspect the branches from every possible standpoint. Presently I stepped a yard down the bank, shot my eye along a little tunnel in the dense foliage, and there it was — a little gray mass far out toward the end of a branch out of reach.

Unless I planted my foot on a particular spot of ground and inclined my body at just such an angle, the nest could not be seen. As the nest could not be reached, I could not complete the observation.

From time to time, for a week or more, I saw the parent bird sitting; but some mishap must have befallen the nest,

as no young vireos were ever seen or heard in the tree, and the old birds were seen no more.

In the fall I cut off the branch that held the nest to see whether or not the birds had buried the egg of the cow-bird in the bottom, but it was not there.

CONVERSATION.

Why the cow-bird took the eggs out of the nest. Why she did not want to build a nest of her own.

LESSON XXXII

A WOLF IN FEATHERS.

1. 1. 1. 1. 1. 2. 2. 2. 2. 2.	3. 3. 3. 3. 3. 4. 4. 4. 4. 4.	5. 5. 5. 5. 5. 6. 6. 6. 6. 6.	cā dence wŕench' ěs
----------------------------------	----------------------------------	----------------------------------	------------------------

The little summer yellow-bird will frequently get rid of the strange egg in this way. I have heard of a nest being carried up three stories, so to speak, for this purpose, two strange eggs being successively buried in the bottom.

The red-eye is very often the victim of this trick of the cow-bird. Hardly a summer passes that I do not see this little trim, ash-colored bird pursued by its large, dusky, greedy bantling.

It is my opinion that the cow-bird usually removes an egg from the nest in which it designs placing its own.

It has been seen to remove a wren's egg from the nest, the little owners following it and scolding as only wrens can.

The birds that fall a victim to the cow-bird in this way never seem to suspect that this dusky creature is their enemy.



I have never seen them show the least sign of hostility toward it. The robins and nearly all the orchard

birds will mob the jay, because they know the jay to be an egg-sucker.

So will the robins hustle a red squirrel out of the tree that holds their nest, but I doubt if any of the birds suspect that the cow-bunting victimizes them in the way it does.

It is a trick cleverly managed. The bird watches its opportunity; it does not disturb the other eggs except to remove one to make room for its own.

The success of its little plan is upset if it blunders in any way so as to excite the suspicions of the owner of the nest.

The only blunder it ever does make is to drop its eggs too soon, or before the nest contains other eggs. I say drop; the bunting probably takes but a fraction of the time to lay its egg that other birds do. I have never yet heard of one being seen on the nest.

It seems to know, too, that if its egg is once hatched the rightful occupants stand but a poor show.

The cow-bunting is among the early arrivals in the spring, usually reaching New York and New England by the

middle of March. Its musical talent is not great, yet its peculiar vitreous notes are pleasing.

The manner of their delivery is interesting. It looks as if they must be formed in the bird's crop and it expelled them with much effort and labor. They are not the least bit lingual. The songster puffs himself up and wrenches out the notes with a kind of guttural spasm. Yet they have a sweet-ringing cadence.

In midsummer the young leave their foster-parents and begin to collect in small flock, and in September move southward.

CONVERSATION.

The vireo. How many have noticed it? What birds we have noticed. Bird notes. The birds that make their notes in the throat. Does the hen's cluck seem to come from her throat or higher up? When a boy whistles is the sound in the throat or lips?

LESSON XXXIII.

EGG-SHELLS AND YOUNG BIRDS.

vīg' ĩ lant
fā' vòr ĩte

ěr rō' nē oūs
ĭn' stānt lŷ

prō cē' dŷre
ĕx cĕp' tion

In May two boys in town wrote to me to explain to them the meaning of the egg-shells, mostly those of robins, that were to be seen lying about on the ground here and there. I supposed every boy knew where most of these egg-shells came from.

As soon as the young birds are out, the mother bird removes the fragments of shells from the nest, carrying them in her beak some distance, and dropping them here and there. All our song-birds, so far as I know, do this.

Sometimes, however, these shells are dropped by blue-jays after their contents have been swallowed. The jay will seize

a robin's egg by thrusting his beak into it, and hurry off lest he be caught in the act by the owner. At a safe distance he will devour the contents at his leisure, and drop the shell.

The robins, however, have more than once caught the jay in the act. He has the reputation among them of being a sneak thief. Many and many a time during the nesting season you may see a lot of robins mob a jay.

The jay comes slyly prowling through the trees, looking for his favorite morsel, when he is discovered by a vigilant robin, who instantly rushes at him crying, "Thief! thief!" at the top of his voice. All the robins that have nests within hearing gather to the spot and join in the pursuit of the jay, screaming and scolding.

The jay is hustled out of the tree in a hurry, and goes sneaking away with the robins at his heels. He is usually silent, like other thieves, but sometimes the birds make it so hot for him that he screams in anger and disgust.

Of the smaller birds, like the vireos and warblers, the jay will devour the young. My little boy one day saw a jay sitting beside a nest in a tree, probably that of the red-eyed vireo, and coolly swallowing the just-hatched young, while the parent birds were powerless to prevent him.

They flew at him and snapped their beaks in his face, but he heeded them not. A robin would have knocked him off his feet at her first dive.

The belief prevails more or less that when the eggs of a bird are ready to hatch, the shell is broken by the mother bird.

Even Bryant puts this notion into one of his poems :

“ The mother bird hath broken for her brood
Their prison shell, or shoved them from the nest,
Plumed for their earliest flight.”

But the notion is not correct.

The young bird breaks its own prison shell, which becomes very brittle at the last. It would be a very risky act to aid the young bird in this matter. The struggle to free itself from the shell seems all-important.

I once met a gentleman on the train who told me about a brood of quails that had hatched out under his observation. He was convinced that the mother quail had broken the shells for the young birds. He sent me one of the shells to convince me that it had been broken from the outside.

At first glance it did appear so. It had been cut around near the large end, with the exception of a small space, as if by regular thrusts or taps from a bird's beak, so that this end opened like the lid of a box on a hinge, and let the imprisoned bird escape.

What convinced the gentleman that the force had been applied from the outside was that the edges of the cut or break were bent in.

CONVERSATION.

It would be interesting, in connection with this lesson, to examine egg-shells with a magnifying glass and use muriatic acid in testing them. Compare the action of the acid with its action on marble or coral or other limestone. How egg-shells become decomposed by the acid. (See Lesson XX.) The necessity for the young bird to help itself out of the shell. All growth and beauty from within. The butterfly would not have its beautiful colors if it did not struggle to free itself from the chrysalis. The necessity of helping one's self.

LESSON XXXIV.

EGG-SHELLS AND YOUNG BIRDS.

Continued.

in těr'prět
in' těr vals

crit' ĭ cǎl
strāight' ened

at' tĭ tūdes
ě lēc' trĭc

If we wish rightly to interpret nature, to get at the exact truth of her ways and doings, we must cultivate what is called the critical habit of mind; that is, the habit of mind that does not rest with mere appearances.

One must sift the evidence, must cross-question the facts. This gentleman was a lawyer, but he laid aside the cunning of his craft in dealing with this question of these egg-shells.

The bending in or the indented appearance of the edge of the shells was owing to the fact that the thin, paper-like

skin that lines the interior of the shell had dried and shrunken, and had thus drawn the edges of the shell inward.

The cut was made by the beak of the young bird, probably by turning its head from right to left ; one little point it could not reach, and this formed the hinge of the lid I have spoken of.

Is it at all probable that if the mother bird had done this work she would have left this hinge, and left it upon every egg, since the hinge was of no use ? The complete removal of the cap would have been just as well.

Neither is it true that the parent bird shoves its young from the nest when they are ready to fly, unless it be in the case of doves and pigeons. Our small birds certainly do not do this. The young birds will launch out of their own motion

as soon as their wings will sustain them, and sometimes before.

There is usually one of the brood a little more forward than its mates, and this one is the first to venture forth. In the case of the blue-bird, chickadee, high-hole, nut-hatch and others, the young are usually a day or two in leaving the nest.

The past season I was much interested in seeing a brood of chickadees, reared on my premises, venture upon their first flight. Their heads had been seen at the door of their dwelling—a cavity in the limb of a pear tree—at intervals for two or three days.

Evidently they liked the looks of the great outside world; and one evening, just before sundown, one of them came forth. His first flight was of several yards to a locust, where he alighted upon

an inner branch, and after some chirping and calling proceeded to arrange his plumage, and compose himself for the night.

I watched him till it was nearly dark. He did not appear at all afraid there alone in the tree, but put his head under his wing and settled down for the night as if it was just what he had always been doing. There was a heavy shower a few hours later, but in the morning he was there upon his perch in good spirits.

I happened to be passing in the morning when another one came out. He hopped out upon a limb, shook himself, and chirped and called loudly.

After some moments an idea seemed to strike him. His attitude changed, his form straightened up, and a thrill of excitement seemed to run through him.

I knew what it all meant; something had whispered to the bird, "Fly!" With a spring and a cry he was in the air, and made good headway to a near hemlock.

Others left in a similar manner during that day and the next, till all were out.

Some birds seem to scatter as soon as they are out of the nest.

With others the family keeps together the greater part of the season.



Among the birds that have this trait may be named the chickadee, the blue-birds, the nut-hatch, the king-bird, the phœbe-bird, and others of the true fly-catchers.

One frequently sees the young of the phœbe sitting in a row upon a limb, while the parents feed them in regular order. Twice I have come upon a brood of

young but fully fledged screech-owls in a dense hemlock wood, sitting close together upon a low branch. They stood there like a row of mummies, the yellow curtains of their eyes drawn together to a mere crack, till they saw themselves discovered.

Then they all changed their attitudes as if an electric current had passed through the branch upon which they sat. Leaning this way and that, they stared at me like frightened cats till the mother took flight, when the young followed.

CONVERSATION.

The first flight of the bird impressed the author very much. He likes to tell this story of the first flight of the bird. The first efforts of animals. Why interesting. A little boy tells me that he heard a chick in an incubator go "tick, tick, tick," and pretty soon the beak came through. Compare the flight of the bird with the locomotion of other animals. How soon the bird flies after it comes out of its shell.

LESSON XXXV.

CRADLES OF THE BIRDS.

rě hēars' al
flēdge' līng

pā tēr' nal
cōr rě spōnd' ent

dě mōn' strā tīve
clām' or oūs

The other day I was walking in the silent, naked April wood when I said to myself, "There is nothing in the woods."

I sat down upon a rock. Then I lifted up my eyes and beheld a newly constructed crow's nest in a hemlock tree near by. The nest was but a little above the level of the top of a ledge of rocks only a few yards away that crowned the rim of the valley.

But it was placed behind the stem of the tree from the rocks, so as to be secure from observation on that side. The crow evidently knew what she was about. Presently I heard what appeared

to be the voice of a young crow in the tree-tops not far off. This I knew to be the voice of the female and that she was being fed by the male. She was probably beginning to lay eggs in the nest.

Crows, as well as most of our smaller birds, always go through the rehearsal of this act of the parent feeding the young many times while the young are yet a long way in the future. The mother bird seems timid and babyish, and both in voice and manner assumes the character of a young fledgeling. The male brings the food and seems very anxious about her welfare.

When the young do come the female is usually more active in feeding them than the male. Among the birds of prey, like hawks and eagles, the female is the

larger and more powerful, and therefore better able to defend and to care for her young.

Among all animals, the affection of the mother for her offspring seems to be greater than that of her mate, though among the birds, the male sometimes shows a superabundance of paternal regard that takes in the young of other species. Thus a correspondent sends me this curious incident of a male blue-bird and some young vireos :



A SNAKE SKIN FOR LINING.

A pair of blue-birds were rearing their second brood in a box on the porch of my correspondent, and a pair of vireos had a nest with young in some lilac bushes but a few feet away.

The writer had observed the male blue-bird perch in the lilacs near the young vireos, and, he feared, with murderous intent. On such occasions the mother vireo would move among the upper branches much agitated. If she grew demonstrative the blue-bird would drive her away.

One afternoon the observer pulled away the leaves so as to have a full view of the vireos' nest from the seat where he sat not ten feet away. Presently he saw the male blue-bird come to the nest with a worm in its beak, and as the young vireos stretched up their gaping mouths he dropped the worm into one of them.

Then he reached over and waited upon one of the young birds as its own mother would have done. A few moments after he came to his own brood with a worm or

insect, and then the next trip he visited the nest of the neighbor again, greatly to the displeasure of the vireo, who scolded him sharply as she watched his movements from a near branch.

My correspondent says: "I watched them for several days; sometimes the blue-bird would visit his own nest several times before lending a hand to the vireos. Sometimes he resented the vireos' plaintive fault-finding and drove them away. I never saw the female blue-bird near the vireos' nest."

Another correspondent relates an equally curious incident about a wren and some young robins. "One day last summer," he says, "while watching a robin feeding her young, I was surprised to see a wren alight on the edge of the nest in the absence of the robin

and put a little worm into the throat of one of the young robins.

“It then flew on about ten feet, and it seemed as if it would almost burst with song. It then disappeared, and the robin came and went, just as the wren returned with another worm for the young robins. This was kept up for an hour.

“Once they arrived at the same time, when the wren was apparently much agitated, but waited impatiently on its previous perch, some ten feet off, until the robin had left, when it visited the nest as before.



“I climbed the tree for a closer inspection, and found only a well-regulated nest. After coming down I walked around the tree and discovered a hole, and upon looking in, saw a nest of

sleeping, featherless wrens. At no time while I was in the vicinity had the wren visited these little ones."

Of all our birds, the wren seems the most overflowing with life and activity. Probably in this instance it had stuffed its own young full to bursting, when its activity bubbled over into the nest of its neighbor.

I have myself known but one instance of a bird lending a hand in feeding young not its own. This instance is to be set down to the credit of a female English sparrow. A little "chippie" had on her hands the task of supplying the wants of a young cow-bunting.

The sparrow looked on from its perch a few yards away, and when the "chippie" was off looking for food, it would now and then bring something and place it in the

beak of the clamorous bunting. I think the "chippie" was grateful for its aid. Certainly its dusky foster-child was.

This bird, when young, seems the most greedy of all fledgelings. It cries, "More," "More," and never seems to get enough. When its foster-parent is a small bird like "chippies" or one of the warblers, one would think it would swallow its parent when food is brought it. I suppose a similar spectacle is witnessed in England when the cuckoo is brought up by a smaller bird, as is always the case.

Last evening I saw a cow-bunting fully grown following a "chippie" sparrow about clamoring for food, and really looking large enough to bite off and swallow the head of its parent, and apparently hungry enough to do it.

The "chippie" was evidently trying to shake it off and let it shift for itself, for it avoided it and flew from point to point to escape it. Its life was probably made wretched by the greedy monster it had reared.

CONVERSATION.

Why the male bird feeds his mate. In what way he helps in the home-making. Does he build the nest? Does he sit on the eggs? Nests. Their construction. Who has noticed a bird's nest since we read about the marsh-wren's nest? I have had an old base-ball brought me — that was found hanging in the top of a tree with a bird's nest in it — since beginning to revise these lessons.

LESSON XXXVI.

HASTY OBSERVATION.

THE GLASS SNAKE.

dě tēc' tion
lǐ chěn

sǐm' ŭ lā' tion
bǎf' fled

scī ěn tǐf' ĭc
bīd' ĭng

The careful observer is not long in learning that there is truth in the poet's remark, that "things are not what they seem." Everywhere on the surface of nature things seem one thing, and mean quite another. The hasty observer is misled by the seeming, and thus misses the real truth.

The little green snake that I saw among the "live-forevers" the other day, how nearly it escaped detection because its color was so much like the color of the plant! And when, a few days later, I saw one carelessly disposed across the top of the bending grass and daisies, but

a few feet from where I sat, my eye again came near being baffled.

The little snake was probably lying in wait for some insect. Presently it slid slowly down into the grass, moving so slowly as to escape any but the most watchful eye. After its head and a part of its body were upon the ground, its tail still pointed straight up, and exactly resembled some fresh green plant.

The safeguard of this little snake is in its protective coloring; hence its movements are much more slow and careful than those of the other snakes.

This simulation is very common in nature. Every creature has its enemy, and pretends to be that which it is not, in order to escape detection.

The true frog pretends to be a piece of bark, or a lichen upon a tree; the

wood-frog is the color of the dry leaves upon which it hops, though when spawning in the black pools and tarns in spring, its color is very dark, like the muddy water in which it lives.

One day, in my walk in the woods, I disturbed a whip-poor-will where she sat upon her eggs on the ground. When I returned to the spot some hours afterward, and tried to make out the bird upon her nest, my eye was baffled for some moments, so successful was she in pretending to be only a mottled stick or piece of fallen bark.

Only the most practiced eye can see the partridge when she sits or stands in full view upon the ground in the woods. How well she plays her part, rarely moving, till she suddenly bursts up before you, and is gone in a twinkling!

How well her young are trained always to take their cue from her! Not one will stir till she gives the signal.

One day in my walk, as I paused on the side of a steep hill in the edge of the woods, my eye chanced to fall upon a partridge, sitting upon the leaves beside a stump scarcely three paces from me. "Can she have a nest there?" was my first thought. But then I remembered it was late in the summer, and she certainly could not be sitting upon eggs. Then why was she sitting there in that exposed manner?

Keeping my eye upon her, I took a step forward, when, quick as a flash, she sprang into the air and went humming away. At the same moment all about me, almost from under my feet, her nearly grown young sprang up and

went booming through the woods after her. Not one of them had moved, or showed fear till their mother gave the word.

To observe nature and know her secrets, one needs not only a sharp eye, but a steady and patient eye. You must look again and again, and not be misled by appearances. All the strange stories about the objects and wonders of nature afloat among country people are the result of hasty observation.

In parts of the country where wheat is grown there is quite a prevalent belief among the farmers that if the land is poor or neglected, the wheat will turn into chess or cheat grass. Have they not seen it, have they not known the wheat to disappear entirely, and the chess to be there in its place?

But like so many strange notions that are current in the rural districts, this notion is the result of hasty observation. The cheat grass was there all the while, feeble and hidden from sight but biding its time ; when the wheat failed and gave up possession of the soil, the grass sprang forward and took its place.

Nature always has a card to play in that way. There is no miracle about the curious succession of forest trees — oak succeeding pine, or poplar succeeding birch or maple—if we could get at the facts. Nature only lets loose germs which the winds or the birds and animals have long since stored there, and which have only been waiting their opportunity to grow.

A great many people are sure there is such a creature as a glass snake, a snake

which breaks up into pieces to escape its enemies, and then when danger is past, gets itself together again and goes its way.

Not long since a man published an account in a scientific journal of a glass snake which he had encountered in a hay-field, and which, when he attempted to break its head, had broken itself up into five or six pieces.

He carefully examined the pieces and found them of regular lengths of three or four inches, and that they dovetailed together by a nice and regular process. He left the fragments in the grass, and when he returned from dinner they were all gone. He therefore inferred the snake had put itself together and traveled on.

If he had waited to see this process,

his observation would have been complete.

On another occasion, he cut one in two with his scythe, when the snake again made small change of itself. Again he went to his dinner just at the critical time, and when he returned the fragments of the reptile had disappeared.

This will not do. We must see the play out, before we can report upon the last act.

There is, of course, a small basis of fact in the superstition of the glass snake. The creature is no snake at all, but a species of limbless lizard, quite common in the West. And it has the curious power of breaking itself up into regular pieces when disturbed, but it is only the tail which is so broken up; the body part remains intact.

Break this up and the snake is dead. The tail is too long for the size of the body, and is severed at certain points, evidently to mislead its enemies. It is the old trick of throwing a tub to a whale. The creature gives up its tail to secure the safety of its body.

These fragments have no power to unite themselves again, but a new tail is grown in place of the part lost. When a real observer encountered the glass, or joint-snake, these facts were settled.

CONVERSATION.

What the pupil has observed of animals screening themselves by means of their color. Green worms. Butterflies that look like leaves.

LESSON XXXVII.

HASTY OBSERVATION.

Continued.

THE HAIR SNAKE.

craw
crēa' tūre

in tēl' lī gent
vāl' ū á ble

ôr' ĩ gĭn
ăg rĭ cŭl' tŭr al

The common and foolish belief concerning the hair-snake is founded upon hasty observation.

Everywhere may be found hasty intelligent people who will tell you they know that a horse-hair, if put into the spring, will turn into a snake, and that all hair-snakes have this origin.

But a hair never turns into a snake any more than wheat is changed into grass. The so-called hair-snake is a small worm which lives in the bodies of various insects, and which takes to the water to lay its eggs.

What boy, while trout-fishing in July and August, and using grasshoppers for bait, has not been vexed to find the body of the insect, when snapped at by the trout, yielding a long, white, brittle thread, which clogged his hook, and spoiled the bait? This thread is the hair-worm.

How the worm first gets into the body of the grasshopper I do not know. Probably as a germ or egg, and in some way with its food. After the creature leaves the insect, it becomes darker in color, and harder and firmer in texture, and more closely resembles a large hair.

What pains the trapper will take to outwit the fox! What art the angler will practice to deceive the wary trout! One must pursue the truth with the like patience and diligence.

The farmers all think, or used to think, that the hen-hawk was their enemy, but last spring the Agricultural Department procured three hundred hen-hawks, and examined the craw of each of them, and made the valuable discovery that this hawk subsisted almost entirely upon meadow mice, thus proving them to be one of the farmers best friends.



The crow, also, when our observations upon his food habits are complete, is found to be a friend, and not an enemy. The smaller hawks do prey upon birds and chickens, though the pretty little sparrow-hawk lives largely upon insects.

Speaking of hawks, reminds me that I read the other day in one of the magazines a very pretty poem, in which a hawk was represented poised in mid-air, on motionless wing, during the calm of a midsummer day.

Now, of a still day, this is an impossible feat for a hawk or any other bird. The poet had not observed quite closely enough. She had noted (as who has not?) the hawk stationary in the air on motionless wing, but she failed to note, or she had forgotten, that the wind was blowing.

He cannot do it on a calm day; the blowing wind furnishes the power necessary to keep him up. He so adjusts his wings to the moving currents that he hangs stationary upon them. When the hawk hovers in the air of a still day, he

SUPPLEMENTARY.

LITTLE DRYAD.

A forest fire had started ; not a very large one, it is true, but enough to call out all the children from the farm-house, and to make the men think that they might have a little work, presently, fighting it.

The "woods-pasture" was burning, and we were as close as we dared go to the fire, and thrilled with a kind of frightened delight as the flames spread and the leaves scorched and writhed in the fierce heat.

We had been looking and talking for some time, and were so much absorbed that we scarcely noticed a little object drifting down toward us like a withered leaf until Dick gave a cry of surprise and

called out: "Look at the squirrel, will you! Just look at her!"

And then we saw that the little brown leaf was not a leaf, but a flying squirrel, with one of her baby squirrels in her mouth, and that she had floated down out of a great oak tree, whose limbs were even then beginning to toss and writhe in the flames.

Down she went to the top of an old stump, not ten feet from us, and in an instant she had dropped her baby there and was down on the ground, skurrying back to her blazing home. All over the ground in the pasture flames were licking up the withered leaves, and the heat almost scorched our faces, even where we stood. We thought she would turn back when she reached that line of fire—but no! We saw her plunge

straight into it, and then we turned away our heads.

It was Dick that ventured to look around first. When a shout he raised! I can hear it now, with that queer tremor in it as he cried:

“There she comes! She’s alive! She’s alive!”

And when we turned, too, there she came, floating down out of that wild storm of fire with her other rescued baby in her mouth, and in a moment she had dropped it beside the first little one and had fallen near it, writhing with agony.

Such a spectacle as she was! Her hair was scorched, her tail was bare, her poor little feet were blistered, her eyes were shut. The young ones bore few marks of their terrible journey; but we

thought it was all over with the poor little mother.

“ Let me carry her home in my apron,” said Gwen, whose heart was wrung with grief over the woodland tragedy, and so we laid the squirrel tenderly in the little white apron, and, Dick and I carrying the little ones, we went back to the house. We did not even cast a backward glance at the fire in which we had been so much absorbed. The sublime example of mother courage had completely blotted out all smaller interests, and we would never be able to think of the fire again without thinking of that little creature darting through the flames to save her young, with a devotion that would have made a human mother immortal.

And that is the story we used to tell when people laughed at Dryad—

we were studying mythology then, and of course, we called the little mother "Dryad." She was never pretty after that. There were several patches on her little body where the hair would not grow, and her tail was ragged and disreputable looking beyond description.

But what did we care for that? Never were three animals so petted and cared for as these three that had drifted to us out of the heart of the fire; and never was any one animal so loved as was this ragged little squirrel mother.

We had no trouble in training her. She was in agony for several days, and we were doing our best to soothe her; and I think she must have understood it. At any rate, by the time she had recovered, she was tame, and would perch on our shoulders or eat from our

hands, or even come when we called her.

I suppose all animals of this kind must love their young with peculiar devotion; but it has always seemed to me that the terrible experience through which Dryad had gone must have given her a passionate devotion to those small objects of her affection.

If she heard the least unusual sound, away she would rush to her babies and stand over them, ready to gather them up and escape to a place of safety.

If a stranger came to the house, Dryad carried her little ones into the elm tree in the yard, and she would never venture down with them until the visitor was gone.

We were all so tender with her and

watched her so much that we came to believe we could understand all her thoughts. When we had a dreary, rainy day, one time, mother had made a fire in our play-room to drive away the dampness.

At the first flash of the blaze Dryad sprung from my shoulder, mad with terror, caught up one of her babies and fled from the room.

In a moment she was back after the other one.

We did not try to stop her. We knew of what she was thinking.

The poor little mother!

We found her crouched in the darkest corner of a closet that happened to be standing open, and it was hours before she would venture out again.

If our acquaintance with Dryad began

with a tragedy, how much greater was the tragedy with which it closed! The three squirrels had always slept in a cage that had once belonged to the family parrot.

We had shut them in, carefully, at bedtime every night, but we allowed them to play about the yard in the dusk as long as possible, because it was so pleasant to watch them.

Every evening we sat on the porch, in the summer twilight, and the noiseless little creatures played around us, climbing into the trees near at hand, and then floating down to us like spirits.

The two little ones had just begun to make little aërial journeys like their mother, and so the three climbed and flitted about until bedtime came and Dick called them to their cage.

But one evening Dick was taken suddenly ill, and in the midst of our excitement and alarm the squirrels were forgotten. Early the next morning we went out to look for them, and found that they had gone into the cage of their own accord.

But there had been no one at hand to close the door, and on the floor of the cage were two little mangled bodies, pitiful to look upon, while across them lay poor Dryad, torn, bleeding, but alive, with her teeth still buried in the neck of an enormous rat.

Yes, she was alive, but she died while we were trying to lift her up and help her. She had given her life at last to save those beloved little ones, and it has always been a comfort to me that she did not know they were dead.

She was a very little thing, but I have always been glad that I knew her, this little Dryad, that came to us on the wings of fire and left us amid the throes of martyrdom.

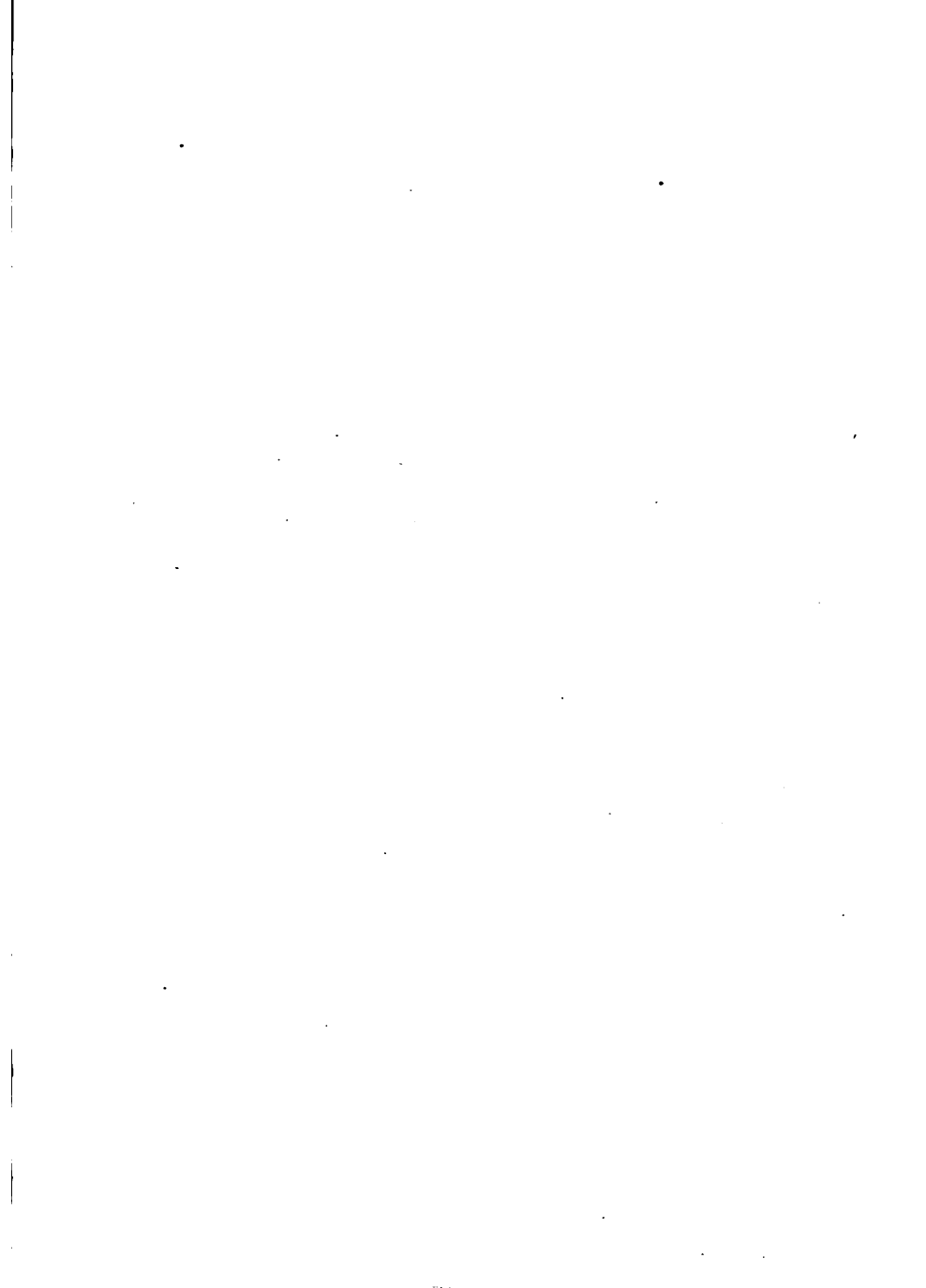
JULIA TRUITT BISHOP.

CONVERSATION.

The heroism of Little Dryad. Why she was called Dryad. Tenderness toward the feelings of living creatures the test of character. I am convinced that wild creatures are very happy and comfortable when living among people with whom they have formed acquaintance, but they should have great liberty. Confining them in cages should be discouraged. The study of animals by destroying them or dissecting them, or even by offending their sensibilities, is unpardonable.

NOTE.— The story of Little Dryad is so graciously told and so much in the spirit of John Burroughs that it has been added as a supplementary story for the teacher to read to the children. Little Dryad deserves to be kept in memory. Other stories bearing on the same subject, the heroism of animals and the tenderness of relation between them and human beings, are Lowell's "Rhoecus," Stockton's "Old Pipes and the Dryad" and "Bee Man of Orn" from Fanciful Tales, and Warner's "A Hunting of the Deer."





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