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VOL. I. JANUARY. NO. I.

THE ORNITHOLOGISTS' AND OOLOGISTS'

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CONTENTS.

VOL. 1, NO. 1. JANUARY. 1889.

OUR COLLECTION NO. 1.

No.	Name.
11.	Mockingbird.
277.	Boat-tailed Grackle.
282.	Common Crow.
282a.	Florida Crow.
490.	Snowy Heron.
492.	Louisiana Heron.
493.	Little Blue Heron.
494.	Green Heron.
495.	Black-crowned Night Heron.
496.	White-crowned Night Heron.
578.	Purple Gallinule.

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ORNITHOLOGISTS' * AND * OOLOGISTS'

SEMI-ANNUAL.

VOL. I. JANUARY, 1889. NO. I.

Instructions for Collecting and Preserving Birds and Eggs.

BY PROF. J. A. SINGLEY, GIDDINGS, TEXAS.

PART FIRST.

BRIEF INSTRUCTIONS FOR COLLECTING AND PRESERVING BIRDS' EGGS.

As many of the eggs sent me are poorly prepared and as this magazine may fall into the hands of some who are commencing a collection, I will give a few brief instructions as to the right way of preparing specimens. An experience of ten years (seven of them as a professional collector) will, I think, convince my readers that I am qualified to give instructions.

A few remarks as to the tools required, which can be bought from any dealer in Naturalists' supplies. Drills are the first requisite, and several sizes will be needed, from 2-32 of an inch for all fresh eggs, up to 1-4 inch for eggs in which incubation is advanced. Larger drills can be had; but who wants an egg with a half-inch hole in it? There are two kinds of drills, the so-called "fine-cut" drill, made to sell, and a toothed or burr drill, made for work. I have all the different makes and sizes of drills; but use altogether the 2-32, 4-32, 6-32 and 8-32 sizes of toothed drills. They last a long time; do not crack the egg and work fast.

Next after drills, the most necessary thing is a blow-pipe; different styles and sizes of these are also to be had, from the fine nickel ones with attachment to the common brass ones, straight or curved. Any

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of these will do, provided you do not insert the point of the pipe into the hole in the egg. The curved blow pipe is the most convenient. Glass ones are not to be thought of, from their liability to break. I have used a curved brass blow-pipe, six inches in length, for several years and it is still as good as new. Tne original cost, was, I think, 20 cts. and I've prepared about 1500 eggs with it. Other articles that are needed are an embryo hook and a small pair of scissors. With such an outfit, anyone can prepare eggs (the tools necessary for preserving birds will be given further on.)

Various ways are recommended for draining or drying the eggs after blowing, such as laying them, hole downward, on a bed of sand, cotton batting, blotting paper, etc. I'll tell you of the "dryer" that I use and how to make it. Take a piece of card-board of suitable size, (mine is 12-18 inches) draw lines across, lengthwise, 1-2 an inch apart: now draw another set of lines, the same distance apart and at right angles to the first lines. Where the lines intersect punch holes with a .32 calibre wad-cutter. Mount this perforated card-board on a wooden frame, stretching it tight, (a few strips of wood nailed to the frame under the card-board will keep it from sagging) tack sides to the frame, projecting about two inches above the card-board bottom, all round, and you have what appears to be a shallow box with a perforated bottom. The eggs are placed in this form, hole downward; and as the hole in the egg is thus placed in the hole that has been punched in the card-board, a free circulation of air is insured, all around and in the egg, drying it in the shortest time; and there will be no cotton, sand or anything else, sticking around the edges of the hole.

Having indicated the tools necessary, a few hints about the field-work part of collecting comes next; and here I wish to warn the young collector against being of a too greedy disposition and "bagging" everything he finds. Of many species he will find hundreds of eggs, (that is in a region where bird-life is plenty) and in cases of this kind he can take for his own collection as many eggs as desirable to show the variations, and a few for exchange. He can always have his choice here and take only fresh eggs, letting the others alone. I condemn the practice of taking only half the eggs in a nest and leaving the rest. Nine times out of ten the bird will desert the nest. Better take all out of one nest and pass the next one. The bird that has been despoiled of its eggs will go elsewhere and build again.

Identification and authentication are the cardinal requisites in collecting. A bird or a shell bears its own label; but the science of Oology has not advanced to that stage where a species can be determined from the egg alone. Never take an egg until you are sure what species it belongs to. An unidentified egg is worse than worthless: it is of no use to the owner, and it is that much bird-life needlessly destroyed. If you find a nest and don't know the bird, secure it, either by snaring or shooting and make a skin of it. Place the same number on the eggs and bird and they can then be identified at any time. Directions for making bird-skins will be given further on.

Supposing the collector starting out for a day's collecting: he will need a box filled with cotton, (a cigar box is excellent) a note-book and pencil (climbers such as are used by "telegraph men" also come in handy.)

If the collector takes to heart what I wrote above, he will carefully identify each set of eggs. Suppose the first set he takes is a set of four eggs of the Red-headed Woodpecker; the bird seen; nest 20 feet up in an elm tree. If he knows the bird's number, he would write in his note-book the following short particulars: 1—375—4—20 ft.—elm, and he would mark each egg of the set No. 1. The small end of the egg is preferably the place for these first numbers. The tenth set, he finds, is a set of three eggs of the Yellow-billed Cuckoo. The nest, eight feet up in a wild plum tree. Here his entries would read: 10—387—3—8 feet—wild plum. Each of the three eggs should be marked No. 10. By this method, the first number always representing the number of eggs in the set, mistakes are almost impossible. If he saw the bird he should write "seen" after the last item. If the bird was caught or shot, he can mention it instead of "seen." The last two items explain themselves, and all these items except the first, must enter into the data of the set. It is not necessary to give materials of nest, except in the case of rare species. I follow the above method of authenticating to save time; but the collector who has plenty of that commodity to spare, can of course write out full particulars of each set in the field. Never trust to memory in these matters; have it in black and white.

The collector, having returned home and being ready to prepare his eggs, let him take them out of his box where he has placed them well wrapped in cotton, as taken, and unwrapping them, place each set by itself on the "dryer" described elsewhere (he will now begin

to appreciate that useful article) now getting his tools, not forgetting a glass of water to use in rinsing the eggs, he is ready to go to work.

The points of the drills, as bought, are always dull, and it is recommended to start the hole in the egg with a pin or needle. These useful articles are small, likely to get lost while working with, and make one more article to look after. You can dispense with them by carefully filing the point of your drillto a needle-like point. Select the least showy part of the egg, and holding it (the egg) in your left hand (the right if you are left-handed) put the point of the drill against the "least showy part," and twirl it (the drill) between the thumb and forefinger. Don't bear on the drill, as if you were drilling in iron, if you do you'll have a hole clear through both sides of the egg, something you don't want. The hole, being drilled until the largest circumference of the burr passes inside of the egg, don't try to pull it out, as a broken egg will be the result if you do. There is an internal pellicle lining the egg; if this is not cut out where the hole is drilled, it will interfere with blowing the egg. By bringing the burr of the drill up against this pellicle, as if you were going to remove it from the egg, and giving it the same twirling motion that you did when drilling, the pellicle will be cut all around the edges of the hole and the drill will come out. Now take your blow-pipe, and putting the point of it close to the hole, blow gently and the contents will come out. When incubation is more or less advanced, a larger hole must be drilled and the embryo removed with the hook and scissors, a tedious operation and not always successful, even with the greatest of care. Better let incubated eggs remain in the nest. A liitle experience will teach you how to differentiate fresh eggs from those that are too far advanced to save.

Never put the point of the blow-pipe inside of the egg, as a bursted egg will be the result, especially so, if your lungs are well developed. Having emptied the egg of its contents, the next step is to take a mouthful of water and inject it through the blow-pipe into the egg, rinsing it thoroughly. Large eggs should be filled half full of water and well shaken. Eggs treated in this manner are perfectly clean inside and offer no inducements to insects to harbor within, a thing they will surely do in eggs prepared in a slovenly manner. Having blown all the water out of the egg, take a soft cloth and wipe it dry, removing any foreign matter that may be adhering to it, taking care, however, not to rub off the number you put on it when collect-

ed and also notice that you do not rub off any of the markings on it. On some eggs the pigment is only loosely applied on the outside. Now place the egg hole downward, directly over one of the holes on your dryer and it will drain and dry in a few hours. Continue in the above way until you clean all your eggs, keeping each set to itself and adding another memorandum in your note-book opposite each set, as to the state of incubation of that set. When the eggs are dry fill out a data for each set. These particulars are taken from your note-book. Suppose he (the collector) takes the first set, that of the Red-headed Woodpecker. He will fill out a blank as follows:

No. 375. Name, Red-headed Woodpecker.

Collector, John Smith.

Locality, Boston, Mass.

Date, June 3d, 1887.

Set mark, 1-4.

Number of eggs in set, 4. Identity, bird seen.

Nest, excavated in an elm tree, 20 feet up; eggs laid on chips at bottom of cavity.

The collector will of course substitute his own name, locality and date for those given above, and if this should prove to be the second, third or fourth set of that species taken during the season, he would mark the set as 2-4, 3-4, 4-4 and so on.

He will mark every egg of that set 375 1-4, using a soft pencil, making legible figures, not too large, and putting them close to the hole in the egg. Never deface an egg by writing the date on it; the above is all that is admissible on a first-class specimen, and accompanied by the data is all that is necessary. If the collector reserves only one egg of the above set, sending out the others to correspondents in exchange, every egg sent out should be accompanied by a data, a copy of the original one made out for the set.

A few words now about forming a collection. Are you collecting hap-hazard, anything and everything, just so you can say that you have more eggs than the "other fellows?" If you do collect in this way, I'd advise you to quit at once. Do you collect, getting only the prettiest eggs, and having them under glass to look at? The Bower Birds of Australia build bowers and ornament them with pearly shells, bright colored feathers and other decorative material, and no doubt derives as much benefit from its collection as the collector who wants only the "prettiest" eggs. If you collect, however, to learn some-

thing from your collection, to make comparisons between the eggs of different species, to note the variations in eggs of the same species, to study the birds themselves in field, forest and closet; then I say, go ahead, collect in sets and in series of sets, always have your material for study well authenticated and your collection will always possess a scientific value as well as a pecuniary one, and you cannot be classed with the collectors who have been rather inelegantly termed "egg-hogs."

A few words about exchanging and I will close this article. Always use tin or wooden boxes in which to ship eggs. Cigar boxes need a cleat nailed inside on the ends to keep the lid from being broken in. Large boxes will also need a partition put in to strengthen the box and obviate packing too many eggs together. Roll each egg seperately in cotton and pack them so they will not shake about in the box, but not tight enough to crush them when the lid is put down. Don't put data or other writing in the box if it is to go by mail, and don't nail the lid down, simply tie it with a string. Use some current price-list as a basis of exchange, and send the data to your correspondent in your letter of advice. Don't wrap thread or tissue paper around eggs after you have wrapped them in cotton. Your correspondent will want to swear if you do, at least the writer hereof has been strongly tempted to do so, when unwinding yards of thread from the eggs, or undoing nicely done up packages, perhaps an invoice of an hundred eggs or more, and each one wrapped and tied like a package of dry goods or groceries. This practice of doing up eggs begets profanity and broken eggs.

PART SECOND.

BRIEF INSTRUCTIONS FOR COLLECTING AND PRESERVING BIRDS.

The tools necessary to put up a bird skin are neither numerous nor costly. A scalpel, scissors, two or three sizes of tweezers and a fish-hook with the barb broken off will suffice for all ordinary work—remember that it's not the tools but the one handling them that does the work. Cotton to fill out the skins with, corn meal or plaster to keep the feathers from being soiled, and arsenic to preserve the skins are essentials. Having the tools and supplies, the next thing necessary is the bird, and the collector will have to rely upon his gun to secure that. Ninety per ct. of the birds taken in routine collecting can be killed with dust-shot—larger shot generally mutilates a bird and it will make a sorry specimen. Experience will prove a better teacher than any written instructions and I will not attempt to give any, except to say that small birds can always be approached closely and it is not necessary to load heavily—"puff" loads, I call them, will do. My ordinary collecting load fills a 16 bore cartridge only about one-fourth full. A 16 bore gun is the right size for collecting. With cartridges properly loaded, such a gun will bring down anything from an eagle to a hummer.

Having shot your bird, the first thing necessary is to stop up the mouth with a fluff of cotton; sometimes it is necessary to plug the nostrils and vent with the same material. This will prevent any blood or the juices of the body from soiling the feathers. A "gob" of blood can generally be removed with the knife-blade—a little experience will teach you the best way. Some collectors plug up the shot-holes, but I simply part the feathers and lay a fluff of cotton directly on the wound. This will absorb any blood that escapes. If the eyeball is broken, letting out the contents, stick the knife-blade into the eye, take the tweezers and by catching hold of the cut edge of the eyeball; the entire eye can be torn from the socket, being careful not to allow any of the glairy fluid to get on the feathers. Dry out the socket with cotton, and insert a pellet of it to absorb any of the juices that may remain. If the nostrils are too small to plug up, a small roll of cotton laid across them and the ends tightly tucked into the mouth will prevent damage. Never try to wipe off blood from feathers—you can't do it and will only make matters worse. Having stopped

all "leaks," make a paper cone or cylinder and drop your bird into it head-first, adjusting the wings and any unruly feathers. Make the cone or cylinder of such a size that the bird will fit closely, and have it of such a length that the end, or ends, can be pinched together, being careful not to bend or ruffle the tail feathers, and your bird will come out of its envelope nice and smooth even after a day's jaunt. A game-bag will do to carry the birds in, putting the heavier birds at the bottom and arranging all of them nicely in the bag.

Labelling is next in order, and is the most important part of the whole proceeding. Locality, date and sex are indispensable. The check-list number of the bird can be added, though not necessary. The collector's number is a requisite, as this refers to his register of specimens, giving full particulars of capture, etc. Length of bird and extent of wing find a place on the label, as also the scientific name of the bird—common name can also be given. Name of collector and contents of stomach are added by some collectors. By using abbreviations, all this can be put on the two sides of a medium sized label. Sex is denoted by the sign of Mars for male and Venus for female. L., length, Ex., extent, etc., etc. Labels with strings attached can be bought of any stationer.

We will now proceed to skin our bird. The first thing to be done is to take a measurement of the length, which is the distance between the tip of the bill and end of the longest tail feather. Lay the bird on its back on the table, the tip of the bill flush with a pencil mark. Take hold of the bill with the fingers or tweezers and with the disengaged hand take hold of both legs and pull, using force enough to get the curve out of the neck,(don't pull too hard) keep the bill flush with the pencil mark on the table, and mark where the end of the tail points. Measure this with a rule for the "length," giving dimensions in inches and hundredths of an inch. Distance between the tips of the outspread wings: place the bird on its back, head towards you, take hold of each wing at the bend and using moderate force stretch them to their full extent. Measure the distance between tips, and enter on your label as "extent." These two measurements can be taken only from the bird in the flesh. Length of wing, bill, feet, etc., etc., can be taken at any time from the dried specimen. Now make a paper cylinder the exact girth of your bird, securing it with a pin, this makes a good drying form. Lay the bird on its back (head to the left) and taking the scalpel (a sharp pocket-knife

will answer) part the feathers along the middle line of the abdomen from the vent to the lower end of the breast-bone. A bare space will be seen and here the incision is to be made, cutting only through the skin, from the end of the breast-bone down to and into the vent. This latter makes a sort of button-hole termination to the cut, and it is not apt to be torn in manipulation. Now with the blade of your knife carefully separate the skin from the flesh along the line of the cut. Take hold of the cut skin with the fingers or tweezers and keep working carefully, lifting the skin from the flesh (no force or cutting is required) until you meet with an obstacle—this is the thigh. Lay down your knife and taking hold of the leg, push it up inside the skin, (easily done) and with the scissors sever bone and muscle at the knee joint. Skin down the leg which will come out of the skin, like a finger out of a glove, to the heel joint. Scrape all the flesh off the bone and draw the leg-bone into its sheath and leave it. Repeat the operation on the other side, and remember that all this time the feathers along the edges of the cut have an unhappy tendency to get into the opening you've made. This can be prevented by putting a little cotton between the raised skin and body of the bird, and all the time you are working keep the flesh covered with the meal or plaster—this absorbs the juices and keeps the feathers from getting soiled. Having skinned both legs and worked the skin loose down to the tail, the next step is seperating this from the body. All the tail feathers are inserted into what is popularly known as the "pope's nose." Set the bird upright on its breast on the table press the tail backwards, take the scissors and snipping away at the junction of the "pope's nose" and body until you sever the tail-stump from the body. Great care is required here, for if you through carelessness cut the skin, the cut will wander around and the first thing you know you have a tail-less bird skin. After the tail is severed from the body, use the back of your scalpel and separate the skin carefully from the rump (the adhesion between the skin and body is stronger here than at any other point.)

If you will now take your fishhook, attach a string to it, stick the hook into a firm part of the rump and hang the bird up where it will swing freely about the heighth of your breast, you will have both hands free to work with. Having hung your bird, work the skin away from the body, using the back of the scalpel blade or your finger nails for the purpose. NEVER pull a skin, as it will either tear or stretch so badly that all the after manipulations will fail to make a good speci-

men of it. Work down until you are stopped by the wings; and reccollect that as you work, the skin is being turned inside out. When the wings are reached, you must sever them close to the body (inside the skin of course) just as you did the leg. Seize the wing-stump with the fingers and work the skin down as you did on the body until you come to the secondaries. These feathers are grown to the arm-bone (ulna) and require loosening from the bone. They can be stripped down by using the thumb-nail, taking care to work the skin loose all round to prevent tearing. Having skinned to the bend of the wing, the "ulna" is stripped of all flesh and allowed to remain, all the other bones with muscles being removed. Do not skin beyond bend of the wing. If the "ulna" or leg bone has been broken by a shot, a piece of sharpened wire can be made to take their place—the wing requires this bone to hold it in position. Having skinned the wings, leaving them turned inside out, skin down towards the head, which is the easiest part of the job.

You now meet with the head and it will take patient work to skin over this. Always remember to push and not pull the skin, and presently you'll be rewarded by seeing the skin slip over the head to where it is pinned to the head by the ears. With the small tweezers detach the membrane that lines the ear opening. Do this for both ears. You have now come to the eyes. Work very carefully here. Cut the eye membranes from the bone, and inserting the point of the scalpel lift the eye from its socket entire. It's hard to give instructions how to do this and it must be learned by actual work. Take care not to open the eye-ball or lacerate the eye-lids. During all this time the skin must be supported in your left hand, (left-handed people will work the contrary way) and must not be allowed to hang as this would unduly stretch the neck and give you trouble. You will now separate the body from the skin, and to do this, cut down the base of the skull with the scalpel, severing completely body and neck from it. Scoop out the brain through the opening in base of skull and your skin is ready for poisoning.

If you have no drawer in your table to hold the arsenic, a large shallow cigar box or any other box of suitable size will answer. With a spoon or spatula apply the arsenic to every part of the skin, (inside) putting plenty in the brain cavity, eye-sockets, mouth and on the tail stump. Shake off all the surplus into the box, the moisture of the skin causing sufficient to adhere. Roll up two small

pellets of cotton and fill the eye-sockets. You are now ready to turn the skin, and if you will remember how it was everted you will have no trouble in getting the head back. It requires a little dexterity to do this at first, but it doesn't take long to learn. Having turned the skin, pull the wings out and lay the skin on its back. Make a roll of cotton slightly smaller than the neck, put one end of this in the tweezers and work it gently up the neck until the empty brain box is reached. With the fingers of one hand hold the cotton in place, (the end in the brain cavity) and remove the tweezer and the neck is stuffed. Cross the wing-bones on the back, (some recommend tying them together) and make an artificial body of cotton, taking the natural body for a model, and work it carefully into the skin, keeping the end of the roll of cotton that you put in the neck in your left hand. When the body is in position, you can shorten the neck of the skin by pulling on the roll of cotton; or if you wish to lengthen the neck, a slight pull on the head will do it. Having the neck the proper length, tuck the cotton along the artificial body and bring the edges of the skin together. Arrange the eyelids and any feathers that may be awry, set the wings in position and slip the skin into the paper cylinder that you made before commencing the skinning. Having made your skin and written the label, the determination of sex comes next. Lay the bird on its side, (belly towards you) cut with the scissors from rump to the ribs, pushing the intestines aside and you will see the small of the back. Capping the kidneys you will see the testis, (if a male) "a pair of ellipsoidal bodies" generally of a dull whitish tint; if a female, the ovary, a white granular mass occupies the same position. Mark the sex on your label, cross the legs of the skin and loop the label on where they cross, and lay the skin away to dry.

The above instructions apply to nearly all birds; some Woodpeckers and Ducks cannot be skinned the usual way, the head being too large to pass through the neck skin. In such cases skin to the base of the skull, cut off the head inside the skin and turn the skin back to its natural position. Part the feathers in a straight line down the back of the skull and make an incision long enough to allow the head to pass through. After skinning, the head is put back and the cut sewed up, taking fine stitches—it's a tedious operation.

If blood or any other substance has dried on the feathers they can be washed out. Do this immediately after skinning and before filling out with cotton. Take a sponge and with luke-warm water wash out

the stains. Put on plenty of plaster or meal to absorb the moisture, pressing it down and scraping off with the scalpel. As it gets dryer, raise the feathers, sprinkling on the absorbent. and blowing on them gently to dry thoroughly. Dried blood can often be removed by scraping with the thumb-nail, holding a finger opposite the thumb for resistance. A bird will remove blood with its bill.

A few words of caution are necessary. Recollect that arsenic is a DEADLY POISON and exercise the utmost care, for the sake of others as well as yourself. Do not bulge out the eyes of your specimen. Make it look as natural as possible. Cotton is a springy substance and if you put in too much, it will give your bird skin a dropsical appearance.

In forming a collection, the amateur should be satisfied with a pair, male and female, of each species; but where the plumage varies greatly with the seasons he may have specimens enough to show the variations. The professional Ornithologist needs large series of each species; but such is not the case with the amateur. Thoroughly work up the birds of your locality before doing much exchanging. You will be much surprised to see what a large number of species you can gather in a district, easily collected over on foot. After you've learned to make a skin do not prostitute your knowledge to the making of "millinery skins." That is a depth to which the true collector or Taxidermist never falls. If you cannot determine your specimens send them to the "Smithsonian," or to the New York Central Park Museum. I believe the Ornithologists in those institutions will always help a beginner out. These instructions conform to my ornithological *Alma Mater*, Dr. Coues' excellent "Field Ornithology." Where I depart from his instructions the method I've given suits me better than his. We're not all of a mind. Should the collector desire to mount his specimens he must get some good work on Taxidermy. This will give full instructions.

Trusting I've made things so plain that "he who runs may read," I am,

Ornithologically and Oologically yours,

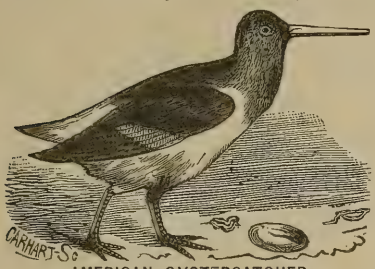
J. A. SINGLEY.

THE AMERICAN OYSTERCATCHER.

Hæmatopus palliatus.

BY W. W. WORTHINGTON.

Well do I remember the first specimen of this wary bird I ever relieved of his skin. I was hunting along the South Carolina coast, and by carefully sculling my little skiff I was able to approach near enough to risk a long shot. At the report of my gun he tried to rise, but a chance shot had tipped one wing and his only chance of escape was by running.



AMERICAN OYSTERCATCHER.

Quickly grounding my skiff, I jumped out and started in hot pursuit; but I was encumbered with my heavy boots, and how he could run! He made directly for a small creek and reached the water about six feet ahead. In I plunged and was just about to grasp him, when he dove and I only captured him by plunging my arm in nearly to the shoulder; but I had him safely in my grasp at last, and as I squeezed the life out of him I admired his black head, neck, tail and wing tips, brown back, white rump and under parts and bright red bill, (which is a veritable oyster knife) and also his sharp yellow eye.

These birds are found throughout the year along the South Alantic coast and are very shy and difficult to obtain. They nest on the outer beaches, simply scratching a hollow in the sand in which the eggs are deposited—in Georgia about the middle of April. Further north they are laid a little later. Maynard, in "Birds of Eastern N. A." says: "they lay about June 6th," which is no further from the truth than many other statements in the same volume.

Of two sets handled by myself the past week, the first, taken April 19th, was about one-fourth incubated. The other set, taken the 20th, had two of the three eggs picked. The eggs have a pale drab ground, with dark brown spots, some obscured by the ground color. Average size, 2.25x1.50.

NESTING OF THE COOPER'S HAWK.

BY W. L. MARIS.

After a long and tedious search for eggs in one of our largest Chester County woods, and almost despairing of finding anything worth while to carry home, I was suddenly startled by a loud, hoarse cry coming from above the tree-tops. A glance in the direction of the sound at once revealed to me its author, a female Cooper's Hawk (*Accipiter Coopori*) swiftly circling around.

The uneasiness of the bird, and its cries, which soon attracted its mate, of course had some meaning to an Oologist, and a few minutes search in the direction from which came the sudden sounds, soon showed me a nest, in a tall, slender tree. Without any parleying with the birds, which continued circling around, as to my right to so intrude upon their home, I immediately began the ascent. Soon, at the height of about thirty-five feet, I stood upon the first branch below the nest and looked down upon my first set of five eggs, of this, our most common "Chicken Hawk." Nothing handsome, to be sure, being simply a pale bluish-white, with one spotted a little at the larger end; but doubly prized, since they added another to the list of species whose eggs I have myself collected.

As I examined the nest and wrapped the eggs in cotton, preparatory to descending, the birds, which had up to that time watched me very closely, were now nowhere to be seen and did not appear again until I had left the immediate vicinity. The nest was somewhat bulky, seemingly a last years Crow's, with a few additions. It was placed in the forks of four branches, and composed of twigs and hay, and lined with several rough pieces of bark.

The statement made by Langille, that this bird builds "always very high," was not sustained in the present case, as the nest was not above thirty-five feet from the ground. The eggs, which lie before me, measure respectively 1.86x1.61; 1.88x1.56; 1.89x1.50; 1.88x1.54; 1.81x1.56 inches.

MY SET OF HALIÆETUS LEUCOCEPHALUS.

BY LE GRAND THEODORE MEYER.

While comfortably seated in my home-like boarding place, with a good cheery coal fire, reading a southern paper, my eye chanced to light upon the following item:

BALD EAGLE.

"For a number of years, a pair of Bald Eagles have nested within five miles of this city, near a negro settlement."

Being somewhat of a traveler, my mind was instantly made up; for I had long wanted to pass the winter in the south; and in looking over my fair collection of eggs, there always seemed to be an indescribable longing when I thought of how a set of Bald Eagle's eggs would improve it, and how a rival collector asserted his claim to a set of two, obtained at a momentary risk of his life.

To go to Southern Georgia was my sudden resolve; so accordingly, I packed my valise, including a set of overalls (necessary Oological instruments) and a .38 calibre magazine rifle, going more for sport than collecting.

A ride of three days brought me, figuratively speaking, from winter to summer, for although they call it winter here, it little resembles ours, being more like a balmy spring instead.

Arriving at the little town of Hillsborough, I "put up" at their apology of a hotel, and commenced to ascertain the whereabouts of the noted tree. The people were just over their Christmas jubilee or festival, and were about to commence the country routine work.

I "tipped" my purse liberally to a number, but was unable to gain the desired information. The amazing lack of Ornithological love among the "masses" is certainly deplorable. I remember a Natural history dealer who was worried to death by inquiries about a window he had fixed with mammals and birds; the principal one being, "where did them Ostrich eggs come from?" They being eggs of the Com. Guillemot.

Resorting to my last means, I called upon the corpulent editor of the "Advertiser" in his sacred sanctum. He had been so informed by a "cracker" farmer, who had been so told by one of his servants. The place had been nick-named "Negrotown," so to this place I turned my wandering feet. After trudging about five miles, I enquired at a low log hut, whether they knew of the nest. The versatile proprietor, an Ethiopian as black as a coal heaver, replied: "Sutinly suh, sutinly. Hit's a fac'! De nest am 'bout a ha'f-mile from hyah. If you wish, we kin ride ober an' see it."

We mounted a pair of razor-backed mules and went on our way through the stunted and straggling undergrowth. "Yes! dey hab done used the same nest foh neah as I kin rekkerlect; foh, lemme see, about twelve, fohteen years.

Upon approaching the tree, (an aged sycamore) we found the upper part, where the nest was located, to be dead, probably to better enable the parent to view the surrounding territory. Many ignorant persons suppose the birds kill the tree; so I addressed this query to my guide: "How is it that the trees are always dead?"

"Oh! de bird always kills de tree" (I suppose he noticed an incredulous look); "hit's a fac', foh I hab seed foah trees an' they were all dead."

It was plain to be seen that the nest was genuine; so I secured board at my guide's mansion (?) and determined to await proceedings. With naturalistic delight, day after day, I would sit hidden and watch the Eagles (the King of birds and our national emblem) sail gracefully for over fifteen minutes without flapping their wings.

Meanwhile, the nest, which was about the size of a bushel basket, rapidly grew by additions, until in outline it far surpassed the original size. For two days I did not see either of them, except the male fishing at a neighboring lake, a mile away. Rising earlier than common one morning, I saw the two magnificent birds eating their breakfast of fish, which was presumably brought by the male.

The female crouched in the nest and away flew the male to his lonely perch. "Well, old lady, I suppose you are about to lay your treasures; so I'll not be selfish, but wait and let you keep them a week, thereby I'll be more likely to get a full set. 'I'll not kill the goose to get the golden egg.'"

Meanwhile some startling revelations were taking place. One evening, while eating my supper, and the hostess would tempt the

fleeting appetite of the daintiest epicure with her biscuit, honey, milk, ham and eggs, Pompey said: "Mistah Myahs, 'pears like de people tink dat you am gwine to take our Eagle's nest, and dey want me to tell youh dat dey will tah and fedder youh if youh do. Foh it would bring on a plague on us if hit was destroyed."

I was thunderstruck; but I might have suspected it among such a superstitious, ignorant people. However, I managed to stammer out, "Oh! you are mistaken, Uncle Pompey, for I am just sketching the nest." This appeared to satisfy them; but how to get the nest was the next perplexing question.

Two days before the week ended, I shot the male while he was perched on a tree, watching an Osprey fishing. To prepare the skin was the work of an hour, and rolling it up carefully, I concealed it on my person, thereby running the gauntlet and succeeding in getting it safely locked in my satchel.

The only way I could conjure up to get the eggs was by a night attack; so leaving my window up on retiring, I laid down to rest until I was sure Pompey and Dinah were asleep. I had not long to wait, for about ten o'clock sounds came issuing from their chamber which would remind the unitiated of the starting of some heavy freight-train. Carefully and noislessly taking my climbers, a bag which I had lined with cotton for the eggs, and my rifle, I started for the tree.

The night was as dark as one would wish for; but in my stay I had become so familiar with the surroundings that I easily found the nest. Putting the rifle against a tree, the bag in my pocket, and the climbers on, I commenced the ascent. The tree would have proved by day almost inaccessible to the daring collector; but the thought of the valuable treasure beyond and its benefit to science nerved me to the deed.

Nearly exhausted, I finally reached the first limbs, where I recruited my weakened strength. Upon again starting upwards, I heard the female leave the nest with a "swish." With agonizing suspense I listened, thinking that perhaps on her hasty exit she would push out the eggs, owing to the shallowness of the nest; but nothing dropped. At last I came in reach of the nest; clutched and felt one, two—"Great Scott!"—three warm eggs. Was a collector ever so blest? I am sure if it was not for the slenderness of my perch, seventy-five feet from *terra firma*, and fearing of the consequences arising from awakening the natives, I should have fairly howled with delight.

Putting the eggs in the bag, I lowered it by a string to the ground. Once in my descent I slipped but saved myself by catching on a limb, and without further accident reached the ground. The eggs were pale white in color, measuring 3x2.52;3.02x2.51 and 3.05x2.54. Date, Feb. 19, '81. Next day I bid my colored friends a tearful (?) farewell and was soon home again after having a delightful recreation of four weeks. [B. S. O.]

THE CARDINAL GROSBEAK.

Cardinalis virginianus.

BY PROF. J. A. SINGLEY, GIDDINGS, TEXAS.

This is our most common species, resident, and found everywhere, even in the scattered clumps of timber on the prairies. It prefers the bottoms however, and 75 per cent. of the individuals will be found there. During the winter it is reinforced by the migrants from further north and the bottoms are fairly alive with the Cardinals. It cannot be called a noisy bird only in the breeding season, when its musical whistle is heard from every clump of shrubbery. The adult male is a rich red color on the back; wings and tail slightly mixed with grayish —a black mask entirely surrounding the bill. Length, 8.00-9.00 in.; extent, 11.00-12.00 inches. The female is of an ashy-brown color, paler and yellowish below; the crest reddish and bill red same as that of the male. Average size, a little less than the male. Specimens taken here are not strictly typical, as they merge into the sub-species *Cardinalis virginianus igneus* of the Mexican border. There is less variation in the nests of this bird than of any other species with which I am acquainted, and the greatest variation in the eggs.

Nesting usually commences early in April, sometimes in the latter part of March, and continues until August; two if not three broods being reared. The nest is always started with twigs or brambles, then a few pliant weed stems and strips of grape-vine bark are added; on this a number of dead leaves, and finally finished and lined with fine grass. It is placed anywhere from a bush a foot high up to twenty feet in a tree (seldom up to that height.)

The eggs number three or four, seldom two, and vary in number in

different seasons, as at times it is difficult to find a full set of three eggs; at others three eggs is the rule and four the exception. The eggs are white, sometimes thickly marked with brown; in others the markings are of a lavender tint; again eggs are found where the brown or lavender markings almost conceal the ground color, and others where the markings are few, of a reddish-brown color, resembling some eggs of the Meadow Lark. Again some eggs are of a greenish tint, the markings of a slate color and the egg bearing a close resemblance to that of the Nighthawk. It is impossible to describe all the variations. Some of the eggs cannot be differentiated from those of the Texan Cardinal. Average, 1.05x.79 inches.

AMONG THE RAPTORES.

BY DR. W. S. STRODE, BERNADOTTE, ILL.

On the afternoon of March 22nd, 1887, I had a collecting experience, the pleasure of which will not soon fade from my memory. Having a professional call to make to see a family residing three miles west of the village of Bernadotte, I thought it a good time while in this section of the country, to take a look for the eggs of the Raptores, there being here a large tract of woodland, jutting out into the surrounding prairies, that had escaped the woodman's axe.

Strapping on my climbers, and putting a ball of stout string in my pocket, I mounted my horse and started, making my visit. I then turned my attention to looking for nests.

Away across the fields to the south of the highway, a quarter of a mile, in an eighty-acre tract of timber, I could see in the top of a tree, a large, bulky nest of some kind. Leveling a good opera-glass at the structure, it became very plain to me as the nest of a Hawk, and I even fancied I could see the head and tail of the bird above the edge of the nest.

Going through a gate into the field that intervened, I rapidly rode to within a short distance of the tree in which the nest was situated. Tying my horse to a fence, I went over, and throwing a club into the tree, the Hawk left the nest; but kept sailing around in near proximity to it. The bird, I soon discovered, was not a Red-tail, our most

common nester, but a species that I was not sure of, from the imperfect sight which I was able to obtain, as it circled around at a considerable height.

Ascending the tree to the nest, I found that it contained three eggs, of a greenish-white color, with a few indistinct brown markings. The nest was quite a bulky affair, composed of sticks and large weed-stalks. One dead elm stick I noticed as being over four feet in length and an inch in diameter at its thickest part. The lining was of grape-vine bark and oak leaves.

Both birds now appeared upon the scene, alighting near by on another tree. I drew out my glass and took a close look at them, and soon recognized them by the wide transverse band across neck and breast (ashy-brown in one and light rufous in the other,) as being a pair of the handsome Swainson's Buzzard (*Buteo Swainsoni*) and I felt correspondingly elated over the possession of the three eggs, which I put into a yarn mitten and attaching the ball of string to it, lowered with great care to the ground, which in a very few minutes I also reached.

I now started in to look this piece of woods over carefully for further finds, and had not gone over two hundred yards before in a nest about forty feet up in an elm, I saw the ear tufts of a Great Horned Owl, followed soon by the big yellow eyes and head, staring down at me as if enquiring what business had I intruding there.

At the first click of the climbers against the tree, the bird left the nest and flew to a distant part of the woods; but returned with her mate as I neared the nest, and they gave me a fine serenading with their hoo ! hoo ! hoos ! with many grotesque bowings and swayings of their bodies from side to side.

I found two snow-white eggs in the nest, rather below the average size of eggs of the *Bubo V.* I lowered them as before and soon followed them to the ground. The Owls again flying to a distant part of the timber as soon as I left the nest and commenced to descend.

I found nothing further of interest in these woods, so returned to my horse and to the highway. Carefully secreting my eggs, I now rode two miles further to another large body of timber, and at once set about searching for nests. Soon finding one in the top of a large black-oak; but no Hawk being present I did not climb it, as it is my rule never to climb to a nest unless I know it to be occupied.

Going a few hundred yards further, I discovered another nest in a

large white-oak, and I could plainly see that it was occupied. Shying a club up into the tree, a Red-tail left the nest. Quickly making the ascent, I found the nest occupied by three very handsomely marked eggs of this species. The nest apparently being an old one repaired, and lined with bits of moss and grape-vine bark. These eggs presented a very different appearance from those that I had diagnosed as Swainson's.

I might add that the nest occupied by the *Bubos* was, in my judgment, an old Crow's nest. I found no other nests of particular interest in these woods at this time; but subsequently found another nest of the Red-tail from which I obtained two eggs.

I found many Crows' nests in different stages of completion; but not caring much for their eggs, I did not wish to spend time climbing to them, except in one instance, when my attention was attracted by the peculiar material in one nest, which presented much the appearance of a large ball of tow. Prompted by curiosity, I went up to it and found it constructed almost entirely of the fibres of the Indian hemp, which grew profusely near by at the edge of the prairie, The nest contained four fresh eggs which I took.

I now started to return home, having eggs enough to fill both mittens. I found that I had been absent from town two and one-half hours; distance traveled not less than eight miles; one professional visit made; four trees climbed; sets secured, Swainson's 1-3; Red-tail, 1-3; Great Horned Owl, 1-2, and American Crow, 1-4. How is that for rapid collecting? [B. S. O.]

A PECULIAR NESTING SITE.

While digging a gas-well in this city, the workmen broke some part of the machinery and had to quit work for a few days. During that time, a pair of Bluebirds built a nest and laid two eggs in the sand pump. After the nest was removed and work commenced again, the birds remained on the derrick for nearly two days.

JAS. S. ZOLLER, Greensburg, Ind.

[B. S. O.]

THE CHIMNEY SWIFT.

Chætura Pelasgica.

BY H. W. DAVIS, NORTH GRANVILLE, N. Y.

This dusky little summer visitor does not receive half the attention and appreciation that it justly deserves.

Who, on a summer's afternoon, has not sat and watched it in its irregular and rapid flight as it flitted hither and thither? Now circling about some old chimney, and for a moment hovering over its top as though about to descend, and just as you look for it to vanish into the darkness of the brick walls, like a fickle creature, off it will dart, uttering its sharp, twittering cry as though defying you, and chuckling to itself over your disappointment; then back again it will come, only to go through the same evolutions, and again disappoint you, if you are watching to see it make the descent.

CHIMNEY SWIFT.

Its rapidly moving wings and long sweeping symmetrical curves, as it sails about, can but commend it to your admiration.

This little bird, peculiar to America, is found throughout the United States, west to the eastern slope of the Rocky Mountains. It is 5.25 inches long; wing 5.10; tail 2.15.

In examining it closely, one finds many points that are very interesting. The nostrils have a membrane partially covering them behind, leaving a small tubular opening. The tongue is sharp and divided. The small, slim feet are very muscular and the claws exceedingly sharp. The tail is even and the shafts of the tail feathers are elongated into sharp and very elastic points.

It is of a dark sooty-brown above; somewhat lighter on the rump. The feathers on the throat are a beautiful greenish-white. A light colored line extends from the bill over the eyes. The small, glistening, black eyes are surrounded by a bare, black skin, which (on close inspection) gives to the head a rather grotesque appearance.

The Chimney Swift appears in this section, from the Tropical re-

gion, about the latter part of April. It builds its nest in chimneys and appears to prefer the old-fashioned square chimney; ones that are not in use. It rarely builds in chimneys that are in use if others can be found, which would leave us to infer that it was not particularly partial to smoke. In the unsettled sections of country, it builds in the trunks of hollow trees and in caverns.

The nest is composed of small twigs which it breaks off with its feet and cements together. The nest is stuck firmly to the side of the chimney or hollow tree, with the same glutenous substance that is used in cementing the twigs.

The eggs, usually four in number, are dusky-white and unspotted. Not unfrequently, small or "luck eggs" are found in the nests, which is the case with two sets that I have collected. Two broods are usually reared in a season. It feeds on insects and the larvæ of small beetles, the indigestible portions of the food being disgorged.

THE BLACK AND WHITE WARBLER.

Mniotilta varia.

BY WM. L. KELLS, LISTOWEL, ONT., CANADA.

This species, in some of its food-seeking habits, resembles the Brown Creeper, for which reason it has, until lately, been denominated the Black and White Creeper. It also frequents much the same situations, though it does not penetrate so deep into the forest; but is often, especially in spring-time, observed on the outskirts of the woods and in new fallows, where the other species of Creeper is never heard or seen. Its movements, while in quest of its insect food on the trunks of trees, are generally in a circular manner, and its mode of procedure, rather a series of hops, than creeping jerks. It will also run out along the branches and cling to a limb with its feet, sus-

pended back downward, while searching for the prey that may be concealed in the crevices of the bark. Its food-seeking employment is often varied in the early season by its perching on a small branch and warbling its song in a cheery and pleasing manner. At other times, it will alight upon the ground and feed upon the various species of insects that it finds there, and again it may be seen running along old logs and fallen brushwood, foraging for food, or seeking a nesting place, or material for its nest.

It arrives in this vicinity about the middle of May, and for a time it may be observed pursuing its various avocations, in company with many other small birds, along the fences and the borderings of the woods. As the season advances, it seems to prefer to glean more amongst the higher timber, though it is never very shy, or manifests much alarm at the approach of human kind, and when incubating, the female will remain upon the nest until she may be caught, or almost trodden upon before she flushes. When nesting or incubating, she remains very quiet, so that the nest might be within a few feet, and yet the person not be aware of the bird's existence; but as soon as the young begin to assume their nesting plumage, the old birds soon betray their nesting place by their noisy notes.

The nesting sites of this species are much similar to those of the Slate-colored Junco and Connecticut Warbler, being either in the root of a fallen tree, the side of a small bank, at the root of a bush, or some other partially covered spot, somewhat like that of the Oven-bird. The nest is generally formed of some fine materials, as dry leaves, bits of moss, fibres of bark, fine, dry grass, rootlets and different kinds of hair. The set of eggs numbers four or five; these are of a creamy-white hue, dotted around the larger end with a circle of pale reddish-brown spots. In size they average .63x.53 inches. The bird itself is about five inches in length. The plumage on the upper parts is black and white, in alternate specks. The lower parts are white, the tail is spotted and the wings are barred.

[B. S. O.]

THE CANADA GOOSE.

Branta canadensis.

BY WM. G. SMITH, LOVELAND, COLORADO.

Here, upon the plains of Larimer Co., Colorado, is the winter resort of great numbers of Canada Geese. Small lakes are here very numerous; and as this is a great wheat and corn growing section, which furnishes them with a fine feeding ground, great numbers stay here through the winter.

CANADA GOOSE.

I do not think the Canada Goose breeds anywhere in Colorado; but I have seen many in Wyoming Territory, about 200 miles north of here during the month of June, and have reason to believe that they were breeding there; but had no time to investigate.

They arrive here from the North early in October, and are then very fat and well feathered. The Hutchins' variety generally precedes them by a few days, but *they* do not stay here in any great numbers through the winter, but after lingering a few weeks, pass on to more southern latitudes. On their return journey north, they do not stay here, except to rest for a few hours.

During severe weather, when the thermometer registers in the tens below zero, the Geese will congregate on a large lake near my house and will by constant swimming about, with the assistance of thousands of Mallard Ducks (which also stay with us all winter), keep open several acres of water. At such times either the Geese or the Ducks will always be found at their post, as it is a matter of life or death to them then, the Geese go off to feed at early morning when the Ducks come home, and also in the evening, taking care to get home by dusk, as then the Ducks go out to feed, and don't come back until the peep-o'-day.

In the five years that I have resided here, I have never known them to fail to keep open a large piece of water, which, without their con-

stant attention would soon freeze over, and their only supply cut off, as the rivers as well as lakes are then closed up.

On this lake they are well protected and a shot-gun quarantine is rigidly kept up to keep off hunters; but numbers are killed while passing to and from their feeding ground.

[Mr. Smith writes that he is not familiar with the breeding habits of the Canada Goose and therefore cannot give a description of its nest and eggs. We have tried to get an authentic account of its nesting habits, but have failed to do so, but we will furnish a full account in next issue from a collector who is familiar with its nesting and has collected several sets of its eggs. ED.]

NOTES ON SOME OF THE WINTER BIRDS OF CHESTER COUNTY, PA.

BY W. L. MARIS, WEST CHESTER, PA.

One of the prettiest little birds, which braves the snow and rain of our ever-changing winters is the Chickadee, *Parus atricapillus*. Common as this bird is, yet how glad is the Oologist who has had the fortune to secure a set of its eggs himself, and how many are the weary although pleasant hours I have searched for them.

A few years ago, a row of evergreen trees, in a property adjacent to my home, were constantly occupied by a flock of Chickadees, and one would forget how cold it was, watching them playing with each other what seemed to be merry games. A beautiful set of six eggs of this bird, which I have in my collection average .60x.47 inches.

Among the foremost of our winter birds is the American Crow *Corvus americanus*, and a very noticeable one in our winter landscape. During the present winter, they have been very tame, often venturing within thirty feet of the house.

The Downy Woodpecker, *Dryobates pubescens* commonly called "Sap sucker," I often see pecking away at an old willow tree out in the yard. He is the dwarf of his family and may be distinguished by his size from all the other Woodpeckers in this locality. He is often disappointed as to his home, for frequently does an impudent House Wren, having watched the process of house making or rather excav-

ating, drive him away and take possession of the place in his own name; and I also was disappointed in a case of this kind. I had for several days been watching the excavation of a nest by a Downy Woodpecker, and had already imagined five or six beautiful white eggs lying snugly packed away in my collection, when one morning on visiting the nest, you may imagine my surprise and vexation at finding a plucky House Wren now occupying the home of my Downy Woodpecker.

The Owl line is represented in winter by the Long-eared Owl, the Great Horned Owl and the Little Screech Owl. Concerning the latter bird, a peculiar instance of its unwillingness to leave a spot which it has chosen for its home, returns to my mind. A pair of these birds have for at least four years had the same nest in the hollow of an old apple tree, and just as regularly as the female would lay a set of eggs, they were always taken by a person in the neighborhood. Does it not seem strange that a bird should continue to lay eggs in the same nest so many years, after having been continually robbed of its eggs? And it certainly must have been the same bird, for surely three or four different pairs would not select the same place in successive years for breeding purposes.

The Slate-colored Junco *Junco hyemalis*, is generally quite abundant during the winter. This little bird is a favorite with everyone, and deservedly so. We all enjoy its pleasant chatter and pleasing ways as it hops about in search of food.

The noisy English Sparrows, of whom we all know a great deal, are always with us. Several pairs annually build about our stable, and I destroy, on an average, seventy-five eggs a year from these nests. If all our Oologists do their part, we can certainly do something to prevent the rapid increase of this little pest.

Hawks are abundant, although perhaps not so much so as before our state legislators passed our famous "bounty law." During the two or three years of its existence, Pennsylvania paid as bounties for the slaughter of Hawks and Owls almost one hundred thousand dollars ($100,000.00), besides suffering untold injury from their destruction.

The White-breasted Nuthatch *Sitta carolinensis*, is another very interesting resident but, as in the case of the Chickadee, its nest is seldom found here. Last year one was discovered, but upon being opened it was found to contain but two eggs. It was in a tree along the border of the woods and was about twenty feet from the ground.

[B. S. O.]

EXTINCTION OF OUR BIRDS.

BY LE GRAND T. MEYER.

Like the once inpenetrable forests which bedecked our prairies, protecting us from the varying temperatures and securing an uniform rainfall; like the once well-stocked lakes and rivers with fish, now comparitively barren; like the once common mammals that swarmed the woods; so, likewise, is the time rapidly approaching when our present common birds will become rare or obsolete.

What is the cause of this extermination, you are ready to ask? Let me enumerate the artificial causes, taken from trustworthy observations and statistics.

First, the "Pot-Hunters." Those human fiends that from day to day tramp the happy feeding grounds of game birds. Let us take some of the common species which were once abundant and are now extinct in many localities, and see if my assertion or logic is defective.

The Pinnated Grouse and Quail (I might mention the Ruffed Grouse if it was not for its wonderful powers of flight), were once one of the most common game birds east of Mississippi River, now nearly extinct among the New England and Middle States. For a market supported by bloated epicures and sensualists, they have done their work thoroughly.

The multitudes of Geese and Ducks have become so reduced that hunting them as a pursuit has become unprofitable.

Where are the myriads of Pigeons, Wilson and Audubon give us such glowing accounts of, less than a century ago? With us even the old settlers remember flocks that would dim the sky for hours in passing; now we see a few straggling pairs paying pilgrimage to their ancestor's haunts.

Second, for Fashion. Those ladies (?) that from their ill-concealed vanity yearly sign the death warrants of millions of birds simply because they possess an attractive plumage. Recently, an item in an exchange read: "Lady Gemini appeared in the reception room with a dress decorated with patches of three thousand Brazilian Hummingbirds!" Not long ago I saw a woman in a cable-car wearing a hat with the heads of, by actual count, twenty-one Quails. Do you think

they were taken from those slaughtered for the market? Impossible.

One human resemblance, living near the sea-coast of South Carolina, supplied, for a New York milliner, three thousand Roseate Terns; so that locality, once resoundant with happy parental cries of this graceful "Sea Swallow," is silent.

Among the lagoons of the Southern States, hunters from day to day kill scores of the Great White Herons, the Spoonbills and the Ibises simply because they possess a few plumes. The loss of these species would be a truly national loss. Verily, they are doomed, from the plebian Sparrow to the graceful Swan.

Third, our Amateur Naturalists. Many of the present embryotic Ornithologists believe that in order to become Audubons or Bairds, they must slaughter indiscriminately every species met, and every nest must be robbed, under the transparent veil of science. A prominent Ornithologist in our state asks, in speaking of shooting Herons for their plumes, whether it makes any real difference whether they are shot in the fall migrations, or in their colonies or heronries with nests of eggs or young. Plainly the difference is too obvious to enumerate.

A true Ornithologist is a bird's best friend; his aim should be to perpetuate every species, destroying their enemies rather than fostering them. The inspection of a collector's cabinet resulted as follows: six hundred insectivorous and graminivorous skins, while only thirty-eight specimens represented the order Raptores. A fair sample of one's work.

Let us all then, during the approaching season, not show too much greediness, and above all do not make marks of every bird found, simply for the sport of killing them.

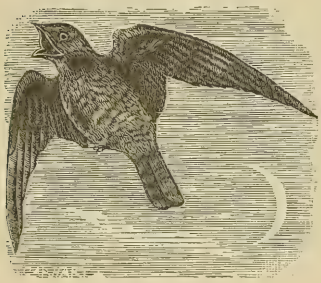
This law alone would save thousands every year.

THE NIGHTHAWK.

Chordeiles virginianus.

BY L. O. PINDAR, HICKMAN, KY., PRES. Y. O. A.

The Nighthawk, almost universally called "Bullbat" and sometimes "Whip-poor-will" and "Goatsucker," is a common migrant here in Kentucky, arriving early in May and September.



NIGHTHAWK.

In the spring migrations, usually three or four are seen some evening about seven o'clock; two or three days later more are seen, and as a rule, it is a week before they become common. Then they commence to leave, getting scarcer every night, till all are gone.

In the fall it is different. They generally arrive in a body, earlier in the day, and they go on through. There is no "stop for refreshments." Only a few laggards are seen for a day or two following, and then all are gone.

One fall, I think it was in 1887, two large flocks, containing together at least three hundred individuals, made their appearance about four o'clock in the afternoon of a rainy, disagreeable day. They kept in a rather compact body, and moved steadily southward, only occasionally would one make a clash to one side and immediately return to the ranks. In half an hour, yes! in twenty minutes, they had passed out of sight. One was seen the next day, flying about in a desultory way; but he too disappeared and no more were seen till the next spring.

People outside of Ornithological circles seem to know nothing of the habits of this bird (we Ornithologists don't know much.) The name "Goatsucker" alludes to a superstition implied in the name. And those who call it "Whip-poor-will" confound it with another bird, of widely different appearance when closely examined. The name "hawk" is a misnomer (I told a boy the "Bullbat" was a Nighthawk, and he wanted to know if it would kill chickens.)

It was probably so named from a certain resemblance in flight to several of our hawks with long and pointed wings. And this reminds me of the fact that I have seen the Nighthawk and the Sparrow Hawk fly for a short distance by flapping the wings alternately. I have never seen this mode of flying practiced by any other bird and have never seen a note of the habit in any of our Ornithological publications.

Dr. Coues aptly describes the bird when he calls it a "winged greyhound." One of the most remarkable habits of this interesting bird is its soaring aloft in the mating season, and dashing to the ground, making at the same time a peculiar, hollow, "booming noise," which can not easily be described.

The manner in which this sound is produced has never been satisfactorily explained. Some think it is produced by the "sudden expansion of the mouth while passing through the air"; others claim just as strongly that it is made by the wings. I have formed no opinion yet, and it is not probable that we shall soon discover the solution of the puzzle. There are good reasons given for accepting either of the above theories.

The Nighthawk builds no nest as a rule. In fact, the few twigs or leaves occasionally found can scarcely be said to constitute a nest. The eggs are generally laid on the bare ground, sometimes on a sandbar, on the surface of a flat rock, or even on the roofs of the houses in a city.

I have heard and read stories of the Nighthawk carrying their eggs, and even young, from one place to another, when their nesting or rather hatching place had been discovered. Other birds, the Woodcock, *Philohela minor* for instance, have the same habit, and it is a well known fact that the Wood or Summer Duck, *Aix sponsa* carry their offspring from the nest, often twenty or thirty feet high, to the water's edge.

The eggs of this bird are two in number, and are among the most variable in color. The ground color varies from creamy-white to a stony-gray tint, and they are spotted, blotched, lined and fretted in every conceivable way with different shades of gray, brown, stone color, slate and lilac; probably no two eggs being exactly the same.

Unlike the Whip-poor-will, the Nighthawk does not prefer thick woods and wet places, choosing rather open, dry sites, with plenty of sunlight, which no doubt helps to hatch the eggs when the parent birds are off the nest.

The Nighthawk is by no means a nocturnal bird, being often seen hours before twilight and sometimes even in the glare of noontide.

It is much persecuted at times by sportsmen, its winding, twisting and rapid flight affording excellent practice in wing-shooting.

Altogether, the Nighthawk is one of the most interesting and remarkable birds we have, and a careful investigation of its habits will amply repay any observer, besides affording him the chance of being able to solve the mystery of the curious notes above mentioned.

THE NASHVILLE WARBLER.

Helminthophila ruficapilla.

BY WM. L. KELLS, LISTOWEL, ONT., CANADA.

The life-history of this bird is yet, to a great extent, wrapped in obscurity. Sometimes it is numerous in the spring migration; again it is comparatively rare. It can only yet be regarded as a migrant in the south and central parts of Ontario, as no certain record has yet been made of its nesting, or making its summer home in this localty; though it is very probable that more of this genus of birds may remain during the summer, and nest in the deep, swampy woods of this Province, than is now generally known.

In my early days, while rambling in the forest, or at work in the woods in the summer time, I have seen nests of little birds, never since discovered by me, and almost every year since I began to form my Oological collection, I have taken one or more nests of Warblers previously unknown to me, and as I occasionally catch glimpses of others in my hunting excursions in the summer season, I am led to believe, that as time progresses and more attention is given to the subject, more nests of these birds will be discovered and described by our rising Ornithologists, and among others that of the Nashville Warbler. This is the more probable in the case of this species, from the fact that its general habitat is in deep, swampy places, where few persons interested in Ornithology care to penetrate, and also from the fact that specimens of this species are occasionally observed on the margins of swampy woods, in the summer season.

It is said that this species nests upon the ground in the moss that grows in damp places, and to form the same with dry leaves, fibres of bark, pine needles, fine, dry grass and hay. The eggs, four or five, are white, speckled with lilac or reddish-brown.

This is one of those wanderers of the Mississippi Valley which appear to enter Ontario from the south-west. It is between four and five inches in length, and on the upper parts the plumage is of an olive-green, brighter on the rump; but ashy on the head. Below it is bright yellow, paler towards the lower parts, with olive shading on the sides. Crown with a chestnut patch, and pale ring round the eyes.

SEA BIRDS AND THEIR EGGS.

BY WALTER RAINE, TORONTO, CANADA.

One of the famous breeding places for Sea Birds in the British Isles is Flamborough Head in Yorkshire; and as many species found there also inhabit the Eastern Coast of North America, perhaps the following notes will be of interest to Ornithologists:

From Flamborough Head to Speeton, a distance of five miles, extend the famous chalk cliffs of Bempton, ranging from three hundred to over five hundred feet in height. It is on these cliffs that thousands of Sea Birds resort annually to lay their eggs and hatch their young.

Presuming that it is about the middle of June, we will take train from the fashionable seaport town of Bridlington, and after a ten mile ride we reach Bempton, that we may see the climbers at work. They are the farmers of the district who go about in gangs of three and four, one to do the climbing and the others to haul him up again. Each gang has its certain range of cliffs to climb, and the owners of the fields that border the cliffs receive a quantity of eggs as payment.

As we approach, we see a group of four men near the cliff top preparing their ropes. First they drive an iron bar into the ground a few feet from the edge of the cliff; to this they fasten the hand rope. With this rope the climber steers himself, signals and holds on to with his hands. He takes hold of this rope and walks to the edge of the cliff, where he drives another iron bar into the ground. This bar has

a pulley attached to the top, and over this pulley a rope runs which is fastened to a pair of strong leather knee breeches. The climber gets into the breeches; fastens them around his waist by means of straps; puts on an old plug hat padded with handkerchiefs to prevent falling stones from hurting his head; slings over his shoulder two bags (one of the bags has a small pocket for the more delicate and rare eggs) and is ready for the descent.

When all is ready the climber proceeds to and over the edge of the cliff, and steadily disappears from view. The climber always faces the cliff whether ascending or descending. The man nearest the pulley has a broad leather belt round his waist, and he lets the rope go once around his body, the men behind lowering away gently. This goes on for a few minutes till a signal from the hand rope denotes that they are to stop lowering, meaning that the climber has got to a ledge which contains eggs.

The ledges vary from four inches to one foot in width. When the climber reaches one of these ledges which contain eggs, he commences filling his bags with eggs.

The birds leave their nests and eggs on the climber's approach, screeching all the time and flying around. The Puffin is the only bird who stays in his hole, and the climber has to seize him and drag him out before he can secure the single egg, and he often gets his finger bitten, for the Puffin has a powerful beak and from this fact it is called Sea Parrot in this district.

The climber has been down over twenty minutes, when he signals to be drawn up and in a few minutes his head appears above the edge of the cliff and he is soon on *terra firma* again. He at once empties his bags, and has secured over fifty eggs, chiefly Razorbills, Guillemots and Puffins. Some of the eggs are very fine specimens and we select a few for which we have to pay from four to six cents each. The better marked eggs are sorted out and the ordinary ones are put in a separate basket and are afterwards sent to Bridlington where they are sold to be eaten. I have found them very good eating.

The climbers now move farther on and having fixed their ropes and bars, another man goes down, causing many Kittiwake Gulls to fly away screaming loudly. He soon reaches their nests, which are made of seaweed, built in a ledge of the cliff, and contain two or three eggs each, which vary considerably. After a while he is drawn up and as his head appears above the edge of the cliff, he calls

out to his companions, "some Falcons' eggs," and carefully unpacking his bags, there in the small pocket, he exposes to our view four splendid eggs of the Peregrine Falcon, which I afterwards purchased.

He describes the nest as resting in a ledge of the cliff, made of sticks and seaweed; lined with grass and sea birds' feathers. The clutch of four eggs were very handsome, of a light pinky brown ground color; mottled and blotched with various shades of dark brown. In the large pocket he has some fine clutches of Kittiwake, Herring and Lesser Black-backed Gulls, with a few Guillemots, Razorbills and Puffins.

Moving on a little farther, the ropes and bars are again fixed and the man who made the first descent again is lowered, and after a short time appears as before with his bag well filled. This time he unpacks his bag it contains eggs of the Cormorant, Guillemot and others as before, and in the small pocket he has eggs of the Jackdaw and Kestril Hawk. The latter makes a nest of sticks and grass on a ledge of the cliff, and lays four or five eggs of light red ground color; mottled and blotched with rich, dark brown.

The Jackdaw makes a similar nest; but its eggs are of a pale bluish-white, well spotted with ashy, light and dark brown. The Raven formerly nested on these cliffs; but is now seldom seen in this locality.

The climbers are still at work, and by lying on our stomachs and carefully crawling to the edge of the cliff, we can see a number of nests of the Kittiwake Gull, built on the ledges below. Most of them contain two eggs; but some have three, whilst one nest contained two young birds, a few days old.

The Guillemots' and Razorbills' eggs are laid on the ledges of bare rock (some of which are only a few inches wide), and it seems a marvel that the eggs are not blown off; but the reason is this, that the eggs are placed with the thick end to the cliff, and instead of rolling off they revolve around, the narrow end of the egg acting as a point.

The largest number of eggs taken in one haul is about one hundred, chiefly Guillemots and Razorbills. There have been a few serious accidents to the climbers during the past few years; two having arms and legs broken, and one has been killed outright.

When the climbers consider they have done a good mornings work, they sort out all the rarest and best eggs, which are sold to collectors

and dealers, and the common varieties of Guillemot and Razorbill are sent away in large quantities, from two to five hundred at a time. These are sold in the fish shops of large towns for eating, and are considered a delicacy.

The species found nesting in this district are the Skout or Common Guillemot, Ringed Guillemot, Razor-bill Auk, Puffin, Cormorant, Kittiwake and Herring Gulls, Peregrine Falcon, Kestril Hawk, Jackdaw and a few smaller species.

The eggs of the Guillemot probably differ more than those of any other species in color. I have one hundred varieties in my collection, all different; some are quite white, while others have a yellowish-buff or green ground; blotched, spotted and streaked with brown and black.

The eggs of the Razorbill also differ very much in size, color and markings, and are easily distinguished from those of the Guillemot. They are smaller in size and are less elongate. The ground color is whitish, tinged with buff, and is never green like those of the Guillemot; but like the eggs of that bird are blotched and spotted with brown and black. The eggs of the Ringed or Bridled Guillemot are like those of the common species.

The Puffin lays its single egg at the far end of a hole, from one to four feet deep. The egg is pure white when first laid; but soon becomes soiled and turns to a yellowish white. Some Puffins' eggs are spotted and freckled with brown and gray, chiefly at the larger end.

The Kittiwake Gull is a beautiful bird and lays from two to three eggs; sometimes four are laid, but very seldom, two being the usual number. Some eggs have a stone-colored ground, others are an olive shade and still others a bluish gray ground. All are well spotted and blotched with ashy-gray, lilac and various shades of brown.

The Common Cormorant makes a nest of large sticks and seaweed, and lays from four to six eggs, covered with a white, chalky incrustation, which on being scraped off with a knife, leaves a shell of a pale bluish-green. The Cormorant is becoming scarce in this district.

The Herring Gull makes a large nest of seaweed and lays two or three large eggs, which vary greatly in coloring, from a warm stone color, through shades of brown, to pale and light olive-green and are spotted with brown, black and gray.

We now think it is time to leave the cliff tops, and packing our

eggs we walk along to Flamborough Head. On our way we startle several Wheatears from rabbit burrows, and find three nests made of feathers and rabbits' fur, built from one to two feet inside the burrow, and containing five or six eggs each, of a pale blue color, like those of the Bluebird. We also startle a Meadow Pipit or Titlark from its nest of four eggs (dusky-brown, freckled with dark brown), built on the ground.

After visiting the Light House at Flamborough Head, and the wonderful caverns, we return home much pleased with our visit to the home of the "Sea Birds."

THE COMMON OR SORA RAIL.

Porzana carolina.

BY C. C. MAXFIELD, WILLARD, N. Y.

This Rail is very little known on account of its skulking habits; it being very difficult to get one to rise from the ground. Another reason, that may be cited, is that they choose as a home and nesting place, a low, swampy swale; which, in nearly all cases, is partially or entirely covered with water, and thick undergrowth is so interlaced as to make it very difficult to move about in search of them.

The bird itself is small: length, about 8 1-8 inches; wing, 4 2-32 inches; tail, about 2 inches; bill, from 1-2 to 2-3 inches and the tarsus slightly over 1 inch. The upper parts are greenish-brown, with numerous black and white streaks and specks; belly, whitish; throat, light slate color; bill, light yellow, and legs and feet light green.

My first specimen was taken very late in the Autumn of 1883, while hunting ducks on Ox Creek, Oswego Co. Owing to the lateness of the season, I was much surprised to take this one; but after securing the specimen, the absence of the left wing fully explained matters. The feathers of the left side lay smoothly, and at a short distance the loss of the wing could not be noticed. About a half-inch of the humerous still remained covered by skin, but no feathers. On dissection, the bone appeared cracked and broken at the end.

Another specimen, and a set of ten eggs were taken on Memorial Day, 1884, in Onondaga Co., in a swale a few rods from the Oswego River, about seven miles from where the first specimen was taken.

A pair of the birds were followed for about two hours, by two companions and myself, in water nearly waist deep. After being thoroughly wet through and very cold, one of the pair was secured—the female. On dissection, a fully matured egg was found in the oviduct.

Later in the day, the set of ten eggs were taken at the edge of the same swale. The nest was built in the top of a bunch of swale-grass, of dead and dry grasses found in and near the swale, and was very shallow; about 5 1-2 inches in diameter, and rather rudely constructed. Incubation of eggs varied much, being from fresh to badly addled.

The five eggs of the set, which I have in my collection, measure respectively: 1.32x.84; 1.26x.90; 1.29x.87; 1.35x.84; 1.38x.90. In color they are a light creamy-brown, dotted by blotches of two shades of darker brown: the lighter shade of the blotches being hardly distinguishable from the ground color.

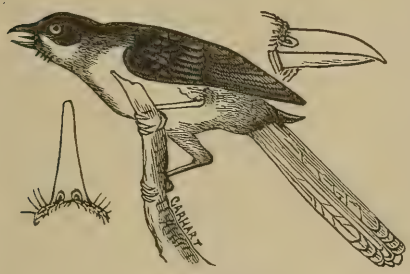
Mr. E. G. Taber, at Meridian, N. Y., reports in the *Ornithologist and Oologist* of Boston, Mass. the taking of a set of seventeen eggs of this species. I have never taken but the one set of ten, mentioned above, but no doubt the set number varies and no positive information can be given.

THE MOCKINGBIRD.

Mimus polyglottos.

BY J. A. SINGLEY, GIDDINGS, TEXAS.

This prince among the feathered songsters is very commonly dressed; upper parts ashy gray; lower parts soiled white. The wings are dark with a large white space on the primaries; length, about 10 inches; extent, about 14 inches. During the winter, the "Mocker" will be found mostly in the bottoms, where they feed on the various berries found there. A few remain in their summer quarters. A red cedar tree in my yard is the bedroom of one jaunty fellow, he roosting with the chickens. The "Mocker" is rather an overbearing kind of a fellow. I have never seen him attack other birds; but he takes especial delight in alighting on a limb where some bird of another species may be resting, and crowding up to it (exactly as a "bully" among the genus "Homo" may often be seen to do) he will make it take to flight, when he follows after, until the other bird leaves in disgust.



MOCKINGBIRD.

During the winter, *Mimus* warbles only his own ditty (not an elaborate performance); but when the breeding season arrives everything is changed. Then he is so full of music that he don't lose a moment. I have whiled away many an hour, watching "my" bird, as I call the one that nests at my door. He will fly on the housetop and deliver a few notes, then to an outbuilding, singing as he flies, then perhaps to the woods, and you hardly miss him until he is back again to the tree where his wife is incubating. Alighting on one of the lower limbs, he rises, half flying, half hopping, until the top of the tree is reached, then flying straight up five or ten feet and fluttering back again. All this time he is singing the notes of every bird he ever heard. Sometimes, to vary his tune, he'll imitate the mewing

of a cat; again he'll set the old hen crazy by imitating the cry of a chick in distress. It is a puzzle to me when he eats, as this is kept up all day. Sometimes he sings until midnight, and occasionally all night long. Like most birds, the female does all the work of nest-building, the male making the noise; but after the family comes he is a model husband, and very little music does he indulge in until the little ones are able to take care of themselves.

The Mockingbird is not very particular as to a nesting site. He is a social fellow and generally builds close to some residence, that is, in the country. The only exception to this rule being the nests found on the prairies. They never build in the woods remote from dwellings, neither do they build close to a deserted dwelling.

The nest is a bulky structure, the ground work being a platform of good sized twigs. On this, the nest proper is built, out of weeds, small twigs and grasses; lined with fine, brown rootlets. The nests are found in almost every position; sometimes in a small bush not more than six or eight inches above the ground; sometimes in trees fifty feet up; then again in brush piles, or on the corners of a rail fence, and I even found a nest in a hollow stub from which I had once taken a set of eggs of the Texan Screech Owl.

The number of eggs in a set is generally four or five. Sets of three and six are also found, but not often. The eggs vary a great deal in size and markings. The typical egg is of a pale greenish-blue, mottled with spots, specks and blotches of yellowish and dark brown, and lilac or purplish shell markings. These markings and spots are often confluent at the larger end, forming a wreath. Some eggs are entirely covered with brown at the larger end, and again others are found where the pale brown is distributed over the whole egg in light and darker shades; entirely concealing the ground color. The handsomest eggs, I find, however, are of a bright greenish-blue, plentifully speckled with chocolate brown and the purplish shell markings. A correspondent to whom I sent a set of eggs of the last variety wrote me: "I did not think that the Mockingbird laid such beautiful eggs." Average size of eggs, .97x.74 inches.

I've given a long account of the "Mocker" for two reasons; *i. e.* because he deserves it, and also for the reason that several articles lately appearing in various magazines are simply caricatures of the bird and its habits, and were probably written by persons who have had little opportunity to study the bird in its uncaged state.

[B. S. O.]

THE BELL'S VIREO.

Vireo bellii.

BY LYNDS JONES, GRINNELL, IOWA.

At Grinnell, Iowa, Bell's Vireo usually arrives during the second week in May. His favorite resort is the underbrush, whence his characteristic song issues from spring to autumn. Any attempt at a description of this song would be futile. It is not rich and flowing like that of the Warbling Vireo, nor short and broken like that of the Red-eye; but is a steady breath with many inflections and accents, and always ends with a flourish and rising inflection, suggesting inquiry.

Often when in close proximity to the nest, though ignorant of its exact position, I have watched the birds as they scolded severely. Then, while the female continued this protest, the male would suddenly cease and take up his song, apparently at a distance, while he sat as if a part of the branch on which he was perched. I very soon learned his trick and watched him as he practiced ventriloquism on me.

Bell's Vireo is a very sociable liitle fellow. He never retires to the secluded woods to build his nest; but chooses some roadside or by-path where he sets up housekeeping. Building usually begins late in May, and the eggs are laid during the first week of June. The nest is lashed to the slender twigs of some tree or bush, preferably the hazel bush here, and is seldom more than five feet from the ground. It is not as neatly woven and compactly built as nests of Red-eye and Yellow-throat, nor is it as artistically finished as theirs; but is usually quite long and made of some grayish or drab colored material externally, quite often stuccoed with cobweb and hickory blossoms. Inside this covering may be found cottony or woolly substances, and lastly a lining of brownish colored bark-fibres and a few horse-hairs.

From what has been said above of the nesting sites, one might infer that the nest is easily found. Experience tells a different story. Small and of modest tint, it is not easily recognized amongst the woody stems and green foliage. I have often searched hours for a single nest and failed to find it.

The eggs, three or four in number, are a delicate white when fresh, spotted and dotted, never blotched, with several shades of brown,

thickest near the large end; but seldom inclined to form a wreath. I have taken sets in which there was one pure white egg. The eggs measure .65x.58 to .70x56.

THE BIRDS OF SOUTHEAST TEXAS.

PAPER No. 1.

BY JAS. H. RACHFORD, BEAUMONT, TEXAS.

Every year hundreds of people go to Florida to collect birds and birds' eggs, while Texas, with its birds, is as yet almost unmolested. Yet a wider and more diversified field nowhere in the United States presents itself to the collector than here in Texas. As yet we know little of the birds in this State. Every year some new bird is found here which is represented in scientific books as being only the inhabitant of Florida or some other particular locality; as for example, the Florida Barred Owl and Florida Crow are said to be strictly local species of Florida, yet they both are abundant, and the most common birds of their kind in South-east Texas. Thinking that perhaps a detailed description of the birds here will be instrumental in causing some one to become interested in the study of our birds, the writer will try to describe some of them, and tell something of their habits, and the times when they may be found among us.

During the months of February and March, thousands of little winged journeymen stop to rest among us, and wait for the bright, sunshiny days of spring to chase away the cold of winter before they venture further north, where they make their summer home. These are known as the American Robin, and can be known as having their upper parts of slate color, with a shade of olive; a black head; eyelids and spot over the eye white; eyes dark brown; bill yellow, often with a dusky tip; the throat streaked with white, and the under parts chestnut. This bird usually goes to the Northern States to nest, building its nest, which is composed largely of mud, upon the horizontal bough of a tree, depositing from four to six eggs; size, about 1.18x.80 inches, of a uniform greenish-blue color.

The next bird, which shall claim our attention, is the Mockingbird,

called by ornithologists, *Mimus polyglottos*, meaning the many-tongued mimic. This bird needs no introduction, and we shall describe it but slightly, and try to bring out some of the points whereby the male or singing bird can be distinguished from the female. The upper parts of the adult male bird are ashy-gray; lower parts soiled white; wings blackish-brown, and the primaries, with the exception of the first, marked with a large white space, restricted on the outer quills usually to half or less of these feathers, but occupying nearly all of the inner quills. The female bird is similar to the male, but the color is less clear and pure; above rather brownish than grayish-ash; below, sometimes quite brownish-white, at least on the breast. In general, the clearer and purer are the color and the more white there is in the tail and wing, the more likely is the bird to be a male and prove a good singer. Usually, the female is smaller than the male. This bird lays a greenish-blue egg, spotted with brown, and builds its nest of twigs anywhere in trees or bushes.

Hopping around amongst the low undergrowth in the darkest portions of our woods, will be seen flitting hither and thither a brown bird about the size of the "Mocker," and one which almost rivals the "Mocker" with his song. This bird is known as the Brown Thrasher, more commonly called Brown Thrush and by some the "French Mockingbird." Its upper parts are uniform rich rust-red, with a bronze tinge; tail same color as back; under parts white, more or less strongly tinged, especially upon the breast and flanks, with tawny or pale cinnamon-brown, and throat immaculate, marked with a necklace of spots. This bird builds in low bushes or clusters of bushes, and builds a bulky nest of twigs, sticks and bits of bark and fibrous roots; lined with horse hair and a few feathers.

Flitting here and there from one tree to another and clinging upon the smallest branches of the trees, will be seen the Black-capped Chickadee, a small bird with the crown of its head, and its chin and throat black, separated by white on side of the head; its upper parts brownish-ash, and under parts more or less pure white or whitish. This little fellow builds its nest in hollow logs. The nest is composed of a soft mass of hair and fur, downy feathers and fine dry grasses.

[The above is the first of a series of some fifteen or twenty papers by Jas. H. Rachford of Beaumont, Texas, which are now being published in two Texas paper, one in Beaumont and the other in Houston. Mr. Rachford has kindly offered us the privilege of republishing

these papers, and they will appear in future issues of the O. & O. SEMI-ANNUAL. The object of these papers is to awaken an interest in Ornithology and Oology in Texas, and as they will contain a list of all the birds which pass through Texas as well as those that remain there, giving a brief description of each, their habits, etc., they will be of considerable interest to our readers, especially those residing in Texas. After the completion of the papers, Mr. Rachford proposes to publish them in pamphlet form. We will furnish our readers with copies as low, if not lower than they can be procured elsewhere. ED.]

BRAINS OF BIRDS.

Mr. Park has kept a complete record of the weight of the brains of the birds mounted by him, and of the principal parts of the brain and the eyes. The following table shows approximately the relative weight of the brains of birds to the entire weight of the birds of the families found in the vicinity of Troy:

NAME OF FAMILY.	WEIGHT OF BRAIN.		WEIGHT OF BIRD.
Grebes,	1	to	230
Gulls,	1	to	155
Terns,	1	to	72
Petrels,	1	to	78
Ducks,	1	to	165
Bitterns and Herons,	1	to	138
Coots,	1	to	167
Phalaropes,	1	to	61
Snipes and Sandpipers,	1	to	75
Plover,	1	to	67
Grouse and Partridges, (including Prairie Hens)	1	to	240
Hawks,	1	to	86
Owls,	1	to	56
Cuckoos,	1	to	59
Kingfishers,	1	to	77
Woodpeckers,	1	to	34
Hummingbirds,	1	to	30

Flycatchers,	1	to	43
Larks,	1	to	43
Jays, (Canada)	1	to	30
Crows,	1	to	63
Blackbirds and Orioles,	1	to	35
Finches and Sparrows,	1	to	29
European Sparrows,	1	to	31
Swallows,	1	to	37
Waxwings,	1	to	39
Shrikes,	1	to	32
Vireos,	1	to	26
Wood Warblers,	1	to	27
Thrashers,	1	to	35
Wrens,	1	to	23
Brown Creepers,	1	to	26
Nuthatches,	1	to	25
Kinglets,	1	to	27
Thrushes,	1	to	39
Domestic Fowls,	1	to	527

BRAINS AND BODIES.

In referring to the figures given in the above table, Mr. Park said: "The flycatchers, hawks and owls have very large eyes, and in some cases one eye weighs as much as the whole brain. Owls are remarkable for having the cerebrum larger in proportion to the whole brain than most other birds, and the flycatcher is noted for having the optic lobes of the brain more largely developed than other species. Ducks and gulls have a medium-sized brain. The grouse and partridge have the smallest brain in proportion of any of the birds in this vicinity. The domestic fowl has an insignificant brain in comparison to the weight of its body, the brain weighing only about one-five-hundredth part of the body, while a sparrow's brain weighs about one-thirtieth of the total weight of the bird."

[The above is a part of an article which appeared in the *Troy Times* on Austin F. Park's collection of mounted birds, and was sent in by Mr. H. C. Campbell of Lansingburgh, N. Y. Mr. Campbell states in connection to the above that Mr. Park has three specimens in his collection captured in his locality which are very rare; namely, Com. European Crake, Swallow tailed Kite and Kumlien's Gull. The latter is the only recorded specimen taken in this state (N. Y.)

ED.]

TEN PRIZE QUESTIONS.

The following ten questions are original with Mr. H. C. Campbell of Lansingburgh, N. Y., who offers a prize of one fine egg of the European Swan to the person answering the most of the questions.

We will offer a free copy of this and the next number of the SEMI-ANNUAL to the person answering the second largest number. If the two persons sending the most right answers send the same number, the first prize goes to the one whose list was received first and the second prize goes to the other person of course. The answer to each question is the name of some American bird.

1. What some people call taking birds' eggs.
2. What a bully sometimes is.
3. What a prima donna generally is.
4. What women like to do.
5. What one of the clusters of stars is called.
6. What a gaping countryman is often called.
7. The condition in which a mad-man sometimes gets.
8. What the boys go out for.
9. What one of the principals in grinding an axe is called.
10. What a mean boy is sometimes called.

All those wishing to try for the prize will please send in their list of answers to Mr. Campbell as soon as possible before Feb. 1st, '89, and prizes will be forwarded to the winners about the 10th of same month. A list of the right answers and also a list of competitors will be published in the July issue of the SEMI-ANNUAL.

[ED.]

EDITORIAL.

If this number of the SEMI-ANNUAL meets with the success we expect it to, the next number will be greatly improved and enlarged, and will contain much more original matter from prominent Ornithologists and Oologists.

The July issue will contain a frontispiece, an engraving of some eminent Ornithologist and Oologist if possible, together with a sketch of his life. We hope to make arrangements whereby we can illustrate our work with a few full page engravings of birds and their nests. An

unlimited number of small bird cuts will be scattered through the text.

We desire to say that we will at once set to work on the July number, and will be pleased to receive MSS., exchange notices and advertisements at any time after Feb. 1st, '89. We hope you will all contribute something, as every little helps to make the work interesting, the more contributors the better the book.

* * *

We ask you all as a personal favor to read every advertisement in our publication. You will certainly profit by so doing. We have had dealings with all our advertisers, and have found them honest and reliable in all their dealings with us. We can recommend them all to you. When answering "ads" please remember to always mention where you saw the "ad." You will help us greatly by following this little item.

PUBLISHER'S NOTES.

The *Hoosier Naturalist*, Messrs. R. B. Trouslot & Co. of Valparaiso, Ind., publishers, will in the future be issued monthly instead of bi-monthly from Kansas City, Mo. The publishers soon expect to make it an eight page monthly—now a four page.

The *Oologists' Exchange*, a four page monthly for young collectors, is now under the management of Messrs. Dickinson & Durkee of Sharon, Wis.

The *Old Curiosity Shop* comes floating in, this time from Riverside, Cal. With Mr. Haight as editor and proprietor, it will undoubtedly be a success. A journal devoted to Philately, Numismatics, Natural History, Antiquities and Bric-a-brac.

A new magazine for all persons belonging to the Agassiz Association is *The Scientist*, published by Mr. I. C. Greene, for Chapter 48, A. A., Fitchburg, Mass. An eight page monthly of fine appearance and contents.

The *Ornithologist & Oologist* of Boston, Mass., comes regularly and is without doubt the best of its class. The March number contained a cut of the nest of the Parula Warbler, described by Mr. Wm. Brewster. Two continued articles are now running in it, one on the "Birds of Colorado" by Chas. F. Morrison, and the other "Notes on Nebraska Birds" by Messrs. Taylor and Vanvleet.

EXCHANGES AND WANTS.

"Exchange" and "Want" notices will be inserted in this department for 25c. an insertion, regardless of length. We will insert no notices, which are merely indirect methods of soliciting cash purchasers.

Terms, Cash with order.

☞Every person, buying a copy of this issue of the O. & O. SEMI-ANNUAL, will be entitled to a free notice in the next issue, which will be out of press about the 1st of July.

The face part of a human skull, found in the Hudson valley and supposed to be that of an Indian, to exchange for either of the following sets: 286 1-4, 402 1-4, 432 1-4, 436 1-3, 439 1-4, 486 1-3 558 1-3, 567 1-3, 566 1-3, 480 1-18 480a 1-10, 480b 1-12, 482 1-12, 569 1-10, 572 1-10. H. C. Campbell, Lansingburgh, Rens. Co. N. Y.

A set of two Australian Black Swan's eggs for either of the following sets with data: 405 -3, 434 1-2, 448 1-2, 452 1-2, 639 1-2, 736 1-2, 423 1-2. Also a Norwegian Swan's egg for either of the following sets: 338 1-2, 340 1-2 or 341 1-2. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

English eggs to exchange for American. Send exchange and want list. Wm. H. S. Rayment, Lewiston, N. Y.

Look out for my exchange notice here next issue. H. W. Davis, North Granville, N. Y.

Will exchange the following first-class single eggs for $7 worth of first-class eggs in sets with data: 11, 51, 56, 115, 149, 154, 155, 181, 274, 277, 270, 279, 301, 351, 357, 242, 289, 480, 279, 149, 482, 490, 491, 492, 493, 495, 580, 649, 642, 656, 282b, 571, 686, 385, 735, 430, 431, 394, 420, 557, 666, 666a and 763. Water birds' eggs preferred. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

Wanted.—First-class, side-blown, Birds' Eggs, in original sets, with data. In exchange I offer the following: 130 varieties of side-blown birds' eggs, hunting knife with belt, 22 cal., 7 shot, double-action revolver, stylographic pen, receipt for embalming birds and complete vol. of Youths' Companion. Correspondence solicited. D. H. Van Pelt, Lansingburgh, Rens. Co.. N. Y.

I will give a set of Am. Flamingo 1-2, with data, for a set of Royal Tern 1-2; Cabot's Tern 1-2; Sooty Tern 1-1 and Least Tern 1-3 or Black Tern 1-3 and Forster's Tern 1-3. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

To exchange.—The following eggs in sets, with data: 181, 1, 22, 12 also bird skins and mounted birds for birds in the meat. Only fine specimens wanted. E. B. Peck, Brockport, N. Y. Box 845.

To exchange.—First-class eggs Nos. 7, 12, 13, 22, 63, 152, 157, 181, 204, 211, 231, 261, 277, 289, 304, 460, 494, 578, 649, 686, 688, and data blanks sold by dealers at 30c. per 100, for eggs and papers and magazines devoted to Birds and Eggs. Write first. Marshall Cousins, 522 Union St., Eau Claire, Wisconsin.

To exchange.—Nos. 13, 51, 135, 154, 155, 157, 197, 211, 214, 244, 248, 261, 326, 388, 460, 477, 494, 656, 723 and (303, 420, 490, 493 from a Florida collector.) C. O. Trowbridge, Framingham, Mass.

First-class eggs, single and in sets, to exchange for the same. Chas. E. Cram, Davenport, Iowa.

I have the following to exchange for sets of eggs: a large book on Natural History of 800 pages and containing 60 colored plates; 2 brand, new books, Gulliver's Travels and Tom Brown's Schooldays and a pair of Roller Skates. Will N Colton, Biddeford, Me.

Will give a single egg of Trumpeter Swan for Sandhill Crane ½ and Am. Quail 1-12; or Anna's Hummingbird ½ and Allen's Hummingbird ½. H. C. Campbell, Lansingburgh, Rens. Co., N. Y.

For exchange.—Little Model Printing Press and Outfit, Magic Lantern and 42 Views, 3 unbound vols. "Youth's Companion," U. S. Document Stamps, Natural History and Stamp Papers, for Bird's Eggs, Skins, Taxidermist's Instruments or Supplies. Frank L. Burns, Berwyn, Pa.

I want nice sets of Osprey, Bartram's Sandpiper, Am. Bittern, Hooded Sheldrake, Am. Widgeon, Swallow-tailed Kite, Sooty and Noddy Terns, Hummingbirds and nests. Rare Warblers with nests, Barred Owl, Great Horned Owl, Pigeon Hawk, Bobwhite, Wilson's Snipe and some of the commoner species. I can offer in exchange rare Gulls, Geese, Ducks, Plovers, Owls, etc. from Iceland, Lapland and other Arctic regions. W. Raine, 6 Walton St., Toronto, Canada.

Look for my exchange notice here next issue. H. W. Davis, North Granville, N.Y.

Birds' eggs, skins, insects and sea curios, to exchange for first-class eggs in sets, and books and back numbers of papers on Ornithology and Oology. Send your list and receive mine in return. R. C. McGregor, 1019 Geary St., San Francisco, Cal.

Minerals, Ores, Rare Books, Coins, Fossils, Stamps, Shells, Indian Relics and Precious Stones, to exchange for Mounted Birds, and eggs in sets and single. Correspondence solicited. W. L. McDaniel, Tyler, Texas. Box 385.

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CONTENTS.

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PAGE 10.

THE BLUE JAY, *Cyanocitta cristata.*

(FROM A PAINTING BY W. H. FOOTE.)

—THE—

ORNITHOLOGISTS' * AND * OOLOGISTS'

SEMI-ANNUAL.

VOL. I. JULY, 1889. NO. 2.

A TRIP TO THOMPSON'S LAKE.

BY DR. W. S. STRODE, BERNADOTTE, ILL.

FOR many years it has been my custom to make hunting trips to Thompson's Lake, on the Illinois River. These excursions were usually made during the fall or spring, for the purpose of duck shooting.

In the spring of '87, I had concluded to change the programme and postpone my visit to this region till about the 10th of June, then to make a collecting instead of a shooting expedition.

At four o'clock, on the morning of the above date, accompanied by two companions (Green and Herriford) a start was made for this lake—distant sixteen miles as the crow flies. These individuals were not collectors; but volunteered to accompany me, just to "have a good time and see the fun," as they styled it.

The morning was beautiful, and in two hours from the time of leaving the village of Bernadotte, my team of quick steppers had carried us to the little city of Lewiston, within four miles of our destination.

Stopping here a half-hour, we replenished our larder by the addition of some minced beef, bologna and canned fruits, and filling a keg with water, we again merrily resumed our journey, arriving at Prickett's Fishing, on the west side of the lake at 9 a. m.

Thompson's Lake is a beautiful sheet of water, lying about a half

mile from the Illinois river, which is its outlet at the upper or north end, while the classical "Spoon River" drains it from the lower or southern extremity.

At low water the lake is about five miles long by one and a quarter wide. At the south end there is a dense growth of flag, covering a space of a thousand or more acres. This place in suitable seasons was said to be the nesting site of great numbers of the American Coot *Fulica americana.*

The investigation of this marsh was therefore the main object of my visit at this time. To accomplish this a boat was indispensable, and we at once set about procuring one. This was no difficult task for the fishermen near by had a score of them to let at twenty-five cents a day.

And indeed an antiquated specimen of the genus "Elm Peeler" whom I had known many years, coming forward just at this time, offered me a boat for all day if I would just dish him out some quinine. "For," said he,"the old gal and six of the young 'uns have been shakin' powerfully with the ager." It is needless to say that he got the quinine.

Inquiring of him if there was any "mud-hens" in the flag this season, he replied: "Yes, jest scads of them." Noticing my gun, a quizzical expression came over his face, and shutting one eye he ejected about a half-pint of tobacco juice upon a duck that was waddling around a few feet away, and remarked: "Soy Doc. what yer goin' to shoot those pesky things for—why, a dog wouldn't eat them."

Without stopping to explain to him the object of our visit, we loaded ourselves and accouterments in a boat and set sail for the home of the coots, at the lower end of the lake, distant about two and a half miles. Green, who was handling the oars, at once set about telling some big fish stories while Herriford, who had been a river man all his life, interluded the "whoppers" by an occasional boating song.

A half-mile down our course we came to a low island of two or three acres, covered with a stunted growth of half-dead willow. Pulling on my waders, I went ashore and found the island occupied by a colony of a few hundred Bi-color Blackbirds—almost every willow containing one of their true basket nests. Young birds everywhere in every stage of growth.

Finding two or three nests containing eggs that appeared nearly fresh, I took them as mementoes of the trip, and as the first eggs

found. Also found and secured several sets of Kingbirds' eggs; the complement being three or four. With these I returned to the boat, glad to escape the harsh and almost deafening noise made by the male Red-wings.

A mile further down, Herriford was put ashore to search along the edge of the lake to see what he could find.

Patches and strethes of flag now began to appear, and as we moved along an occasional coot would spring out and fly towards the center of the lake. As we neared our destination they became more numerous, and joining each other, formed little flocks out in the lake—keeping just out of range of my gun. Wishing to procure one or two for skins, I kept a sharp lookout for a shot, which presently came by Herriford flushing one from the reeds near the shore. As it rose on the wing, at a distance of fifty yards, I let it have a charge of No. 4's and it dropped. But I had aimed better than I had anticipated, for another coot, sitting in the water a little further on, also fell dead and H. who happened to be just in range, was also besprinkled with shot; but the charge, having spent its force, did him no harm.

Securing the dead coots, I now commenced searching for their nests, wading into the flag, which came up to my shoulders. I soon came to nests, and the first one found contained eight beautifully speckled eggs. A few yards away, another nest contained six, and close by, another contained four, and in fact, nests were on every side. My exclamations of delight so excited Herriford, that without waiting to remove boots or breeches he rushed into the sedgy lake and was soon rewarded for his temerity by catching a toe in the thick moss that grew at the bottom, and fell headlong into the water, here about two feet deep. But nothing daunted by this ducking, he blew the water from his nose and mouth, and was soon helping me fill the basket, which I carried, with eggs. There was no trouble to find nests. They were everywhere, many containing incomplete sets. These we did not molest, for I had projected another visit to this place in about a week or ten days: but this visit was never made, professional business preventing. We soon gathered all the eggs that I wished, as I did not care to act the part of the "Great American Egg Hog."

The eggs of each set were carefully given a set mark before being deposited in the basket. They were then carried to the boat, when Green packed them with oats in boxes, to be blown after returning home. Many of the nests were in water two feet deep, and yet could

scarcely be called floating nests; for the plan of the birds in building seemed to be to select a thick bunch of flag and then to deposit debris and moss on this, till by its weight it would sink to the bottom. The building would then be continued until a structure was raised a foot or more above the water. This would be slightly hollowed to contain the eggs. Not a single coot was found on a nest, nor in the immediate vicinity of one, which fact seemed to confirm the assertion of Bingley and other naturalists, "that the coots only incubate during the night time," leaving their eggs to the warmth of the sun during the day. While wandering about in the flag several Least Bitterns flew up, and making an awkward flight of a few rods, would again pitch down out of sight. Marking the site where one disappeared, I went to the boat, got my gun and returned. Flushing the bird, it dropped as the gun cracked, and I had another desirable skin to add to my collection. Thinking there must be some nests somewhere about, Herriford and I turned our attention to searching for them and were soon rewarded by finding a nest apiece, built in the flag a foot or so above the water. One nest contained three and the other four bluish-white eggs. We also found several nests of the Long-billed Marsh Wren; but unluckily none contained eggs.

Being thoroughly tired, hot and hungry, and for the time being our greed for eggs satiated, we embarked for camp and dinner.

After dinner we started to explore the shore of the lake, which was thickly fringed with a dense growth of water willow, standing in and out of the water, a perfect paradise for the Prothonotary Warbler and Tree Sparrow, and they were here in immense numbers, almost every hole containing a nest of one or the other; but unfortunately we found we were a little too late, for almost every nest contained young birds. We succeeded in collecting only two or three sets, each well advanced in incubation.

Seeing a Downy Woodpecker come out of a hole about twenty feet up in a very dead willow snag, I put on my climbers and went up as far as the tree would bear my weight. With a sharp hatchet I now cut through the trunk, and was carefully lowering it to Herriford, on the ground. A limb that I was holding it by suddenly gave way and it fell, striking him on the head and shoulder, felling him to the earth as completely as though he had been rapped by a policeman's billy. The Downy's eggs of course were broken, as was also a set of six Tree Swallow's that were in a hole a little higher up.

A little back from the shore I discovered a very pretty nest of the Warbling Vireo, well out on a limb of a small pecan tree, and about ten or twelve feet from the ground. Herriford, wishing to distinguish himself, insisted on climbing to it; but as I suspected would be the case, his proverbial bad luck again came to the front. As he was astraddle of the limb, carefully working his 200 lbs. out towards the nest it suddenly gave way and he came down on the run, head first into the pond, utterly demolishing the nest and eggs of course. Subsequently I found another nest and secured four very pretty eggs.

The Crested Flycatcher was very abundant here, making some portions of the woods almost hideous with their harsh notes: secured several good sets of their eggs; but the majority of their nesting sites were in some old snag that was either dangerous or difficult to climb.

Found seven sets of Cuckoo eggs, all yellow-billed except one. All sets of three except one, which was a remarkable set of seven. I judged from the appearance of the eggs that they were the product of two birds. We also secured two sets of four each of the Rose-breasted Grosbeak, two sets five and one set six of the Baltimore Oriole, one set three and one set four of the Yellow Warbler. Found many nests of the House Wren; but took the eggs from one nest only—a set of eight beautiful, zone-marked eggs.

Night coming on, we returned to camp and prepared and ate a hearty supper. We had intended to stay over night and collect another day; but after sizing up our days work, decided that we had eggs enough.

A thunder-storm was forming in the west, and every indication pointed towards a night of it, and after a council we resolved to make a moonlight drive home.

Hastily packing up, we drove rapidly across the prairie bottom, and as we reached the top of the bluff that overlooked the lake, we halted to take a farewell look at the beautiful sight that lay behind us.

The lake reflected the light of the full moon like a piece of burnished silver. The winding Illinois just beyond; the belts and fringes of trees. The "quawk" of the Great Blue Heron, as he lazily flew across the low prairie; the notes of the "Thunder Pumper" in the swamps; the ghoulish, unearthly, laughing tones of a pair of Barred Owls, and the distant thunder and vivid lightning of the gathering storm in the west, all combined to produce an effect not easily effaced from the mind of one "loving nature in all her moods."

Suffice it to say, that we were thoroughly drenched before reaching home. It didn't rain ; just simply poured ; but notwithstanding this, we were content and thoroughly satisfied with our days work.

To be sure Herriford felt somewhat sore, or like Pete Jones, "all shuck up like," yet it was all in the interest of science, and therefore did not count.

Returning to this lake in June, '88, I found the breeding grounds of the coots covered with eight feet of water, and not a single bird of this species to be found anywhere in the lake region.

THE YELLOW-WINGED SPARROW.

Coturniculus passerinus.

BY LYNDS JONES, GRINNELL, IOWA.

In the recollection of my earliest ornithological efforts, Yellow-winged Sparrow bears a prominent part. Then, when the country was quite new, and one might roam unhindered for miles, the short, native prairie grass afforded a much better nesting place than does the close-cropped blue-grass of to-day.

When the prairies were emerging from the native to the present state, by the breaking up and seeding down of large tracts, they were at their usefulness to the sparrows. These fields, unpastured during the first year, abounded with sparrows, especially the Yellow-wing, whose nests, made almost wholly of grass and sunken an inch or more into the ground, could be found on hillsides, hilltops or in the bottom-lands. Early in the season the nests were prettily arched over ; but later this artistic flourish was omitted, and the time thus occupied was spent in depositing the eggs.

Prior to this period, the thistles, scattered here and there over the land, were much resorted to as nesting sites. Almost every alternate thistle afforded protection to the nest and eggs of Yellow-wing. Now the birds are fewer and never resort to the thistles ; why, I do not know. The low-lands seem to be their favorite nesting-places, though occasionally a nest is found on the hillside and even hilltop. Strange as it may seem they have almost abandoned such neglected fields as

were mentioned above.

Its arrival here in Spring, during the last week in April, is made known by its peculiar, insect-like song. It is something like this: zip-zip-zz-rr-r-r-e-e-e-ee or zz-e-e-ee. This is his simple perching song; but while on the wing he often gives utterance to a peculiar warbling, rolling, rollicking whistle, seeming to glide down on the scale of his own music.

Perched on some convenient weed-stalk or blade of grass, his yellow-edged wings and yellow loral spot, with the buffy line over the eye, and buff-colored breast, show to such advantage that one hardly notices that the bird is otherwise a very plainly colored one. The wings and back are curiously variegated with black, gray, yellowish-brown and purplish-bay; the crown divided by a brownish-yellow line; the neck and rump appear lighter; the flight and tail feathers are plain dusky. Yellow-wing is about five inches from tip of beak to end of tail, with an expanse of wing often equalling 8½ inches.

The three to six eggs are laid about May 20th, in this locality, though I have taken sets of three in July. The ground-color is grayish-white, speckled and spotted, sometimes blotched, with reddish-brown, and lilac and lavender shell markings—the latter are confined to the larger end, the former may be either pretty evenly scattered over the entire egg, or confined to the large end, where they become confluent with the lilac and lavender shell markings so as to hide the ground color. They measure .72x.60 to .76x.64.

THE BLUE JAY.

Cyanocitta Cristata.

BY W. D. DOAN, LANCASTER, PA.

This beautiful bird, the subject of our illustration, is a denizen chiefly of forest and heavy timbers, remote from civilization, and one who is nearly cosmopolitan in its distribution, being found throughout Eastern North America, from Florida and Texas, north to the fur countries. Westward, it ranges from the Atlantic Coast to the Mississippi Valley. In this section this species is a common resident; but more plentiful during the spring and summer months, than during the cold, dreary months of winter. There is a slight thinning out during the last week of November, and those that remain become gregarious, and are found frequenting thickly covered bottom lands which are mostly bordered by heavy timbers. The return movement is generally noticed by the second week in February.

In its natural haunts the Blue Jay is exceedingly sly and very suspicious, and can only be approached with the greatest difficulty; but in some localities its frequent intercourse with man has modified its disposition considerably, and confidence seems to have taken the place of distrust, which has very frequently been shown by its nesting sometimes in orchards and other suitable places, in close proximity to farm buildings. The ceremony of mating is usually accomplished with expedition, and soon after, the birds are at their nest-building, which, in this latitude, is commenced by the 25th of April: for that purpose some forest or orchard tree, and sometimes a low bush is selected; but the latter is rarely. The nest is a strong, coarse and very bulky structure, and is composed chiefly of twigs and roots firmly interwoven. The lining does not differ materially from rubbish chosen for the parts of the nest, and the old birds' aim is evidently to secure as much strength as possible, regardless of appearance.

The nests found in close proximity to human habitation differ from those that may be constructed in more remote places, by having a larger variety of material, such as rags, twigs, stems of grasses and leaves, and in size it is almost equal to the Crow Blackbird's nest. Both birds labor very diligently together in its construction, which

they complete in from four to five days. On the day after nidification ends, oviposition commences: this covering a period of from four to six days, according to the number of eggs which is to constitute the setting, the usual complement being five; but never more than a single egg is deposited daily. In color they are greenish or brownish-gray, spotted with olive-brown, and measure about 1.15 in. in length by .85 of an inch in width.

Oviposition being completed, the ardous task of incubation next succeeds, and is the exclusive labor of the female for a period varying from seventeen to eighteen days. The male, during the whole time, becomes a very jealous husband and a most willing provider; often repairing to immense distances in search of articles of nourishment. While he is not thus engaged, he remains in close proximity to his home and loved one, guarding them from intrusion. His alertness and vigilance are truly remarkable, and woe be to any of the feathered creatures of the field or forest who is rash enough to venture into his domain. The songs of this species differ, and having such a variety of notes, it is very difficult to describe them. Some are low and very musical, and again he may be heard screaming at the top of his voice. Its powers of mimicry are great, as we have heard it mimic the cries of the Buteo borealis, B. lineatus and Falco sparverius with perfect accuracy.

Many of our older Ornithologists and others claim that the Blue Jay ranks next to Corvus americanus for the depredations they commit by sucking eggs and devouring the young of other birds, for Audubon, in his "Birds of America" says: "It robs every nest it can find, suck the eggs like the crow, or tears to pieces and devours the young birds. A friend once wounded a Grouse (Bousa umbellus) and marked the direction which it followed, but had had not proceeded two hundred yards when he heard something fluttering in the bushes, and found his bird belabored by two Blue Jays, who were picking out its eyes. The Thrush, the Mockingbird and many others, although inferior in strength, never allow him to approach their nest with impunity; and the Jay, to be even with them, creeps silently to it in their absence, and devours their eggs and young whenever he finds an opportunity. I have seen one go its rounds from one nest to another every day, and suck the newly-laid eggs of the different birds in the neighborhood, with as much regularity and composure as a physician would call on his patients."

The writer has never been fortunate enough to observe this species in the act of killing and devouring young birds; but has on several occasions seen them stealing eggs from other birds' nests; but notwithstanding all this they do a wonderful amount of good by destroying a great many insect, which I think certainly overbalances their egg stealing and bird killing propensities. As to the food of this species it is voluminous and various, being both vegetable and animal in character. Having made an examination of over sixty (60) stomachs, which were taken at different intervals since the spring of 1880, the contents has given sufficient evidence to warrant a verdict in favor of this species being of great value to farmers, and will show that the Blue Jay is not half so bad a fellow as many would suppose.

Among insects which seem to be eagerly devoured throughout the summer months are Tent Caterpillar (Clisiocampa americana), Forest Tent Caterpillar (C. sylvatica), Promethea Moths (Callosamia promethea), White-marked Tussock Moth (Orgya leucostigma), Spring Cankerworm (Anisopteryx vernata), Autumn Cankerworm (A. pometaria), Lime-tree Winter Moth (Hybernia titiaria), Comma Butterfly (Grapta comma), Red-legged Grasshopper (Caloptenus femur-rubrum), Green Striped Grasshopper (Chimarocephala viridifaciata), May Beetle (Lachnosterna fusca), Earthworm (Lumbricus terestris) and Red Ant (Formica sanguinea). The fruits of the following are also eaten: American Beech (Fagus ferruginea) Red Cedar (Juniperus viriginiania), White Oak (Quercus alba) Scrub Pine (Pinus inops), and seeds of wheat, corn and blackberries.

In conclusion I will give a few words from the pen of Dr. Kirtland in regard to this species as an insect destroyer, and which appears in Dr. Brewer's "North America Birds." He says: "When he first settled upon his farm, he observed that every wild cherry and apple tree was well nigh denuded of its leaves by the larvæ of Clisiocampa americana. The evil was so widespread that all efforts to counteract it seemed seemed utter hopelessness. At this crisis the Jays made their appearance and established colonies. The tent-caterpillars constituted a ready diet for their young, and were preyed upon so extensively that in two or three years afterwards, not a single individual was to be seen in the vicinity."

This alone certainly creates impressions in their favor, and should encourage us to stop all persecutions, and give them a most generous welcome.

THE LARGE BILLED OR LOUISIANA WATER THRUSH.

Sieurus Motacilla.

BY C. C. MAXFIELD, WILLARD, N. Y.

Among the small birds of which very little is written is the subject of this sketch, *Sieurus motacilla.* Only one short article has come to my notice during the past few years; *i. e.* an article of the nesting of this species in North Carolina, by Mr. R. B. McLaughlin, Statesville, N. C.

It is small, about 6 inches in length; wing, carpal joint to tip, about 3 1-2 inches; bill 1-2 and tarsus 7-8 inches. The adult male is an olive, slightly greenish, brown above, with wings and tail slightly less green: a white streak passes from the base of the bill to the back of the head through the eyes; under parts white, tinged with yellowish and marked with spots of brown from under part of bill to legs; back of legs, a pure yellowish-white with no streaks or spots. Adult female: upper parts duller than in the male, under parts a yellowish-white with no markings on throat or breast. Male and female usually seen together after arrival.

The first to arrive this year reached central New York the 28th of April; were common in course of two weeks. They are to be seen at nearly all times of day in the near vicinity of the small creeks, running through the deep ravines that are numerous along the shore of Seneca Lake. In the early morning they are to be found in the topmost branches of the small trees that line the ravines, giving voice to five or six notes that somewhat resemble those of the common Wood Thrush, although found to differ greatly when brought into direct contrast. Usually during the forenoon, they are found feeding on the narrow, gravelly beaches that line the creeks. When disturbed on their feeding grounds they give utterance to a loud "chip" and fly

into the shrubbery. It is at this time that they show a peculiarity that is usually identified with the Snipe family, that of tipping up and down like our common Sand Snipe. This peculiarity is not indulged in so freely while feeding as when they are in the trees, and it is much more noticeable when they are disturbed. This habit has given them the name of "wagtails" in some localities, and it was under this name that the writer was first made acquainted with them.

The streams along which they usually breed are entirely dry in the summer season. They breed early, usually in early May. Eggs usually 6; measure about .74x.60; white with a sprinkling of fine lavender colored specks, and at the larger end with blotches of dark umber. Nest usually placed over running water or very near to it, usually on the banks of streams, but occasionally in the upturned roots of fallen trees.

THE WILSON'S PHALAROPE.

Phalaropus Lobatus.

BY WM. G. SMITH, LOVELAND, COLORADA.

One of the handsomest of our western waders is Wilson's Phalarope *Phalaropus lobatus*, and for activity while swimming it surpasses all others, and on land it has but few peers. Its beautiful shades of chestnut and red are so blended and artistic that one cannot but admire it if they possess the least admiration for the beautiful.

One peculiarity, differing from all migratory birds that I am acquainted with, is that the female arrives here several days in advance of the male, which is about the first week in May. She is by far the brightest hued and seems to shun the company of the more sober colored males; but as soon as *they* arrive they begin to talk business to their proud mistresses and after considerable persuasion coax them to lead a more retired life. They mutually select a place to start

housekeeping, scratch a slight depression in the ground and make a rude nest of dead grass, usually on the shady side of a bunch of weeds; but often in full view.

After depositing the eggs, the female pays very little or no attention to them; but again joins her more dressy companions and leaves her mate to bear the whole of the cares and responsibility to hatch out the chicks, which he is not loth to do, and even after they are hatched she cares but very little for her offsprings. Though she may materially assist in feeding them, I am afraid they would go to sleep hungry if it was not for their provident papa.

The eggs, four in number, are usually deposited in a swampy marsh. When very wet they are raised a little above the level. Like most of the family pyriform, about 1.25x.95; ground color light drab, covered with heavy dark brown spots and splashes, more numerous and heaviest at the larger end. The eggs are placed in nest with small ends downward, close together and the top ends radiate outward. One set that I took a few days ago was packed all around with freshly-plucked green leaves.

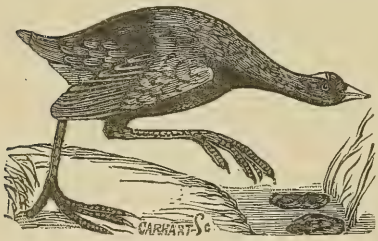
The curious trait they possess of spinning around while swimming, I am satisfied is to stir up the mud and also the animalcules upon which they feed, as they never do it in deep water.

NESTING OF THE PURPLE GALLINULE.

Ionornis Martinica.

BY JAS. H. RACHEORD, BEAUMONT, TEXAS.

The Purple Gallinule (*Ionornis martinica*) is an inhabitant of the low sea marshes and also of the low fresh water marshes along the Gulf Shores of the southern states, especially of Louisiana and Texas. These marshes extend for miles and are covered with a luxuriant growth of rank grass and with "marsh cane" fully ten feet high. In such places entirely removed from the habitation of man, this bird builds its nest and rears its young.



PURPLE GALLINULE.

It selects some stream of water and in a bunch of "cut grass" growing in this stream, it builds or rather weaves its nest. This "cut grass" grows about four or five feet tall, has sharp, knife-like edges and is very strong and stiff.

This bird will select a thick bunch of grass and will bend the tops down and weave them into a basket shaped nest, which is usually about three feet above the water; and here it deposits its eggs, from 9 to 13 in number.

Around its true nest it will build from three to seven and eight sham nests which will invariably cause inexperienced hunters to pass on by, as they look like nests just begun but not finished, and are always some ten or fifteen feet away from the true nest and always where they can be readily seen, while the real nest is usually as well concealed as possible.

Here in these wild and secluded places the Purple Gallinule rears its young, which when they are first hatched resemble very much young chickens, and are of a dull bluish-brown color.

THE CROSSBILLS.

BY WM. L. KELLS, LISTOWEL, ONT., CANADA.

The genus *Loxia* is one of the many sub-divisions into which the family *Fringillidæ* is divided. This genus is represented among Canadian birds by two species; viz., the American Crossbill (*Loxia curvirostra minor*) and the White-winged Crossbill (*Loxia leucoptera*). These are both northern species, whose plumage and habits differ little and who are seldom seen in central Ontario except in the winter season; but during that period small flocks of them move much further south, and in the mountain regions of the far west they are reported as observed, at most seasons of the year, as far south as Colorado, but at any time seem comparatively rare in Alaska.

The Crossbills receive their general name from the peculiar form of their bill, the upper mandible of which crosses the lower in an apparently distorted manner, but which in reality wonderfully assists them in procuring their food, which is chiefly the seeds of the evergreen. These birds are also known to nest in the winter season.

THE AMERICAN CROSSBILL.

Loxia Curvirostra Minor.

This species, also called the Red Crossbill, is one of those birds that usually make their appearance in Ontario with the first heavy snow-fall in the beginning of the winter season, though occasionally small wandering flocks have been observed at other times.

The Red Crossbill is about six inches in length. The plumage of the male, when it attains maturity, is generally of a beautiful reddish hue, varied with brown, the wings and tail being blackish. The plumage of the female is of a brownish-olive, variously marked with other dusky hues; the markings on the rump are of a saffron color. The mandibles of the beak cross each other, sometimes on one side and sometimes on the other.

Some winters these birds appear in large numbers in some localities and, again, years may pass away and none of them be seen. Their appearance, however, is mostly regulated by their food supply, and the observations of years leads to the conclusion that in tracts

of evergreen woods, where their food is annually supplied, their advent may be looked for regularly, year after year, though the number of the visitors may vary, and in such places, even in the coldest weather, their appearance and their notes form a pleasing feature in the bird-life of the then melancholy woodland scenery; but outside of such scenes these birds are seldom heard or seen, yet in the early days of the pioneer life of backwoods settle, these birds have been noticed to alight in a quite familiar manner, and pick up scraps of food at the door of the log shanty and amongst the litter of the farmyard. But times have changed, and with them to some extent, the habits and nesting places of the Crossbills. Among or towards the top of the evergreens, in the deep, wild woods, and in the depths of the winter season, these birds are now chiefly to be observed in this country, and here, where they are seldom disturbed by man or the sound of the human voice, they pass this period of their existance in one continual serenade, chattering and feeding. When disturbed, or on the impulse of the moment at the signal of the leader, they rise in a body and vanish over the tree-tops like a cloud of smoke.

The Crossbills feed chiefly on the seeds of the evergreens, especially those of the pines and hemlocks, which they extract from the cones in a very dexterous manner by means of their bills, assisted by their still more curious tongue. The muscles that move the bill are very strong and act upon the two portions latterly; *i. e.*, sideways, and by this means separate the scales from the sides of the cone and thus expose the seeds or pips in the interior recesses. They will even split open large fruit in order to get at the seeds in the center. The manner in which the bills of this species are crossed, was when first noticed thought to be an accidental distortion; but on more careful examination it proved to be another of the wise provisions of Providence, to assist its possessor in securing food.

When feeding, these birds living about in the branches in every possible position, for while some are on the upper parts of the bough, others are clinging to the sides, and others again, with back and head downward, swing to and fro in the wintry blasts. When they first arrive in this country, they appear to be almost fearless of human presence; but if shot at a few times and some of their number taken, the rest of the flock become more timid and fly off on the first apprehension of danger.

The nesting habits of this species are very little known, although

much attention has of late years been directed to the subject. Some years ago its nest was taken in this vicinity and I have seen specimens of the eggs that were collected about eight miles south of this town. All efforts on my part to discover its nest and procure its eggs have failed; but it is an established fact that it nests in the winter season.

The most accurate information that I have obtained on the nesting habits of this species has been furnished by Dr. Jarnier of Lucknow, a station some thirty miles to the westward of this town. From his article on the "Red Crossbill" published in the *Canadian Naturalist and Sportsmen*, I here make a few extracts: "About twenty years ago the above species was a common resident in this vicinity. During the months of December and January they gathered in small flocks and commenced to pair." "Everyone is familiar with the peculiar flight of the Yellow-bird (*Spinus tristis*) and exactly in a similar manner the Red Crossbill spreads its wings and tail, and flies in a fantastic manner on summer days. The female, in the meantime, may be seen perched on some neighboring sprig or prominent place seeming to enjoy the gambols of the male. Early in the morning, they betake themselves to the hemlock, pine or tamarac ridges, and may be seen at all altitudes and in all positions on the cones in search of food; sometimes head downwards, or holding with claws and bill directly beneath the cones, and tearing the seed from its covering with much ease."

"The nests are generally placed near the extremity of a hemlock or cedar branch, and are large and very thick for the size of the builder. These are variously lined with bits of small roots, fibres of vegetables, hair, feathers and the like; but of course vegetable fibres predominate. I have frequently seen the head and a little portion of the tail of the bird project over the side of the nest, when on, or nearly on a level, but never from below. Although I saw numbers of the nests, I never obtained any of the eggs. The fact is, I never tried, as the thought did not at the time occur to me."

"These birds breed early in March, or towards the end of January, and during February. I am unable to state exactly how many eggs they lay, or the period of incubation. On the 24th of March, 1862, I saw a female Crossbill feeding her young; there were four of them closely huddled together on a maple twig. I shot three of them, the fourth and the old bird escaping, seemingly unhurt. I carefully ex-

amined the young; they were a greenish-brown color, and there was down on the ends of their feathers, especially on the head and back. The tail was more than half grown, and the flight of the young bird that escaped seemed very strong. The bills of the young were not in the least crossed, and this proves that the beaks take this form as they arrive at maturity; the appearance was like that of any young Finch. It strikes me that their bills were too tender to procure food, and that the parents fed them for a longer period than is usual in the Finch family. But since that time the axe has done its work. We find no more of this species in this neighborhood, as it has little to feed on."

"The nest is, as has been stated, very thick, compact and large; nature has taught the bird so to construct it, as otherwise the eggs and young would be frozen. The crops of the three young procured were quite distended with hemlock seed. The external covering in every case was removed and each seed was bruised and covered with a peculiar or glutinous fluid, either so given by the old birds or produced in the crop of the young ones, perhaps as in parent Parrots."

"It seems remarkable that Crossbills should breed so early in the year. It is not at all strange in any of these months to see the thermometer frequently below zero. Their food is at this time abundant and continues so until summer, and it seems improbable that food supply is the cause of such early incubation."

The eggs of this species are of a greenish-white hue, spotted towards the large end with purple and lilac.

THE WHITE-WINGED CROSSBILL.

Loxia Leucoptera.

In size, form, plumage and general habits, this species differs but little from the more common Red Crossbill, and its nest is stated to be much similar. Like its congeners it is chiefly a winter visitant in this country, and seldom observed except in severe cold weather, and then in isolated parties; nor does it associate in any way with the other species of Crossbill. It appears to make its general home in the desolate evergreen woods of more northern latitudes extending from Maine towards the Rocky Mountains, and has been observed in Alaska. In winter and early spring it is commonly met with in

Manitoba and other north-western portions of the Canadian Dominion, and some nests have been found in northern New England.

WHITE-WINGED CROSSBILL.

The chief difference between it and the Red Crossbill is that the wings are crossed with bars of a white color.

SPARROWS AND WARBLERS.

BY WILL. N. COLTON, BIDDEFORD, MAINE.

Sweet bird ! thy bower is ever green,
Thy sky is ever clear ;
Thou hast no sorrow in thy note,
No winter in thy year.

—*Logan.*

How well this applies to that beautiful fleeting family, *Mniotiltidæ* the Wood Warblers ! Only with us a comparatively short time each year, they yet endear themselves, cheering us as no other bird can. They do not flit around our door-yards ; but have to be visited in their own haunts, the forest and swamp, and here we can see them in unrestrained freedom.

That which is hardest to obtain, we prize most, and it will pay anyone for a tiresome tramp, to have the opportunity of watching and studying the rarer Warblers, with their gay, restless movements, seldom still ten seconds at a time, flitting from twig to twig. The more common species are often found in orchards and near to man ; but they have more subdued tints and of a more timid air than their wilder brethren.

My purpose is especially, to speak of the Blue Yellow-backed Warbler, as a good representative of his family. How he "tweats" and warbles his simple lay ! There is certainly "no sorrow in his

note." It is a sharp, yet melodious warble and very noticeable. As I stroll through some secluded woods on a summer day, I notice a delicately formed, elegant little bird, flitting back and forth in a low tree. I stand still, hidden by the giant trunk of a lofty pine. I notice the golden-yellow throat and bronzed breast, contrasting with what an admirable effect with the blue back, set off by a triangular patch of buffy behind the shoulders, from which he takes his name.

The first nest of this species found by me last year was on June 20th. I was wandering through a deep woods, by the border of a small pond, when I came upon the male. His excitement on seeing me prompted me to retire and watch his motions, unobserved, from distance, feeling sure the nest was close at hand. He soon flew to it and I hastened forward to take a peep, in hopes of discovering some oological treasures. In fact I did find four, fully in keeping with the appearance of the bird and as delicately pretty specimens, both in texture and color, as any collector could wish to place in his cabinet.

The nest, a typical one, was made of long moss from the neighboring trees, and vegetable fibres; lined with horse-hair. The materials are all piled in a bunch and placed in a crotch, and the nest was hollowed out of the side. It was in a bush, about 5 ft. from the ground, on a limb overhanging the water. The eggs were of a delicate white, spotted with reddish.

Perhaps not so interesting, yet fully as instructive will the study of the Sparrow family prove. This family has so many representatives in every locality that to describe any considerable portion of them in a brief article would be futile; hence, I shall only speak of one species, which is one of the rarer breeders in this vicinity. I have found only two nests of the White-throated Sparrow, *Z. Albicollis*; both within the last year. The first was discovered one day when I was watching a Nuthatch in hopes of discovering its domicile. It was in a low, damp grove, and suddenly my attention was attracted by a thin, silvery whistle which I had never heard before. I sought in vain for the bird. In a moment I heard it again, "a wandering voice." This time I discovered its author, in a low bush, some distance away. The melodious tones sounded inexpressibly sweet, ringing upon the ear in the lonely solititudes of the pines. Having no gun, I pulled out the next best thing, a notebook, and while doing so my eye fell upon the nest, built low in a bush a few rods away. It contained one egg and a week later I took the set of four.

July 14th my second nest was found. It was placed on a tussock of grass in the middle of a small brook and the three incubated eggs it contained being submerged, had been deserted. The nest was made principally of grasses and mud. The eggs, of a sort of grayish ground, were so spotted and blotched with reddish-brown as to present a general reddish appearance; but in the two sets there is an infinite variation in markings. This ends my brief notes on the two species; but I hope sometime to be able to describe some other members of these two great families.

THE ROSE-BREASTED GROSBEAK.

Habia Ludoviciana.

BY AUSTIN CASWELL, ANN ARBOR, MICH.

This rose-bud of North American birds, as Davie calls him, arrives in this section about the second week in May, and about the last of that month and the first of June their eggs may be sought for, chiefly along a river or any good sized stream, although I have often found them on the edge of a woods, in a swamp, or sometimes even in a small thicket. The nest is almost invariably placed in a bush between five and fifteen feet from the ground, although I have several times found them from twenty-five to thirty-five high in a maple tree on a public street.

This bird is extremely abundant in this locality. The alder, any thorny bush, and sometimes the sumac bushes are generally their nesting sites, and here a shallow structure composed of fine twigs and lined with grasses is made a receptacle for their four eggs, greatly resembling those of the Mockingbird and Scarlet Tanager.

The eggs differ considerably in size and markings. The average measurement I find to be .97 inches long by .72 inches broad. Often the ground color, which varies from a pale greenish-blue to a greenish-white, is concealed by blotches and streaks of reddish-brown over the larger end of the egg, and sometimes forming a circle around the largest part. The number of eggs is generally four, although three and sometimes five may often be found. I have several times found

Cowbirds eggs in company with those of this species. The nest is sometimes so flimsy that every egg may be seen from below; then again, some of them make very compact homes in which to rear their young.

The Rose-breast feeds on seeds and young buds, and gives a decided preference to buds of the cherry tree. It is about eight inches long; the bill is slightly arched; the general color above is shining black, with the breast and under wing coverts a soft rose color. The lower parts, rump, upper tail coverts and under wing coverts are pure white. There is also a small patch of white on the end of the three outer tail feathers. The female is brownish above, with yellowish marks and tinges.

The males assist in incubation, and when their nest is being pillaged, both continue around the thief, and not until the depredator has left their sight do they discontinue their scolding.

Its song, although rather simple, is soft and very pleasing to the ear.

It breeds from the Middle States northward, and from the New England States to the Missouri.

BREATHING THROUGH BROKEN BONES.

BY C. C. MAXFIELD, WILLARD, N. Y.

A recent article in the *Ornithologist and Oologist* has led me to give an experience of mine in relation to the breathing of birds through broken bones.

In the year 1883, while hunting Snipe on the Onieda River, my brother shot a large Great Blue Heron, breaking the bone of the right wing. The bird fell into the water and we went out for him in a boat. He was partly submerged in the water and I thought a good way to dispatch him would be to hold his head under water and drown him. The boat was pulled up so that by using an oar I managed to grasp his neck in my hand and forced his head under water, in the operation getting an ugly cut from his beak. I grasped the neck near the head and pushed it under water and held it there for some little time. Supposing that he was drowned, I let go the neck

and the head came to the surface and I soon got another "jab" in the hand. I grabbed the neck again and pushed it under water, and began to investigate the cause of his living under water. I noticed that the broken bone was projecting above the water, and from the sound made by the air passing in and out soon discovered why he did not drown. In fact, the bird was breathing through the broken bone and would not drown in that position. To satisfy myself that it was really air issuing from the broken bone, I held it under water and bubbles of air came from it.

He was finally killed by breaking the bone of the neck, and proved to be a fine, adult male, in full plumage, measuring 5 ft. 6 in. from tip of beak to tip of toes, with an extent about the same.

THE CHEWINK; TOWHEE.

Pipilo Erythrophthalmus.

BY LYNDS JONES, GRINNELL, IOWA.

I cannot recollect when the characteristic note of Chewink did not form a part of our woodland orchestra. Long before any nest had been taken, I had listened to his anxious "chewink" or "towhee" uttered from the underbrush or ground, and his well-known song as he was perched upon the topmost twig of some convenient tree, wishing that he were as lavish of his nest as his song.

I had searched hours for the nest to no purpose, often flushing the mother bird, again and again; but the nest was too closely hidden. At last I stumbled on to one, high up in a bush; this was the first of several taken that season, and all in bushes. I congratulated myself that I had found an exception to the books; but I afterwards found many more on the ground than in bushes. I also learned that the bird is not partial to underbrush; but as often nests in the open woods among the leaves, or in neglected fields, or even in the corn-fields.

One might reasonably expect that such diverse positions must cause corresponding differences in nest structure. The chief difference was that sticks were used in the composition of the nests in bushes, and none in those on the ground. Dry leaves and grass are liberally

used in both positions, and skeleton leaves and the inner bark of the American linden usually make up the lining. Nests placed on the ground are often sunk into it a half or more of their depth. I do not find them "at the roots of trees, in thickets of brush or in bunches grass:" nor have I ever seen one arched over; but nearly all are in some open spot and no more arched over than is a Robin's nest.

The three to five eggs vary not a little in shape and color. No. 1 of the two sets before me average .95x.70. Three eggs are grayish-white and rather heavily marked with bold blotches of burnt carmine over the entire egg; the blotches larger and more pronounced near the large end, but not on it. Beneath these, and arranged in like manner, are numerous ill defined blotches of lavender, which with the burnt carmine, form a decided ring around the large end. The fourth egg is quite pointed and a little larger, .96x.72, while the three described above are a gentle oval, nearly equal ended; and this one is marked in very fine pattern with a more marked wreath.

Set No. 2 approaches the other extreme. The whole set of four average .92x.72; two eggs .90x.70, two .94x.74. These are grayish-white, with lavender shell markings overlaid with cinnamon-rufous in fine pattern and quite evenly distributed over the entire egg. Ill defined blotches of a neutral shade appear here and there on the surface, and a slightly heavier shade of all markings may be seen near the large end; but everywhere they are so heavy as to almost hide the primary color.

Chewink's nest is often the receptacle of eggs of the Cowbird. It is especially favorable since the eggs of the two species are so similar in markings and so nearly equal in size. I once found a nest of Chewink in which were three eggs of Cowbird and one of Chewink; as the eggs were fresh I destroyed two of the Cowbird's eggs and thus secured a set of three Chewink's with only one Cowbird's, for Chewink then went on laying.

He arrives from the south about the last of March or first of April; the van guard reaches us as early as March 20, followed a week or two later by the bulk. He usually leaves us by October 10. Nests may be found from the first of May to the middle of June.

THE GREAT BLUE HERON.

Ardea Herodias.

BY F. W. CURTIS, WAUWATOSA, WIS.

The Great Blue Heron breeds in suitable localities throughout this state. A heronry of this species that I have in mind is about twelve miles from this place. This heronry is in the heart of an almost impassable tamarack swamp, and covers over about ten acres of swamp. There are, I should judge, about one hundred and fifty nests, sometimes two and three in a tree, ranging from 45 to 75 feet from the ground. Where the nests are at the extreme heighth given, the trees are often only three inches in diameter, and it is a trial of one's nerves to be up in the air on so small a support.

The nests are very bulky, 3 to 5 feet across, composed of sticks. The hollow in which the eggs are deposited is lined in some instances with straw, but the majority have no lining whatever. The branches of the trees afford little or no support on account of their small size, and so the nests are built entirely around the tree, thus adding greater security to the whole structure. On one side is a larger shelf, as it were, on which the eggs are deposited; this is the nest proper.

The number of eggs in a clutch varies from three to five, four being the usual number found. Incubation extends from about the 20th of April to the 15th of May and even later.

Three sets of four eggs each, total 12 eggs, in my collection, average respectively: Set I, 2.68x1.82; Set II, 2.56x1.81; Set III, 2.54x1.82. Total average, three sets, 2.59x.1.81. Ridgeway, in his manual of N. A. Birds, gives 2.50x1.50, subject to variations, as the measurements. It will be noticed, especially in the first set, that this is true. Like all the eggs of the Herons, the eggs of this species are unspotted, of both light and dark shades of bluish-green, more or less soiled by contact with the nests and marked somewhat with calcareous material.

In the Great Blue Heron, the crown of the head is pure white, with two or three black feathers dependent from the back of the head; neck grayish-brown, back and wings slate-blue, changing upon lower parts of wings and tail to black; under parts, black and white; legs and feet black.

It is a beautiful sight to watch the Herons, some setting in the nests, some flying and some standing tall and majestic upon the dead snags, and it makes a picture long to be remembered with pleasure.

THE LARK FINCH.

Chondestes Grammica.

BY J. A. SINGLEY, GIDDINGS, TEXAS.

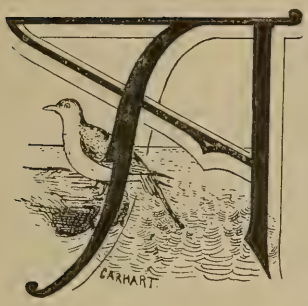
The Lark Sparrow is a common summer resident here, arriving from the 1st to the 10th of April, and departing early in November. It can be found anywhere in the uplands and prairies during its stay with us; but it does not frequent the bottoms. It is one of our best singers and occupies the same position here that the Grass Finch does in the northern states. The birds mate shortly after their arrival, and by May 1st nest building is in order, and eggs can be taken from the 10th of May until the last of July. The first nests are usually placed on the ground, but with the advance of the season as many or more nests will be found in trees and bushes than on the ground.

The nest varies considerably, sometimes being of grass throughout (this is the case when built on the ground) and again, of a mixture of grass and weeds lined with horse-hair. Very often an old Mockingbird nest is appropriated and reduced to smaller dimensions by filling up with grass and lining with hair. On one occasion I found where the Lark Finch had fitted up a nest of the Orchard Oriole, enlarging it to suit and depositing its eggs in the swinging nest.

Like most of the Sparrows, this species is sober colored. The upper parts grayish-brown, the middle of the back streaked with black: under parts white, tinged with brownish, a black blotch on the breast, top of head chestnut, with a median stripe of whitish. The lateral tail feathers are black, tipped with white. When flying, the tail is spread and the white tips show plainly, making it one of the easiest of the Sparrows to identify. The usual number of eggs in a set is four or five, but I have found as many as eight eggs in a set. Color, grayish-white, spotted and marked with dark, almost black lines and scrawls. The eggs resemble those of the Baltimore Oriole. Average, .85x.65.

NIDIFICATION OF THE SKUAS.

BY WALTER RAINE, TORONTO, CAN.



AMONG the family of Gulls, none are more interesting than the Skuas or Jaegers. They are the pirates of the sea-coast, being very bold and insolent, and in many cases do not take the trouble to fish for themselves; but, watching the fishing operations of the Gull, seize their opportunity of assailing a successful fisher and compelling him to disgorge his prey which they take to themselves. They not only pitilessly persecute the Kittiwake and other Gulls in order to obtain their own food second-hand; but also destroy and devour the eggs of other birds. Four species of Skuas are found both in Europe and in North America; but it is in Europe where these birds are most frequently met with. True, they breed within the Arctic Circle in North America; but most of the eggs in collections are from Europe.

The largest of this family is the Skua Gull, called in England the Common Skua, though the Richardson's Skua is really the most common species. It is not known to breed in North America, and now only nests in two localities in the British Islands; namely, Unst and Foula, two of the Shetland Isles; but is annually becoming scarcer in these two places.

This Skua always makes its nest on the ground, usually some elevated spot. The nest is well constructed as a rule, and is made of grass and moss. Sometimes it consists of a depression in the ground, with a little grass and moss for a lining.

The eggs are two in number, never more, and vary somewhat in color. They are usually a dark olive-brown, blotched with darker brown and umber, some having a greenish ground color.

This bird is very numerous in Iceland, from which place I receive scores of eggs from my collector every season. In Scotland a pair of these birds have been known to drive off the Golden Eagle from their nest of young.

The Pomarine Skua or Jaeger is the next in size, and might be considered cosmopolitan, being found in Europe, America, Africa and Australia.

In winter it is frequently seen on the English and Scotch coasts; but does not breed in the British Islands. It resorts to Iceland and Greenland to nest and rear its young.

The nest is always on the ground and is similar to that of other Skuas. My collection contains a series of eggs from Iceland and Greenland. They differ in size, shape and color; some eggs from Greenland are like small specimens of the Great Skua; others from Iceland are similar in shape and color to those of Richardson's Jaeger; but are larger in size. While some are very pointed, others are quite round like those of the Skua Gull. Average size, 2.45x1.75 in.

The Richardson's Skua is the most numerous of the family and breeds plentifully in the Scotch Islands, especially in the Orkneys and in Shetland; but does not nest in England.

This bird, like the rest of its family, is a robber and lives on putrid food and devours the eggs of other Gulls. However, it boldly and bravely defends its young from any other bird or animal, and often feigns lameness to decoy an intrusive man or dog from its nest.

The nest is made of heather grass and moss, on some elevated spot in marshy ground, sometimes on a hillside, and never contains more than two eggs.

A large series of these eggs before me vary considerably in size. They are always very pointed at the smallest end, and are of a greenish olive-brown, spotted with dark brown and umber. Some eggs have a pale olive-green ground. The average size is about 2.20 long by 1.60 broad.

The last of this family is the Long-tailed Jaeger or Buffon's Skua. It was formerly confounded with the Richardson's Skua; but Mr. Farrel pointed out the difference. It does not breed in the British Islands; but retires to the Arctic regions for nesting purposes. It is plentiful in Lapland.

The eggs are not distinguishable from those of the Richardson's Skua in color; but are usually smaller, averaging in size about 2.00 in. long by 1.45 in. broad.

THE SCREECH OWL.

Megascops Asio.

BY L. OTLEY PINDAR, HICKMAN, KY.

Just before dark, May 31, 1886, when I was coming home from an ornithological ramble, I saw three young but full grown Screech Owls sitting in a row on a fallen limb of a tree.

As I approached they flew; but although the sun was down they seemed blinded by the light. One flew towards me and I caught him. I tied him to the fence for that night, and the next morning made a perch to which I fastened him with a very light steel chain.

I kept this owl till the morning of June 7 of the same year, when on going to feed him, I found him missing and the chain broken. I often wondered how he could have broken the chain; but the finding the chain in the yard not long ago has led me to believe that my pet was killed and carried off by some prowling cat. In the short time I kept him, he did not get at all tame, snapping his bill and hissing whenever I approached, although he ate greedily, his food consisting of raw beefsteak.

April, 25, 1888, I found a nest which at the time I could not reach. In the afternoon of the same day, a friend and I visited the nest, carrying with us a ladder and a hatchet. Of course the ladder would not reach to the nest, but we knocked off the two bottom rounds; then I went to a fence not far distant, knocked off a plank and drew the nails. With these nails we fastened the rounds to the tree, above the ladder, and by their help my friend soon reached the nest and secured the four young owls it contained. Then he came down, knocking off the ladder rounds from the tree as he did so. On reaching the ground, he put the rounds back on the ladder, while I nailed the plank back on the fence.

Then we examined our prizes. They were all perfectly white and their eyes were closed. Two of them were a little larger than a chicken in the down and the other two smaller, one of them being considerably smaller than the rest. The cere of the two largest was bluish and that of the others white.

The nest consisted of a few leaves and twigs, in a natural cavity 18

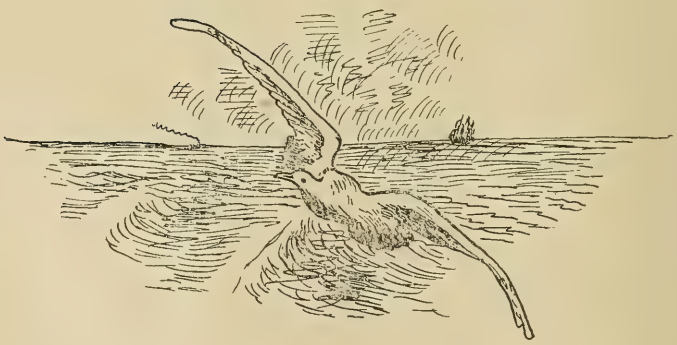
inches deep and 30 feet high, the opening on the southern side of a beech tree. Beside the owls, the nest contained two mice, one partially eaten, and the feathers of a Flicker. These owls did not live long, but while they did live they could eat more than anything I ever saw. I mean, of course, in proportion to their size.

The difference in the coloration of these birds has no reference to their age and sex. Adults and young, both male and female, are to be found in either the red or gray plumage.

In common with all the other owls with which I am familiar, the Screech Owl has not the power of moving his eyes in their sockets. They can, however, twist their heads into almost any position, so as to look at any object directly behind or over them.

They are common residents in south-western Kentucky, commencing to breed late in March. The nest consists merely of a few twigs and leaves, generally in a hole in a living tree. An old apple tree seems to be a favorite nesting site. I think it is rare to find one so far from the ground as the one I found in April, '88, mentioned above.

The eggs are from four to seven, eight or even nine in number, pure white, almost spherical and measure, according to Mr. Davie, 1.40x1.25 in.



THE MEADOW LARK.

Sturnella Magna.

BY C. C. MAXFIELD, WILLARD, N. Y.

Our Eastern Meadow Lark is about 10-11 in length; wing 5; tail 3 1-2; color above, in general effect, brown; but close examination reveals the color of each feather to be composed of black, brown and yellow; the under parts of light yellow, slightly streaked and spotted with black; a large crescent of black on the breast; the outer tail feather of same color as upper parts, but center feathers white; upper mandible straight; lower one showing a decided angle, and when the mouth is open appears as though bent downward; feet large, strong and light brown. In the young the general markings are similar; but the colors of the feathers are not as bright and definitely marked as in adult birds.

The first migrants arrive shortly after our common Robin, Bluebird and Song Sparrow. Notes for a number of consecutive years give April 2 as the earliest and April 8 as the latest. In the year 1884, a cold wave will account for their late arrival—April 8. For many years in succession the first birds were on April 4 or 5. They are to be found in autumn among the latest to leave, and occasionally a straggler will be found in mid-winter.

Nesting is commenced from the 15th to the 25th of June. In seven years' collection have taken but two sets—one July 3, 1882, another July 8, 1887. The nest is placed upon the ground amongst the tall meadow grass and is composed entirely of fine, dry grasses, such as can be found near the nesting site, and wholly or partially covered with the same, but in such a flimsy manner that the eggs can be easily seen through the top.

Both sets consisted of four eggs. The set taken in 1887 measures as follows: No. 1—1.12x.82; No. 2—1.06x81; No. 3—1.12x.81; No. 4—1.12.87. No. 1—General body of egg rather sparingly covered with small, brown spots (both light and dark brown). A cluster of largest spots at the large end; each spot fully .12 in. in diameter, light and dark brown being intermixed in each blotch. No. 2—Most heavily spotted egg of the set. Blotches at large end .09 in diame-

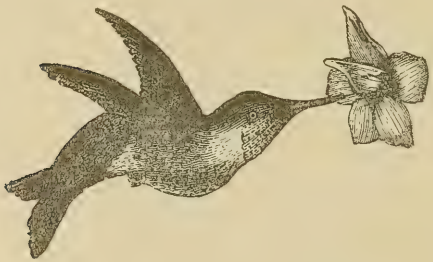
ter, but more of them than on No. 1. No. 3—Well spotted, but less than No. 2. Blotches at large end .08. Nearly half of small spots over the body of this egg have a light bluish cast. No. 4—Medium number of spots, light and brown. Ground color in whole set white. Incubation advanced about four days. From my limited observation must conclude that four is the usual number of eggs for this species.

NESTING OF THE RUBY-THROATED HUMMINGBIRD.

Trochilus Colubris.

BY J. W. JACOBS, WAYNESBURG, PA.

The little Ruby-throat is found, during the warm summer months, throughout Eastern United States and some parts of Canada. In south-western Pennsylvania they arrive about the first of May, and before the close of the month nest-building begins.



RUBY-THROATED HUMMINGBIRD.

Many times have I wandered through wood and grove in quest of the downy, little nest, containing the two tiny white treasures. My first successful search was on the 29th of May, 1887. It was Sunday—everything was still—and the heat of the morning sun had not yet sipped up the large drops of dew, which would occasionally drop from the tree-tops and spatter on our hands or shoulders. As we sauntered along, a Woodpecker started from his home in a "stub" and galloped away through the thicket; a frightened ground squirrel sought concealment behind a rock; a Red-tail slowly winged his way over the woods, and a rabbit bounded away through the weeds and disappeared over a little knoll.

Presently the familiar hum of *T. colubris* brought us to a halt. After considerable search we were at last pleased to discover the old birds building a nest upon a small dead branch of a large maple. For some time we watched the old birds bringing bits of white substance, which they gathered from the under side of the leaves of a sycamore tree that stood near.

After "spotting" this tree we continued on, finding nests of other species of more or less value. Just as we emerged from a small open grove I saw a Wood Thrush (*Turdus mustelinus*) fly from her nest in a large maple. As I was climbing up to collect the eggs, I chanced to flush a Ruby-throat from her nest on the opposite side of the tree. Looking over, I saw the two pearly-white beauties which had been the object of my search for many a day.

On a neighboring twig, and not eight inches from this nest was an old last years one. The eggs were quite fresh and have not the gloss that most white eggs have. The nest was composed of downy substance, yellowish-gray in color, covered on the outside with small pieces of lichen, which were held in place by a silky substance not unlike the spider's nest. Knowing by good authority that the birds would build a second nest in the same locality, I thought of calling again in a few days. So, accordingly, on June 8th, I returned. A careful search of the tree did not reveal any nest, but far out on the end of a large branch of the next tree was the object of my hunt. On the same branch, and not five feet from the Ruby-throat's nest, upon which the old bird was sitting, a pair of Acadian Flycatchers (*E. acadicus*) were very busy building a nest.

The nest of *T. colubris*, which is in my collection, is placed on a slanting twig, and is made of the same material as the first one taken from these birds. Notwithstanding the birds had twice been deprived of their nest and eggs, they determined to rear a brood in this locality, for in ten days they had the third nest built. This time I did not disturb them, but let them hatch their eggs and rear their young in peace.

Visiting this place again on the eighth of June, '88, I found their nest in a maple in the immediate vicinity. Of a score or more nests collected by me, this is the most beautiful, being fastened to the side of the small twig, and from the ground looked very much like a moss-covered basket. The embryo was so large that the eggs were almost ruined in blowing.

As all, who have had experience with the nesting of the Hummer,

know, it is a difficult task to reach the nest when it is placed far out on the extremity of a large branch. I will endeavor to explain my method of collecting these and other nests similarly placed. I have, for such occasions, two pieces of very stout twine, with a hook attached to one end of each piece. I toss out the hooks in such a manner that they catch the limb about two-thirds of the distance to the nest. Then I tie the other ends of the strings to a branch farther up the tree.

By so doing the limb will not droop or fall while being cut off and drawn in. However, it must be done with much care, as some branches are heavier on one side. These must be gripped tightly with the hand in order to prevent the heavy side from sagging or rolling over and emptying the nest.

THE WESTERN YELLOW-WINGED SPARROW.

Coturniculus Passerinus Perpallidus.

BY J. A. SINGLEY, GIDDINGS, TEXAS.

The typical Yellow-winged Sparrow is described as follows: "Above singularly variegated with black, gray, yellowish-brown and purplish-bay. Edge of wing yellow. Below, ochraceous or pale buff or tawny, faking to whitish on belly. Length, 4.80-5.25 : extent, 8.00 to 8.50." To the casual observer, it is simply one of the obscure little brown sparrows. *C. p. perpallidus*, the form found here, has been separated as a sub-species on account of its much paler, gray coloration. The difference is hard to describe; but if *passerinus* and *perpallidus* are laid side by side it is easily appreciated. The Western Grasshopper Sparrow is resident, and during the winter it frequents the timbered upland portions of the county and can also be found in fields where the fall growth of grass has been luxuriant, affording them a good covert, and the seeds supplying them with food. With the advent of spring, the Sparrow moves to the prairie and can then be seen swinging on the weed-stems and uttering his long drawn out "tweet," his only note, which resembles the chirping of a cricket.

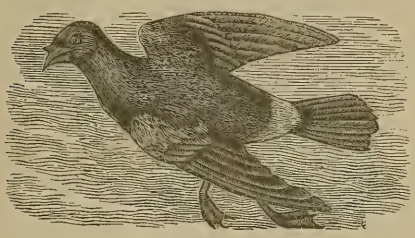
The nest is a simple affair. A slight depression in the ground is chosen, generally at the foot of a thistle or other weed, and a frail nest, entirely of dead grass, is built, slightly overarched with grass if not protected from the sun by the weed. The usual complement of eggs is five. Sets of four are common and occasionally six eggs are laid. The eggs vary much in size and shape, and are pure white with markings of red-brown, and occasionally lilac shell markings. The spots often run together, forming a wreath at the larger end. Average .73x.60. But one brood is raised, fresh eggs being found only in May.

THE STORMY PETREL.

Procellaria Pelagica.

BY W. RAINE, TORONTO, CANADA.

This interesting little bird, though rare in North America, is plentiful on the British side of the Atlantic Ocean. It is supposed to be the smallest web-footed bird known, and seldom comes to shore except during the breeding season, when they resort to such places as the Scilly Islands, in the English Channel, and the islands of the Irish Sea; but their chief nesting places are in the Orkney and Shetland Islands, and St. Kilda and the outer Hebrides.



STORMY PETREL.

This bird is well known to sailors by the name of Mother Carey's Chicken, and hated by them because it foretells an approaching storm.

They are mostly seen in stormy weather, because the marine creatures, on which they feed, are tossed to the surface of the chopping waves, and can be easily picked up by the bird as it passes over the waves, pattering the water with its webbed feet, and flapping its wings so as to keep itself just above the surface.

The name Petrel is given to these birds on account of its powers of walking on the water, as is related of St. Peter. This bird seems very happy during rough weather, and many a ship-wrecked sailor, while clinging half locausted to some floating wreckage, has envied this little bird of its powers of flight, as it traverses the rolling, seething billows with wonderful ease.

It feeds on the little fish, crustaceaus and molluses which are found in abundance on the surface of the sea. They always follow the boats crossing the Atlantic, and will keep pace with a ship for days, picking up the refuse food thrown overboard.

In the Scilly Islands, the birds lay their eggs in burrows in the ground, in company with Manx Shearwaters, but in the Orkney and

Shetland Islands they make burrows in a cliff like Sand Martens when a great number meet together in the same cliff. Like the Manx Shearwater, they make a noise in their nest holes which can be distinctly heard by the passengers walking on the cliff-top.

This bird as well as the Fulmar Petrel posesses a singular amount of oil, and both species have the power of throwing it from the mouth when frightened. In St. Kilda the natives catch both Fulmar and Stormy Petrels as they sit closely on their eggs and make them disgorge the oil into a can brought for the purpose, they then let the bird go and catch another, and in this manner gallons of pure oil are collected every season.

The Stormy Petrel only lays one egg, sometimes at the end of a burrow, from one to three feet deep, and other times the egg is laid under stones on the sea beach above high water mark.

A series of thirty eggs before me average in size 1.10 long by .76 broad. They are usually white, with a faint zone of reddish-brown around the larger end of the egg.

The ground color of this bird is sooty black, and the outer edges of the tertials and the upper tail coverts are white. Its length is scarcely six inches.

MY HUNT FOR THE BLACK-POLL WARBLER.

Dendroica Striata.

BY F. H. CARPENTER, ATTLEBOROUGH, MASS.

The northern journey of the feathered migrants in southern New England is nearly completed, and nesting among those that remain with us has already begun, when the trained ear of the observer will detect faint notes amongst the now dense foliage, that betokens a new arrival.

To the novice, the curious wheezy notes may be mistaken for some tiny quadruped, but if he searches closely he will discover a plump little warbler in a plain suit of grey and black as the author, and the broad, black patch on the crown and head will serve for sufficient identification of the species.

The Black-poll Warbler, is one of the latest of our migrating birds. His transit is made under the cover of the foliage, and thus his travels are nearly as secluded as his home in the distant forests of the north, towards which he is so laggardly journeying. The few skins in my cabinet told no tale of their origin or habits, and the knowledge I possessed of these birds, was but a brief page in their history; hence, when one spring I sailed northward, leaving my Massachusetts home just as their van arrived from the south, I wondered if I would be permitted to discover the sequel to their northern travel.

* * *

Darker and darker gathered the lowering clouds o'er the storm-beaten precipitous cliffs of Grand Manan. Great banks of fog driven by the southern wind shut ever and anon from our gaze, the little rock-bound harbor we were trying to make. Around "White-horse Ledge" the Leache's Petrels were circling in evident anxiety as some great green wave dashing against the ledge would over-top and hurl its flood over the rounded dome of the little island which contained their burrows. The gulls flew in confusion uttering more loudly their hoarse cries, as they endeavored to beat against the wind, that they might reach their nests on a distant cliff, while those at home screamed notes of encouragement or derision to the struggling incomers.

On the high cliff at the "Southern Head," monstrous waves driven by the wind and the flowing tide, such as is known only in the Bay of Funda, dashed into the caverns with reports like artillery, driving from their recesses the Black Guillemot and Puffins, which flew in wild disorder seeking some safe retreat. Low peals of thunder betokened the coming tempest, and it was with a sense of grateful relief, when our yawl was beached on the shingly shore in a little bay on the lee side of the island. The boat made secure, we dashed toward the dense evergreen forest into which shelter we were hardly ensconced when the storm burst upon us.

There was something undefinable in thus interviewing the fury of the elements, more inspiring than when in peaceful calm I had rowed my light dory from island to island.

One of my companions, a stalwart son of the old fisherman, with whom I was staying, soon after our arrival under the firs, began to continue his interrupted search for oological treasures, doubtless

stimulated by a reward I had offered him for each distinct variety he would discover. It was easy to walk about in our refuge as the trunks of the spruce and firs were branchless for a considerable distance, and the tops so closely interwoven protected us from the rain.

I followed my friend, not caring to lose his guidance, in the depths of this almost trackless forest and we had not proceeded far when he eagerly beckoned me to approach. Complying with his request, I joined him and he pointed out to me a nest about eight ft. up in a small spruce sapling. It was a neatly woven, compact structure of fine greyish plant-fibres, with a few white gull feathers ornamenting its exterior. Just visible above the brim, was the head and tail of the brooding occupant, thus admitting of an immediate, and positive identification.

I had at last found the home of the Black-poll Warbler, amid the solitude of this northern sea-girt island. The bird allowed me to approach within a few feet of the nest, before she left it.

Its contents were revealed to be five eggs reposing on a firm bed of exceedingly fine plant fibres. The eggs were rather coarse in appearance for the genus *Dendroica*, being of a bluish-white ground color, heavily splashed with various shades of brown over the entire surface.

NESTING HABITS OF THE WHITE-BELLIED NUTHATCH.

Sitta Carolinensis.

BY JAMES B. PURDY, PLYMOUTH, MICHIGAN.

The White-bellied Nuthatch, although a common bird and known to almost every schoolboy, has habits during their nesting season, that are unknown to any one except those who are close observers and make birds a careful study. They usually select for their nesting place a hole in a tree twenty-five or thirty feet from the ground and always in a natural cavity, and during the construction of the nest, which is always performed by the female, the male bird's entire time is devoted to furnishing her with food.

She first carries in a lot of fine material with which she builds the outside of her nest, and afterwards lines the inside with mouse-hair and a few feathers, which makes a fine, soft bed on which to deposit her eggs. The nest now being completed, she begins to carry in a lot of coarse material and covers up her nest to quite a depth. This being done, she now begins to deposit her eggs, but how she manages to get under this pile of debris to her nest proper is more than I can tell. But she gets there, and lays an egg each day until she gets a full set, which is usually from six to ten.

Up to this time her eggs are entirely concealed, and many a collector who does not know the habits of the Nuthatch has thrust his hand into a cavity, and finding nothing but a lot of coarse material, has concluded there was nothing there, when if he had dug down a little he would have found a fine set of eggs; and now when she is ready to incubate she carries out all of this coarse material and leaves nothing but her nest proper, and uses no more covering for her eggs during the entire time of incubation.

The male bird keeps himself in close attendance while the female is setting, and his greatest pleasure seems to be in carrying to her all the choice morsels of food that he can find until the young are hatched, when both labor together in furnishing food for their young, and thus it is that nature has endowed to each and every kind of birds habits peculiar to themselves, which makes ornithology and oology interesting and never ending studies.

JANUARY PRIZE QUESTIONS.

Following is a list of the correct answers to last January's "Ten Prize Questions" and also a list of the prize winners and competitors.

1. Robin (Robbing).
2. Thrasher.
3. Warbler.
4. Chat.
5. Dipper.
6. Flycatcher.
7. Raven (Raving).
8. Lark.
9. Turnstone.
10. Tattler.

Mr. F. L. Burns, Berwyn, Pa., secured the first prize, an egg of the European Swan, answering nine questions correctly. Mr. Chas. A. Ely, Perrineville, N. J., secured the second prize, a free subscription to this number of the O. & O. SEMI-ANNUAL, he also answering nine questions correctly. Mr. Burn's list was received first, which entitles him to first prize.

Following is a list of other competitors worthy of mention and the number of questions each answered correctly:

Mr. Chas. E. Cram, Davenport, Iowa, eight; Mr. Zach Taylor, Dunkirk, N. Y., eight; Mr. D. H. Van Pelt, Lansingburgh, N. Y., seven; Mr. W. B. Russell, Fiskdale, Mass., seven; Miss Lizzie Smith, Loveland, Colo., six, and Mr. Fred W. Curtis, Wauwatosa, Wis., six.

TEN PRIZE QUESTIONS.

Following is a set of "Ten Prize Questions" similar to those offered in the January issue. The first five were compiled by Mr. Edwin C. Davis of Gainesville, Texas, and the remaining five by Mr. H. C. Campbell of Lansingburgh, N. Y., to whom all lists of answers must be sent before August 15th, and prizes will be mailed to the winners as soon after that date as possible.

To the one answering the most questions correctly we offer an egg of the Snowy Owl; to the next Mr. Campbell offers a fine set of eggs of the Carolina Chickadee, and we also offer a free copy of the O. & O. SEMI-ANNUAL to the third, making three prizes instead of two as in last issue.

Remember the answer to each question is the name of some American bird.

1. A vessel used in our navy.
2. By what was electricity discovered for telegraphic purposes?
3. What will the schoolmaster do?
4. One of America's poet's favorite poem.
5. What do hunters like to do?
6. A dentist's instrument.
7. What Gen. Grant never did.
8. An ulcer in a horse's foot.
9. The brine remaining after the salt is concreted in salt works.
10. What a colored person working in a dairy farm might sometimes be called.

Be sure and send your list of answers to Mr. Campbell, and you should do so as soon as possible, as the first prize goes to the one whose list was received first, if the two largest lists have the same number correct.

A list of the prize winners and competitors will be published in the next number of the SEMI-ANNUAL.

EDITORIAL.

In our January issue we stated that if that number met with the success we expected it to, the next number would be greatly improved. We leave it to you to decide whether we have kept our promise, and will here state that last number *was* a success far beyond our expectations.

* * *

We were unable to present the engraving of some prominent ornithologist and oologist for a frontispiece to this number, as we could find none who were willing to send their likeness. All stated that they did not care to pose before the public. We have, however, tried to recompense by adorning the from page with an engraving of that gaudy mimic *Cyanocitta cristata.* In connection with it we publish a fine article, bringing out the characteristics of this bird, written by Mr. W. D. Doan.

* * *

Mr. C. C. Maxfield of Willard, N. Y. will assist in the editorial work on the next issue and all MSS should be sent to him in the future. We hope all our former contributors (and any new ones) will favor Mr. Maxfield with something from their pens, thus assisting him greatly in his work.

* * *

We wish to exchange with all publications relating to Natural History in any branch. Always send two copies, one to the publisher and one to the editor. We will send two copies in return.

* * *

Mr. L. G. Bishop of Necedah, Wis., has our thanks for a fine mounted specimen of the Baltimore Oriole, in the act of singing. It shows fine workmanship and an artistic taste and is a great success.

We also wish to thank Mr. H. W. Davis of North Granville, N. Y. for some very fine specimens he sent us The eggs were prepared very nicely, and with a full data to the set, make a fine improvement in our collection. Mr. Davis has an advertisement in this issue we think will interest you.

ORNITHOLOGIST & OOLOGIST, Boston, Mass. F. B. Webster, Publisher. Monthly, at $1.00 per year. Size 7x10 1-2, 16 pp. You have all undoubtedly seen this popular magazine, and we hope it has your support. It should adorn the table of every lover of birds. It is our best exchange.

WEST AMERICAN SCIENTIST, San Francisco, Cal. Samuel Carson & Co., Publishers. Monthly, 24 pp., $1.00 a year. For the Naturalist. Chas. Russell Orcott, editor. Official Organ of the San Diego Society of Natural History.

OOLOGISTS' EXCHANGE, New York City. Arthur E. Pettit, Chairman. Monthly, 4 pp., size 6x9. Twenty cents a year. The June number had in connection a supplement, an engraving of *Linnæus*. You should at least procure a specimen copy. The editorials are worth the price of a year's subcription. Mr. Pettit is starting out in a very lively manner and we must say that some of his shots are very near the bulls-eye.

CURLEW, Orleans, Indiana. Published for the Wilson Ornithological Chapter of the Agassiz Association, by O. P. Hauger & Co. Monthly 8 pp. and cover, size 7x8, 25c. a year. This interesting little exchange is improving with every number, and with its new cover makes a very favorable appearance. We wish it success.

HAWKEYE O. & O., Cresco, Iowa. E. B. Webster, publisher. Monthly, 8 pp. and cover, size 6x8. The subscription price for the current year will be 25 cents.

LOON, White Sulphur Springs, W. Va. Thad Surber, Publisher. Monthly, 8 pp., size 5 1-2x7 1-2, 50 cents per annum. This is a new one in the field for support and a reputation. We certainly hope it will stay, as the old saying goes, "the more the merrier," and we have found it so. We hope to see brother Surber redeem the cover he so scornfully cast away.

BIRDS OF WEST VIRGINIA, representing the Ornithological section of Bulletin No. 3 of the West Virginia Agricultural Experiment Station, from the compiler, Mr. W. D. Doan. Mr. Doan's work cannot be praised to highly in producing such a complete list of the birds in the section he worked. His notes on their food-habits are especially valuable. We shall try and republish the most valuable part of his work in future numbers of the SEMI-ANNUAL, and we feel assured it will interest all.

EXCHANGE AND WANT DEPARTMENT.

☞This department is open to all subscribers, free gratis, one notice each number. To persons not subscribers the price is 25 cts. for a notice of twenty-five words or less. Notices containing more than twenty-five words, a charge of ½ cent for each extra word will be made.

WANTED.—A breech-loading rifle, a revolver and eggs in sets. For the above I have sets of Nos. 53, 149, 402a, 486, 420 and other fine Florida eggs in sets with complete data. Correspondence solicited.

T. G. PEARSON, Archer, Florida.

I have some nice sets of Swans' and Geese eggs from the Rocky Mountains, end blown, at ½ rate in exchange.

H. W. DAVIS, North Granville, N. Y.

A light, jointed split bamboo fly rod (never used) for "Coue's Key," latest edition, not soiled, or for "Capen's Birds of N. E."

C. C. MAXFIELD, Willard, N. Y.

TO EXCHANGE.—Strictly first-class eggs in sets with complete data for the same. Send lists and receive mine in return.

J. WARREN JACOBS, Glenwood, Pittsburgh, Pa.

EXCHANGE OR FOR SALE.—Eggs in sets with full data for the same. United States collected. When writing send list and mention some of the kinds you would like.

H. W. DAVIS, North Granville, N. Y.

TO EXCHANGE.—I have from 600 to 800 skins always on hand. Will collect birds to order. Only first-class specimens handled.

R. C. MCCREGOR, Santa Cruz, Cal.
(Care Ocean Villa House.)

WANTED.—A file of the "American Sportsman." A good price will be paid for the whole or any volume. If you have any copies on hand be sure and write me.

CAPT. EDGAR A. MEARNS, Fort Snelling, Minn.

WANTED.—Sets of most any of the Warblers with nest, from No. 74 to 114. Can give in exchange Owls,' Hawks,' Ducks' and Geese, besides many others. Send list with wants.

H. W. DAVIS, North Granville, N. Y.

I will exchange a set of interior department stamps for the best offer of eggs received within 30 days.

JOHN OLDFIELD, Norton, Mass.

Will exchange "Princeton Review" for 1883, "Wonders of Sea & Land," "Braden & Kelley Debate on Mormonism and Disciple Church," and other books for back numbers of the "Auk," or papers and books on Natural History.

J. M. KECK, Chardon, Ohio.

I have the following sets to exchange: Blue-gray Gnatcatcher, Carolina Tit, Scarlet Tanager, Summer Redbird, Ruby-throated Hummingbird, Piping Plover, Willet and others. I want sets of Nos. 35, 36, 47, 50, 51, 56, 60, 63, 63a, 75, 85, 88, 95, 101, 114, 115, 124, 139, 148, 155, 158, 168, 170, 182, 193a, 242, 245, 249, 251, 260, 261, 262, 272, 275, 278b, 287, 303, 313, 320, 325a, 337, 336, 338, 340, 341, 430, 432, 442, 443. 459, 464, 480, 480a, 480b, 482, 487, 494, 555, 565, 567, 569, 572 and 574. Send list of what you have and state what you wish in exchange.

H. C. CAMPBELL, Lansingburgh, Rens. Co., N. Y.

Have a few nice sets of one egg each of Sooty, Bridled and Noddy Tern; with full date for others.

H. W. DAVIS, North Granville, N. Y.

Wanted for cash or in exchange any of the following: birds' eggs and skins, minerals, coins, fossils, butterflies, bugs, spiders and anything in the way of collections.

CHAS. HARTT, 1746 Roscoe St., Lake View, Ill.

For Vol. 1 complete of the "Hawkeye O. & O." I will give a set of 552 1-3, 687 1-2 and 723 1-1 with data.

C. O. TROWBRIDGE, Framingham, Mass.

First-class eggs, single and in sets, to exchange for same.

CHAS. E. CRAM, Davenport, Iowa.

EXCHANGE.—Sets of eggs for same. Have Eagles, Owls, Hawks, Geese, Ducks, etc., etc., with full and complete sets, with full data, collected in the United States. Sets of four of No. 558 Long-billed Curlew from Montana. Send list of what you have with nests of same.

H. W. DAVIS, North Granville, N. Y.

Davie's Key, 3d edition, paper bound, and Vol. 1 "Young Oologist" for birds' eggs in sets with data.

FRANK L. BURNS, Berwyn, Pa.

I have first-class birds' eggs in sets and single, Indian relics and a number of other specimens of various kinds, to exchange for first-class sets. Send for list.

WILLIAM N. COLTON, Biddeford, Maine.

TO EXCHANGE.—First-class eggs, sets and single, and data blanks (sold by dealers at 30 cts. per 100) for eggs in sets with data. Write first.

MARSHALL COUSINS, 522 Union St., Eau Claire, Wis.

Have single eggs of following to exchange for sets, Ridgeway's Nos. : 58, 65, 183, 209, 225, 317, 323, and A. O. U. Nos. 120^{c}, 474^{b} and 505^{a}.

H. W. DAVIS, North Granville, N. Y.

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So few copies of the best edition of the January number of the Semi-Annual are left that we are obliged to raise the price to 50 cents a copy.

As we have quite a supply of the POPULAR EDITION on hand, the price will remain the same, 25c. per copy. If you wish a copy you should not fail to

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149.	Logger H. Shrike,	6	.10	479.	Sage Hen,	6	
146a.	White R. Shrike,	5	.10	480.	American Quail,	10	
	Cal. Shrike, new var.,	6	.20	557.	Spotted Sandpiper,	4	
204.	Lark Finch,	4	.10	558.	Long-billed Curlew,	4	
269a.	Hooded Oriole,	4	2.00	451.	Bald Eagle,	2	2
357.	Night Hawk,	2	.40	601.	Mallard,	10	
355.	Poor Will,	2	1.50	609.	Blue-winged Teal,	10	
355a.	Frosted Poor Will,	2	10.00	617.	Canvas Back,	6	
369.	Yellow B. Sapsucker,	4	.50	618.	Red Head,	10	
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VOL. 2. 1890. NO. I.

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VOL. II, NO. I. JANUARY. 1890.

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THE GOLDEN EAGLE AND EYRIE.

(Pages 17 and 21.)

—— THE ——

ORNITHOLOGISTS' ✻ AND ✻ OOLOGISTS'

SEMI-ANNUAL.

VOL. 2. JANUARY, 1890. NO. 1.

FLOATING FEATHERS FROM THE WEST.

BY CHAS. A. KEELER, BERKELEY, CAL.

To the eastern observer, one of the most striking features of western bird life is the resemblance existing between the species found here and those in the east. We have our Western Robin, two Thrushes, Western Golden-crowned Kinglet, California Song Sparrow, Audubon's Warbler, Western Meadowlark and a host of other birds more or less closely connected with corresponding eastern species. It is the purpose of the present article, however, to briefly consider a few birds found in California which have no eastern counterparts.

A few days since, I accosted a gunner returning home from a day's hunt, to know what he had shot. He told me the only bird he had killed was a kind of a "Yellow Hammer." On asking to examine it, he produced a Road Runner from one of his coat pockets. It had been too badly damaged to stuff; but I purchased it of him for the sake of the skeleton. This is the third time I have recorded this species near Berkeley, as the bird is quite rare as far north as this.

Although a cuckoo in general form and in habits, this species is strikingly different from the rest of the genus. Long and slender in form, with lengthened tail and legs, the Road Runner is peculiarly adapted for rapid and long-sustained running, and can easily outstrip a horse. Its actions are rather grotesque as it runs and hops, with its iridescent tail now elevated and now lowered; but it is necessary to look quickly or the bird will escape you in

the thick chaparral in which it is generally found.

Perhaps their is no bird more interesting in this vicinity than the little California Bush Tit. I know of no species that approaches nearer to the size of the Hummingbird than the "Tom Tit," as the bird is generally called about here. Plain and unpretending as is its dress, its nest is a perfect marvel of bird architecture, and surprisingly large in proportion to the size of the bird. It is generally built in one of the clusters of lichens which festoon the live oaks, and is frequently over a foot in length. It is usually gourd-shaped, with a narrow neck, and greatly expanded within. The only opening is a small hole in the top, barely large enough to insert the finger. The nest is composed of bits of moss, lichens and similar material, and lined with soft feathers. I know of no bird that builds a more perfect or artistic nest, and think even the Baltimore Oriole must yield the palm to this pygmy of an architect.

The species, even in the breeding season, is generally gregarious, and small bands of from eight to twenty are usually seen in company. The parent birds are very solicitous when any intruder approaches their nest, and their anxiety often betrays the proximity of their home.

In voice and plumage, no bird could be more unpretending. Its note consists of a fine "zip-zip," which is uttered almost constantly, and its dress is of the plainest quaker drab. The back is of a dark ashy-grey color, with the head, wings and tail darker and inclining to brownish. The breast is dirty white, becoming darker on the flanks and belly. With all its unpretending plumage, it is still a merry little fellow, and makes up for its want of dress by the sprightliness of its actions.

Another very interesting little bird, which is characteristic of the California fauna, is the Wren Tit (*Chamæa fasciata*) or "Ground Wren" as it is frequently called. For some time after coming to California, I frequently heard a song that I was unable to place. It might be represented by the syllables "tit-tit-tit-tr-r-r-r-r-r," the "rs" being trilled. Frequently two birds would be heard singing at the same time, one uttering a note during the pause in the other's song, and both chiming in on the final trill. The effect of this was beautiful, as it was heard coming from the dry hillsides in a canon, and I was determined to find the musician.

At last a plain, brown bird was seen skulking among the chaparral, close to my feet, and soon he commenced his song. It was a Wren Tit.

This bird has little more to boast of in the way of fine feathers than the Bush Tit, for its back is a dull brown, becoming rather ashy on the head and decidedly ashy on the cheeks, and its breast a pale drab with a slight brownish tinge which becomes decidedly marked on the flanks. The tail is long and generally held erect or at a right angle to the body, after the fashion of the Wrens, while the plumage is very loose, as is the case with many of the Wrens. The bird is seldom seen at a great height from the ground, and is very tame, permitting a close approach; but its habit of skulking among the dense underbrush makes it rather difficult to detect.

There is probably no bird so abundant the year round in this vicinity as the California Brown Towhee (*Pipilo fuscus crissalis*). In plumage and habits it is very dissimilar to the other species of its genus, and reminds one of the Catbird more than a Towhee. Unlike most of the Towhees, it does not frequent dense underbrush and thickets; but comes into the towns and builds among the bushes and trees in the gardens.

Its nest is usually a bulky affair, composed of fine twigs, rootlets and straws; lined with horse-hair. The eggs are of a very pale blue color, spotted, scrawled and dotted with dark-brown and black, the markings generally forming more or less of a ring around the larger end. Many of the eggs also display faint shell markings of a lilac or purplish hue. This species has little more to boast of in plumage than the two preceeding species. Its song is, at best, a rather poor attempt at music, but the bird is nevertheless attractive for its interesting ways and domestic habits.

I fear that some of my eastern readers will begin to imagine that California is devoid of bright plumaged birds, as those I have described as distinctly Californian are all plain in color. Still we have our Orioles, our Tanager, our Violet-green Swallow and our Bluebird, beside many others which can rival the gayest colors of the east. In song, too, our birds can hold their own with all competitors. The House Finch bubbles over with ecstatic notes from our house-tops, the Vireo warbles in the maples, the Meadow Lark carols in the fields, and when evening comes, the Russet-backed Thrush sings a hymn to the setting sun, the purest, sweetest and serenest of all bird music.

THE BELTED KINGFISHER.

Ceryle Alcyon.

This bird has a length of about 12—13 inches; extent, 19—20 inches; bill 2 inches, and tarsus very short. Feet and legs very slight and slender, in proportion to size and weight of bird. The inner toe is much shorter than the two others. The middle and outer toes are joined for more than half their length.

Ceryle alcyon.

BELTED KINGFISHER.

The color of the upper parts is a slaty-blue; tips of wings and tail black, crossed by dotted lines of white, giving an impression of bars.

Under colors white and chestnut; the chestnut forming a band across front of throat and along sides of breast to the legs. A small white spot is formed in front of each eye. There is, also, a chin and ring encircling throat of white.

The crest is thin and long and nearly always carried erect. Each feather of it has a black stripe along the center; the remaining portion of blue similar to upper parts. This gives the crest a slightly darker hue.

They are usually among the first dozen of migrants that arrive in the spring. The freezing of the smaller streams and the formation of ice along the margins of the larger streams seem to be the cause for this departure for the south. In the fall of the year 1889 they left some weeks before any ice was formed.

It inhabits the margins of streams, sitting for hours over the water, usually perched on a dead limb or stub, watching for small fish. When a fish is seen, it darts headlong from its perch, and the fish, if caught, is brought up in its beak.

In mid-summer they may be occasionally seen poised in mid-air above the water, hunting for fish.

A sand bank is chosen as a breeding place, and a hole, 6 or 8 feet in depth is excavated, the end of which is enlarged. Little or no attempt at nest building is made. Sometimes a few fish bones are found at the end.

The eggs are usually six in number; white, spheroidal in shape and measure about 1.25x1.05.

A nest was observed five or six years ago in a sand bank, within fifteen feet of a much traveled highway. The parent birds were frequently seen perched on the telegraph wires or the peak of a barn just across the road.

C. C. M.

WINTER BIRDS OF RALEIGH, N. C.

BY C. S. BRIMLEY.

131. *Lophodytes cucullatus.* Hooded Merganser.—Rather rare.
132. *Anas boschas.* Mallard.—Common.
139. *Anas carolinensis.* Green-winged Teal.—Have observed them several times in February.
144. *Aix sponsa.* Wood Duck.—Rather rare.
146. *Aythya americana.* Redhead.—Rather rare.
190. *Botaurus lentiginosus.* American Bittern.—Casual; one killed here Dec. 6, 1886.
194. *Ardea herodias.* Great Blue Heron.—Occasional all winter.
208. *Rallus elegans.* King Rail.—Occasional.
221. *Fulica americana.* American Coot.—Occasional.
228. *Philohela minor.* American Woodcock.—Rather rare; sometimes abundant in the migrations in December and February.
230. *Gallinago delicata.* Wilson's Snipe.—Occasional all winter.
273. *Ægialitis vocifera.* Killdeer.—Tolerably common.
289. *Colinus virginianus.* Bob-white.—Common.
310. *Meleagris gallopavo.* Wild Turkey.—Rare.
316. *Zenaidura macroura.* Mourning Dove.—Common.
325. *Cathartes aura.* Turkey Vulture.—Abundant.
326. *Catharista atrata.* Black Vulture.—Common; usually seen in flocks, seldom singly.

331. *Circus hudsonius.* Marsh Hawk.—Tolerably common.
332. *Accipiter velox.* Sharp-shinned Hawk.—Tolerably common.
333. *Accipiter cooperi.* Cooper's Hawk.—Tolerably common.
337. *Buteo borealis.* Red-tailed Hawk.—Rather rare. This and the preceding are the only Hawks I have detected eating chickens.
339. *Buteo lineatus.* Red-shouldered Hawk.—Rather common, apparently quite harmless to birds and chickens.
360. *Falco sparverius.* Sparrow Hawk.—Common.
367. *Asio accipitrinus.* Short-eared Owl.—Occasional in winter.
368. *Syrnium nebulosum.* Barred Owl.—Common. This is the common large Owl of this region.
373. *Megascops asio.* Screech Owl.—Common.
375. *Bubo virginianus.* Great Horned Owl.—Quite rare.
390. *Ceryle alcyon.* Belted Kingfisher.—Rather rare in winter.
393b. *Dryobates villosus audubonii.* Southern Hairy Woodpecker.—Not common; usually one of the shyest and most difficult to approach of the Woodpeckers.
394. *Dryobates pubescens.* Downy Woodpecker.—Common.
402. *Sphyrapicus varius.* Yellow-bellied Sapsucker.—Commonest of our Woodpeckers, except the Flicker, and the easiest to collect. Feeds almost entirely on berries.
405. *Cophlœus pileatus.* Pileated Woodpecker.—The Logcock is quite rare here; but they seem to linger on and I have seen them within half a mile of the city within a year.
406. *Melanerpes erythrocephalus.* Red-headed Woodpecker.—Rare in this immediate locality in winter.
409. *Melanerpes carolinus.* Red-bellied Woodpecker.—Rare.
412. *Colaptes auratus.* Flicker.—Our commonest Woodpecker.
456. *Sayornis phœbe.* Phœbe.—Rather common here in winter.
474. *Otocoris alpestris.* Horned Lark.—Irregular winter visitor; usually rather rare, sometimes very common as in winter of 1886-7.
477. *Cyanocitta cristata.* Blue Jay—Common. Its distribution here depends on the crop of acorns, beech-nuts, etc.
488. *Corvus americanus.* American Crow.—Common.
495. *Molothrus ater.* Cowbird.—Common transient; rare in winter.
498. *Agelains phoeniceus.* Red-winged Blackbird.—Usually

common; sometimes quite abundant in winter.

501. *Sturnella magna.* Meadowlark.—Abundant.

509. *Scolecophagus carolinus.* Rusty Blackbird.—This species and the next are usually rather common fall transients, leaving us early in December and occurring occasionally during the rest of winter; both usually begin to return again late in February.

511. *Quiscalus quiscula.* Purple Grackle.—Has the same status as the preceding species.

517. *Carpodacus purpureus.* Purple Finch.—Usually rather common.

529. *Spinus tristis.* American Goldfinch.—Common.

533. *Spinus pinus.* Pine Siskin.—Irregular winter visitor. Common in winters of 84-5; 86-7; 87-8. None in winters of 85-6 and 88-9.

540. *Poocætes gramineus.* Vesper Sparrow.—Abundant.

542a. *Ammodramus sandwichensis savanna.* Savannah Sparrow.—Common.

558. *Zonotrichia albicollis.* White-throated Sparrow.—Abundant.

560. *Spizella socialis.* Chipping Sparrow.—Not a winter bird with us; but stays till the first week in December and then leaves us to return in March.

563. *Spizella pusilla.* Field Sparrow.—Abundant; one of our commonest birds.

—— *Passer domesticus.* English Sparrow.—Abundant.

567. *Junco hyemalis.* Slate-colored Junco.—Abundant.

581. *Melospiza fasciata.* Song Sparrow. Abundant.

574. *Melospiza georgiana.* Swamp Sparrow. Common in meadows and damp thickets.

585. *Passerella iliaca.* Fox Sparrow.—Abundant, but not so generally distributed as most of the other sparrows.

587. *Pipilo erythrophthalmus.* Towhee.—A few usually stay with us in sheltered thickets during the winter.

593. *Cardinalis cardinalis.* Cardinal. Common.

619. *Ampelis cedrorum.* Cedar Waxwing.—Not uncommon, but very irregular and uncertain in its occurrence.

622. *Lanius ludovicianus.* Loggerhead Shrike.—Rather rare.

629. *Vireo solitarius.* Blue-h'd'd Vireo.—One taken Dec. 15'85.

655. *Dendroica coronata.* Myrtle Warbler.—Tolerably common.
671. *Dendroica vigorsii.* Pine Warbler.—Common.
672a. *Dendroica palmarum hypochrysea.* Yellow Palm Warbler.—Occasional.
681. *Geothlypis trichas.* Maryland Yellow-throat.—One taken Feb. 7, 1889.
697. *Anthus pensilvanicus.* American Pipit.—Common.
703. *Mimus polyglottos.* Mockingbird.—Tolerably common.
704. *Galeoscoptes carolinensis.* Catbird.—Occasional.
705. *Harporhynchus rufus.*—Brown Thrasher.—Rather rare; a few stay the winter in sheltered localities.
718. *Thryothorus ludovicianus.* Carolina Wren.—Common.
719. *Tryothorus bewickii.* Bewick's Wren.—Rare.
722. *Troglodytes hiemalis.* Winter Wren.—Common.
726. *Certhia familiaris americana.* Brown Creeper.—Common.
727. *Sitta carolinensis.* White-breasted Nuthatch.—Tolerably common.
728. *Sitta canadensis.* Red-breasted Nuthatch.—Usually a not uncommon bird here in winter; but rather irregular in its occurence; none seen in winter of 1887-8.
729. *Sitta pusilla.* Brown-headed Nuthatch.—Common; a little bird of gregarious habits; to my mind, the most interesting of the three Nuthatches.
731. *Parus bicolor.* Tufted Titmouse.—Common.
736. *Parus carolinensis.* Carolina Chickadee.—Common.
748. *Regulus satrapa.* Golden-crowned Kinglet.—Abundant.
749. *Regulus calendula.* Ruby-crowned Kinglet.—Tolerably common; sometimes abundant. We occasionally take specimens with the crown patch orange or yellow, instead of red.
759b. *Turdus aonalaschkæ pallasii.* Hermit Thrush.–Common; often sings while with us in the winter.
761. *Merula migratoria.* American Robin.—Occurs irregularly in winter; sometimes common and sometimes scarce.
766. *Sialia sialis.* Bluebird.—Common.

The above list of 84 species is a tolerably complete list of the winter birds of this section. A few more species of ducks doubtless occur here and perhaps some other birds such as the American Crossbill, which has been taken here in March, or the White-crowned Sparrow, which is given by Prof. Atkinson as accidental at Raleigh; but I have given all the birds which have come under my observation as occurring in December, January and February.

OBSERVATIONS FROM THE DECK OF A STEAMER.

BY L. OTLEY PINDAR, HICKMAN, KY.

I left Hickman, Ky., which is situated on the Mississippi River, one afternoon late in August, 1889, on the steamboat Granite State.

Soon after the boat left the wharf, I stationed myself on the upper deck to see what birds I could find on, over, or by the river, which, as there was no wind, was as smooth as a moonlit lake.

Numbers of Forster's Terns were to be seen, some skimming over the surface of the water, others mounting higher and higher, farther and farther away till lost to view, while others again sported here and there as carelessly as the Chimney Swifts and Barn Swallows that darted by the boat, or the Turkey Vultures that whirled in mazy circles overhead.

On a tall tree, near the river and just below Columbus, Ky., was a family of Kingbirds, and in the same tree was the nest which had been their summer home and which they would so soon desert. Just above Columbus a Snowy Heron flew from a clump of willow bushes at the approach of the boat and a little farther on some Kildeers ran about uneasily as the boat's wheel sent the waves rolling over the low, flat bank on which they were searching for food.

Dusk fell as we neared Cairo, and the darkness above us seemed to be increased by the large flocks of Crows flying to their roosting places in the dense Missouri swamps.

The next morning found us some distance up the Ohio River. All through the day and indeed during the whole trip the Swifts, Barn Swallows and Vultures were common. But they were not all. That giant wader, the Great Blue Heron often flew across

the river in advance of us. The White-bellied Swallows mingled with the more somber Swifts in their aerial evolutions.

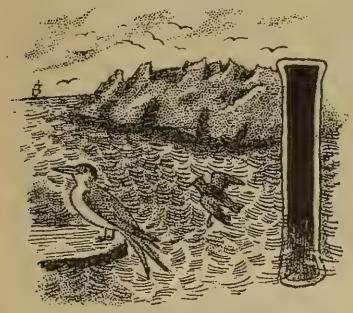
On the banks on both sides of the river could be seen various species of birds. Where the woods came down the water's edge Bronzed Grackles were in plenty, some sitting in the trees, others walking on the ground. A few Carrion Crows were noticed at different places, particularly Shawneetown, Ill. and Lewisport, Ky. Robins were plentiful, always in good sized flocks; and in Illinois particularly, wherever cleared fields edged on the river, the Field Lark was heard and occasionally seen, and if these fields were bordered with weed patches and bushes the Field Sparrow was sure to be there.

A large covey of Bobwhites flew up in a field near Henderson, Ky. at the sound of the boat whistle, while seven or eight miles above this place an immense colony of Bank Swallows had found summer quarters in a high bank that rose straight from the water forty or fifty feet.

Other birds were noticed which could not be identified and one which could well be dispensed with was very easily identified, viz. the English Sparrow, found in abundance in every place at which the boat stopped, especially the larger towns and cities.

COLLECTING OFF THE COAST OF MAINE.

BY CHAS. S. BUTTERS, HAVERHILL, MASS.



I HAVE not been in the habit of writing for magazines, but perhaps some of the readers of the O. & O. SEMI-ANNUAL would like to learn about a trip I took this spring down the coast.

A party of ten of us left Newburyport, Mass., July 6th, on a fishing excursion, but if anyone had examined my trunk, they would have found many articles that were of no use in a fishing trip; i. e., four large cigar boxes, filled with cotton, drills, blow-pipes, embryo hooks and note-books. I went prepared in case anything should turn up.

On the morning of July 8th, after leaving Portland Harbor, we were becalmed off Green Island, about ten miles from the city. One of the crew rowed me ashore to see if I could find anything in the line of specimens.

When we left the yacht we could not see anything of any birds, but as we neared the island we could see birds flying up in all directions, which we found, on closer examination, to be Terns. Anyone expecting to identify Tern's eggs by flushing the bird will be most sadly mistaken.

Upon climbing to the top of the island (which was a small one, containing about an acre and a half, about 50 ft. above the sea level), I found all the birds had left their nests and were circling around overhead, just out of gun range, filling the air with their cries, which they continued to do as long as I remained upon their domain.

I collected about twenty sets of from two to five of the freshest eggs, which I think were of the common species. I found sets of three more often than any other.

After carefully putting on the set marks, I put them in a small basket which I brought from the yacht.

The island was covered with a rich growth of grass and weeds, two feet in heighth, to within about six feet of the edge of the rocks, and on this clear space around the edge of the island, I found the nests. They were composed of a little dried grass, laid in a small depression on the rocks, no attempt being made at concealment. All the nests were placed where the sun could assist in the work of incubation.

In going back to the boat, I saw on the edge of the bank some queer-looking holes, greatly resembling those of the Bank Swallow, but about twice as large. I put my hand into one of these holes about eighteen inches and felt something very much like feathers. I drew it out and found I had a species of Petrel. Upon examination, I found it the Leach's.

Letting the bird go, I put my hand into the hole again and found an egg almost buried in the soft, fine dirt, of which the bank was composed. It was chalky-white, with a very fine ring of purplish-red spots around the large end; was a fine specimen and measured .89x1.24. I was very much pleased with my find, and in about an hour I had fifteen sets of their eggs. Some of them were pure white; others had a ring of spots quite distinct, but on most of them the spots were very faint.

In size they averaged about .89x1.24. The number of eggs in a set was always one, and I invariably found the bird at home. Sometimes by the time I got into where the nest was, I found the bird off the nest, but she would always be in the hole.

Sometimes I could put my hand under the bird and remove the egg, but as a general thing I had to remove the bird first, and feel around in the dirt for the egg. In one instance I found young, but some of the eggs were badly incubated.

The birds appeared to be quite torpid when taken out. I gave some of them a toss into the air and they would fall to the ground and not make an effort to fly, but would attempt to hide themselves among the grass and underbrush.

As I did not see any of the birds around, I think they stay at home during the day and take their exercise at night.

The burrows were made in all directions, some very near straight, while others were very crooked. In depth, they averaged about two feet. There was not much of a nest in any of

them, consisting of a small amount of dried grass, on which the egg is laid.

When I took the boat and went aboard I was well satisfied for the time I had spent.

I found on blowing my specimens that they were all the way from fresh eggs to those that were badly incubated, but by careful blowing, and with the help of the embryo hook, I was able to save most of them.

I hope later to give some experiences I had, on the same trip, further down the coast, among the Gulls.

NESTING OF THE WILLIAMSON'S SAPSUCKER.

Sphyrapicus Thyroideus.

BY WM. G. SMITH, LOVELAND, COLORADO.

As but little is generally known of the nesting of this species, I thought a few lines on the subject would be interesting and acceptable to the numerous readers of the O. & O. SEMI-ANNUAL.

Although among the rarest of the Rocky Mountain *Picadaes*, owing to its aspirations for high altitudes, it is not so common as it appears to be, and moreover it is a very shy and quiet bird. I have never heard it make but a faint chirp and only then when in flying from tree to tree; but his unmistakable noise when at work divulges its presence to the initiated. He does but very little tapping but makes a succession of burr—ing sounds, and generally in an old dead tree, which may be heard at a long distance, but the direction is not so easily ascertained, as the vibrations from hill to hill are very deceiving, and I am not the only one that has been led in an exactly opposite direction, to find out your error after a half-mile climb, that the bird is on the hill you have just left.

They arrive from the south early in May, and by the 4th of June (last year) I found a set of five eggs, which appears to be about the full complement, as they were slightly incubated. I took two sets of four the day previous; all placed in hollow pine trees and deposited on a few chips. The entrance hole was very small and eggs placed about a foot from aperture, and in one instance at the extreme top of a tree, fully 70 feet high. All these sets I took at about 800 ft. elevation. On the two following days I took three more unfinished sets at a higher elevation, 1-3 and 2-2, proving that the higher altitude and consequently colder atmosphere checks them somewhat. The eggs are pure white, of uniform shape and average 15-16x11-16.

Being badly in need of skins of that species, I collected most of of the old birds; among them was one female that the red throat-mark very plainly (I never observed any trace of it before.) Her mate was the most beautiful specimen I ever saw, and that same pair occupied the high tree. Perhaps vanity led them to select such an exalted position.

None of those I took were less than 15 feet high, but I once found a nest of young only a few feet from the ground, so that high nesting is not entirely a rule with them.

THE GOLDEN EAGLE.

Aquila Chrysaetos.

BY GEO. F. BRENINGER, FORT COLLINS, COLORADO.

Confining myself in the writing of this article exclusively to the distribution and nesting of the Golden Eagle (*Aquila chrysaetos*) and such notes that may seem proper in the article in connection with the bird, I shall endeavor to place before the reader as complete a history of this noble bird as is in my power.

Larimer County contains 4000 square miles. The north-eastern portion is made up entirely of barren plains, with irregular outcroppings of sand stone that form what is known as "Chalk Bluffs," "Twin Buttes," while smaller ones have no particular name at all. Here and there dry creeks are encountered that carry water only in times of heavy rainfall. At other seasons they are perfectly dry. The south-eastern portion is the fertile "Cache la poudre" valley, covered with farms, pastures, etc. The greatest part is mountainous, and by going up some little hill on the plains, one can see the Snowy Range and Long's Peak, white with snow in mid-summer. Across this lofty range of mountains we find we still have a whole country by itself, nestled down between the Medicine Bow and Rabbit Ear range of mountains. This also is a portion of Larimer County. This is North Park, 9000 feet above sea level.

Over this whole tract of country we meet with the eagle. Chalk Bluffs is a noted place for them and for many years eagles have lived there and reared their young in peace. I was pointed to a high rock that still bears the name of "Eagle Rock." The eagle that inhabits the plains when the month of March approaches, is forced to look up as good a nesting site as the country will afford. Often an eagle will locate its nest upon a low strata of rocks, within reach of the ground. Those that inhabit the mountains find a place more difficult.

From my present observations I can safely say that there is not less than 25 inhabited nests in this one county. I might cite a hundred cases of my encounters with them, one time in particular

when I fully expected to secure my birds. It was one evening, late in September, after the last shadows of the sun were fast disappearing. I was driving slowly up and around a bend in a deep canon, carelessly looking about at the different Magpie's nests, from which I had taken eggs the spring before. In the top of a tall cotton-wood tree, I saw the dark forms of two large eagles, quietly perched among its lofty branches. I was very anxious to obtain a pair for my collection and I was soon upon the ground; a quick aim with a 12 guage collecting gun rewarded me only with a handful of feathers.

On the 3d day of May, 1887, I met my first eagle's nest. Since that time I have seen a great many. My trip was more for a series of Magpie's eggs than anything else, and the country was new and strange to me. I had traveled all the forenoon and most of the afternoon without finding a house where I might get my dinner. About 4 o'clock I saw my desire in view; about a mile down the canon I saw a house, and for it I started, fatigued and almost exhausted with hunger. I asked of the lady if I might take supper there. Stating my object of collecting, I soon learned that there was an eagle's nest near by, and also a nest of our large Western Horned Owl. This last I knew I was too late for.

My repast was finished, charges paid, and I was again on the road, feeling a great deal better than I had felt an hour previous. My mind was all turned with the desire of finding that eagle's nest the lady spoke of at the house by the wayside. My eyes were carefully scanning the top of a long and high ledge of brown sand-stone, least I should see the male bird pluming himself or sitting in repose on some isolated point. I soon found him. My object was to start the bird, and he would invariably fly by the eyrie where the female was covering her eggs or young, as the case might be. For the first time in my career as a naturalist, I beheld before me an eagle's nest. My anxiety was raised to the highest pitch and I lost no time in casting off all my unnecessary equipments, including my coat. Taking my gun, I began my ascent by a winding detour to an opening by which I expected to reach the top. I was pushing my way still harder and faster after I saw the female leave the nest. The cliff was 100 ft. from top to bottom; 75 ft. up was the nest, on a shelving rock, and 25 to the nest from the top.

From the top I looked over. There were no eggs, but two downy young, scarcely two days old. I got the young by means of a rope, and shot the old bird. By this time it had grown quite dark, and I was several miles from a house. There was nothing left but to spend the night on top of that lonely mountain. I gathered together a large pile of dry cedar wood and built a fire, with the intention of keeping it burning all night, as the night air was quite chilly and nothing to protect me from the cold but my overcoat. I put my birds close to my head to keep the wildcats and wolves from carrying them away and laid myself down to sleep. The silence of the night was broken at intervals by the dismal howling of wolves and hooting of owls. Now and then I would have to replenish my fire.

Through the last half of the night I was brought to my feet rather hurriedly. Some wolves had gathered in a little hollow which was not more than 80 yards away. They made themselves known by a succession of yells that echoed from hill to hill. I could have discharged my gun, but thought I would not waste the charge, and in case they ventured too near I would try and mark one down..

The rest of the night was spent in about the same manner, with an eager desire for morning. I had looked along the brow of the hill to the east for hours, that I might see that faint, yellow line along the horizon and welcome the approaching day. Long before sunrise, with my eagle under my arm, an eagle in each of my overcoat pockets and my gun over my shoulder, I started for my breakfast. The memory of the nest and the taking of the eagles is still fresh on my mind, while the bird is mounted with full spread of wings and holds its place in my museum room as the largest of its kind there.

I might add that I took a beautiful set of two eggs from the same nest last spring, on the same day I visited a place known as "Eagle Rock." I saw the nest so far up its rugged sides that it appeared only a speck against the rock. My companion and myself were riding true mountain horses and by circuitous riding we at length halted and tied our horses to the last pine tree that grew on that side of the mountain. We had avoided the cliff itself and ridden around and made half of the ascent, but still the nest was 200 yards from where we stood and fully 150 feet higher. I looked at the nest, its elevation, and turning to my companion,

I said, "we will never reach that nest." But some one had once achieved the feat by securing the eggs from the nest. We must go on by all means, clambering over rocks, up and down. We seated ourselves to rest. In the meantime the eagle had flown from the nest and was circling far up in the blue sky. Having reached the narrow shelf or ledge on which the nest was located, my companion left me to finish the task, if it should ever be finished. I crept on all fours along that ledge, 300 feet from the bottom, till I came to a place too narrow for me. The nest was directly above. The sticks which had dropped from age and decay lay scattered before me, yet I could go no further and gave it up as *lost*. This eyrie was beyond the reach of shot from either above or below, the top being so sharp and cragged that no man could stand there to lower a rope.

It has often been said that whenever obtainable or in fact in any mountainous country that the Golden Eagle always selects for a nesting site some shelving rock on the face of a high rock or cliff. True; but this rule must not stand as one to be relied upon. All of the eagle nests which I have seen were built in just such out-of-way places, out of the reach of man, on cliffs of rock, with the exception of one. This one particular nest is built in the forks of an aspen tree, in a gulch down the side of Independence Mt., North Park. I happened there on the 2d day of December, 1888. An elevation of nearly 10,000 feet at that time of the year made everything have the appearance of winter. A storm had just been prevailing, the ground was covered with snow, and the huge nest, 40 feet up in the forks of the aspen tree was quite a conspicuous object, so much so, that when I made inquiries at the ranch below, into the history of the nest, I was told that a pair of Black (Golden) Eagles had brought forth their young in that nest, unmolested, for many years past.

This mountain carries quite a record. Many years before stock raising and cattle kings commanded the mountain and surrounding country, a party of miners, seeking for wealth from the bosom of the earth, found the mountain rich in gold, and some excellent placer diggings might be founded. With hope and skill a few log cabins were put together and sluices made, preparatory to treating the ground that bore such rich indications. They had scarcely commenced their work when they were swept down

upon by a hostile band of Ute Indians. Some of the party escaped, while not a few were forced to suffer death by the hands of their foes. Independence Mt. still stands in bold relief against a cold sky and cattle graze in the valley below.

The Indian has fled before the onward stride of civilization, but the work of that couragious little band of miners still stands to show what once happened. The dark traces of the life blood of some victim still clings to the walls. The sluices have grown wide and deep from the swelling torrents of spring rain. A few old Silver-tipped Range Bears and Mountain Lions make the laws to suit themselves, while the Golden Eagle soars high above the mountain crest, and rests and plumes himself on some points that hold snow and ice ten months in the year and secures his living by capturing rabbits, grouse and prairie dogs.

Seated at my desk, I can look up and see a rock that holds the eyrie of an eagle. A little farther on around the bend is another. Near the old 7L. horse ranch is a nest that has been used for many years, and is seldom seen, except by cowboys in the spring round-up. On Maynard Flats there are nests which have been abandoned years since on account of being nearly on the ground. The sticks of one of these nests would be sufficient to load an ordinary farm wagon, or enough fuel to last some needy family a week.

THE NIDIFICATION OF THE GOLDEN EAGLE.

BY W. RAINE, TORONTO, CANADA.

There are upwards of fifty species of Eagles at present known; but only two species are residents of North America, the Golden Eagle and the Bald Eagle. The latter only inhabits North America; but the Golden Eagle is cosmopolitan, being found in the mountainous regions of Europe, Africa, Asia and America. In America the Golden Eagle is most numerous among the mountains of California and British Columbia, and is also known to breed in Pennsylvania, New York, New England and Quebec.

Although I was never fortunate enough to take a clutch of the eggs of this noble bird from the nest, still I have a large series of

thirty eggs, collected in California and Asia Minor, and I hope the following extracts taken from letters sent me by my Asia Minor collector will prove interesting to my readers.

The Golden Eagle is abundant amongst the mountainous regions of Asia Minor, and, as they are never disturbed, they do not always make their eyries in the most inaccessible crags, near the mountain top, but sometimes have their nests in comparitably low cliffs, usually selecting a ledge of rock which commands an extensive view over the plains below. Their nests are made of sticks, sods, bones, feathers, etc.; a massive structure, and as the eagle returns every year to the old nest and repairs and adds to it, it sometimes is so large that it would fill a cart. They often select a ledge of rock near the nest for their larder, and here the parent eagles store up food which they bring from the plains below.

Early in March my collector set out with two Turks, all three mounted on mules, taking along with them ropes, an iron crowbar and provisions for a fortnight sojourn among the mountains, as they intended visiting the haunts of the eagles and vultures. After travelling all day they reached the foot of the precipice and pitched their tent for the night. Early next morning they began to look out for eagles, and seeing a pair soaring over a crag, a mile off, they hastened thither and found the nest in the cliff, half way up. One of the Turks, a young man as nimble as a goat, scaled the cliff from below and reached the nest and two eggs, which he brought to *terra firma* in safety.

These two eggs are now before me; they are a handsome clutch, ground color greyish-white, finely speckled all over with rusty brown, towards the smaller end are large patches of lilac grey and upon these are blotches of rich sienna and dark blotches of vandyke brown. Size 3.20x2.50; 2.95x2.38. The same day my collector and his Turkish friends took two more clutches and several of the Egyptian Vulture.

Next day they ascended to the top of a precipice, a few miles away, and began fixing their ropes to the crowbar, which was stuck in the ground near the top of the cliff. They descended, on several occasions securing several clutches of the Golden Eagle and Vulture, but this process is daring and dangerous, for if the rope breaks or slips the climber runs great risks of being mangled upon the rocks at the base of the cliffs.

The Golden Eagles' nests are never close together, a mile or two of cliff separates one nest from another; but the nests of Egyptian Vultures are found close together, one crag containing as many as nine nests. For several days my collector visited all the cliffs within ten miles of their camp, and then they went further back in the mountains amongst the higher peaks. Here they secured several clutches of Golden Eagle and three of the Lemmergeyer or Bearded Vulture. This bird inhabits the highest and wildest mountain crags. It rivals the Condor of the Andes in size; its expanded wings measure 12 feet. Its nest is like that of the Golden Eagle, and its eggs, two in number, are similar in color to those of the Eagle, whitish in ground color; but heavily splashed and blotched with shades of brown. The eggs are large, averaging 4x3 inches.

After spending nearly two weeks among the mountain crags, my collector and his assistants returned home with their spoils, and the specimens were in due time forwarded to me, and an open drawer now before me contains the following eggs collected during their expedition: 30 eggs of Golden Eagle, 4 Imperial Eagles, 45 Egyptian Vultures, 4 Griffon Vultures, 6 Lemmergeyers, beside several clutches of Falcons, Hawks and Buzzard. The following are the sizes of eggs selected from thirty specimens: Two of the largest specimens measure 3.20x2.50 and 3.20x2.38; two of the roundest eggs measure 2.95x2.37 and 3.00x2.38; two of the smallest measuring 2.80x2.30 and 2.85x2.20.

Out of this series two clutches contain three eggs each; the rest of the nests contained only two eggs, which appears to be the regular number. The ground color of the egg is greyish-white and the markings vary to a great extent. One clutch is richly blotched with lilac at the smaller ends, this color covering the entire ends of the eggs. Another clutch is heavily spotted and blotched with rusty brown and neutral tint at the thick end of the egg. All the eggs are more or less mottled and spotted with lilac-grey under shell markings, on the top of which are spots and blotches of different shades of brown. One of the thirty eggs is white, unspotted like a Bald Eagle's. The eggs of the Golden Eagle average larger than those of the Bald species.

In California the Golden Eagle usually nests in trees. The nests are very bulky, composed of large sticks, the top cushioned

with straw, leaves and grass. The eggs are often difficult to reach as the nest is from four to five feet in diameter and overhangs to such an extent that it is no easy matter for one who is clinging to the tree-top to put his hand over the nest to reach the eggs. The only way left is to break away part of the nest, and this is so strongly built that the collector is nearly exhausted before he feels his hand touching the eggs.

A set of two eggs collected in California March 20, 1888, are white in ground color, spotted and sprinkled all over with rusty brown, and under shell marking of lavender grey. Size 2.88x2.25 and 2.90x2.20.

Eagles are destructive but not cruel birds, for although they deprive many birds and beasts of their lives, they effect this purpose with a single blow, sweeping down upon the doomed creature aud striking it so fiercely with the death-dealing talons that the victim is instantaneously killed with the shock. The Eagle never uses its beak for the purpose of killing its prey. Instances have been known when the Eagle has seized and attacked human beings. A few years ago one attacked a traveler on a lonely mountain road in Germany, but he seized the bird by the neck and strangled it, not before it had done considerable damage to his clothes, legs and arms. Prof. Wilson tells a touching story of a Golden Eagle descending and carrying off an infant, whose mother had laid it beside a haycock while she was working in the harvest field close by. The eagle was traced to its eyrie in the precipice, some distance off, and the poor mother, blind to all danger in her efforts to recover her babe, safely scaled the precipice, high up in which the nest was placed; though no man, however skillful a cragsman, had ever dared attempt the ascent. Here the mother found her child alive and unhurt, and clasping it to her arms, she descended again—a more perilous feat still; reached the ground in safety and then swooned away.

The Golden Eagle is fond of fish. One in Scotland was found drowned, attached to a large pike; it had pounced upon the fish and being unable to extricate itself was drawn under and drowned.

The Eagle is long-lived like the Raven; one lived in captivity at Vienna to over one hundred years old. This species is monogamous, keeping themselves to a single mate, living together in perfect harmony through their lives. Should, however, one get

killed, the survivor soon finds a new mate and returns with it to the old haunts. The females are always larger than the males.

The Golden Eagle does not nest in this part of Canada, but breeds in the neighborhood of Quebec. Several have been killed here in this district and one was captured on the river Humber, four miles west of the city of Toronto. It lived in confinement some time. The color of this bird is rich blackish-brown on the greater part of the body, the head and neck being covered with feathers of a rich golden-red, which gives the bird its name. The legs and thighs are greyish-brown, the tail dark grey, with dark bars across it. The cere and feet are yellow; legs feathered down to the toes. In its immature plumage the Golden Eagle has a different aspect and formerly puzzled many naturalists, who took it to be a separate species. Its color is reddish-brown, legs and sides of the thighs nearly white and the tail white for the first three-quarters of its length. The length of an adult female is 3 feet, 6 inches, and expanse of her wings is 9 feet.

THE AMERICAN LONG-EARED OWL.

Asio Wilsonianus.

BY DR. W. S. STRODE, BERNADOTTE, ILL.

This interesting *Bubonidæ* is not uncommon in suitable localities throughout the state of Illinois. From its shy and retiring habits it is not often met with by the casual observer. In thick groves and belts of young timber, bordering sloughs and small streams of water, it is most often seen.

AMERICAN LONG-EARED OWL.

In the Spoon River region of central Illinois, its eggs should be sought for from the middle to the end of March. The number of eggs seems to vary in different localities. In the eastern states three or four is the usual number. In the western states five is the average and six not uncommon.

In the spring of 1887 I found two nests, one containing four and the other five fresh eggs. In '88 two nests were found, each containing five eggs, some of them partly incubated, and, as I shall hereafter show, this record was beaten during the collecting season just passed.

On April 22d, '89, after making a professional visit afoot, I found myself ten miles from the village of Bernadotte, a fine collecting territory lying between me and my destination. About one-half the distance was along a small creek bottom, lined on either side by an occasional belt or grove of a dense growth of young oak timber.

With the hope of finding the nest of a "Zebra" Woodpecker, (*Melanerpes carolinus*) or of the Hairy, (*Dryobates villosus*) or possibly that of the Screecher, (*Megascops asio*) I was closely scanning every old willow and any other likely looking tree that came in my way.

A few rods off to the right of the creek, I finally discovered quite a bulky nest, which had the unmistakable appearance of being occupied by a bird of some kind. From my position on the side hill below, no sign of life could be seen about the structure; but as I approached the foot of the tree, an apparition of long ears and yellow eyes appeared over the edge of the nest and peered curiously down at me.

Buckling on my climbers I commenced the ascent, the owl remaining on the nest till half the distance to it was climbed. This fact led me to diagnose young birds, which conclusion was verified when I reached it, finding six baby owls of different sizes, all in the downy plumage. The nest also contained one Meadow Mouse (*Avicola riparius.*) Hearing a cat-like sound behind me on the side hill, I turned around to see what it proceeded from, when I was surprised to perceive one of the old owls on the ground, tumbling about among the leaves as though both legs were broken.

About forty feet away in another tree I discovered a new-looking crow's nest, but up to this time no crows in sight, when suddenly the owners of the nest appeared upon the scene, and discovering the owl tumbling about upon the ground, at once sounded the tocsin of alarm. In five minutes half a hundred crows were on hand to help expel this intruder. Coming down the owl tree I went up to the crows' nest to see what it might contain. I found in it five bare-bodied black imps, their red mouths widely opened, mutely, yet eloquently begging for something to eat.

In the meantime the owl had arisen from the ground and flown to a distant part of the wood, followed by all the crows except

two or three that remained to pay their respects to me. I did not care to molest either the owls or the crows, and getting down from the tree went on my way looking for further finds.

A quarter of a mile from these nests I came to another, from which I had taken last year a set of five crow's eggs. As soon as it came in sight, I could see that it was occupied, and on giving the tree a vigorous kick, a Long-eared Owl flew from the nest and perched upon a limb a few rods away. Quickly ascending, I found six young owls, also in the downy plumage, and on moving them about I found also one addled egg. The queer actions of the old birds, for the male had appeared, now attracted my notice. They were on a limb close together and seemed to be consulting as to what was best to be done under the circumstances. Swaying their bodies from side to side and bowing to each other in a most grotesque manner, every few seconds they gave utterance to sounds that closely imitated the quarrelings of a couple of tom cats upon a back yard fence.

Finally they seemed to have settled upon a plan to attract my attention and get me down from their nest. Jumping downward from limb to limb till they neared the ground, they tumbled into the leaves and rolled about in an apparently agonizing condition. To assist them in carrying out the deceit I rapidly descended, but when I reached *terra firma* they were nowhere to be seen. In this nest there was also one Meadow Mouse and the half of an other. A few hundred yards further on I secured from a cavity in a half-dead willow four crystal-white eggs of the Zebra Woodpecker, and so my trip was not without an oological treasure.

But this experience with this, the most cat-like of the owls set me to reflecting, and the queries that arose in my mind were about on these lines: Why do the crows pay but little attention to the owls so long as they remain still or sit quietly upon their own nest; yet the moment one takes to wing are thrown into a perfect frenzy of excitement? And why is it if the owls are so destructive of bird life as many suppose, that they do not occasionally purloin young crows in the absence of the old birds, or, like the Indian, have they not yet come to crow? And also if field mice is the principal food of this owl, and it required on an average one mouse for each young owl every twenty-four hours, how many would be required to satisfy this brood of twelve for twenty-one days?

And further, I could not help but think what a find these thirteen would have been had I happened along here three weeks sooner; but I solaced myself with the thought that these groves would be a famous place to collect in next March.

NOTES ON BREEDING HABITS OF BROWN-HEADED NUTHATCH AT THOMASVILLE, GEORGIA.

BY C. J. PENNOCK, KENNETT SQUARE, PA.

The following data was taken last spring (1889) while in the south and is copied from my rough notes under dates as there made.

March 9. This species I find abundant here in the pine woods region, almost as plentiful as any other. It is everywhere, and generally, excepting when nesting, several individuals are found in company. They are quite as industrious as their larger kin, the White-bellied Nuthatch, which is also found here, and much more active and erratic. There notes are a curious combination; at times closely resembling the jerky effort of a flying Goldfinch, but in the case of the Nuthatch produced while at rest, at least while on a tree, for it is seldom that one is observed at rest. Again it has a plaintive, almost querulous string of notes, or really a song quite pleasing, particularly when three or four are heard in company, one following the other, or perhaps lapping over each other. This is probably the love song, as I have never heard it in the fall or early winter.

They commence preparations for nesting in this locality early in February, at least so I noted this year; however, last season I failed to note any nesting up to time of my departure, March 8, but I am inclined to think I overlooked them. This year I saw first pair digging February 3, but up to present date many pairs have not laid.

I am inclined to think the season has much to do with the time of laying; February this year being wet and cold, which seemed to delay the work. A few pairs, however, as indicated later, made the best of the early warm days at beginning of the month.

The locality chosen is usually in an open field near timber, occasionally in the woods; the site a dead stump, tree or stub, externally with a bark or shell hard enough to be secure, and internally decayed and soft enough so that the labor of excavating is not difficult after the entrance has been completed.

The opening is not over 1 1-2 inches in diameter; the cavity usually a foot or more deep—a few much less—and does not run far back, but follows down, generally obliquely, close under the bark, or outside layer of hard wood, the next, therefore, being not directly under the opening.

Several that I have examined were composed of a considerable mass of shredded cocoons, hair, soft decayed wood and cotyledous of pine.

March 12. A nest taken to-day with five eggs was placed directly under the entrance, and not more than six inches deep, but this is not the usual way.

A second nest found to-day had four young, just hatched, and one egg. A crack in the stub which extended to the cavity was chinked or caulked effectually with lichens, cocoons and wool, to exclude light and air, I suppose. I have noticed the same on other occasions.

Another set of five taken to-day were perfectly fresh, and other nests found nearly completed by middle of February have not yet been laid in.

March 16. One nest with six fresh eggs was in a dead stump, hole on east side, four feet from ground, nest directly under opening, cavity about ten inches deep, three inches from front to back and four to five inches wide. This nest was composed almost exclusively of fine cotyledous.

Another nest carefully examined to-day was composed of about three-quarters of the cotyledous, balance largely of torn cocoons. a little soft wood and some lichens.

Another was placed behind a large flake or section of decayed sap wood, which was four feet or more long and extending less than one-quarter of the way around the body of the tree, and almost detached from main trunk. There was no opening proper to this nest, the birds using the natural or existing fissure for the purpose.

March 19. About sunset visited a nest of this species, in a stub eight feet high in a grove back of our house. On rapping on the trunk, three old birds flew out and I was surprised to find a nest with six fresh eggs.* The cavity in this case was much larger than common, there being really two recesses, one for the nest and one vacant, all joined, or rather a widening at bottom larger than the nest occupied.

March 23. To-day took two sets of eggs, six and seven respectively, perfectly fresh. They were near where I had torn open holes before nests were built and may have been same birds rebuilding.

The set of seven was in a dead tree which stood in pond* in a wood, but near the edge; the other was in a stump less than two feet high, very small, and the opening to nest not over sixteen inches from the ground.

From a number of eggs collected, I find five eggs to be the most common number, six is frequently laid, four not uncommonly and seven seemed to be rare. From Mr. Brimley's article referred to, it will be seen they found the nesting sites in the majority of cases in ou close to water, which I take to be from the fact that in his locality such conditions more generally furnish the proper conditions of decayed timber, while in the more southern locality or account of the system of agriculture, such timber is found in cultivated fields, regardless of the nearness to water.

However, be the cause what it may, I found a large majority of nests in an "open field near the woods," as many of my data blanks bear record.

The eggs vary considerably in size and color, as is the case with those of all the Nuthatches.

*See *Ornithologist and Oologist*, October, 1889, Brimley on "Nesting Site of Brown-headed Nuthatch," and comments by "C. J. P." in Jan. '90 number same magazine.

HOW THE COOPER'S HAWK HUNTS HIS PREY.

BY H. H. BRIMLEY, RALEIGH, N. C.

I have, on four different occasions, had the pleasure of being a close spectator of a Cooper's Hawk in pursuit of his prey. The way he did it was much the same in each case; below I give a short description of how it was done.

COOPER'S HAWK.

About four years ago this fall I was hunting along a small creek in some rather thick woods. Suddenly from the rising ground behind me I heard a succession of whistling notes—I might almost say screams—giving me the idea of a bird in great fright. Turning quickly, I saw the maker of the music, in the shape of a Towhee, darting through the bushes for all he was worth, while not more than three feet behind him sailed a Cooper's Hawk, likewise apparently doing all he knew in the way of flying. The scene was a novel one to me then, having never previously seen any hawk in pursuit of its prey at such close quarters, and I watched the chase for a moment before making any move in the matter. The Towhee continued his screams and the Hawk kept up the chase; both, seemingly flying at a tremendous pace, the Cooper looking extra long and thin as he stretched out in pursuit of his quarry. What the result would have been I cannot tell as a shot from my gun at the Hawk (which I missed) stopped the race. In this case the shadow was rather deep in the woods and I did not have as clear a view as on subsequent occasions but the idea given me by what I did see was that both birds were flying very fast and that the Hawk was gaining.

Chase No. 2 was after a Bob-white. I was returning from hunting one morning, following a wagon road through the woods,

when suddenly several scattered quail crossed the road just in front of me flying low and very rapidly. Perhaps fifty yards behind the first comers came a single one, screaming as he came, and close behind him flew a Cooper's Hawk. Anyone who knows how fast Bob-white can travel when well scared can guess at the gait of the two birds, the hawk apparently keeping up with the quail. Just before crossing the road, which they would have crossed within twenty-five yards of where I stood, the quail darted into a thicket of bamboo briars and the Cooper swung onto a perch a few feet from the ground and not far away. I watched for a few minutes to see if anything else would occur, but as the play seemed to be over, I shot the hawk and so broke up the combination.

Spring before last I was egging in rather a rough piece of country—swamp would not be a misnomer. It was some distance above the head of a millpond, but the water backed up far enough to cause the creek to run in several channels and to make the walking between a mixture from ankle to knee deep, wading in sand and mud. I was toiling along in this elysium when a solitary Sandpiper dashed by me from behind, and as in the previous cases mentioned, he was pursued by a Cooper's Hawk. But he seemed to have his wits about him and dodged and darted back and up and down with lightning-like rapidity. The hawk was in close chase and I thought he was about to take his quarry when the Sandpiper gave a quick dart downward and out of sight behind some bushes—a splash in the water—and a few seconds afterwards I saw the hawk flying quietly away. I don't think he got the "piper," but I am not certain. I think that the Sandpiper, getting hard pressed, dashed downward into the creek and dived, this being the splash I heard. This Sandpiper worked hard for his liberty and I hope he got what he so well deserved.

Fourthly and lastly. I was hunting around some marshy ground last spring, a particularly favorite place for Wilson's Snipe. I was after King Rails at the time and snipe were not my object that morning. The marshy ground was fringed with a thick growth of alder willows, some twelve or fifteen feet high. My dog was working along the edge of the willows and flushed a snipe. Most people know with what a "get there" kind of flight a snipe rises from the marsh, and when I say that the snipe

had not cleared six feet of space before a Cooper's Hawk, that had been sitting in the bushes just above the snipe's stamping ground, was in full chase, one can imagine how quick and watchful the hawk must have been. The snipe let himself out for all he knew in flying but as they passed me at about thirty yards distance the hawk seemed to be gaining rapidly, although to all appearances not flying half as fast as the snipe. The hawk appeared to get within three feet of his prey when I was completely astonished by his sheering off the line of flight, and sailing gracefully round to return from whence he came, giving up the hunt just as his prey seemed within his grasp. He sailed by me as he came back within easy shot, but I let him go. I thought he deserved his life after his disappointment.

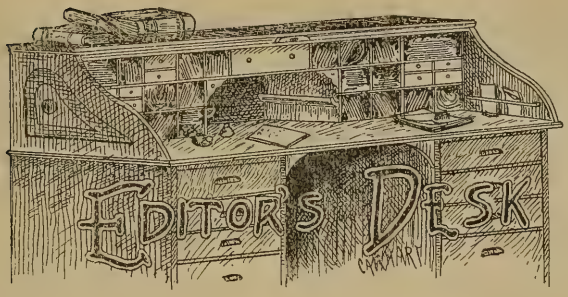
I gather from the foregoing experience that Cooper's Hawk has to work hard for a living and is subject to many bitter disappointments. Also that he flies about twice as fast as he appears to when pursuing other birds.

JULY PRIZE QUESTIONS.

Last July's "Ten Prize Questions" were not so earnestly contested for as the preceeding ones and we have decided to drop them altogether. Following is a list of the winners and the prizes they received:

Mr. Chas. E. Cram, Davenport, Iowa, won the first prize, an egg of the Snowy Owl; the second prize, a set of eggs of the Carolina Chickadee, went to Mr. W. E. Burnett, Bradford, Pa., and the third prize, a copy of the O. & O. SEMI-ANNUAL, went to Mr. D. H. Van Pelt, Lansingburgh, N. Y.

We would be pleased to give a list of many other competitors worthy of mention, but space will not allow.



In assuming control of the O. & O. S. A., it is fitting that I should address a few remarks to its readers.

The editorial field is entirely a new one to me, and it is with some misgivings that I write this, my first in the line. The magazine has met with a reception that has assured the publisher that it is valued by the Ornithological public. Mr. Foote has reasons to be well pleased with his venture. It has been fully up to the standard on which it was established, and I trust the cordial support that has been extended to him in the past will not be withheld now.

It is proposed to make the current volume and all future volumes fully equal to Volume 1, and it is my earnest wish that all who have in any way aided by contributing to the magazine in the past will do so in the future, and aid me to place before our readers concise and readable matter that will be of value to them.

The magazine is still under the same management and will be conducted in all respects as heretofore.

A number of articles of merit were received too late for this issue, but will be used in the July issue.

* * *

At present there seems to be quite a boom in progress in the line of new publications relating to Ornithology and Oology. The first number of the *Wolverine Naturalist* is at hand and presents a very creditable appearance. The *American Osprey*, Ashland, Ky., Paul B. Haskell, Publisher; and the *New England Naturalist* by George H. Clark, 53 Hanover St., Brookline, Mass., are advertised to appear in January. Mr. F. W. Stack's *Oological Instructions* is also announced to appear in January. The *Loon* will be issued as a quarterly in the future and will be illustrated.

ORNITHOLOGIST & OOLOGIST, Boston, Mass. F. B. Webster, Publisher. Monthly, at $1.00 per year. Size, 7x10 1-2, 16pp. Under the editorial management of J. Parker Norris, F. B. Webster and Frank A. Bates.

WEST AMERICAN SCIENTIST, San Francisco, Cal. Samuel Carson & Co., Publishers. Monthly, 22pp, $1.00 a year. Edited by Chas. Russell Orcutt. Official organ of the San Diego Society of Natural History.

OLD CURIOSITY SHOP, Riverside, Cal. E. M. Haight, Editor. Monthly, 12pp, at 35c. a year. Devoted to Philately, Numismatics, Natural History, Antiquities and Bric-a-brac.

OOLOGIST'S EXCHANGE, New York City. Arthur E. Pettit, Chairman. Monthly, 4pp, at 20c. a year. In connection with the Dec. issue is a supplement—a full page engraving, "Wilson, the Ornithologist."

WOLVERINE NATURALIST, Kalamazoo, Mich. Morris Gibbs, Editor. Monthly, 12pp, at 50c. a year. Official organ of the Kalamazoo Naturalists Association.

THE NATURALIST, Kansas City, Kas. R. B. Trouslot & Co., Publishers. R. B. Trouslot, Editor. Monthly, 50c. per year. Size, 9x12. Devoted to all branches of Natural History.

O. & O. DIRECTORY, San Jose, Cal. E. L. Menefee and Fred Corless, Publishers. Containing the names of many of the principal collectors in the U. S., Canada and Great Britain.

DEPARTMENT OF THE

WILSON ORNITHOLOGICAL CHAPTER

OF THE

Agassiz Association.

The object of our organization is to facilitate intercommunication for our members, aiding our progress by the exchange of notes and observations, and to advance the interest in, and knowledge of, our native birds, by the reports of the members and the publication of the results.

We wish to secure from each locality a list of all birds found there, and full descriptions of all sets of eggs found, and habits observed. In addition to this information regarding all birds, the Thrushes, Warblers and Bluebird will receive special attention during the coming season.

To all ornithologists who desire to aid the progress of ornithology by reporting their observations, we extend a cordial invitation to become members of the Chapter. Many notes are annually taken by ornithologists, which, if combined with those taken by other observers, will prove of ultimate value, so we hope *all* notes of interest will be reported.

During the past year much has been accomplished. We are now organized for active work with a membership of eighty-two, thoroughly interested in the progress of the Chapter. State committees are now formed in New Hampshire, New York, Wisconsin, Illinois, Iowa, Indiana and Texas, which, under competent ornithologists, are studying their local avi-fauna thoroughly.

The Melological Committee is under the able direction of Mr. S. Willard Bridgham, who has made bird songs a special study. The report of this committee, on another page, shows what they have accomplished in only six months.

The Oological Committee, under Secretary Lynds Jones, will pay special attention to nesting, while Mr. L. Otley Pindar will collect and prepare for us observations relating to geographical distribution and migration.

It will be readily seen that with these different branches of investigation before us, the most meagre notes, sent to the President of the Chapter or to the gentlemen assisting in the special committees, can be turned to some use.

During the coming season several questions will arise regarding changes in our constitution; the most important being that of the division into active and associate members. In all these questions we hope *every member* will carefully consider both sides of the subject and vote according to what seems to him to be best for the Chapter. It is only by a universal expression of opinion that we can arrive at the right conclusions. Suggestions for the improvement of our rules and methods are always in order from those actively interested in our work.

ACTIVE AND ASSOCIATE MEMBERSHIP.

The above question now brought forward was carefully considered at the organization of the Chapter, but it was then thought not to be advisable to adopt it until the membership had increased and a general sentiment was awakened in favor of it.

Within a short time several prominent members have proposed the division and the matter will soon be laid before the Chapter for decision. The plan has worked well in the American Ornithologists Union since its organization in 1883. The proposition is to have the active members consist of a limited number, selected from the whole membership by ballot, who shall pay annual dues amounting to enough to secure for them all publications for the Chapter.

The associate membership to be governed by the same rules as those in force now.

The election of officers and changes in the constitution being made by the active members. With this exception both classes of membership have the same privileges. The advantages of this change will be: First, an assured amount will be subscribed for the publication of reports. Second, necessary changes can be made more quickly than now (about two months being needed at present), and the active members being those most interested in the Chapter, any changes would be made only when it would be

best for all. As it will be possible for any ornithologist, eager to advance our knowledge of this science, to become an active member, and the association members being those who aid us by reporting all the observations they are enabled to make, but who, either from business or any other cause, cannot give as much time to the subject of governing the Chapter, as is necessary to intelligent action, and who now omit to vote when opportunity offers, the government of our affairs will not be practically changed from the present condition.

Therefore as the proposed change can do no injury but will give more stability to our organization, it should be made, unless a stronger sentiment against it should be manifested than any yet observed.

If this plan is adopted, all present members will become active members, who qualify for membership within a reasonable time, after which the selection of active from associate members will be made by the active members, semi-annually, on recommendation by the Executive Council.

LIST OF MEMBERS OF THE CHAPTER.

PRESIDENT.

Richards, J. B.	Fall River, Mass.

SECRETARY.

Iones, Lynds	Grinnell, Iowa.

Baldwin, Arthur	Amboy, Ind.
Baller, Miss M.	East Orange, N. J.
Barnes, Mrs. S. C.	Orange, N. J.
Beal, E. Irving	Bridgewater, Mass.
Bigney, A. J.	Moore's Hill, Ind.
Brass, Frank N.	Kokomo, Ind.
Bridgham, S. Willard	East Prov. Centre, R. I.
Burns, Frank L.	Berwyn, Pa.
Bush, Geo. B.	Fall River, Mass.
Campbell, Robert	Hanover, N. H.
Cantwell, Geo. G.	Minneapolis, Minn.
Card, Fred	Grinnell, Iowa.
Carlton, Edward P.	Wauwatosa, Wis.
Chase, Walter	Hanover, N. H.

Clute, O. C.	Keokuk, Iowa.
Clute, Willard N.	Binghamton, N. Y.
Colton, Will N.	Biddeford, Maine.
Cousins, Marshall	Eau Claire, Wis.
Cox, A. M.	Chicago, Ill.
Cram, Chas. E.	Davenport, Iowa.
Crosby, W. P.	Hanover, N. H.
Curtis, Fred W.	Wauwatosa, Wis.
Davis, Miss Grace G.	Northampton, Mass.
Donald, John A.	Decatur, Texas.
Edwards, J. Lee	Marshallsville, Ga.
Ely, Chas. A.	Perrineville, N. J.
Estes, Francis T.	Fall River, Mass.
Everett, E. A.	Waseca, Minn.
Fernholz, Eugene,	Jefferson, Wis.
Fletcher, Robert	Hanover, N. H.
Foote, W. H.	Pittsfield, Mass.
French, Lynward	Fall River, Mass.
Greene, I. C.	Fitchburg, Mass.
Greene, C. W.	Portsmouth, N. H.
Grindell, A. B.	Platteville, Wis.
Hager, A. R.	Chicago, Ill.
Hartzell, L. B.	Crystal Springs, Kansas.
Haskell, C. B.	Kennebunk, Maine.
Hauger, O. P.	Orleans, Ind.
Holzinger, J. M.	Winona, Minn.
Homer, Arthur	Fall River, Mass.
Howard, John M.	Chicago, Ill.
Huffman, Sam. M.	Moore's Hill, Ind.
Hussey, Miss Mary D.	East Orange, N. J.
Jacobs, J. Warren	Glenwood, Pittsburgh, Pa.
Johnson, Frank W.	Grinnell, Iowa.
Jones, Lynds	Grinnell, Iowa.
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Zimmerman, Chas.	Amboy, Ind.

REPORT OF THE MELOLOGICAL COMMITTEE.

Mr. President and Members of the Chapter:

Considering that this committee of the Chapter was not organized until the latter part of last May, and then with only three members, including myself, the work accomplished has been quite satisfactory.

The songs of several of our birds have been investigated, and considerable data of a miscellaneous character has been collected; but not sufficient to form any tables or deductions, which are, of course, very desirable and which we earnestly hope to present another season.

The difficulty in studying the songs of birds intelligently is great, and a certain knowledge of their habits and of their common, and also of their scientific names is requisite. It also requires great patience and perseverance.

In the report now before you we have endeavored to incorporate the subject-matter of all data collected by us, and to present it in a form satisfactory to all; and if in any way we are mistaken in

our statements, we hope that they will be pointed out and explained, that we may be more able to avoid them in the future.

The range of our observations has been extensive, the three localities in which data have been collected being Eubanks, Ky., Binghamton, N. Y. and East Providence Centre, R. I.

Mr. John B. Lewis of Eubanks, Ky., has sent in several reports from that locality, from which some very interesting and instructive deductions have been made.

The Blue Yellow-backed Warbler or Parula Warbler (*Compsothlypis americana*) is a tolerably common summer resident in that locality. It inhabits deep forests and is seldom seen anywhere except in the tree-tops.

It begins to sing on its arrival in the spring, (April 6 to 10) and may be heard from that time till about July 3. There are two different songs. The first, and by far the most common, is a high, fine and very energetic utterance of a series of notes resembling the syllables "cher-r-r-r-r-rip." The first syllable is very strongly rolled at the end, and the closing "rip" is very much emphasized and given a slight falling inflection. The song is delivered with all the vim the tiny body of the singer can put into it, and the closing syllable is positively jerked out.

The second song is not uttered with so much energy, and is by no means so sharp and shrill. It resembles the syllables "chee-chee-chee-*chee-cheeah*," the syllables which are in italics are delivered with more force and emphasis than the others and the *last* syllable receives a falling inflection.

My observations lead me to think that the first song is the one generally uttered during the mating season, and that the second form is used more frequently later in the year. It is not probable that the height at which the bird is perching has anything to do with the difference in the song, although once when the bird was observed near the ground it uttered the second form while in the low bushes, and resumed the first and more energetic form on re-ascending.

The two forms do not belong to the different sexes, as the same bird has often been heard to utter both within less than half a minute.

The Towhee (*Pipilo erythrophthalmus*) is a resident species at Eubanks, Ky., and is quite abundant, breeding in March and April. It is a very industrious and interesting songster.

The situation generally chosen when singing is the top of a tree, at a height of from twenty to sixty feet.

The song is a clear, sweet combination of whistle and trill. It is of moderate power, perhaps should be called loud, and is often regularly repeated at short intervals for half an hour at a time, without the bird changing its position.

They begin to sing about February 25, and continue in full song all summer. In the spring they sing at all hours of the day, but later in the season they are heard more towards sunset.

The Pine-woods Sparrow (*Peucæa æstivalis*) is a common summer resident at Eubanks, Ky. It frequents the sedge fields and meadows. It begins to sing on its arrival in the spring, (March 20). It sings at all hours of the day, but is at its best in the evening from sunset until it is quite dark. On several occasions these sparrows have been heard singing quite late at night after a thunder shower. As they have never been heard singing at night except after a storm, it is supposed to be caused by the rain having awakened them.

They sing from the top of a fence, a weed or any other convenient perch. The song is not very powerful, but sweet, clear and far-reaching. It is always uttered slowly and deliberately, and carries with it a sense of calm, peace and contentment which places it among the sweetest of our native song-birds.

The song in all its varieties is rather high, the first note is always prolonged and the last part is trilled or rippled.

The Pine-woods Sparrow is an industrious songster in the spring, when he will repeat his song at intervals of from a quarter to half a minute almost all day, only stopping long enough to feed. After the first of July he only sings in broken snatches, and that for the most part in the evening.

The American Goldfinch (*Sqinus tristis*) is a common resident at Eubanks, Ky., where it breeds during July and August. It has a quite lively song, and a plaintive and exquisitely tender call-note. The bird has an undulating flight, each undulation

being usually accompanied by a repetition of a tender, liquid note, of the syllables "chu-chu-chu." The bird's voice runs down the scale as his body falls through the air.

Another familiar call, usually uttered while at rest, is a tender, liquid whistle, uttered in a questioning tone. The song proper is not very loud but is sweet and pleasing. It is roughly illustrated by the following syllables: "chua-chua-pece-pece-pece-cha-cha-chu-ee." This is uttered rapidly and in a sweet, rippling voice. The foregoing is given as typical of that phase of the song, and is sometimes sung exactly as described, but it is generally very much modified, being so mixed up and interspersed with extra dashes and flourishes as to be scarcely recognizable.

Mr. Clute, of Binghamton, N. Y., writes as follows, under date of August 20:

In this section, the majority of summer residents, except the Goldfinch and Indigo Bunting have become silent; an occasional Field, Song, Chipping or Savannah Sparrow may be heard.

The last Robin's song was heard Aug. 1. Numbers of Chipping Sparrows continued to sing until July 21. The last Bay-winged Bunting was heard July 8, but the bulk stopped singing long before that. The last song heard from a Catbird, Bluebird or Wilson's Thrush was on July 8.

Most of the birds sing liveliest in the early morning, exceptions being the Goldfinch, Indigo Bird and especially the House Wren, which sings all day. The Wood Pewee, Song Sparrow, Chipping Sparrow and House Wren also sing at night. As the season grows later, bird songs are heard more frequently in the vicinity of water. The Brown Thrush occasionally sings its full song on the wing, but probably only during the mating season.

The Robin has a call exactly like that of the Cedar Waxwing, for which it has often been mistaken. The Chickadee's call of "pee-wee" may be easily whistled and used as a decoy. In the winter and spring, this call, if repeated, will bring the whole flock around within arms length, but in late summer the call only has the effect of starting the whole flock to calling "chick-a-dee-dee-dee."

Mr. Bridgham reports from East Providence Centre, R. I., as follows:

The Wood Pewee (*Contopus virens*) is an abundant summer

resident in this locality. All through the early part of summer, its notes, "pee-a-wee" and "a-pee-wee" could be heard at any time of day one chose to wander through the woods. Its favorite haunts seem to be the tall pine forests with a light undergrowth, where it flits about in the branches, just above the tops of the bushes, darting about after insects, but making its headquarters, so to speak, on some projecting twig, whence it can survey some open glade.

When it is disturbed it calls in a petulant, querulous tone, uttering only the syllable "pee-ee" with the accent or stress of voice on the last part. Towards midsummer its call is uttered less frequently, and the absence of it is very noticeable. Later in the season this call is dropped entirely for a cry resembling the first syllable of its ordinary call, and, strange as it may seem, its former call, uttered very rapidly, becomes its note of alarm.

Another prominent bird in this locality is the Kingbird (*Tyrannus tyrannus*). It, too, is a common resident, and it makes the air resound with its shrill cry all through the season. Perched on the tallest birch, by the edge of some river-meadow, he will look about for a little while, uttering his cry of "kree" at regular intervals of a quarter of a minute, and then he will dart off after an insect, after catching which, he will vociferate his "kree-kree-kree" as if to let everyone know of it, and then he will return to his perch on the birch. Often towards sunset, you may see them cruising high in the air, catching gnats and other insects that come out at that time.

Sometimes they have desperate quarrels among themselves or with some other bird, and then they use a call differing from the other only in being so harsh, resembling more the syllables "tsee-tsee-tsee." The calls of this bird are not musical, but the bird itself seems to take great pleasure in repeating them.

The Blue Jay (*Cyanocitta cristata*) is perhaps the most plentiful of the large birds in this vicinity. Individuals remain here all winter, and the woods are full of them in summer. Such meetings, such discussions about "pay-ee-pay-ee" no other bird would indulge in! Morning, noon or night, rain or shine, the azure back of the Jay may be seen disappearing over the tall tops of the pines, or picking berries and buds on some swinging branch. Seven varieties of calls have been counted.

Towards the last of July or the first of August, the American Goldfinch makes his appearance. His song resembles that of our household canary, except the bell notes are not so full, and people not familiar with him often mistake him for an escaped canary. It sings most in the early morning, but its call-notes may be heard all day. These latter are of several varieties. The most common are represented below.

First—"chee-pee, chee-pee," with a slight falling inflection.

Second—"chu-ee, chu-ee," with a rising inflection.

Third—"par,-chee-chu-choo," with a falling inflection and a slight rest after the first syllable.

The last is by far the most common, being uttered both while flying and while at rest, but more frequently while flying.

The notes of birds vary greatly at different seasons and under different circumstances. For example; of the seven varieties of the Jay's call; two seem to be used for a reason very similar to that which prompts a boy to whistle, (and with about the same success as far as music is concerned); two seem to be caressing and colloquial in character; one is a note of warning; one seems to express alarm merely, and the other seems to call others to the neighborhood of the bird uttering it.

It is desirable to know if the notes of the sexes are the same or not, and whether the cries they utter are the same vowel or syllable, with only a difference as to time and inflection of voice, or a different vowel or syllable. We are also endeavoring to learn if there is any similarity between the calls of different birds under the same circumstances, and how much one species understands the calls of another species. The note of a Jay or a Crow, for example, will put many other birds to flight, which take no notice of the ordinary calls of those birds, showing a knowledge of the meaning of the alarm note.

It has long been known that if one imitates the cry of a bird in pain, it will bring many members of the feathery tribe within eyeshot, and if, as we stated in another part of this report, the call of the Chickadee be imitated it will have various effects according to the season of the year, as there explained.

There are so many points to notice, and so much to observe that for the sake of similarity and unity of effort in studying bird-songs, we have prepared and to a certain extent already adopted

with good results a set of comparisons and suggestions to be followed as far as possible by our observers. This list of comparisons and suggestions, will be forwarded most willingly to all who are willing to help by taking observations. Of course, notes on subjects not included in these lists are very desirable, but if our members will work on these suggestions we hope to get something next year in a tangible form from which to deduce conclusions.

To imitate and describe the note of a bird requires great skill, a delicate ear and a good memory, and therefore many are apt to give it up after a few trials. But any attempt is a great help, and as the same difficulty confronts nearly all, the data received will be peculiarly fit for comparison, and moreover a little trial and experience will greatly improve both the power of discrimination and description.

Therefore, we earnestly hope that all those interested in ornithology will aid in our first attempt at studying bird-songs by contributing whatever data may come under their notice.

S. WILLARD BRIDGHAM,

Chairman Committee on Melology.

NESTING OF THE TREE SWALLOW.

Tachycineta Bicolor.

BY FRANK L. BURNS, BERWYN, PA.

The Tree or White-bellied Swallow arrives early in April and departs in September. It has long been classed as a migrant in Chester County. Although it breeds in the adjoining county of Lancaster, it has but lately been classed as a rare summer resident in this county. C. B. Ressel in his "Birds of Chester County, Pa.," published in the O.& O., Vol. XIV., Nos. 7, 8 and 9, gives it as such; and B. H. Warren has observed them along the Brandywine several times, during the summer of '89. All previous lists give it as a migrant.

May 18,'89, a friend and myself had the good fortune to discover the completed nest of this bird in a railroad culvert at Valley Forge. The culvert is directly over a creek, which is the dividing line between Chester and Montgomery Counties. At least three more pairs were skimming over the water, or resting on the telegraph wires. At this date the nest contained no eggs; but returning twelve days later, it contained a handsome set of six pure white eggs, varying greatly in length, the first egg being almost one tenth of an inch longer than the last one. The measurements are as follows: .82x.57; .77x.56; .74x.56; .73x.55; .7[illegible] .73x.53.

The nest was placed in a crevice of the wall, the mortar having either fallen out or was dug out by the swallows, and was seven feet above the water and fifteen feet from the mouth of the culvert. The nest was composed entirely of dead grass and leaves.

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THE AMERICAN SPARROW HAWK.

Falco Sparverius (*Linn.*)

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SEMI-ANNUAL.

VOL. 2. JULY, 1890. NO. 2.

THE AMERICAN SPARROW HAWK.

Falco Sparverius.

BY DR. W. S. STRODE, BERNADOTTE, ILL.

This beautiful little Falcon is quite common in the Spoon river country of central Illinois. In a ten-mile drive in the valley or along the bluffs, the observer may see many pairs of them durin the spring and summer months.

They usually arrive between Feb. 20th and March 1st, and their food consist at this time largely of the Short-tailed Meadow Mice (*Avicola riparius.*) Of this little rodent vast numbers find a suitable home in the grassy sloughs and meadows along the river. Later in the season beetles and grasshoppers are added to their bill of fare.

On March 1st of this year the arrival of the first Sparrow Hawk was noted. On the 2d, five were seen and four of the number had in their talons a meadow mouse. They showed but little fear of me and would fly along the fence only a few rods in advance of my horse, the mouse dangling from the talons of one foot, presenting rather a comical appearance.

March 25th I went to a meadow near the village of Bernadotte to collect a series of Horned Larks (*Otocoris alpestris.*) Flying about over the field was a pair of Sparrow Hawks, eagerly searching for a breakfast of meadow mice, dashing from one locality to another, and facing the wind, which was blowing quite fiercely, they would poise in mid-air, and, with tremulous wing,

remain in almost exactly the same spot for a minute or two, head lowered and tail spread like a fan. Nor did the reports of my gun appear to disconcert them much.

Some of the dashes across or down the wind were made with lightning-like rapidity and set me to calculating as to what this bird could do on the wing if this speed could be maintained for a few hours. Space would be almost annihilated, or the distance between St. Louis and Chicago covered in one hour's time.

Although I remained in this field for an hour I saw no capture and *Mr. Sparverius* seemed destined to go hungry, the mice doubtless preferring their warm, cozy nests beneath the sod to braving the sharp, piercing wind on the surface.

The field was full of the Larks but they seemed to pay no attention to them. Doubtless they occasionally vary their bill of fare by capturing small birds or young chickens, yet I have never seen them doing so. Wilson and one or two other observers claim to have seen them in possession of a full-grown Bobwhite that they had captured.

Their full complement of eggs, at least in Illinois, is almost invariably five. In the score or more sets which I have taken this rule has not varied, where there was reason for believing that the lay was complete. In the J. P. Norris collection, of Philadelphia, there are 12 sets of 4, 14 sets of 5 and 1 set of 6 eggs. Dr. J. C. Merrill, U. S. A., collected twenty-five or more sets in Montana. He says: "In nests found along the lower streams, 5 eggs are the usual complement, while those in the mountains usually contained fewer. Of the nests examined most were in cavities in trees, either natural or made by Flickers. The eggs were placed on a slight bed of leaves and grasses, or a few chips, or on the bare wood. Holes of suitable size and shape, in rocky cliffs or river banks were also used for nesting places."

All the nests that have come under my observation with one exception have been in cavities of trees, and no lining of any kind has ever been found in the nests. The one exception is in the spire of a church in Iable Grove, Ill. Here, an hundred and fifty feet from the ground, a Woodpecker had worked a hole, and for several years in succession a pair of Sparrow Hawks have raised their young. Perhaps no other *raptore* can compare in beauty and elegance with a series of sets of the eggs of this little hawk.

As a personal reminiscence is always in order, I will close this article by recounting my experience for the present season in the search for a series of sets.

April 28th was the time I had fixed upon as about the proper date to find the lay complete, and at noon of this day, having made all my sick calls, I threw dull care to the wind, and, accompanied by my twelve-year-old son, started out for an afternoon of it. We carried with us collecting box, a sharp hatchet, a ball of string and climbers. Thus equipped, we made rapid strides for a tract of large timber, on the river, three miles below the town.

This bit of forest of an hundred acres or more has not yet felt the devastating and destroying hand of man, and has remained almost in its pristine beauty. Here in the beautiful springtime, when nature is donning her finest wardrobe, budding trees, blooming flowers, the rippling river, and song of birds, I have whiled away many an happy hour in the intense enjoyment that can only be felt by one thoroughly in love with nature and all her creatures. Back from the river's bank, a forest of walnut, elm and ash formed a dense shade for the Easter lilies, ox-eye daisies and touch-me-nots that carpeted the earth beneath. Nearer the water a fringe of silver-leafed maples, while at the river's edge, in their drooping grace and rhythmic response to every passing breeze, the willows dipped their graceful branches to the water's edge.

Towering far above all were the great sycamores and cottonwoods, mighty giants of a by-gone age, standing like colossal sentinels over the surrounding forest, so straight and unbending that no convulsions of nature seemed to have disturbed them. In these grand trees were to be found the objects of search, the nests of the Sparrow Hawk. Here many pairs of them nest every season. No trouble to locate the nests, but to get to them, almost among the clouds, was no easy matter.

In a few minutes we had rapped a female *Sparverius* from an old Flicker hole, up a hundred feet or more, in a "syc" four or five feet through. As the sap-sprouts put out almost from the ground up, the ascent was made without much difficulty and five eggs were secured.

The next find was in a cottonwood, with not a limb for fifty feet. I did not care to trust my 187 lbs. to the rough bark while

climbing this distance and we passed on. The next nest was in a giant buttonwood, and up so high that it almost made one's head swim to look up to it. The tree itself, from the ground, would have been unclimbable, but growing under it was a water elm about two feet in diameter. The top of this tree just well reached the lower branches of the "syc," and by ascending it I was enabled to get over into the buttonwood, and then on up to the Flicker hole, containing the nest. Enlarging the cavity with the hatchet which I carried up in a strap around my waist, I secured the eggs, which were again five in number.

These are representative climbs, and the collector with a cool head, plenty of determination and hard muscles could secure many sets at the proper season along the Spoon river valley.

Suffice it to say that we secured two more sets on this trip, one of five and one of four. In each case the eggs we put into a mitten to which the fish-cord was attached, and then lowered to the ground. Upon blowing they appeared fresh or nearly so. I presented much the appearance of having been rolled in a flour-barrel. We arrived at home at sundown tired and very hungry, but happy and well satisfied with our afternoon's work.

Long live the pretty *Falco Sparverius!*

"GEORGE."

BY H. H. BRIMLEY, RALEIGH, N. C.

The death of his mother from "lead poisoning" caused George to be left an orphan at an early age. I found the youngster in a hollow tree, and, knowing his unfortunate circumstances, I carried him home and adopted him and he remained with me until he was well grown. I may as well state here that George was a bird—a Barred Owl—and that his mother was shot by myself before I knew of his existence.

When first taken he was a mere mass of long, soft down, dirty white in color, with a pair of large, staring, black eyes. After getting him safely to the ground, the problem arose of getting him home, the distance being several miles. After one or two

trials I got him to perch on my left hand, and with my gun in my right, I carried him as far as I could in this cramped position, he sitting quietly and apparently needing all his powers to keep his balance. After a while I succeeded in persuading him to perch on my shoulder, and thus we finished the trip. He was placed in an empty barn and that was his home for the rest of his life.

For several days he was fed by hand on fresh meat and birds cut up into small pieces, but he soon found a way of feeding himself and would take an English Sparrow and bolt it whole, without removing a feather. With a bird the size of a Robin he would fly onto my hand, pick up the bird with one claw and fly back to his perch to discuss it. Then, standing on the unoccupied claw, he would raise the bird half-way to his mouth, bending his head to meet it, and proceed to pull out all the stiff wing and tail quills and partially pick the body. Still holding it in one claw he would tear pieces off until the remainder was small enough to pass his gullet, and then down it went, whole, and he called for more.

His usual mode of salutation was by snapping his bill, and his method of signifying that "grub" would be acceptable was a combination of hissing and snapping.

The amount of food that George could consume in a day was a caution. Here are some of his bills of fare: 1—Three Catbirds and a Purple Gallinule. 2—Three Catbirds, a Whip-poor-will, Blue Grosbeak and Red-wing Blackbird. 3—The interior arrangements of three Gray Squirrels. 4—Five Cedar-birds. The birds mentioned were mostly (Catbirds excepted) specimens from which the skin had been removed, consisting of the whole body, with the exception of bones of legs, wings and skull.

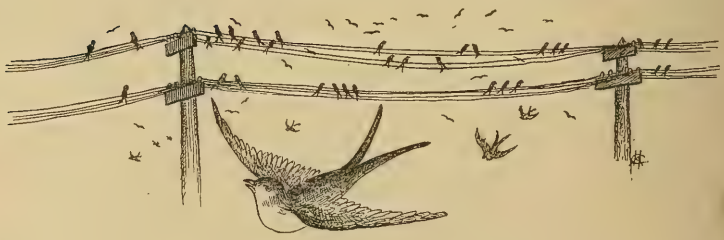
A comical looking fellow was George. As he sat on his perch, staring with his great, black eyes at an intruder, he had an indescribable air of wisdom, and looked something like a caricature of an English judge in his wig of office. When exercised about the appearance of any object, he would duck his head, move it up and down and sideways, as if connected with his body by a flexible cord instead of a neck, always with his intensely surprised gaze fixed on whatever had first excited his curiosity.

He was curious and amusing, but, as he got grown, his demands for "grub" became so exorbitant that I began to see that it would not be possible to keep him much longer. He also got to be a

bad man to call upon. If I entered the barn in the morning without at once holding out my hand containing food for him to come and pick up as he sailed by, as was his custom, he would make a bee-line for my head and grab for my scalp with his claws as he flew over. As I could duck my head "darned quick" under these circumstances, he would repeat the attempt several times unless I scared him off.

He was not in the least afraid of me on ordinary occasions, but showed great uneasiness and fear at strangers, especially ladies.

One fatal day a trap containing fourteen live roof rats was brought us. Of these the five largest were skinned and their bodies given to George. The remaining nine, varying in size from half-grown to grown, were likewise given to him. The next day he did not seem hungry, having made quite an inroad into his rat-pile, neither was he at all sick. The following morning he lay dead on the floor beneath his usual perch, his body being quite warm, his plumage unruffled and showing no signs of any struggle. His death seemed to have been sudden and painless. I do not think his gorge of rats killed him. Possibly lead poisoning, caused by a diet of "*shot*" birds, laid him low, but I do not think so as he had shown no signs of sickness previously. I only know that he has gone, but his memory and his skin still remain.



SOME HINTS ON FINDING NESTS.

BY C. S. BRIMLEY, RALEIGH, N. C.

Taking our various species in somewhat the order they nest, I will begin with the birds that dig holes in wood.

The Brown-headed Nuthatch and Carolina Chickadee need to be looked after when "digging," and the way to find the nests is to listen for the sound of the bird's bill on the wood, as he chisels off chips from the inside of the cavity. Nuthatches especially need to be locatad when digging, as they take very little time lining the cavity. Chickadees, however, may often be located by watching the bird collect nesting materials. The chief difficulty here is that the Chickadee frequently gets his material at some dis- from the nest.

Pine Warblers must be located when building. The singing male will usually have his wife somewhere near by, and if she is building, she usually betrays the fact by a more restless and preoccupied air than when she is merely searching the pine trees for worms and insects. Here, again, one must pay particular attention to any female seen taking a long, straight flight into a tree; a bird usually has a more direct, business-like way of flying when carrying material to its nest then when merely flitting from tree to tree.

The Tufted Tit must also be watched when building, and he needs a great deal of watching, as he, like his small cousin, gets his building material from a long way off; but he makes up for that in a measure by carrying a good big bunch of stuff in his mouth; enough to make his building operations a tolerably evident fact to all that see him and are ready to profit by observation.

Louisiana Water Thrushes' nests must be found by a careful exploration of the small streams they build in.

Blue-gray Gnat-catchers' are most easily found by watching the bird building; when a nest is found, however, it is not by any means always takeable.

Whip-poor-wills' eggs are found by a careful search of the localities they frequent, and then if you go at the right time and flush the bird, you generally get a set.

For Red-eyed Vireo, it seems best to look for nests with eggs in. When I have found nests building, they have, in a majority of cases, been afterwards deserted. A careful search of the ends of drooping limbs in the neighborhood of an uneasy pair usually reveals a nest.

Hummingbirds' are found by watching the birds building and also by carefully searching whenever a female Hummer makes a good deal of fuss in one's neighborhood. An agitated Hummer usually means a nest, but it does not always mean a nice, fresh set.

Field Sparrows' and Chats' are found by searching in low bushes and thickets, also by watching the birds building. Chipping Sparrows' may be found by scrutinizing the ends of the long limbs of good-sized pines; they nest more in such situations than anywhere else.

Acadian Flycatchers' are found by careful search in the neighborhood of any pairs that seem disturbed or alarmed by one's presence.

For Blue Grosbeak' one has to locate the territory a pair range over, and then search in all likely places for the nest.

THE ROCKY MOUNTAIN SCREECH OWL.

BY WM. G. SMITH, LOVELAND, COL.

This little owl is a resident in the lower mountainous portions of Colorado at all season, although a shiftless one, sometimes being numerous in certain localities, while on the next visit not one can be found. It appears to be strictly nocturnal in its movements and generally hides during the day in some hollow tree, in the absence of which it selects some secluded spot where the vegetation is very dense, as it is incessantly hunted by the villainous Black-billed Magpie.

It commences to breed early in April. I took a full set as early as the fourth of that month, this year. It deposits its eggs (usually four) in some hollow tree as a rule, but I have found them in an old deserted magpie's nest; in this case, as also when laid in a hollow tree, it is sparingly lined with a few feathers. Both birds may occasionally be found on the eggs at one time, and are very loth to leave: nothing short of physical persuasion will tempt them to leave their nest.

A few days ago my son took out two old birds from a hollow tree and then discovered two eggs which he let remain; and his hand was scarcely drawn from the hole before one old bird bolted in again. Any ordinary bird would consider themselves grossly insulted and forsake their nest; not so with *Megascops asio maxwelliæ*, as in this case they went right along with duties and laid their full complement of eggs. As a rule they lay an egg each day until four is laid, but in some cases it takes them two weeks to get together their full clutch, and consequently some birds hatch out long before the others, as they appear to set on the eggs from the start.

The Rocky Mountain variety is much lighter in color than the eastern form, having but very little or no tawny on its wings and body, and is a very pretty bird. The eggs are nearly round, pure white and measure about 1.50x1.20. I never found more than four in a clutch and often but three.

THE CATBIRD.

Galeoscoptes Carolinensis.

BY WM. L. KELLS, LISTOWEL, CANADA.

The vocal imitative powers of the mocking birds, have long been a theme for the poet, and the admiration of the naturalist. Different species of these birds are found in various parts of North America, but the species most commonly found in Ontario, and the other divisions of Canada is the Cat or Mewing Bird.

THE CATBIRD.

This species is about ten inches in length. The plumage is sooty black, the wings and tail being of a darker hue than the rest of the body. The bill, feet and eyes are also black, the tail being remarkably long. It frequents shrubberies, vineyards, old orchards, beaver meadows, the willow-grown margins of the creeks, and wherever there is the thick shade of low underwood, and in such places the female builds her nest, usually near the ground, among the thickest bushes or evergreen shrubs, where it is well concealed from observation. This is composed of small brambles, stalks of dry weeds, dry leaves, plastered inside with mud and lined with rootlets and some fine, dry grass.

The set of eggs, generally four in number, sometimes five, are of a deep greenish hue and measure .95x.71 inches. Two broods are generally raised in the season, but the bird has many enemies

among the feathered race, as well as small animals, and is often robbed of its contemplated family. To its nest and eggs the Mewing Bird is strongly attached, and the affectionate regard manifested by both parents towards their young is not surpassed by any other member of the feathered family. They are very diligent and careful in supplying their offspring with food, and should they be exposed to danger, will, in trying to defend them, encounter hazards to their own personal safety, seeming almost strangers to fear, and exercise all their arts in order to drive off the intruder.

The vocal powers of the male of this species are varied and wonderful; the notes of the Blackbird, the Wood Thrush, the Robin, the Grosbeak and the Goldfinch, the call of the Sandpiper, as well as the warbling and solos of various other field and forest birds, and even the cries of some small animals are all successfully imitated, intermingled with other notes peculiarly its own. It not only sings and imitates with deceptive exactness, but often performs a kind of dance at the same time, hopping from branch to branch as if keeping time to the music of its own voice. It often deceives persons by imitating the mewing of a kitten in distress or pain, and as soon as it is approached it either darts off through the brushwood or begins to warble some other notes, apparently pleased at thus deceiving the human ear. It also seems to take pleasure in teasing other birds by imitating their love calls, or notes of distress; and as soon as they approach its perch, terrifies them by the scream of some hawk or other bird of prey. While hay-making is in progress it will often visit the meadows in the vicinity of its haunts, for the purpose of securing a supply of insect food for its young, and often startles or amuses the haymaker by its cat-like calls and other peculiar notes. But no persons are more annoyed by the "mewings" of the Catbird than the village berry-pickers, who, when in search of wild raspberries often invade its haunts, and while thus engaged are frequently affrighted of what they suppose to be the near approach of a wildcat.

This species, though tolerably abundant, is rather solitary in its personal habits, and seldom is more than one pair found in the same vicinity. It is quick in its movements; its flight is usually short, but rapid, and it feeds on various species of insects and

berries, and may also sometimes destroy the eggs of smaller birds. In the spring-time it makes its advent in the central part of Ontario usually about the beginning of the second week of May and departs again in the early part of September, the winter home being the region of the Gulf of Mexico and the West India Islands.

I well remember my first acquaintance with the Catbird, and the discovery of its nest. The creek which intersected the old homestead farm, on which were passed my boyhood days, on reaching the boundary line of our premises, made a short curve back into the woods, which for years after the front portion of our farm had been cleared, remained still in a state of primative wildness. Here, in the bend, was a thick growth of underwood, and in the summer time shaded with a dense foliage. Often out of this glen-like spot came strange, wild sounds the causes of which we children of the farm were at first too much afraid to investigate. At length, one summer day I mustered up courage and went down into this wild place. On proceeding, a series of kitten-like "mews" greeted my ears, and I soon discovered the authors in a pair of dark-colored birds, near the size of a Robin, but with longer tails, who were darting about among the branches and evidently much alarmed at my invasion of their retreat. I also soon discovered the reason for their distress in the form of a large nest, placed in the forks of a very slender blue beach, which upon reaching I found to contain three young birds, a few days old, and one greenish-colored egg, the first of this species I had ever seen. I felt not a little proud of my adventure and discovery, and was never afterwards so much afraid of wild-cats.

My next acquaintance with the Catbirds was in the beaver meadows of North Wallace, especially in the vicinity of Emerald Farm, on which I became a resident in the spring of 1865. Here I found this species quite common and saw numbers of their nests, and their habits and peculiar notes often engaged my attention. In coming to Listowel, and continuing my observations of the avi-fauna of this section, and beginning my oological collection, I found the Catbirds numerous in most of the second growth woods, especially where there is an intermingling of evergreen shrubs with the second growth ashes and red maples. I have also noticed this species in Stanley, on the shores of Lake Huron,

and near Port Dover, on the Erie shore, and it is noted by every individual who has made out a list of the birds of Canada.

When I visited the celebrated Falls of Niagara, the second time, on the 10th of June, 1881, I noticed this bird in several of the gardens and vineries, near the margin of the rock-hewn gorge through which that river flows from the great cataract to the whirlpool, and on the morning after my arrival, when I awoke in the Paradise-like home of my friend Ralph V. Lyon, and lay listening to the murmuring sounds of the great waterfall, I was pleased to notice that among the other sounds of bird-life that came in through the window, on the dewy, flower-scented air, were those of my old and familiar feathered friend, the Catbird, and in the garden enclosures, on the Canadian side, among the many birds whose songs greet the tourist from many lands, as they approach the falls and bridges, are those of this species of the American Mocking Birds.

THE RED-BELLIED WOODPECKER.

Melanerpes Carolinus.

BY E. B. PECK, CLIFTON SPRINGS, N. Y.

The Red-bellied Woodpecker is considered the rarest species of its family that ever reaches this part of the Empire state. Occasionally a solitary individual may be seen the fore part of April on his way to the northern breeding grounds. I have never seen more than one at a time.

While out collecting one day in October, I had the good fortune to see a specimen of this species on an old dead stub, his favorite resort, where with his sharp bill and spiked tongue he draws forth his daily allowance, consisting of grubs and small worms. I raise my gun, fire and soon have him in my hands.

A few days later I was again in the same piece of woods and saw another of the same species, flitting from tree to tree, uttering a peculiar note, which is a great deal coarser than that of the Red-headed Woodpecker. On this occasion the bird is very wild and it is only after a half-hour's hard work, creeping and running through the bushes, that I get a shot and secure the bird. It is a fine female, but not near as handsome as the male.

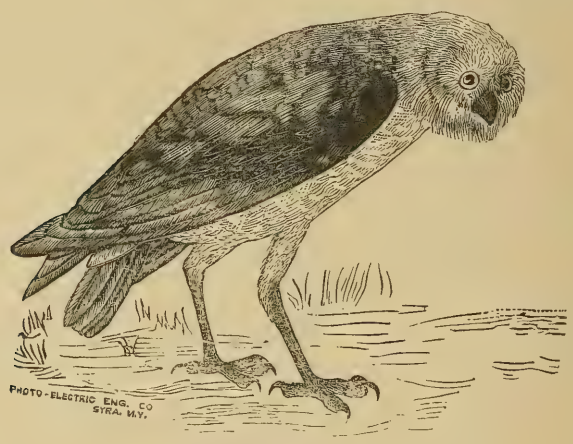
This Woodpecker has a bright red crown and hind neck; back barred with white and black; throat ashy gray; breast a very pale pink, shading into a pinkish-red or bright red. The sexes are similar, except the crown, which, in the female, is ashy gray. Length, 9 in.; wing, 4.85 in.; tail, 3.50 in.; culmen 1. The eggs are pure white .96x.71.

THE BURROWING OWL.

Speotyto Cunicularia Hypogæa.

BY F. T. PEMBER, GRANVILLE, N. Y.

Having spent the last four seasons collecting on the Pacific coast, I have had abundant opportunity to observe the habits of the Burrowing Owl during the breeding season. In parts of Cal-



THE BURROWING OWL.

ifornia, where I have spent considerable time, these interesting little owls are very numerous, and a ride of a few miles over the uncultivated plains usually shows them by dozens, sitting, either singly or in pairs, at the entrance to their underground homes. At such times they are very tame and stare wonderingly until you are within a few feet of them, when they either drop into the burrow or fly a few rods away. After these short flights they almost invariably alight on the mound in front of another burrow, when they turn about so as to face you, and at short intervals make a sharp, un-owl-like note, at the same time comically bowing themselves almost to the ground. It is quite amusing to those who see them for the first time.

During the breeding season the male owl seems to keep constant watch at the entrance of the hole, while his mate is attending to her household duties inside. Sometimes, however, we find the pair sunning themselves together. When disturbed at such times the female retreats underground, the male flying off as before stated.

When digging to obtain the eggs, we almost always find the female and occasionally both birds, backed up at the extreme end of the burrow. They do not show fight, and when pulled out by the hand offer little resistance, sometimes trying to bite, but seem incapable of doing much harm. The nest is made almost wholly of dry horse manure. The entire burrow is also lined with it and a quantity of the same material is strewn about the entrance. This is our guide when looking for eggs, for it is wholly useless to dig out holes that do not show this sign that housekeeping has actually commenced.

Looking therefore to "surface indications," which tell us when we can "strike it rich," we need waste no labor in digging empty burrows, unless, maybe, we find more young owls than we care to see. In such a case it is not necessary to dig far. If the young are a few days old we can hear them as soon as we commence work. They make a peculiar hissing noise and it is easy to imagine that the hole is full of snakes. Another sure indication of young birds is the amount of food provided for them, and it is scattered anywhere from entrance to end of burrow. This stock of provisions is somewhat varied, and I have found frogs, horned toads, centipedes, scorpions, grasshoppers, four or five kinds of mice, parts of snakes of several species, kangaroo rats, an assortment of lizards, etc.; but in digging out something like one hundred holes have only found fragments of birds once or twice, so that they must be of great benefit to the farmer and deserve his best protection.

In southern California the large Gray Ground Squirrel (*Spermophilus beechevy*) is very abundant and the owls take possession of their abandoned burrows. More rarely they occupy the deserted hole of the badger and fox. Most writers state that the eggs are found from six to eight feet from the mouth of the burrow. This is not my experience, as I have rarely found them without digging eight or nine feet, and all the way from that to

fifteen. But this no doubt varies in different localities, according to the nature of the soil.

Writers of twenty years ago gave the number of eggs of this owl as four, while later authors say from four to ten. I think four seldom, if ever, constitutes a full set. Where incubation had commenced I have never found less than seven, while eight, nine and ten are more commonly found. I once found a set of eleven eggs, and again eleven young birds a few days old. They were covered with white down and were rather pretty. Last April I found my first set of twelve eggs and naturally felt very much elated over it. I knew that they were badly incubated but thought I would save them, no matter how much time it took. I had no time to attend to them until the second evening, and when I went to unpack them, I found that six of the young birds were nearly out of the shell, while the others were "getting there" as rapidly as possible. So I lost the largest set that I ever found, and very likely may never find another with so many eggs.

The eggs of the Burrowing Owl are nearly round, of a pure, glossy white. The range of measurements are 1.16x.98 to 1.35x1.10, averaging for a large lot 1.25x1.03. Fresh eggs may be found from middle of March to 15th of May, and perhaps later, but have never looked for them after that date.

On April 24th and 25th, 1889, near Riverside, California, I dug out twenty-five or thirty nests of this owl. About one-third of these contained young of all sizes up to half-grown, one-third were full sets in all stages of incubation, while the balance were fresh, and ranging in numbers from three to ten.

EXPERIENCE WITH A SICK DUCK.

BY CLAUDE CORNELLE.

On Jan. 14, 1890, I shot a male Merganser, on the Oswego river, about two miles above Phœnix, N. Y. His peculiar actions during the time I observed him before shooting led me to make a thorough dissection after skinning, and to give it to the readers of the O. & O.

As I was pushing my canoe up the river against the heavy current, around a point known as "Flatrock," I saw, about twenty rods above me, a large duck, working around in the shallow water near shore. He moved heavily as though badly wounded, and seemed anxious to get his body behind a small stump. It was impossible to land where I was, on account of the current and high bank. To effect a landing, I was obliged to paddle up within fifteen rods of the duck before I could get ashore.

On reaching shore I took my rifle and worked my way to within about twelve rods; the duck meanwhile endeavoring to get on the opposite side of a stump too small to entirely conceal his body. I saw by his actions that there was something wrong, and sent a bullet through the only part of the body visible to me. No gunshot wounds were found on skinning but the one made by myself.

After properly disposing of the skin, I went to work on the body. Nothing was found throughout the body to give me a clue to the actions of the bird until the windpipe was reached. About two inches from the mouth it was slightly enlarged; the same again about four inches down; but by far the greatest enlargement was at the junction of the bronchial tubes. At that point was a large, shell-like structure, (almost fully hardened to bone) which filled completely the cavity between the neck, or back-bone and the two arms of the wish-bone. In length this structure was 1.50 inches; from front to back, 1.15 inches; from right to left, 1.75 inches; at the left a large protuberance, but none on the opposite side. In general appearance it very much resembled a wedge with rounded edges. The surrounding muscles, also the inner surface of the enlargement had a greenish, slightly rotten appearance on dissection twenty hours after death, weather cool. Tissues of the abdomen showed no signs of putrefaction at the same time.

Last Spring, 1889, I took a "Little Green" with a similar enlargement, the parts of which seemed healthy and the surrounding tissues appeared normal; the bony structure being translucent, almost transparent. Nothing out of common was noted in heron.

Now a question: In case of the duck was the abnormal windpipe the cause of the queer actions? Is this condition frequent? In case of the heron, would it have passed, ultimately, into a more diseased state, similar to that of the duck? Is this condition progressive?

THE SNOWY OWL.

Nyctea Nyctea.

BY E. B. PECK, CLIFTON SPRINGS, N. Y.

This is one of the owls of whose habits very little is known. Few collectors are plucky enough to endure the hardships incident to a thorough study of their habits in their northern breeding place. This bird seldom reaches Ontario, Co., N. Y., and I have never met it here, but I have noted it several times in Monroe Co., whose northern shore is washed by the waters of Lake Ontario.

THE SNOWY OWL.

Dec. 26, 1889, while on a collecting trip up the lake beach in Monroe Co., I came to a point of land jutting out into the lake some little distance. Near the end of the point stood an elm tree. On one of the lower branches I saw an object, which, at a distance, looked like a bunch of white paper flapping in the wind. When almost within shot-gun range, I saw it was a Snowy Owl. I began to creep toward him, but was disappointed, for he spread out his white wings and sailed over into a lot and sat on a stone-pile. I crept after him but I could not get near enough for a shot. I gave it up in despair, tramped

back to the hotel, ordered my horse and drove homeward. On arrival home there was a letter from a friend, stating he had a white owl for me. Two weeks later I received a fine specimen from Yorktown, N. Y. It is now mounted and in my collection.

The measurements were as follows: extent, 5 ft. 8 in.; length, 28 in.; tail, 9 in.; male.

The plumage of this species is almost pure white, marked by dusky-brown on some of the feathers of head and back. The female is much darker than male, only the face, fore neck, middle of breast and feet being white; the other parts being heavily barred with dusky.

The eggs are 5—10, 1.76x2.24, pure white.

AMONG THE GULLS AT DUCK ISLAND.

BY CHAS. S. BUTTERS, HAVERHILL, MASS.

My article in the last number of the SEMI-ANNUAL, described a visit I made to an island off Portland Harbor, and securing a number of eggs of the Common Fern and Leach's Petrel.

After leaving that island, we started down the coast, headed for Mt. Desert, Me. It must be remembered that this was a fishing trip, and being the only oologist on board, I could not spend the time collecting that I wished to.

The coast from Portland to Mt. Desert is lined with islands, large and small. I think these islands would make good collecting grounds, but as it was rather late in the season I could not do much. I heard that on one of the islands, the year before, the American Herring Gull had been found breeding in large numbers. That was the island I wished to visit.

During the next few days I went ashore on quite a number of islands, finding a few Tern's eggs, and on one island I found a solitary nest of the Herring Gull, containing two eggs, which I collected. Not far from this nest some of the men found a pair of young gulls, about two-thirds grown. After a long chase they were captured and brought on board.

On the evening of July 13, we rounded the outer point of the island we had been searching for, (called Duck Island, and situated about twenty miles from Bar Harbor, off the coast) and dropped anchor about thirty rods off shore.

I wish you could have heard the noise. I thought I had heard "bird music" before, but I never did until that night. The Gulls were making an awful racket, and they kept it up all night.

The next morning we were up soon after day-break. A hasty breakfast and all hands started ashore, anxious to learn where all the noise came from the night before. On landing we started for the extreme point of the island: the point of the greatest racket.

The island was covered with a wild growth of spruce and hemlock, and about thirty feet above the sea level. The shore was very irregular, and covered with great, jagged boulders; quite a rough looking place. As we walked along we would occasionally find a nest with two or three eggs, but none to amount to anything until we reached the point of the island. As I stopped to look at a nest I found on the way, a few of the party arrived at the point some time before I did. I got there at last, and looked around me. I wish the readers of this article could have been with me. It would have made any collector, who had not seen this bird at home, open his eyes. There were nests in every direction. The men who had arrived first had collected eggs, and after marking had placed them in a pile, until they had almost a peck. They had collected young birds that were about two-thirds grown, to the number of twenty or more.

I could not begin to tell the number of nests; they were everywhere. Some of them were placed behind some rock or stump, as if for shelter; others were on the open ground.

Some of the nests were built very well, being about 15 inches in diameter and made of grass, sea-weed, etc., but the majority of them were just a little hollow in the ground, with a little dried grass in it, and on that the eggs were placed.

Most of the nests contained three eggs, but a good many of them only had two; incubation quite far advanced. Young birds were everywhere, and of all sizes.

While we were there, the old birds were sailing around overhead, and they were far from quiet, too. After sets and birds enough had been collected, we left for the boat, which was reached without mishap.

As we were going out to the yacht, I saw some strange birds flying over the beach a short distance down the shore. I persuaded one of the crew to row me down to them. I saw one of the birds flying over the water, and it looked as if it had a bright red tail. On shooting one it proved to be a fine male specimen of the Black Guillemot, and as its tail is quite short and feet red, it gave it the appearance, when flying, of having a red tail. I found these birds quite plentiful among the rocks. This was the only island on which I found them.

That they were breeding I soon found out by hearing the young among the rocks, but we could not get at them. I think it was too late for eggs. I found a few pieces of shells lying around on the rocks.

After dinner I began to prepare the eggs I had taken. I found I had quite a job before me, and it was three days before I finished them, preparing a few at a time. I was not able to save more than one egg out of six, as some of the birds in them were very large.

The young birds were kept in a pen on deck; fed on fish, clams, lobsters, etc. It was quite a job to furnish them with food, but they afforded us much amusement during the rest of the trip. Some of these same gulls may be seen in Haverhill to-day, seemingly as contented as at the native islands.

DIFFICULTIES.

BY C. S. BRIMLEY, RALEIGH, N. C.—MARCH, 1890.

Collecting eggs has its disappointments and perplexities as well as successes, and as the collecting season will soon be here, a few remarks on the subject may be in order. One difficulty that has often bothered me is how to find out when a nest contains a full set of eggs, in a case where it is impossible to look into the nest, and this often causes one to leave the next nests too long, and then the set, if saved, is adorned with holes one could almost get one's head through (figuratively speaking, I mean).

For instance, last spring we located a number of Pine Warbler nests building, and decided on a certain day to take them.

Now these nests had all been commenced within a few days of one another, and there was no reason for supposing one nest much more advanced than the rest. The result was as follows: 1st, set of four fresh; 2d, a beautiful nest empty; 3d, three eggs incubated; 4th, set of four commenced; 5th, one egg. This was the only nest we could feel in, and we afterwards took a set of three from it; 6th, an empty nest; yet all these ought to have had full sets of fresh eggs.

Then again I found a Nuthatch's nest in a dead stub in a swamp; I knew there ought to be a nest somewhere near, but from the date was afraid the eggs would be incubated. The stub was rotten and the climbers did not hold well, but I got the result of my labors in safety—four fresh eggs.

Then again Hummingbirds have a bad habit of building their nest where one can't get at them. I had one curious but fortunate experience with one last summer. I had found an old nest and was looking around, when a Hummer made a fuss and I located her nest right away. It was built in an oak sapling, the top of which was bent over so as to be horizontal, and here, 15 feet from the ground, was the nest. I managed to get a cord over the top of the oak, and hung my hat, full of cotton, underneath to catch the eggs if they tumbled out. Just as the nest came within reach, the cord slipped, the oak jerked up about a foot and away went the eggs. I found them both unharmed on the dead leaves below.

Nuthatches, both species of Tit, Pine Warbler, Gnatcatcher and any other small birds, who build nests where one cannot tell the number of eggs without taking the nest, are always more of a trouble to get full, fresh sets from, than species like the Yellow-breasted Chat, whose nests one can look right into and see how many eggs there are, and then leave if there are not enough.

Another difficulty which I will not enlarge on now, is how to take a desirable nest when found. In some cases, a long reed with the point sharpened comes in handy to poke through the nest and then dislodge it and bring it safe to hand. Miniature grappling hooks attached to the reed also serve the same purpose. Another method is to hang one's hat, filled with cotton, below, and then poke nest and eggs off the limb into the hat. (We have taken several sets this way.)

NESTING OF THE TURKEY BUZZARD.

Cathartes Aura.

BY JNO. A. DONALD, DECATUR, TEXAS.

This bird is quite a common resident in this locality. A few notes concerning the nesting of the species will, no doubt, prove of interest to the readers of the SEMI-ANNUAL. I have only been a student of the science for the past three seasons, during which time I have found and examined personally eleven nests of the Turkey Buzzard, and shall confine myself to observations of the same taken from my note-book.

THE TURKEY BUZZARD.

The first nest, found during the above period, was on April 5th, 1888, contained one egg and was on the ground, in a thicket, under a log.

I did not disturb it, but waited until the 10th in order to get a full set. On visiting it on that date it still contained one egg, which I took; incubation about 1-2. This egg measures 2.74x1.94. It is of a dull, creamy, buff color, very evenly spotted with dark brown—the spots around the larger end being thicker and heavier than those of the smaller.

The next nest found was on May 6th, 1888; contained three eggs and the broken shell of another. These eggs passed out of my hands soon after finding them, and for this reason I cannot give a description of them. On comparing them I decided that they were the product of two pairs of birds, as the markings of the broken shell and one egg were very different from those of the other two. The eggs were placed on a bed of leaves, in a thicket. Set 3-2 was collected June 5th, 1888, but the eggs were too badly incubated to save. Nest was on the ground in a thicket.

In 1889, the first nest was found on April 20th; contained two fresh eggs, and was on the ground, under a large rock, on a prairie branch. One of these eggs was very thickly spotted with small spots and blotches of varying shades of brown, while on the other the spots were very large and scattering.

On May 3d, 1889, I found a nest containing two young Buzzards, just hatched. This nest was in a thicket, on the ground. The young birds were covered with a dirty, white down, and although hardly able to sit up, were pecking at one another.

On March 22d, 1890, I found two nests, each containing one egg. I took both and replaced with turkey eggs. On returning four days later, I found one nest deserted and the turkey egg broken; while in the other I found another Buzzard egg had been laid, which egg I collected. This set (2-2) measures 2.64x1.92 and 2.66x1.91; are dull white in color, with large, irregular blotches of very pale brown, over which are a number of smaller spots of dark brown. Both of the above nests were placed under ledges of rock, on the ground, near a prairie branch.

On April 14th, 1890, two nests were found, each containing two eggs; set 3-2 being fresh and placed under a ledge of rock, and set 4-2 was slightly incubated. The coloration of set 3-2 is ulmost precisely like the set found on April 20th, 1889, and measures 2.79x1.87 and 2.75x1.87. One egg of set 4-2 was broken in collecting, and the other measures 2.64x1.99; the larger end is heavily spotted and blotched with drab, umber and dark brown, while the smaller end is almost unspotted.

Sets 5-2 and 6-2 were found April 22, 1890; both being placed under ledges of rock, along a prairie branch. Both sets were fresh. Set 5-2 is about a typical set, being creamy white and irregularly spotted with dinerent shades of reddish brown; one egg being heavily marked while the other has only a few spots about the larger end and a very few small ones elsewhere. The eggs measure 2.90x1.83 and 2.79x1.81.

Set 6-2 is the most beautiful set of the species I have ever seen, being clear white, with numerous lavender and purplish shell markings, over which are large blotches of dark red and dark brown. Measurements, 2.83x1.94 and 2.74x1.93.

Of all the eggs that have come under my notice, the shorter has fewer and larger markings than the longer. This I have not noticed to be true of the Black Vulture.

THE PRAIRIE HORNED LARK.

Otocoris Alpestris Praticola.

BY LYNDS JONES, GRINNELL, IOWA.

There can no longer remain any doubt that Prairie Horned Lark (*O. a. praticola*) does occur pretty generally east of the Rocky Mts., most commonly in the Mississippi valley, north of Arkansas. Too many specimens have been taken near and on the Atlantic coast for one to say that it is a straggler so far east. Its close resemblance to the eastern form—smaller and a "leetle paler," makes it somewhat confusing, occurring as it does in company of *alpestris*. While you of the east are searching among *alpestris* for *praticola*, we of the Miss. valley are searching among *praticola* for *alpestris*; you for the eastern gradation, we for the western.

As the result of a somewhat extended search, I have about 40 skins before me, besides the careful record of many taken which were not skinned. After a close study of "Coue's Key," "Ridgway's Manual" and Mr. W. Henshaw's excellent article in the "Auk," (Vol. 1, p. 264) I concluded that *alpestris* would be most likely to be found among the brighter colored birds. Accordingly I have selected five very bright skins, (none of the others being at all bright) and find their measurements to be as follows (measurements are of the wing only): 4.10, 4.09, 4.08, 4.04, 4.03 inches; dwarfs if they are *alpestris!* The wings of five very pale skins are, 4.18, 4.15, 4.13, 4.12, 4.12. All are in breeding plumage. I give also the wing measurement of five females: 4.00, 3.88, 3.88, 3.78, 3.76. Thus it is seen that while the bright colored males average 4.07, the pale ones average 4.14, and the females 3.86. Even my largest male (which, unfortunately, is the palest of all) does not come with 2-100 of an inch of the smallest *alpestris*, according to Ridgway, and the largest bright colored one falls a whole .10 below! No *alpestris* here! Mr. Ridgway makes the average *praticola* 4.13; mine are 4.12, lacking the larger eastern individuals. Mr. Henshaw makes the male and female average even larger than Mr. Ridgway.

Central Iowa birds are colored as follows: Nape, occiput, sides of neck and breast, lesser wing coverts, upper tail-coverts, light vinaceous or pinkish cinnamon; back, scapulars, rump, grayish-brown, the feathers with darker centers, especially on the rump; middle wing-coverts light vinaceous or pinkish, terminally, dusky; wings otherwise grayish-brown, the feathers paler edged, and outer web of outer primary mostly white. Middle pair of tail feathers light-brown, with paler edges and darker central portions; remaining tail feathers dark brown or black, outer web of outer pair edged with white, like outer primary. Forehead, superciliary stripe, chin and throat pale straw-yellow; often no trace of yellow on forehead and above eyes; the yellow of the throat very variable, from deep primrose-yellow to pale straw-yellow, or scarcely a trace of color. Fore-part and sides of crown, continuing laterally back and above eyes, including the ear-tufts, lores, sub-orbital region, broad patch on cheeks, and jugular crescent extending to lower part of throat, deep black, more or less overlaid with grayish-brown. Anterior portion of ear-coverts, white; posterior portion, grayish-drab. Other lower parts, grayish-white, the sides indistinctly streaked with dusky; belly sometimes distinctly washed with black. Upper mandible, dark plumbeous, lower, bluish-plumbeous; ivis, deep brown; feet and legs, brownish-black. Females are paler and browner throughout. Young are speckled all over with more or less brownish.

For a month previous to the first hard frosts, and indeed until winter sets in in earnest, the Larks are seclusive and hard to find; but the cold north winds and snow drive them together in flocks often numbering 20 individuals. Within a radius of three miles there are 15 or 20 such flocks, each having its particular feeding and nesting grounds. Week after week, and month after month I find the same flocks and same individuals at their old stands, and I can tell when a newcomer is there in the place of a fallen comrade. Ten and often twelve times a week I pass them and note their ways and actions, often approaching within ten feet of them. There is a difference in birds of the same species.

After a heavy fall of snow, the Larks burrow in the drifts at night and then allow the drifting snow to cover the opening, leaving no trace of the birds. In early morning you may rouse

them up from this sort of couch before the sun has touched the snow-capped hills and awakened the resting birds. As they rise with a little volcano of snow and a startled cry, in swift and irregular flight, you, yourself, are startled and hardly recover before they have dropped to a convenient cover to rub their eyes open. When there is little or no snow, the Larks pass the night in the long, dry grass in the bottom-lands or sloughs.

During the day they fly hither and thither in flocks, or perch upon a post or clod of dirt, ever and anon uttering their long-drawn sa-w-e-e-e or s-w-e-e-e-e, ending in a rising inflection; it is the only winter song on our prairies; others sing in the woods, but the Larks alone in the fields. One cold winter I found them in the barn-yard in the midst of a grove; it is a rare occurrence.

While the country is snowbound they prefer the road, because, no doubt, grain is more plentiful there. Yet they never wander very far from their accustomed grounds unless the weather is very inclement for a long period. If there are any bare spots on the hills, there the Larks gather and feed.

When the warm south winds bring balmy days in late winter and early spring, and winter's mantle begins to get ragged at the elbows and knees, all nature seems to rejoice. Then it is that the Larks begin to sing. Flitting and soaring directly upward until but a speck, a dot in the azure sky, one sends his notes dropping, rattling all around, soaring all the while. Unless you have closely watched him, you will look for him first here and there along the ground, whence the song seems to issue forth. Then, when you have abandoned the search, like a meteor straight down he dives, gracefully spreads his wings and rests on a convenient clod near by, once more uttering his rattling ti-s-r-i-l-i-e-e-e-e, that sounds like a distant rattling chain. During the pleasant days, as early as January, this song comes from everywhere, mingled with the other notes.

Otocoris' courtship is interesting indeed; but this paper is already too long, so this and his nesting habits must be left for another time.

DEPARTMENT OF THE

WILSON ORNITHOLOGICAL CHAPTER

OF THE

Agassiz Association.

Our Chapter has steadily increased in membership and in the interest taken in our work since our last report, and will have an instructive and interesting report of our study of the Warblers and further study of the Thrushes during this season, to present to our members in the January SEMI-ANNUAL.

The success of the Wilson Chapter depends upon the diligence with which each member studies the bird-life of his own locality, and any special subject in which he is engaged. The study of bird-songs is being energetically carried out by Mr. Bridgham and his associates, and Secretary Lynds Jones is carefully directing our investigations in nidification.

The list of synomyms of Thrushes, given in this issue, was gathered from outside sources, although if observers would report on this subject, the result would be of value in our work.

The study of the food of birds will be undertaken as soon as a sufficient number of observers become interested in the subject.

These special departments of ornithological investigation, if continued as commenced, will yield most valuable results.

CHANGE IN CONSTITUTION.

The proposed change of the part of our Constitution relating to membership, has been adopted by the chapter.

Since June 1st the new rules have been in force, and will be of great service in the transaction of business.

Article III now reads :—

Membership shall consist of Active and Associate members.

Active members only, can vote and hold office.

Any student of birds in the United States may be admitted to Associate membership by the President.

Active members shall be limited in number by the Executive Council; provided that the number shall not exceed one hundred, or be limited to less than twenty-five, except by a majority vote of the Active members.

Active members shall pay annually, in advance, one dollar to the Secretary of the Chapter, for which amount he shall receive the official organ and all publications of the Chapter.

Active members may be admitted semi-annually, by a majority vote of the Active members, after a recommendation by the Executive Council.

Application for Active membership should be made to the Secretary.

Non-payment of dues for one year shall cancel their name from the roll of Active membership.

No dues shall be charged Associate members.

Associate members shall be unlimited in number and may be admitted at the discretion of the President of the Chapter.

MASSACHUSETTS ASSEMBLY.

The third annual convention of the Massachusetts State Assembly of the Agassiz Association was held in Fitchburg, May 30.

President Albert H. Hall of the Assembly fittingly responded to the address of welcome by the Rev. William H. Pierson of Fitchburg, after which an address on "Vertebrate Embryology," by Prof. F. E. L. Beal, and one on the "Study of Botany," by E. Adams Hartwell, were well received.

Mr. Ballard's address on the "Agassiz Association" was deeply interesting, and presented clearly the object and position of the Association, ending with advice relating to our future work.

The reports of Chapters 29 of Boston, 591 of Hyde Park and 48 of Fitchburg were of special interest to the delegates present.

Members of the Wilson Chapter who attended the convention are especially indebted to President Albert H. Hall and Secretary Howard M. Ballou for courtesies extended.

THE THRUSHES.

From 1889 Reports by Members of the Wilson Ornithological Chapter.

Report of CHARLES D. OLDRIGHT, Austin, Texas.

Species found in this county (Travis).

Wood Thrush (*T. mustelinus*), Winter visitant—common.

American Robin (*M. migratoria*), Winter visitant—abundant.

Catbird (*G. carolinensis*), Transient visitant—tolerably common.

Mockingbird (*M. polyglottus*), Resident—abundant.

Brown Thrasher (*H. rufus*), Winter resident—rather common.

Habitat: The Wood Thrush is found, during its stay with us, in thick woods, usually in the bottom lands, near rivulets and creeks.

The Robins congregate in flocks (sometimes very large) and stay in the large hackberry trees (feeding on the berries) and other trees in the bottom lands, also in the cedar brakes, and during rainy weather they are restless, flying from one tree to another.

Catbirds are found in thick woods and dense thickets; are probably common, but not frequently noticed owing to their retiring habits.

The Mockingbird frequents rather open places—borders of woods, clearings and roads, also found on prairies in the few trees scattered over them in clumps, or if covered with mesquite trees (which never form thickets) the "Mocker" will nest in them. This bird is always found around a farm-house, nesting in the orchard if there is a place, if not then in some tree close at hand. In the winter most of them retire to the tall timbers and thickets.

Brown Thrasher. This bird is to be found in woods and thickets where there is a dense growth of underwood, in which it dwells, remaining mostly on the ground.

Nesting: The only species of this family that nidificates with us is the Mockingbird. It commences laying about April 1 (nest containing nearly fledged young found April 30) and continues

until the middle of July. Two nests found July 12, 1889, one of which contained one egg, the other three, with bird sitting. Nests are constructed of twigs, the species of plant varying according to location, *e. g.* nests in the mesquite region are composed of the thorny twigs of that tree. They often contain weed-stems and a plant known here as "Indian tobacco." Inside, the nests are usually lined with roots of grass or other small rootlets, while sometimes extraneous substances enter into its composition as string, wood, paper, rags, etc. Nests are placed in any tree that is convenient, often in honey-suckle or other climbing vines, or in the corner of a "Virginia" rail fence. The height varies from one to forty feet from the ground—in woods usually from six to fifteen feet. Nest is always solidly placed in a fork or resting on a large limb.

In 1889 first set *taken* (not first set found, for I left some before this) was on April 26, incubation commenced; nest in elm tree, seven feet up. The set contained four eggs of Mockingbird on April 24th and on the 26th contained three eggs of "Mocker" and one of Dwarf Cowbird; bird seen. Next set taken May 5, four eggs; incubation, large embryos. Nest placed in a cedar tree, two feet six inches from the ground. May 19, five fresh eggs; nest in a mesquite tree, fifteen feet from ground. May 20, four eggs, small embryos. Nest fifteen feet up in a post-oak. Another nest ten feet from ground in a live oak contained five eggs; incubation commenced.

June 2d. Four fresh eggs; nest in an elm bush, 2 feet up. No birds seen. Description: No. 1, pale, dull green, with large confluent ring of reddish brown; spots around larger end and some distributed all over the egg; size .90x.69. No 2, same ground color, almost obscured by spots and blotches of pale brown. Blotches of darker reddish-brown form a broken ring around crown; .87x.70. No. 3, scarcely distinguishable from No. 1; .88x.70. No. 4, markings same as Nos. 1 and 3, but more evenly distributed; .87x.70. This is a rather peculiar set, so not typical. They are all smaller and more globular than usual.

Another set collected May 29, 1889 by G. M. near Austin, represents another phase; five eggs, incubation advanced, nest "as usual." No. 1, pale blue, spotted all over but most thickly at the large end with distinct spots of chestnut and obscure purple;

1.05x.71. No. 2. Same ground, blotched with chestnut and obscure purplish. Blotches about .15x.15, mostly on crown; 1.03x.72. No. 3. In this egg the lilac predominates. Large spots of it and brown mostly on crown, 1.00x.70. No. 4 Spotted and blotched with purplish and brown; incomplete ring; 1.06x.71 No. 5. Spotted and blotched all over with purplish and chestnut; 1.00x.72. Ground color in all the eggs is the same—pale blue. They are pretty eggs but not typical.

What I consider a typical set may be described as follows: five eggs collected by G. M.; incubation "advanced." Nest of sticks, Indian tobacco, etc., lined with rootlets and hair. No. 1, bluish-green, with small spots of reddish and lilac distributed uniformly over the surface. A few larger spots form a ring around crown; 1.06x.71. No 2, bluish-green, with large confused spots of reddish and obscure lilac distributed uniformly; 1.01x.70. No. 3, same coloration as No. 1; .99x.71. No. 4, spotted less thickly and with more purplish than No. 3; .99x71. No. 5, bluish-green, with large and small spots of reddish and lilac, mostly on large half of egg, 1.01x.71. Average size of ten eggs, 1.02x.71.

Mockingbirds' eggs are very variable, being found any color from gray with a solid ring of red, to bright blue with bold spots of dark brown and chestnut, or an almost uniform brownish, or only freckled with reddish, but it is only in a large series that such varieties are found. I know of one so-called "runt" Mockingbird's egg which is just the size and color of a Field Sparrow's egg. I do not think that the eggs differ in size or color according to lateness of season, but I *do* believe that the second brood, in June, consists of four, while five are frequently found earlier in the season. The number of eggs is usually four or five. I have never taken a larger set than the latter number, but sets of six are sometimes found. I have found a few sets of three, but I suspect that one or more eggs had been removed.

Dwarf Cowbirds' eggs (*Molothrus ater obscurus*) are but seldom found in the "Mocker's" nest, but this year several were found. They were also found in other unusual places, nests of Cardinal Tanager, etc.

The natural enemies of the five species are the usual enemies of birds viz. the larger *Falconidæ*, small carnivorous mammals, and many species of snakes. No special enemies observed.

Mockingbirds are brave in attacking cats that attempt to approach their nests. They will often astonish a dog by unexpectedly alighting on his back and administering a sharp peck.

Flight: With exception of the Robin the birds comprised in this group are not addicted to continued flight; they fly easily, in a straight line, and move the wings moderately rapid. As far as I have observed, they hop when on the ground.

Song: Of the thrushes found here only the Mockingbird sings while with us, but all the others sing during the summer when in the north. The "Mocker" sings mostly during the spring—seldom at other times. He sings all day and sometimes all night (I have heard him at midnight and at 3 o'clock a. m.) The Mockingbird imitates very many sounds that it hears and also has many original notes; its song consists of a blending of these songs of other birds with its own notes

If a Mockingbird is kept near any song bird for some time it will imitate it. Mocking birds seldom imitate the notes of the Woodpeckers, but a man in Austin kept a number of young birds near a Woodpecker's nest and as soon as they began to sing they commenced calling like the Woodpeckers. Favorites with the Mockingbird, are the Blue Jay (himself a mimic) the Scissor-tailed Flycatcher and Tufted Tit. He will imitate the cries of a young chicken or other like sounds. I have never heard him mimic a cat or dog, but no doubt he can do it. Only the male birds sing—in cages the females do not sing, and I suppose that they do not sing outside. The notes of the Mockingbird are to be distinguished from the notes of the other birds he mimics, not by the sound, for they are exact reproductions, but by the fact that he utters them but two or three times before discarding them for others. One of its favorite notes is the cry of the young birds for food. It is a shrill "ee-ee--ee,"and one often hears and old "gray-head" stop in the middle of his melody to squall like a hungry youngster.

Food: Wood Thrush, mixed diet, insects and seeds.

American Robin, almost wholly grainivorous; feeds on cedar, china and hack-berries and winter grapes.

Mocking-bird, feeds mostly on berries—poke, china and hack-berries, mulberries and grapes. They eat some fruit, taking a bite from a peach or plum, but they do little damage. A few insects are also eaten.

Brown Thrasher, seeds, small snail shells are often found in its "crop"; no insects have been found by me.

Report of LYNDS JONES, Grinnell, Iowa.

Merula migratoria, Robin Red-breast.

Feb. 27, first one; next, Mar. 11, several; common, Mar. 12. Found everywhere during migrations, anywhere except in marshes while breeding. Nests are as often found under bridges as in trees in proportion to the number of bridges. The choice of location, if there is any choice, is in the crotch of a shade tree in town, preferably above the walk. This applies also to well-travelled wagon roads in the country.

The nest is almost universally composed of grass and straw externally, well bound together by a thick coat of mud, which in turn is overlaid, or inlaid with rootlets; the mud shows through the rootlets internally but is hidden by the grass and straw externally. Nests are always saddled on to branches of trees or into their crotches, but built flatly on timbers of bridges or buildings unless so small that the nest can be saddled on. The round poles in the roofs of old straw-covered sheds are a good example of the last.

The nest is never on the ground but may be within a few feet of it or 60 feet up. 20 feet is the preference in trees; 6 to 10 in buildings. It may be a few feet above running water, or a mile from any stream. Three eggs is the normal set here. The different sets vary but little in coloration. The extremes are pale blue and torquois blue. First nest, April 1; last, June 15; height of season, May 10.

Crows, jays and chipmunks disturb their nest, as well as wood mice.

Hylocichla mustelina, Wood Thrush; "Veery."

First, May 5, ten; next, May 6; common May 9. Found everywhere during migrations. Its favorite resort is the deep woods, usually in close proximity to water. The deep shade of city shade trees is also a resort.

The nest is always in a tree or bush; if a tree, it is saddled on to a branch either at its junction with the tree or far out on the branch; if in a bush, it is saddled into a thick bunch of brush. Nests vary in height from 4 to 10 feet; rarely the latter distance, commonly 5 or 6 feet. Oak trees are the preference.

Nests vary but little in composition. An external covering of grass, with some white or very light colored material, unlike the Robin in this respect, which seldom or never uses so light material in the construction of its nest; and fine rootlets for the lining. Between the lining and outside is a strong, firm layer of rotten wood, never mud. In one or two nests I have found old horse droppings.

Four eggs is the usual set here, never more, often less. Eggs are smaller than the Robin's and darker—nile blue. I see no variation in color. First nest, May 20; last, June 27; height of season, June 5.

The chipmunk is decidedly the worst enemy in breeding season; Jays and Crows disturb it.

Turdus fuscescens, Wilson's Thrush.

First, May 9, 40; next, May 10; common May 9; bulk departed May 18; last seen May 30. Seldom seen outside of the woods, except among the trees in town. Keeps mostly to the upwoodlands, not usually very near water. The bird is retiring in its habits and avoids man.

Turdus aonalaschkæ palasii, Hermit Thrush.

First, April 13, 1; next, May 2; was not common; bulk arrived May 5; bulk departed May 9; last seen May 10. Very retiring; keeps well to the deep woods, where it may be found high up among the trees. I have found it most common in the vicinity of water. It was a common migrant in 1887.

Turdus ustulatus swainsonii, Olive-backed Thrush.

First, May 9, 50; next, May 10; common May 9; bulk departed May 24; last seen June 2. Their range is much the same as the Robin's, except that they are not found away from timber or brush of some sort. Olive-back swarms in the woods, both in the country and in town. He is seen everywhere while here—one place is no more favored than another by him.

Galeoscoptes carolinensis, Catbird.

First, May 5, 4; next, May 6; common May 6.

This is a wood-bird strictly. Few are seen in town, and none in fields away from woods.

The nest is almost always placed in a thorn bush or hawthorn tree, rarely in a thicket of hazel. It is built into the brush that surrounds it, the sticks that compose its exterior blending into

this brush. Internally it is made up of grass, leaves, fibrous bark and sometimes a few horse-hairs. The grass usually if not always sticks through the outer covering—a feature, together with the external covering of sticks, that will always determine the species to which it belongs. Nests are rarely above 10 feet up, commonly 5, not seldom 3. 4 and 5 eggs in the set, never 6, *rarely* 3. The color is much darker than Robin's or Wood Thrush's eggs. The darkest is beryl green, the lightest torquois blue, with a strong wash of beryl green. Eggs vary from rounded ovate to elongate ovate in form.

First nest, May 16; last, July 10; common June 6. Chipmunks and small boys are their enemies.

Harporhynchus rufus, Brown Thrasher.

First, April 21, 1; next, April 22; common April 25 Found everywhere among trees and brush; less common in deep woods. It nests anywhere, either on the ground—rare position—or in bushes or trees. The Osage Orange hedge rows are decidedly the preference here; the proportion of nests in hedges to nests elsewhere is as 4:1. I have never found a nest above 8 ft. up—4 ft. is the normal height.

The nest is large and sprawling with its profusion of sticks, outwardly. Inside the sticks is a layer of leaves and grass, against which the lining of rootlets is laid. The rootlets are never absent nor does any other material enter into the composition of the lining. The nest is built on or into its support, never "saddled."

The 4 (common) or 5 (less common) eggs vary in size and shape as well as in color and markings. Ovate is the common form, but both short and elongated ovate are not rare. The ground color varies from a pearl gray or almost white to a beautiful pearl blue. The latter color is not common. The spots vary from burnt umber and walnut brown to drab. Some specimens are heavily blotched and spotted over the entire surface, the blotches becoming larger at the greatest girth of the egg; while the others are scarcely blotched, though well spotted with all these colors. The one has the appearance of a decidedly brown egg while the other is very light. The bluish shaded specimens fade after being blown.

White-rumped Shrike, field mice and small boys bother this bird when it builds in the hedge; the chipmunk and Jay in the woods. First nest, May 5; last, June 28; height of season, May 18.

Report of WILLARD N. CLUTE, Binghamton, N. Y.

Wood Thrush. First seen May 4, one; next seen May 6. Found in the uplands.

Wilson's Thrush. First, May 9, three; next seen May 10; common May 11. Generally near water; especially along creeks in the woods; in swamps, if wooded; in fact, anywhere near water. It may also sometimes be found in dry woods.

Hermit Thrush. First, April 11, one; next seen April 14.

American Robin. First, March 12, one; next seen March 13; common March 17. Seldom found in the deep woods—usually in the vicinity of man.

Catbird. First, May 10, one; next seen May 11; common May 12. Found along streams.

Brown Thrasher. First seen, April 20, two; next, April 24; common April 26. Found in open woods; they seem to prefer a wood moderately clear of underbrush.

Nesting: Wilson's Thrush, nest generally placed on the ground in damp situations in the woods; composed of leaves, grasses and fine strips of bark, and lined with fine rootlets. The earliest nest found May 20. Two broods are sometimes raised. Eggs, 4, blue.

American Robin, nests in vicinity of man, placed anywhere about the house or out-buildings, such as on a beam, or post, in corners of rail fences, on window cornices, and in fact any convenient shelf. Nests of this bird are very common in orchards. In the woods, the Robin seems to prefer a pine in which to place its nest. I have found many nests on tops of stumps in newly-cleared tracts, and in two instances have known these birds to build nests in a dead and leafless tree along a city street, and hatch out their young without molestation. Another nest found was in a hole in an apple tree. The nest was situated about six feet from the ground. The hole was formed by the rotting away of a large limb; it was about ten inches deep and eight inches across the entrance. The nest was composed of the same material and did not differ in size and shape from other Robins' nests. The composition of the nest differs in different locations; when near the house it is composed of twine, rags, grass, etc., and

lined with mud and grass; when at a distance from man, the twine and other materials which may be picked up around buildings are omitted, and the nest is built of grass, rootlets and weed-stalks. I have never found a nest that did not contain the mud lining, though it differs in thickness in different nests. The lining is generally of grass blades though, in the woods. I have seen the nest lined with pine needles.

The bird begins breeding in this locality about April, and two, sometimes three broods are reared during a season. The eggs are three or four, rarely more; blue.

Catbird. In this vicinity the nests are seldom found anywhere except in thorn-bushes; sometimes are placed in thick clumps of berry-bushes, but not often. The nest is generally from four to six feet from the ground, but I have found one nest two feet from the ground, and another fifteen feet from the ground in an iron-wood tree. The nest is usually composed of coarse twigs, strips of bark and weeds, lined with rootlets.

The eggs are four in number; I have found five—dark greenish-blue. The earliest nest I have found in this vicinity was taken May 20, 1887. By the end of May nests are common. I believe two broods are raised during the season.

Brown Thrasher, nests on the ground or in a brush-pile. Nest composed of grass, weed-stalks and leaves, and lined with rootlets. The eggs are four or five, light bluish-green, speckled with brown all over. I believe but one brood is raised during a season.

Report of FRED W. CURTIS, Wauwatosa, Wis.

Robin, *Merula migratoria.*

First were found March 9, two birds seen; next seen March 12; became common March 15. Frequents the vicinity of dwellings, groves and orchards. May 3 a set of 3 eggs taken, incubation advanced. Measurements: 1.08x.78; 1.10x.80; 1.06x.78. Color, a uniform blue.

Nest composed of grass, straw and roots, lined with dry grass and plastered with mud, and placed 8 feet from the ground in a maple. Nests were found containing from three to five eggs. Eggs were found as late as July 1. A nest examined July 20 contained young birds, about one-third grown.

Catbird, *Galeoscoptes carolinensis.*

First one found May 3; next, May 4; common May 7. Favorite haunts are thickets and orchards. A set of four incubated eggs found June 9. Measurements: .91x.67; .91x.68; .91x.67; .93x.66. Color, a very deep bluish-green. Nest made of sticks, bark and leaves; very roughly constructed, placed two feet from the ground, in a thick bush. Nesting of the Catbird is late in this locality.

Wood Thrush, *Turdus mustelinus.*

First were seen May 5, two; next, May 6; common May 7. Found in low damp tickets, in the vicinity of streams. June 9 a set of incubated eggs measuring 1.00x.71; .96x.71; .96x.71; 1.00x.71. Nest composed of leaves and strips of bark from weed-stalks, straw with mud on the inside, rather shallow, placed upon a limb of a thorn three, four feet from the ground, near a stream. The usual complement of eggs appears to be three or four. Color, a light blue.

Report of REUBEN M. STRONG, Wauwatosa, Wis.

Robin. Very common breeder. Our most common summer resident excepting the English Sparrow. Arrives about the fifteenth of March.

Wood Thrush is a common migrant and also breeds.

Wilson's Thrush. Common migrant. I have found two sets, one of four eggs and the other of two.

Catbird. Next to Robin in abundance. Arrives in April. Breeds.

Brown Thrasher. Common summer resident. Breeds. Arrives the middle of April.

Report of E. EUGENE FERNHOLZ, Jefferson, Wis.

Wood Thrush. Tolerably common summer resident. Breeds.

Robin. Abundant summer resident. Breeds.

Catbird. Common summer resident. Breeds.

Brown Thrasher. Not very rare summer resident. Breeds.

Nests are found in bushes and on the ground.

Report of H. P. T. WEATHERN, Farmington, Me.

Hylocichla Mustelina, Wood Thrush. Common summer resident. Breeds.

Merula migratoria, Robin. Abundant summer resident. Breeds.

Galeoscoptes carolinensis, Catbird. Common summer resident. Nests always found along banks of streams.

Harporhynchus rufus, Brown Thrasher. Common summer resident. Breeds.

Report of JOHN B. LEWIS, Eubanks, Kentucky.

Wood Thrush. Common summer resident.

Brown Thrush. Tolerably common summer resident.

Catbird. Abundant summer resident.

Robin. Generally a transient visitant, but occasionally breeds.

Report of W. N. COLTON, Biddeford, Me.

Wilson's Thrush and Hermit Thrush Common summer residents.

American Robin and Catbird. Abundant summer residents.

Brown Thrasher. Rare summer resident.

SYNONYMS.

Following is a list of the synonyms applied to various members of the Thrush family in different localities:

Turdus mustelinus, Wood Thrush—Flute Bird and Swamp Robin in New York, and is reported by Burroughs as called "Swamp Angel" by the people in the Adirondack region, on account of being found, during the period of song, in the deepest and most remote forests, usually in damp and swampy localities. Also known as Song Thrush and Wood Robin in District of Columbia and other places.

Turdus fuscescens, Wilson's Thrush—Common, Tawny and Veery Thrush, Cheeury, Veery.

Turdus ustulatus, Russet-backed Thrush—Western Thrush.

Turdus ustulatus swainsonii, Olive-backed Thrush—Swainson's Thrush, Swamp Robin in New England.

Turdus aonalaschkæ auduboni, Rocky Mountain Hermit or Audubon's Thrush.

Turdus aonalaschkæ pallasii, Hermit Thrush—Swamp Thrush. "Swamp Robin." Called "Partridge-bird" by the inhabitants of the Adirondack region, from the resemblance of its note, when disturbed, to the "chuck" of the Partridge.

Merula migratoria, American Robin—Robin, Migratory or Red-breasted Thrush, Robin Red-breast, Red-breast.

Hesperocichla nævia, Varied Robin—Varied Thrush, Oregon Western and Painted Robin.

Oroscoptes montanus, Sage Thrasher—Mountain Mockingbird.

Mimus polyglottus, Mockingbird—Mocker, Southern Mockingbird.

Galeoscoptes carolinensis, Catbird—Mockingbird in New York, Black-capped Mockingbird in Bermuda.

Harporhynchus rufus, Brown Thrasher—Thrasher, Mavis, Brown and Song Thrush, Red Thrush in New England, French Mockingbird in D. C., Sand Mockingbird, Red Mavis.

PUBLISHER'S NOTES.

Back numbers.—It would assist us greatly and save a deal of trouble if those ordering back numbers of the SEMI-ANNUAL, would not write for copies of the best edition of Jan. '89 and Jan. '90. We cannot furnish these two numbers in the best edition as our stock is completely exhausted; but we still have them in the popular edition at the regular price of 25c. per copy.

Our advertisers.—They are reliable. Of the old ones it is not necessary to speak as you have probably all had dealings with them and found them *not* wanting. It is of the new ones we wish to speak. We have had many of Mr. Babbitt's specimens and have always found them strictly first-class and true to name. You should at least send in your name for his monthly price-list as you will certainly not lose by so doing.

Of the Acme Folding Boat we cannot speak too highly We have had one of their 12 ft. boats some time and consider it the best folding canvas boat on the market. For compactness, lightness and durability it has no equal. It is also very speedy and has a fine model.

Proposed new works.—Mr. J. W. Jacobs informs us that the "Owl" will be completely changed on its reappearance Jan. 1, 1890. He proposes to make it a 12 page monthly with cover, size of page 10x7 1-2 in. It will be printed on good, heavy paper and the subscription price 75 cents a year.

Mr. I. C. Greene's new "Book of Datas" will be heartily welcomed by all ornithological and oological collectors. It will be produced in the finest possible manner on linen paper, and neatly bound in leather. We are in receipt of sample pages of the datas and they are models of neatness and convenience.

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☞This department is open to all subscribers, free gratis, one notice each number. To persons not subscribers, the price is 25 cts. for a notice of twenty-five words or less. Notices containing more than twenty-five words, a charge of 1-2 cent for each extra word will be made.

TEXAN SPECIMENS—Bird skins, sets of eggs, fossils of cretacesus, minerals, etc., in exchange for choice bird skins, a photograph camera or ornithological books.

CHAS. D. OLDRIGHT, Austin, Texas.

TO EXCHANGE—A self-inking rubber stamp, on which are the words "Natural History Specimens," will exchange for the best offer of eggs in sets with data.

M. L. WICKS, JR., S. W. Cor. 1st and Hill Sts., Los Angeles, Cal.

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JOHN A. DONALD, Decatur, Texas.

I have eggs of the Texas birds to exchange with all collectors; write,

WILL. A. MILLER, JR., Box 245, Decatur, Texas.

My permanent address is Waynesburg, Pa., but for the summer and fall I will be at Glenwood, Pittsburgh, Pa. Will be pleased to arrange exchanges with all my old correspondents and new ones too.

J. W. JACOBS, Glenwood, Pittsburgh, Pa.

I have to exchange first-class Cal. birds' eggs, both singles and in sets, for other eggs, or books on ornithology. Send lists and receive mine in return.

HENRY CARRIGER, Sonoma, Cal.

TO EXCHANGE—First and second-class eggs, in sets or single, for first-class.

J. S. SQUARE, Stratford, Ontario, Can.

I have the following A. O. U. Nos. to exchange: 412, 465[a], 467, 477, 540, 563, 581, 614, 624, 636, 704, 705, 736. All in first-class sets.

JOHN OLDFIELD, Norton, Mass.

FOR EXCHANGE—Over 100 varieties of eggs fully identified and carefully prepared, in full sets, with data, for others of a like description, new to my collection. Send lists.

H. W. FLINT, care of Yale National Bank, New Haven, Conn.

FOR EXCHANGE—Fine sets of Hawk Owl, Harris' Hawk, Peregrine Falcon, Golden Crowned Kinglet, Snow Bunting, Iceland Gull, Skua Gull, Fulmar Petrel and many others. Wanted: eggs of Osprey, Screech Owl, Meadow Lark, Cedar Birds, Sora Rail, Warblers, etc. Address

E. V. RIPPON, 137 Cumberland St., Toronto, Can.

Stuffed birds, minerals and Indian relics, to exchange for Indian relics. I most desire relics from Vermont and N. H.

J. W. JACKSON, Belchertown, Mass.

WANTED—Thompson's "Byways and Bird Notes," and any of Burroughs' or Thoreau's works. Write stating condition and lowest cash price.

F. L. BURNS, Berwyn, Pa.

I collect and exchange North American birds' eggs.

R. M. BARNES, Lacon, Ill.

Will exchange first-class skins of the Pine and Evening Grosbeaks, and other birds, for Western or Southern birds or fossils.

J. N. CLARK, Meridian, Wis.

Original sets of two and three eggs of A. O. U. Nos. 51a and 71 in quantities, to exchange for other original sets.

C. O. TROWBRIDGE, Framingham, Mass.

FOR EXCHANGE—An immense collection of birds' eggs from all North American localities, also a choice collection of bird skins, many of them from the Mexican border. Send on your list and if anything I can use will give liberal trade. Would take works on ornithology or a good gun.

F. T. PEMBER, Granville, N. Y.

WANTED—To correspond with collectors having first class birds' eggs to exchange or sell.

BERT. H. DOUGLASS, Burlington, Coffey Co., Kansas.

Have many nice sets for sale or exchange. My new list will be issued about Sept. 1st, and will be mailed to anyone applying for same.

H. W. DAVIS, Lock Box 4, North Granville, N. Y.

TO EXCHANGE—Skins of Oregon and Washington birds for those from other and distant localities.

W. B. MALLEIS, Portland, Oregon.

A few more first-class bird skins to exchange for eggs in sets with full data. Everybody write, sending list, and receive mine.

CLYDE L. KELLER, 318, 320 Exchange Block, Salem, Oregon.

WANTED—The following eggs in sets with data: Nos. 760, 742, 673, 656, 564, 506, 512, 516, 503, 455, 435, 425, 312 and others. Have to exchange Vol. 1. "Sunny South Oologist" (bound) and other papers on oology and Na ural History, also a few eggs in sets.

E. L. KITTREDGE, MILFORD, N. H.

Forty back numbers of "St. Nicholas," also 5 numbers of other magazines, for the best offer of birds' eggs received before Aug. 15th.

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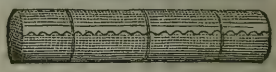

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