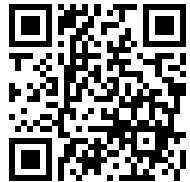
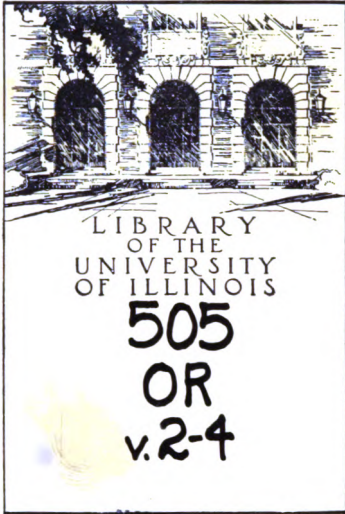

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OCT 7 1954



THE OREGON NATURALIST.

A MONTHLY
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1895.

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THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, FEB., 1895.

No. 2.

A TRIP TO MT. HOOD.

During the week previous to Aug. 16th. 1894 various members of our party had been setting out for the chosen rendezvous. Our detachment leave Portland, early Monday morning, the 13th at 9:30. We pass Gresham, a thriving burg, through which passes the Bull Run line of piping, which conveys an abundant supply of crystal water from Bull Run Lake to Portland, a distance of thirty miles or more.

All along the route are large fields of grain, ready for the harvest, whose golden color calls to our minds' eye visions of the sheckles to fall into the pockets of the industrious farmers.

The first score of miles, graded and graveled after the similitude of the streets of a city, soon roll westward, but the succeeding five miles which transfers us to the Clackamas Co. road would cause unholy feelings to arise in the breast of the veriest Saint. However!

"Come what come may,
Time and the hour run through the longest day."

And likewise with this evil stretch of road.

Emerging from the forest we are at Sandy Post Office, the terminous of the Portland and Sandy stage line. Near here is afforded to the sight seer a magnificent view of the Sandy Canyon, so deep that the largest Fir appears dwarfed. At the bottom, the Sandy hoary with sediment from the glaciers of Hood, dashes in rapid course.

But the shades of night are falling fast and so we hurry on in search of a camping place for the night. The spot selected is in a cosy glen, with a crystal spring hard by. The hours of the night pass without noteworthy incident and we are off early in the morning.

Five miles bring us to Mc. Intires, or Salmon Post Office, a justly celebrated camping resort. Just beyond here begins the grade by which we are raised to the base of Mt. Hood, by no means heavy at first, but very wearing on the horses by reason of the long stretches of sand. However just at noon savory odors of frying trout and the joyful exclamations of the earlier arrivals bid us a hearty welcome to camp "Vensylvia."

Time and space forbid to tell of the delights of our search there for the haunts of the speckled beauty: of the anticipations aroused in rummaging for black berries and huckleberries; and after these excursions of the day, of the impromptu entertainments around the roaring campfire. But as the embers die away, the murmurs of the Stillwater, the subdued roaring of the Zig-zag; and the swish of the tree tops entice to slumbers.

One by one the circle lessens and resting on his downy couch of moss each is soon lulled to sleep by the music of nature's instruments.

Up with the lark in the morning, the cry of all is "On to Mt. Hood." Only absolute necessities, plenty of food for man and beast and bedding are taken; all else being stored in the tents for safe keeping. A walk of twenty minutes brings us to the Toll Gate.

By the magic influence of a little free silver \$2.50 per team, the iron lock is unloosened and we are bidden to enter. For several miles the course lies through a vast bed of sand, ornamented with huge boulders and sparsely clad in Manzinita, Rhododendra, Chinchipin and Bull Pine.

Next comes Laurel Hill, the one time bug-

bear of immigrants in pre-railroad days, but now worked to a very good grade by the Toll Company. By noon we have surpassed this obstacle and are rolling into Government Camp, which with its green grass and flowing waters, seems like an oasis in the desert, after the morning of sand and dust. The place takes its name from the fact that in early times a troop of U. S. Regulars were stationed here to protect the emigrant trail. Surprised by the early approach of winter, they, were snowed in without sufficient supplies, and to ward off starvation, were compelled to eat their Mules, even making soup of the hides and hoofs. Rescued in the nick of time, they made their way to Oregon City.

From here is the final pull, an upward climb of five miles, to the timber line, without one foot of descent. This is the most disagreeable portion of the whole trip. The Sun beats down unabated by any kind of verdure, and intensified by the barren waste of volcanic ash and lava.

No water can be had till we reach the snow. Slowly one mile is passed, then another. Now the region lately bared of snow is reached.

The grass is no longer dried and withered. Flowers are blooming. Here and there are little rills trickling from some patches of snow. The trees have been crushed and bowed down with the weight of snow, of which the genial Sun has but lately relieved them. But the road goes onward, upward, ending abruptly in a snow bank.

While we are debating the advisability of proceeding the wagon decides the question by tipping over and accommodately depositing our traps in a most suitable place for a camp. The first thing is to water the horses and fill all available utensils; for as the day wanes the melting ceases and the porous earth soon soaks up all moisture. All is soon made snug for the night. After a hearty meal, a rush is made above timber line, to see old Helios take his evening bath in the waters of the Pacific.

Upon returning, the cry of "Three o'clock in the morning" sends most of us post-haste to bed, for a good night's rest, should prelude the morrow's task. The first thing, in the morning, is the preparation and disposal of a

hearty breakfast: for no ordinary mortal can hope to scale Hood's lofty peak on an empty stomach. Before five o'clock our amateur mountaineers have left camp provided with plenty of lunch and armed with Alpine stocks. Our party is in charge of the veteran guide, Mr. W. G. Steel. His orders are "go slow, keep together, rest often but not long."

The last stunted pine soon falls to our rear and we are within the Arctic Zone. Before the light of the advancing day, the huge shadow of the mountain fades away and all things stand forth in clear relief. Mt. Jefferson, the most conspicuous object to the south, resembles Hood as seen from Portland Heights.

In the same direction are visible the Three Sisters, Mt. Mc. Laughlin and Snow Butte. The wisdom of an early start now becomes very apparent; for, shod with loggers calks, we had advanced over the frozen crust with no difficulty. But as the heat takes effect, the task is not so easy.

However, by this time—about noon—we reach Crater Rock. Here all except a few whose nerves have been disarranged by the dizzy height or the fumes of sulphur, strengthen themselves with a hearty lunch.

Calling the roll and finding three of our number fallen by the way, we, metaphorically speaking, gird ourselves for the final effort by providing our shoes with screws. We then file out upon the hog back, a ridge of snow joining Crater Rock with the summit. Our trail ends abruptly at the crevasse—a transverse crack in the snow, of varying breadth and depth.

Following the lower edge some distance to the left, we pass in safety over a snow bridge.

The ascent now becomes almost perpendicular and would be quite dangerous were the path frozen. But a few more steps and resting on the summit, we are entranced with the panorama of mountain and valley, of forest, lake, and glaciers ennobled by the snow cap sentinels of the Cascade Range.

Of the twenty four aspirants for Alpine honors, all but three, won the prize and twelve thousand feet above sea level, placed their names on the record of the Mazamas, as a testimony of a, to them, never forgotten feat.

Arthur P. McKinlay.

Portland, Ore.

ALEUTIAN SONG SPARROW.

Melospiza Cinerea.

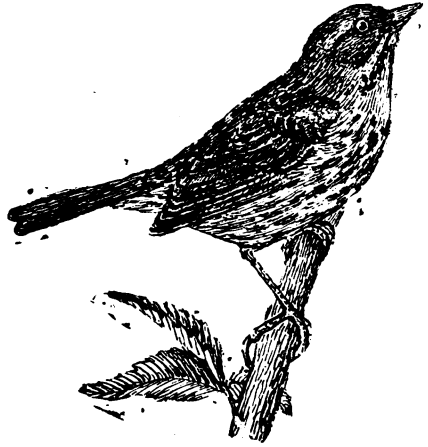
But little has been written of the life history of those few hardy birds that make the northern latitudes their constant home for the simple reason that the few ornithologists that have visited these regions, did so for but brief periods during the summer months, and contented themselves by compiling local lists, sometimes with, but oftener without annotations.

For the last three years it fell to the writers lot to reside on Kodiak Island, Lat. 57. 30, N.

Long. 153. W. Alaska, and it was there and during that period that the following observations were made.

January finds the Island of Kodiak covered in a deep mantle of snow, not even a house-fly is to be seen; then for subsistence the Aleutian Song Sparrow takes to the Ocean beach and when the tide is out hunts along the surf line turning over bunches of sea-weed and small stones under which he finds sand-fleas and small sea-worms, these, with what scraps he picks up near the dwellings of men, constitute his food during the winter months; but although his lot is hard his spirit is never daunted and his clear sweet song rings out amidst the blinding snow-storm and ice-laden gale, thus his life continues through February and March until April when brief glimpses of sunshine aided by the wind have laid bare a few patches of grass on the southern hillsides. Then with his mate from whom he never parts he gathers dry fine grass and in some level sheltered nook close to the ocean beach, hidden from the sight of man, constructs a compact nest on the frozen ground using this as his only available material. Five eggs of a pale bluish color, heavily blotched with brown are laid and by the first week in May, often before the migrants from the South arrive, the young are hatched.

As the length and severity of the Northern winters vary, so must the food of the young vary. If they are hatched, as they often are, before the snow is off, then their diet consists of Sand Fleas and Sea Worms; but no sooner has the snow disappeared than the million forms of insect life that abound in these latitudes appear and the young birds live in plenty.



As a summer diet and as food for the young when obtainable the Aleutian Song Sparrow seems to prefer Spiders and especially the large Spiders found in the woods, they were never observed to eat wild berries or seeds but it is quite likely that they do.

As no nests containing fresh eggs were ever found later than the end of May. It is not thought that they raise more than one brood, but two sets of eggs may be laid when the first set has been taken or destroyed.

In coloration this bird varies much according to season; being much darken in the winter plumage and showing much more of a slaty color in the spring and summer.

Bernard J. Bretherton,
Avian Museum, Newport, Oregon.



Who can beat this? A Humming-bird's nest within fourteen inches of the ground. I found one on a Blackberry cane in a cultivated field.

The bird had become tangled in the material of the nest and was hanging there dead.

C. W. S.

OOLOGICAL COLLECTING.

Advice to the Boys.



In the first place, learn the birds; study them in their native haunts as much as possible. Do not take an egg until you are certain of the variety of bird to which it belong. Further, I would say do not take bird nor egg until you have decided to make a study of it. Do not take them merely on the impulse of a passing fancy, or just because some one else has a very showy collection. Never make an attempt at collecting unless you have a natural interest in that line. Now, if you wish to make a collection of eggs be sure you are pretty well acquainted with many of our common birds and can identify them by sight, or their song. Then, the first thing I would recommend is a note book. Be very careful with this note book: make a note of everything you are certain of that is likely to prove beneficial for future reference, but be *very sure* you are *certain* of it.

Put down uncertainties only for the sake of comparison. Keep everything as neatly as possible. Do not think you can spend a few hours and take a lot of rare eggs, but try to learn something every time you are out in the field.

You can begin to look for the large owls as early as February, the small Owls in March and April, the large Hawks in April, and some of the small birds will be laying this month. May will be the best month for small birds, while some of them do not lay until June and a few can be found in July and even August.

One variety of the small Flycatcher, and the Goldfinch, nest in August and I think the Goldfinch has been found with eggs as late as September, thus enabling us to get fresh eggs at least one half of the year.

Again I will say be very sure of the bird's identity before taking an egg.

The wish of a "bird."

Swallow, (C. W.)

A LIST OF LEPIDOPTERA.

Collectors of Butterflies and Moths, often find that there is some difficulty in determining the food plants of various larve and the time of the escape of the imago. A slight aid to such may be found below. Some variance from the list will be found, but in most locations the months and food plants will be found correct.

Food as Lepidoptera.

<i>Samia Cecropia</i>	Maple.....	July.
<i>Samia Promethea</i>	Wild Cherry..	June or July.
<i>Actias Luna</i>	Walnut.....	August.
<i>Ecles Imperialis</i>	Pine.....	August.
<i>Attocus Cynthia</i>	Ailanthus.....	July
<i>Deilephila Lineata</i>	Grape.....	August.
<i>Hyperchiria Io</i>	Maple	July & August.
<i>Philampelus Achemon</i> ...	Grape.....	August.
<i>Ceratonia Quadrocarius</i>	Elm.....	August.
<i>Papilio Turnus</i>	Apple.....	July.
<i>Papilio Asterias</i>	Carrot.....	July.
<i>Papilio Cresphontes</i>	Prickly Ash.....	June.
<i>Vanessa Antiope</i>	Nettles.....	May.
<i>Vanessa Atlanta</i>	Nettles.....	May.
<i>Eudamius Pyraldes</i>	Wild Bean.....	June.
<i>Dantus Archippus</i>	Milk Weed.....	June.

As the Butterflies and Moths appear during the collecting season now but a few months away, we would be pleased to hear through the medium of this paper of the time of appearance, and date of same, as the various species appear.

R. P. Fruelich.

WEST COAST COLLECTORS.

Beware of a party traveling from place to place; who claims to be connected with scientific societies in the East and Cal., answering to the several names of Prof. J. H. Lewis, Dr. J. W. Harper, Prof. W. Hortier, Prof. Buck, Smith, etc.

Also claims to be writing articles on Archeology for a syndicate of papers; and may be more particularly identified by a large size high Collar, worn to conceal or accommodate a peculiar Mal-formation on the neck. The above person is a good talker and by misrepresentation obtains more of less specimens for which he makes no adequate returns. We publish the above at the request of many collectors who have been swindled. Proof of above may be had at this office, by any person interested.

THE GOLDEN CROWNED THRUSH.

By C. O. Ormsbee.

It is universally conceded that the Golden Robin surpasses all other New England birds in the ingenuity with which it constructs its nest; but following closely in its wake is the Golden Crowned Thrush. This bird has various names, corresponding with the localities where it is found, and is, perhaps, better known as Oven Bird, which name is given it on account of the peculiar form of its nest which will be described later. Another common name is, Wood Wagtail, which is given by reason of a peculiar jerking motion it gives to its tail when at rest. It is also known as Night Thrush, for the reason that its most pleasing song is uttered after dark. Some writers, and more especially, Prof. Cook, of Michigan says, that it sings during all hours of the night.

With this statement it may be true in some localities, it is not true in this State. Its voice may be heard in cloudy weather and in the evening, but when darkness fairly sets in this bird is as silent as it is during a bright, sunny day.

Its scientific names are as numerous as its common names. According to the nomenclature of Linnaeus, it is the *Motacilla aurocapillus*. Wilson called it *Turdus aurocapillus*, and Swainson named it *Seiurus aurocapillus*, and Nuttall combined these names and called it *Turdus (Seiurus) aurocapillus*. But no matter by what name it is known the bird itself is the same, although its habits seem to differ slightly according to the locality in which it lives.

I shall endeavor to give, in this article an account of its habits in Vermont, and my only authority will be my own observations. •

The Golden Crowned Thrush is quite common in all parts of this state, but, by reason of its shy and retiring habits, preferring, as it does, the thick woods, and remaining hidden during a great part of the day time, it is not often seen and hence is called a rare bird. Its food consists chiefly of larvae though it eats large numbers of insects, but it never catches

them while upon the wing. It is migratory and arrives in this locality about the middle of May. I believe that it mates only for a single season and selects a new partner each spring.

At any rate it does not begin to build its nest for a month or more after its arrival, and it is seldom ready for occupancy before the first of July. It builds on the ground, generally selecting a grassy knoll in a comparatively open place in a thick wood. Its nest is made of grass which is ingeniously twisted together instead of being woven, as is the case with most other nests. The nest is carefully roofed over, with a covering of twisted grass, and is so thoroughly built that it will shed the water of quite a severe rain-storm. In shape it resembles an old-fashioned brick oven, with an opening in the side. In this opening, if one approaches carefully may often be seen both birds. If disturbed they fly in different directions, and each utters a peculiar plaintive note at first and then is silent. Some have stated that it pretends to be wounded and endeavors to draw the intruder from its nest. My own observations lead me to the conclusion that its peculiar actions at this time result from the most abject terror.

Both birds assist in building the nest and the time required is from a week to ten days.

Then the eggs are laid; generally one each day, but sometimes a day is skipped. The eggs are white with a slight, creamy tinge and are irregularly spotted with irregular spots of a brownish red color. No two are exactly alike.

Incubation requires about twelve days, during which time the female is continually on the nest, being fed by the male, who—when not hunting for food, also occupies a corner in the nest. When two weeks old, the young birds leave the nest and the birds disappear.

CONTRIBUTIONS TO THE
ZOOLOGICAL LIFE OF IDAHO.

By John E. Rees, B. Sc.

The Avian fauna of this country differs very materially at different seasons of the year; a

condition in general explained by the fact, that the largest representation comes through migrations from other regions. Our birds of summer migrate south in winter, while those we see of winter move further north in summer.

The indigenous birds are few and I have not studied them sufficiently to give in full our resident birds. During the cold bleak days of winter the only birds seen are those—the sight in which signify coldness as the snow-birds, finches, etc.

One of our interesting and most beautiful birds is the Bohemian Wax-wing (*Ampelis garrulus*.) They must be seen to be admired.

Many people, I find, have seen them, but never knew they were so beautiful. To see them huddled together on some withered and leafless limb, each crowding against the other, and apparently in an endeavor to keep warm they crowd each other off, one takes pity on them and thinks the birds are cold, but this is not the reason of their congregating together.

It is because they are gregarious birds and always assemble in large flocks and get so close together that in one discharge of the gun I have killed numbers of them.

Last February I fired into a flock killing nine and wounding another. In my endeavor to catch him he would scream and run about the bushes, and finally when I got him "cornered" and reached to pick him up, he laid hold of my finger with his bill and held on sufficiently for me to pick him up. Upon examination I found the wound to be very slight, just the tip of the wing broken. I carried him home, I fed him principally on fruit and allowed him to run about in my laboratory. I gave him water but he would not drink, although he would bathe in it. Then I gave him a bunch of snow and he would "gulp" it down in large doses. One morning I went into my laboratory to find that my Wax-wing was dead. I did not examine him then, but concluded probably he had died because of the confinement, for as birds have double circulation and respiration nothing affects them so quick as the supply of air. Afterwards upon examination I found the cause. The day before I had give him an apple part of which was rotten. He thought it was immense. He would dive down get a

mouth full swallow it and chirp. Soon his head and breast was smeared over with the cellulose from the apple. Some of the apple getting in his nostrils, hardened, thereby "shutting off his wind."

Owing to the fine and soft feathers: the charming blending of colors and the ends of the quills tipped with red horny appendages for which it takes its common name, makes the Wax-wing a very attractive bird. The plumage coloring is varied. The side of head is orange brown, heightening on the forehead, a narrow but well defined line of sooty black crosses the frontlet, thence passing to back of head, enveloping the eyes on each side. Chin and throat, sooty black. Primaries, Secondaries and tail feathers ashy black tipped with yellow, showing continuous in closed tail. Primary wing coverts tipped with white, showing continuous in closed wing. Under surface ashy. Under tail coverts chestnut. Length about seven and one half inches. Eyes carmine, tarsus and bill black.

A peculiarity of these birds are the "Sealing Wax" on the tips of the quills of the secondaries. The full number are eight. None are developed until the second year.

One day while mounting one of these birds our physician stepped into my laboratory. After looking at it awhile he wanted to know what I had been doing to that bird. He supposed I had stuck sealing wax on its wings to "pan-off" on some one as a natural curiosity.

Their principal food is berries of the wild rose which grow abundant here.

PALEONTOLOGY.

By Chas. Miller Jr.,

CORALS.

How many of the readers of the OREGON NATURALIST know how, and by what, the Fossil Coral was formed? Perhaps some one out of its thousands of readers are ignorant in this, if so, I will try and help you to understand them somewhat.

Corals are all Sea Animals of a low organization. Some are soft and fleshy, others secrete a stony basal skeleton or abode into which the fleshy parts can be partially retracted.

All the Fossil Corals belong to the latter class and this strong domicile is all that is preserved.

The soft Corals not capable of preservation have left no traces in the rocks, but, from analogy of present conditions with former, we may believe that they were not missing in ancient times. The general structure of their body in the simpler forms is that of a membranous bag frequently plicated into radially arranged folds.

This bag has only one central opening which serves as mouth and anus and is surrounded by a variable number of retractile hollow tentacles.

In the compound forms the individuals are frequently so intimately united that the exact demarcation of one body from the other is lost.

Circulation imperfect, not propelled by a heart, nervous system very rudimentary; no special organ of sense.

Propagation partly by egg-forming in the plications within the bag and ejected at maturity through the central opening partly by buds sprouting from the surface, or by division and individualization of single parts of the body.

NEW SPECIES.

The January AUK, describes two new species, added to the Avi-fauna, of California, by Mr. A. W. Anthony

We take from the AUK, the names and specific characteristics, as given by Mr. Anthony.

THRYPHOTHORUS LEUCOPHRYS, *sp nov.*

SP. CHAR.—Differing from *T. spilurus* in decided gray wash on the upper parts, in the less heavily barred under tail-coverts, and in having a somewhat longer bill.

HATPORHYNCHUS CINEREUS MEARNSI.

MEARN'S THRASHER.

Subsp. char.—Differing from *H. cinereus* in much darker upper parts, the rump vandyke

brown in contrast, more rusty flanks and crimson, much larger and more intensely black spots on the lower parts and in the less curved bill. Named in honor of Dr. E. A. Mearns.

ITEMS OF INTEREST.

We are informed that the China Ring-necked Pheasant, *Phasianellus Torquatus*, now known as the Denny Pheasant, sometimes lays her eggs in the nest of the Ruffed Grouse, *Bonasa Sabini*, Baird.

For 26 days this winter the Black River Indians on one side, and the Puyallups on the other were engaged in a great gambling fete on the Puyallup Reservation, Wash. Which resulted in a disastrous manner to the Black River People. Nearly 30 years have elapsed since a gaming festival of such magnitude as the present one, has been held on the shores of Puget Sound.

In the spring of 1892 the "Society for the introduction of useful Song-Birds' into Oregon" set free three pair of Mocking Birds,—*Mimus Polyglottus*, Boie—at Milwaukee, Oregon, which are said to have returned to breed the following season. About January 15th., 1895.

Nearly 40 pair were set free from the Aviary in this city.

The Gray Crowned Finch, *Lucosticte Teprocotis*, Sw. is common in winter in Whitman Co., Wash., sleeping in barns and houses.

The Sharp-tailed Grouse, from Eastern Oregon, has been introduced into the Waldo Hills Oregon.

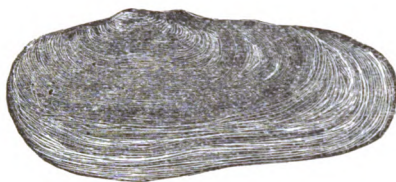
When Grain was cut with the wire-binding Harvester, a Crows nest, *C Americana*, Aud. was found in Whitman Co., Wash., composed entirely of pieces of binding wire, gleaned from straw stacks.

In the timbered section of Eastern Oregon and Washington, Oologists should now be on the watch for sets of Clarke's Nut-cracker, *Picicorvus Columbianus*, Bon.

Subscribe for the OREGON NATURALIST.

AN INTERESTING SHELL.

The Flat Razor Clam, *Machæra Patula*, Dixon. This shell frequently growing to 6 inches in length, is very interesting from the fact that; aside from its beauty, it has, more than any other, contributed to swell the vast size of the Indian shell mounds found in many places on the Coast of Oregon.



It was first described by the original collector, Captain Geo. Dixon, in his "Voyage round the World" published in London in 1789, from which we quote his description entire:—

"At the mouth of Cook's River, Lat. 59° 61 are many species of Shell-fish, most of them, I presume, non-descript. x x x

For a repast our men procured a large species of the Solen genus, which they got in quantity, and were easily discovered by their spouting up the water as the men walked over the sands where they inhabited. As I suppose it to be a new kind, I have given a figure of it in the annexed plate.

'Tis a thin brittle shell, smooth within and without; one valve is furnished with two front and two lateral teeth; the other has one front and one side-tooth, which slip in between the others in the opposite valve. From the teeth in each valve proceeds a strong rib, which extends to above half way across the shell, and gradually loses itself toward the edge, which is smooth and sharp.

The color of the outside is white, circularly, but faintly, zoned with violet and is covered with a smooth yellowish—brown epidermis, slightly zoned and tinted with violet and pink. This animal, as in all species of this genus, protrudes beyond the ends of the shell very much, and is exceedingly good food."

All Ornithologists and Oologists in Oregon and Washington are requested to send name and address to D. Franklin Weeks, Secy. North-Western Ornithological Association.

720 Front St,
Portland, Ore.

OUR FEATHERED NEIGHBORS.

The birds will again soon be among us, looking about for their summer homes. Of the birds that breed with us twenty-five or thirty species prefer to nest about our own homes, and will do so if we encourage them and help them to find good building places. By a little extra work any-one living in a country town, or in the suburbs of a city can greatly increase the number of birds families about their homes.

Several species build only in holes or crevices. These birds of course will not nest about our houses if they can find no suitable place; but by placing a few "bird boxes" of various sizes about the house and yard, most of these birds will much prefer to nest in them than to hunt up nesting places elsewhere, and we will therefore not only have their happy company during the summer, but the good they will do to our trees and other vegetation will be enormous.

Another reason of encouraging the birds is to discourage the cats. Thousands of birds and their eggs are destroyed each year by cats.

Last summer a farmer's daughter told me, in proud tones, that the ground in their orchard was strewn with nests and broken eggs, torn from the fruit trees by her cats.

It would be interesting for each reader of the NATURALIST, to see how many pair of birds they can induce to nest about their homes this summer, and report their result through these columns this fall.

W. S. J.

FROM THE NOTE BOOK.

The water Ouzel, *Hydrobata Mexicana*, Baird has been very abundant in the vicinity of Portland, this winter, and a few pair breed in Clatsop Co. Some years past it is recorded a set of four were taken, close to Willamette Falls, Oregon City.

THE Evening Grosbeak, *Hesperiphona Vespertina*, Bonap, has been an interesting visitor, during January, sometimes alighting in the house yards, they are seen in flocks of from 10 to 100,

The White Headed Wood pecker, *Picus Albolarvatus*, is a common bird in the Coeur d' Aiene Mts., near Farmington, Wash.

"In the Museum at Christchurch, New Zealand, there is a perfect Skeleton of the Moa, a bird believed to have become extinct about two thousand years ago. It is sixteen feet in height.

Flint Lock Guns and Pistols have taken a decided jump and are now worth from \$4 00 to \$12.00.

NESTING OF THE LEAST BITTERN AND TEXAS GRACKLE.

The afternoon of May 15th we struck camp and reluctantly departed from Mason's Lake, Fort Bend county, Texas, after a most successful stay, oologically and otherwise. Soon we were rolling along the sun-baked road feeling somewhat relieved after a three day's stay among the bull-frogs, alligators and other denizens of the lake, and with the hoarse din, which they kept up day in and day out during our stay, still ringing in our ears.

We left a little earlier than was necessary, for I had decided on exploring a large pond I had noticed by the roadside, on the way out, it was overgrown with tall saw grass which afforded an excellent nesting place for many kinds of water birds. This pond was one of a long chain which follows parallel with a ridge of sand hills, and about three miles from the timber that we had just come out of, which was the nearest trees to it.

As soon as we arrived I started in, and was immediately greeted by a great hubbub from a large colony of Texas grackles, which were assisted by a colony of red-winged blackbirds. The female grackles being in great numbers, while there were only two or three males. The nests were placed from two to three feet from the water, and about the same distance from the tops of the grass. The composition of the nests was about the same as that of the Purple grackle, but proportionately larger, they were fastened by having the stalks of the saw-grass woven around by the grass and mud mixture

of the nest, they were so well secured that to remove them it was necessary to cut away the grass to which they were fastened. This colony I roughly estimated to contain between seventy-five and one hundred nests. The date was a little too early for eggs, as only a few nests had full sets, while the majority were in all stages of construction, quite a number having only one or two eggs. The usual number of eggs to a set is three, but sets of four are not uncommon. In this locality the great tailed grackle seems to prefer isolated, rather than the settled portions of the country, and are rarely seen about the towns.

As I was wading around examining nests, a small bird resembling a rail in flight, flew out of the grass a short distance ahead of me. On going to the spot I found a fine set of five pale greenish-blue eggs, which I identified as those of the least bittern. The nest was simply the tops of the saw-grass bent over and interwoven together, with a few loose pieces worked in. It was a rather shaky-looking affair, about four by three inches with such a slight hollow that the eggs appeared as though they were on a perfectly level surface. I had to use considerable care, while taking the set to keep, from shaking the eggs off. On blowing them they became somewhat paler in color, and were slightly incubated.

This nest was placed in the midst of the grackle colony in close proximity to several of the grackles' nests, which were in plain view. In 1892 I also noted this bird breeding in company with the Texas grackle; then I saw the birds and newly-finished nests. This colony was located in a bunch of rushes growing in a large lake some seventy-five yards from the shore, this was a much smaller colony than the one described above.

It appears from my observations that the least bittern habitually nests in company with the Texas grackle, the explanation of this must be on account of the protection which they derive from their stronger and more pugnacious neighbors, as this bird is very timid and retiring in its habits, and another reason is that the same surroundings are equally suitable for the nesting of both species.

JESSE W. MILLER.

NOTES BY THE WAY.

Sparrow Hawks the past season have been scarce and have been very few although I was in a section of country when they are, as a general thing abundant. In March I saw a pair preparing to nest about one and one half miles north of Oakgrove, in Bowie Co, Texas.

I was told that this pair had nested for several years in an old oak stub and on the stub being pointed out to me I decided to keep a watch over them and procure a nice set as I had none in my collection of my own taking. After watching them for several days, on April 19th I decided it was now about time to make an effort to procure the eggs.

I tried to ascend the old stub with my climbers but found that it was so dry and hard that I soon decided that it was not safe to risk it.

So procuring an ax, I soon had a small tree down and by the help of a friend, I placed the tree against the stub and was soon up to the nest.

The nest was about 20 feet from the ground in a hole in the stub about 12 inches deep and the old bird was on the nest, and had to be lifted off, before I could get the eggs.

I found five beauties in the nest and they were laid on the dry chips at the bottom of the hole. Incubation was somewhat advanced but I managed to save the eggs without difficulty.

This past season I became somewhat acquainted with the nesting habits of the Red Cockaded Wood-pecker (*Dryobata boreali*.)

The bird has a northern name, but a southern distribution.

I found these birds in numbers in Bowie Co. but as a general thing their nest is inaccessible, being an excavation in some dead limb up high.

I found but one nesting site that I had courage to venture after, although I found many nests, and would stand and watch the birds from below excavating for their nests.

I found a pair had selected an old hickory stub for a nesting site, and had excavated a hole about thirty feet from the ground. About the 16th of April I decided that the

birds had completed their nest, and on striking the stub the female would leave the hole; but on climbing to the hole and taking my hatchet and cutting away so I could reach the bottom, I was disappointed to find no eggs.

The birds then appropriated an old excavation in another stub about one hundred yards away from the first place, and on May 31 I decided to try again. It was only about eighteen feet up this time, so I was soon up and cutting away so I could reach the bottom, this time I found five eggs, and on trying to blow them, found that they were so far advanced in incubation that I could not save them. The birds then returned to the first stub and appropriated a hole about twelve feet below the first one that I had cut out, and on May 20th I collected three eggs that were fresh, from this last place.

W. S. CRUZAN.

CORRESPONDENCE

TO THE EDITOR OF THE NATURALIST:
Dear Sir—The January number of THE NATURALIST contained an article by a writer who styled himself "Amicus Avium," entitled "Habits of the Phoebe." In that article he pays me a high compliment on account of an article upon the same subject, which I wrote, and which was published in the September, 1894, number of The Oologist. For this he has my hearty thanks. But he also criticises me, and by the context of his article, he seems to insinuate that I made certain mis-statements. To this I wish to reply.

He says I stated that the phoebe lays from five to eight eggs, and after saying that he knows sets of four are common, he asks if I have ever found a set of eight, and if not, upon whose authority I made the statement. He says he never heard of a set of that number, and evidently assumes such sets do not exist. Then he asks if I never found a set of four. Now, if he will turn to the article in question, he will find it reads as follows: "The number of eggs in a nest varies from four to eight, but five is the most common number."

He has made a misquotation and then charged me with an error.

If he will read the article he will see that I describe the taking of five eggs from a nest, and in two weeks finding four more in the same nest, making nine in all. To be sure this was not a continuous set, and he would be justified in taking exceptions. I have never found a nest containing eight eggs, but I have seen a set of eight said to have been taken from the one nest, and I have every reason to believe that such was the case. I have found two nests in each of which there were eight young birds. I have also found a nest with only one young bird, and another with only two, but supposed that they were survivors of a larger brood.

Then he says I stated the phoebe builds its nest where neither wind, rain or the direct rays of the sun can reach it; and asks how the nest, which I described as being situated "on the top of a post, about six feet from the ground," was protected. Replying to this question, I will merely state, the post in question was in the interior of a sugar house, which was boarded on three sides, and partially on the fourth, and covered with a good, well-shingled roof.

I believe the foregoing letter answers his criticism. If he will read carefully the numerous ornithological papers, he will see many articles to which my name is attached. If he can find any misstatements I shall be glad if he will call my attention to them, either by letter, or otherwiss but; I trust that he will make no more misquotations in his published criticisms.

Now I would like to ask him a question: In his description of nests numbered one, two, three, four, five and seven, he states they were plastered to the sides of various articles. Does he mean that they were cemented to perpendicular surfaces, and resting upon no support? I ask merely for information. I am aware that habits of birds differ in different localities, but have never known of a phoebe's nest so constructed. Yours truly,

C. O. ORMSBEE,
Montpelier, Vt.

Jan. 28th. 1895.

TO THE EDITOR OF THE NATURALIST:
My Dear Sir—I notice in the January issue of THE NATURALIST that "Amicus Avium" asks in regard to the phoebe having been seen in the winter time north of the Mason & Dixon line. In answer I would say that on January 17, 1895, at which time there was over a foot of snow on the ground, I heard a Phoebe singing in a tree near where I stood.

I did not see the bird, but there cannot be the least shadow of doubt in regard to it. I stood for fully five minutes listening; and the song of the Phoebe is not the one that resembles any other bird's in a sufficient degree to easily deceive a person at all conversant with the bird.

Very truly yours,

FRED. W. PARKHURST

Bath, N. Y.

Feb. 13th. 1895.

OVER THREE THOUSAND NEW
NATURAL HISTORY SPECIES.

Three thousand new varieties of wasps, beetles, spiders, dragon flies and other insects, a new species of *Peripatus* that supplies the missing link between the worm and the centipede, and two Sierra Madre peaks before unnamed, form part of the results of the exploration of Lower California and the mainland of Mexico by Dr. Gustav Eisen and Frank Vaslit, who have returned from their journey, taken at the instance of the California Academy of Sciences.

There are 40,000 natural history specimens now stored away in the academy as a result of the trip, which will be arranged and classified by the insect specialists. The academy can now boast of having the largest natural history collection from Lower California and Mexico in the world.

It was the intention to put the OREGON NATURALIST in a *new dress* this month, and type for that purpose has been ordered from the East, but, owing to being delayed in transit, had not reached us at time of going to press, and in consequence delayed the publishing of the NATURALIST on time, which we hope our readers will overlook.

THE OREGON NATURALIST.

An Illustrated Monthly Magazine Devoted to the Study of Nature.

A. B. AVERILL, - - - EDITOR.

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P. O. Box 253. Portland, Oregon.

FEBRUARY, 1895,

CIRCULATION 3000.

GREETING.

With this number of the NATURALIST, we take control, having purchased the paper of Mr. G. B. Cheney, and hereafter it will be known as THE OREGON NATURALIST.

We purpose to make it the leading magazine of its kind west of the Rocky Mountains. It will be published promptly the 15 th. of each month, and this we guarantee, that each subscriber shall receive 12 copies yearly.

With our next number we begin a series of articles on Taxidermy, taking the beginner and explaining in detail every move, which if followed with care and perseverance, cannot fail to make a finished workman.

Arrangements have been perfected, whereby we can promise our readers articles by specialists, on Ornithology, Oology, Conchology, Botany, Entomology, Archeology and Mineralogy.

In their season, articles will appear on collecting and preservation of specimens, what to save and what reject—what constitutes first class material, receipts for the proper treatment of specimens and how to care for and arrange the Cabinet.

We acknowledge with pleasure the receipt of a few of the beautiful, doubly-terminated, Herkimer XLS,—the finest we have ever seen—from Mr. A. B. Crim, whose home is situated in the locality where these beautiful gems are found, Mr. Crim's exhibit, of Herkimer, County quartz crystals at the World's Fair, received a medal and diploma, the highest honors that could be conferred. No Cabinet is considered complete without specimens of these famous gems, and any collector desirous of having a few of these XLS should read Mr. Crim's advertisement in another column.

The large demand for sample copies of Nov. and Dec. numbers have exhausted the issue, and a few late requests for same could not be complied with.

UN-SOLICITED WORDS OF PRAISE.

"Jan. number received and must say it was the most interesting number of all the four papers that I take on bird-life.

Frederick Hill,
Ornithologist,
Lyme, Conn.

"I think the NATURALIST the best paper (for the price) published, and its value is increasing each year."

A. R. Stott,
Rochester, N. Y.

"The sample copy of NATURALIST just received, and I am delighted with the paper."

Jno. W. Daniel Jr.,
Bethel Acad'y, Va.



THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, MARCH, 1895.

No. 3.

THE BROWN PELICANS NESTING ON BIRD KEY.

Bird Key is a well known Bird Island, situated near the northern shore of Tampa Bay, and just off point Pinellas.

The island is covered with a thick growth of Mangrove trees and Buttonwood bushes.

The Mangrove trees grow from fifteen to twenty feet tall, and are on the higher, yet marshy part of the island, while the Buttonwood bushes occupy the swampy and wettest part of the island.

The Buttonwood bushes are occupied by Herons and Egrets of various kinds, and the Mangrove trees are occupied by brown Pelicans and Florida Comorants.

It was May 28th 4:30 p. m., when, accompanied by a friend and two men to manage and sail the boat, set sail for Bird Key, with the object of gathering Pelican, Comorant and Gull's eggs.

We had a fair wind and at twelve o'clock that night landed within sight, (for the moon was full and it was as light as day) of the island.

We went ashore and made ready to camp a few days. In a short time all was ready and we turned in, to sleep until morning.

We were up, bright and early, and off for the rookery by seven o'clock. We sailed in a skiff, taking with us a common corn case, in which to bring back our spoils.

As we neared the island the Pelicans and Comorants rose so thick as to seem to hide the sun from our view. We sailed up to a suitable

place and landed, taking with us our corn case and cotton, a bucket and strings to safely let the eggs down from the trees.

We had not gone more than twenty-five feet from the waters edge before our task of climbing the trees and filling our buckets and hats began, for some of the largest trees contained a dozen nests, while the smallest trees held two to four.

These nests were built of weeds and sticks, lined with branches of Mangrove trees or Buttonwood bushes and nearly always lined with green leaves, so the eggs were rarely clean, being blotched with blood and stained by the green leaves in the nest.

The nests averaged two feet across, by six inches deep outside, and three inches deep inside.

I have stood erect, and sat down in them several times, and they did not give away in the least.

After gathering over 100 fine eggs of this bird, which nearly filled our box, we concluded to return to camp as we had all we could properly prepare that day and as our camp was close to the rookery we could get more when we wished.

We now placed our box in a safe place in the boat and return to camp without any injury to our eggs. And were soon at work drilling and blowing, but as nearly all of the eggs were fresh, we had no trouble. And out of the 100 or more I think we found two sets of two eggs each and two or three sets of single eggs badly incubated. The single eggs were more advanced than the rest.

The next day was May 30th and we went over to another island for the purpose of gathering Gulls' eggs, but the people had been gathering them, so fast to eat, that the gulls had all left the island, thus we lost this day.

May 31st we again visited the rookery and gathered Fla., Comorants' eggs mostly, but also secured fifty or seventy five Brown Pelican eggs, these, together with the Comorant eggs occupied our time for the rest of the day.

The eggs were mostly in sets of three, although sets of two are common, and sets of one were not of rare occurrence, the sets of one (completed sets) were more advanced in incubation than the other sets. We never took a set of four.

The eggs are of a chalky white, when clean, but were blotched with blood and generally covered with stains of the green leaves in the nest.

One peculiarity about this bird is that it will sit upon an empty nest and refuse to leave it until very closely approached. And also will sit on the nest from the time it is strong enough to hold it until the eggs are hatched.

I am not able to say whether it is the male or female that remains upon the nest. Of all the Pelicans seen, I never observed one with building material in its beak, or carrying any.

When the Pelicans were first disturbed by our arrival, they flew off of the trees and circled around and around the island, finally alighting in the water where they seemed to be contented.

Early every morning the Pelicans could be seen leaving the rookery in flocks of twenty five, fifteen, ten, five etc., and would return at night in droves of fifty to, two hundred. And they often go thirty and forty miles to feed.

Their method of catching fish is somewhat like that of the Gannet. They sail along above the water until they come near a school of Mullet, (Mullet being their chief food) when they will suddenly turn and retrace their former path, until they catch sight of the fish again.

Then folding their wings as does the Osprey, they plunge headlong into the water.

I was not close enough to see whether they

ate the fish or carried it off. They often remain some time on the water where they make their plunge.

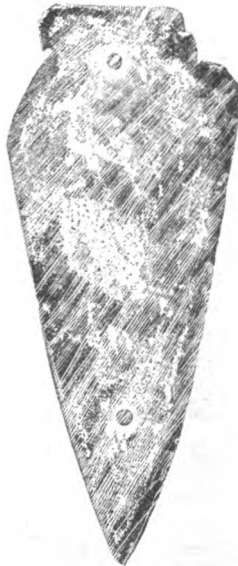
This rookery has been occupied year after year for years, and it is not supposed they rear two broods a season. They are known to lay in December, January and February on an island in the Indian River, and Mr. Oliver Davie, tells us that their breeding season is March and April, and we gathered over 175 nearly all fresh eggs during the latter part of May and found many nests being built.

The eggs have a somewhat fishy odor and if confined in a close place the stench from them will be sickening.

GEO. GRAHAM,
Gainsville, Fla.

PRE-HISTORIC MAN IN ARIZONA.

IMPLEMENTS FOUND IN MOUNTAIN VILLAGES.



OBSIDIAN SPEAR POINT.

Probably the most interesting and valuable relics found in or about the mountain villages, are spear and arrow points, knives, hatchets and other implements of war or the chase.

These excel in workmanship any similar relics which I have ever seen. The hatchets, are made of a peculiar bluish stone, very hard and capable of taking a fine polish. They are usually small and comparatively narrow and finished with great care.

The cutting edge is much

sharper than is usual in stone axes, and if used as weapons of war they would equal the modern tomahawk.



Typical Stone Hatchet. Showing size and shape. Found on Lynx Creek Arizona.

Stone bolas, not unlike those some-times seen in Patagonia, are occasionally found in Lynx Creek section, but no where else that I can learn. They will average four inches

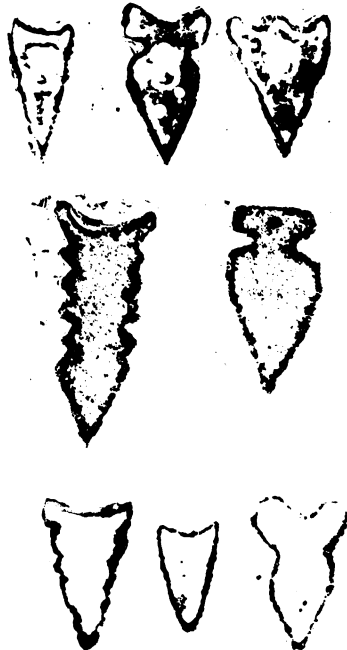
across and two thick, are round and have a groove of greater or less depth cut around the edge. Two or three of these attached by thongs to a central rope, as the Patagonians use them would make a terribly effective weapon.

Or as a hammer, attached by withes to a handle they would be equally useful in peace or war.

Stone mortars and pestles in many shapes and sizes, are very common.

The brownish black malpais, or lava, is the material usually employed in making the mortars and pestles, though I have seen mortar of granite and pestles of several different stones. The lava pestles are often from ten to fifteen inches long and the granite ones are some times nearly as large. The finest pestles are smaller and made from beautiful white quartz.

They are fashioned with great care and probably were only used in preparing medical substances or in religious rites.



Showing sizes and shape of Arrow Points from Mountain Villages.

The character of the arrow and spear points found in this section indicate clearly the war like nature of the inhabitants.

Spear points of any size are very rare, but like the arrow points they are exquisitely shaped and capable of making a wound very similar to that made by a large rifle ball. Obsidian or volcanic glass is the material commonly used for spear and arrow points, and for knives.

The knives are rarely above an inch and a half long, but the cutting edges are so keen that it would not be difficult to skin an animal with one of them.

The finest knives are made from choice obsidian, but, I have seen very good specimens of quartz and flint.

The arrow points are all small and thin and some of them have serrated edges. The average length would not exceed an inch, and very many are smaller.

Obsidian is the favorite material but I have some points cut from agate, quartz, fine smoky topaz and bloodstone.



Ornaments of polished Turquoise.

Beads and charms of shells and polished stones are some times found, the shells being most common. These must have been brought from the coast or obtained by trading with coast Indians, as such shells are to be found no nearer the ruins. These ornaments are in the shape of pierced shells, ear rings and large square or round bits of flat shell pierced with one or more holes.



Ornaments of polished Bloodstone.

The finer ornaments consists of beads and charms of polished bloodstone, and malachite and occasionally a piece of fine turquoise.

Small bits of pierced pottery are common and were probably used as charms. Small clay figures of animals have been found in a few villages and some of them are pierced for use on a string.

Much pottery is found in fragments around the villages, but whole vessels of any sort are extremely rare. I have a tiny vessel in olla shape which holds about a table spoon full and was found in a ruin.



Fragment of Pottery showing Greek key pattern

The only perfect large vessel which I have seen was found turned over the head of a skeleton. Much of the pottery is plain and coarse, in shades of gray, brown, red and black.

But some of it is decorated with lines, dots and intricate patterns in black paint. I have fragments which show diamonds, squares and a very good representation of the Sun. There is also, but more rarely, a fine thin white pottery decorated with black.

I have pieces of this which show beautiful lattice and Greek key patterns, but have never seen a whole vessel of it.

A similar pottery, red or brown, with black,

brown, or cream lines is very beautiful and very rare.

Picture-writings, cut into the surface of large boulders and cliffs, are frequently found in the Lynx Creek section, and show many strange figures of animals and men.

A Full description of these would be beyond the limits of this article, but of the traces of pre-historic man I consider them by far the most interesting and valuable.

SHARLOT M. HALL.

TAXIDERMY
OR
HOW TO SKIN, PRESERVE AND
MOUNT BIRDS AND MAMMALS.

It is absolutely necessary that he, who aspires to master the Art of Taxidermy should possess good judgement, perseverance, and unlimited patience.

If he has not these requisites, better not commence, leave to those who have. Do not become a mere stuffer of birds, but strive to excel. It is an Art easily learned, and after having commenced, persevere! practice at every opportunity, and you will surprise yourself at the progress that will be made.

The mechanical part is quite simple, easy and can be learned by any person, but the Art of making your work look life-like and natural rests wholly with the operator, or, it may be called a born gift given to few, but there is no one who has been taught to use his faculties of observation correctly but may do good work.

Again I repeat, persevere! keep at your specimen until the position suits, be thorough in detail.

It is presumed the would be operator has secured his specimen not smaller than the robin, or larger than the dove,—and for tools, the main requisites are plaster of paris, otherwise called calcined plaster, cotton, excelsior, tow, needles, thread, annealed wire adapted to the size of bird to be mounted, a good knife, a pair of strong scissors are very handy, but can be dispensed with, a rule, note-book, pair of flat nosed pliers 6 in. long, a pair of cutting

pliers, 6 in. pair stuffers forceps, 9in. flat file, putty or potters clay, glass eyes and arsenical soap.

Some Taxidermists use powdered arsenic and powdered alum mixed in equal proportions by weight, which in some respects is better to use than arsenical soap.

Soap may be purchased of any supply house, but to those who may prefer to make their own a receipt for same is given, as follows:—

ARSENICAL SOAP.

R

White Soap, old and hard	1 pound.
White Arsenic <i>Arsenious Acid</i> powd.	1 pound.
Gum Camphor	4 ounces.
Carbonate of Potash (Sal Tartar)	3 ounces.
Alcohol	8 ounces.
Soft Water	$\frac{3}{4}$ of a pint.
Carbolic Acid	1 drachm.
Mix.	

To properly mix the ingredients, shave the soap into fine shavings, and dissolve in the water over a slow fire, add the Sal tartar, then the Arsenic, stir well, and remove from the fire, then add Carbolic Acid, and the Camphor, dissolve in the Alcohol and stir until cold.

To those who do not care to make soap in so large quantity, the following receipt is given, being nearly identical with the former except reduced in quantity.

To use mix a small quantity with water to the consistency of thick cream and apply with a some-what stiff brush.

RECEIPT FOR ARSENICAL SOAP.

(Quantities reduced)

White Soap, old and hard	1 ounce.
Powd. White Arsenic	1 ounce.
Gum Camphor	2 drachms.
Carbonate of Potash	1 $\frac{1}{2}$ drachms.
Water	1 ounce.
Carbolic Acid	5 grains.

To mix follow directions given:

Extreme care must always be observed in using Arsenical preparations in any form, on account of their very poisonous properties.

To the beginner who does not care to use poisons the following mixture will be found

very efficient as a substitute, being perfectly harm'less:

ALUM MIXTURE.

Powd. Alum,	½ pound.
Powd. Salt, dry.	1 ounce.
Powd. Naphthaline Flakes,	1 ounce.

Mix and keep dry.

—and with proper after care of the specimens, they may be kept a long period, and on account of its non-poisonous properties, is better adapted to the beginners use.

Now make a stuffing rod by taking 7 inches of No. 15 Wire, slightly flatten one end, and insert the other end in a handle, this completes the necessary tools, for, as the operator progresses in the work, he can supply others as his wants require.

If, when the specimen to be skinned was shot, cotton had not been put into the throat, it must now be done, by opening the bill, and first putting in a small quantity of plaster place two small wads of cotton, one on top of the other.

Space will not permit, to explain why these details are necessary, but the importance of attending to all of them will be self evident, as advancement is made in the work—close the bill by passing a thread through the nostrils and around the lower mandible and tie, if a long neck bird, leave an end of thread a little longer than the neck, to assist in returning skull to place. Any shot holes must be plugged with cotton as well as the nostrils and anus.

Now lay your bird on a sheet of paper and trace an outline, this is kept until your specimen is dry and entirely completed.

Make the following measurements:

Length from tip of bill, to end of longest tail feather.

Distance between outstretched wings as the bird lies on its back.

Length from bend of wing to end of longest primary.

Length from roots of tail to end of longest feather.

Length of bill, tarsus, toes, claws and head, place the measurements on your outline sheet, also the color of eyes, feet, bill and color of

any bare places on bird, that are exposed. Make use of this sheet for any notes that will aid in the final touches, frequently necessary to make the specimen assume a natural and life like appearance.

Examine your bird carefully, observe how the feathers lie, the position they occupy, how the colors blend, retain this knowledge so that they may be reproduced in the finished specimen.

Lay your bird on its back, on the table before you with head pointing to the left hand, carefully part the feathers lengthwise in the center of the breast, if a land bird you will observe a bare place nearly the entire length.

Cut from top of breast bone to the anus, being careful to cut no deeper than will sever the skin, now lift skin on side next you, and gradually work it loose from the body all that can be done without stretching, as you go down the side of body, you come to the thigh, bend the tarsus up to tibia, or thigh, and draw skin over the knee-joint, pushing up slightly on the leg until joint is fully exposed to view, make cut across this joint and dislocate. turn skin down over leg until head of tarsus is reached, remove flesh from bone wrap sliver of tow around bone, being careful to make it not larger than when in the flesh, and push back to place.

The bird may now be turned, that the other leg can be skinned in like manner. Loosen skin around tail, bearing in mind, not to stretch the skin, and if the bird bleeds or is very fat, absorb with the plaster, use plenty of plaster, for it is easier to keep feathers clean, than to clean them after becoming soiled, Corn meal may be used as a substitute for plaster by those who prefer, but is not nearly as efficient.

A cord should now be tied around right thigh bone, to suspend bird from above at such height as is most convenient for the operator to work to advantage.

The skin having been loosened around base of tail, the next cut is to sever tail from body; cut across as close to quills as can be, without cutting ends of quills or skin on back. Separate skin from back, using the fingers for that

that purpose. It will now be observed that the skin is being continually turned inside out or in other words the body is being peeled.

When you arrive at the place where the wings are attached, dislocate, absorbing blood if any, continue skinning down to base of skull, where, tightly tie a thread around the neck of body.

Care must now be observed, that the weight of skin does not stretch it, or, that the skin is not torn when turned over skull.

The skull of some species are too large to be thus skinned and an incision has to be made at the nape. A list of such families will be given later.

With care the skin may be successfully turned. Do not pull it, rather push or press it over, and if so unfortunate as to tear the skin, carefully sew the rent from the inside, the skull being exposed, the ears next demand attention, they should be torn loose with the fingers. Do not cut the ear membrane.

And the eyes come next. Where great care must be exercised that the skin or eye-lids are not cut when cutting around the eye socket. The eye-lids being detached, the base of bill is reached, and excepting wings, the bird is skinned.

(To be continued.)

THE MOUNDBUILDERS.

Looking over my cabinet of archaeological treasures, recall to mind many pleasant researches in pursuit of the relics of a long passed away race of people who once inhabited the Mississippi Valley, the only remaining evidences of whose existence are their handiwork in implements of stone and copper, and the mounds reared by these people on the lofty bluffs overlooking the Mississippi River and through the valleys of the middle states.

In one of my first expeditions, in quest of relics I opened a mound near the city of Dubuque, Iowa. This mound was on the highest point of a bluff overlooking the Mississippi. And was the only one of a group of five left

unopened by the Smithsonian institute. It was about six feet in height and probably 50 feet in circumference. After digging from the summit of the mound to a depth of about five feet I came upon the bones of probably six skeletons, as near as I could judge, but so decayed that they crumbled to dust upon attempting to remove them.

Underneath these I found a grooved ax of beautiful workmanship, weighing 3 pounds, in perfect condition, every part of which is as true as if the maker had used a pair of calipers and a square in fashioning it. Near by this was a celt about 2½ inches long and an adze, both of serpentine and highly polished, but the edges of which were somewhat nicked; about a dozen arrow heads, a large spearhead of chert, 2½ by 3 inches; 3 scrapers, 2 skinners and a badly broken pipe.

This was my first attempt at opening a mound, and the result of my find was more gratifying than any I made thereafter. Many relics are found along the banks of the river near that place, but they probably belonged to a race of people who had greatly deteriorated in the manufacture of the implements of stone, as they are not nearly of such fine workmanship. At a future date I will tell of my finds made in Southern Oregon.

ED. A. SCHLOTH.

THE WOOD-RAT.

In Oregon the Wood-rat, is a nuisance especially familiar to farmers, on account of its chronic disposition to accumulate too much business activity. A few years ago, on the Clackamas River, all the silver soup and teaspoons, knives and forks, the treasured possessions of a family running a logger's boarding shanty, disappeared one by one, followed by small bottles and other trifles. A neighboring family was accused of the theft. A logger returned one day from his work through a grove of tall, young firs. Looking up, he perceived in one of them an enormous nest. His curiosity was excited and he concluded to chop it

down. As it began to crack and sway, several wood rats scrambled out of it groundward, and as it fell there was a shower of jingling silverware.

Every article that had disappeared from the boarding shanty was found in the nest and in addition jackknives, silver teaspoons and other articles of personal property for which the owner could not be found. These rodents will tote to their nest potatoes, clothes, nuts and any imaginable object that they can lug, but why nature implanted in them this instinct of accumulation, which, in many of its manifestations, is so foolish and a wanton waste of energy that might be used by the rat either in drumming with his tail or in refreshing sleep in a warm nest, is a subject for the study of naturalists.

NOTES BY THE WAY.

In East Texas you may hear the loud and coarse calls of the common crow quite often, but to find its nest is another thing; while in Central Texas it is an easy matter to find their nest along the small streams, that are skirted with timber, at least this has been my experience.

The reason is very simple to my mind. East Texas is heavily timbered, with many creeks and heavy wooded bottom lands, in which the crows seek a nesting place, thus rendering a "find" many times extremely hard; while on the other hand Central Texas is a prairie country with only small timber along the streams and the crows congregate along these wooded streams to find nesting sites and also to gather pecans that are growing along these streams in abundance all of which enables one to locate their nest with more ease, than in East Texas. On April 9th 1894 I found a nest of the crows in the "flats" in N. W. Bowie Co.

The "flats" commence within two or three miles of the line of Red River Co. and run east through Bowie Co. parallel with Red River, and are heavily timbered with Pin Oak and Pine—the Pines towering many feet high

During the rainy season it is almost impossible to get into the "flats" on account of the water.

Numbers of deer and turkey abound in these "flats". Hearing the crow making its call in the "flats" I started on a hunt for a nest and wading water for nearly half a mile, I espied a nest situated on a horizontal limb of a Pin Oak about 30 ft. from the ground and as the noise of the crows seemed to be nearing, I halted, and in a few seconds two crows alighted in the tree and after a moments reconnoitring; they espied me nearly beneath the tree and then they set up a loud noisy scolding, and the female circled around the tree and would not leave, so I decided the nest contained eggs.

Obtaining an ax I cut a small sapling and leaning it against the tree, was soon up to the nest which contained four eggs, in one of the finest nests I ever saw made by the crow. The nest was nearly 6 inches deep lined with horse, cow and opossum hair with a piece of old rag in the bottom. Three of the eggs had very dark green ground, and the other light ground.

One egg was far advanced in incubation, and the other three were "addled"

The Blue Grosbeak is a bird that has an irregular distribution as it can be found in some localities in abundance while in others at close proximity they are conspicuously absent. This year I looked close for them in Bowie Co. but did not see a single bird.

Returning to Hopkins Co. May 28th. I found them plentiful and nesting time just in its height. I find the Cow bird intrudes on this bird more than any other, to my knowledge and observation, and almost invariably the Blue Grosbeak abandon her nest as soon as the Cow Bird visits it.

Four nests were found within a few yards of my home and three of them contained a Cow birds egg.

All of the nests were placed in low bushes about 2 ft. from the ground made of weeds, grass and cotton each one having its snake shed.

W.S. CRUZAN.

THE OREGON NATURALIST.

An Illustrated Monthly Magazine Devoted to the Study of Nature.

Official Organ North-Western Ornithological Association.

A. B. AVERILL, - - - EDITOR.

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MARCH, 1895,

CIRCULATION 3000.

ALL subscribers who have neglected to renew, should do so at once, or their names will be dropped from the list. Every number will be of special interest to all collectors, and you cannot afford to miss one; remittances can be made in unused stamps when more convenient.

Among the manuscript on hand to be published at an early date, are articles on the "Mammals of Oregon" their habits, modes of capture, economic value, etc. "Notes on the Birds of Mt. Rainier," "A Chinook Dictionary,"

being the jargon used by the Hudson Bay Company in their intercourse with the Indians, "What I found on Memaloose Island," "The Denny Pheasant" and the "Game Birds of Oregon."

The article on Taxidermy will be continued until the whole subject has been treated in a thorough and exhaustive manner.

As a medium for advertisers, the Oregon Naturalist is a success, judging from the many letters received in praise of it.

Mr. C. W. Swallow made us an especially interesting call, from the fact that he brought in skins of Townsends Solitaire and Bands Sparrow, two rarities in this locality.

We would regard it a favor to be notified when any subscriber does not received the NATURALIST regularly, that the cause may be looked up and remedied.

The OREGON NATURALIST extends its hearty thanks to the many new subscribers, received during the month past, and is seriously thinking of advancing its advertising rates, which are cheaper than any other magazine of like circulation.

Prospective advertisers should take advantage of present rates.

We acknowledge receipt of the latest wholesale price list of the Frank Blake Webster Co. Hyde Park, Mass. From experience we can recommend this firm to all in want of taxidermist tools or naturalist supplies. Note what they offer in another column.

Subscribe now, as our premium offer will positively be with-drawn in May.

QUOTATIONS from a few of the many communications received in praise of the OREGON NATURALIST:

"Your magazine is one of the most valuable of its kind that visit me. And I find it to contain much interesting and instructive reading to both beginner and advanced students of nature."

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Pekin, Ills.

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R. G. FITCH,
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ROBT. W. HAINES,
Baker City, Oregon.

"I think the NATURALIST, a fine paper."

GEO. W. DIXON,
Watertown, S. D.

THE KENT ORNITHOLOGICAL CLUB.

On Dec. 12th 1894, a club of the above name was organized at Grand Rapids, Mich., with a membership of twenty-three members. The object of the society is, "The promotion of the scientific study of Ornithology and Oology."

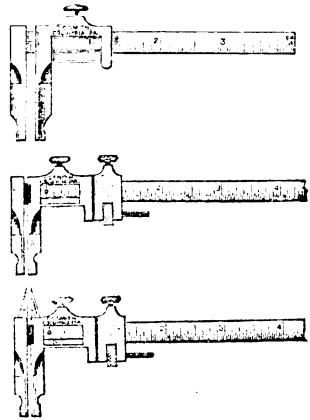
The society desires correspondence with individuals and similar bodies for the purpose of exchanging notes of interest. Address,

The Kent Ornithological Club,
55 N. Union St. Grand Rapids, Michigan.

A FEW HINTS TO COLLECTORS.

There are a good many collectors who do not seem to care just what kind of instrument they use for measuring specimens, and as a rule, employ some kind of a crude method, such as using two pins in a piece of soft wood, and then go to work and push them together until they just touch the specimen. Then they measure how far these pins are apart. The results they get are easy to be imagined.

Then another class invest their money in a cheap caliper-square, such as are for sale for 75cts. and \$1.00. Now anyone knowing anything about measuring instruments will tell them that it is impossible to get up an accurate tool, for such money. Collectors ought to remember that a thing worth doing, is worth doing right, and any data with out the required accuracy is of very little use.



The above illustrations represent a line of calipers which are now in use by some of our most noted collectors. The plain cut represents a caliper which is graduated on one side into 100ths, of an inch the other into millimetres.

The next cut represents the caliper, with clamp screw adjustment, used for very fine reading down to 1000ths, of an inch. The next cut with the pointing projections on the other end of the sliding jaws is quite a handy

instrument to measure in places where the ordinary style caliper will not reach.

These instruments are just the thing for collectors. You put the caliper over your specimen and in an instant, you can see just the exact size it measures. There is no guessing about. Mr. E. G. Smith, of Columbia, Pa., who puts these Calipers on the market would no doubt be pleased to send any one, enclosing a 2ct. stamp, one of his little pamphlets entitled "Modern Measuring Instruments," as it is quite interesting, and fully explains the advantage of using these instruments for measuring.

CORRESPONDENCE.

TO THE EDITOR OF THE OREGON NATURALIST:

Dear Sir—I see that I have unwittingly stirred up quite a little commotion by my "Habits of the Phœbe." I write this to partially restore order and to answer some questions. First, I will explain my awkward blunder to and answer Mr. C. O. Ormsbee.

I am very sorry to have misquoted him, but the mistake came about thus: for the sake of convenience, which by the way is great, I keep a large number of cheap blank books, one for each species. In these I have copied all the articles, notes and information I care to preserve and my notes about each species. In preparing my article on the Phœbe, I made use of the book numbered 456. In copying Mr. Ormsbee's article, my girl made a mistake, therefore my misquotation.

In the future you may be sure I shall look up such quotations. I beg Mr. Ormsbee's pardon, for my sad blunder. I know him to be a careful observer and an enthusiastic naturalist, as is shown by his various writings.

I did not intend any criticism, but merely asked for information concerning the eight eggs and the nest, as they were out of the ordinary, with us at least, and interested me.

I am very sorry to have offended him and hope he will forgive me. As to his question I

will say; I meant that the nests were cemented to the articles mentioned and had no other support than the cohesion of the materials to the articles.

Here in Michigann, and with most of those found in Iowa, this method of construction seems to be the rule, rather than otherwise. I thank Mr. Ormsbee for his criticisms (if they should be called such) as there is nothing that is more help to me than the pointing out of one's mistakes.

Mr. Parkhurst's note is very interesting and I hope we shall hear more from him. I have received a letter from a friend in Ann Arbor, dated March 1st, 1895, in which he says that the Phœbes have arrived.

Mr. R. P. Fruelich gives the food plant of the Vanessa Antiopa as the Nettle. Here I find they prefer the Willow, then the Poplar and lastly the Elm. I never found them on Nettles. Is he not mistaken? Mr. G. H. French, in his "Butterflies of the Eastern United States," gives the food plant as the Willow, Poplar and Elm, as do most other authors.

Yours truly,

R. G. FITCH.

Grand Rapids, Michigan,

Mar. 5th, 1895.

Messrs D. M. Averill & Co.,

Portland, Oregon.

Dear Sirs:—In the February issue of the NATURALIST, Mr. C. O. Ormsbee, desired information as to whether the Phœbe ever glues its nest to perpendicular surfaces. In reply I can say that in the past 3 years I have found 9 nests of the Phœbe, glued to the perpendicular walls of the culverts, under the rail road.

The walls of these culverts are comparatively smooth and can offer no projection on which to place a nest, therefore they must be held in place by the adhesive quality of the articles by which they are fastened.

I have always found this article to be mud. (Black not Clay.) I have found Phœbe's nests situated in various other places, but it seems to be the prevailing fashion here, to place them

in the culverts.

NATURALIST, received and I think it is a good paper.

Yours, very respectfully,
SIDNEY H. MANN,
Canton, Illinois,
March, 5th., 1895.

THE Ptarmigan is a resident, rarely seen, whose habitat in Oregon is the lofty mountain peaks.

THE head of an Ibex, was recently shown at Ellensburg, Wash., this rare specie was killed near Mt. Stewart.

JAPANESE Quails, have been imported from Japan, after having raised broods they will be given their freedom, thus adding another specie to the birds introduced into Ore.

This Quail is smaller than the native bird of like family, and somewhat resembles the singing Quail, introduced by the society, from Germany.

THE Indian Relics of Oregon and Washington, which are nearly identical, command a higher price than those from any other state, with the possible exception of Delaware.

EXAMINER:

FIVE HUNDRED SEABIRDS.

A NOTABLE NEW COLLECTION AT THE ACADEMY OF SCIENCES.

Ornithologist Loomis of the California Academy of Sciences is engaged in mounting the birds he obtained during his recent bird hunt off the Monterey coast. The collection will comprise over 500 species, many of them exceedingly rare and several of them entirely new. Among the more striking trophies of the scientific hunt are several huge albatrosses.

These specimens were obtained at considerable distance from the land and are considered to be the largest and best specimens of their kind ever captured on the Pacific Coast.

THE OREGONIAN:

PERHAPS A HAIRY MAMMOTH

BONES OF PREHISTORIC ANIMAL FOUND IN YAKIMA VALLEY.

Peter J. Olsen, who has given much thought and study to zoology, while plowing on his land a mile back of Zillah and under the Sunnyside canal, unearthed the bones of a gigantic and probably prehistoric animal, says the North Yakima Herald. The lower jaw was in an excellent state of preservation, while circular tusks, measuring six feet in circumference, were distinctly outlined although they crumbled somewhat upon exposure.

Mr. Olsen took measurements and drawings of these, as well as other portions of the huge frame which would not stand moving. He also secured the socket joint of the forearm or leg, which is entirely too large for any animal of these modern times.

From all indications the bones were those of the hairy mammoth. That this country was once inhabited by these animal giants has long been more than suspected, as other bones of mastodons have been found in various parts of the Yakima country at different times, some of which are now in the Smithsonian institution.

The bones of another prehistoric animal can also be seen imbedded in the Yakima river, between Zillah and Snipe's mountain. It is apparently standing, and six feet of the frame are above the river bottom.

Those who are versed in the subject believe that it is the Hyracotherium, an animal of the ape division, which are supposed to have existed in the Eocene period. Several ineffectual attempts have been made to secure these bones, which are in a good state of preservation, and another attempt, on a more promising scale, will be made in the spring.



THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, APRIL, 1895.

No. 4.

"SOME OREGON MAMMALS"

THE SEA OTTER. (*Enhydris lutris.*)

Classed on a basis of commercial importance the sea otter easily takes first place. Prime skins of this wonderful animal having sold in European markets for as high as eight hundred dollars and the average skin sells today for one hundred and fifty dollars

Formerly sea otter were plentiful all along the Oregon coast but no animal with such a price on its scalp could long exist and slowly but surely they are passing to the land of the Buffalo and the Auk. A full grown sea otter will measure less than four feet from tip to tip.

The head is broad and short; set on a short thick neck, the body being round and heavy, sloping off over the hips.

The fore legs are extremely short and the feet small; five toed and furred to the nails, which are short and blunt like those of a dog. The hind limbs are longer and more powerful covered with a black leathery skin from the heel down which forms a broad web connecting all five toes of each foot. The fur is of a very dark brown color shading into gray on the shoulders and dirty white on the head and face.

The dorsal surface is thickly studded with long gray hairs which give rise to the term "silver-tipped" and it is according to the length and regularity of these silver tips that the valuation of different skins vary. The fur

is prime in all seasons as the animal sheds its coat in the same manner as the hair on the human head is shed. A child of the sea; born on its undulating surface; helpless; neither able to swim or dive, the young sea otter spends the first two months of its existence floating on a bed of kelp constantly attended by the mother who from time to time takes it in her fore paws and, lying on her back, nurses it; then replaces it on its bed of kelp which she has previously prepared.

At the age of six or eight weeks it is taught to swim and dive by the mother who takes the pup in her arms (fore paws) and, holding it to her breast so that its nose is buried in her fur, dives under the surface, and when in her estimation she has gone far enough down she releases her hold on the pup who is then compelled to strike out for the surface alone. The pup remains with its mother until the next one is born and sometimes longer. The whole life of the sea otter is spent on the ocean except when it becomes wearied by long protracted storms. Then it resorts to some rocky point to rest and sleep. In moderately calm weather they sleep on their backs in the water, only the nose and points of the hind flippers showing above the surface, and even when asleep they are not easily approached on account of their wonderfully acute hearing.

The food of the sea otter consists of sea urchins, jelly-fish, young sprouts of the kelp-weed and fish, but the sea urchins form by far the larger part of their diet and are obtained by diving.

The full-grown sea otter is not known to voice any call or cry except to emit a short sharp hiss when captured on land which resembles the badgers hiss. But the young are very noisy, constantly giving forth their loud, harsh cry which greatly resembles the cry of the young lamb.

MODES OF CAPTURE

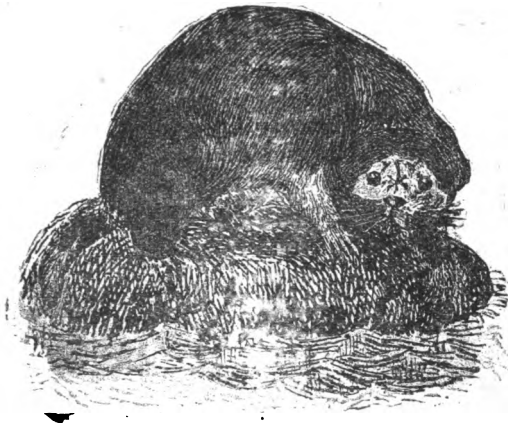
Sea Otter are captured in five different manner which for the purpose of describing we will term Netting, Clubbing, Pedestal Hunting, Schooner Hunting and Bidarka Hunting. Of these five methods of taking the sea otter Pedestal and Schooner hunting are the methods most in use on the Oregon and Washington coasts

having located a place where otters are in the habit of "hauling out" set heavy nets made in the same principle as gill nets for salmon and when the otter dives he becomes entangled in the net and is drowned. This method is now very justly prohibited by law and to the writers knowledge was never practiced in Oregon, but it was carried on very extensively in Alaska until prohibited in 1893.

CLUBBING

This method is only practiced in localities where the otters are more numerous such as the Senack Islands in Alaska.

It is as primitive as it is effective and during the winter months more sea otters are killed in this manner than any other. The hunters re-



NETTING

As already stated the sea otter resorts to land for rest and sleep during the protracted winter storms and his manner of landing like everything else he does is peculiar and has been studied out by the ever ready hunter.

Approaching to within about one hundred yards of the shore the otter stops and surveys the locality, or, as the sailors say, "takes his bearings," and having decided that it is just the place for a snooze he makes one long dive and gains the beach or rock as the case may be. This dive is often his last for the hunters

sort to the small islands lying off the coast, two or more men forming a party. Each hunter takes a certain stretch of coast which constitutes his "beat" which is worked over at least once each day. Great caution is used, the hunter traveling along about fifty yards back from the beach, using care to keep out of sight he approaches from some point from which he can obtain a good view of the beach and examines it with his field glass, which, with his club forms his sole equipment. If nothing is seen he makes another semicircle inland but should an otter be sighted he retreats and

approaches again at a nearer point; makes a close examination of the ground, then divesting himself of all extra garments he commences the final stalk.

The howl of the winter gale; the roar of the breaking surf; the rugged nature of the coast are all in the hunters favor yet his task is neither an easy or a pleasant one.

His object is to get between the otter and the sea. Cautiously he works his way along until he has gained the position desired when he approaches the otter; makes a quick dash; there is a sickening whack as the heavy club crashes in the skull and another innocent life falls a victim to the decrees of fashion.

During winter storms nearly the whole coast line is patrolled in this manner.

Excepting in places where otter are not so numerous and the danger of alarming others is not great the winchester rifle takes the place of the club.

PEDESTAL HUNTING

This is the method most used along the Oregon and Washington coasts; particularly along that stretch of coast extending from Gray's Harbor to Cape Flattery in Washington.

The hunter erects a scaffolding of long poles twenty or thirty feet high, on these a platform is built and cleats are nailed to one of the poles by which to ascend.

These pedestals are built about low water mark and on likely days the hunter takes his stand on the platform with a long range rifle when the tide is out, the tide rising he is soon outside the line of breakers and if an otter comes within range he is often able to get two or three shots at it before the otter finds out what has happened, yet the chances are five to one that the otter escapes. This method is mostly practiced by men who have farms along the coast and is not much in use by professional hunters.

SCHOONER HUNTING

The writer can only give a very rough estimate of the number of schooners owned in Ore. and Wash. that are employed in sea otter hunting but in round numbers fifty would be below the mark. Of these three fifths will hail from

Puget Sound. British Columbia will add at least another twenty to the list while Alaska has several hundred craft that follow the same occupation. The vessels range from the rickety old ten tonners with their crew of Indians and half breeds to the hundred ton clippers with six or eight steam launches, but the actual method of hunting is the same in all.

The methods all ready described are practiced in stormy weather and mostly in winter while schooner hunting is carried on during the summer months and can only be successfully practiced when the sea is calm.

Each schooner carries as many boats as can possibly be stowed on deck and on arriving on the banks or grounds the boats are put off as soon as the weather is calm. Each boat carries three men; a hunter, a boat puller and a steerer. The hunter takes his place in the bow of the boat and for equipment has a shot gun, rifle and a pair of field glasses. The boat puller and steerer take their respective places and the fleet of boats form in a line each boat being situated about two hundred yards from the next.

In this manner they advance until one of them sights an otter when he signals to the others by holding up his right hand when the whole fleet hasten to form into an ever decreasing circle around the otter. In the meanwhile the hunter who has seen the otter sends a rifle ball at him whenever he shows his head, which is frequently for the otter is not capable of remaining long under water. As the other boats approach they follow the same tactics until the circle is formed when the rifle is abandoned and shot guns used as being less liable to hurt a fellow hunter. Sometimes a hunter will come suddenly upon an otter and kill him at the first shot, and sometimes the otter will escape when entirely surrounded by boats. But generally he is captured. When steam launches are used the only difference is in the mode of propulsion.

BIDARKA HUNTING

A Bidarka (pronounced Bi-dar-ky) is the double ended skin boat used by the Aleuts of Western Alaska and the methods employed in hunting the otter are similar to those adopted

by white hunters from schooners. A party of from ten to twenty will camp on some outlying island or in some cases go on a schooner and from these make cruises in a fleet. Each Beldarka carries two or three men and they use shot guns but rely on the bow and arrow for the final struggle.

During the writer's three years experience in Alaska an average of four hundred sea otter per year were killed to his certain knowledge which is more than one a day and of those killed south of Unga and west of the Peninsula he had no knowledge.

As the animal only gives birth to one pup each year the reader can form his own conclusion as to how long it will be before the sea otter is a thing of the past.

BERNARD J. BRETHERTON.

TAXIDERMY.

(continued from page 35)

Detach skin from body by cutting across base of skull, so as to expose the brain. Clean skull thoroughly, by removing brain, eyes, and all flesh and membrane. Now grasp wing bone, and skin to elbow joint, removing all flesh. The second bone of wing should be cleaned from the outside, excepting in small birds, the wings may be skinned to expose all flesh and cleaned from the inside. Do not detach secondaries from bone. Wrap wing bones with tow, and make not quite as large as when in the flesh, then replace in the skin.

Clean skin at base of tail of all flesh and fat, be careful not to cut any quills of tail feathers. All fat must be removed from skin by rubbing it thoroughly with fine dry warm saw dust. Every part of the skin inside, must now be poisoned with soap made thin by water, using a brush for the purpose, and some taxidermists liberally sprinkle powdered alum over the skin while it is still moist, or if the alum mixture is used as a substitute for soap, rub plenty of it into the skin while moist. If skin has become

dry, it may be dampened for that purpose.

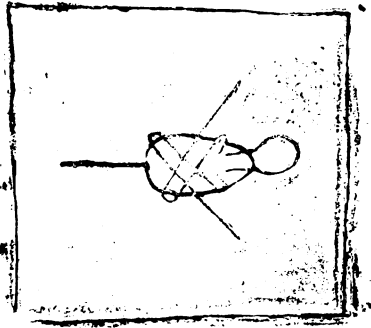
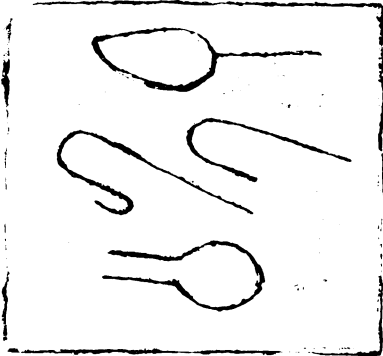
Chop some tow with a hatchet into short lengths, (the writer uses large taxidermists shears for chopping tow) to fill the skull. Fill eye sockets with cotton, and if the skin has become dry soap it again, that the skull may be more easily replaced in skin, which may be accomplished by gently pulling the thread, previously left in the bill.

See that eye-lids are in place, adjust the feathers, and if the bird is to be mounted at once, lay it aside while making the body, but if intended for a skin to be mounted in the future, you will procure a small, round, smooth piece of wood, adapted to the size of skin and in length as long as the bird. One half of this stick is to be wound, not too tightly with cotton until slightly larger than the neck of the natural body, insert this wound stick into the skin of neck until the end, which should be sharpened, enters the brain cavity, allowing the other end to rest on the tail feathers. Take two small wads of cotton, roll between the hands so as to compress and make length of body, and place one on each side of stick to replace body removed.

Fill out with small bits of cotton, using the stuffing forceps for that purpose, until the skin has its natural size and shape. It is a good plan to make the breast a little more plump than it was in life. This is to be done only when making skins and not when mounting a specimen. Sew the breast together, longer stitches may be taken than when mounting, cross the legs and tie to stick, which should not project beyond the end of tail. Tie a label, on which is recorded all data appertaining to the specimen, to the feet, and if the skin is all right wrap it in a thin layer of cotton, and drop head first, into a cone previously made from stiff paper, which may be hung up in some dry place for a few days, when it can be packed away. Keep in the box or drawer where skins are stored, a piece of camphor or naphthaline.

To make a body for small birds, and birds as large as the eagle, except large cranes and herons, take annealed wire (wire that has been heated red hot and allowed to cool slowly

that it may thereby become more pliable) one third longer than the bird to be mounted, file one end to a sharp point, make a loop in the other end, as figured in cut.



Showing position of wires in body.

fill loop with tow or excelsior, winding thread tightly around it. Wind tow over all including neck wire, making this artificial body as near like the natural one as it is possible for you to do, for in this lies one the secrets of taxidermy. Be careful not to wind neck any longer than natural neck. Any sunken places can be made by sewing through and through the body, and drawing the thread tight, any place not plump enough can be built up with tow and sewed to the body. Make body and neck firm by winding with thread. Take two pieces of wire three times as long as the leg, sharpen one end of each and insert one in each leg, pushing sharpened end up through sole of foot observing that it runs on the inside of the leg and between tow winding and the bone until it projects at the end. Confine tow and wire to leg bone by winding thread around all, allowing wire to slip back and forth without disarranging the shape of the leg. Tie wing bones together, the natural distance apart and place body in skin, forcing neck wire through the skull. Then push leg wire through the body near the centre, that the bird may be properly balanced.

Avoid the two common fault of attaching legs too far behind. When leg wires have been pushed through body sufficiently, bend the end in hook shape, making the end bent a little longer than the thickness of the body. Pull the wire back through the body until the bent end protrudes and will go no farther. Turn this end up into the body, and the wire is firmly fastened. Push a wire, shaped as in cut, through tail and force a suitable distance into the body. Now place the bird upon a temporary stand, and give it a position. Take time to view your bird from various positions, and if satisfied with your work, remove from stand,



saw up breast, and replace on stand to remain until dry. Place wings in position by pinning as in figure, three pins in each wing, leaving ends projecting.

Fill head and throat with cotton. Smooth and arrange feathers on head. The eyes need not be put in until later.

(to be continued)

HAVE ANIMALS REASON.

Many attempts have been made by naturalists, great and small to account for the actions of certain animals at certain times, and places, without in the accounting, being enabled to totally cast aside a suspicion, which underlies the investigation, that instinct and instinct alone does not entirely sway those actions under observation.

Let us take for instance the building propensities possessed by the orang outang, not only oftentimes will you find that a platform in a tree holds a family, but also a rationally constructed roof covers it.

The cry of the advocates of instinct is "but it's only a covering, a rude covering; his instinct; pure instinct impels him to make a covering under which he can defy the hottest rays of the sun." Might I ask, why do we, the exalted human family, build our homes? Is it for ornament, or rather because we, realize we must have shelter, and ornament comes as a secondary consideration, which follows pride.

Man originally was not born with a home ready for his occupancy. No, the rain beat on his shivering form, the wind whistled around him and he realized that in the full glare of the sun lurked death. So he builds himself a rude house, perhaps in time others settle near him and ornamentation, the result of rivalry begins, as the ages roll, man will in the experience of flood, storm and wind, build that which more and more approaches the appearance of the modern dwelling.

What exercised the impelling influence of strength, refinement and beauty in the house if it was not that same impelling necessity, (without we might add the higher mind which begets the refinement) which caused the orang outang to build the first shelter and which had it possessed less brutality and naturally debased love of filth and low living, would have gradually emancipated and become a sort of secondary man. It is stated that apparent reasoning of the animal, is hereditary, that it is their natural bent to do certain acts which they no more can help than man can live without breathing. Let us take a child, cause it never to see man or his habitation; will this child in its youth; build a shelter such perhaps, as its parents did? will its first shelter not be a hole, the next a house of boughs and finally of wood and stone? so with a young ape, does he build? no not until he has left the parent and necessity is his instructor does he weave a shelter for his family and himself. Where food is easily procured there will you find laziness, take the population of the United States, place them in the Tropics, if they create another new world, nature's laws will be blasted in the doing.

Let us take a wild dog attempt even after he is tamed, to teach him a trick, it is impossible, his pups may and the next time will be found to have (under environment and quiet living) acquired a subtle something which enables him to pick a card waltz and jump in a manner startling in brute.

Because man has developed beyond beast he is master, let man descend through venality and debased living, into savagery and he will have only one little step to place him with the ape.

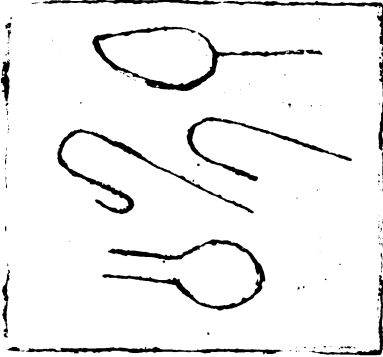
R. P. FUELIICH.

406 Pleasant Ave. N. Y. C.

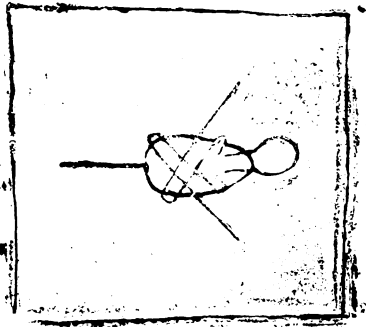
THE VARIED THRUSH IN OREGON.

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406 Pleasant Ave. N. Y. C.

THE VARIED THRUSH IN OREGON.

This species is a very common winter resident in Oregon, arriving in small flocks of 10 to 20 soon after the first of Sept. They re-

main for the most part, during the autumn months in the cover of the firs, where they are found feeding on the berries and seeds of the numerous weeds that grow along the hedges and roadsides. Their remoteness, and extreme shyness is very noticeable during this period, so very different from their boldness during the winter months.

They are great friends of the western robin and are usually found feeding together, like old friends. After the first snow has fallen on the mountain sides and high hills, the varied thrush, repairs to the valleys and low-lands in quest of food, where he subsists on the grass seeds, grubs and loose kernels in the grain fields.

During heavy snows and all through the rainy season they are found in plentiful numbers about the cities and towns.

They are not the least bit shy then, nor do they care at all for human beings. This manner after their retiring habits, during the preceding months is very noticeable. This is caused by hunger and hunger alone, as the varied thrush is not a sociable bird as a rule, for in summer, for instance it chooses the deepest timber for a nesting place, and in every way clearly show it beyond all doubt.

But as good weather again comes and the rainy season is at an end they linger for a while then leave in small flocks for their summer home.

Some are said to breed in the spruce forests in the state of Washington, and it is this fact leads me to think that possibly some breed in Oregon, especially in the higher altitudes. I have never yet learned of any nest being taken in the state, but it is at least probable.

Its note while here is only a plaintive note, and once heard cannot easily be forgotten. It is better known while here as mountain robin, and swamp robin, earning its nick names from the localities in which it abides. It is also known in some localities as Alaska Robin.

DAVID FRANKLIN WEEKS.

Portland, Ore.



ARTHUR LAMSON POPE, was born in Tompkins Co., N. Y. in 1876. In 1887 he commenced collecting birds' eggs, in pairs, which was the craze among school boys of his locality at that time. In the fall of 1890, he removed to Yamhill Co., Oregon, where he now resides.

During his career collecting in pairs Mr. Pope, became a reader of ornithological magazines and about the time he came to Oregon, he became convinced of the evil of hap-hazard collecting, and became an advocate of scientific collecting, and subsequently developed into an enthusiastic ornithologist.

Early in 1894 he started a movement to organize an ornithological association, in the northwest and with the help of Mr. D. Franklin Weeks, succeeded in organizing the Northwestern Ornithological Association, of which he is President.

The subject of this sketch has always lived on a farm, where the birds are his companions the whole year and are his constant delight. Articles from his pen descriptive of Oregon bird life have been published in the Oologist, Nidologist and OREGON NATURALIST.

THE OREGON NATURALIST.

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APRIL, 1895,

CIRCULATION 3000.

ADVERTISING rates will be advanced 25 per cent on May 15th.

THIS is positively the last time our premium offer will appear.

THE Oregon Naturalist will be sent, three months on trial, for 10 cts. in stamps.

THE sec'y. of the North-western Ornithologists Association, writes "Feb. and Mch. work consolidated."

A list of the birds of Oregon so far as completed will soon be published, as compiled by the N. W. O. A.

A subscriber writes "I received more answers from my exchange notice in your paper than from similar notices in two other papers claiming a much larger circulation."

ASTORIA'S SHELL MOUND.

Near Astoria, Ore., there is a deposit of clam shells which covers an area of over four acres and is piled in places to a depth of ten feet. The amount of shells is incalculable. Over a thousand loads have been hauled away to make roads, but that amount is hardly noticed in the diminution of the immense heap. From time to time relics of the old clam eating tribes that made the place their camping ground are found. A party recently found a clam opener. It was made from a whales tooth, is about eight inches long, and is ground sharp at the end. There is sixteen inches of soil on top of these immense shell heaps, on which grow fir trees, some of them four hundred years old.

To clean copper coins, take sulphuric acid 1, to 10 of water, the water to be quite warm, then wash well in hot water and dry with a warm cloth. Warm water, soap and a soft brush will clean silver coins sufficiently.

A GENIUS.

An enterprising farmer of speculative turn of mind residing, near the opal mines of Idaho, has concluded to start a lapidary in a novel manner.

He will purchase cochon chickens, yard them, and feed only wheat and fragments of opal. After a proper duration of time, he expects to have polished opals to sell. The idea was suggested to him by finding polished stones in the gizzard of a fowl he killed for food.

DUCKS FOUND ON LAKE KOSHKONONG, WISCONSIN.

WITH A FEW NOTES THEREON

BY FLOYD T. COON.



There is probably no place in Wisconsin where there is to be found as large a variety of ducks as on Lake Koshkonong.

I have lived in Wisconsin only about two years and during that time

have tried to study as best I could the different varieties found on that lake.

Practically this lake is the hunter's paradise. The following are the names of Ducks that have come under my observation.

Mallard, *Anas boschas*, Very common during the spring and fall and quite a number remain to breed.

Dusky Duck, *Anas obscura*, This duck is not very common, although there are a few shot every fall and spring.

Pintail, *Dafila acuta*, Quite common in fall and spring; I am doubtful about its breeding here.

Gadwall, *Chauleasmus streperus*, Not uncommon during fall and spring.

American Widgeon, *Mareca Americana*, Very common during fall and spring.

Green-winged Teal, *Querquedula Carolinensis*, This little duck is quite common and I think it breeds sparingly around the lake.

Blue-winged Teal, *Querquedula discors*. This species is also very common and remains to breed.

Shoveller, *Spatula clypeata*, This odd variety is quite common on the lake during the fall and spring. And I am told that it remains to breed.

American Black Scoter, *Oedemia Americana*. Not uncommonly found on the lake.

Wood Duck, *Aix sponsa*, This beautiful duck is quite common some years, but this year only a few have been shot. It is known to breed around the lake.

Scaup Duck, *Fulix marila*, Very common; a large number shot every spring and fall. It also breeds.

Little Blackhead, *Fulix affinis*, Ful: as common as the foregoing species.

Red Head, *Aethya Americana*, Quite common, although I don't think as many are shot as of some of the other varieties.

Canvas back, *Aethya vallisneria*, This species of all the ducks found on the lake is



MALE BUFFLE-HEAD.

more desired by the hunters, on account of the peculiar flavor of its flesh acquired from its feeding upon wild celery.

Golden-eye, *Bucephala clangula*, Not as common as some of the above species.

Buffle-head, *Elangula albeola*, A very common species, a large number shot during the fall and spring.

Velvet Scoter, *Oedemia fusca*. Have seen three specimens that were shot on the lake this fall.

Surf Duck, *Olemia perspicillata*. I am told that this duck is sometimes found on the lake, although I have never seen it myself.

Ruddy Duck, *Etismatura rubida*. A very common little duck, though not often taken in perfect plumage.

Hooded Merganser, *Mergus cucullatus*; Very common, late in spring and fall.

Large numbers of ducks are shipped from this lake to Chicago and Milwaukee, every spring and fall. And I am afraid that the fate of the ducks will be the same as that of the Wild Pigeons and Prairie Chickens, which were once so abundant in this section, and are now almost extinct about here.

MARCH NOTES.

TAKEN IN YAMHILL CO., OREGON.

Again, beautiful spring with all its associations is here. Wild flowers are blooming, birds are singing, trees are budding and we are invited to rejoice in nature and praise nature's God.

A Robin with wings partially white, which has staid in this locality all winter is still here, and perchance I may get a set of albino's eggs.

Sooty Grouse began hooting, in the fir timbered localities, on the 10th, which is fourteen days earlier than my record for last year. Partridges, began calling about the same date.

The Oregon Ruffed Grouse was drumming for the first time on the 18th.

On the 20th, saw eight Evening Grosbeaks, feeding on the buds of the Alder. They were seen, or heard nearly every succeeding day of the month. This is my first record of this species in this county.

Audubons Warbler, was observed the 22nd, and was common after that date.

On the 25th, saw a Rufous Hummer, which has made frequent visits to our yard every day since.

The first Turkey Buzzards of the season

were seen on the 27th. A Mourning Dove was heard on the same date.

Gambels Sparrow, made its appearance here the 29th. A bird of this species was observed on February, 4th, but they have not yet become common. On the 29th, I also heard the pleasing song of the Ruby Crowned Kinglet, which is a rare winter resident with us.

ARTHUR LAMSON POPE.

Sheridan, Ore., Apr. 1st, 1895.

RICH PLATINUM MINES.

Many interesting facts are related in regard to the discovery of platinum on the Similkameen. some of which would show that at first the miners who were working the placers there considered it to be nothing more than white iron, and of no value. In fact, it was by them looked upon as a nuisance. Interfering, as it did, with the operation of washing for gold—in the ratio of about 2 to 1—2 ounces of platinum to 1 of gold—it will readily be understood what a trouble it was to separate the two, and especially were the miners aggrieved, who after separating the pesky stuff, as they called it, the same had to be thrown away, and thrown away it was, until such time as its true value became known. One of the peculiarities of this metal is, that it is never found in paying quantities except in placer ground, no ledges containing it ever having been discovered, other than the small quantity found and not worth extracting in the nickel ores at Sudbury. Professor Dawson, in giving his opinion as to its origin on the Similkameen, considers the Diarite belt which crosses the river just below the mouth of Eagle creek, and has been cut through by it, to be the matrix of the platinum, and the appearance of the metal would tend to prove this theory, as it is always of a very rough nature, showing that disintegration has taken place close at hand.

Assays, show it to contain 85 per cent pure platinum and 5 per cent iridium.

Translated for the OREGON NATURALIST, from
die Gartenlaube.

THE BLACK STORK.

BY A. AND K. MULLER.

These birds are wholly unknown to many, for although they visit Germany, it is only in certain favored localities, chiefly in the well watered eastern districts, in Pommerania and Eastern Prussia. On account of the bird's rarity a brief description of its outward appearance may prove acceptable.

Smaller and slenderer than its white cousin, it exceeds the latter considerably in the spread of its wings. It is white only on the lower part of the breast, the belly and the thighs. The remaining parts being almost black, with a sheen of metallic, greenish purple. The coral red of the beak, the bare spots about the eyes, and on the legs are most marked in the old specimens.

He chooses for his residence, distant, solitary old forests, in the vicinity of wet or swampy meadows, brooks or streams, selecting an oak or beech for a home. The site he chooses must always command a good view of the surrounding country, for shyness and mistrust are matters of principle with him.

For this reason he generally establishes his family seat on the edge of some wide clearing, or among a cluster of old trees in the open, a dead and leafless tree being preferred. It rarely happens that the nest is built in thickets or solitary trees. To study this sharp sighted suspicious bird you will need a good hiding place and a good field glass.

It is interesting and profitable, however, to observe his domestic arrangements. If such observations are not carefully made or the pair find out that they are watched, they will, for a time at least, exchange their nesting and feeding places for some more secluded locality. Changes of place are often made without any apparent cause.

Obstinacy, discontent or the whim of a

moment may lead the birds to remove and suddenly appear in some place where they have never been seen before.

Charmingly beautiful are the curves in which the male black stork sails about, high above the place where his mate is brooding. With a steady sweep, scarcely interrupted by the stroke of a wing, he rises, flashing purple in the sunshine, and traverses the ether in majestic circles, often keeping up this airy play for hours. His flight is lighter, airier than that of the white stork, and his bearing is that of a wilder bird. All his actions are quicker, nimbler and accompanied by a certain grace.

He explores the whole country in the vicinity of his nest, seeking his prey in wet pastures, willow thickets, ponds, ditches, brooks and rivers. He does this with great caution when he does not feel quite secure, showing his uneasiness by circling frequently around a place before alighting. When alarmed he spreads his wings, and stretches his neck to gain a wider view. Then he strides along slowly, slower even than his white cousin, a little more quietly, but fully as dignified.

His food is more varied, and he is dangerous to all small animals, Rodents, small Carnivora, Salamanders, harmless Snakes, Insects and all attainable birds, whatever comes in his way is caught in his beak, killed, tossed in the air and in falling is caught in the proper position to be forced down his murderous throat.

The white stork does not catch fish, but the black one is an enthusiastic fisherman. He wades deep, rarely misses with his beak, and many a trout in the mountain stream is brought to the surface and transferred to his insatiable crop. Considerable loss of game fish would be inevitable if the black storks were numerous.

When at last he has succeeded in literally stuffing himself full he retires to his favorite retreat to digest his meal in quiet. When he has a family of young to support, he of course redoubles his depredations and travels from the nest to his hunting grounds and back twice as often. The young, of the black stork leave

the nest, led and assisted by the parents, much sooner than those of the white ones.

The family unites with others of their kind late in the summer, yet the gregarious instinct is not so strong in the black as in the white stork, for the latter, as is well known, assemble in hundreds, yes thousands, in their favorite marshy meadows before departing on their annual migrations. Reliable observers say that the black storks travel solitary or in small parties.

ANGUS GAINES.
Vincennes, Indiana.

WINTER STRAGGLERS IN IOWA.

H. J. GIDDINGS.

During the past winter all of our usual winter birds were remarkably scarce, while on the other hand a number of species were represented by stragglers that are rarely ever found here at this season. The Red-headed Woodpecker a bird which usually departs the first, of Sept. or first of Oct. has been present all winter the first time I have ever known them to do so. Here-to-fore the latest I have noted in fall was Nov. 22nd. 1891. and earliest in spring, Mar. 24th. 1882. The past winter single birds were seen every few days, and on two occasions two were seen together. Feb. 7th. saw two, it being one of the coldest days of the season, the wind was blowing and 10° below zero. Jan. 2nd. a boy brought me a Wilson's Snipe, which was one of a pair that he had shot the day before. This I consider a rare occurrence for this date.

A Yellow-shafted Flicker was seen every few days all through the winter until Feb. 1st. but not afterwards until the regular spring migration, Mar. 29.

Jan. 24th. I shot two male Robins and believe they had remained all winter, for this was during our coldest weather. I have several times before met with stray Robins in winter.

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Translated for the OREGON NATURALIST, from
die Gartenlaube.

THE BLACK STORK.

BY A. AND K. MULLER.

These birds are wholly unknown to many, for although they visit Germany, it is only in certain favored localities, chiefly in the well watered eastern districts, in Pommerania and Eastern Prussia. On account of the bird's rarity a brief description of its outward appearance may prove acceptable.

Smaller and slenderer than its white cousin, it exceeds the latter considerably in the spread of its wings. It is white only on the lower part of the breast, the belly and the thighs. The remaining parts being almost black, with a sheen of metallic, greenish purple. The coral red of the beak, the bare spots about the eyes, and on the legs are most marked in the old specimens.

He chooses for his residence, distant, solitary old forests, in the vicinity of wet or swampy meadows, brooks or streams, selecting an oak or beech for a home. The site he chooses must always command a good view of the surrounding country, for shyness and mistrust are matters of principle with him.

For this reason he generally establishes his family seat on the edge of some wide clearing, or among a cluster of old trees in the open, a dead and leafless tree being preferred. It rarely happens that the nest is built in thickets or solitary trees. To study this sharp sighted suspicious bird you will need a good hiding place and a good field glass.

It is interesting and profitable, however, to observe his domestic arrangements. If such observations are not carefully made or the pair find out that they are watched, they will, for a time at least, exchange their nesting and feeding places for some more secluded locality. Changes of place are often made without any apparent cause.

Obstinacy, discontent or the whim of a

moment may lead the birds to remove and suddenly appear in some place where they have never been seen before.

Charmingly beautiful are the curves in which the male black stork sails about, high above the place where his mate is brooding. With a steady sweep, scarcely interrupted by the stroke of a wing, he rises, flashing purple in the sunshine, and traverses the ether in majestic circles, often keeping up this airy play for hours. His flight is lighter, airier than that of the white stork, and his bearing is that of a wilder bird. All his actions are quicker, nimbler and accompanied by a certain grace.

He explores the whole country in the vicinity of his nest, seeking his prey in wet pastures, willow thickets, ponds, ditches, brooks and rivers. He does this with great caution when he does not feel quite secure, showing his uneasiness by circling frequently around a place before alighting. When alarmed he spreads his wings, and stretches his neck to gain a wider view. Then he strides along slowly, slower even than his white cousin, a little more quietly, but fully as dignified.

His food is more varied, and he is dangerous to all small animals, Rodents, small Carnivora, Salamanders, harmless Snakes, Insects and all attainable birds, whatever comes in his way is caught in his beak, killed, tossed in the air and in falling is caught in the proper position to be forced down his murderous throat.

The white stork does not catch fish, but the black one is an enthusiastic fisherman. He wades deep, rarely misses with his beak, and many a trout in the mountain stream is brought to the surface and transferred to his insatiable crop. Considerable loss of game fish would be inevitable if the black storks were numerous.

When at last he has succeeded in literally stuffing himself full he retires to his favorite retreat to digest his meal in quiet. When he has a family of young to support, he of course redoubles his depredations and travels from the nest to his hunting grounds and back twice as often. The young, of the black stork leave

the nest, led and assisted by the parents, much sooner than those of the white ones.

The family unites with others of their kind late in the summer, yet the gregarious instinct is not so strong in the black as in the white stork, for the latter, as is well known, assemble in hundreds, yes thousands, in their favorite marshy meadows before departing on their annual migrations. Reliable observers say that the black storks travel solitary or in small parties.

ANGUS GAINES.
Vincennes, Indiana.

WINTER STRAGGLERS IN IOWA.

H. J. GIDDINGS.

During the past winter all of our usual winter birds were remarkably scarce, while on the other hand a number of species were represented by stragglers that are rarely ever found here at this season. The Red-headed Woodpecker a bird which usually departs the first, of Sept. or first of Oct. has been present all winter the first time I have ever known them to do so. Here-to-fore the latest I have noted in fall was Nov. 22ⁿ l. 1891. and earliest in spring, Mar. 24th. 1882. The past winter single birds were seen every few days, and on two occasions two were seen together. Feb. 7th. saw two, it being one of the coldest days of the season, the wind was blowing and 10° below zero. Jan. 2nd. a boy brought me a Wilson's Snipe, which was one of a pair that he had shot the day before. This I consider a rare occurrence for this date.

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THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, MAY, 1895.

No. 5.

“SOME OREGON MAMMALS”

THE LAND OTTER. (*Lutra Canadensis.*)

The Otter is an animal so well known that a description may seem superfluous, yet for the benefit of those who have not seen it in life, the writer will endeavor to describe it. A full grown western Otter will measure less than fifty inches from tip to tip, of this eighteen inches will comprise the tail. The head is broad and short with a conspicuous naked pad on the nose.

The neck is very thick and muscular.

The fore limbs are short and strong while the hind limbs appear longer and the toes are connected with a broad web.

The sole and under side of each toe are protected by a round fleshy pad which leaves an unmistakable “sign” wherever the animal travels by land.

The fur is a beautiful, soft, dark-brown overlaid by a coat of long coarse hairs of a lighter color, the throat and belly being lighter colored.

Otter are a great deal more plentiful in Oregon today than is generally supposed but owing to their shyness they are seldom seen. It is by far the worst enemy that our brook trout has for not only will it kill fish to eat but having had sufficient and there being more in sight it will kill them for sport. Nearly every river and large stream in Oregon contains one or

more pair of otter which annually do a vast amount of damage. Otters live in pairs and the den or nest is in a hole sometimes dug into the river bank but generally under the roots of a tree. It is seldom more than four feet from the water's edge and always over a deep pool. Frequently the entrance is under water; particularly when the country is settled up in the neighborhood.

When the mouth of the den is above water a smooth incline or slide extends from the den to the water. In the early spring the female gives birth to from three to five young which are soon strong enough to follow her, when she takes them to the water and teaches them to swim and dive. The young remain with the parents until the following spring. The food of the otter consists chiefly of fish which it obtains by rapid dashes under water, but they are very partial to birds such as young wild ducks which they catch by diving under them and dragging them under the water.

A peculiarity of the otter that has often been written about is its love of sliding in which it indulges whenever a suitable place can be found which may be either a steep clay bank, a slanting, smooth rock; or in winter a bank of snow. On such a place a pair of otters will play for hours climbing to the highest point and sliding down to again ascend and so on.

MODES OF CAPTURE

Otter are often shot but their shy nature makes the hunting of them in this manner unprofitable, but should any one wish to

try it all he has to do is to seek a position commanding a good view of the place the otter is in the habit of frequenting just at dusk or early dawn and wait, and as the Indians say "he no comee today; comee tomorrow; no comee tomorrow, comee next week". Otter are also hunted with hounds but the writer has never known of this most splendid sport being practised in Oregon. The commonest way is to trap them and it is done in the following manner. First locate a slide but if possible do not approach nearer than ten feet (except in the water) for Otter have extremely keen scent and it needs only a suspicion of danger to put them on the alert when your chances of catching them are gone.

If the slide enters the water and the water is less than six inches deep at the foot of the slide then your trap should be set at the foot of the slide in the water.

A number three (3) steel trap is the best size to use and the trapper should provide himself with a long slim pole over which the ring that is attached to every trap chain can slip from one end to the other with ease. First set your trap then approach the slide by wading through the water. Do not touch anything on land with the naked hand.

Lay your trap in the water at the foot of the slide with the springs at right angles to the slide, now run the end of your long pole out into as deep water as it will reach and jam it firmly into the bottom, then pass the ring over the other end and with a notched stick peg it down under water.

See that the ring is free to run down the pole. This is done for the following reasons, when the Otter strikes the trap he will at once dive for deep water when the ring will run down the pole and drown him. Remember that if the Otter is not free to travel with the trap he will eat his limb off and escape.

This is the commonest and best method of setting an Otter trap but circumstances

will often render it necessary for the trapper to use other tactics when experience is the only teacher that can "tell how."

BERNARD J. BRETHERTON.

THE DENNY PHEASANT.

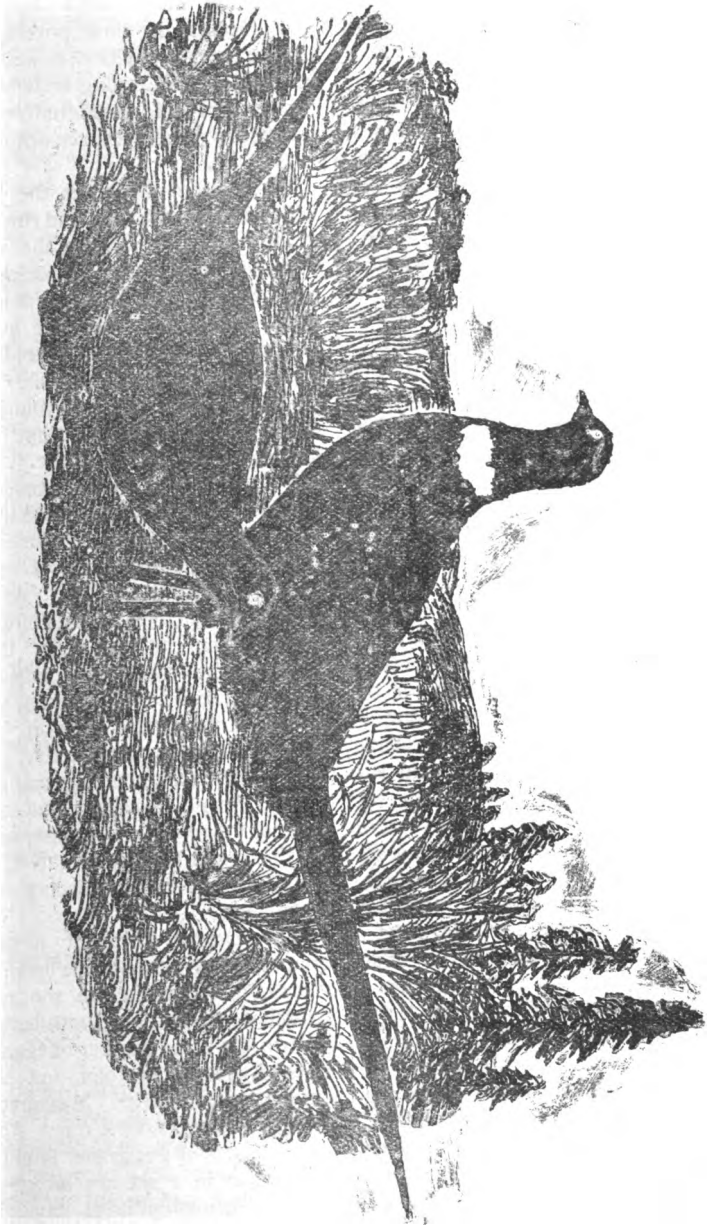
Phasianus torquatus.

The Denny Pheasant sometimes called the China ring-neck or Mongolian pheasant was first introduced to the State of Oregon by the Hon. O. N. Denny, United States Consul-General, at Shanghai, China, in the year 1881, when 70 birds were shipped, by sailing vessel to Puget Sound, and arrived with out the loss of a bird. From there they were to be reshipped to A. H. Morgan of Portland Ore.

A serious blunder was committed on Puget Sound by not following directions which were explicit, and which Mr. Denny had written in the vessel's log-book in order that there should be no mistake and their safe arrival assured. In reshipping these instructions were not literally followed and as a result only 15 pheasants arrived alive, twelve cocks and three hens, these being the only survivors of the first shipment that included several species of pheasant. In the spring these fifteen birds were liberated near the mouth of the Willamette River, and two of the three hens were reported as observed with young that season. They slowly spread finally crossing the Willamette and Columbia rivers.

The uncertainty about Oregon ever receiving any benefit from this lot caused Judge Denny, in the following year, 1882, to ship another lot; numbering 28 or 35 birds, all ring-necks, the hens being in excess of the cocks.

This lot was shipped by sailing vessel direct to Portland, consigned as before to A. H. Morgan, with instructions to send



to the farm of Mr. Denny's brother near Albany Ore. They arrived safely, and in the same year 28 of these birds were liberated, on Washington Butte on the Denny Homestead, Linn Co.

This lot increased and spread rapidly, a stringent law was passed by act of legislature for their protection for five years, at the expiration of which time, was extended five additional years, and the majority of the Denny Pheasants in this country are undoubtedly descendents of this, the second lot.

Mr. Denny having made a careful study of the numerous species of pheasant inhabiting China, selected this species as the one, in his judgement, best fitted for various reasons to exist and survive on the Pacific slope, the birds presence here in numbers, to day fully proves the soundness of that judgement.

In 1884 Mr. Denny returned from China, bringing with him 90 birds, one third of them were Golden pheasants the remainder Silver, Copper and Green pheasants, two pair Trogapan and a few of the Denny pheasant. These birds were given in charge of the Rod and Gun Club for distribution through out the state, and by the club were placed on Protection Island, Puget Sound, for propagation and safe keeping and a keeper employed to look after them. Later the club disbanded, and for reasons not necessary to this article to enumerate, the birds were lost to Oregon, this the third lot was procured at considerable expense and trouble, some of them were bred by Judge Denny, others were purchased by him at an expense of five to nine dollars a pair and were designed, to be a gift, then and in the future, to the people of Oregon, by the donor. It is a matter of regret not to say censure that they were allowed to pass into other hands by those having them in charge. These pheasants the most beautiful and gorgeous of all Oregon's birds are nervy, hardy, prolific, and have come to stay, for they

possess some trait, not shared by our native grouse which enable them to exist and increase in close proximity to our largest towns and cities, as well as amidst our well settled farming sections, they fly swiftly, run fast, seem intuitively to know a gun at sight and are remarkably tenacious of life.

They frequently enter the barn-yard, whip the domestic fowl and run the roost at their pleasure. When the weather is cold they often enter the chicken house and roost with the fowl. When not hunted the Denny Pheasants are quite tame, but upon pursuit become exceedingly shy and retiring in their habits. The cock crows, in tone resembling a young cockerel, and frequently flying to some eminence, seemingly for that purpose. This bird will hybridize with the domestic hen.

All attempts to domesticate this pheasant in Oregon have been failures.

There is much difference of opinion regarding this species utility. An examination of many crops, of this bird at different seasons of the year, show that while their principal food is grain, wheat, barley, millet, and seeds of wild plants, yet a good proportion was some form of insect life noticeable among, were beetles, grass-hoppers, numerous flies, millers and grubs

Their flesh is excellent and considered superior to our native grouse and quail, yet the closest observers contend that they are slowly but surely crowding our native game birds.

The Denny Pheasant nests on the ground and as a rule in the open, the nest is a slight hollow in the soil natural or scratched out, and lined with leaves grass or fern; the usual number of eggs laid are 15 to 18, creamy in color, and some sets are spotted with olive. Measurements of 23 eggs average 1.68, x 1.33. Apparently complete sets of 7 eggs are found and as many as 21 in a set are recorded. The period of incubation is 24 days, all eggs are usually fertile but one brood is

raised in a season, and it is possible that two may occasionally be reared, but authentic cases of three have yet to be recorded. In confinement the hen will lay 60 eggs, (average) if they are removed.

Crows and hawks are their greatest enemies, robbing their nests at every opportunity, having found a nest they do not desist until every egg is destroyed and eaten. The clutch is hatched early, and it is an erroneous idea, that the cock cares for and hovers the chicks while the hen lays her second clutch. I am in receipt of correspondence from many observers in several localities where the pheasants are plentiful, not one claim the above to be a fact not one have ever observed such a case and all question it. The Denny Pheasant have become a source of revenue and are now general and plenty through out the Willamette Valley, Southern Oregon, both sides of the Columbia River, have been introduced to several localities in Eastern Oregon and are extending their range each year. This species is without question Oregon's finest and best game bird, and to the inhabitants of Oregon, if to no other people, should be known by no other name than "The Denny Pheasant."

A. B. AVERILL.

The dates of the three shipments as given in this article are correct, and were received from Judge Denny in an interview for that purpose.

GAMBEL'S SPARROW.

(*Zonotrichia leucophrys gambeli*.)

Being a part of the result of the monthly work for February of the Northwestern Ornithological Association.

(Prepared by the president.)

Articles on the second month's work were received from Fred H. Andrus of

Elkton, Ore. D. Franklin Weeks of Portland, Ore. and Ellis F. Hadley of Dayton, Ore. Gambel's Sparrow is an abundant summer resident of the Willamette Valley, but is not common in winter. Mr. Hadley says, "In the fall they gather in bands of from ten to twenty-five and select some rosebrier thicket as their home, leaving it only a short distance in a band to hunt food." Mr. Weeks says, "This sparrow is a migrant, coming in small flocks of a dozen to twenty-five about the first of April, and leaving again in the latter part of the fall, — as late as the last of October.

Mr. Andrews has crowded so much of interest into his article that I cannot do better than quote it in full. "This species is, during the summer months, one of our most common birds, breeding abundantly, but is not often seen in winter.

"Of ten sets collected in the last three years five are of four eggs, four of five, and one of three. Also found a set of three eggs which was not collected. I should give the number of eggs as four or five, sometimes three. A curious thing about the number of eggs is that all sets collected in '92 and '94 are of four eggs, while all sets collected in '93 (except one set of three) contain five eggs.

"My earliest set is May 21st '94 about one-half incubated; latest set July 19th '93, nearly fresh. "The nest is rather a bulky affair, usually a little above the ground, composed of grass and moss in most cases, and lined with finer grass. The majority of nests contain hair in lining. I have found three nests which contained three distinct layers — the outside being coarse grass, next fine grass and the inside lining of hair. Nests range from 2¼ to 3 inches in diameter inside, and from 4 to 5½ outside, depth 1¼ to 2 inches inside and from 2 to 4 outside. Three nests out of ten were on the ground, the rest varying from 9 inches to 3½ feet from the ground."

Mr. Weeks records a set of three fresh eggs taken on April 12 '95, which is the

earliest nesting date of this species which has come to our notice. The first half of May is considered the best time to collect fresh eggs. Mr. Weeks also speaks of the sociability of this sparrow, saying that it often builds right in the crowded city.

The eggs are a bluish green in ground color, spotted, speckled and sometimes blotched with cinnamon brown, and nearly always having more or less black on the large end in hieroglyphic lines. Often a wreath of brown, so thick as to hide the ground color, encircles the larger end. The average size of nineteen specimens is .87 x .64. The largest in length was .94, the smallest .82; the largest in width .68, the smallest .58.

TAXIDERMY.

(continued from page 46)

The bird should now be wound with fine cops or soft thread. Insert two or three pins along the back and a like number in the breast, and lightly wind the thread from pin to pin, including the pins in the wings which were left projecting; that the feathers may lie smooth and in place after the bird is dry. A little practice will enable you to wind the specimen in the best manner.

Arrange the tail feathers between two strips of card-board; pushing pins where necessary through both strips at right angles to the tail feathers. Adjust the toes, place an elastic band around the bill, and set the specimen away to dry. Look at your specimen each day observing that the feathers are not disarranged in drying, when dry the eyes can be put in, first softening the eyelids, by placing damp cotton in the eye-sockets. When the lids are soft and pliable, remove the cotton and insert a little putty, then put in the eyes, observing that they are alike as to position. Arrange the eye-lids for much depends on this if the bird is to have a natural expression. Remove the winding and pins, cut off the neck wire, the pins in wings, and tail wire. Fasten leg wires

out of sight, and in many birds the feet and bill require painting the natural color.

If your first work is not satisfactory, be not discouraged, but remember that, the taxidermist who does acceptable work, has only attained his proficiency by continual practice.

Birds whose skulls are large, as the ducks, geese, cranes, a few of the wood-peckers, etc., require a slit made at nape of head to remove and clean the skull; which must afterward be neatly sewn together. Feathers that have been soiled with blood, may be cleansed, when the stains are fresh, by washing with warm water, using a soft sponge or wad of cotton, and lightly going over the feathers, rubbing in the same direction as the web, until all stains are removed. Then dry the feathers by first absorbing all outside water with blotting paper, finishing with calcined plaster, which is to be plentifully sifted around and over the wet feathers, and shaking out before plaster has time to set, (which it will do very quickly).

Use the plaster repeatedly, in this manner until feathers are entirely dry.

Grease and dirt can be removed with spirits of turpentine or benzine, absorbing the greasy turpentine with plaster as before. It will be found a waste of time to attempt to clean, old dried blood stains from feathers, especially if they are white.

To relax dried skins, wrap the feet and legs with wet cloths, allowing the cloth to remain until the toes can be bent, which will require some time in old skins. After the feet have become sufficiently relaxed, the stitches can be cut on the breast, the cotton in the body dampened, the skin wrapped in cloth, and in a short time the breast will be sufficiently softened to allow the cotton to be removed without tearing the skin. Now refill with wet cotton and closely wrap the skin in several thicknesses of cloth.

Allowing it to remain wrapped, until the skin is entirely relaxed, which will take more or less time, according to the age of skin. It may now be taken from the cloth, the cotton removed, and the skin thoroughly worked with the fingers until as pliable as it is possible to be made, when it may be mounted the same as a fresh skin.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

A. B. AVERILL, - - - EDITOR.

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MAY, 1895,

CIRCULATION 3000.

N. O. A. work for June will be the Oregon Towhee and the Rufous Humming-bird. The remainder of Feby. work, viz. Rusty Song Sparrow, will appear in June; Pres. Pope, writes that the Association now have the names of 237 properly identified species of Oregon birds that will soon be ready for publication.

The article by Dr. Purdum in this number was begun in No. 8—9 of the Naturalist of Austin Texas, we assumed their subscription list, but out of deference to our own subscribers who probably never saw the Austin paper we reprint the notes on the first three species, that the articles may be complete in this volume.

At the request of several subscribers, a query column has been started in this number. The questions to be answered will be numbered, the answer when received will be given a number corresponding to question; and printed in full. The column will be open to all subscribers observing the conditions printed at the head of "Queries and Replies," column.

When will Oregon awaken to a realization of the fact that her rarest and best Indian relics are finding safe lodgement in the museums and collections of other states.

Why are the nests of the beneficial Eaves Swallow in Portland, destroyed by turning the water hose against them yet foreign species having less qualifications, are imported and protected by laws.

WILSON CHAPTER DOING GOOD WORK

Bulletin No. 5 of The Wilson Ornithological Chapter of the Agassiz Association, is a report on "The American Crow *C. americanus*. With Special Reference to its Nest and Eggs. By Frank L. Burns. Oberlin Ohio." This report of 41 pages is undoubtedly the most comprehensive article on the Crow ever attempted and brought to so successful a conclusion, embodying reports and notes of observers in 28 states and two territories.

It contains much to interest the general reader, and will be found especially valuable to the Ornithologist and Oologist.

Translated for the OREGON NATURALIST, from
die Gartenlaube.

THE WHITE STORK.

BY A. AND K. MULLER.

The first glow of spring warms every heart when the first word is passed through village or town. "Our stork has come back." All eyes are turned toward the nest, the old stork nest known to every-body, and see, there stands the long legged stilt-bird on the edge of the cradle where last year he reared his young, and where, perhaps, he first saw the light of the world many years ago. His better half still dallies on the road, loth to leave the more hospitable country where food is still abundant. The male has come on ahead, and examines the old nesting place, visits the well known places in the surrounding meadows and plains, and lives like a bachelor in his usual home, until one day the observer suddenly misses him. A few days pass and then the pair appear, coming from a lofty height, circling lower and closer to their home, narrowing their circles more and more until at length they settle down upon the nest.

A glad rattling of beaks proclaims the arrival of the faithful pair. When they stand quietly upon a lofty tower, on the house, or the pruned elm tree there is nothing grave, proud or dignified in their bearing, they rather appear clumsy, with all their length of limb.

How different they appear when they settle down in the grass and strut about with measured steps, peering in all directions in search of prey, and keeping a sharp lookout for their own safety in spite of the consideration with which they are treated. Then it is that they are really grave and dignified. Walking up and down the stork examines his surroundings critically. The slightest motion of anything eatable is at once detected by his sharp senses, rendered doubly keen by innate greediness. He holds his weapon always ready for striking, the long sharp beak dives downward like an arrow, and pierces with unerring aim the scurrying mouse, the toiling mole, the

whirring beetle and the squirming lizard. With the mole or rodent he frequently catches a whole bunch of moss, grass or twigs, and he either devours his booty on the spot or carries it to his mate or to his little ones in the nest.

When beginning a flight he hops along, flapping his wings and then leaving the ground and struggling upward with apparent awkwardness.

He is equally awkward in alighting when his destination is reached. He never approaches the spot where he is to alight from below or in a horizontal line, but always from above letting himself down carefully with his stilt legs outstretched. Whenever he discovers a good feeding place he comes back again until the food supply is exhausted. His memory for places does him good service, as when, for example, he discovers a litter of young hares he knows well where to return for them and carries them away, one at a time. He is not content with merely robbing to supply his family and to satisfy his hunger, for he is murderous and blood-thirsty as well as greedy. Beside a brook which emptied into a pond we found, early in the season, dozens of freshly killed toads every one of which had had its body ripped open by the stork, although not a particle of any of them had been eaten. Other traits in the character of the stork are ill-nature and jealousy. When young storks in the spring revisit the nests in which they were hatched or when strangers attempt to settle in the nest a violent fight takes place, in which the male and female unite in defending their nest and succeed in murdering or terribly mutilating the intruder even though it may have been one of their own brood of the previous year. When the stork is domesticated he displays similar traits among the poultry of the barnyard. We saw one in a large courtyard strutting grandly around, marching around the chickens and ducks in smaller and smaller circles while they stupidly submitted to being driven and huddled up together in the middle of the yard. Nothing but domineering arrogance prompted the stork to do this, for he ended the performance every time with a vicious charge which drove the frightened fowls cackling and quacking in all

directions. Tame storks can never be trusted with young chickens or ducklings. In spite of the watchfulness of the hen or mother duck they will spear the little ones, tear them to pieces and eat them. They are also addicted to playing amusing pranks on the cats and dogs. Their attempts to capture the sparrows which flutter about them are highly ludicrous.

The sparrows, of course, are quicker than the pursuing stork whose continual failures to catch them never lead him to give up the attempt.

Marital fidelity is, next to the love for his old home, the strongest trait in the storks character. When the sexes are separated by death the survivor rarely re-enters the wedded estate.

This is especially true of the female, perhaps from lack of inclination perhaps from lack of opportunity. Who knows but what a profound sorrow may be the cause of the strict maintenance of an honest widowhood?

ANGUS GAINES.

Vincennes, Indiana.

WRITTEN FOR THE OREGON NATURALIST:

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS.

BY C. C. PURDUM.

Launching into a broad field, like the one the above topic suggests, one naturally experiences a sensation of insufficiency to fulfill the task before him. Such a sensation I must confess has stolen over me again and again during the preparation of this article and if "ye editor" deem it worthy to go farther than the wastebasket, I sincerely hope that the three thousand indulgent readers of the "OREGON NATURALIST" will find something in its words to interest and instruct them. Truly southern Massachusetts from its variety of geographical peculiarities, gives a most excellent field for the operations of a conscientious, working ornithologist: let us then consult our note book for, first our interesting water birds, and the

first one to be met with is

(2) *Colymbus holboellii* (847).

AMERICAN RED-NECKED GREBE.

This is a large variety of the European species and by the novice, might be easily confounded with it. The bill however is much longer of a deep black above and quite yellow, into which the black abruptly shades below. "*Holboellii*" is a common visitor in this locality during the winter, and is one of the most difficult to capture, owing to their shyness. However when once within gunshot they are not nearly as active in avoiding destruction as their relatives "*auritus*." As the birds visit us in winter, one would be inclined to suppose the name "*red-necked*" incorrect, for the deep brownish red on the neck of the spring plumage is entirely absent except in the dorsal line; and its place is taken by an ashy white; the mottling of the under parts being much less marked than in summer.

Colymbus (both *holboellii* and *auritus*) find good feeding grounds in the numerous coves harbors and bays, in which this locality abounds. Their chief food here is certain varieties of fungi which are found plentifully upon the rock-weed and sea-weed. The average measurements of several specimens give the following results. Length, 19.24; extent, 33.00; wing, 7.75; tarsus, 2.50; middle toe and claw, about 2.75; bill about 2.00. As before stated "*Holboellii*" is a common visitor here but not nearly as abundant as,

(3) *Colymbus auritus* (848).

HORNED GREBE.

This interesting "bunch of feathers" is not as large as the previous species, but vary much in size. The amazing power which this bird shows in avoiding destruction, by its lightning like dives has procured it the appropriate names of "devil diver," "dip chick," "water witch," "shut-the-door" etc. For instance suppose we are rowing over the quiet waters of one of our numerous harbors on some bitter cold morning; either to or from a short collecting trip with our decoys; when suddenly around the point, just ahead comes "AN OBJECT" and as it drags its

hinder parts in the water, it brings a smile to your lips in spite of the cold weather.

Splash! "All in a heap" this "bunch" has fallen as it were into the water, and then "presto"! what a change. Each movement is like lightning, each motion as quick as thought.

You raise your gun to fire: he is but fifteen yards away. You press the trigger; a flash; a report; a slight ripple upon the tranquil water of the cove. That is all; but under that friendly shelter your would be captive is "making tracks" and some words that sound strangely like "cuss words" float away on the chilly air.

Perhaps you catch sight of a small round dark object, some moments later entirely out of gun-shot, and you exclaim almost involuntarily "there he is!" yes indeed there he is but too far to be shot at, and with a few more adjectives you resume your trip.

(to be continued.)

A MILLION U. S. postage stamps bought by D. M. Averill last month weighed 253 pounds, and filled 2½ barrels to over flowing.

These stamps were collected in 15 months, and every United States issue is represented from the 5 cent brown 1847 to the present.

A few Canada stamps were observed among them, but a notable feature about them appeared to be their fine condition, most of the envelopes being cut square, and the adhesives remarkably clean.

A COMPANY of Latah's Wash. prominent citizens, has been formed, for the purpose of draining a large spring a mile from town.

The company expects to find mammoth bones, as the skeleton of the mastodon, about which so much has been written, was taken from a large spring near it, which was very much the same. A large sum was paid B. F. Coplen for the bones taken from the spring.

AN HOUR AMONG MY RELICS.

FRED. E. COLEMAN.

As I look about me I see relics on every hand, arranged in a manner to suit my own individual taste. Some of the arrangements are original with myself while others are gleaned from brother collectors. First, my sanctum is 10x16 feet in size, lighted by large double windows on the side facing the street, with a door on the opposite side.

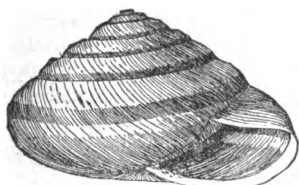
At each end of the room I have shelves across, reaching four feet in height, and making in all, 40 feet of shelving, six inches wide and one shelf at the bottom 18 inches in width. On the narrow shelves I have arranged my minerals, fossils, wood, and some historical relics, in separate classes, labeled with a number, which is entered into a book for each class. Each number has a brief history, stating how found, when, where and by whom found. One of the broad shelves is used for marine specimens and land and fresh water shells, while the other is used for the larger implements of the stone age.

Above these shelves I find ample room for arrows, spears, drills, hoes, scrapers, and all such implements, which I have rather artistically arranged and framed. Above the window is a shelf covered with old china-ware, and preserved snakes etc. Upon both sides of these windows I hang my frames of currency, old maps and a few documents. On the other side sits a book-case containing many old school books, Chinese bible, collectors scrap books, pamphlets, and magazines on Natural History. Upon this wall I have hanging a section of an old birch-bark canoe and have pinned to this many documents and papers.

On the other side of the door is my gun rack and armory consisting of guns, bayonets, swords, and knives. In the center of the room I have a flax wheel and a cabinet containing eight drawers and as I peep into these I find a small but valuable collection of coins and medals, a few woods, some fine old historical relics and a few birds eggs.

In taking an inventory I find 3538 specimens besides a stamp book of many good old varieties. I should like to start a collectors autograph album by exchanging name upon a plain white card perhaps 2x3 inches in size giving first name branch of study, and address. I believe I am a born archaeologist, and am making that my main study. I trust this article may benefit some of our amateur collectors in the arrangement of their collections.

OREGON'S LARGEST LAND SHELL.



Helix (Aglais) fluelis, Gray.

An Oregon species found from Humboldt Bay to Vancouver Island, and eastward to the Cascade Mountains. From Mt. Shasta the form is very much smaller than those usually found while it is unusually well developed in the Coos Bay region. The form from Humboldt Bay almost merges into *A. infumata* a California species and it therefore varies in color from this entire black form to almost white, the band being present except in the extremely dark variety.

This beautiful land shell, is probably the handsomest of Oregons many species, the shells vary much in size and color, adult specimens are found measuring an inch and a half in diameter, it is described by Josiah Keep in his admirable "West Coast Shells" as follows "Whorls seven, umbilicus partly concealed by the reflected peristome, surface marked by fine lines of growth. The color is always dark beneath, but the spire is sometimes lighter and marked by rich bands of black and yellow or light brown."

This species is still quite plentiful and we believe has been sold to the French restaurants in Portland for eating being served in the same

manner as *Helix pomatia*, the edible Snail of France and in fact all Europe.

THE PARKMAN'S WREN.

In this locality the Parkmans is more abundant than the House Wren, though not so well known on account of its retiring habits.

About the last week of April they begin to arrive, but are usually heard before they are seen. They seem to prefer to nest in the woods near water, differing in this respect from the House Wren which is more sociable, nesting around and in the city in the bird-boxes put up for the purpose and in every conceivable corner and hole. The nests of the Parkman's Wren are generally built in the deserted holes of the Downy Woodpecker or Yellow-breasted Sapsucker, and are usually completed and the clutch laid by the first week of June. The nests are built of sticks, usually Oak, and lined with grape-vine bark, horse-hair, and feathers.

The clutch usually consists of seven eggs rarely less, sometimes eight or nine. The eggs are hardly distinguishable from those of the House Wren, but they average larger. Below I give descriptions and measurements of a few sets taken this year.

Set 1. Seven eggs. Nest 18 feet up in a dead Poplar tree, composed of sticks, and lined with bark, and fur. Eggs clay color, spotted with reddish brown and lilac, forming wreaths around the large ends of the eggs. Taken June 7th 1894. Incubation slight. Measurements. .67 x .54 .67 x .54 .66 x .54 .64 x .52 .64 x .54 .63 x .52 .63 x .53.

Set 2. Eight eggs. Nest 7 feet up in knot-hole in dead Willow stub, composed of sticks, hair, fur, and feathers. Eggs whitish, spotted very heavily with pink and purple. Taken June 7th 1894. Incubation fresh. Measurements.

.62 x .50 .62 x .51 .62 x .53 .61 x .49 .61 x .48 .60 x .50 .60 x .47 .60 x .52.

Set 3. Seven eggs. Nest 28 feet up in deserted Downy Woodpecker's hole in Willow

stub, composed of sticks and weed-stems, lined with fur, horse hair and a few bits of cotton.

Eggs whitish very sparingly marked with fine pinkish dots. Taken June 10th 1894. Incubation one-half. Measurements.
 .68 x .56 .68 x .55 .67 x .55 .67 x .55 .67 x .50
 .65 x .52 .65 x .33.

WALTON MITCHELL.

ST. PAUL, MINNESOTA.

THE SAW-WHET OWL

(*Nyctale Acadica*)

The habitat of the Saw-whet or as it is commonly called, the Acadian owl is the southern portion of British America, and the United States from the Atlantic to the Pacific coasts; south in the eastern portion as far as southern Pennsylvania, and in the west as far south as Mexico, where it is met with in the mountains.

This bird is very shy and retiring in its habits, seldom leaving its secluded retreats in the wild woodlands, until late in the evening, and for these reasons it has without doubt escaped notice in many places within its range and where they have been noted as rare, they are more common than is generally supposed.

The food of this owl is similar to all the smaller of our owls consisting chiefly of mice and insects although when pressed by hunger, they kill and devour small birds, and from all records at hand, the birds killed are mostly those of the sparrow, finch and grosbeak families. Mr. Brewster (in Bull. Nutt. Orn. Club 1882) gives quite an interesting description of the manner in which a young owl of this species disgorges the pellets of indigestible matter from its stomach as follows. "The owl will gape several times, then the head will be violently shaken sideways, and finally the pellet, coated with mucous, would shoot forth, frequently falling several inches in front of the spot where the bird was sitting."

That the Saw-whet owl is, beyond a doubt, the soundest sleeper of all our owls has been noted by numerous ornithologists, some of them

having caught the birds alive (in the daytime) by placing a hat over them. This owl derives its name from its peculiar love-note, which sounds very much like a man filing a saw and which can be heard for a long distance on account of its peculiar shrillness.

They breed in the United States from the middle states northward in old woodpecker holes or natural cavities in trees, no nest being built. The eggs are usually four in number although as many as seven have been found in one nest, and are laid upon the decayed material in the hole. They average 1.00 x 1.20 inches in size, in colour white, and nearly spherical in form. As is the usual habit with owls incubation commences upon the first egg laid and as a result eggs with different sized embryos are found in the nests. Breed during March and April usually March 20th to April 10th.

ISADOR S TROSTLE R

Omaha Nebraska.

AMERICAN WATER OUZEL.

The Water-Ouzel, *Cinclus Mexicanus*, commonly called the American Dipper, is one of the most interesting of our native birds, and I have often wondered why there has not been more written about it.

Very few collections contain specimens of this bird's egg. It cannot be because the birds are rare, because there is not a stream of water in the state that has not a few of these sweet songsters on it. I say sweet songsters, because there are, at least to me, few birds that have a finer voice.

One reason, why this bird is not better known, and its eggs more generally seen, is because collectors do not start early enough to look for them, or it may be that they are afraid of getting a "cool bath."

I have always been under the impression that they were later in nesting, but for the last two years I have paid more attention to their habits and have found that they begin hesting late in

March or early in April.

Sitting on the bank of the North fork of the Nehalem river in the northwestern part of Oregon, one day in April, watching the movements of a large specimen of the bald eagle, I had my attention drawn suddenly to the movements of a pair of Water Ouzels near my feet.

Flying from I did not at first know where, they would alight in the water, and after swimming a few feet would at last perch on a rock and commence that peculiar motion which gave to them the name; American Dipper. This motion is hard to describe, but once seen can never be forgotten.

After a few moments as if satisfied that their actions were not observed, they would plunge boldly into the water and dive to the bottom, appearing again to take breath and again diving, to appear finally with a mouthful of moss, obtained from the rocks at the bottom of the stream. Then flying to their nests, would deposit their load and return quickly for more. Both the male and female working, the male never too tired to sing a few notes.

I carefully noted where the nest was located and after waiting until I was satisfied the full set had been laid I started to "collect" them. But how? was the question.

The nest was located on the opposite side of the river, and the only means of crossing was by a cranky canoe, discarded by some noble red man. Not being a very good swimmer and a little afraid of a cold plunge in the water, but determined to have those eggs, I embarked, Fatal choice! The canoe not being handled by skillful hands, capsized, and swim I had to, but at last I reached the "longed-for" bank and started for the nest again. Like all others of this species, the nest was placed under a water-fall, which was fully thirty feet high, the nest was about ten feet from the top.

To reach it I must swim through forty feet of rather rough water. After having come so far I was not going back empty handed, and being wet any way, I again took a plunge, with a hard struggle I at last reached a ledge of rock directly under the nest.

I quietly climbed up the rocks and at last held the much desired eggs. They were well worth the struggle that was necessary to obtain them. They were five in number and were pure white, measuring 1.00x.70, 1.00x.72, 1.01x.70, 1.01x.74, 1.04x.72.

The nest was a beautiful one, oval in shape about 7x10 inches, and was composed of moss, and lined with fine dried grass, very firmly constructed. Although I much wished to keep this nest, it was impossible as I had no way of carrying it. So strapping my box securely to my left arm, and taking a long breath I plunged far out into the boiling, seething water and struck out for shore, which I reached after a hard swim, landing nearly a hundred yards below.

This set was collected April 12th. Two days afterwards I examined a nest under more favorable circumstances which contained nearly full grown young, and the next day one containing three eggs.

In building the nest a suitable location is first chosen which may be on the top of a rock, on a ledge or under a waterfall, but always near swiftly running water. The back of the nest is built first, and throughout the whole operation kept higher, finishing the part directly over the entrance last, and securing it with small twigs like a butchers skewer. When the young are old enough to fly, these twigs are removed and the top of the nest falls off, giving the young an easy exit.

The shells are very frail and the best way to blow them is to reinforce the shells with court-plaster, placing a piece about as large as a dime and with a hole in the center, on the side in which the opening is to be made, this can be drilled through, and the contents safely removed.

GUY Q. STRYKER.

While exploring in the Cascade mountains during last summer, Professor Lloyd, of Forest Grove, discovered a new violet. It is a small plant with a delicate white flower with transparent petals, and grows in wet mossy places. He has named it *Viola Maclo-keyi* in honor of his perceptor in biology at Plincetown.

An old gun barrel, unearthed in the Buckingham swamps, near Monroe, invites speculation. It is said to be copper instead of steel. The barrel is round instead of octagonal, and the bore is the size of the ordinary 44-caliber rifle. It is to be brought to Corvallis for examination.

The Archaeologist's Paradise.

Archæologists will undoubtedly find in south-eastern Oregon, relics proportionately deserving of their attention as the mounds of the middle west, the cliff dwellings of New Mexico or the adobe houses of Arizona. Curios of all kinds and description have been found in Coos and Curry counties. Not long since a stone canoe nine and a quarter inches long, five inches wide and three inches deep, and a hollow stone three inches long were found near Bandon. The articles are richly carved and well shaped. Other relics such as carved jugs, spoons and implements of war have also been found. Residents of that section of the state believe the unearthed articles were made by some ancient tribe that occupied that region, for they are certainly not the work of the American Indian Columbus discovered.—*Exch.*

INDIAN RELICS.

The time will come when aboriginal mementoes will possess value, and the time is fast passing by when they can be gathered together. No doubt, while time shall last plowshares will turn up arrow-heads not infrequently; but we who so closely followed the aboriginal have set little store on what will be prized in time to come. To us they are common, for beautiful arrow-heads are found at fisheries or on old camping grounds, or upon the battle-fields of the past. We turn up mortars and pestles that have histories engraved on them with indifference. When we ask the Indian who survives, we are surprised that he has no idea of their origin, and our occasional collectors cherish images and carved stone work that no race claims. The only answer the

siwash makes is that they were made and used by some race that preceded their own. Mrs. W. C. Johnson has antiquarian tastes that are shown in a collection of curios and antiques gathered, literally, at great expense, from the four corners of the earth, including many mementoes of the aborigines of our own section. She corroborates the continual story the Indians tell, that these things mostly are left from a prehistoric race. She says years ago she made a friend of an Indian woman at Oregon City, who gave her valuable information. When they talked of making the canal and locks at the falls, this woman told her that her people had found and buried a large stone frog that was left by that ancient people, that would be right in the path of the canal and must be dug up. If dug up, it would be followed by floods and storms that would result in great damage, for the great spirit of the old race resented any meddling with their relics. The stone frog was, sure enough, unearthed and thrown out by the canal builders, and, sure enough, the winter saw fearful floods and the Indians said their prophecy had come true. The stone frog was in Dr. Rafferty's keeping, at East Portland, and should be gathered into a state museum, with all such other relics.

Mrs. Johnson also tells me that her husband remembers that, when he was a lad of 15, nearly or fully half a century ago, men were engaged in digging a ditch in front of Governor Abernethy's place, on the river just below Oregon City, and uncovered the head and shoulders of a full-sized stone figure of a man, closely resembling the Indian in every respect. Rather than unearth and exhume this image of heroic proportions, they changed the course of the ditch; but some time later, when it occurred to him that this image was worthy of notice, he went to find it and it was non est. The supposition was that the Clackamas Indians had taken it up and consigned it to the safe keeping of the Willamette close by. They attributed all these works to a prehistoric race, and were afraid to leave them exposed, as they said the spirits who ruled that ancient people were very

powerful still, and were sure to resent any trifling with or neglect of the remains of their favorite people. What became of that people they do not know. *S. A. Clark in Oregonian*

THE GLACIAL CLAYS.

BY PROF. ARTHUR M. EDWARDS, M. D.

When the rocks (and there is meant thereby the sedimentary soils, sands and clays, for the geologists know as rock any substance which occur in the earth, meaning anything softer than the rocks ordinarily speaking,) which were found newer than the Tertiary, in what is ordinarily called the Quaternary series, there was laid down certain gravels and clays which have puzzled the observer to account for.

The gravels laid down in the United States in a region which is down to the New Brunswick in New Jersey, not below that, and were called glacial gravels, because they evidently formed in the period when the ice covered the states of New Jersey, New York, Connecticut and further North. This gravel was known as glacial moraine and it is very thick. It is made up of the washing of rocks containing fossils sometimes, at other times not fossils, some lime stones, some granites and some shales. The pieces are from fine sand to large rocks many feet across, and the geologists have located them in the North-East, where these rocks probably came from. Not only in valleys but on mountain tops, on the top of Mount Washington itself these boulders, as they have been called are seen. Some as large as a good sized house, also came from the East. They often are striated, that is to say they are marked with grooves in longitudinal lines showing they were fixed in the ice that moved along in its course, dragging them over the rock below and striating them and the country over which they moved. These striæ are very plain and tell their story to the thinking and observing mind.

But while the gravel was thus carried along, there was mixed with it a certain amount of clay which was the finer part of the gravel so to speak. When the ice melted at last it was deposited on the top of the gravel. This was

thinner in some places than in others. It fell down in immense banks. When the ice had all melted, there were formed in certain places near the edge of the moraine, numerous depressions. These depressions are called in New Jersey, Kettle Holes, in Massachusetts, Dungeons, and various other names in other places. They have no openings commonly and are dry, swampy or contain water. They are most distinctly round. At the bottom is the clay. The same clay that covers the country from New Jersey northward.

Examination of this clay shows it to contain fossils, microscopical of course. These are called Diatomaceæ, or Bacillariaceæ, and was reckoned as plants, but are now put into a kingdom by themselves. They are called Protista, midway between animals and plants. They are mostly silica or quartz, and are most beautifully sculptured. They were considered recent because they were the same as recent ones which grow in ponds and brooks now. But now they are known to be fossil. The clays of New Jersey are glacial clays.

THE LORD'S PRAYER
IN
CHINOOK JARGON.

Nesika	papa	klaxta	mitlite	kopa
Our	Father	who	art	in
sahale,	klushe	kopa	nesika	
the above	good	in	our	
(or Heaven,)				
tumtum	mika	nem;	klushe	mika
hearts	(he)thy	name;	good	thou
tyee	kopa	konaway	tilakum;	klushe
chief	among	all	people;	good
mika	tumtum	kopa	illahe	kahkwa
thy	will	upon	earth	as
kopa	sahale;	potlatch	konaway	
in	the above;	give	every	
sun	nesika	muckamuck,	pee	kopet-
day	our	food	and	remem-
kumtuks	konaway	nesika	mesache,	
ber not	all	our	sins,	
kahkwa	nesika	mamook	kopa	
as	we	do	to	
klaska	spose	mamook	mesahche	kopa
them	that	do	wrong	to
nesika;	marsh	siah	kopa	nesika
us;	put away	far	from	us
konaway	mesahche.	Klushe	kahkwa.	
all	evil.		Amen.	

Gill's Dictionary.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(1) What can I use to prevent my gun from rusting when using on the salt water.

M. Astoria.

(Ans. to 1) When not in use cover with a thin coating of Blue Ointment, *Unguentum hydrargyri*. $\frac{1}{2}$ Mercury.

(2) At what place in Oregon was the recent find of Zeolites made, and by whom? R. N. J.

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No. 6.

RUSTY SONG SPARROW.

Melospiza fasciata guttata.

Being a part of the result of the work of the Northwestern Ornithological Association for February, 1895.

(Prepared by the president)

This sparrow is a common resident of Western Oregon, abundant in summer, but less common in winter in most localities. Mr. Andrus of Douglass county states "This bird outnumbered all the rest with the exception of the Oregon Junco during winter, but during the breeding season is more shy, and if seen soon disappear."

It seems to prefer low wet ground where rose-briers and buck brush abound. Mr. Weeks of Portland says "This is a quite common sparrow of Multnomah county, breeding in the low lands along creeks and small rivers." Mr. Hadley of Yamhill county says "It is very often found in company with Gambel's Sparrow, though it seems to like to be nearer water.

This species seems to be paired for life. A single pair remained around our premises all last winter, and where ever I have observed this species in either winter or summer they have been in single pairs.

The first half of May is the season for

fresh eggs, though instances of early nesting have been recorded. Mr. Hadley, a few years ago, found a nest containing three eggs on March 15th incubation commenced, and Mr. John Gibson of McMinnville, a youthful aspirant for oological fame, found a nest containing four fresh eggs on April 18th.

The nest is usually placed above the ground in a small bush. Mr. Hadley says "The nest is composed of grass and weed stalks, lined with fine grass. It is placed in small bushes and trees and bunches of grass and weeds. I have never found any on the ground. They are from six inches to eight feet from the ground.

No account of the eggs has come to hand. A set of three eggs in my collection does not differ from those of *Melospiza fasciata* of the East. Measurements are .90 x .63, .85 x .62, .84 x .62.

HERE AND THERE

FROM MY NOTE BOOK

May 8, 1890 Found nest of Oregon Jay (*Perisoreus obscurus*) in the heavy timber of Clatsop Co. Ore., in a small hemlock about ten feet up. It was composed of dead twigs, lined with moss and feathers.

Inside measurements, $3\frac{1}{2}$ inches across by $2\frac{3}{4}$ inches deep.

Four grayish eggs, spotted with brown, average size 1.12 x .79 inches.

These birds are also called "Meat Hawks" and "Tallow-heads." They are quite tame in winter and will feed within a few feet of wood choppers.

I also found the Oregon Robin building in the same locality about five feet up in a small hemlock, but they left the nest before completed.

I examined a nest of the Water Ouzel which had a swing door of moss, evidently made for the purpose of a door to conceal the opening.

One day while out "observing", a Chestnut-sided Chickadee looked inquisitively at me from a branch, then hopped onto my hat and busily examined it. I presume wondering "what a dry stump that was anyhow."

At another time a Rufous Humming-bird alighted about fifteen inches from my hand and looking around a few moments was soon away.

May 7, 1895 Saw the Red-breasted Sapsucker (*Sphyrapicus ruber*) feeding on the wooly aphid. This was an especially interesting note as the sapsuckers are not generally considered insect eaters, and I had never seen or heard of any bird before that would eat the wooly aphid.

Saw the Evening Grosbeak near Oregon City as late as May 23.

C. W. Swallow

MOUNT SAINT HELENS

Mt. St. Helens, an extinct or nearly extinct volcanic peak,* once alive with the terrible force of the volcano: Now covered with perpetual snow, is 9,550 feet high, was discovered by Broughton of Vancouver's party, Oct. 20 1792, and named in

honor of His Majesty's ambassador at Madrid. In 1846 known among Americans as Mt. Washington † also as Mt. John Adams, ‡ and named by the Indians "Lou-wala-clough," meaning Smoking Mountain. It lies to the north of Mt. Hood in a region almost as wild and free from the advances of civilization as when first discovered.

A steamboat ride down the placid Willamette and the broadening Columbia to Woodland on Lewis river is the first and easiest part of a trip to Mt. St. Helens, followed by a stage or horse-back ride, or walk up the valley of the turbulent Lewis river. Leaving the wagon road on the north fork of the Lewis river which it has followed for 35 miles from its confluence with the Columbia through a fertile region, we take the trail and single file clamber over a seemingly exaggerated hill, and descending the other side, emerge upon the shores of Trout lake, since renamed Lake Merrill and called by the Indians Qual-i-as, meaning Trout. A truly wonderful sheet of clear water it is, about two miles long by a mile at the widest point. It is hemmed in on all sides with the exception of a gap at the lower end, by a circle of high hills sloping abruptly down to the edge of the lake with their splendid forests of hemlock, spruce and cedar.

A plausible supposition is that in place of this body of water, there existed a very deep canyon and that during an eruption of Mt. St. Helens (10 miles distant) the flow of molten lava formed a dam across the mouth of the canyon, and the small mountain streams contributed to the formation of the lake, which they still continue to replenish. This theory is further strengthened, by the untold depth of its waters, the absence of a visible outlet and the presence of lava about the supposed dam. Excellent fishing may be had here, the trout are beautifully spotted and are marked under the gills with deep red gashes

from which they take their name of "cut throat trout"

"Notable among the items of interest about here are the famous wells of the Kalama. These were formed ages ago by a flow of molten lava from St. Helens settling around standing trees, which charring and rotting away, have left their natural forms impressed as a seal in the solid

very waters edge." (LOUIS B. AKIN)

From here the rise of the trail is so regular as to be hardly perceptible, though the scattering pines, stunted and gnarled, tell us plainly we are nearing an Alpine region. Not much further on and the oval top of the old peak looms up. The great snow fields on her long slopes glisten in the bright sun, causing exclamations of



MT. ST. HELENS AND SPIRIT LAKE.

rock. Some were leaning and some fallen when that occurred and men have passed down one tree, along another that had lain on the level and up a third to the surface again. A beautiful waterfall in the Kalama adds a bit of scenery to the list and this entire stream from there to its source is a constant succession of cascades, falls and picturesque reaches. It is a peculiar stream, in that it never rises or falls, and its banks are fringed with ferns and moss to the

wonder and delight from the observer.

Butte Camp near the timber line is reached in an hour. The ascent, which generally occupies from four to six hours, is commenced from this point. It is much easier accomplished than that of Mt. Hood and the panorama of scenery is fully as grand.

On a clear day Puget Sound may be seen far to the north, also Mt. Rainier, scarred and seamed by glacial action. Mt.

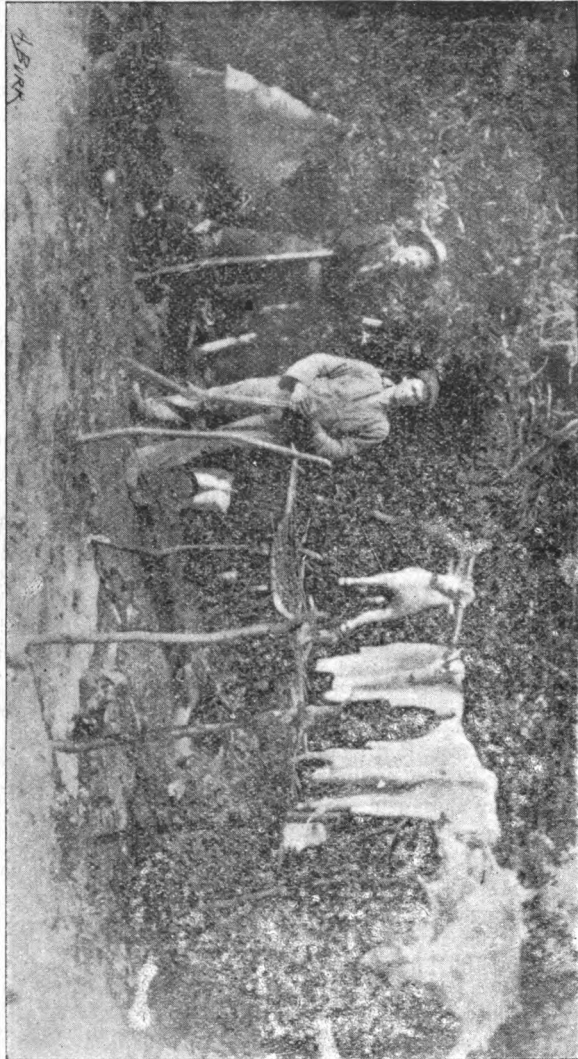
Baker is descried in a snowy range to the north-east. Adams is but a stones throw away, and our own adored Hood looms up, a triangle of glittering white, in the south-eastern sky. Portlands location is easily conjectured from the cloud of haze in the Willamette Valley. The long dark isolation, but few white men have ever visited it; while the Indians are loath to act as guides to the haunted regions. One of their legends is, Many moons ago the members of the tribe gathered at Spirit Lake for their annual hunt and "potlach." One day they pursued a



A BIT OF GLACIER,—MT. ST. HELENS.

line to the west is the Coast Range. Sad- band of elk along the neighboring divides. dle Mountain shows plainly, and lastly we The chase was long and hot. About make out the gap through which the dusk the frenzied elk, with the Indians at "Oregon" rolls to meet the sea. their heels came at last to the welcome

A trip to Spirit Lake on the north side lake, their sole place of refuge. In an un- of the mountain cannot fail to be of profit broken line they plunged into the icy to the hunter. Owing to its complete waters, but, strange to say, they immedi-



HUNTERS' CAMP, —Mt. St. Helens.

ately disappeared beneath the surface. In despair and fear Poor Lo made his camp on the shore. All night long, strange and weird sounds, accompanied with sighs and moans, arose from the bosom of the lake, while all the cliffs and mountain sides about re-echoed to the ominous sounds. Since which time Indians of any tribe rarely visit Spirit Lake, or its immediate vicinity, for "Here, indeed is the abode of 'spooks' who nightly hold high carnival on St. Helens glassy slopes and make life burdensome for Poor Lo."

On the lofty snow-clad spurs contiguous to Mt. St. Helens, is to be found the Rocky Mountain Sheep, (*Mazama montanus*). His jet black horns and long white fleece make him a specimen well fitted to grace hall or office of the sportsman. His greatest delight seems to be in scaling dizzy heights and jutting crags, leaping from point to point, or across yawning crevasses with unerring steps. On the high ranges there yet remain small bands of elk. Brown and black bears are plenty at huckle-berry time, beginning the last of August, while deer are almost always certain game about the buttes and pine ridges.

Located on the north side of Mt. St. Helens, about 70 miles from Portland, are the St. Helens mines. The ground has never been worked by thorough prospectors. While the quartz shows large bodies of high grade ore, the placer mines have been almost entirely neglected. Many claims are being developed, The St. Helens Reduction Company, have put in sampling works, and the Milwaukee Mining Company have a large force of men developing their claims and will soon erect large reduction works.

* 1831. Was in a state of eruption,—Thornton.

1843. In activity Nov. 13.—Fremont, page 193.

1852-4. An active Volcano—Three year's residence in W. T.—Swan, page 395.

† The Oregon Territory,—Nicolay, page 109

‡ Oregon and California,—Thornton, Vol. I page 256.

CORRESPONDENCE

A. B. Averill.

Dear Sir

Noting your article "The Denny Pheasant", please allow me to say: The food which he dearly loves is grass-hoppers, cutworms, crickets etc. and the chicks especially, are very fond of aphids, flea beetles etc. Turn a domestic hen with a brood of pheasant chicks into your cabbage lot and you will have no cabbage aphid, or flea-beetle. We have tried it.

We used to think they would prove a nuisance, when they first became numerous, but our further acquaintance has changed our views. They pay for all they eat, and more. It may be that they will crowd out some native birds, but if these latter are supplanted by a better, why should we mourn. They are fully as useful insect destroyers, as our quail, or native pheasants and they are hardier, and better calculated to take care of themselves from skunks, hawks, crows, trappers pot-hunters etc.

Our hens, in confinement, laid over 100 eggs each, last summer, and we now have a pheasant hen sitting. The first one we know of to sit in confinement. We are watching the experiment with interest.

We have now the third generation from the wild state, and the birds are notably gentler to us. When strangers come around they appear wild.

You say "this bird will hybridize with the domestic hen." Please permit me to doubt! Our experience does not point that way yet.

But he IS THE game bird PARENCELENCE,

and we are that much ahead of our eastern brothers. He is a beauty: a fighter: and is useful as well as ornamental.

F. S. MATTESON

Turner, Or.

May 23rd, 1895.

There are two authentic cases in Portland of half breeds, resulting from a cross of the Denny cock with the domestic hen. Two cases also are reported from the valley. Ed.

WRITTEN FOR THE OREGON NATURALIST:

LEGAL PROTECTION FOR BIRDS AND THEIR NESTS.

The Legislature of Florida has been severely criticised lately for passing a law absolutely prohibiting the robbing or destroying of birds nests and the killing of birds. The mania for collecting nests and eggs merely as curiosities has become so widespread and destructive of late that I am very glad to find that public opinion is becoming aroused on the subject.

Many an owner of a fine oological collection would be quite as well off with a cabinet filled with glass marbles. The students who can make a private collection really useful are few, very few indeed yet assuredly the aims and objects of these few should be respected, and an investigator ought not be treated as a criminal for unselfishly working for the advancement of science.

It is quite possible however to frame a law which would afford birds full protection against curio hunters without interfering with the scientific studies of real naturalists, as was by Otto Bullis in a paper published in the Proceedings of the Minnesota Horticultural Society for 1892.

Discussing a bird law then in force in that state Mr. Bullis said that it stated in effect that specimens of all species of native fauna might be collected for the natural history department of the State University, and for exchange with other universities, but that there was no law granting permits for the collection of specimens to any, or saying who might do the collecting.

From this it appeared that the many specimens in the University museum had been unlawfully collected, making it apparent that those most interested in framing the law had themselves violated it and so could not consistently expect others to respect it.

In some states, Mr. Bullis said, there is a law by which permits may be granted to suitable persons to collect specimens not to exceed a certain number, provided the person requesting such a permit furnish a proper reference and bond.

It is generally thought that persons sufficiently interested in Ornithology and Oology to take the trouble to obtain such a permit would use it judiciously and would do all in their power to uphold the law and prevent the useless destruction of birds.

The framers of a bill now before the Illinois Legislature, however, appear to believe that giving bond and furnishing references would not be sufficient guarantee of good intentions and they propose to charge twenty dollars for permits to collect. This, however well meant, is going to extremes and is equal to the complete prohibition of collecting. If permits were granted for a reasonable fee the new law, if passed, would be useful, effective, and entitled to respect instead of defeating its own ends.

The Illinois bill, as reported in a Chicago paper, is not altogether destitute of picturesque elements. For example it is forbidden to collect nests or eggs of the Bull-finch, Canary and Linnet. This part of the law will probably be strictly observed in that state, whether it is passed or not.

ANGUS GAINES
Vincennes, Indiana

Platinum has been discovered on the land of William Lewthwaite, on the north side of the Clackamas river, about three miles from Oregon City.

Remember that to contribute an unknown fact to the life history of a bird, is of more consequence than to add its eggs to your collection.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

A. B. AVERILL, - - - EDITOR.

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JUNE, 1895,

CIRCULATION 3000.

N. O. A. list of birds now numbers 245 species. March work on the Oregon Vesper Sparrow and Oregon Junco, will appear in July issue. The association work for July will be on the Bush-Tit and Parkman's Wren. It having been questioned, that the Pygmy Owl is a resident of Oregon, the members are requested

to send the first "Oregon taken" skin obtained to either the president or secretary. After examination it will be returned.

Continuation of article on Taxidermy was omitted this month for want of space. The publishers of the Naturalist are endeavoring to enlarge it without increasing the subscription price. But to do so must have more subscribers, all readers in favor of it can materially aid them by influencing at least one friend to subscribe, and in return will receive an increased number of pages of reading.

In July all premiums will positively be withdrawn. Take advantage of the offer now and subscribe. If you receive a copy and are not interested, or do not care to subscribe, please give it to some one who has an interest in Natural History.

Mr. Frederick A. Stuhr, who is familiar with the European gold finch, reports four or five pair nesting in the trees on Seventh street in this city. It is presumed they are descendants of the lot imported a few years ago.

THE following birds I identified and found breeding on Mt. Rainier, Wash. in the summer of 1890.

Turkey Vulture, Western Red-tailed Hawk, Marsh Hawk, American Long-eared Owl, Pygmy Owl, Dusky Grouse, Rock Ptarmigan, Band-tailed Pigeon, Western Meadow Lark, Varied Thrush, American Dipper, American Magpie and Oregon Junco, several species of water birds and warblers were observed, but not sufficiently determined to add to above list.

W. B. MALLEIS,
Cedar Mills
Oregon.

FIDDLER'S BLUFF.



On the southern bank of the Snohomish river about three miles above Snohomish City, where the Seattle, Lake Shore & Eastern railway first strikes the river bottom on its way from Seattle, is located a

most remarkable physical formation, known as Fiddler's bluff. In appearance Fiddler's bluff does not differ materially from many of the other hills that separate so many of the fertile valleys of Western Washington. It does not reach a height of more than two hundred feet above the level of the Snohomish river, and is but a spur from a great range of hills or moraines thrown up by volcanic action and molded into shape by great moving glaciers that ground the surface of the country during the great ice age. This range of hills contains the leading coal veins of King county, and gradually increase in height until they join the main Cascade range. What is commonly known as Fiddler's bluff is a steep narrow ridge about a mile in length and covering not more than two hundred acres. A great bed of fossils is exposed along the front of the bluff by the undermining of the Snohomish river and extends for a quarter of a mile along the cut of the Seattle, Lake Shore & Eastern railroad and is known to cover an area of at least 25 or 30 acres. The fossiliferous strata vary from 10 to 20 feet in thickness, although the chalk formation is much thicker.

On Fiddler's bluff, immediately below the soil of the present period, is the formation of glacial gravel which, of course, contains no fossils. From there down as far as it has been penetrated are beds of impure chalk and limestone with shale, lignite, slate, sandstone, etc., between them. However, the fossiliferous strata are broken up in many places by the presence of iron in oxidized form which has decomposed the fossil remains. As most of the marine fossils and chalk casts are of species of clams,

mussels, sea-eggs and the like, indications are that when they were deposited it must have been a comparatively level sea beach which was covered and uncovered constantly by the ebbing and flowing of the tide. The present great bends and dips of the strata tell a story of considerable volcanic activity in that region since the formation of the strata. Of the specimens found, those of clams, are by far the most numerous and best preserved. A specimen of a full grown clam is about an inch and a half in diameter and nearly round in form.

They are a distinct species from any found on Puget Sound. However a species resembling them exists all along the Atlantic coast of the United States. The mussels are different from any now on this coast, but will be found on the beaches around the Mediterranean. Among the marine formations are little balls of chalk, and if one of them is broken, one is apt to find outlined in the center, the form of a shrimp or perhaps some water insect. A little higher in the strata are numerous remains of insects and of vegetation.

Among the insects, the remains of great ants, beetles, caterpillars and various worms seem to be the most numerous. Leaves resembling those of the poplar have been found, and twigs and cones from sequoia trees, more like the big trees of California than Washington cedars, are not rare. The coarse grains of some of the specimens of petrified wood as well as the great size of some of the insects seems to indicate that at least a sub-tropical climate existed in this country during the time of the formation of the Fiddler's bluff strata.

The United States geological survey has not yet extended its researches to this region, but Professor J. S. Diller of that department, upon the request of a local geological student, visited the bluff and collected some specimens, and declared that those beds contained the most remarkable variety of fossils that he had yet seen, and thought that they would enable him by comparison to determine the age of the Puget Sound basin.

In the opinion of the local geologists the Fiddler's bluff formation belongs to the middle Ter-

tiary period, known also as the Yorktown and Miocene period—the same age as the numerous Tertiary formations in the coast range of Oregon and California, which are often from 1000 to 5000 feet in thickness, as well as those in the region of the upper Missouri where in the old lake deposits have been found examples of three toed horses, horned tapir-like animals, rhinoceros, camel, llama, deer, musk-ox, beaver hyena, wolf, panther, and tiger.

Seattle Telegraph.

INDIAN IDOL



BONE IDOL

This relic of Oregon's former inhabitants, was ploughed up in a field, formerly the site of an ancient Indian burial place on Columbia slough, opposite the head of Government island in the Columbia river. It is made from a large bone; perhaps pre-historic: for several anatomists to whom it has been shown were unable to name the bone.

The Idol in height is eleven inches. Sixteen inches around bust. Fourteen inches around

head, and seven inches around neck. Large oval eye sockets have been worked out to a depth of one and one-half inches. The cavity of mouth is enlarged inside and is one and one-quarter inches deep. Bone relics being rarely found in Oregon makes this of especial interest. A bone knife sixteen and one-half inches long by two and one-half inches wide made from a rib was also found at the same time and place.

THE SING GAMBLE OF 1895

The "sing gamble" is the great contest between two tribes of the Puget Sound Indians for the trophies of the year and for such blankets, wearing apparel, vehicles and horses as can be spared to be used for stakes, and sometimes more than should be spared. This year the "pot" at the beginning of the gamble consisted of twelve Winchester rifles of the latest pattern; eleven sound horses, seven buggies, one hundred blankets, forty-three shawls, an uncounted pile of mats, clothing for men and women, some badly worn and some in good condition, but mostly worn, and \$49 in money.

At the beginning of the "sing gamble" sixty-seven old men and women, many of them wrinkled, many of them gray-headed, gathered at Jake's big barn, which had been cleared of all hay, grain and other stores. On the ground which serves as a floor were laid two mats woven from straw and weeds and flags. Each of these mats was three feet wide and six feet long. Between the mats was the space of about three feet. Around these squatted the serious gamblers of the ancient races, many of them wearing the brilliant-colored blankets, others arrayed in combination costumes picked up at the reservation or in the town.

As a necessary preparation to the game the drummers, one for each tribe, took position in front of their drum, made of horse-hide drawn over one end of a stout frame two feet square and six inches deep. Beating heavily on these drums with sticks the sound is similar to that from a bass-drum, save that it is more

sonorous and is readily heard a distance of half a mile. As the drum beats the Indians begin their chants or wails, the men shouting "Hi-ah, hi-ah, hi-ah," and the women moaning an accompaniment between the shouts of their braves, sounding something like this: "Mm uh, mm-uh, mm-uh."

The players gather around the mats, seven being permitted on each side. One mat is for the Puyallups, the other for the Black Rivers. The dealer for each side sits at the head of his mat, fingering deftly ten wooden chips about two inches in diameter and a quarter of an inch thick. Nine of these are of the same color, but the tenth is different in color, though similar in shape and dimensions. The shuffler handles the chips rapidly, like an experienced *faro*-dealer playing to a big board. He transfers them from one hand to another, hides them under a pile of shavings made from the cedar bark growing close to the sap, resembling much the product called *excelsior*. He divides the chips into two piles of five each, and conceals each pile under the shavings. Mysteriously he waves his hands forward and backward, crosswise and over and over, making passes like the manipulations of a three-card monte dealer. The drum keeps up its constant beat, the Indians at the mats and those looking on with interest clap their hands and stamp and chant in time to the drum.

Now is the time for the Indian assigned to guess to point to one of the two piles. The game is entirely one of chance, there being no possible means for the closest observer to detect in which pile the dealer places the odd-colored chip. It is the custom of the game, however, for the guess-man to ponder for some time before deciding which pile to select. This adds interest and excitement to the speculation. Finally he decides and with his finger points to one of the piles. The dealer rolls the chips across the mat to the further end. If the guess is right the side for which the guesser is acting scores one point. If the guess is wrong the tribe to which the dealer belongs scores a point, and the other side takes the innings; that is to say, the deal.

When the Puyallups have the deal the Puyallup orchestra performs upon the Puyallup drum. When the Black River has the deal the Black River band operates on the Black River drum. A guesser holds his place until he has missed three times, when another takes his place. A dealer handles the chips until the other side has guessed out the pile containing the odd chip three times; then, as a penalty for his bad luck or want of dexterity, another one of the tribe is called to take his place.

The game is sixty points and the score is kept by sixty sticks, each about five inches long and three-quarters of an inch in diameter. They are laid upon a board about five feet long. As one side wins a point the stick is moved to one end of the board. When it loses a point the stick goes back to the other end. When all the sixty sticks have been moved up to one end of the board the game is over and one tribe is rich and the other is insolvent. *S. F. Examiner.*

A CLATSOP INDIAN LEGEND.

WHY NIGHT HAWKS DO NOT BUILD NESTS.

Almost every collector who has had the pleasure of finding a Night Hawk's nest in the open field has wondered why they do not build more of a nest. Almost every one has two or three sticks and a piece of moss in it.

A long time ago, said an old Clatsop Indian to me, birds could talk, and the Night Hawk went to the Crow to find out how to build a nest. The Crow kindly consented to show him as he was then building a nest for himself. He first got a couple of sticks and laid them out for a foundation, the Night Hawk watching said: "Why I know how to do that." The Crow said nothing but got a piece of moss and laying it on the sticks said "place some moss in the nest to make it soft." The Night Hawk said "I also know that. The Crow said, "if you knew why did you come to me" and would show him no more. Ever since then the Night Hawk has contented himself with two or three sticks and a piece of moss.

GUY STRYKER.

WRITTEN FOR THE OREGON NATURALIST:

WINTER BIRD LIFE IN SOUTHERN
MASSACHUSETTS

C. C. PURDUM

(continued from page 62)

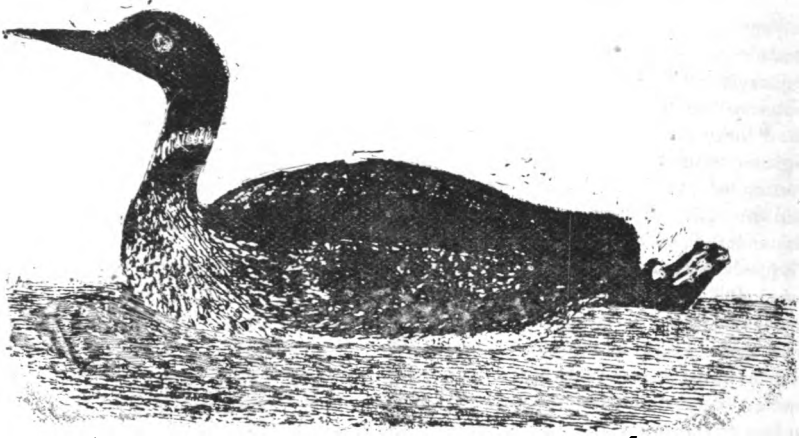
(6) *Podylimbus podiceps* (852)

RED BILLED GREBE

This interesting variety of the grebe family,

ing results. Length 13.00 inches Extent 25.00 Wing 4.90 Bill .75. During the winter months the birds range along the coast of the whole of temperate North America and have been reported even as far south as the southern boundary of Brazil.

These birds have according to my notes (which however upon this particular species are rather deficient) been observed in relatively large numbers, *every third year*, in this locality, but, the past winter which by the way was "one of their years" only a few stragglers were



GREAT NORTHERN DIVER.

is fairly abundant here during the winter months, although I must confess I have not observed them as often or in such large numbers as some observers have reported. It is not nearly as abundant as the two former varieties and for some reason my notes upon it are entirely inadequate for a full description. However, as it visits us during the winter the bill is of a dull bluish color, with the crown and back of the head brown. The under parts are pure white, shading into a crimson grayish (if such can be imagined) color on the lower belly.

The average length of four specimens taken at random from my collection give the follow-

observed, as indeed was the case with many other fairly common migrants.

The food supply in this locality is gathered from the rock weed which is so abundant here, and consists of minute mollusks found upon the weed.

(7.) *Urinator imber* (840)

GREAT NORTHERN DIVER. LOON.

One of our most common, if not *the* most common of our winter birds. This familiar bird arrives here about the first week in November although I have often observed them here in the middle of summer. This is probably due however to the fact that they were wounded and

unable to migrate. However the earliest that I have observed them flying was November 2nd 1892. This may seem to many observers as rather late, but I have never seen them earlier. The winter plumage of this bird is too well known to need description, as are indeed its habits for who, has not passed through several ineffectual attempts to capture a "Loon"? and although "us naturalists" are proverbially poor shots, who has not used some very expressive language as after having a "dead bead" on him you see a few ripples upon the water and an empty shell in your gun, for your trouble.

However probably more interesting from a scientific point of view are the anatomical peculiarities of the class of which these birds are the type viz. *Pygopodes* or Diving birds. This class includes only three families namely the Grebes, Loons, and Auks. All of these swim and dive with perfect ease; many being capable of traversing great distances under water; their progress being effected by the wings and feet together. To accomplish this the legs are placed so far posteriorly, that for the bird to stand in a horizontal position is impossible. When upon "terra firma" the divers all are compelled by this arrangement to maintain an upright position, and in doing so the whole of the tarsus is placed upon the ground and together with the tail afford some additional support to the awkward and constrained attitude.

The Loons and the Auks fly well and vigorously but the Grebes are noted when flying low for their peculiar flight. The tarsus is compressed in all the species of each family, but notably in the Loons. The feet present some difference, being entirely palmate in Loons and Auks but lobate in the Grebes.

Among the Osteological peculiarities, should be mentioned the prominent apophysis of the Loon's and Grebes' tibiae. This is not nearly as prominent in the Auks but at the elbow of this latter group are developed two fair sized sesamoids (bones developed in the tendon of a muscle.) The characters of the rest of the Loons and Grebes resemble those already described, so that next month we will consider the three toed palmate birds, the Auks.

(to be continued)

THE SHARP-TAILED GROUSE.

This bird once so abundant on the plains of Eastern Oregon, Washington and "Big bend of the Columbia," is slowly and surely repeating the history of the pinnated grouse of the Western states. Where fifteen years ago they could be seen in winter in flocks of fifty and more; flocks of a dozen are now uncommon.

Then their great enemy was the coyote, who robbed their nest and caught their young. Now it is man with his traps or gun.

The sharp tailed grouse in Oregon is resident East of the Cascade mountains; throughout the year, in winter during pleasant weather, gleaning from the stubble-field and straw-stack, retiring at dusk to roost in the timber that skirts the gullies and creeks, and to which they confine themselves during stormy periods, feeding on young buds of the pine, or if the weather is very cold or blustering, and the snow falling heavily, they roost upon the ground allowing themselves to be covered by the falling snow. It not infrequently happens that the snow turning sleety and the mercury falling rapidly, they are imprisoned and sometimes die before the crust softens sufficiently for them to release themselves.

In the spring when the snow disappears and the nights become warmer, they repair to the treeless prairie, there to remain, roosting at night on the ground, until late in the fall of the year, when they congregate in flocks until another spring, unless decimated by the traps of the pot-hunter.

In March they mate and their courtship is very interesting to one fortunate enough to witness it. A place on the south slope of some slight hill [for these prairies are rolling prairies] is selected, with the females in the center, the males strut around them in a circle, each bird evidently striving to show off his best points; frequently several days are occupied before all are paired.

The places are so well selected and free from cover that the grouse cannot be approached, and must be studied with the aid of a field glass. The same places are selected year after year, and the rings, which are quite

large can be seen from a long distance for several years after the grouse have apparently deserted the locality, or been so reduced in numbers that they are not observed to use them; by the grass growing ranker, denser and greener; so much so that the rings are distinctly outlined against the surrounding hill.

Formerly these rings were often seen but are now to a great extent ploughed up by the incoming settler.

The nesting site is soon selected, no preference being shown as to high or low land, so that it is dry and receives the Sun's rays during the whole day, for I have never found a nest on the north slope of a hill.

The nest is merely a natural depression in the ground, scratched into shape by the grouse, and slightly lined with grass and a few feathers plucked from the breast. By the middle of April 12 to 15 eggs are laid, measuring about 1.31 x 162. Their color is light brown or dark cream more or less finely spotted with a darker brown. Some clutches are entirely free from markings, while other clutches have one or two eggs with spots, and yet other sets have only two or three plain eggs the remainder having spots more or less pronounced. In May the chicks are hatched and remain with the parent until full grown.

The young chicks follow the mother-bird and get their food with her assistance from the second day after hatching.

When a brood too busy feeding to take note of their surroundings are suddenly surprised the mother-bird utters one or two sharp peculiar notes, runs a few feet, suddenly takes wing and is soon out of sight behind the brow of some neighboring hill. It now requires the most diligent search to locate a single chick, for they have scattered in all directions and hid under convenient tufts of bunch grass. If the observer will patiently wait a short time, the hen may be observed at a distance, slowly approaching, occasionally clucking, not venturing near, but at a distance of several rods will begin clucking and calling her young. If approached closely again it will be observed that the young grouse have found her first, and

this will invariably be found to be the case when the chicks can hardly be more than three or four days old. I am inclined to the belief from observations extending over a period of several years, that the male grouse sometimes assists in incubation and remains with his family throughout the summer.

I have a record of a set of nine slightly incubated eggs found so late as June 4th. The bird was flushed from the nest.

The sharp-tailed grouse during incubation does not flush readily, allowing close approach before taking wing. They lay only one clutch except the first be destroyed. They have not been domesticated. The young when hatched by domestic fowl, entirely ignore their foster mother from the moment they can walk, and at the first opportunity stray away never to return.

A. B. AVERILL.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(2) At what place in Oregon was the recent find of Zeolites made, and by whom? R. N. J.

(3) While fishing on the Willamette river on a bright pleasant day this spring, I observed our common bat industriously catching insects, and would like to inquire if it is not of rare occurrence for bats to seek their food during the day. This happened so close to me that I could distinctly see the small flies that he was catching.

C. B. H. Oswego, Ore.



THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, JULY, 1895.

No. 7.

WRITTEN FOR THE OREGON NATURALIST:

“SOME OREGON MAMMALS”

In the heart of the Cascade and Coast Range mountains dwell two members of our Oregon fauna so closely allied as to be best described in one article. They are both “muchly named carnivores the first being commonly called the Fisher but it is also called Pennant, Pekan, Black Fox and Black Cat. The second is the Pine Martin also known as the American Sable.

THE FISHER

Mustela Pennanti

Why this animal should have the name of Fisher is hard to tell. It certainly does not fish nor, as far as the writer’s knowledge goes, does it ever take willingly to the water.

In size the Fisher is about as large as the land otter. The color of the fur is very dark brown, almost black while in shape it greatly resembles the pine martin.

In Oregon its commercial value is between six and ten dollars. The Fisher is almost as arboreal in its habits as the squirrel and frequents the dry sections of the woods although its fondness for frogs often leads it into the neighborhood of swamps. Besides frogs its food consists chiefly of mice, squirrels, birds and porcupine and it is said to even prey upon its own first cousin the pine martin.

The nest, or den is made in a hollow standing tree as high up as possible and here the female brings forth from two to

four young each spring.

The Fisher excels the Fox in cunning and it is one of the hardest animals to trap. It seems to delight in pestering the trapper and it will not only destroy or mutilate other animals caught but will uncover and spring any trap set for itself. In fact there is absolutely no method of setting a trap for the Fisher, but the writer has found the following rather elaborate way to work fairly well. Bait a No. 3 steel trap (on the pan) with a bird and set it against the root of a tree or fallen log, conceal it but partially so the trap can be seen; then around and about ten inches distant from it set three or more unbaited traps which must be entirely and very carefully concealed.

Fisher are found in favorable localities throughout the mountains of Oregon and until quite recently were very plentiful along the Columbia River.

THE PINE MARTIN

Mustela Americana

The Pine Martin or American Sable is of a dark brown color. A full grown specimen will measure from two to two and a half feet in length of which one foot will comprise the tail. The pelage is long and extremely soft and full consisting of three distinct kinds of fur; the first of which is soft, short and wool like. The second is soft but kinky and much longer than the first while the third and outermost is comprised of long glossy hairs.

The tail is far more bushy than any other member of same genus and not taper-

ing at the end. The Pine Martin lacks audacity and seeks the seclusion of our mountains for its home, the nest being sometimes in a tree or in the ground amongst the rocks left by a land-slide. It has not a special predilection for pine woods as its name would imply. The Coniferæ simply happen in its geographical range. It is generally found near to water.

In sections where Martin are continuously hunted they are said to entirely disappear every few years and at such times not one can be taken in the traps. The cause of their disappearance or what becomes of them is a mystery but the fact is too well established to be disputed and the same is true of the Ermine-Weasel and the only conclusion to be arrived at is that it is a provision of Nature to prevent their total extermination.

Martin may be easily taken with a steel trap baited with a bird or squirrel.

THE MINK *Lutreola vison*

In Oregon, Mink are so commonly seen and so often make their presence felt in the barnyard that a description would seem unnecessary yet not many years ago a white Ferret that had gotten loose, was shot by a resident of Portland and taken to a well known taxidermist to be mounted who pronounced it a white Mink and a great rarity and in due time it appeared in a store window labeled as such.

Now this man had seen many Mink in his time probably many hundreds and had mounted a goodly number yet he did not know the unmistakable sign of a Mink the half webbed foot. Therefore a short description of this well known mammal may be of service to some. A full grown Mink will measure about eighteen inches and the tail is nearly as long as the head and body. In shape it greatly resembles the weasels and by many naturalists it is classed in the same genus (*Putorius*) but

its aquatic habits and half webbed feet have led to its being placed in a sub-genus by itself and named *Lutreola* (little otter.) Mink are strictly aquatic although they often leave the stream or slough in which they live to make a raid on a neighboring farmer's hen roost. Their natural food is reptiles, fish, frogs, fresh water bivalves and cray fish.

The nest is in a hole in the bank of a stream or sometimes in a hollow log. The young, generally five or six are born in April and for the first five weeks are entirely naked and blind. The Mink is, without doubt, the most vicious of any of the American mammalia and will readily attack a man in defence of its young. When caught in a trap their fury is something horrible to witness.

The color of the fur ranges from a yellowish brown to almost black and this again has led some naturalist into dividing them into two species namely *L. vison* and *L. nigrescens* but there is no doubt that the difference in pelage is climatic yet the writer believes that when the Biological Explorations now being carried on by the U. S. Department of Agriculture are completed it will be found that there are more than one species of American Mink.

Mink are trapped in dead falls, figure fours and twitch-ups but the best method is to use a number O. steel trap. A number 1. will do but 1½ is too strong and breaks the bones of the leg when the animal will know it off and escape.

The place to set a Mink trap is on the bank of a stream close to the water and the way to set it is as follows. Cut a number of sticks about three feet long and drive them into the ground in a circle and about a half inch apart. Leave an opening in one side just large enough to admit the open jaws of your trap. Place a freshly killed bird or fish in the center of the pen thus built and peg it down. Set your trap in the opening and cover it over with loose

earth or leaves.

Throw water over the pen, bait, trap and also your foot prints if possible and if all this is properly done you can expect to catch your Mink the second night after.

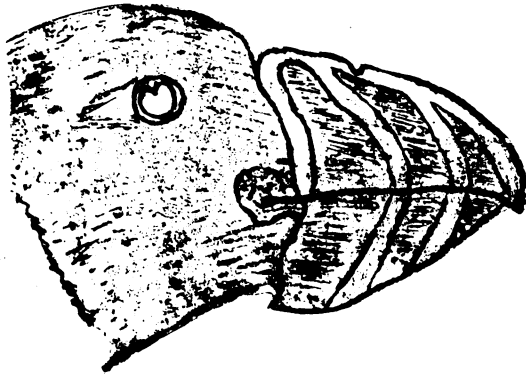
BERNARD J. BRETHERTON.

WRITTEN FOR THE OREGON NATURALIST:

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS

C. C. PURDUM

birds which although agreeing in certain points, differ in many others. Under this head then we must first consider the Puffins or Parrot Auks (*Fratercula*) from *frater*, (Lat. a brother,) but where the features for the conveying of such an expression can be found, I am at a loss to state, unless it be that they hold some such family ties with the Plumbus of our own race. Certainly the chief part of a Puffin is its bill; and surely no one will question the likeness. However, as to the bill, which is a whole study in itself. A distinguished writer, has likened it to a mask worn by revellers at a carnival "be-



Bill of adult Puffin, (*F. artica*.) life size.

(continued from page 81)

In considering the interesting family of the Auks (*Alcidae*) we are confronted by a history of more than ordinary interest. Not especially from the fact that one of our extinct giants, the bird 'who lost the use of his wings and perished, from the face of the earth in consequence' viz. "His Grace The Great Auk," and for which catastrophe, has had a special genus set apart from all others for his exclusive benefit by that august body the A. O. U., is included in the term, but from the fact, that under *Alcidae* we have a variety of

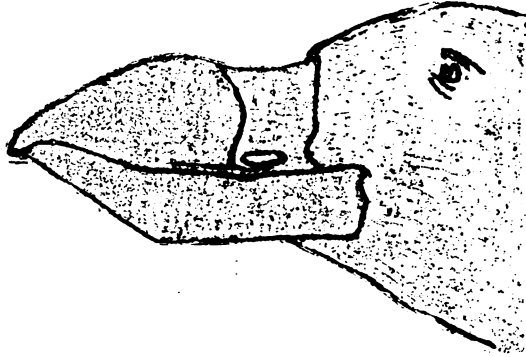
ing as it were put on for the nuptial festivities and afterwards removed." The length of this "nuptial mask" varies but little in length in any of the varieties, but showing considerable variations in shape. (see cuts)

Thus the Common Puffin and any one of the Auks proper show the greatest degree of variation. But to return, in all the species will be found about as long as head, compressed, with a somewhat triangular profile at base. The ends of both mandibles are depressed the upper fitting nicely over the lower, and both being of a

dense horny consistency. The sides of both mandibles are both marked with several oblique, curved grooves with the convexity forward. During the winter the basal portion of the upper mandible is contracted and membranous. In summer this is replaced by a dense horny layer which extends downward and backward to the mouth. The seasonal change in plumage is very slight, but as before stated that of the bill is very marked. We are favored with visits of only one species of *Fratercula*, and by them only in the coldest winters viz:

along the coast the many harbors, bays, etc. would have afforded them ample refuge before reaching this locality. From these and other notes I think we may safely conclude, that although we do not observe many directly near the coast yet, the birds do often get this far south and even farther, but owing to the mild weather, remain at sea.

As the birds are observed in winter they present the following peculiarities. The colored ring which has been so clear about the eyes, has disappeared. The light red of the angle of mouth has also gone and



Bill of young Tufted Puffin, (*L. cirrhata*) life size.

(13) *Fratercula arctica* (743)

SEA PARROT OR COMMON PUFFIN!

Occasionally seen during hard winters or during severe storms when they are often driven far to the Southward and may reach the coast of the Middle States.

In the winter of 81-82 they were seen very abundantly after several severe storms and several were found dead upon the beaches. They disappeared almost entirely during the intervals between the storms and as the largest number were seen after a severe "north easter" the birds must have been driven directly in from the ocean for had they been driven

the membrane is shrunken and pale, the bill has lost the basal rim; the strip of horny membrane at the base of each mandible and also the sub-nasal strips are wanting, and the prenasal strips are gone. This great change in the bill takes place during August and September, during which time the birds are unable to fly and often perish in great numbers in being caught at sea in storms. They are extremely social birds breeding together by thousands upon islands in the Polar Seas, where they burrow into the earth for about three feet and deposit upon a slight nest of grass one dirty white egg which may or may not be marked with spots, dots, blotches of purplish, and measuring about 2.45 x 1.60.

(to be continued.)

PRE-HISTORIC MAN IN THE DELA WARE VALLEY.

The beautiful and picturesque valley of the Delaware was a favorite hunting ground of pre-historic man up to the discovery of America by Columbus. It is exceedingly rich in Indian Relics, and traces of primitive man. The village sites are generally situated in close proximity to springs of pure water and headwaters of the numerous tributaries of the Delaware. The abundance of the weapons and the domestic implements of the aborigines suggests that each camp or tribe had skilled implement makers; that the various stone articles were the product of such who were exclusively devoted to the business of making them. If we compare a suit of arrow-heads, axes, or knives from a given locality, with a similar series of implements from some remote section we will find peculiarities that characterize the two series. Studying the more numerous relics we observe frequent exhibitions of the implement maker's peculiar tastes, and, that widely different shapes of implements were employed for similar purposes.

Most of the relics from this locality are surface finds, few mounds being known, although occasionally caches of unfinished implements, arrow-heads, and scrapers have been unearthed by Archæologists.

The material employed by aboriginal man in the Delaware valley in making his implements is usually jasper, chert, slate, quartz, quartzite and argillite (metamorphosed slate with conchoidal fracture) and was obtained by splitting water-worn pebbles, or from a series of quarries developed at outcroppings of minerals adapted to his use.

Arrow-points are the most numerous of all relics, they vary greatly in size and shapes, many rare and curious specimens have been found by collectors. Where a suitable mineral is found *in situ* they used

this mineral almost exclusively and thus arrow-heads of such mineral become a feature of such a locality.

Knives averaging from three to five inches in length are common the largest one known to have been found in this county (Bucks) measures nine and one fourth inches in length by two inches in width, it is beautifully flaked from yellow jasper. Celts and skinning knives are numerous and localities known to have been sites of Indian villages are usually most abounding in this class of relics.

HAMMERS.

These are quite abundant on fields used by the aborigines as a workshop. They are oval shaped and some of them quite slender with a groove entirely around them. The pitted hammer is quite numerous. The hammers are usually made of potsdam, sandstone or water worn pebbles.

GROOVED STONE AXES.

As a rule these have a general similiarity although as far as we know no two have been found alike. They have the appearance of having been made of cobble-stones which abound in the bed of the Delaware river. In weight they average from five to ten pounds, although a few have been found weighing only several ounces.

BANNER STONES.

The variety of forms in this class of relics is very great. The stones bear evidence to the great patience possessed by those who manufactured them. As a class, these stones are found scattered over the whole valley and mineralogically are principally made of fine grained sandstone, micaceous schist, stalactite, hornstone etc. They average from two to ten inches in length, are generally finely polished and usually have a hole drilled partly and sometimes quite through the specimen for suspensory purposes. Occasionally specimens are found that denote a rude attempt at animal sculpture.

We will attempt to describe but one

specimen of carving which we think is the finest one yet found in the county. In size and shape it resembles a large bean, on one side the face and bust of a human being is carved with a background resembling a sarcophagus. The facial expression is so faithfully executed that one can hardly imagine a savage capable of such workmanship with the rude tools he possessed. The material of this specimen is horn.

Pottery is found in abundance in certain localities but usually in broken fragments, they are however large enough to show profuse ornamentation. Clay mixed with pounded mica or mussel shells was generally used.

Pestles and mortars are found in all parts and the latter are often hollowed out of a large rock which is still in its original position.

One class of relics generally known as anvils (although this term is doubtful) are exceedingly plentiful, some very peculiar specimens having been found. A more detailed account of these may be given in the near future.

In conclusion, in the present sketch we have endeavored to give a brief outline of the evidences of pre-historic man and possibly his successors in the valley of the Delaware and if we have succeeded in creating an interest in the study of Archæology among the readers of the "NATURALIST" our object will be attained.

H. B. FRANKENFIELD
Dublin
Pa.

H. Braak went up to the falls at Oregon City, which is pretty good grounds to angle on, expecting to get a modest mess for breakfast. He had no more than cast in his hook when he succeeded in landing a salmon weighing 58 pounds.
Northwest Sportsman.

FOR OREGON NATURALISTS

Much has been written recently in our daily papers about the necessity of having a public museum where our Naturalists would be able to collect and preserve the specimens of Natural History of our State. Scarcely a day passes but some tourist or collector from abroad, takes away valuable fossil or other interesting material.

Permit me to suggest a way that this continual foraging may be stopped. The way would be for our Naturalists and all others interested to organize a society for the purpose of collecting and retaining every thing that has reference to the study of the sciences.

After such an organization is once formed, some of our liberal minded men would willingly aid us in securing a suitable room in one of our public buildings for the display.

I am confident also that when once our people know that such a society exists, they will be pleased to contribute specimens that they may have collected, as a nucleus to something greater. Such a museum would be appreciated by all; for the Botanist could display his collections, the Mineralogist would have an opportunity to exhibit his minerals, the Taxidermist could show his handiwork, while the Ornithologist, the Oologist, the Geologist, the Zoologist, etc, all would come in for their share of attention. Our Teachers and Professors could bring their pupils and give them practical object lessons. It might also become a place where our young people would enjoy some of their leisure time and become interested in some branch of natural science when they could discuss the various subjects and receive much practical knowledge that could not be obtained elsewhere. Prospectors, mine owners and lumbermen, would donate their best specimens where they could be properly classified, labeled and placed on exhibition.

If some of our influential Naturalists would take the initiative step, call a meeting of all interested, such an organization might be effected

A. W. MILLER. Portland Oregon.

WRITTEN FOR THE OREGON NATURALIST:

HOW THEY BATHE.

BY G. W. HARVEY

Some years ago I was interested in a goat farm, located in the Santa Barbara Mts. of Calif. There was a great variety of birds there and one of the most common was the ruby-throated humming bird (*Trochilus colubris*.) It was there that I first observed its habit of bathing, which I never have seen reported. Frequently while resting by a stream, in the shade, have I seen the little fellows perform their ablution. One would naturally suppose that so small a bird would choose a very quiet shallow pool for a bath, but instead they always choose a deep and rushing current. I have never seen them bathe except in the region of a waterfall, and this is how they do it.

Flying near a water fall of small dimensions they alight on a bough and go through a preparatory dressing for the bath. Many feathers over the main body are pricked up and separated from the rest, in order as I suppose to make the bath more effectual. As soon as this pricking process is finished they give themselves a shake, fluff their feathers all up and fly for the water, which they strike where it seeths and foams in a most turbulent manner as it leaves the pool just under the "fall." They literally fly through this boiling, tumbling, foam-capped scud submerged to the neck and come out on the other side fairly well drenched and light upon a limb which they seemed to have picked upon before their plunge.

After a short rest which is spent in looking over and arranging their plumage they return as they went, seeming to delight in a bout with the boisterous waters. This second plunge ends the bath and after they have carefully arranged all their feathers, oiling such as need it they are off to the flowers and insects.

WRITTEN FOR THE OREGON NATURALIST:

AN OOLOGICAL COLLECTION

BY W. S. J.

Certainly no one can deny that a large and well kept collection of birds' eggs is beautiful to look upon; and its owner will show you the treasures with pride, and tell you how much labor and expense the collection, he so highly prizes, has cost him, and perhaps he will tell you that the collection now contains over three hundred sets of eggs.

Let us see what this means; three hundred set of eggs. The sets will easily average four eggs each. Of course some will contain but two or three eggs, but the majority of sets contain four eggs or more, and many have eight or ten and a few even more than that number.

For the sake of computation we will assume that at the end of ten years the young which would have been hatched from these eggs, together with their offspring had all lived. Many of course, would have died during the ten years from disease or accident, and perhaps some from old age, but at the same time we have not taken into consideration the many birds that raise two or more broods each season, and their offspring.

When a set of four eggs are taken it represents simply what it is, four birds eggs. If however these four were left to hatch, the fall of the second year this set would represent twelve birds; the two original pairs, or four birds, and their four young each, making twelve altogether.

The third year this set of four eggs represents thirty six birds, and if you will take the trouble to figure it out you will find that at the end of five years the single set represents 324 birds; at the end of eight years 8748 birds; and at the end of ten years the enormous number of 78732 birds.

This shows what a single set of four eggs represents at the end of ten years. In the same length of time a collection of three hundred sets

of birds' eggs represents 23619600 birds.

If collectors would pay more attention to the nesting habits of the birds and see how large a collection of notes they can accumulate, they would be of more benefit to the science of oology.

A collection of 10 sets of Robins eggs, in themselves, would be of little value to science, but the facts that the collector COULD have RECORDED, and recorded without taking an egg, such as the number of eggs in each set, the period of incubation and many other facts which could easily be taken, would be of great value to science.

It is to be sincerely hoped that collectors in the future will pay more attention to their note books, and less to their cabinets.

OREGON ARROW POINTS

On the next page is given outlines showing shape and size of a few of the many varieties of Oregon arrow points.

A correct knowledge of the beauty of material and excellent workmanship of these arrow points, cannot be conveyed in this manner, but it is hoped some idea of the beauty of them may be formed.

Fig. 5. is flaked from brown jasper.

Fig. 45. is transparent with red-brown spots.

Fig. 4. Obsidian.

Fig. 41. Variegated, semi-opal.

Fig. 3. Transparent semi-opal.

Fig. 37. Semi-opal, $\frac{1}{2}$ opaque $\frac{1}{2}$ translucent.

Fig. 2. White quartz.

Fig. 42. Porcelain white, chalcedony.

Fig. 1. White quartz.

Fig. 43. Grayish-white semi-opal with brown spots

Fig. 38. Color. Light gray and translucent on

Fig. 9. Transparent white quartz. (edge.)

Fig. 12. Grayish green color.

Fig. 8. Transparent obsidian with black spots.

Fig. 13. Black obsidian.

Fig. 7. Translucent yellowish chalcedony.

Fig. 39. Red and white agate.

Fig. 6. Gray jasper.

Fig. 10. Color. Very light ecru.

Fig. 14. Dark brown jasper.

Fig. 16. Brownish-red semi-opal.

Fig. 15. Light brown translucent semi-opal.

Fig. 44. Opalized wood.

Fig. 11. Translucent white quartz.

Fig. 24. Obsidian.

Fig. 22. Lustrous black. Opaque.

Fig. 19. Banded jasper.

Fig. 18. Gray and white, mottled.

Fig. 17. Variegated semi-opal, partly transparent partly opaque.

Fig. 32. Transparent chalcedony.

Fig. 26. Grayish-black semi-opal, point lighter.

Fig. 27. Yellow-brown semi-opal, veined black

Fig. 23. Obsidian. (white.)

Fig. 21. Banded obsidian.

Fig. 20. White quartz.

Fig. 40. (in 17) Moss agate, brown moss in transparent quartz.

Fig. 29. Dark green-black. opaque.

Fig. 28. Red jasper.

Fig. 31. Yellow-brown semi opal.

Fig. 36. Translucent, red and white.

Fig. 30. Semi opal.

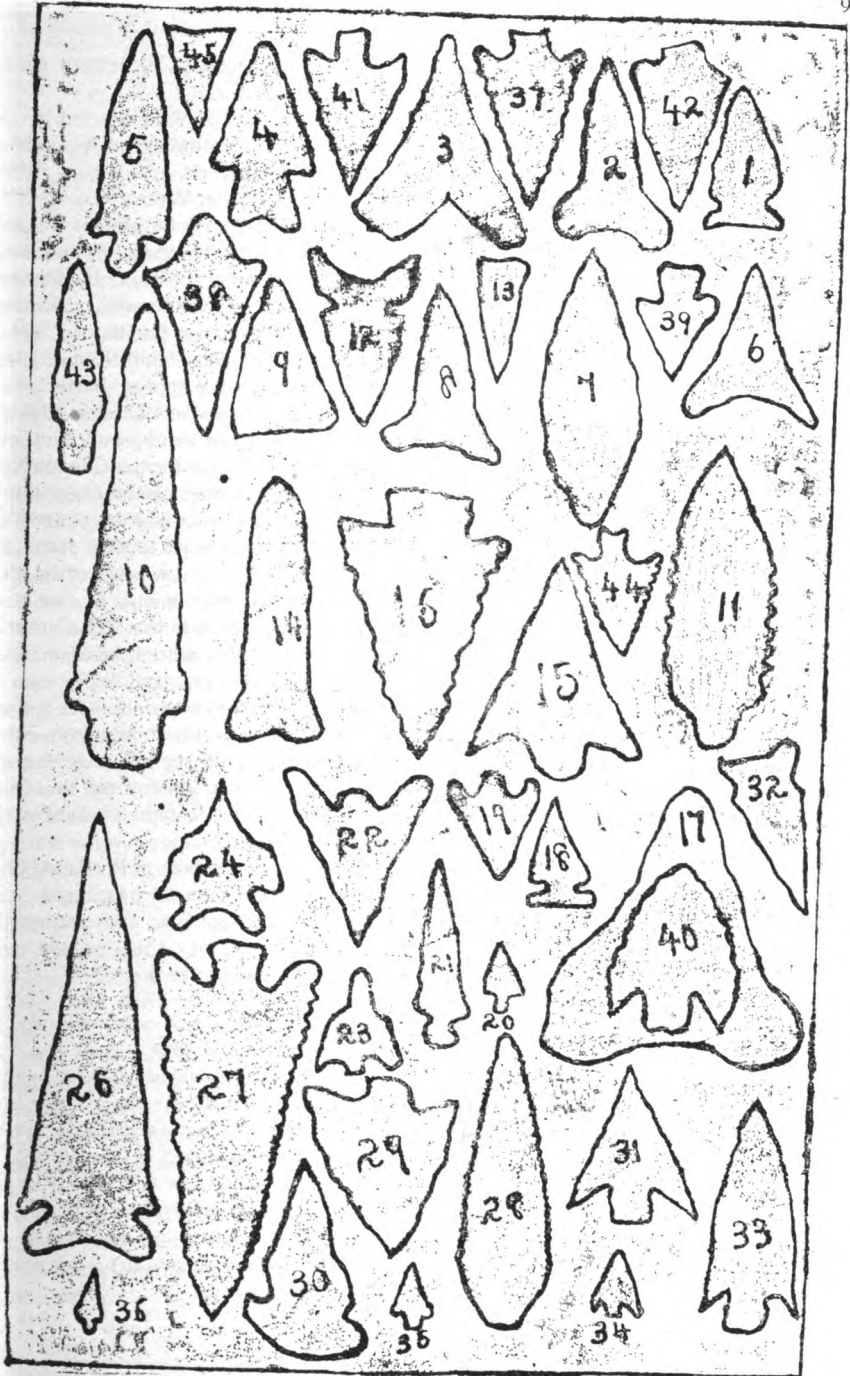
Fig. 35. Black obsidian.

Fig. 34. White chalcedony.

Fig. 33. Semi-opal, half white half brown.

AN 83-POUND CHINOOK SALMON.—Just what is the weight of the largest salmon caught in the Columbia is uncertain, as so many people who have to do with fish are given to being uncertain in their statements, but the weight of testimony is in favour of about 80 pounds, as the outside limit of the Chinook. This has been a season of unusually large fish, and many weighing from 60 to 70 pounds have been taken; but the very largest heard of is reported by Mr. J. M. Harrington, of Pillar Rock, who wrote that a salmon weighing 83 pounds had been brought in by one of their boats, adding that it was the largest caught this year, and also the largest any one at the cannery had ever seen.

Oregonian.



THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

A. B. AVERILL, EDITOR.

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JULY, 1895,

CIRCULATION 3000.

All premiums are withdrawn this month. The Oregon Naturalist want a working solicitor in every city and town.

In payment of subscription, unused postage stamps are as acceptable as gold or silver.

The publishers of this paper in their endeavor to enlarge it, take this method of thanking the many new subscribers for their material assistance, as well as those who have renewed. Most of the renewals

have been accompanied by letters of approval of the Naturalist.

The two species of birds selected by the North-western Ornithological Association for their August work, are Vigors Wren and Western Winter Wren.

We have articles on "Chinook Jargon," "Humming Birds," "German Song Birds in Oregon," "Among the Stone Implements," "A Collecting Trip for Fossils," "Entom-Geography," "What are Bacillariæ," "What I Found on Memaloose and "List of Birds of Oregon" that will appear shortly.

Twenty-five copies of "Davies Taxidermy" are to be given away, and any one who will get up a club for the Oregon Naturalist can secure one. In another column particulars are given, and in connection with this offer, we want to say, from the stand point of a practical taxidermist, that "Davies Taxidermy" is one of the best, containing as it does in the text all that is to be found in other works, besides much that is new and of practical importance to all that would master the art. As a work of art on this subject it stands with out a rival, containing ninety full page engravings so thoroughly illustrating the work that it can be easily comprehended by the youngest tyro.

At Woodlawn a suburb of Portland, Oregon. The Bob-white are heard and seen in considerable numbers, considering the fact that previous to this season none have been known to be there.

Eggs with embryo well advanced may be safely blown by first drilling a good size hole in the shell, which should be reinforced by gluing over the hole, a circular piece of thin cloth having a hole in the centre and slit in several places on the outer edge, so that it will lie smoother. It should now be laid away for several days, when the embryo can, with care, be easily removed. Lastly rinse with a weak solution of carbolic acid (1 to 40) and invert on blotting paper to dry.

TAXIDERMY

MISCELLANEOUS.

To prepare sea urchins, cut the skin between the jaws and the shell and remove contents. Clean and rinse shell. Replace jaws and place in alcohol for 24 hours which will keep the spines from dropping off.

Star fish can be laid on a thin board, with the arms pinned in the position it is intended they should have when dry. Then place in a strong brine made of salt and water for 24 hours. A bath of alcohol is preferable to salt and water but it is more expensive.

Sharks and skates eggs should have a small incision made where it will show the least. Clean and fill with sea sand and when dry the sand can be shaken out.

Conch and helmet shells are prepared by hooking a wire into the animal and hanging them up so that the shell will have no support. In three or four days the animal will straighten out and the shell drop off. If they are to be polished the epidermis is eaten off by placing the shells in a strong lye made of potash or chloride of lime dissolved in water. Rinse and dip in diluted muriatic acid, the strength to be regulated according to the work you wish to do. Remove from acid, rinse in water to remove all traces of acid and brush vigorously with a good brush which brings out the polish. A little experience will enable one to determine how long to leave shell in contact with the acid.

Large land shells should have hot water poured onto them. In a short time the animal can be grasped with forceps and removed entire. Some shells are provided with a hard horny mouth piece (*Operculum*) that serves for a door to close the mouth of shell. This should always be saved and kept with the shell.

Do not neglect to affix data to all specimens.

Many of the small crustacea may be preserved entire in the Wickersheimer solution which is made as follows:

Take of

Alum.....	500 grains
Salt.....	125 grains
Salt petre.....	60 grains
Potash (<i>Potassic hydrate</i>).....	300 grains
White Arsenic (<i>Arsenious anhydride</i>)	100 grains

Dissolve in one quart of boiling water. When cold filter through paper and add four quarts of glycerine (s. g. 1.25) and one quart of alcohol (95 %).

This is valuable for the preservation of many specimens entire. The tendency of the glycerine being to keep the joints from becoming too rigid. Fleishy objects can be kept in this solution indefinitely, and if desired can be taken out after maceration and dried.

Frogs are skinned through the mouth. First cut the vertebrae at base of skull and turn skin literally inside out through the mouth. Leave back bone attached to skin. Remove all flesh. Clean skull carefully and anoint with arsenical soap. Turn skin back and fill hind legs and part of body with tissue paper made pulpy with thin fish glue. Force a light wire, pointed at one end and with a small hook bent at the other end, through the mouth and down each hind leg. Pull the wire through until hooked end catches in paper filling, and then complete filling body and fore legs, which should be wired in the same manner as the hind legs. Stuff head and throat. Select a pair of eyes the right color and set in place while the skin is fresh. One stitch will confine the mouth. Bend and shape the frog into the position you wish him to be. From the plastic nature of the filling the body can be molded to any shape desired and after drying the specimen is light and the wires will be found to be firmly fixed. Mount on stand and allow specimen plenty of time in which to dry. Very nice work can be done by this method.

Small snakes can be skinned through the mouth in the same manner as frogs, care being taken not to scratch your hands on the fangs. Poison skin and skull, turn and fill in same manner as frog. Push a wire several inches in

to filling, from the outside at each point of attachment to the stand. Insert eyes. Place snake in position. Attach to stand and allow plenty of time to dry.

Large snakes are slit lengthwise of the belly, skinned, cleaned and poisoned. Make a body as near in shape to nature as possible by winding tow on a wire. Let the body wire have two or three short wires fastened at right angles to it for the purpose of fastening to the stand. Cover body with potters clay, place in skin and neatly sew opening. Insert eyes and place in position, after the specimen is thoroughly dry the seam can be concealed by papier mache, directions for making will be given. In my next paper receipts for the compounds and fluids used in embalming birds and the method will be taken up.

THE OREGON JUNCO.

(*Junco hyemalis oregonus*)

Being the result of part of the work for March of the Northwestern Ornithological Association
(Prepared by the president)

Reports on March work have been sent in by Ellis F. Hadley, Yamhill Co., Fred H. Andrus, Douglass Co., and S. Rey Stryker, Clackamas Co., Oregon, to whom the association is under obligations for the matter contained in this article.

The Oregon Junco is an abundant species the entire year, throughout Western Oregon. Popularly known as "snowbirds," they are the principal game bird of the small boy during the winter when snow is on the ground, as they readily become victims of the "dead fall" trap. Foreign born laborers often secure them in large numbers to be made into "pot pies."

In winter they are seen only in flocks of 25 to 50 or more, birds, frequenting barn-yards and door-yards, feeding on the seeds of grass and weeds, and at such times are quite tame. In spring they pair and betake themselves to their various nesting places. Mr. Hadley says

of them "They begin singing about February 16th, and pair about March 10th." In Yamhill Co. they are found during the breeding season in much larger numbers in the foot hills and mountains than in the valleys.

The nesting season extends over a period of three or four months. Mr. Stryker reports finding a nest containing fresh eggs on April 24th., while the latest date reported, in which fresh eggs have been found is July 12th. Eggs have been found in all stages of incubation on all dates between these two extremes, so it would be very difficult to ascertain the best time for the oologist to hunt for fresh eggs. Of eight nests reported, containing fresh eggs, two were found in the latter part of April, two in first part of May, one in latter part of May, one in first part of June and two in first part of July.

"The favorite nesting places" writes Mr. Stryker, "are railroad cuts or small mounds that have weeds overhanging them, the nest being placed in small holes and built flush with the surface of the ground." According to Mr. Hadley, nests are built in hollows of the ground under small bushes and bunches of grass and under wood piles.

As regards the material of the nest, Mr. Andrus writes "The nest is variously composed of dead leaves, grass, weedstalks and rootlets, lined with fine grass and hair; usually the lining is in two layers. In lining the nest the bird fills its mouth full of fine grass before taking it to the nest, and at such times is not at all shy. I think the female performs this labor alone."

Below is given descriptions of three sets of eggs and two nests, which will give a full idea of the nesting habits of this species.

Set 1, contains four eggs. They have a white ground color, but when compared with pure white eggs, such as doves' or flickers', it is seen they have a decided bluish tinge. One egg is thickly sprinkled over its entire surface, but a little more thickly at the larger end with fine markings of lilac and light brown. On another egg the markings are distributed in the same manner, only less thickly and markings are larger. The other two eggs are marked less on

the smaller end, and have larger reddish brown spots on larger end, forming an indistinct wreath on one. Sizes .74 x .57, .71 x .55, .71 x .55 and .68 x .56.

Set 2 contains four eggs. The ground color is more bluish than in set 1. The eggs in this set are marked about the same as those of set 1 only the markings are finer and fewer in number. Sizes .80 x .60, .80 x .60, .80 x .59 and .79 x .59.

The nest: out of which this set was taken is quite a compact structure measuring 3.50 inches in diameter by 2.25 inches in height outside, and 2.00 inches by 1.65 inches inside. The nest was made entirely out of fine grass stems, lined with hair, — white and red, — but mostly white. The nest was placed amongst some bushes, in a hollow of the ground on the side of a bank.

Set 3 contains five eggs. The ground color about the same as set 1. Like the other two sets it contains one egg which is finely and sparsely sprinkled over its entire surface. The others are marked very sparingly and thinly on smaller end, but thickly on large end with red, a wreath being formed on two of them and a few short zigzag lines of black can be seen on the larger end of each egg. Sizes .71 x .58, .71 x .57, .71 x .56, .70 x .57 and .70 x .56.

The nest belonging to this set is very similar to the nest described above. It is made of fine soft grass stems, lined with white hair mixed with a little red. It would be worth investigating to find out if this species has a preference for white hair for nest lining.

WRITTEN FOR THE OREGON NATURALIST:

FLOATING SEA MOSSES OR FERNS.

The first thing in floating Sea-Moss or ferns is to get one's materials ready, press, blotters, newspapers and cards or bristol-board for the moss. The press can be made with very little trouble by taking two smooth boards—12 inches by 7 inches is a good size— with two pieces one by one and a half inches nailed across each end and projecting about an inch and a half over

the sides of each board, for strong elastic bands to be used on, to keep the ferns in place in the press. Next have plenty of coarse paper such as is used by carpet dealers, of a thin quality, cut in lengths to fit the press, with about an equal quantity of news-paper cut in same manner. On a blotter to each layer of ferns make better work, although one can press very successfully with a little care without the blotters. Cards about 6 inches by 4 inches for small ferns while for the large specimens I find heavy writing paper to give the best satisfaction.

Of the dry moss take a small quantity; say half the size of a hen's egg, rinse well but carefully in clear water to remove the sand and foreign particles that are found in all dry moss; then fill a large vessel—a white or light colored one brings out the fine tracery of the moss best— about two thirds full of water and replace the moss in it. Take a long hat pin, separate one of the mosses, slide one of the cards under it and bring the card with moss near the surface of the water; then use the pin to draw the different parts of the moss out in a natural and graceful position, taking care as each part is well spread out to lift the card a little out of the water until the fern is completed. Use the pin not only as a pointer to separate each delicate branch but as a roller to bring out in a perfect manner those parts that are somewhat matted together. Lay the cards with mosses on a window sill or table near open window to dry off a little before putting in the press. On one board of the press lay several pieces of newspaper, then one of the blotters, next the card with fern on it. Cover this fern with another blotter and this again with pieces of paper and so on until the press is full. In the size press like given I have pressed six dozen cards well, but 48 cards will do better. One can have three cards in each layer. For the large sized specimens have handy several pieces of card board to place between the layers, before the paper with moss floated on it is laid in the press with the smaller ferns. Let them remain in the press from 24 to 36 hours, then remove the papers and blotters carefully and the ferns that can easily be lifted, remove on to fresh paper,

—leaves from an old account book or any thing of that sort— with a layer of paper between each fern and place all under a weight for two or three days. Then they are ready to use.

Those not dry, place fresh paper between and let remain until they can be treated in the same manner. Some of the mosses have much more glue in them than others, but, after a little practice one can soon tell them, and such should be floated on the cards on which they are to remain. It will not injure the bristol board any to speak of if one uses clean blotters both under and over the moss when placed in the press, but one must use the blotting paper, not the coarse paper.

The mosses that do not remove easily, can be put into water on card, and refloat.

ALG.E.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(2) At what place in Oregon was the recent find of Zeolites made, and by whom? R. N. J.

(4) Is the Cow Blackbird the same as the Cowbird? If not, what is the scientific name of each? What are the scientific names of the Bridge Swallow and of the Bobolink?

R. A. C. Independence, Iowa.

(5) What is "Pentamerus oblongus?"

W. S. H. Des Moines, Iowa.

(6) I wish to know if the "Indian Bone Idol" can be bought. A. C. W. Elk Falls Kans. (Ans. to 6.) It can.

(7) Is it natural for some species of Hawk to nest on the ground? If so. What kind?

E. L. Clarence Centre, N. Y.

(8) From whence came the Bobwhite that are seen and heard in Woodlaw Ore.?

Oregon Naturalist

Dear Sir

In my communication published in the *Oreg. Nat.* for June, I mentioned a China Pheasant hen that we had, sitting. It may be of some interest to your readers for me to say that she set well, and hatched all her eggs. Seven. She was in a compartment of our park, 12 feet square. She did nicely with her chicks for four days, and on the fifth, seeing her without chicks I investigated and found them all in a hole in one corner of the park, dead. Rat.

I set a trap, and the next morning I was revenged. We shut our Pheas. chicks up every night now; tight.

Noting your statement that the Sharp-tailed Grouse is disappearing from Eastern Oregon; why not replace him with the Ring-neck Mongolian Pheasant? He is every way as desirable a game bird: (more so I think,) is gay of plumage is hardy; prolific; and too sharp to be "decimated by the pot hunter."

The grouse is crowded out by settlement. The China Pheasant does not appear to be; and the country of Eastern Ore. ought to just about suit him.

F. S. MATTESON

Turner, Ore. June 16th, 1895.

Diamonds in California Gravel.

WASHINGTON, June 28. — Dr. David T. Day, chief of the mining statistics division of the geological survey, has completed his annual report, from which the following, relating to the Pacific coast is taken:

"W. P. Carpenter, of Placerville, Cal., who has from time to time reported the finding of diamonds in auriferous gravel, under the usual conditions of their occurrence on the Pacific coast, has lately obtained two crystals, one weighing over seven grains troy, and the other six, of rounded form and rough surface, each nearly one-fourth of an inch in diameter, but faintly tinted, the larger with a greenish shade and the smaller with a pale yellow. As many as 40 or 50 small diamonds have been taken from the gravel at this place from time to time in the past, but, since the stamp mills have been employed, little is found but the crushed fragments encountered in "panning up."



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No. 8.

WILLAMETTE SOUND.

Some years ago my brother and I were spending the Christmas holidays at the country home of a friend. The farm is one of the finest that nestle among the foot-hills which close up the Willamette Valley just south of Eugene. After several days spent in hunting and tramping we felt almost recovered from the hard knocks, mentally speaking, that we had received from our professors during the preceding term; enough so, indeed, to admit of the contemplation of the ascent of Mt. Pisgah, not the one of Biblical fame, but a long sugar-loaf mountain, stretched across the head of the Willamette Valley, with the seeming intent of barring all further progress into the heart of the Calapooyias.

The appointed morning, New Year's day, dawned raw and chilly, nature being blanketed or rather shrouded, in the white mist of a fog of such density as almost to warrant the sailor-saying, "you can cut it with a knife." However we had lived in Oregon long enough to predict that, before many hours, the clouds would be rolled away in splendor from the beauty of the hills. So forth we started. After several hours hard climbing we reached the summit. But the fog was just as dense as ever. Luckily we found a pitch tree, to which we applied the match, and thus kept our tempers cool and ourselves warm until the clouds should clear away.

About one o'clock the rays of the sun began to have an appreciable effect. Soon great billows of mist began to roll and surge around. Then the whole mass settled to a dead level, a perfect calm. There lay before us a scene of indescribable beauty.

The view was very much like that of Commencement Bay, as seen from the heights of Tacoma. Far away to the right the waters, —and so it seemed,—lapped the foot-hills of the Cascades, and to the left the bases of the Coast Mountains were laved by the sunlit waves; while here and there in the foreground rose wooded islands, the forest-clad buttes of the Willamette Valley.

Irresistibly the thought came to our minds. Can it not be that this is but a phantom of a pre-historic picture; that these were once true islands; that yonder was a navigable strait; that in the dim ages of the past some denizen of the forest or noble Red man, from this identical spot, looked down upon a similar scene, when these mountains were a shore-line, bathed in the rippling waters of Willamette Sound? It remains to be seen.

All along the Oregon and Washington coast are seen indisputable evidences of a previous depression of the land below its present level. Fossil clam beds are found from fifty to one hundred and fifty feet above high water mark. In Prof. Condon's cabinet is the fossilized head of a fur seal which was cut out of the solid rock many feet above the waters of the Pacific. The question to be decided then is whether or not this depression was enough to cause the

waters of the Pacific Ocean to pour in and fill up the low place between the mountain ranges. Following the discussion which was held in our class in Geology, the lowest possible depth of this sound is easily determined.

Professor Condon of the State University, who has devoted his life to Oregon Geology after careful research pointed out the facts and arrived at the conclusions which are embodied in this article.

At Shoalwater Bay, south of Gray's Harbor an old shore-line is gradually being undermined by the waves. This bank, is composed of sediment, in which there are clam shells, as natural as those of their descendants that are thriving in the water a hundred feet below.

The material is very fine, showing that the water must have been quite deep when it was deposited. There is no evidence of violence either in the elevation or depression of the place. The delicate spruce cones are found looking no more weather-beaten than if they were last years crop. This depression of at least one hundred feet, thus indisputably evidenced, would have covered this place to the depth of many feet.

Now let us take an excursion to the mountains east of here, with the purpose of ascertaining how much higher the shore-line was raised. Following the course of the Columbia river we arrive at The Dalles. Here, from the formation of the country it seems as if there might have been a lake before the river had cut its channel to the present depth. If so this is the place we are looking for. Tracing up one of the many streams, that enter the river near this point, we reach a ravine, in the bottom of which, a deep gulch has been scooped out by the recent freshets, thus exposing the desired spot.

Here are seen marine deposits similar to, and clam-shells of the same species as those of Shoalwater Bay. So the evidence is conclusive that the sea extended to this height. The position of these deposits is several hundred feet above The Dalles. Add the fall of the

river to the sea level and the depth of the Willamette Sound has been measured.

This counterpart of Puget Sound was a beautiful sheet of water, extending as far south as Eugene, with a long arm reaching out and covering the Nehalem Valley. The sites of Portland and Salem would have been buried deep below its engulfing waters, while our buttes of today are but the islands of yesterday.

Whether the bark of the Red man ever peacefully skimmed its surface or was driven on by savage energy to be sunk in some naval encounter, history as deciphered from the rocks does not reveal. Whether the Willamette Sound was and was not, before the advent of man we know not; suffice it to say, that as with the Lord a day is as a thousand years and a thousand years as a day, so with his servant the Geologist, time is not measured by years but by aeons, the immeasurable periods of time used as synonym of day by the historian of Genesis.

ARTHUR P. MCKINLAY

Portland Ore.

WRITTEN FOR THE OREGON NATURALIST:

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS

C. C. PURDUM.

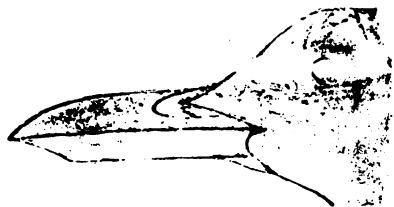
(continued from page 86)

(27) *Cephus grylle* (760pt)

BLACK GUILLEMOT; SEA PIGEON.

Fairly abundant during very severe winters when it is always found in large numbers for a short while; the numbers varying with the thermometer as it were. Occurrences doubtless following the same conditions as governed the visits of the Auks viz. Height, direction, force of wind and severity of weather: as the birds visit in about the middle of winter the moult is generally complete and as they remain only a short time at the most, the follow-

ing description applies to the only plumage that we observe them in. The bill is much shorter than the head but about equals the tarsus in length. It is short, slightly compressed and perfectly straight.



Bill of Black Guillemot, natural size.

The nasal fossæ is nearly covered by the feathers above the nostrils, and the upper mandible is smooth and not notched or grooved at the tip as in *frat recula*. The wings and tail are both black with the ordinary "white mirror" of the latter almost, if not quite faultless. The neck and head and entire under parts pure glossy white, while the back and part of the neck and head is streaked and much variegated with black and white.

Variations in this plumage are often met with of course, but the above is found to be true in the majority of cases. While with us the birds are very tame often being killed by boatmen with an oar. I have never observed one flying, the birds never taking flight upon the approach of a boat. As before stated, the birds only visit us during the severest weather in the winter and are never seen except far off the coast during mild weather. They are rather smaller than the next variety averaging about 13.00 inches in length; 21.50 inches in extent; wing, 6.00; tail, 2.85; tarsus, 2.00.

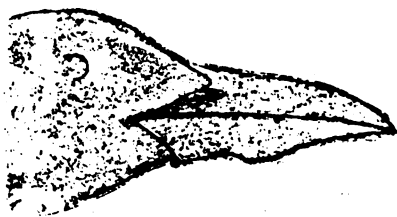
Although abundant during their visits they are far surpassed in numbers at all times by,

(30) *Uria troile* (763)

MURRE; FOOLISH DUCK.

This interesting, and to the eggers of Alaska, very valuable bird often visits us in large numbers and although at times, far more abundant than at others, the severity of the weather appears to have little effect in increasing or diminishing their numbers. The greatest number ever observed here was during the winter of 1890 which was a rather mild season as compared to the general character of our winters.

The bill here differs to some extent from the last, being generally much more decurved and compressed. It generally exceeds in length, that of the tarsus and is only slightly shorter than the head. The culmen presents a uniform and regular curve and the nasal fossæ is fully feathered; not grooved or furrowed.



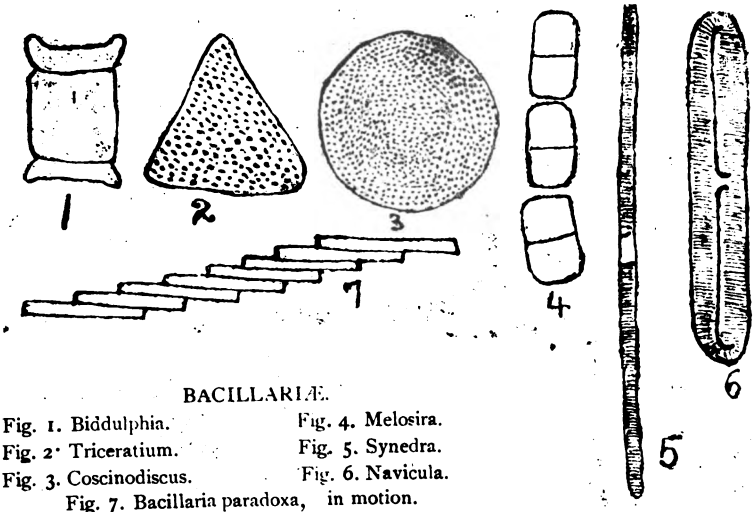
Bill of Murre, reduced one half.

This is without doubt the least concerned at the proximity of man, of any that visits us. Rowing along when the birds are abundant about the first to the fifteenth of January they may be easily captured making scarcely no effort to escape, a mere lazy flap of their wings and they settle back, perfectly at ease and seemingly, totally oblivious of your presence. Even when secured and placed in the boat they seldom attempt to escape, and never by flying.

Several years ago a friend and I captured several and placing them upon the thwarts of the boat watched their movements. After staring blankly at us for some time, during which we frequently motioned as if to strike them, one of them gravely climbed over the gunwale of the boat and "splashed" into the water by the side. He was soon followed by the rest but after once gaining the water, none of them swam more than three yards away

and not once again did they appear to recognize us and in no case did one attempt to fly from the boat. This habit of constantly ignoring the presence of man has gained for them the appropriate name of "Foolish Duck," but so complete is their confidence that they are scarcely ever disturbed, and possibly they show good sense after all.

(to be continued.)



BACILLARIÆ.

Fig. 1. *Biddulphia*.

Fig. 2. *Triceratium*.

Fig. 3. *Coscinodiscus*.

Fig. 7. *Bacillaria paradoxa*, in motion.

Fig. 4. *Melosira*.

Fig. 5. *Synedra*.

Fig. 6. *Navicula*.

WRITTEN FOR THE NATURALIST:

WHAT ARE BACILLARIÆ?

BY PROF. ARTHUR M. EDWARDS, M. D.

Answer to this question may interest the lover of natural history and may be of some importance to the worldly minded who learns that there is beauty and dollar in them.

The Bacillariæ are the Diatomacæ of the microscopist. They are usually ranked as vegetables and form the "infusorial animalcules" of the older naturalists. They occur

almost everywhere. In the fossil condition they are the tripoli of the shoys. Vast mountains, as the Coast Range in California are made up of them. In the "electro silicon" and other fossil deposits they occur. They make up a large amount of rock in New Jersey and south to Florida on the Atlantic coast. In Spain they form a large tract of country. In Peru, New Zealand, Japan and Denmark, they form acres on acres of a whitish rock which always has clay in it. At Essex and Boston, Mass. New Haven, Conn. New York and at Newark, New Jersey, they form the blue clay of the marshes and meadows. To see them we must have a microscope with an objective of $\frac{1}{4}$ of an

inch and a B eye-piece magnifying together about 400 times linear. Then he can see by dipping some of the scum from the marshes, many beautiful forms. They look like boats and they move about pretty vigorously, although they are usually considered plants, but not fixed plants. They represent what are usually termed motile algae.

Prof. Haeckel a great German authority on natural history places them by themselves, between the plants and animals, in the Protista.

Every microscopist knows what a Diatom; which is a term they go by, is, and *Pleurosigma angulata*, or commonly *angulata* alone, is the object that is used to test objectives and tell if they are good; or when they are viewed by means of the microscope and living they appear as skeletons of transparent silica, having within coloring matter which is a fawn color, but when acted upon by nitric acid the fawn color disappears and the silica is left. This is what is known as the Diatom. It is most beautiful in form and is marked very symmetrically.

They are boat shaped when they are known as *Navicula*, rod shaped when they are known as *Synedra*, like pill boxes joined end to end when they are known as *Melosira*, circular with beautiful markings arranged in dots when they are known as *Coscinodiscus* and so on with various forms, Three sided as *Triceratium* and like wool sacks as *Biddulphia*. There is one form that was one of the first discovered and the motion of which is a marvel to microscopists. This is known as *Bacillaria paradoxa* and a paradox it certainly seems to be. It consists of a number of rod like forms united side by side, and when it moves it does so by pushing or sliding one over the other until they are stretched out in the form of a long slender rod. It does so very quickly. But as soon as it has done so it immediately returns to the form it was at first and then pushes out in the opposite direction. Repeating this mode of motion over and over.

The Bacillariae, form as I have said vast mountains and plains in some quarters of the globe. They are very common everywhere. Living in the sea as the brown coating on sea plants. In the streams as brown coating on submerged plants. In clay as the fossil shells or *Coriciae* as they are called.

They were until lately supposed to be confined to the sea or to the fresh water exclusively and species were distinguished as marine or fresh water. But lately marine forms have been seen in fresh water and fresh water forms in the ocean. So it would seem that although water inhabitants truly, they may be found in lakes, ponds, marshes, rivers and the ocean.

To those who have not seen them as yet a vast amount of beauty can be shown and it is no wonder that microscopists go almost wild when looking at the symmetrical forms of the Bacillariae.

THE BATHING OF HUMMING BIRDS.

In an article in the July number of the Oregon Naturalist entitled "How They Bathe," Mr. G. W. Harvey describes the method adopted by the Humming-birds in performing their ablutions. Mr. Harvey's observations were made in the vicinity of Santa Barbara, Calif., however, I fear that he is mistaken in the species of Hummer that he saw there; the Ruby-throat is an eastern species and I do not think that it has been observed in California. The Anna Humming-bird is quite frequently miscalled the Ruby-throat, and I believe that it was this species that Mr. Harvey observed bathing in the spray of a mountain current.

I resided in the vicinity of Santa Barbara for nearly two years, and while there I made a study of the Hummers that frequent that beautiful region. A habit that I, and I suppose many others, have noticed in the Hummers, is their bathing in the spray

of the lawn sprinklers. In front of the house where I resided was a lawn of considerable dimensions upon which a sprinkler was usually kept running. This spray of cold water was a delight to all the Hummers in that vicinity. They would gather about it, sometimes three or four together, and dart to and fro in the spray, accompanying their movements with a creaking sound that constitutes their song, and seemingly in the very height of joy. After moving in this manner a few times one would dart off to a twig where it would light and preen its plumage, or else dash after a companion and both would scurry away out of sight only to return again in a few minutes to renew their sport. The Allen, Alexander,* Rufous, Costa, and Anna Humming-birds were observed to bath in this manner at the spray of the lawn sprinkler.

H. C. LILLIE,
Visalia, Calif.

ROGUE RIVER RELICS.

Those who delight in the search for hidden treasures left by the aborigines of the Pacific Coast will find a fine field in Jackson County, Southern Oregon. A few years ago, while on a hunting trip, I stopped over at the ranch of Mr. Jackson, about 10 miles east of Central Point. In passing over the plowed fields I saw traces of former Indian occupation, there being flint and chert chips in abundance lying about, showing conclusively that the manufacture of flint and stone implements had been carried on there to a considerable extent. This induced me to put in a spare hour in search of relics to add to my cabinet. My search was amply rewarded. My first find was a piece of sandstone about 7 inches long, $1\frac{1}{2} \times 1$ in. square, slightly tapering at the ends, with a narrow groove running lengthwise across one side. As the depth of the

groove was about the dimensions to admit an arrow shaft, it was probably used for truing and smoothing in their manufacture, the roughness and sandy character of the stone acting as sandpaper or emery on the wood (Fig. 1). A very



Fig. 1. Sandstone Tool, reduced $\frac{7}{8}$.

small mortar (Fig. 2) was also one of my



Fig. 2. Stone Mortar, actual size.

finds. It was originally a water-worn pebble, and is about $1\frac{1}{2}$ in. high and 2 in. across, dug out to a depth of about 1 in. It was probably used for mixing pigments of medicinal herbs. My third find of interest was a pipe (Fig. 3), of brown stone,

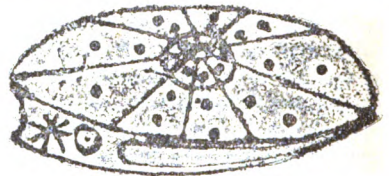


Fig. 3. Showing decoration on one side.

THE PHOEBE.

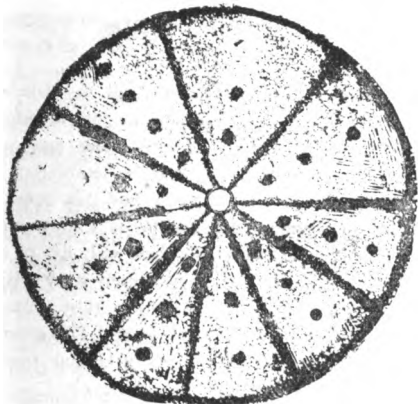


Fig. 3 Outline showing decoration on reverse side; actual size.

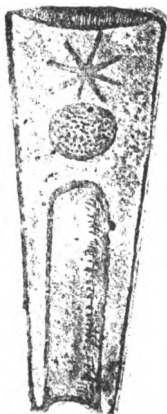


Fig. 3 Outline showing thickness.

perforated through the center with a small hole, probably for suspending from a belt when not in use. It is rudely decorated with lines and dots, and has a groove running around the edge. Besides these, I found numerous arrow and spear heads and the top section of a skull. My limited time before proceeding to the mountains prevented further search, but my short quest was highly gratifying.

ED A. SCHLOTH.

The following remarks are taken from my notes and those of Fritz Raymond my intimate friend and companion on many an oological excursion and camping trip.

Sayornis Phoebe is an abundant spring and summer resident in this section, and begins nesting in early May. The first nest that came under my notice during 1894 was found by my friend Fritz. It was built on the sloping bank of a railroad cut in the bare clay under a projecting rock. From it he took a set of five pure white eggs which I know was the full set. Opposite their nest on the other side of the cut, I found a nest on a shelf of rock, protected by the overhanging bank. When I found this nest it did not have any eggs in it, but a week after it contained one egg. The next day nothing, and the day following one egg, this state of affairs continued for some time, every alternate day an egg; then several days elapsed between the appearance of the egg. What became of the eggs I do not know, but I have often thought that a snake crawled out of the crevice behind the nest and devoured them, or more probably a blue jay was the author of the mischief.

The above in itself is not scientifically worth anything, but it shows the peculiar hold the bird keeps on its nest. I have seen nest after nest destroyed, which were rebuilt by the patient bird. I have seen the bird stay on the nest until within a few feet of it, and in one instance, saw a nest approached and the bird lifted off with the hand. When disturbed on the nest it flies off with a plaintive "pweet" and nervously flits about in the vicinity of the nest.

All the nests which have come under my observation, and the number is not a few answer to this description: general

make up of fine weed-stalks and dried grass intermingled with traceings of mud, the whole evenly covered with a layer of green moss, if it is handy; but sometimes it is covered with other substances such as cotton, sheep wool, rags, etc. It is lined with a few feathers and some soft white vegetable down. The lining however varies with the time in the season. If early it is composed mainly of feathers soft grasses and similar substances, if late the vegetable down predominates and the interior of the nest is often as soft and warm as that of the goldfinch.

The size of the nest varies much, as does also the structure. Sometimes the nest is but one inch in height while I have one before me that is six inches from the top to the bottom. Sometimes the nest is flimsy and its support serving as part of the bottom; while others are strong and well made. I thought until last summer the nest was always placed in a horizontal position, but on one of my collecting expeditions with my before mentioned friend I was somewhat surprised to find a nest firmly glued with mud to a smooth stone on the end of a culvert. It seemed strange to me that the bird should choose such a position for there were many other places near the nest, where it could have been placed more conveniently. Since then I have found several others so situated; in one case I found a nest attached to the curved roof of a culvert.

In this neighborhood, the eggs are usually five in number; in fact I have only found one nest which contained a greater number and it contained six. I never found four in the first set laid, but if the nest is robbed the next set is four. I am positive that a greater number than six is sometimes deposited and intend looking for such a set the coming season. If any one finds a nest containing seven or eight I wish he would let me know of it.

Ludlow, Ky. OTTO GRADY.

HUMMING BIRDS.

Hummers are strictly American in distribution and the greater bulk belong to South America. According to Elliot there now are known to be over 425 species, embraced in 125 genera. Of all this vast host this country has but a small part. As far as known only 14 authentic species. Of these only five or six are residents the rest being merely stray visitors. Only one, the matchless ruby throat, exists east of the Mississippi river. This species feeds over nearly all the Eastern United States and far into the British provinces.

These birds average the smallest of all the birds; the largest in our country, *Eugenie fulgens*, measures less than five inches in length, while the smallest the *Trochilus calliope* measure only $2\frac{3}{4}$ inches, much smaller than the adult Ruby. This family is the most gorgeous in colors, as well as the swiftest on the wing shooting through the air with the rapidity of lightning they are easily recognized.

The Hummers were thought to subsist wholly upon the sweets of flowers but this theory was long ago exploded. They are now known to eat insects and sometimes berries and fruits.

Their nest is a delicate structure closely woven of vegetable down and lichens. Their eggs are only two in number and of pure brilliant whiteness.

It has often been said that the Hummers voice is not musical, but I venture to assert that those who say so never heard our Ruby-throat or western Broad-tail in their courting season. If they have they might as well say that our Song Sparrow is songless, for though the notes are not loud they are clear and to my ear musical.

The swiftness of these birds is marvelous. Wintering as far south as Brazil they start on their northward journey about March, 1, and arrive at least 500 miles beyond our northern border as early as May 25. Their bodies are

extremely small and covered with a heavy coat of downy feathers, rendering them able to stand quite severe cold.

No family of birds is open to more discussion than these, and a rare chance is present for the working ornithologist to study family characteristics. He may study them alike in the East or West; for he has the Ruby, representing a typical genus if he lives in either Maine or Minnesota and if he lives in California he has the Broad tail* and many others. So let all study them, though the results be small, a union of these will make a grand joint in the worlds history.

STEPHEN J. ADAMS.

Cornish Me.

* BROAD-TAILED HUMMING BIRD.

RANGE. — Rocky Mountain district of United States, north to Wyoming and Utah, west to East Humboldt Mountains, Nevada (to eastern slope of Sierra Nevada?); breeding as far south as Mountains of Arizona and New Mexico; in winter south over table-land of Mexico to highlands of Guatemala. — RIDGWAY.

HUMMING BIRDS OF THE UNITED STATES.

In the U. S. National Museum Report, 1890; from "The Humming Birds," by Mr. Robert Ridgway, a paper describing and illustrating the collection in the National Museum, the following extract is taken.

Within the borders of the United States only seventeen species of Humming Birds have been found, and of this number only seven can be considered as properly belonging to our country, their breeding range being chiefly or entirely within our limits. These are the Ruby-throated Humming Bird (*Trochilus colubris*), Black-chinned Humming Bird (*T. alexandri*), Anna Humming Bird (*Calypte anna*), Broad-tailed Humming Bird (*Selasphorus platycercus*) Rufous Humming Bird (*S. rufous*), Allen's Humming Bird (*S. alleni*), and Calliope Hum-

ming Bird (*Stellula calliope*). Of the remainder six are Mexican species, barely crossing our border, as follows: Rivoli Humming Bird (*Eugenes fulgens*), Blue-throated Humming Bird (*Coeligena clemenciae*), Lucifer Humming Bird (*Calathorax lucifer*), Rieffer's Humming Bird (*Amazilia fuscicaudata*),* Buff-bellied Humming Bird (*A. cerviniventris*), and Circe Humming Bird (*Iache latirostris*). One species, Costa's Humming Bird (*Calypte costae*), is common to southern California, Lower California, and western Mexico; another, Xantus's Humming Bird (*Basitinnia xantusi*), is peculiar to Lower California, and therefore not belonging to the United States as politically bounded. The two remaining species are of uncertain range, one of them, the Violet-throated Humming Bird (*Trochilus violajugum*), being known from a single specimen obtained in southern California, and the other, Flores's Humming Bird (*Selasphorus floresii*), having been obtained at two widely separated points, Bolanos, Mexico, and San Francisco, California, and only one specimen at each place. The species first mentioned above is the only one that belongs to the extensive region east of the Rocky Mountains, even semi-tropical Florida having hitherto failed to produce a single additional species, even as a straggler or accidental wanderer from more southern lands. It is true that Mr. Audubon described and figured in his great work a species which he called the Mango Humming Bird (*Trochilus mango*), from a specimen given him by Dr. Bachman, said to have been captured at Key West, Florida; but the species† proves to be not even a West Indian one, but belongs to Brazil and other parts of South America, and possibly was not found at Key West as alleged. Another South American Hummer, the Tobago Humming Bird (*Agyrtria tobaci*) has been recorded as North American on the strength of the alleged capture of a specimen at Cambridge, Massachusetts; but while the identification is correct, there is circumstantial evidence that

the specimen was accidentally or carelessly substituted for an example of the common Ruby-throat in the shop of the taxidermist who mounted it.

* This species occurs throughout Central America, from northwestern Mexico southward and also in northwestern South America as far as Ecuador.

† The specimen in question is now in the National Museum collection, having been given to Professor Baird by Mr. Audubon. It is not an example of the true Mango Humming Bird (*Lampornis mauro*), which is a Jamaican species, but belongs to the species known as *L. violicula* (Bodd.).

THE BOBWHITE.

EDITOR OREGON NATURALIST:

DEAR SIR: In the July issue of the "Oregon Naturalist," I noticed something about the sudden appearance of the Bob White in the vicinity of Woodlawn.

In the spring of 1890, while in the Southeastern part of this county (Yamhill,) I saw and heard several. They would allow me to approach within a few feet of them without taking flight.

This was the first time I ever saw or heard them in Oregon, but from the number I would suppose that they had already been introduced some time.

In 1893, I saw and heard a single specimen and since that time they have become more common, until this spring they may be heard almost any day.

I have heard of their nests being found and I am quite certain that they nested near here but have not found any of their nests.

They seem to spread slowly and I have heard some persons express their doubt as to the climate suiting them but I do not see why they should not become one of our leading game birds.

Hervey M. Hoskins.

Newberg, Ore.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

A. B. AVERILL, - - - EDITOR.

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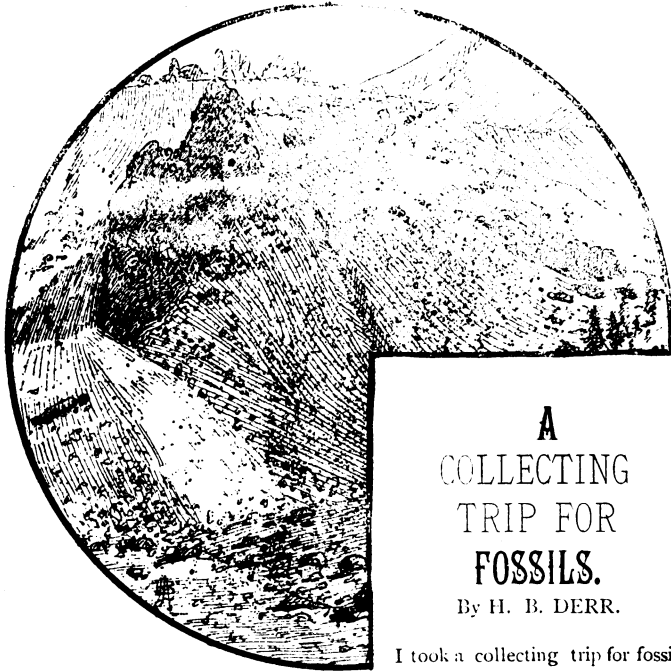
392 MORRISON ST.

Portland, Oregon.

AUGUST, 1895.

CIRCULATION 3000.

President Pope writes that the Lutescent Warbler and Macgillivrays Warbler are the birds selected for N. O. A. work for September. It is expected that every member will send in reports. Do not hold back because you cannot make a lengthy article, but send any notes you may have. No matter how short. This month let the Secy. hear from every member.



A COLLECTING TRIP FOR FOSSILS.

By H. B. DERR.

THE WAR-POINT.

By JOSEPH WIGGLESWORTH.

I find that many young collectors are puzzled over the war point. When they obtain one they do not know what it is, and exchange or pass it off as they do the more common arrow-head. The war-point is a three-cornered arrow-head without a shaft. The shaft of the arrow was split, the war-point inserted, and then wrapped with the sinews of the deer. The first impulse of the person shot was to draw out the shaft, which always left the point to work its way in. As poisoned points were used, it can be supposed that the wounds always proved fatal. The war-points are of benefit to the Archaeologist as in many cases they determine the locality of ancient battle-fields. Imperfect specimens are quite common, but fine perfect ones are extremely rare owing to their being so easily broken.

I took a collecting trip for fossils last fall through La Salle county, Ills. where the limestone abounds with fossils of many species and think it may possibly interest some of the Naturalist readers who are making a study of Geology. The county is cut up in many places by deep ravines the bluffs on either side being of shaly limestone from 50 to 100 feet in height in some localities. In the loose soil close to the stone I found large slabs of shells of the *Productus* species; they were in confused masses showing what immense pressure was brought to bear upon it when the limestone was formed. The limestone of this locality corroborates the writings of Geike and Dana who teach us that Limestone was made from the organic remains of shells, corals, crinoids and of the minute rhizopods. The absence of crinoid heads and presence of crinoid stems is probably due to the fact that the heads being more fragile were crushed to pieces. I came to this conclusion from the fact that I found numerous pieces of crinoid heads.

This stone when first dug out is hard but when lying exposed to the weather it some times softens and it is then that we can get the perfect shells, otherwise it would be impossible. The *Zaphrentis* and *Terebratula* are the most plentiful and *Zaphrentis dalei* and *Zaphrentis cliffordana* are the most common. These belong to the fossil corals and are of the Sub-carboniferous period. Of the Gasteropods I found *Naticosus madisonensis* and *Pleurotomaria adamsi*.

The fossil I most prized I found south of La Salle, Ill. in the Trenton where it meets the Limestone, it resembles some what a lily not being able to classify it from any work on Geology in my possession it is now in the hands of the Curator of Geology of the Field Museum of Chicago for classification. I also found specimens of *Myalina angulata*; *Aviculopecten chesterensis*, fine specimens of *Productus Rogersi* and *Monticulopora*, commonly called in that locality land coral. These are nearly all in the Mollusk family. Anthoid Mollusca are divided into three orders: first, Brachiopods, (from the Greek *brachion*, arm, and *pous*, foot,) with a bivalve shell, symmetrical in form; second, Ascidians, which have no hard shells and hence are hardly recognized as fossils; third, Bryozoans (from the Greek *bruon*, moss, and *zoon*. animal,) of minute size, sometimes branched like moss.

These fossils are the remains of animals that were in existence thousands of years ago, and as the shells in one strata of rock are different from those in the next; it is conclusive evidence that there were a different class of animals and shells in each era. To place these in their proper class and thus determine the era in which they existed is the study of the student in Geology.

In all of Nature's handiwork is shown the ever living guiding hand of the Omnipotent.

L. B. ALLEY recently found a large stone knife, 14 inches long, while spading in his garden near Nehalem, Oregon. E.r.



THE AMERICAN COOT AND NEST.

THE AMERICAN COOT.

Habitat, whole of North America, south to Mexico, Central and South America and West Indies; north to Alaska, occasionally to Greenland.

Well known as Mud Hen, Crow Duck and Hell Diver.

It is easily distinguished by its slate colored plumage, white or flesh-colored bill, marked with reddish-black near the end and at the base of frontal plate, greenish legs and carmine iris.

The Coot, *Fulica americana*, is well represented in and around Ashtabula County, the Grand River and small marshes bordering Lake Erie being its favorite resorts.

My sketch is a true one, not very remarkable or exciting, but the time we had was immense. Our party composed of two boys and two girls, Miss Flora Fitch, of Jefferson, and Miss Grace Babcock, Stanley Spring and myself, residents of that village in northeastern Ohio: "Model Geneva."

The month was September and Mr. Coot, was the one who suffered, not from my gun, but by the destructive fire of Miss Babcock, she being the only one who seemed to make any impression on the "Hell Divers."

My readers who have had any experience with this bird, can easily understand how easy it is to miss this sort of a mark, (that is with a rifle) at 40 yards; one minute on one side of the river, and the next dives and appears on the other.

The Coot may be seen at nearly any time during its breeding season, on almost any large or small body of water sufficiently secluded and whose margins are overgrown with reeds or rushes, or on sluggish streams, swamps, pools or reedy sloughs.

Many of our young ladies are frightened at the sight of a gun, and if you should snoot while they are around, they would go into "fits". I admire a good marksman or "marksmiss," and like nothing better than to find an equal in the opposite sex.

On May 29, I took a set of 10 eggs of this bird. The nest was on a small island and composed of dead reeds and grasses, placed on the ground just out of reach of the water. They measured 1.77, by 1.40.

FRED C. HUBBARD.

WRITTEN FOR THE OREGON NATURALIST:

A SNAP SHOT AT THE MOUND BUILDERS.

F. E. COLEMAN.

Where is the line fence between the Mound Builders and the Indians? I can find no evidence that such a line ever existed. Perhaps my eyes are blinded by my own personal ideas.

I have before me an imaginary portrait of a Mound Builder by a gentleman who has written quite an article upon the subject. The portrait represents a coarse, uncivilized white man. Who can prove that the builders of mounds were white? Does the bones of a horse indicate the color of the hair? Does the shape of the skull denote the color of the skin? Let us look for a moment at the white race and see if it's several nations bear exactly the same shaped skull, the same prominent cheek bone, the

same height, or do we find the same difference that we do between the mound builders, (so called) and the Indians. Look again at the difference in Indians: while some are medium in stature throughout the whole tribe, another tribe is composed of very large men. Some are very warlike while others are quite peaceable. Close observation of history teaches us this fact. We are told of the rough, and polished stone ages, but which came first? Polished tools are found in large mounds, graves, and upon the surface. I have found finely wrought points, rough points and copper points, all upon the same field, turned up at the first plowing. Let us reason in this way. A boy starts to make a toy, and the first does not look much like the thing he set out to make, but he keeps trying, each time getting new ideas, or using better material, and finally, as practice makes perfect he becomes a fine workman. This certainly will apply to the white race, and I see no reason why it will not apply to the pre-historic race of America. But it is claimed that the Mound Builders were more on the civilized order than the Indians.

Does not history and science both tell us that every advancement of civilization has had its draw-backs, that some other nation would take hold of it and give it a boost. I believe I can prove by history that civilization has had its ups and downs, and now that science is taking the matter in hand, it is giving us greater proofs every day of this theory.

The Young Naturalists Society, of Seattle, Washington, on the steamer W. F. Munroe, are dredging in the waters of Puget Sound, and from all accounts are gathering a wealth of material for future study, while at the same time they are receiving that, for which the society was organized, namely; a more intimate acquaintance with objects of Natural History.

A new variety of Helix has been discovered by a collector of Portland, Ore.

NOTES.

The Grants Pass Courier is authority for the following. The Davidson brothers in the Missouri Flat diggings: located 15 miles southeast of Grants Pass, Oregon, had followed a pay streak down in a shaft to a depth of 34 feet, and there run a 50-foot tunnel lower down to connect with it, obtaining pay dirt in narrow seams as they dug. These pay streaks are pronounced queer by experts who have watched the methods of the boys, being neither under the head of quartz or placer mines, as a good deal of hard rock has to be moved in order to uncover the pay streaks, which will not average over two inches in width. The dirt from these seams, however, is panned out piece fashion, and the pure gold loiters in the bottom of the pan. It is not at all unusual to find \$50 worth of the bright nuggets in one panful of pay dirt. How soon the seams may "pete out" or lead to something grand the boys do not know.

A stencil bearing the name of Captain Meriweather Lewis, — who in company with Clark made the historical Lewis and Clark expedition in 1804, — is in the possession of a Mr. Winans, who lives above The Dalles. This stencil was used for marking the goods of Captain Lewis.

THE Tillamook Indians have a tradition of a Chinese junk wrecked there in the long ago and that some of the survivors took Indian wives and left descendants who retain some of the Oriental features to this day.

The above may account for finding Chinese coins at some of the old burial places.

In Whitman county, Washington, the King Bird and the Arkansas Fly-catcher are found in the same locality, frequently nesting side by side in one tree.

Water Agates; so called, are found at Yaquina Bay, Oregon. Many are almost transparent and include a bubble of air floating in liquid. A few of them have the shape of, and appear to be fossilized clams.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(Ans. to 4.) The Cowbird *Molothrus ater* (Boddaert.) is the *Molothrus, pcoris* of Swainson; and in different localities is known as, Cow Bunting; Cow Black bird; Lazy Bird.

Delichonyx oryzivorus, (Linn.) is known locally as Bobolink; Rice Bird; Reed Bird; Bob Lincoln; Butter Bird; Ortolan; and Skunk Black-Bird.

(Ans. to 5.) BRACHIOPODA. Division, CLISTERATA. Family, *Pentameridae*. Genera, *Pentamerus*. Species, fossil; limited to the Silurian, Devonian, and Carboniferous periods.

(Ans. to 7.) *Circus hudsonius*, (Linn.); known as Marsh Hawk and Hen Harrier; favorite nesting place, on the ground, sometimes in marshy places; nest quite bulky; mostly built of grass or sedge in which four or five bluish white eggs are laid. The writer one season took three sets from the same nest 1-5, 1-4, 1-4. The 1st set taken was pure white in color and only one half the size of the first set taken.

(9.) Why was the Louisiana Tanager so named? J. D. Tacoma.

(Ans. to 9.) Presumably; because the first described specimen; about 1811, was accredited to Louisiana, which then embraced the tanagers range as now given.

To any one who will send us, at one time the names and addresses of two new subscribers at 50 cts. each, making one dollar in all we will send the Oregon Naturalist free for one year.



THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, NOVEMBER, 1895.

No. 11

A LIST OF THE BIRDS OF OREGON.

Being the work of the Northwestern
Ornithological Association

Prepared by the president.

The following list of birds probably does not contain all the species to be found in Oregon, yet we hope the publishing of it will give ornithologists a better idea of the avifauna of this region than they have heretofore, been able to obtain, and it certainly will be of great benefit to members of the association.

We hope, in criticising this list, that the readers of the Oregon Naturalist will bear in mind that it is the work of amateurs.

Our association is young, and so also, for the most part, are the members, beginners in the great study of ornithology.

Beside the members of the association, Mr. C. W. Swallow, Mr. Bernard J. Bretherton, and Mr. George D. Peck, deserve mention and to whom the association extends thanks, for helping to bring the list up to its present size.

ÆCHMOPHORUS OCCIDENTALIS.

Western Grebe.

Common summer resident on large bodies of water in Eastern Oregon.

COLYMBUS AURITUS.

Horned Grebe.

Reported by Mr. Bretherton.

COLYMBUS NIGRICOLLIS CALIFORNICUS.

American Eared Grebe.

Common resident.

PODILYMBUS PODICEPS.

Pied-billed Grebe.

Common resident.

URINATOR IMBER,

Loon.

Reported by Mr. Bretherton.

URINATOR PACIFICUS.

Pacific Loon.

Reported by Mr. Bretherton.

LUNDA CIRRHATA.

Tufted Puffin.

Reported by Mr. Bretherton.

SYNTHLIBORAMPHUS ANTIQUUS.

Ancient Murrelet.

Reported by Mr. Bretherton.

STERCORARIUS PARASITICUS.

Parasitic Jaeger.

Reported by Mr. Bretherton.

RISSA TRIDACTYLA POLLICORIS.

Pacific Kittiwake Gull.

Dr. Prill notes this species as uncommon in Linn county.

LARUS GLAUCESCENS.

Glaucous winged Gull.

LARUS OCCIDENTALIS.

Western Gull.

Common resident.

LARUS ARGENTATUS SMITHSONIANUS.

American Herring Gull.

STERNA PARADISEA.

Arctic Tern.

STERNA FULIGINOSA.

Sooty Tern.

ANOUS STOLIDUS.

Noddy Tern.

- HYDROCHELIDON NIGRA SURINAMENSIS.
BLACK TERN.
* Very common in Eastern Oregon.
- PHOEBETRIA FULIGINOSA. Sooty Albatross.
- FULMAREUS GLACIALIS GLUPISCHA.
Pacific Fulmar.
- PHALACROCORAX DILOPHUS CINCINNATUS.
White-crested Cormorant.
Common resident of Eastern Oregon.
- PHALACROCORAX PELAGICUS ROBUSTUS.
Violet-green Cormorant.
- PELECANUS ERYTHORHYNCHUS.
American White Pelican.
Common summer resident of Eastern Oregon.
- MERGANSER AMERICANUS.
American Merganser.
Not common.
- MERGANSER SERRATOR.
Red-breasted Merganser.
Not uncommon in winter.
- LOPHODYTES CUCULLATUS. Hooded Merganser.
Common in winter.
- ANAS BOSCAS. Mallard.
Resident.
- ANAS STREPERA. Gadwall.
Not uncommon during migration.
- ANAS PENELOPE. Widgeon.
Common migrant.
- ANAS AMERICANA. Baldpate.
Common winter resident.
- ANAS CAROLINENSIS. Green-winged Teal.
Common resident.
- ANAS DISCORS.
Blue-winged Teal.
Reported as a common migrant of Clatsop county and resident of Eastern Oregon.
- ANAS CYANOPTERA. Cinnamon Teal.
Rare
- SPATULA CLYPEATA. Shoveller.
Common summer resident of Eastern Oregon.
- BRANTA CANADENSIS HUTCHINSII.
Hutchin's Goose.
Abundant in winter. Called California Goose by local sportsmen.
- DAFILA ACUTA. Pintail.
Common in winter.
- AIX SPONSA. Wood Duck.
Common resident.
- ÆTHYIA AMERICANA. Redhead.
- ÆTHYIA VALLISNERIA. Canvas-back.
Reported as a migrant of Clatsop county and rare summer resident of Eastern Oregon.
- ÆTHYIA AFFINIS. Lesser Scaup Duck.
Reported as common in October.
- GLAUCIONETTA CLANGULA AMERICANA.
American Golden-eye.
A somewhat rare summer resident of Eastern Oregon.
- CHARITONETTA ALBEOLA. Bufflehead.
Reported as a migrant.
- CLANGULA HYEMALIS. Old Squaw.
- SOMATERIA V-NIGRA. Pacific Eider.
- CEDEMIA FUSCA. Velvet Scoter.
- CEDEMIA DEGLANDI. White-winged Scoter.
- CEDEMIA PERSPICILLATA. Surf Scoter.
This and the two preceding species are the 'sea coots' of the gunners.
- ANSER ALBIFRONS GAMBELI.
American White-fronted Goose.
- BRANTA CANADENSIS. Canada Goose.
Abundant winter resident. A few years ago these geese did so much damage to wheat fields of Southern Oregon, that the farmers had to resort to 'twinning' their fields to keep off the geese.
- BRANTA CANADENSIS MINIMA.
Cackling Goose.
Common in winter.
- BRANTA NIGRICANS. Black Brant.
Common during migrations.
- OLOR COLUMBIANUS. Whistling Swan.
Reported as rare in Washington county.
- OLOR BUCCINATOR. Trumpeter Swan.
Reported as rare in Yamhill counts.
This and the two preceding species are said to be common on the Columbia River.
- BOTAURUS LENTIGINOSUS,
American Bittern.

- ARDEA HERODIAS. Great Blue Heron.
Rare resident.
- ARDEA EGRETTEA, American Egret.
- ARDEA VIRESCENS, Green Heron.
Common resident.
- GRUS MEXICANA, Sandhill Crane.
Common fall migrant.
- RALLUS VIRGINIANUS, Virginia Rail.
Common resident.
- PORZANA CAROLINA, Sora Rail.
Summer resident of Eastern Oregon.
- FULICA AMERICANA, American Coot.
Common resident.
- RECURVIROSTRA AMERICANA,
American Avocet.
Common summer resident of Eastern Oregon.
- GALLINAGO DELICATA, Wilson's Snipe.
Rare resident.
- EREUNETES PUSILLUS,
Semipalmated Sandpiper.
- CALIDRIS ARENARIA, Sanderling.
- LIMOSA LAPPONICA BAUERI.
Pacific Godwit.
- TOTANUS NEBULARIUS. Green-shank.
- TOTANUS MELANOLEUCUS.
Greater Yellow-legs.
- TOTANUS SOLITARIUS CINNAMOMEUS.
Western Solitary Sandpiper.
A specimen of this species was taken on the coast of Oregon, by Prof. F. L. Washburn.
- HETERACLITIS INCANUS, Wandering Tattler.
- ACTITIS MACULARIA, Spotted Sand-piper.
Common summer resident.
- NUMENIUS LONGIROSTRIS.
Long-billed Curlew.
Common summer resident of Eastern Oregon.
- NUMENIUS HUDSONICUS, Hudsonian Curlew.
- CHARADRIUS DOMINICUS FULVUS.
Pacific Golden Plover.
- ÆGIALITIS VOCIFERA, Killdeer.
Common summer resident in Eastern Oregon.
Not uncommon resident of Yamhill county.
- ÆGIALITIS NIVOSA, Snowy Plover.
- APHRIZA VIRGATA,| Surf Bird.
- ARENARIA MELANOCEPHALA,
Black Turnstone.
- HÆMATOPUS BACHMANI,
Black Oyster-catcher.
- COLINUS VIRGINIANUS, Bob-white.
Becoming a common resident in the western part of the state.
- OREORTYX PICTUS, Mountain Partridge.
Commonly called Quail. Common resident.
- OREORTYX PICTUS PLUMIFERUS,
Plumed Partridge.
- CALLIPEPLA CALIFORNICA,
California Partridge.
- CALLIPEPLA CALIFORNICA VALLICOLA,
Valley Partridge.
- DENDRAGAPUS OBSCURUS FULIGINOSUS,
Sooty Grouse.
Common resident of the western part of the state.
- BONASA UMBELLUS TOGATA,
Canadian Ruffed Grouse
Common resident of Eastern Oregon.
- BONASA UMBELLUS SABINII,
Oregon Ruffed Grouse.
Common resident of the western part of the state.
- LAGOPUS LEUCURUS, White-tailed Ptarmigan.
- TYMPANUCHUS AMERICANUS, Prairie Hen.
- PFIDIOCETES PHASIANELLUS COLUMBIANUS,
Columbian Sharp-tailed Grouse.
Resident of Eastern Oregon.
- CENTROCERCUS UROPHASIANUS,
Sage Grouse.
Common resident of Eastern Oregon.
- COLUMBA FASCIATA,
Band-tailed Pigeon.
Common summer resident.

(To be continued.)

ARTHUR L. POPE,

WATER AGATES.

In one of the recent issues of "The Oregon Naturalist" occurred a note in regard to "water agates". It may be that your readers would be interested in their history.

"Water agates", more properly amygdoles, are always found in vesicular lava, basalt and the like, and are composed of quartz. It often occurs that they are hollow and frequently contain water made visible by the presence of a bubble of air or perhaps some other gas. Other specimens contain no water and still others are solid.

An observing visitor of the Oregon shore line will have noticed that all the rocky headlands are composed of hard black rock, frequently showing the familiar columnar structure. This rock is basalt. The parts of the shore between these promontories are composed of sandstone, conglomerates and other forms of sedimentary rocks.

A careful study of the zones of contact between the sedimentary rocks and the basalt will show how the latter got there.

It will be seen readily that the stiff lava has been pushed up in more or less vertical fissures and by its heat has changed or metamorphosed the adjacent rocks, changing their structure for some distance from the basalt. This loose gravelly sandstone may be cemented together into a firm mass.

Now every body knows that lava may have cavities or vesicles in it. These are sometimes large and few, or may be numerous and small. Now these cavities are the birthplaces of amygdoles. Chemists tell us that silica - or quartz - is soluble in alkaline warm water. Lava contains silica and various alkalis, and rain falling upon these lava dykes dissolve a part of the alkali and at the same time becomes heated - for these hard black lavas are those which have cooled slowly. This warm alkaline water then dissolves silica and fills these cavities and the whole mass

cools, the quartz is deposited in bands and crystals, sometimes filling the cavities and sometimes leaving a hollow containing water or empty. This is the history of all our beautiful banded agates. These are often colored by oxide of iron, etc. .

Not infrequently it happens that clams, groups of crystals and other objects are embedded in the viscous lava, and are destroyed by the heat, not however until they leave their record in the form of a claw shaped cavity or one of some other form. These cavities too, may be filled with quartz, often colored, and give us the so called 'clam pseudomorph' they are not fossil clams but merely casts of clams made after the original was destroyed.

One often finds black pebbles containing small white nodules. These are pebbles of basalt containing small amygdoles.

The word amygdole is derived from the Greek word signifying an 'almond' and are so named because these vesicles are often almond shaped and the filled in material will be an 'almond' or amygdole.

FRANCIS E. LLOYD,

Prof. of Biology, Forest Grove, Ore.

PRESERVATION OF OPHIDIANS.

In a recent work on taxidermy the reader is directed to remove the skin of a snake by making a longitudinal incision along the ventral surface, then to sew up the skin and stuff it with cotton.

I do not know what is expected of a taxidermist, but as a naturalist I would not find this method very satisfactory.

In some snakes the anal plate, the epidermal scute anterior to and covering the vent, is entire, while in others it is divided. This difference is of great importance in identifying serpents.

Sometimes the plates on the ventral surface of the tail, post abdominal scutellae, Prof. Cope would call them, are single or entire and sometimes they are divided or in pairs and this distinction is of value in classification.

With certain snakes, as with a common variety of the *Natrix sipeson*, the ventral surface is

marked with wedge shaped blotches of darker color sparsely distributed on the anterior portion but growing more and more numerous toward the tail. In fact the ventral surface is of far greater importance than the dorsal from a scientific point of view, and if the skin is to be preserved for scientific study and *must* be cut open longitudinally it would be far better to make the slit down the back. If the ventral surface is opened at all the slit should never reach as far back as the anal plate.

My own method of studying snakes is to keep them in a roomy comfortable terrarium where I can observe their habits for awhile and then to liberate them. Occasionally, however, one may find it desirable to preserve the skin of a specimen. The method of doing this, which I learned partly from the Rev. J. Wood's books, and which I have practiced successfully is as follows:

Open the specimens mouth very wide and with a sharp knife sever the spinal column where it joins the head. The skin at this point is so close to the bone that there is danger of injuring the skin. To avoid this insert a bodkin or blunt darning needle between the skin and bone and then cut through the bone to the needle. If you have an assistant have him grasp the severed back bone with his fingers, or better still with a pair of pinchers. If you are alone secure it to some convenient hook so that you can use both hands to pull off the skin.

In skinning venomous serpents great care must be taken to avoid scratching yourself on the venom fangs but with the harmless Colubrid snakes no such caution is necessary. Catch hold of the upper and lower jaw and pull back.

The places where the skin is firmly attached to the body are a narrow line along the ventral surface, and another line along the back. Along these lines the skin must be frequently loosened with the knife. In using the knife along the back great caution is necessary to avoid cutting the skin which is extremely close to the sharp projections on the vertebrae.

When the vent is reached sever the cloaca close to the skin. In preparing large speci-

mens it is best to tie a string tightly around the cloaca to prevent the escape of the foul smelling contents when it is cut.

Nearing the tip of the tail it is again necessary to go slow, for the skin there is extremely liable to be torn off, and the end of the tail is often of scientific value.

When the skin is removed from the carcass it should be turned right side out at once and this is often a work of some difficulty. I have found it convenient to press the skin of the tail tip inward with the blunt end of a steel umbrella rib, and then gradually draw the skin back over this rod.

When the skin is turned it is time to give your attention to the head, cutting away all the flesh you can and being careful to save the bones and teeth.

This done you have a long, narrow, pointed sack which you should at once fill with fine, dry sand. Pour in the sand until the tail is full, fill the skin with cotton at the vent, which must then be closed with needle and thread, and then fill the rest of the skin. A funnel with a long tapering point will be found useful in this part of the work. The mouth, where the sand would escape, must be stuffed with cotton and then when the head has been pressed into shape you must sew the lips together.

Except about the head it is not necessary to apply any preservative, for the skin is quite thin and soon becomes very dry and stiff. In fact the skin dries out so quickly that it is often necessary to wet it to keep it pliable while it is being handled.

When the skin is properly filled and the mouth closed bend or coil it in the shape in which you wish it to remain and leave it to dry.

I usually bury my fresh specimens in a box of dry sand. When the skin is perfectly dry cut the stitches at the lips, remove the cotton and pour out the sand. The empty skin will be extremely light, but will hold its shape as long as it is kept dry.

This is the best method of preparing reptile's skins known to me, but the skinning of snakes is not to be recommended. Let the animal

live! or if you must have them for future study use alcohol and preserve them right.

First wash your victim clean, make careful notes of its colors, for alcohol often fades these, then place it in 65 per cent alcohol for two days when it may be moved to spirits of greater strength. This change is to prevent a too great shrinking of the tissues. It is not sufficient to simply immerse the specimen in alcohol, the body cavities should also be filled with it by means of a hypodermic syringe.

I once had to take charge of a large specimen where no hypodermic syringe and no alcohol was to be had. My substitute for alcohol was whiskey bought at the first best saloon.

Dipping a common family rubber syringe in a bottle of this and inserting a tube down the specimen's throat I pumped the body cavity full of whiskey and then placed the reptile in a jar filled with the liquor. It was a considerable time before I transferred the specimen to full strength alcohol, but it kept well. The most satisfactory method of killing specimens that are to be preserved is by drowning them in alcohol or chloroform. Put them in a glass jar or wide mouthed bottle pour in the liquid until the vessel is entirely filled then close tightly.

When the specimen has been in alcohol long enough to harden the tissues it may be taken out for examination, and if it is desirable, for convenience of transportation or other reasons, to keep it out of the jar for several days it may be wrapped in cotton that has been saturated with alcohol and there will be no danger of injury.

The alcohol is expensive, to be sure, but the labor of skinning and stuffing is saved and the whole specimen is superior to the mounted skin in every way.

New questions regarding anatomy and concerning the value of various organs in classification arise now and then and if you are a naturalist you are a progressive man and your specimens many or few, should be useful to you in making the investigations necessary to keep up with the times. For example the presence

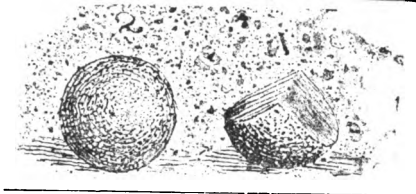
or absence of a rudimentary right lung is now regarded as of considerable importance, and when present it is thought desirable to know its size and condition and the structure of the bronchial foramen which connects it with the trachea. The structure of the hemipenis is of such importance in classification that Prof. Cope says no one can be sure of the affinity of a snake until he has examined its hemipenis. When ever such topics as these come up for discussion the possession of the finest mounted snake skin in the world will prove anything but satisfactory.

ANGUS GAINES.

Vincennes, Indiana.

MEXICAN DANCING BEANS.

This is a title given to the seed vessels of some plant but it is partly a misnomer as they do not look at all like beans though they do tumble about in a lively style. Here is an attempt to picture them.



No. 1 is an angular view, No. 2 has the globose part presented to you while No. 3 is I sup-



pose the arrangement of the capsules around the stem of the plant. On opening one of them a fat white naked (that is without hairs) larva makes your acquaintance it is the contortions of this little creature that is the cause of

the terpsichorean movements of its house.

What insect it is the larva of I do not know, probably one of the weeyils. How it gets food and air I cannot tell as it seems to be shut up hard and fast in its woody prison. If you make a hole in the seed vessel containing it, it hastens to close the opening tightly with a silky web. This Mexican seed capsule and its inhabitant are certainly curiosities. It is not all however, but I believe about one in three of these beans that contains a worm.

WM. BRINGHURST M. D.
Philadelphia, Pa.

THREE NOTES FROM YAMHILL COUNTY, OREGON.

A nest of the Varied Thrush (*Hesperocichla nevada*), containing three incubated eggs, was found in the Coast Range mountains of this county on the 17th of April last.

The nest was placed in a bush a few feet above the ground, and in construction resembled a common robin's. The eggs were dotted sparingly with light brown. They might be described as the size of robin's, and the color of russet-backed thrush's.

A set of six eggs of Vigor's Wren (*Thryothorus bewickii spilurus*) was brought to me which contained one egg pure white and unmarked. The other eggs of the set were of normal color.

On May 27th I took a set of eight fresh eggs of Oregon Chickadee (*Parus stricopillus occidentalis*). The nest was in a cavity of a rotten alder stump in a much-used lane by our farm. The entrance to the nest was twelve inches above the ground, and the nest was six inches above the ground.

The nest consisted of two layers, the bottom one being of dry green moss, and the upper one, strings, wool, cotton batting and other soft material.

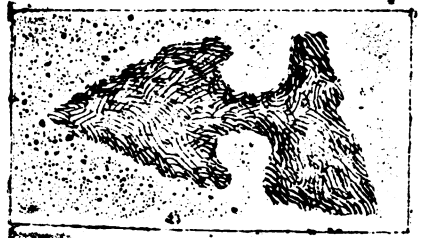
ARTHUR LAMSON POPE.

For the addresses of two new subscribers and one dollar, a copy of the Oregon Naturalist will be sent free for one year, or, three subscriptions for one dollar.

ANNUAL MEETING OF THE NORTHWESTERN ORNITHOLOGICAL ASSOCIATION.

The second annual meeting of the Northwestern Ornithological Association will be held at Portland, Oregon, on December the 27th, 1895. All persons in the Northwest, who are interested in Ornithology are urgently requested to attend,

ORNAMENT OR CHARM?



ACTUAL SIZE

This specimen, of which an attempt to figure has been made, awakens a new line of thought. It is entirely different from anything heretofore found in Oregon (known to the writer), and is flaked from yellowish-brown jasper. The workmanship is good. The arrowhead end is slightly serrated. The tomahawk end is a perfect representation in miniature of a tomahawk with the cutting edge sharp. Its proportions are accurate. It was found on the bank of Snake river near its junction with the Columbia.

The shape precludes the theory, that it was used for an arrow point, yet it is a perfect arrow head joined to a miniature tomahawk.

Is it a charm? Was it used for an ornament? Could it by any possibility have been used for an arrow head? A.B.A.

Until January 1, The Oregon Naturalist and The Evergreen State Philatelist, will be sent to any address one year, for only 55 cents.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR

THE FLORIDA BLUE JAY.

This is about the most vociferous bird in the South, though for beauty and mental capacity, there is no bird which excels. If the readers of this article will peruse "Mark Twain's" discussion of the Jay, they will get the exact description and eccentricities of the bird. While this article does not apply particularly to the Florida Jay, it fits this bird exactly.

The Jay begins nidification about March 28 and continues through April, May, June, rarely July and in one instance in August.

The sets range from three to five. Four being the common number, though three and five are often found. I have noticed that the sets of five are generally taken, out of town. Few Jays choose the country for a home. I suppose on account of the scarcity of food. The city of Tallahassee abounds in Jays, there being plenty of food and other necessities for making him happy. They seem to prefer oaks for a nesting site and as there are plenty in the town many nests are found. In our city cemetery the Jays seem to be more plentiful than at any other place.

The nests are very substantially constructed, being composed of dry sticks, cloth, string, paper, and mud which is brought from some neighboring stream and placed as the foundation, so that when dry it holds the nest very tight on the limb, then it is always lined with tiny rootlets which the bird pulls from the larger roots of oaks or any other tree which has the required material. There was a nest in a crape-myrtle tree about ten feet from my window which was finished on March 15, I took daily inspection of it and finally came to the conclusion that the pair had abandoned it, but on April 19 it contained one egg. The Jay finished nidification and five little birds met my gaze some days later.

There was a nest in my back yard, about 25 feet up in a cedar, which had eluded my per-

ception for some time; my attention was attracted by a strip of cloth, which had served as a kite-tail for some small boys in the neighborhood. This strip was hanging down about three feet and about one foot was woven into the nest. The result of a climb and a pillage was four handsomely marked eggs.

R. W. WILLIAMS, JR.

Tallahassee, Fla.

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS.

C. C. PURDUM.

Continued from page 132.

(60) *Larus Philadelphia*. (675)

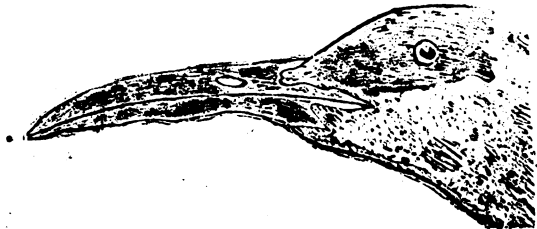
BONAPARTE'S GULL.

This variety is generally quite abundant in fall and winter when they may be seen in all of our small inlets and harbors, congregated into small flocks, and hovering above the schools of small fishes which constitute their food. I have seen them in the interior many miles from salt water, flying low over ploughed land, doubtless in search of worms. I have never seen them take a worm however, and I think that the idea of food being taken from the ground to supply their needs, lacks confirmation; for it is hardly likely that a bird which naturally derives its food supply from fish, could depart from it in its entirety and devote itself to *vermes*. As observed here the plumage may best be described as follows: Bill light at base, dark at tip: Feet flesh color: Crown and occiput washed with grayish-black. The whole under parts are white as are the throat, sides of the head and forehead. The mantle is pale blue, perhaps approaching a shade of pearl. The neck and the under wing coverts and the whole upper parts are light. The first six primaries are entirely white except at the extreme tip. The outer primaries are like the back. The seventh, eighth, and ninth, with spots of black near the tip: as is not the case with either of our other species. The first wing coverts, bastard quills, etc., are wholly white. The female differs in no respect from the male

as regards color, marking or size. The measurements of four females and half a dozen males gave about the same figures each time. Average: Length 14.50, Extent 31.37, Wing 10.75, Bill 1.40, Tarsus 1.50. Middle toe and claw 1.40.

The range of this bird is very large; migrating throughout nearly the whole of the United States. Some years ago Mr. H. G. White; who was at that time stopping at this place, (Woods Holl) observed late in the fall, one of these birds flying about the harbor with a tin can attached to one of its legs. After several

ineffectual attempts, he finally succeeded in securing it, and upon breaking open the can, which had become so rusty as to prevent its natural opening: he found a slip of cardboard with the following, in ink, "Airstone Island May 1 1887". I have searched all the likely localities on the map that I can think of but have never succeeded in locating it. If any of the numerous readers of the Oregon Naturalist can inform me where it is, he will confer a favor and establish an interesting fact. The can had been attached while the bird was quite young for the ring around the leg was nearly embedded in the



BILL OF COMMON TERN, (*Sterna hirundo*.) $\frac{3}{4}$ natural size.

flesh which had grown out upon both sides.

The breeding range for *philadelphia* is from the Southern boundry of the British Provinces, northward. The nest is said to be placed upon the ground and to contain "one or two greenish grey eggs with an interrupted wreath of light brown". However very little is known about the breeding habits, and I do not doubt that many of the eggs which are sent out for *philadelphia* are spurious. I have never yet seen a specimen whsch was positively identified, although I have seen many which were said to be Bonaparte's. These measure on an average 2.00 x 1.45. Pretty large for the original.

(70) *Sterna hirundo* (686)

COMMON TERN:

This active and alert representative of the subfamily Sterninæ is not a "winter bird" with us, but as it breeds abundantly here I thought best to give it mention. The islands of Penekese and Wepeckets are their especial grounds. They inhabit these islands in company with the Artic and the Roseate varieties, in such numbers

that during the breeding season, their cries are all but deafening to the would be despoiler of their joys. When heard alone the cry is a plaintive "chee -chein" operated at regular intervals and only when in flight. The breeding plumage -which together with the slight change in the fall is all that we observe them in, is as follows. Whole upper parts, pearl blue extending from the back onto the wings. Lower parts pufe white. Top of head and occiput, glossy black, extending below the eyes but leaving the lower lids white. The bill is of a bright vermillion, as are the feet, although these are of a slightly lighter shade. The size of the birds is by no means constant. The largest measurements which I have ever recorded are, Length 15.00 inches: Extent 32.00 inches, Wing 11.00 inches. The tail which is deeply forked 4.25, Bill 1.50. The smallest measurements which I have recorded are, Length 13 .00: Extent 29.50: Wing 10.00: Tail 4.50: Tarsus .67: Bill 1.00.

This bird remains with us through the sum-

mer months and occasionally a few are seen in winter. The nesting habits are much the same as in the other terns and will be described with the Roseate and Arctic varieties.

(To be continued)

"CHAT."

Where are those promised articles?

There is a good deal of talk about founding a general Natural Science Association in the East, in which all branches of work will be represented; and if the scheme can be carried out it will be of great benefit.

Let us hope it is not all talk.

Let us hear from you this winter and learn of your observations. Birds, mammals, insects, *anything* of interest to the naturalist.

August 22 is a pretty late date to find fresh Mourning Dove's eggs, even in California. Can any one beat it?

Next month we are promised a plan for taking notes upon the migrations, it will be rather late for the height of flight but the method is said to be excellent.

Address all Eastern articles Ad's. etc, to C. C. Purdum, Baltimore City Hospital, Baltimore, Maryland.

SOME FLORIDA LIZARDS,

Two years ago this fall I imported a number of Anolis Lizards from Florida. They came to me in a cigar box with wire netting over the top of it. They were of various sizes from small to larger, and were lively creatures. I kept them for a while in a large fish globe and then in another wire defended and larger box. Flies seem to be their favorite provender and when they failed to put in an appearance owing to the advancing season I resorted to meal worms. I tried raw meat but it was refused they seemed to require living prey. In Florida about St. Augustine they are plenteous in numbers running about the houses, fences and trees and invading the eating rooms in pursuit of flies.

They are quick and active and a fly stands a poor chance of escape from them. A great many of them arrived at Chicago during the Columbian Exposition and were sold for pets, a nice little gold collar with a chain and pin attached going along with them, and so were fastened to ladies bosoms and gentlemen's neck scarfs, "The Society for The Prevention of Cruelty to Animals" soon stopped their sale here in Philadelphia as it was really a cruel proceeding to so confine them. While I had them they frequently cast their skins, it coming away in pieces. A person who had been to Chicago and who had purchased one adorned with collar and chain came to consult me once concerning its health, as seeing its coat drooping from it he thought that it might be unwell. A curious peculiarity that they had was that their tails by a little rough handling would break off, this did not appear to incommode them and there was very little bleeding from the parts. After I had kept mine awhile I concluded that I would liberate them in Fairmount Park. After I had turned them out on the grass I picked up one of the largest ones by its caudal appendage when its tail parted close up to the animals body. I have not heard how they got along after getting their freedom.

WM. BRINGHURST M.D.
Philadelphia Pa.

THE GREAT HORNED OWL.

(Bubo Virginianus.)

It seems a pity that such a beautiful bird as our Great Horned Owl is becoming so rare, especially in and around our more populated districts, but we as lovers of the feathered race perhaps feel it more than anyone else. I must confess however that I believe there can be no greater temptation placed before a Naturalist than to come upon one of these great feathered beauties, gun in hand and not risk a shot to obtain him for your cabinet, and the collector who is able to resist such a temptation and watch that great mass of feathers noiselessly glide away, not thinking in the meantime how well he would look mounted and at home in



GREAT HORNED OWL.

his cabinet but observing his every habit is in my estimation a true Ornithologist.

An old settler who came to this country some fifty years ago tells me that the Great Horned Owl—Hoot or Bat Owl he says they called it—used to be very common in this region at that time, and that they were frequently reminded of his presence by his midnight raids among the domestic fowl. How pleasant it must have been in the days gone by to hear at night two or three of these birds answering each other from the different woods around. Those days are past and gone and I am afraid they will never again return to us. In the past two years only three specimens have come under my observation, although I have heard indirectly of one or two others being seen. The bird is very shy in this locality and seeks as a nesting place some very retired spot, where its nest may be found in some lofty tree or else in some hollow rotten limb in an almost inaccessible tree. In my experience of collecting I have found it nesting near a house or in a small tree but twice, one of these times the nest was placed in a white oak about 20 feet from the ground and

contained two eggs. The other nest was built in a hollow limb of an oak about 25 feet up which was situated about 20 rods back of a mans barn and commanding a full view of the house. As a general rule in this locality the nesting season extends from February 25 to March 25, but of course it varies with the season.

FLOYD T. COON.

Milton, Wis.

EVOLUTION AND DISEASE

BY THE EASTERN EDITOR

A discussion like the present may at first sight seem out of place in a paper devoted to the study of natural objects, but upon examining closer the object is plainly seen. Most persons believe Pathology, as the science of disease is called, to be so outside the comprehension of ordinary individuals, and even in its general bearings so utterly devoid of interest to all but medical men, that much misconception prevails in the minds of even educated persons in regard to its fundamental principles. As a matter of fact Pathology is only a department of Biology, and in order to study the origin, cause and spread of disease, we must go back to the primary cell, even to the beginning of life. Here we intrude upon the domains of Biology and in order to make our understanding of that subject as complete as necessary, we must again intrude upon another plane, that of Natural Life. And it is by reason of the latter that I intrude this discussion upon my indulgent readers.

Paradoxical as it may seem, while so many regard disease or the Pathology of Life as occupying an isolated position among sciences, medical writers always point out the difficulty in framing a definition of the term, or indeed in pointing out the exact line where health ends and disease begins. If it be difficult to define disease when our remarks are restricted to the human family, it becomes obviously more difficult, when we attempt to investigate disease upon a broad zoological basis. As the great barrier which exists between man and those members of his class most closely allied to him, consists, not in structural characters, but in

mental capacity, it necessarily follows that there should be a similarity in the structural alterations induced by diseased conditions in all kinds of animals, allowing, of course, for the differences in environment. This we know to be the case, and it is clear that as there has been a gradual evolution of complex from simple organisms, it necessarily follows that the principles of evolution ought to apply to diseased conditions, if they hold good for the normal, or healthy states of organisms: in plain words then, that there has been an evolution of disease "pari passu" with the evolution of animal forms.

For a long time it has been customary to talk of physiological types of diseased tissues, and my earlier efforts were directed to searching among animals for the purpose of detecting in them the occurrence of tissues, which in man are found only under abnormal conditions. The search was of great value to me, for the statement proved to be true in only a limited sense; at the same time however the truth of an opinion held by nearly all thoughtful physicians, that disease may in many instances be regarded as exaggerated function, was forcibly illustrated, and it could quickly be seen, that the manifestations of disease were regulated by the same laws which govern physiological processes in general, and that many conditions regarded as pathological in one animal and perfectly natural in another.

It will be useful to illustrate this by a few concrete examples.

To take a simple case. The inside of our cheeks have a soft lining known as mucous membrane. In rare instances children have been born with tufts of hair growing in this situation. This of course is purely pathological.

A physiological type for such a phenomenon is found in the mouths of rodent mammals: the inside of the cheeks of rabbits, hares, porcupines, and the like, present natural patches of hairy skin.

Again: pigment is widely diffused in animal bodies, both under natural and unnatural conditions, using the term unnatural as equivalent to disease: this explanation is necessary, for disease being controlled by natural conditions can-

not logically be regarded as unnatural. Now, in the place we notice sundry collections of black pigment dotted among the scales. When examined critically the centre of each dot contains a white speck. These collections of pigment are due to a parasite. In the lungs of tigers, lions, monkeys and sheep are found similar pigmented spots around parasites. In man, horses and dogs, tumors of an inky black color, called in consequence melanotic, are occasionally met with. All these conditions are purely pathological. Under normal conditions however, cuttle fish (*Octopus* and *sepia*) possess an ink bag from which, when these animals are irritated, an ink-like pigment—sepia—can be ejected in such abundance as to color the surrounding water to the extent of a cubic yard or more, and under cover of which the cuttles escape from their enemies.

(To be continued.)

To any one who will send the names of eight new subscribers to the Oregon Naturalist and \$4.00, a copy of "Nests and Eggs of North American Birds," by Oliver Davie, - Fifth edition, - will be sent as a premium. This is the new edition, now in press, 700 pages, printed on fine laid paper and handsomely bound in cloth. This will be thoroughly revised, augmented, and profusely illustrated. Price, \$2.25

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Official Organ North-Western Ornithological Association.

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A. B. AVERILL, PORTLAND, ORE.
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Articles and items of interest on different branches of Natural History solicited from all.

Address all communications to
 THE OREGON NATURALIST.
 392 MORRISON ST. Portland, Oregon.

NOVEMBER, 1895.

CIRCULATION 3000.

Volume III of the Oregon Naturalist, begins with Jany. 1896. Subscribe now and you will receive the Christmas Number, containing a colored plate of the Yellow-bellied Flycatcher and Nest, in addition to many other illustrations. The subscription price is only 50 cents a year, the December number will positively not be sent out as sample copies.

If you are not satisfied with the paper you are taking, by its not coming regular, double numbers, or other cause, try the Oregon Naturalist the coming year.

Mr. Angus Gaines, who furnishes an interesting article this month and who is a popular contributor to various periodicals, says of himself; " My favorite occupation is translating, my favorite pastime is experimental electricity, my favorite study is zoology, with especial reference to herpetology. I do not study animals stuffed or in alcohol, but alive, and if possible in the state of nature. It is my practice to catch animals, keep them for a time to study them, and then to liberate them. Some times I gather up quite a small menagerie, for I have kept as many as forty snakes at one time."

Mr. F.G. Hillman of New Bedford, Mass. springs a surprise party this month. Note his offer in the Advertising Columns. A years subscription to the Naturalist to every one who makes a purchase of him to the amount of one dollar or over. To obtain this concession it will be necessary to mention this offer when placing your order.

" In the name of science". In a recent exchange, mention is made of the collecting of seventy four (74) sets of ruby-throat humming bird, by one party in three seasons. There ought to be many redeeming observations, (in black and white) connected with such wholesale robbery.

The "International Naturalist Directory." 1895. H.T.Booth, London, is out, and contains in addition to list of collectors. Lists of dealers, natural history societies, and publications devoted to natural science. This directory will doubtless prove very useful to collectors seeking foreign exchanges.

"British Birds, Their Nests and Eggs, Distribution, etc." 16 pages, price fourpence. Is one of the "Standard" series of "Natural History Handbooks for Collectors," published by H. T. Booth 381 Upcerne Road, Chelsea, London S.W. Contains list of British birds with notes giving location of nest, color and number of eggs laid, etc.

Messrs. Brown & Stout, Taxidermists of Milton Wis. Are prepared to ship fresh skins of birds of their locality.

DR. ALBERT E. FOOTE DEAD.

Dr. Albert E. Foote of Philadelphia the distinguished scientist, and one of the best known dealers in minerals and scientific books in America, died on Oct. 11 in Atlanta, Ga., to which place he had gone in charge of the Pennsylvania mineral exhibit.

He had been in poor health for some time and was in the habit of spending the winter in a warm climate. He had no idea the end was so near and believed his strength would be renewed if he could get to Florida.

Dr. Foote was born in Hamilton, N. Y., February 6, 1846. After graduating at Courtland Academy, Homer, N. Y., he entered the class of 1867 in the University of the State of Michigan, where he took the degree of doctor of medicine, being especially distinguished for his earnest work and scientific attainments. After some time spent as an instructor at Ann Arbor, he was appointed assistant professor of chemistry and mineralogy in the Iowa State College, which he held for five years, being very successful as a teacher.

In 1875 Dr. Foote removed to Philadelphia, and began the building up of a world wide business in minerals and scientific books. He was a life member of the Academy of Natural Sciences, of the New York Museum of Natural History and the American Association for the Advancement of Science. In 1872 he married Miss Augusta Matthews, a daughter of James Matthews, of Iowa, who with two sons and a daughter, survive him. Dr. Foote's extended travels both in this country and Europe made him well known in scientific circles.

The public will be pleased to learn that the business with which Dr. Albert E. Foote was identified for the past 20 years, will be continued with Mr. Warren M. Foote, a son of the deceased, as manager—a position which he has practically held for a number of years.

LEWIS'S WOODPECKER
Melanerpes torquatus, Bonap.

Previous to the year '93 I had not seen many of this species in this vicinity, but during that spring and summer I noticed them more particularly, than at any other time.

They staid around the orchards, for awhile, when they first came seemingly searching for insects or other pests which were hidden under the bark, but later they retired to the tall isolated stubs and stumps of the forest, to prepare for housekeeping.

I have watched these birds as they sat on some tall tree, where they could obtain a good view of passing insects. They would dart at an insect and pass on to another tree, back and forth they flew until their hunger was satisfied.

During the year '94 they seemed to be more plentiful, but they selected the tallest of our trees to nest in, therefore I did not obtain any eggs.

The male of this species, as of other species of the woodpecker, help in the excavation for the nest: while one rests and watches, the other works.

This year when passing a burn; I saw a "Lewis" perched upon a large short stub, as soon as he observed me coming toward him, he flew past me and perched on a tree. Thinking there might be a nest there I took a hurried glance around the tree and saw a large hole about ten feet from the top, I had seen the same hole many times and had thought nothing of it.

But this time I concluded to "shin up" and look in. Nearing the hole Mr. Lewis (for it was the male I had seen) came and perched on the top of the stub and looked at me as much as to say, "You will get fooled if you look in that hole," but never the less I kept climbing until the hole was reached, and to my surprise and disgust it was a "fake". I descended with more speed, begrimed and covered with coal dust, declaring. "That there was no nest in that stub"

Several days later as I was passing by this particular stub I saw Mr. Lewis perched on top. On examining the stub again (more closely than before) I noticed a small hole about one foot from the top, this, I said, must be the nest, but



LEWIS'S WOODPECKER.

to get to it was the next question.

By the side of the stub that the hole was in, grew a shorter stub. The top of this was about ten feet below the hole, and I thought, if I only had a ladder that would reach from one to the other I could get the nest.

Near by was an unoccupied cabin, and I was soon fortunate enough to find a light ladder that was soon carried to the tree. Then assistance was needed to help place it in position. Seeing a boy not far away I asked him to assist me, which he gladly did, I then tied a rope to one end of the ladder, and with the other end of the rope fastened to my waist, "shinned" the smaller stub, pulled the ladder up, dropped one end astride the large stub, then tied the end next to me securely, and was ready to cross over. I felt kind of "shaky" at first but crept very slowly until I was across.

Being successful thus far I determined to rest awhile, after which I took seven white and glossy eggs from the hole which was not so small when I got to it.

On blowing the eggs I was surprised to find that five of them were fresh and the other two badly incubated.

As I look through my cabinet and see those eggs, a vivid picture comes to my memory in which those two stumps and the ladder play an important part.

S. REY STRYKER,
Milwaukee, Oregon.



PIGMY OWL.

MAMMOTH TOOTH.

A genuine Mammoth tooth has been discovered in Champaign Co. Ill. It was excavated by workmen on a ditch in a swamp on the C. F. Percival farm in Philo township in the southeastern part of this county.

It measured 10 inches in length, 4 inches in width and weighed $7\frac{1}{2}$ pounds. It is in the hands of scientists of the University of Illinois, for classification.

HARRY E. SPALDING,
Champaign, Ill.

CORRESPONDENCE.

Washington D. C. July 27, 1895

Messrs. D. M. Averill & Co.
Portland, Oregon.

Gentlemen;

I notice that in the June number of the "Oregon Naturalist" you state that the occurrence of *Glaucidium gnoma* in Oregon has been questioned. I can surely see no reason for this doubt if expressed by anyone who is presumed to be familiar with the range of this species. The bird in question is probably found in suitable localities over much of the state; the form found along the coast being *Glaucidium gnoma californicum*, while that of the interior is *Glaucidium gnoma*. All question as to the validity of its claim to a place on your list of Oregon birds should be settled by reference to the following records: viz. Anthony, AUK III 1886 - page 165 Merrill, AUK V. 1888 - page 146. Bendire, AUK V. 1888 - pp. 366 et seq.

Harry C. Oberholser,
Dept. of Agriculture.

McCoy, Polk Co. Oregon,
Oct. 30th 1895.

Friend Averill

I pull out for the headwaters of the Clackamas tomorrow for Mammals.

I will try and send you an account of my trip on my return in about three weeks.

Yours in haste,

Bernard J. Bretherton.

Address me at
McCoy, Oregon

Mr. Hess of Eastern Oregon, informs the Naturalist, that, in the early days, he has frequently seen the Indians use the perforated discoidal stone - attached to a rope of hair or other material - to kill fish; being thrown at the rapids when they ascend the rapids in the

Escondido, Calif., Oct. 26, 1895

Mr. D. M. Averill,

Dear Sir;

I have been informed by Mr. W. E. Sherrill, of Haskell, Texas that his latest set of Mourning Dove taken this season, was on Sept. 13th, slightly incubated - he also took a set Sept. 2 which was fresh.

J. Maurice Hatch.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(12-) I have a coin, on one side is the legend "U. S. Subsistence Department," surrounding a spread eagle, on the reverse, "Good for one ration." surrounded by a wreath. Will some collector tell me what coin it is?

U. J. Hood River.

CLUB RATES

We give a list of Magazines with the subscription price of each and the price which we can furnish them with the Oregon Naturalist.

WITH NAURALIST

THE AQUARIUM	50 cts.	"	75 cts.
GAMELAND.	\$1.00	"	\$1.25.
MINERAL COLLECTOR	\$1.00	"	\$1.25.
THE NIDIOLOGIST,	\$1.00	"	\$1.15.
THE DOG FANCIER,	50 cts.	"	75 cts.
UNIVERSAL EXCHANGE	50 cts.	"	75 cts.
FARMERS MONTHLY,	50 cts	"	55 cts
BUSINESS JOURNAL,	50 cts.	"	65 cts.
BALTIMORE CACTUS JOURNAL,	50c.		75 cts.
EVERGREEN STATE PHILATELIST,	25 cts.		55 cts
THE IOWA ORNITHOLOGIST	40 cts.		65 cts.
THE NUMISMATIST,	\$1.00		\$1.25



THE OREGON NATURALIST.

VOL. 2.

PORTLAND, OREGON, OCTOBER, 1895.

No. 10

THE MURRES ON THE FARRALONES.

How many people know that for three months every summer hen's eggs in the markets of San Francisco have to take a back seat, giving precedence to the cheaper larger and handsomer eggs of the murre or guillemot, a sea bird which breeds in countless thousands upon the Farralone islands. A new and singular industry has been developed in the gathering of these eggs for the market by Italian and Greek fishermen, who peril their lives in frail fishing boats and in scaling the rocky islets for the eggs of the murre.

Three clusters of rocky islands of volcanic origin, thirty miles from San Francisco, in the Pacific ocean, form the Farallones, South Farallone being the largest and the only one inhabited.

They are difficult of access, small fishing boats or an occasional out-going tug being the only means of transit.

South Farallone is about a mile in length, and half a mile wide, everywhere cut up by jagged bridges, precipitous bluffs, pinnacles and rocky points, the highest, where the lighthouse is situated, being 340 feet above the sea.

The whole island may be said to be a veritable city of birds, covering their eggs in dense colonies, swimming and diving or wheeling by thousands through the air with shrill, incessant cries.

Besides the murre, which lays the marketable eggs, tufted puffins, western gulls,

three species of cormorants, cassin's auklet the ashly petrel and the pigeon guillemot breed in large numbers.

The eggs sell readily at twenty cents a dozen in the markets, and that they are considered valuable as a food supply is evidenced by the fact that one hundred and sixty thousand dozen are consumed annually.

In spite of this enormous product the birds seem to be almost as prolific as ever, although near the close of a season's collecting, "runt" eggs are found.

Two men who were left on Sugar Loaf, an isolated rock 185 feet high, collected one hundred and eight thousand murre's eggs in one season.

The eggers usually consist of twelve to fifteen men, who inspect the great rookeries early in the season to see if the birds have begun laying.

When the time is ready to begin work, a curious, but necessary performance takes place. The whole island is gone over and all the murre's eggs within reach are broken or thrown into the sea.

This is to insure fresh eggs, for the eggers maintain that an egg that has been sat upon for a day is unfit for market.

The egg collecting usually begins on Sugar Loaf, it being warmer there and more protected from prevailing winds.

This rock is reached by a boat, which is left in charge of a man, while four or five of his companions scale the dangerous cliffs and collect the eggs about its precipitous sides.

This is one of the most difficult places for collecting on the island, and ropes are made fast to enable the hardy Greeks to reach the more inaccessible places.

Two of the eggers have lost their lives on this rock. One of them fell into the sea and his body was never found.

He had unwisely put too many eggs into his shirt, and while crossing a narrow shelf the eggs actually crowded him off.

Other accidents of minor importance occur frequently.

One egger who had some ten dozen eggs in his shirt fell and rolled about twenty feet. He was uninjured, but egg soaked.

The Great Arch, a wonder of the island, forming a natural bridge where the surf churns in from the sea below, is fairly covered with murre, and even far down on the dizzy sides of the chasm they find a place for their eggs on the shelving rocks.

Here, where it would seem to be suicide to follow them, the adventurous eggers risk their necks to gather hundreds of dozens of eggs.

The collecting outfit of the egger is simple. A cotton flour sack is made into an "egg shirt" by cutting out a hole in the bottom for the head, and one on each side for the armholes; a gathering string about the mouth of the sack permits it to be drawn tightly about the waist, while a slit down the shirt in front makes an opening for stowing away the eggs. A little of the coarse Farallone weed, the only vegetation to be found on the island, is used for a shirt lining. It is astonishing how many of the large eggs can be carried in such a shirt, eighteen to twenty dozen being considered a fair load for each man.

When an egg shirt is filled it is emptied into a basket to be taken to the landing.

If overtaken by night the eggers dump the eggs into a pile, sometimes containing one thousand dozen, until the next day.

The eggers are themselves half pirates, trespassing on Uncle Sam's islands, and

the United States authorities have, on a number of occasions, forcibly removed them, only to have them return at the first opportunity. One year the eggers secreted themselves in the great Murre Cave, while the revenue cutter Corwin hovered about the island for hours. The men live in caves, or in tents made of old sails and spars, and with a plenteous supply of macaroni and sour wine, they are a contented and jolly crew. Of course, they may have eggs in any style, and fish are plentiful.

Besides, though the island has no trees and hardly any vegetation, it fairly swarms with rabbits. Among them are many beautiful silk-haired ones, said to have been placed there by the Russians, many years ago during their intrenchment on the mainland.

San Francisco Examiner.

ABOUT THE N. O. A.

As the time of meeting of the North-Western Ornithological Association draws near, bird students of the North-west are manifesting their interest in the association. Several veteran ornithologists have made themselves known to the association since organizing, and it is expected that the researches of the N. O. A. will be given a new impetus the coming year.

The annual meeting to be held next December will be the largest and most interesting of anything of the kind ever held in the Northwest. Besides the reports of the officers and regular business of the association, there will be a number of scientific papers read.

Considering that this is the first year of its existence, and that few of the members have been extensive field collectors, the association has accomplished a great work.

All of the available material for a list of Oregon birds, has been collected and will be ready for publication next month.

This list will not be complete, but will

be by far, the largest list of birds of this state ever published, embracing some 240 species.

The publication of notes of Oregon birds has been discontinued during the summer months, as the members have not had time for preparing their notes, but will be resumed after the yearly meeting.

ARTHUR L. POPE.

Sheridan, Oregon.

WIND CAVE.

This wonderful cave is situated ten miles from Hot Springs, in the Black Hills of South Dakota, and was discovered by a cow boy in 1830 by the roar of an out-rushing current of wind, from which it takes name. Nothing was done in the way of improvement until 1890, since then explorations have been made until ninety miles of passages and three thousand rooms have been found, and twelve thousand dollars have been expended on inside improvements, making this the finest and largest cave in the known world.

Although this cave is new and not extensively advertised it is attracting the attention of the general public, and is pronounced by all who see it, a wonderful work of nature.

There are eight different levels or tiers of chambers overlying each other, as an eight story house. Each level is of different formation. At present there are fourteen routes, but only two, Sampson's Palace or the short route, and Castle Garden or the long route, are opened to the public.

Wind Cave is in the limestone formation, but strange to say only few stalactites or stalagmites have been found, owing no doubt to the extreme dry climate of this country.

Calcite and quartz geodes, coral, fossils, a stalagmite formation resembling popcorn, a calcite formation called boxwork on ac-

count of its resemblance to little boxes or pigeon holes in a desk, are found, and a beautiful, delicate, white and pink formation, which out rivals any of Jack Frosts wonderful work. This formation is called frost work. Eminent Geologists say that the last two formations are only found in Wind Cave.

After a beautiful drive of ten miles north of Hot Springs in a fine four horse tally ho coach one arrives at the cave, and after a good dinner at the Wind Cave Hotel, every thing is in readiness to make a trip into the cave.

Descending one hundred and fifty-five feet on easy stairs we arrive in the first room, the Brides Chamber. This room is not large, but was so named by a romantic couple being married there some years ago.

We then pass Lincoln's Fireplace, Prairie Dog Town, Snow-ball Room, Church Steeple, and into the Post Office. This room is one half mile from the entrance, and was so named by the perfect box work on the ceiling resembling post office boxes. The room is about two hundred feet long by sixty feet wide with a dome about eighty feet high. From here we go into Red Hall, so named on account of the walls being of a red formation. The room is larger than the Post Office, and of a more regular appearance.

The next is White Room, then Grand Opera, Devil's Lookout, Milton's Study, Sampson's Palace, Swiss Scenery, Queen's Drawing Room, and the Methodist Church, which is one mile from the entrance. From here we go into the Giant's Causway, Lena's Arbor and Capitol Hall.

This is the largest room on the short route containing about three quarters of an acre with a very rough, picturesque appearance. The ceiling being from forty to fifty feet high. A number of Rochester lamps are suspended from the ceiling of this room, and the effect is wonderful, giving one a small idea of how electric lights will bring out the scenery.

The next room is the Amphitheatre, then Turtle Pass with the monster Turtle, and then the Confederate Cross Roads. This is the junction of the Sampson's Palace route, to the Garden of Eden, and the Castle Garden route to the Fair Grounds and Pearly Gates. The next room is the Stone Quarry, being as natural a stone quarry as any one could find. The stone, which is Lime, lies in layers about ten inches thick, and some very fine blocks and slabs have been quarried. Bishop's Gaze is the next point of interest, being a crevice one hundred and twenty-five feet high, and lighted with one hundred candles.

Then we pass into Fallen Flats, two miles from the entrance and three hundred and fifty feet below the surface. This is the lowest point on this route. We then ascend Cliffclimbers Delight, a climb of sixty feet on easy stairs, to Five Points, a place where five routes connect.

Next comes Omaha Bee Office, W. C. T. U. Hall, Silent Lake, Daily Nebraska State Journal, Cathedral, with its piano, whose keys are long clear stalactites, that give a clear mellow musical tone when struck with a pen knife.

The next room is the Garden of Eden, two and one half miles from the entrance, and the end of this route. This room contains about one half an acre and on all sides can be seen the beautiful white and pink frostwork. Exclamations of surprise and pleasure are heard on every hand from start to finish. A very faint idea of the rare beauties, the varied and peculiar formations, can be conveyed in language.

They must be seen to realize the extent, the grandeur, the sublimity of this wonderful place. The air is not damp, nor does water drop from the roof, except in a few places, and a uniform temperature of 45° degrees is maintained throughout the year.

GEORGE A. STABLER.

It is reported by good authority that the Den ny pheasant sometimes lays her eggs in other nests than her own.

WRITTEN FOR THE OREGON NATURALIST:

RARE MINERALS FOUND ON NEW YORK ISLAND.

The resources of New York Island have been added to, in the finding of Monazite, a Phosphate of Cerium, Zanthanium and Thallium, and Zenotime a Phosphate of Yttrium, by the digging of the Mica Schists at one hundred and eighty-fifth street. They were found by Mr. William Niven the well known mineralogist, and I also found them there. The Monazite in large quantities. The first is in waxey greenish crystals and the last in flesh colored scales.

These are both rare, the Monazite being found at Notero in Norway. at Norwich, Connecticut, and in North Carolina. The Zenotime in Norway, Sweden and Georgia.

Besides being minerals of scarce metals they are used in making the famous incandescent light, also they are of interest to the chemist for experiment in his laboratory.

In one of this group of Yttrium and Thorium minerals, namely Cleveite, Professor Ramsay has just discovered the presence of the elements Argon and Helium and the statement has been made that all of the minerals of this group contain these new elements more or less.

The crystals found are said to be worth many thousand dollars.

Prof. ARTHUR M. EDWARDS, M. D.
Newark, N. J.

Most young collectors, and in fact, older persons of experience, are often surprised to hear that garnets come in other colors than red.

It seems quite common, to speak of the garnet shade, yet garnets are of almost every color from a yellow to a green. The Bohemian garnets represent the supposed constant color.

Grossularite garnets are found in California, fine almandite garnets in Alaska, yellow-green in Arizona, and fine garnets have been shown recently, reported to have been found in Eastern Oregon.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR

"CHAT."

If you receive a copy of this number and have not sent us your subscription, do not delay it a moment longer. We have sent many samples, but this cannot continue always.

Mr. H. C. Higgins, Cincinnati, N. Y. is chairman of the "Division of nesting of the Wilson Ornithological Chapter" of the Agassiz Association. The last report of the chapter, entitled, "The American Crow, and prepared by Mr F. L. Burns, was a masterpiece.

We are in receipt of a series of "Guide Books" for the Student of Natural History edited by Edward Knobel, and published by Bradlee Whidden, Boston. The series consists of, *Trees and Shrubs of New England*, *Ferns and Evergreens of New England*, *The Butterflies of New England*, and *The Beetles of New England*. They are printed on fine glazed paper and at the low price of fifty cents, are to be recommended to every student.

Look out for the man with the fine set of 26 Mongolian Pheasants eggs, collected and positively identified by himself.

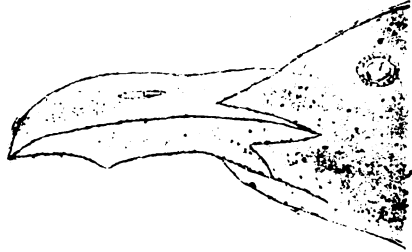
Remember it is far better to establish one fact in the life history of a bird than to add its skin, nest and eggs to your collection.

We want every Eastern observer to send their finds, takes and items of interest to Dr. C. C. Purdum, City Hospital, Baltimore, Md. Any article, never mind how long, so long as it is of interest to the student of natural history, will be accepted and published, if of authentic origin and real worth. We all see some curious things during the year. Take a few minutes to write them up, and thus confer a favor upon the three thousand readers of the OREGON NATURALIST.

We have the promise of a few lessons on "The Anatomy of Birds." by "Ossa."

These articles will be presented in a concise, though scientific manner and with the articles and a specimen before you, much knowledge may be acquired if an interest and attention is given the subject.

Address all Eastern communications to C. C. Purdum, Baltimore City Hospital, Baltimore, Maryland.

BILL OF WHITE HEADED GULL, ($\frac{1}{2}$ nat. size.)

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS.

C. C. PURDUM.

Continued from page 122.

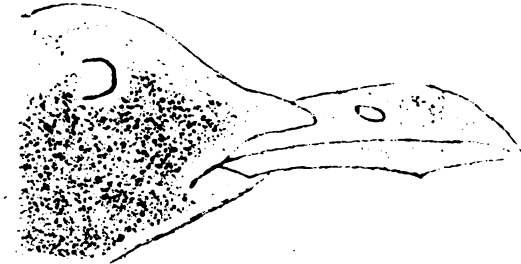
Before considering the different individuals of the order of *Longipennes* or long-winged swimmers, it will be well to glance somewhat superficially at the anatomical peculiarities, or rather *Characteristics*. The wings in a typical *Longipenne* will be long and pointed, reaching when closed to the base, and in many cases *beyond*, the base of the tail, and in some cases even beyond the *end* of the tail. The tail is usually rather lengthened than otherwise and oftenest of twelve rectrices. The legs are perfectly below the center of gravity when the bird is in a horizontal position. The tibiae are naked below and the anterior toes palmate.

This order, which may be recognized among web-footed birds by the foregoing external characters, is rather less substantially put together than either of the two preceding groups

mentioned — not that its components are not sufficiently related to each other, but because the essential points of structure are shared to a considerable extent by other groups. Thus, the osteological resemblances of the longipennine birds with loons, auks and plover, are quite close, while the digestive system agrees in general characters with that of other fish-eating birds. First, let us consider some of the characteristics of *Laridae*; including Gulls Terns *etc.*

This family includes four leading genera, all of which occur in North America.

The bill is of moderate length. The upper mandible may be either longer or shorter than the lower; the commissure very large. The eyes are of moderate size and are placed directly over the angle of the mouth. The wings are long, broad, strong, pointed, with little or no concavity. The thighs are entirely covered and concealed. The anterior toes are of moderate



BILL OF LAUGHING GULL, ($\frac{2}{3}$ natural size.)

length, the middle, usually about equal to the tarsus. The claws are fully developed, compressed, curved, more or less acute, the edge of the middle, dilated, but not serrated. The body is generally rather full, but sometimes slender. Neck rather long, head of moderate size. The plumage is soft, close and thick, simple in color, white, black, brown, or pearl-blue predominating; bright tints are hardly found, except on the bill or feet, or as a temporary condition. The sexes are alike in color, but the

plumage varies greatly with age and season.

The representatives of this class, in this locality, are as follows: Skua, *Megalestis squa*. Pomarine Jaeger; *Stercorarius longicaudus*, Kittiwake; *Rissa tridactylus*. Great Black-backed Gull; *Larus marinus*. American Herring Gull; *Larus argentatus smithsonianus*, and the Bonaparte's Gull, *Larus philadelphia* of which we will speak further in our next paper.

(To be continued)

TO THE READERS OF THE NATURALIST,

Two rather unusual incidents in the bird world happened here early in the spring. Two robins built a nest near the ladies dormitory, in a pine tree. For some unknown reason the nest was deserted. Soon after a pair of doves with an economical eye took possession of the deserted home and soon altered the nest to suit their taste where they were successful in rearing their young.

Two robins attempted to build a nest in a tree near that in which the above nest was

built. They had the nest about half done when the sparrows commenced to carry it away, and despite all the robins could do their nest was destroyed and carried away. They tried it again and met with the same result and finally gave up in despair,

L. S. HOPKINS.

Antioch College,

Yellow Springs, Ohio.

The Oregon Naturalist will be sent for the remainder of year, free to all new subscribers.

ENTOMOLOGICAL-GEOGRAPHY.

(Continued from page 119)

Let us now, after having reviewed the general distribution of *Diurnal Lepidoptera*, examine into the dispersion of a few genera and species of the *Nocturnal Lepidoptera*, commencing with the great family *Spingidoz.* and taking, for example our familiar *Deilephild daucus*, which has a very wide distribution, being spread over portions of the West Indies, North America and Europe; while the beautiful *Choerocampa Nerei* is confined to the sub-tropical regions of the Old World, being found in Natal, Sierra Leone, Italy, Greece and Ceylon. *Sphinx quinque maculata* and *satillia* is confined to the United States and parts of Canada. The beautiful *Smerinthus humolinii* is confined to Natal, and *Coeqrisosa australis* to Australia. The beautiful genera *Uranidæ* of which we have representatives in the Oriental regions and in the West Indies. Take the sub-family *Pericopidae*, which are exclusively West Indian forms. On glancing over a case or two and placing them by side a case of *Heliconis* we notice a striking similarity, so it is the same between the *Uranias* and *Papilios*.

However it is not the subject of this paper to discuss the imitative characteristic as displayed in the Insect World, but at some future time to try to pay some attention to this delightful field of study.

As has before been stated the original home of the above group is the West Indies, that they are confined thereto with the exceptions of *Bizarida optima* which is found scattered in parts of the Malayan Archipelago; *Euschema flavata* in Timor; *Euschema bellona* is dispersed through-out a greater portion of India, while *Proesos mariana* is found in Australia, and *Erasmia pulchella* is a native of North India.

Again we find a number of beautiful species of this group to be spread over portions of South America, such as *Eucyane melixantha* and *E. glauca*, of Brazil.

We pass now to the *Bombycoidæ* proper, of which we have representatives in most every

country of the globe. The number of North American species is very great, hence we will only mention a few. Take the *Saturniidae*, such as *Samia cecropia*, spreading over a great portion of the United States and parts of Canada; while *Samia calveta* is confined to portions of Mexico, *Telea polyphemus* is found in both North and South America, while *Attacus luna* is dispersed over the United States and parts of Canada. The beautiful *Trope inoe* are confined to North India. The genus *Hyperchirea* is a very large one, having a very wide distribution over the Western Hemisphere, being well represented in other countries.

Again let us pass on and take as an example of very wide distribution *Heliothis Armigera* of the genus *Xylentes* being found in Europe, Gibraltar, Navigators island, Rio de Janeiro, Nat. I, Congo, Venezuela, parts of the United States, West Indies, India, Australia and Ceylon, while *Eudryas grata* and *Englyphia hieroglyphica* are confined to parts of North America.

The great and interesting family *Nocturidæ* are found to be dispersed over the earth's surface but are more abundantly found upon the American continent. The group *Trigonodes* are confined to parts of India, China, Africa, Australia and Java. So is the family *Catocalia* confined to the North American continent, while the family *Geometridæ* is spread over the whole northern hemisphere.

The last group that can be mentioned in a paper of this nature is the *Ersteinas* which is mostly confined to Brazil and greatly resembles to a certain degree our *Papilios*.

Such though briefly, I have attempted a review of the distribution of some of the more important families, genera and species of butterflies and moths as they are dispersed over the earth's surface, aided by the prevailing winds.

The distribution of species constantly takes place overlapping one another, until we have a commingling of forms representing as many climates or zones.

In one given territory of a subtropical or south temperate nature such as Japan, we have an overlapping of Asiatic, Australian, African, European and North American forms all

commingled into one great fauna, which has called the especial attention of the geographical naturalists for a number of years in solving, and they are nowhere complete as yet.

"Another important factor," says Dr. A. R. Wallace, in his *Island Life*, page 73, connected in this field of investigation, "is the immense antiquity of insects, and the long persistence of many of the best marked types."

The rich insect fauna of the Miocene period in Switzerland, consisting largely of genera still inhabiting Europe, and to a considerable extent identical, or almost so, with living species.

Out of 156 genera of Swiss fossil beetles, no less than 114 are still living; and the general character of the species is like that of the existing fauna of the southern hemisphere in a some what more southern latitude.

Well may I ask: What existing forms have we to day, likely to give us a faint resemblance of a once tropical insect fauna spread over the earth's surface, before the cooling process had set in?

Such questions as these present themselves to us when studying out such problems.

These subjects will have to be left for some future time, also will I devote a paper to the subject of "Palae-Entomology" which comes in direct harmony with the study of the distribution of insects.

Drawing the line of comparison with such a marked degree of certainty as Dr. Wallace does all through his delightful work, the reader, when he has done with its perusal will have gained many important points that are laid down in these practical lessons.

It is hoped that the student will follow as close as he can the line of investigation as is outlined by Dr. Wallace.

A. S. VAN WINKLE.

TAXIDERMY.

HOW TO EMBALM

These receipts are the ones generally sold and used by the persons who have done the most presentable work embalming, which at the best is a very poor substitute for skinning and

properly poisoning and mounting. Any method of embalming will be found to be very unsatisfactory, and not to be recommended.

"Receipt for embalming birds and small animals.

Nux Vomica,	1 drachm.
Alum,	6 ounces.
Arsenic,	18 "
Gum camphor,	2 "
Sal ammoniac,	19 drachms.
Calomel,	2 "
Chloride of zinc,	½ "
Chloride of sodium, (salt.)	3 ounces,

Pulverize each separately and mix by passing through a fine sieve.

For small birds take out the entrails, and fill with the powder.

For larger birds remove the skin, powder it and the carcass well, replace in skin, place the specimen in the position desired, while it is green, tie it and allow it to dry. E. W. M. "

The next receipt is evidently the Wickersheimer solution worked over.

" FOR MAMMALS

White arsenic,	2 ounces.
Carbonate of potash,	¾ ounce.
Salt-petre,	⅝ ounce.
Sulphate of potash,	1 ounce.
Fine salt,	3 pounds.
Borax,	2 ounces,

Dissolve in 17 pints of hot water, add one pint of glycerine, and after the solution has become cold add seven pints of alcohol,

Remove the eyes and entrails, substituting cotton therefor and place the specimen in the liquid, allowing it to remain for several days.

Then take specimen out of the solution, tie in position and dry. W. B. M. "

The next receipt and method has been proved to be the best.

Birds embalmed with this powder, more than twelve years ago, are now in a good state of preservation.

Mix intimately,
 One pound of powdered alum.
 One pound of powdered arsenic.
 Three pounds of fine salt.
 Four ounces of corrosive sublimate.

Take out, through the mouth, the eyes and brain of the subject. Take out the entrails.

For birds, push a wire through each foot and leg, so that the ends will come out within the cavity from which entrails was taken.

Twist ends of wire together. Fill skull and body with the powder, and sew the opening.

Make a cut lengthwise under each wing and fill with the powder. Set glass eyes in the head.

Put bird on stand, and tie in position until dry and rigid. Small mammals are treated in like manner, but need not have the legs wired.

Extreme care should always be exercised when handling or using any preparation containing arsenic or mercury, on account of their poisonous properties.

FIELD NOTES.

On June 1, 1894, while collecting with Mr. Wade H. Pipes, near Sunnyside, Oregon, we flushed a Parkmans Wren from the foot of a fir tree. On examining the place from where she had flown, we discovered a nest and five fresh eggs.

The bark had been separated from the tree about a foot from the ground and the nest was placed under the bark.

Leaving the nest and returning on June 5, we found the bird sitting on a set of six eggs.

After packing the eggs, I removed the nest which seemed to be large, but noticed nothing unusual until I started to examine it. When I found that there was an old nest under the new one. Removing the top nest I found a dead wren setting on five eggs.

We immediately held a post mortem examination, but finding no cause for death, supposed it was a case of heart failure.

From the condition of the bird and the contents of the eggs, which were just beginning to dry up I would say that the bird had been dead twelve or fourteen days.

I suppose that the male, immediately after the death of his first wife, had procured another and started his second house on what he considered a solid foundation.

While collecting with Mr. R. S. Stryker, out

by Fulton, on the 19 of last April we noticed another circumstance in this same line of observation.

We were going up a canyon looking for Western Winter Wren's nests, when Mr. Stryker found a nest of that species in the side of an upturned root a few feet from the creek.

From where he was standing he could see that there was a bird on the nest, but when he approached the nest he discovered that the bird was dead. Removing it from the nest and examining it, we found that it was a full grown bird of the same species as the nest, and had not been dead more than two or three days, at the most.

From the appearance of the nest we were sure that it was at least a year old.

We could find no cause for death and I supposed that the bird had hatched a brood there the year before, and, had probably gone back in there for shelter and died.

WILLIAM S. FINLEY,

Portland, Oregon.

NEW YORK STATE INDIAN RELICS.

Although in New York State the beautiful semi precious stone bird points are not found that are so common in Oregon, New Mexico and other Pacific and Western States, we find many fine arrow and spear heads, mortars, beads, celts, axes, gorgets, etc. The mortars, are rather few in numbers in the south central part of the State but I have had the good luck to find one last April in a pile of stones.

Doubtless it had been brought from the fields near the creeks where many of the finest relics are found. The finest relic ever found here or in any other part of the state in the line of beads, was found on Oak Hill, about five miles from Newark Valley, by a farmer. It was made of green porphyry carved in the shape of a duck and is highly polished for a relic of this kind. It was first sent to the Metropolitan Museum of Natural History in New York, where a cast was made of it. It is now in the collection of a friend

of mine. In this valley of the Western branch of the Susquehanna River, are many Indian mounds, which before the summer is over I expect to explore. I would like to correspond with Archæologists of the West.

LEE ROY J. TAPPAN.
Newark-Valley, N.Y.

NEST OF THE MAGPIE.

Description of a nest of the American magpie taken in Whitman county, Washington.

March 22 a pair of magpies commenced to build their nest, eight feet from the ground, in a small balm tree, — located in a dense thicket of thorn shrubs, close by a small creek: — by first laying and interlacing small twigs of thorn, seemingly those having the most spines on them. The twigs were laid and built up until the nest proper was formed. All spaces between the twigs was filled with mud as the work progressed. The nest was then lined with fine roots.

April 10 a roof was begun, made in the manner and of like material as the nest proper.

This roof was built until it entirely covered the substructure, and became a part of it, leaving only a suitable hole on the east side for exit, and a much smaller opening on the opposite side.

The nest was now a bulky structure of dried mud and twigs, impervious to wind or rain.

Leaves of the pine were then laid and arranged upon the roots previously used as lining, long horse hair incorporated with the leaves finished the lining, and the nest was complete.

On May first the first egg was laid; on each alternate day one egg, until on May seventh the fourth and last egg was laid. Incubation began on the succeeding day.

The eggs measuring 1.23 x .81, 1.22 x .80, 1.27 x .82, and 1.26 x .82, are pale, of a very slight greenish tinge and thickly spotted and dashed over the entire surface, with brown and paler purplish brown.

The nest is a heavy bulky structure; over 21 inches in height, including the roof or covering and quite difficult to handle, owing to the multitude of thorns projecting from all sides.

In the selection of a nesting site, all the materials were close at hand and easy to obtain some of the thorn was dead, thus furnishing the twigs. The mud was obtained from the banks of the stream that furnished the fine roots, the pine leaves from a tree growing close by the thorns, and the horse hair, that had caught on the thorns could be had in sufficient quantity for the purpose.

After a week, the nest was taken, for the reason that some boys having discovered the nest were about to destroy it, the magpie being a bird of ill repute among them, not undeservedly so, for it has a strong habit of picking grubs from the cattle's hides.

Would it stop with the grubs, all would be well, but not content with grubs alone, it continues, and a raw spot once found is pecked by the magpie in their desire for flesh food.

A. B. A.

HOW MINERALS CHANGE COLOR.

It may not be generally known that many minerals lose their color or fade when exposed to light. Experienced collectors frequently keep their most finely colored specimens in a dark place. Fluorite is especially liable to fade. Amazon stone, however, sometimes gains in color when exposed to light.

A greenish gray feldspar from the granite veins of Ammerberg has been found to assume a bright emerald green when exposed to the air.

Experiments made by placing fragments in sealed tubes and exposing them to the light for a year, led to the conclusion that air and moisture had no influence, but that light alone effected the change in color.

I am glad to say that I have never received more (or even as many) replies to my notices, than those in the "Oregon Naturalist" and I think it is the best advertising medium I have ever tried. I exchanged all my sets listed in the Aug. No. ten days after the paper arrived.

WALTON MITCHELL.

SOME OREGON MAMMALS.

THE JUMPING MOUSE.

Zapus hudsonius, (sp.?)

No rodent in the writer's collection has excited more interest than has a mounted specimen of the Jumping Mouse, (sometimes mis-called "Jaboa.")

This little natural curiosity is of a dirty yellow color on the dorsal surface, fading into a slaty central line, which in specimens from Northern Washington show a distinct pear shaped pattern. The length of the head and body is about three inches, while the tail is five inches and extremely slender towards the tip. The fore limbs are short and weak while the hind limbs are very long, giving the animal the exact appearance of a miniature kangaroo with a very large head.

Jumping Mice are found in favorable localities in all the foot hills of the Coast Range Mountains in Oregon and Washington, (probably other localities of which the writer has no knowledge.) On the ocean side of the range they may be found directly on the sea board; in fact during last summer a number were captured on the peninsula which separates Yaquina Bay from the ocean.

Their food consists of plants, and grain when obtainable, which they gather in their internal cheek pouches with which they are provided; and what is not at once eaten is stored in the nest for future use.

The nest is composed of dry grass and situated at the end of a hole burrowed about two feet under the surface of the ground. In this nest the animal hibernates during the winter months and in it also the young are born in the spring, generally four in number.

When at rest or undisturbed the Jumping Mouse rests the whole of the meta-tarsus on the ground; the toes of the hind limbs being on the outer side and in front of those of the fore feet and in this manner they will shuffle along.

The writer was fortunate in having in his possession two living specimens for a while, perfectly healthy and active, from which the

following notes were made. They never attempted to walk upright but would run around on all fours, rising on their hind feet to survey any taller object, and, when satisfied would settle down on all four feet again.

The average length cleared in a single bound when jumping was three feet and the highest elevation reached was thirteen inches.

Experiments were made to ascertain if they would jump a perpendicular height, but when placed in a narrow box with sides a foot high, they could not be induced to make any attempt to spring up the sides, but when alarmed would only cower in a corner. They seemed to rely on hearing more than sight to warn them of danger, and would take alarm at the striking of a match quicker than anything else.

After a few hours in captivity they showed no fear of being handled, and would play all over the writer's person.

So far naturalists have recognised but one species of *Zapus* in North America, but there are undoubtedly more, which future investigators will show.

BERNARD J. BRETHERTON.

MCCOY, OREGON.

To any one who will send the names of eight new subscribers to the Oregon Naturalist and \$4.00, a copy of "Nests and Eggs of North American Birds," by Oliver Davie, - Fifth edition, - will be sent as a premium. This is the new edition, now in press, 700 pages, printed on fine laid paper and handsomely bound in cloth. This will be thoroughly revised, augmented, and profusely illustrated. Price, \$2.25.

For the addresses of two new subscribers and one dollar, a copy of the Oregon Naturalist will be sent free for one year, or, three subscriptions for one dollar.

For 75 cents, the Oregon Naturalist will be sent to any address in the United States for one year, and in addition, Scott's, fifty-sixth edition Catalogue of U.S. and Foreign Postage Stamps, will be sent, as soon as out.

A. FRAGMENT OF GEOLOGY.

Where the Columbia River breaks through the Cascade Mountains there are found, beneath the overlying lava: First, Along the water's edge, and for about fifteen feet upward, a very coarse conglomerate of rounded porphyritic pebbles and boulders of all sizes up to five or six feet in diameter, cohering by an imperfectly lithified earthy paste.

Second. Above this conglomerate is a very distinct, irregular, old ground surface bed, in which are found silicified stumps, with their roots spreading out over twenty feet in diameter and penetrating into the boulder material beneath evidently *in situ*. This is undoubtedly an old forest ground surface.

Third. Resting directly on this ground surface, and therefore inclosing the erect stumps, is a layer of stratified sandstone, two or three feet thick, filled with beautiful impressions of leaves of several kinds of forest trees, possibly of the very trees about whose silicified bases they are found. This layer is not continuous, like the ground surface on which it rests.

Fourth. Above this stratified leaf-bearing layers, rests a coarse conglomerate similar to that beneath at the water-level. Scattered about in the lower part of this upper conglomerate and in the stratified sand-stone, and sometimes lying in the dirt-bed beneath it, are fragments of trunks and branches of oaks and conifers, in a silicified or lignitized condition. They are evidently silicified drift-wood.

Fifth. Above this last conglomerate, and resting upon it, rise the layers of lava, mostly columnar basalt, one above another, to a height of more than 3,000 feet.

All these facts were noted and studied by Professor Le Conte, who drew the following order of events from them.

First The region of the Columbia River was a forest, probably a valley, overgrown by conifers and oaks. The subsoil of this forest was a coarse boulder drift produced by erosion of some older rocks.

Second. By excess of water, either by floods or changes of level, the trees were killed, their

leaves shed and buried in mud, and their trunks routed to stumps.

Third. Tumultuous and rapid deposit of coarse drift containing drift-wood, covered up the forest ground and the still remaining stumps, one hundred, perhaps several hundred, feet in thickness.

Fourth. The surface thus formed was eroded into hills and dales.

Fifth. Then followed the outburst of lava in successive flows, perhaps for a long period of time, and the silicification of the wood and the cementation of the drift by the percolation of the hot alkaline waters containing silica, as happens so commonly in sub-lava drifts.

Sixth. Finally followed the process of erosion, by which the present stream channels, whether main or tributary, have been cut to their enormous depth.

The great masses of sediment sent down to the sea from the primary Cascade range, forming a thick off-shore deposit, gave rise in its turn at the end of the Miocene to the upheaval of the Coast range, and, coincidently therewith, the Cascade Mountains were rent along the axis into enormous fissures from which outpoured the grand lava floods, building higher the mountains and covering the country for great distances.

This is probably the grandest and most extraordinary lava flow which ever took place in the world, covering as it does an area of about 200,000 square miles of the Western States and Territories. Commencing in Middle California as separate streams, in Northern California it becomes a flood, completely mantling the smaller inequalities, and flowing around the greater inequalities. In Northern Oregon and Washington it becomes an absolutely universal flood, beneath which the whole original face of the country, with its hills and dales, mountains and valleys, lie buried several thousand feet. It covers the greater portion of Northern California and Northwestern Nevada, nearly the whole of Oregon, Washington, and Idaho, and runs far into British Columbia on the north. The average thickness of this tremendous flood is probably not far from 2,000 feet. This is shown where the Columbia, Des-

Chutes, Snake, Salmon, and other rivers cut through it. Its greatest thickness is not less than 3,700 feet, as demonstrated by Professor Le Conte.

To produce this enormous thickness many successive flows took place, and very long periods of time must have elapsed during which the volcanic actions were going on.

“Report of an examination of the Upper Columbia River, (Page 99.)”

by Lieut. THOMAS W. SYMONS.

Every collector should embrace the opportunity to secure a specimen of Itacolomite or flexible sand-stone, now offered by Mr. R. D. Hay in another column. To quote from an authority, “Itacolomite, is a peculiar metamorphic schistose rock accompanying talcose slate and schists, composed principally of quartz grains and hydrous mica. Its flexibility is peculiar bending as though made of short joints.” It is found in Brazil, the Ural mountains, and parts of the United States, particularly those sections where there is gold.

As the result of a blast on the Lower Columbia, Rev. Roland D. Grant of this city, secured some excellent Chabazites.

CLUB RATES

We give a list of Magazines with the subscription price of each and the price which we can furnish them with the Oregon Naturalist.

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THE DOG FANCIER,	50 cts.	“	75 cts.
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THE IOWA ORNITHOLOGIST	40cts.	65cts.	
THE NUMISMATIST,	\$1.00	\$1.25	

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(10.) Does the Denny Pheasant raise more than one brood a year? C. H. B. Boston, Mass.

It is not true that the male ring-neck assists either in the incubation or rearing of the young.

Pheasants at an early age become self reliant and seek their own food. The hen is very shy at this time and does not often appear except at morning or evening. The cock being bolder is often seen with the brood, but, not in charge of it. As soon as the young are three weeks old, which is as early as they are often seen with a cock, they are large enough to take care of themselves and rely on neither parent for food or direction. Their gregarious instinct keeps them together. I am firmly convinced that the hens do not raise a second brood in any year.

I have much evidence against that theory and *absolutely nothing* but bald assertion in its favor.
M. O. LOWNSDALE

(11.) Observed the Lewis Wood-pecker, Sept. 24 Is that not late for this locality?

I would like to hear from observers, through the Oregon Naturalist; as to this bird's range.

How far north do they go and where do they winter? also any notes on their migration.

C. W. SWALLOW.

(12) I have a coin, on one side is the legend “U. S. Subsistence Department,” surrounding a spread eagle, on the reverse, “Good for one ration.” surrounded by a wreath. Will some collector tell me what coin it is?

U. J. Hood River.

Until January 1, The Oregon Naturalist and The Evergreen State Philatelist, will be sent to any address one year, for only 55 cents.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

EDITORS.

A. B. AVERILL, PORTLAND, ORE.
Dr. C. C. PURDUM, BALTIMORE, MD.

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392 MORRISON ST. Portland, Oregon.

OCTOBER, 1895.

CIRCULATION 3000.

SUBSCRIBE to the OREGON NATURALIST, and be in line to receive our Christmas Number.

The remainder of this year will be sent free to all new subscribers.

The following books and lists have been received.

"Proceedings of the Tacoma Academy of Science." A 34 page pamphlet devoted entirely to "Is it Mount Tacoma, or Rainier?" by Hon. James Wickersham. It is of more than local interest; embodying

all the evidence obtainable, bearing on the subject.

"Proceedings of the Portland Society of Natural History. Vol. 2, Part 3." A 24 page supplement to the Catalogue of Maine Plants with notes, by Merritt L. Fernald.

This pamphlet makes the total number of species and varieties of species, of plants in Maine, 1656.

List of Publications of the Smithsonian Institution for sale or exchange. May, 1894. | 26 pages.

J. H. Johnson, Great Western Gun Works, Pittsburgh, Penn., 52 page illustrated catalogue of every thing used by the sportsman and hunter.

Frank Blake Webster Company, Hyde Park, Mass. 32 page catalogue and price list, illustrated, of "Every thing Required by Naturalists."

Every subscriber, new and old, will receive a beautiful hand colored plate of the Western Yellow-bellied Flycatcher and nest, now in preparation for the Christmas number. Leading articles for November are, A list of the birds of Oregon, Evolution and Disease, Preservation of Ophidians, Water Agates, Florida Blue Jay, etc.

Red PIPE-STONE, not sand-stone.

By an unfortunate omission on the part of our proof reader, not discovered until after going to press, Mr. E. C. Swigert, of Gordon, Neb., in his advertisement in another column, is made to offer sandstone pipes. It should read, fine long tobacco bags, with good red pipe-stone pipe, \$ 4.00 and \$ 5.00 each.

The new edition of "Davie's Nests and Eggs of North American Birds," will soon be out.

We were allowed to see some sketches of our Western birds, drawn from life, especially for, and to be used in the forthcoming work, and, for truthfulness of detail and fidelity to life, they are unsurpassed. The work is now advertised in advance by the Pan Handle Natural Science Establishment of Elm Grove, West Virginia, who are also dealers in taxidermists instruments and supplies, which they offer for sale in another column.



THE OREGON NATURALIST.

VOL. 2. PORTLAND, OREGON, DECEMBER, 1895.

No. 12

A LIST OF THE BIRDS OF OREGON.

(Continued from page 143.)

- ZENAIDURA MACRURA,
Mourning Dove.
Common summer resident. Occasionally a pair are seen during the winter.
- PSEUDOGRYPHUS CALIFORNIANUS.
California Vulture
A specimen was collected at the mouth of the Columbia by J. K. Townsend.
- CATHARTES AURA,
Turkey Vulture-
Common summer resident.
- CIRCUS HUDSONIUS. Marsh Hawk.
- ACCIPITER VELOX.
Sharp-shinned hawk,
Rare resident.
- ACCIPITER COOPERI, Cooper's Hawk.
- ACCIPITER ATRICAPILLUS STRIATULUS.
Western Goshawk.
Found in Eastern Oregon.
- BUTEO BOREALIS CALURUS,
Western Red-tail.
Not uncommon resident.
- BUTEO SWAINSONI,
Swainson's Hawk,
Common summer resident of Eastern Oregon.
- HALLÆTUS LEUCOCEPHALUS,
Bald Eagle.
Occasionally seen in some parts of the State,
Said to breed along the coast.

- FALCO MEXICANUS,
Prairie Falcon.
Not uncommon in Eastern Oregon.
- FALCO PEREGRINUS ANATUM,
Duck Hawk.
- FALCO COLUMBARIUS.
Pigeon Hawk,
Reported as rare in Washington County.
- FALCO SPARVERIUS,
American Sparrow Hawk,
A common summer resident. A few remain during the winter.
- PANDION HALIAETUS CAROLINENSIS,
American Osprey.
One or two seen flying over Washington County in May.
- STRIX PRATICOLA.
American Brown Owl.
- ASIO WILSONIANUS,
American Long-eared Owl,
Common in Eastern Oregon.
- ASIO ACCIPITRINUS. Short-eared Owl.
Not uncommon in Eastern Oregon.
- SCOTIAPTEX CINEREA. Great Gray Owl,
Very Rare.
- NYCTALE ACADICA, Saw-whet Owl,
Reported as rare in Washington County.
- MEGASCOPS ASIO BENDIREI.
California Screech Owl.
Noted in the winter in Linn County by Dr. A. G. Prill.
- MEGASCOPS ASIO KENNICOTTII,
Kennicotts Screech Owl.
Common resident.

- MEGASCOPS FLAMMEOLUS.**
Flammulated Screech Owl.
Rare in Eastern Oregon.
- BUBO VIRGINIANUS SUBARCTICUS.**
Western Horned Owl.
Reported as a resident of Washington County.
Common in Eastern Oregon.
- BUBO VIRGINIANUS SATURATUS.**
Dusky Horned Owl,
Not uncommon resident,
- NYCTEA NYCTEA,** Snowy Owl,
Not uncommon in winter all over Northern Oregon. More plentiful east of the Cascade Mts,
- SPEOTYTO CUNICULARIA HYPOGÆA.**
Burrowing Owl.
Common summer resident of Eastern Oregon.
- GLAUCIDIUM GNOMA.** Pygmy Owl.
Common in Eastern Oregon.
- GLAUCIDIUM GNOMA CALIFORNICUM.**
California Pygmy Owl-
Rather rare resident of Western Oregon.
- GEOCOCYX CALIFORNIANUS.**
Road-runner,
Occasionally seen during summer in some parts of Western Oregon.
- COCCYZUS AMERICANUS OCCIDENTALIS.**
CALIFORNIA CUCKOO.
Rare in Western Oregon.
- CERYLE ALCYON.** Belted King-fisher.
Not uncommon resident.
- DRYOBATES VILLOSUS HARRISI,**
Harris's Woodpecker.
Common resident.
- DRYOBATES PUBESCENS**
Downy Woodpecker.
Reported a common resident in Washington County. Rare in Multnomah County.
- DRYOBATES PUBESCENS GAIRDNERI.**
Gairdner's Woodpecker.
Rare.
- DRYOBATES NUTTALLI.**
Nuttall's Woodpecker.
Found in Umpqua River region by Lieut. Williamson.
- XENOPICUS ALBOLARVATUS,**
White-headed Woodpecker
Common summer resident of Eastern Oregon.
Noted in Linn County by Dr. Prill.
- PICOIDES ARCTICUS,**
Arctic Three-toed Woodpecker.
Found in the Cascade Mountains by Lt. Williamson.
- SPHYRAPICUS VARIUS NUCHALIS,**
Red-naped Sapsucker.
Found in the Blue Mountains by Captain Bendire.
- SPHYRAPICUS RUBER.**
Redbreasted Sapsucker.
Not uncommon resident,
- SPHYRAPICUS THYROIDEUS.**
Williamson's Sapsucker.
Common summer resident of Eastern Oregon.
- CEOPHOEUS PILEATUS.**
Pileated Woodpecker.
Not uncommon in mountainous regions.
- MELANERPES FORMICIVORUS BAIRDI.**
Californian Woodpecker,
Found in Umpqua Valley by Lt. Williamson.
- MELANERPES TORQUATUS.**
Lewis's Woodpecker.
Common resident of Washington and Multnomah Counties. Rare in Yamhill County.
- COLAPTES CAFER.**
Red-shafted Flicker.
Common resident of Eastern Oregon and found in some parts of Western Oregon.
- COLAPTES CAFER SATURORTIOR.**
Northwestern Flicker.
Abundant resident of Western Oregon.
- CHORDEILES VIRGINIANUS HENRYI**
Western Night Hawk.
Common summer resident.
- CHÆTURA VAUXI.** Vaux's Swift.
Rare summer resident in Yamhill County abundant in Washington County.
- TROCHILUS ALEXANDRI,**
Black-chinned Humming Bird.
A specimen has been taken in Eastern Ore.

- TROCHILUS ANNA.**
Anna's Humming Bird.
- TROCHILUS RUFUS.**
Rufous Humming Bird.
Abundant summer resident.
- TROCHILUS ALLENI.**
Allen's Humming Bird.
Reported as a summer resident of Benton, Multnomah and Clackamas Counties by Mr. C. W. Swallow.
- TROCHILUS CALLIOPE.**
Calliope Humming Bird.
Found in vicinity of Fort Klamath by Dr. Merrill.
- TYRANNUS VERTICALIS,**
Arkansas Kingbird
Rare summer resident.
- SAYORNIS SAYA.**
Say's Phoebe.
Summer resident of Eastern Oregon.
- CONTOPUS BOREALIS.**
Olive sided Flycatcher.
Reported common in Washington County during the spring, a few remain to breed, Also reported from Clackamas and Marion Counties.
- CONTOPUS RICHARDSONI.**
Western Wood Pewee.
Common summer resident.
- EMPIDONAX DIFFICILIS,**
Western Flycatcher,
Reported as a common summer resident of Clatsop and Benton Counties.
- EMPIDONAX PUSILLUS.**
Little Flycatcher.
Common summer resident.
- EMPIDONAX HAMMONDI.**
Hammond's Flycatcher.
- OTOCORIS ALPESTRIS LEUCOLAEMA,**
Pallid Horned Lark.
Reported not uncommon in winter in Washington County.
- OTOCORIS ALPESTRIS STRIGATA,**
Streaked Horned Lark.
Abundant resident.
- PICA PICA HUDSONICA,**
American Magpie.
Common resident of Eastern Oregon, also reported from Washington, Multnomah and Clackamas Counties.
- CYANOCITTA STELLERI.**
Scillers Jay.
Common resident.
- CYANOCITTA STELLERI FRONTALIS,**
Blue fronted Jay.
To be found in the southern part of the State.
- APIELOCOMA CALIORNICA,**
California Jay.
Resident. Rare in Washington County.
Not uncommon in Yamhill and Southern Counties.
- PERISOREUS OBSCURUS.**
Oregon Jay.
Resident. Rare in most parts of the State, though reported common in Clatsop County, and common in winter in Washington County.
- CORVUS CORAX SINUATUS.**
American Raven.
Reported not uncommon resident of Washington County.
- CORVUS AMERICANUS HESPERIS.**
California Crow.
Abundant resident.
- CORVUS CAURINUS.**
Northwestern Crow.
Common resident of Clatsop and Multnomah Counties.
- PICICORVUS COLUMBIANUS,**
Clarke's Nutcracker.
Breeds in Eastern Oregon.
- MOLOTHRUS ATER,** Cowbird.
Common summer resident of Eastern Oregon.
- XANTHOCEPHALUS XANTHOCEPHALUS,**
Yellow-headed Blackbird.
Common summer resident of Eastern Oregon.
- AGELAIUS PHENICEUS,**
Red-winged Blackbird.
Common summer resident of Eastern Oregon; also common in some parts of Western Oregon.

AGELAIUS GUBERNATOR.

Bi-colored Blackbird.

Common summer resident.

AGELAIUS TRICOLOR.

Tri-colored Blackbird.

STURNELLA MAGNA NEGLECTA.

Western Meadowlark.

Abundant resident.

ICTERUS BULLOCKI

Bullock's Oriole.

Not uncommon summer resident.

SCOLECOPHAGUS CYANOCEPHALUS,

Brewer's Blackbird.

Abundant resident.

COCCOTHAUSTES VESPERTINUS MONTANUS.

Western Evening Grosbeak.

Common winter visitant.

PINICOLA ENUCLEATOR.

Pine Grosbeak.

CARPODACUS PURPUREUS CALIFORNICUS,

California Purple Finch

Reported abundant in Washington County from the last of January until the first of December.

CARPODACUS CASSINI,

Cassin's Purple Finch.

Common resident of Benton. Multnomah, and Clackamas Counties. Summer resident of Clatsop county.

CARPODACUS MEXICANUS FRONTALIS.

House Finch.

Rare summer resident of Yamhill County.

LOXIA CURVIROSTRA MINOR,

American Crossbill.

Rare migrant.

LOXIA LEUCOPTERA,

White-winged Crossbill.

Very Rare. Mr. A. W. Anthony. observed two or three during the heavy snowstorm of 1884.

LEUCOSTICTE TEPHROCOTIS,

Gray-crowned Leucosticte.

Found in Umatilla County from October or November until spring.

ACANTHIS LINARIA. Redpoll.

Found in Eastern Oregon.

SPINUS TRISTIS.

American Goldfinch.

Common summer resident.

SPINUS PSALTRIA,

Arkansas Goldfinch.

Mr. Clyde Keller of Salem notes a pair of these birds in *Oologist*, Vol. X. page 22.

SPINUS PINUS. Pine Siskin.

Common resident of Eastern Oregon. Common migrant in Western Oregon, but a rare breeder.

PLECTROPHENAX NIVALIS.

Snowflake

Common winter visitant of Umatilla County, arriving about the middle of November.

POOCAETES GRAMINEUS CONFINIS,

Western Vesper Sparrow.

Common summer resident of Eastern Oregon.

POOCAETES GRAMINEUS AFFINIS,

Oregon Vesper Sparrow.

Common summer resident of Western Oregon.

AMMODRAMUS SANDWICHENSIS.

SANDWICH SPARROW.

Specimens of this species have been taken in Washington County.

AMMODRAMUS SANDWICHENSIS ALAUDINUS.

Western Savannah Sparrow.

Rare migrant of Washington County,

AMMODRAMUS BAIRDII.

Baird's Sparrow.

Summer resident of Benton County.

AMMODRAMUS SAVANNARUM PERPALLIDUS,

Western Grasshopper Sparrow.

Not uncommon summer resident of Umatilla County.

CHONDESTES GRAMMACUS STRIGATUS,

Western Lark Sparrow.

ZONOTRICHIA LEUCOPHRYS INTERMEDIA.

Intermediate Sparrow.

Migrant of Eastern Oregon.

ZONOTRICHIA LEUCOPHRYS GAMBELL.

Gambel's Sparrow.

Abundant summer resident; a few remain during winter.

(To be continued.)

ARTHUR LAMSON POPE.

THREE GERMAN SONGSTERS.

THE NIGHTINGALE, THE SONG-
THROSTLE AND THE FIELD-LARK

[Translated expressly for the Oregon Naturalist from the German of A. and K. Muller in *Die Gartenlaube*, by Angus Gaines.]

Our German fatherland, with its wealth of forests and streams, is the home of the best song birds in the world. It is the singing of these minstrels that gives such a charm to gardens, fields and forests and puts a soul into bounteous nature.

From among these singers we will select three for our description, the Nightingale the Song-throistle and the Field-lark, one a representative of the park, the other of the forest and the third of the field.

The Nightingale, honored by the ancients as the king of song birds, takes the first rank, for the best of the others are inferior to him in expression and in the variety of notes. This is not true of inferior specimens or of those reared in a locality where they are too numerous, but applies to the exceptionally talented singers that have brought their powers to the highest perfection in solitude. Where a number of them sing together the spirit of rivalry makes them develop a preference for high perching notes that weary the hearer by their monotony. It is different with Nightingales that have grown up in solitude.

Their song is distinguished by the number of its bars or strophes, of which there are frequently thirty or more.

Over excitement in the season of love often checks the flow of the melody of the best singers. Again, in the early morning there is a tendency towards an interrupted song. In a general way, however, it may be said that interrupted or fragmentary songs are peculiar to the close or the last half of the singing season, while the song is most rapid just after the return of the birds and attains its fullest, loudest and most

soulful tone while the female is brooding.

Whether or not the song of the Nightingale is inherited is an interesting question. It is usually believed that the young Nightingale learns the song of its fathers by hearing it repeated, but this is probably not the case for the singing is infrequent while they are being cared for, and when the song is heard it sounds incomplete and fragmentary. In spite of this the young Nightingale practices its lisping song on fine August mornings and attains its perfection in the southern spring. This, of course, does not preclude the possibility of its having the song of the old male for a model, but the main point is not in the imitation but in the capabilities, the developing of the song in the soul of the bird.

Let us now quit the park, where we have listened to the singer of love, and enter the beech-wood with its leafy corridors and young shrubbery. The young spring is returning, dormant possibilities awake, the creative power of Nature reveals itself in a thousand forms and figures, and the magnificent budding forest rings with the bursts of melody from the glad throats of the returning birds.

"Forest Nightingales" is the beautiful and appropriate name which Welker has given to our native Song-throistle. In the nocturnal storms of March they return to their native woods. They still remember the tree, the branch and twig on which they sang of springtime and of love in the preceding year. Whoever is acquainted in Schnepfenstrich knows what a charm the spring song of the forest minstrel has for the listener's ear. It is an articulate cry that reaches the ear and it can often be interpreted into words and names. The people have translated many of its songs into words and these translations are always fragments of fresh woods-poetry.

We can never forget those evenings in Schnepfenstrich on which we listened to the concerts of the star singers of our forests when the male's sang in rivalry, vie-

ing with each other in the fire and earnestness of their delivery. It seemed as if in their rivalry they exerted all their art and strength to give the day a splendid close. What a great diversity there was in the beauty, variety and skill in delivery among the singers! Here was a miserable stammerer who could utter nothing but a monotonous twitter and a few harsh cries, there a mediocre performance with much that was praiseworthy blended with certain faults and dissonances, and now in a third spot is heard the song of a virtuoso worthy to dispute the Nightingale's claims to supremacy.

What are the qualities which distinguish such an accomplished artist? The following are the chief requirements of the voice: it must be strong and full, not shrill yet far reaching and having a metallic ring. Farther, the compass of the voice must be sufficient to enable the bird to give the necessary variations to the tones for on this depends the formation and abundance of the bars. Let the bars be ever so beautiful and melodious in themselves they will weary the hearer if too often repeated, for it is possible to have too much of a good thing. On the other hand the best parts of the song and the most interesting variations must not be too sparsely distributed.

Every locality, every considerable wooded area at least, has its characteristic throistle cry that always remains unmistakably the same although the distinction may be extremely slight. This circumstance may be explained by the proverb. "As the old have sung so twitter the young". The young throistles hear the songs of their father, not only in the nest but long afterwards, and they imitate his mode and manner precisely, their imitation of the paternal song is, excepting certain minor variations, so faithful that it becomes a permanent characteristic. It has occasionally happened that in the midst of these similar songs we have detected others with marked variations and which seemed to come from strangers. We always inferred that indi-

viduals had been detained from some cause or another during their migrations, or that love of change had led them to wander beyond their native boundaries.

Let the reader now follow us to the plain amid fields of growing grain to make the acquaintance of the minstrel of the fields and learn of his accomplishments. The beautiful day in early summer draws to a close. The evening breeze, laden with the spicy odors of the fields, breathes a grateful coolness round us. The chirp of the crickets does not mar the sense of solitude and the song of the cicada, hidden amid the snowy blossoms of the thorn bush deepens the feeling of loneliness. Suddenly a lark rises from out the dark grain. Its tones sound rather sharp and shrill when it is near at hand, but they become melodious when the singer has soared aloft in its spiral curves. As it circles about the song is continued without interruption and it seems scarcely possible that the singers breath can hold out. Yet we must remember what qualifications the lark possesses, a full rounded chest, a fine free neck and great strong pinions that make a lofty flight easy.

Consider the stormy impulse of the bird soul to soar aloft into the pure aether, to the clouds, the excitable mood that shows itself even in the walk, in the bearing, and in the ready play of the feathers on the head. All this explains the unusual display of strength made by the bold voyager of the air. The song of the lark bubbles forth with truly elementary force, It may be said that it is a melody confined within very narrow limits, an air composed of ever recurring uniform notes. Yet in spite of this sameness the trained listener cannot fail to notice that there is a distinction between the song of the lark of the plain and that of the mountain country. There are excellent singers on the plains, yet the very best that we have heard were in the mountains. The cause of this difference evidently is that among the mountains the

fields are smaller and are in the vicinity of forests so that the larks learn many things from the woodland songsters and blend them with their own songs.

Indeed there are singers in the mountains that utter such a variety of musical notes and give such a diversity to their songs that they can no longer be charged with being monotonous.

The young larks possess the power of mimicry in no small degree, as any one will discover who keeps them in a cage in the vicinity of good singers of a different species or in a window near a grove. Under such circumstances a variety of songs will be learned and repeated by the lark. In the same way larks in a state of nature will catch strophes and various musical notes from the woodland songsters and repeat them, not as an independent recital but skilfully blended in their own songs, like gay threads woven in a plain fabric. When free, larks never neglect their own characteristic songs, but in captivity, if they have been taken when very young, they will abandon the distinctive lark song entirely and become mere imitators of other singers.

ANGUS GAINES,

Vincennes, Indiana.

SOME OREGON MAMMALS.

THE BEAVER

Castor fiber canadensis.

The day is past when every slough from Fort Vancouver to The Dalles contained its colony of Beaver, but still there is hardly a mountain stream of any size through the western portion of Oregon that does not contain one or more pair and it will be many years yet before this giant rodent need be scratched from the list of Oregon mammals for these survivors of a once numerous race have learnt new and cunning ways that tax the ingenuity of man.

The appearance of the Beaver is known to every school boy and it is needless to describe it

here. Much also has been written about its habits and yet but the half has been told, for the short descriptions contained in natural histories apply to the Beaver of the past. The Beaver of today has changed his habits to suit the times, he no longer lives in large colonies; he no longer builds dams or houses, but with his immediate relations finds a dwelling under some old snag or more frequently in the heart of some log jam from which stronghold he ventures forth in quest of food only at night time, and were it not for the infallible "sign" the marks of his powerful teeth on the willow branches along the streams very likely his presence would pass unnoticed.

The food of the Beaver consists chiefly of the young shoots of trees and shrubs of which the Cottonwood and Willow are the most sought after. The Willow shoots are easy to reach, but in order to reach the Cottonwood it was often necessary for the animal to fell large trees and many writers assert that the animal was capable of felling these trees in such a manner as to cause them to fall in the water being afterwards used in the construction of the dams.

This statement is undoubtedly erroneous for two reasons: namely; First — Beaver fell a tree by gnawing round it, — equally on all sides, — and in the natural course of events the tree falls which ever way it inclines.

Secondly — Cottonwood is very bouyant and would tend to destroy a dam by floating it out.

The writer's observations lead to the belief that the dams are constructed of small branches up to an inch or so in diameter together with grass and mud of which the latter is by far the largest ingredient used.

Many theories have been advanced as to how the mud was carried to the dam, some stating that it was carried in the mouth of the Beaver; others that it was carried on the tail. I do not intend to deny either of these statements, but from personal observations I have formed a theory of my own, which is, that the mud is scraped up from the bottom of the pond, on the sloping surface of the dam and deposited on the top by the animal's tail which is bent down for the purpose.

Beaver seek protection from their enemy by recourse to their native element — water — and to aid them in escape nature has provided them with a powerful tail without the aid of which it would be impossible for them to dive under the surface with the rapidity that they do, but instinct teaches them that it is not merely sufficient to merely dive below the surface; they know that in order to be safe a certain depth must be reached and where the pond is shallow as is often the case, they excavate channels along the bottom from the dwellings to the dams, the mud from which goes to build the dams.

In the old Hudson Bay Company's days, Oregon fairly swarmed with Beaver and throughout the state are large tracts of land now commanding a high price on account of their productiveness and are known as "Beaver land". Some of these tracts contain hundreds of acres and it fairly makes a person's head swim to try and estimate how many Beaver it would take to clear and build dams to flood such an area.

It is asserted by old residents that the site on which Portland now stands was once a Beaver pond, but this seems hardly probable for the beaver had a level head and nearly always finds a level piece of land on which to locate his town.

BERNARD J. BRETHERTON.

TAXIDERMISTRY.

A cyanide bottle for killing entomological specimens, is made by putting a small quantity of cyanide of potassium at the bottom of an open mouth jar or bottle and confining in place with a perforated paper disc. Any insect put in this bottle soon dies and should then be removed and pinned in position. Cyanide of potassium is a powerful poison and should not be inhaled by the operator.

Glycerine from its antiseptic and preservative properties and freedom from evaporation furnishes one of the best of agents for the preservation of fresh skins in a pliable state un-

til time can be taken to mount them. Take seven parts of glycerine and one part of water; mix and liberally coat inside of skin with this mixture.

For snow scenes take commercial alum, place it on a hot stove in a perfectly clean iron vessel and let it remain until the water of crystallization has been driven off, when it may be removed and crushed under a hand rolling pin. Mix a small proportion of fine mica with this burnt alum and you have the sparkling snow. Twigs and branches are frosted by dipping them in a hot saturated solution of common alum. Remove, dry and repeat until the desired effect is obtained. Icicles can best be bought of your taxidermist supply house.

A moth infected mounted specimen, may be immersed in a can of benzine without injury to the specimen. After the specimen has become dry, it should be sprayed with some poisonous solution to prevent further depredation. Benzine from its inflammable nature should never be used near a fire or light.

To make papier mache, take paper pulp (dry) from the paper mills, one part by weight, add water and work until soft and pulpy; add two parts of thick glue—as prepared by carpenters for gluing—and mix with the pulp calcined plaster until the desired consistency is obtained. If not sticky enough, more glue should be added.

Arsenic water for poisoning specimens, is made by boiling arsenic and water together, using one ounce of arsenic to one quart of water; but better results are obtained by adding potash ($\frac{1}{2}$ the weight of the arsenic) to the arsenic and water, making an arseniate of potash which is more soluble in water.

Solution of corrosive sublimate for spraying feathers of mounted specimens, is made by dissolving one ounce of corrosive sublimate in one pint of alcohol. If after using, any white or gray powder shows on the feathers, the solution is too strong and should be diluted with more alcohol.

THE SNOWFLAKE AS A WINTER
VISITANT

On the prairie here we see no bird now [Jan. 5, 1895.] except the snow-flake, which arrived last fall, from its breeding place, North, Dec. 20th. Last year it arrived Dec. 24th. the year before Dec. 14th. To me it is a very interesting and wonderful little fellow; liveliest during cold weather: perhaps through necessity to keep warm. During our most severe storms he may be observed picking about for seeds. I have seen him during a severe "blizzard", apparently suffering no discomfort; when man clothes himself in furs and cannot bare his hands ten minutes without the risk of a severe frost bite. How he stands the cold is a mystery.

He is mostly to be met with along the driveways and about the stacks of fodder and farm yards. He is a timid fellow and will not permit man man to approach him. I wish it were not so; for I should like to get my hands on him without having recourse to the trap. Not for "scientific purposes", as the law says when the taxidermist wants to take his life and preserve his skin, but to caress and talk to him and inquire after his health and to learn what sort of region that is, where he spends the summer and rears his family of little ones. It must be a rigid climate, that he is able to endure ours. I have occasionally observed the horned lark associating with him, seemingly thinking he was one of them.

We do not see him all the winter, he seems to come and go; but where? does he go south and we have new arrivals, brought to us by one storm and carried away by another. He is plentifully present as long as the cold continues and stragglers are observed until after seeding of grain—as late as May.—Perhaps he has been driven far south to escape the severe weather and finding the climate congenial to his taste has tarried too long and so is belated in reaching his summer home.

S. M. EDWARDS.

Argusville, N. Dak.

MEMALOOSE ILLAHE.

There are several small islands in the Columbia river, called Memaloose; Ten—as ill—a—he mem—a-loose; literally translated; A little earth for the dead.

The island on which the illustration of a destroyed memaloose house was taken, is located near The Dalles of the Columbia and was the principal place of burial for the populous Indian trading town of Wishram.

The mode of burial was to wrap the body in robes of fur, and lay it out in his canoe, with such articles as were supposed to be needed in the future life, then convey to the place of burial; if on island, which was usually the case with the fishing Indians, it was there left exposed on the surface, but if the burial was on the main land the body was placed in the crotch of some tree, frequently many feet up.

It is supposed that the use of the Memaloose huts, a small structure built over the body, was not in use until after the advent of white men in numbers. The Islands have been so desecrated by vandals, that no satisfactory conclusion can be arrived at.

A mummified body of an infant perhaps a year or more of age, was closely wrapped with strings of beads; copper beads alternating with dentalium shell. On the legs and arms were many bracelets of copper, placed over the bead wrappings. There was evidence of the body having been wrapped in beaded robes.

Among the articles found on this island are the irons of flint lock guns, fragments of bows and arrows, spear heads, coins, medals. U. S. A. equipments, trinkets such as are sold by Indian traders, vessels made from mountain sheep horns, camas diggers (so called) made from a prong of an elk horn, with a large hole in the middle, copper rings, bracelets, spoons pendants and what appear to be shields for the joints made from copper, locally termed knee caps, etc. The extreme high water of 1894, when the island was nearly covered by the waters of the Columbia, either washed away or buried under a deposit of several feet of sand, the greater part of these interesting relics.

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A. B. AVERILL, PORTLAND, ORE.
Dr. C. C. PURDUM, BALTIMORE, MD.

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DECEMBER, 1895.

When the heading to this column is crossed in blue pencil, it indicates that your subscription has expired and that no more copies will be sent you. If you feel that the Oregon Naturalist is worth to you, 50 cents, for 12 numbers, your subscription is solicited for the year 1896.

The Nidologist's premium plates have arrived: Water Ouzel's Nest and Wood Pewees and Nest. From the careful method of packing, and the heavy plate paper on which they are printed; they arrived in fine condition. The excellent merit of these proof plates has caused them to be framed for the editor's office.

The "Naturalist and Collector" of Abingdon, Illinois, has been discontinued and Mr. P. Wilbur Shoop, editor, requests this fact made known to the readers of the Oregon Naturalist. Mr. Shoop has made arrangement with the publishers of this paper to send the Oregon Naturalist to all subscribers to the Naturalist and Collector for their unexpired time. Their names have been placed on the subscription books of the Oregon Naturalist. November and December numbers have been sent to them. If any mistakes in address have occurred, complaint should be made at the office of this paper.

ERRATA. In November number, page 144: read amygdules for amygdoles, where it occurs in the article, "Water Agates".

To any one who will send the names of eight new subscribers to the Oregon Naturalist and \$4.00, a copy of "Nests and Eggs of North American Birds," by Oliver Davie, - Fifth edition, - will be sent as a premium. This is the new edition, now in press, 700 pages, printed on fine laid paper and handsomely bound in cloth. This will be thoroughly revised, augmented, and profusely illustrated. Price, \$2.25

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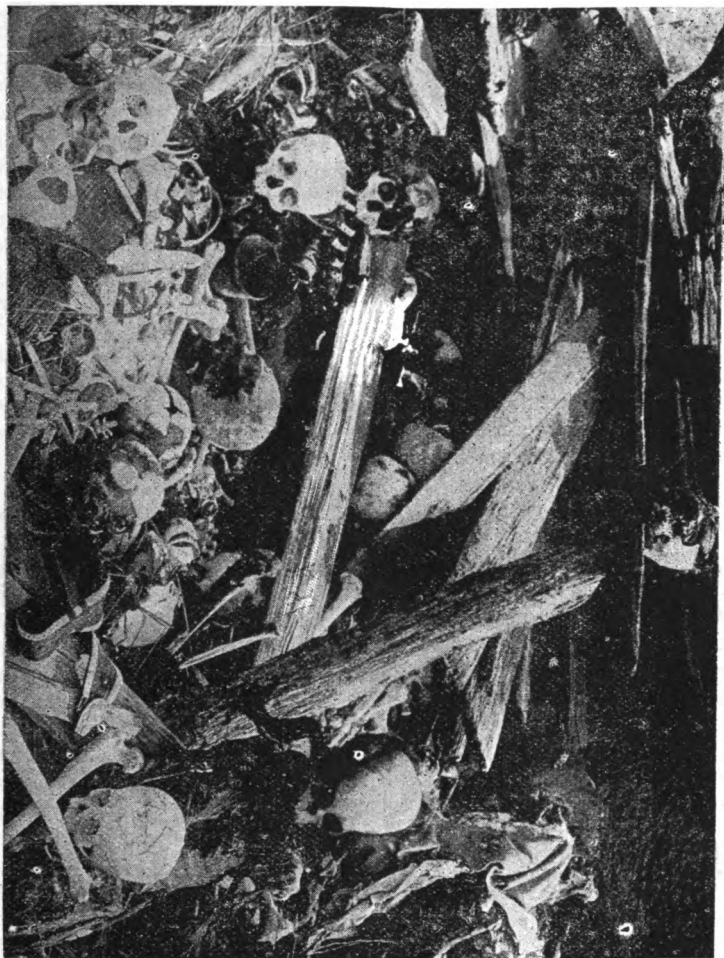
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Oregon Naturalist.

VIEW ON MEMALOOSE ISLAND.



EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR

"CHAT."

A Merry! Merry! Christmas to our readers.

If you haven't ever taken a lesson in taxidermy, begin on Christmas, by *stuffing* a turkey — and yourself.

Any of our Eastern friends who are interested in Oology should make haste to join the Oologists Association. Full particulars by applying to either "Ye Eastern Editor" or the president, Isador S. Trosler, 4246 Farnham, St., Omaha, Neb.

Can you get more genuine worth or information from another magazine at any price?

The editor is now preparing for publication at a future date an article upon the subject of "Odd and Peculiar Nests and Nesting." The matter will be published under the direction of the "Oologists Association" and will be as exhaustive as possible. If you have any notes, specimens, etc., which will be available, or useful in the publication of this "Report," the writer as well as all the members of the association will feel highly honored and deeply grateful if such will be put at his disposal. Due credit for all manuscript, specimens, etc. will be given in the text and a safe return of same is guaranteed. Address, C. C. Purdum, M. D. City Hospital, Baltimore, Md.

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS

C. C. PURDUM.

Continued from page 150.

Sterna macrura

ARCTIC TERN

In company with "*hirundo* and *paradisea*" this interesting bird inhabits the small islands in Buzzards bay, and are also found breeding quite abundantly upon some of

the larger islands which in a chain separate the water of "the bay" from those of Vinyard sound. These three species (*hirundo*, *macrura* and *paradisea*) are as a general thing found brooding together, even on the smaller of the islands. But the birds generally keep to themselves and do not nest indiscriminately, but attempt some little colonization. The roseates build a scant nest upon the top of the island where they make a slight attempt at concealment under the low shrubs. The arctics and the common variety both deposit their eggs at the base of the island; sometimes making a slight excavation for a nest; sometimes doing nothing in the way of nest building but simply depositing their eggs upon the hot sand or seaweed, and often even upon the tops of rocks.

A strange coincident about the breeding of the terns upon the "Weepeckets" islands is, that upon the outer two islands which are very small, the birds breed abundantly, but upon the larger islands only a very few pairs breed annually.

This has not always been the case however for several years ago this island was the nesting ground of countless numbers of terns, but for several years in succession the island was swept by fire and thus broke up the breeding. This together with many other causes has led to a great diminution in the numbers of terns breeding here, and if the ruthless destruction of eggs by fishermen and others who really have not the slightest object in taking them, is not soon stopped the tern breeding upon Weepeckets Island will be a thing of the past.

A short distance from them, the casual observer would notice no difference between "*hirundo* and *macrura*" but the long tapering feathers of the tail will at once distinguish *macrura*.

The bill upon close inspection is found to be shorter than the head and of a deep carmine in color, with no black as in *hirundo*. The feet would at once attract attention for their weakness. They are exceedingly small and weak for the size of

the bird, and although of a coral red in hue are not so bright as in *hirundo*.

The wings are rather large and the three outer primaries are provided with tips.

The tail is very long, the outer feathers upon each side being greatly lengthened, making a deep fork in the center. In this respect it resembles *paradisaea*. The entire tail is pure white with the exception of the outer webs of the two outer feathers, which are washed with pale pearl blue. The cap is of a pure deep greenish black. The back and whole of the upper parts resemble that of *hirundo* being of a deep pearl blue. The under parts are as the back blending into white at the chin and ending abruptly at the under tail coverts which are pure white.

The size varies considerably in different individuals; the length being the most variable measurement, on account of the different lengths of the tail. However I give the average measurements from a dozen specimens from my own collection; and which will be as nearly correct as the great variation in length of the tail will allow. Length 16.00 inches; Extent 31.75 inches. Wing 10.50 inches Tail 7.50 inches (shortest 5.50 inches; longest 9.50 inches) Bill 1.30 inches.

The range of this bird is very large; it, being found along the coast of North America, Europe, Asia, Africa; at large.

I think that the breeding range as given by most authorities, is rather constricted.

From reliable notes, I find that the birds breed from the southern bounding line of the Middle States, northward.

The eggs are very similar to those of the other terns, being very variable in size, shape, color and markings, although as a rule they are slightly smaller than eggs of the preceding or following species.

(To be continued)

I think the Oregon Naturalist a fine publication. F. Gruber, Natural History Department, Golden Gate Park Museum, San Francisco, California.

THE ANHINGA IN LEON COUNTY FLORIDA.

With this bird I have had a good deal to do. From Tallahassee distant about $3\frac{1}{2}$ miles, is a small cypress swamp, and in this swamp the Aningas breed abundantly.

It was in 1894 that I first had the good fortune to make the acquaintance of the Anhinga's nest and eggs. Prior to this time, it was a bird, comparatively unknown to me, and then I knew it only by its local name; Water Turkey.

On the 13th. of April 1895 a friend and myself entered this swamp. The first nest contained four fresh eggs. The second nest in the same tree with a Ward's Heron nest, which contained young — held three fresh eggs. This set was taken by my friend, as also was a similar set taken from the same nest in 1894, by him. These two sets were all we were able to procure on the 13th. On the 31st of May, we again visited our Anhinga rookery, which yielded us two more sets, but this time, instead of sets of three and four; two nice sets of five.

Upon climbing to my nest, I found by touch only, that it contained what I supposed to be eggs of the Wood Ibis. but to my disappointment they turned out to be simply Anhinga eggs. This set contained the largest eggs I have ever seen of this species, and hence my mistake in supposing them to be eggs of Ibis. My friend's set of five was the usual size and in the same nest from which he took three on the 13th.

We saw two nests which contained five young each, and one nest contained four young and one spoiled egg.

R. W. WILLIAMS JR.

Tallahassee, Fla.,

EVOLUTION AND DISEASE

(Continued from page 152)

The close relation existing between physiological and pathological processes is shown in an interesting manner by a study of the development and fall of the antlers of deer when compared with changes which occur in bone as a result of injury.

Bones are clothed externally by a membrane termed periosteum; this membrane serves as a matrix in which bloodvessels ramify before entering the compact tissue of bone. It must be remembered that bone is not only dependent on the periosteum for nutrition, but the deeper layers of this membrane have bone forming properties; the increase in thickness of a long bone is due entirely to the periosteum. Should the periosteum be injured, and inflammation become established, a local increase in its bone forming function is the result, by over nutrition of the bone forming cell, producing a rounded or irregular swelling, termed a node. In some cases the periosteum is so damaged that it becomes detached and as a consequence the bone beneath dies. As soon as a piece of bone is dead, those parts of the living bone adjacent, become unusually active, leucocytes or white-blood cells begin to devour and succeed in detaching the dead portions when large, or completely digesting them when small.

Dead bone is known by the following features; it has no sensation, emits a sound when struck with a metallic instrument, and it does not bleed when cut.

Now, the antlers of a deer when young and growing, are covered with a soft, vascular membrane, which is beset with delicate downy hairs and also has a number of secreting glands in its substance. This membrane is termed the "velvet," and it bears the same relation to the growing antlers as the periosteum does to bone. As long as the antlers retain this velvet in a living condition, they continue to grow, to increase in length and thickness. When the antlers are growing they feel warmer to the touch than the rest of the body, resembling in this respect an inflamed part. When the antlers are "in velvet" a stag is particularly careful not to knock or rub the antlers, for they are very sensitive, and when he is so unfortunate as to bruise them, a node or swelling, forms upon them, in every way like the nodes or swellings upon other bones when they become injured. After the antlers have attained full dimensions, it is difficult for the circulation to be maintained through so thin and delicate a membrane as the

"velvet" and as a natural consequence it shrivels and peels off; the bone beneath becomes deprived of blood and dies. The branches of the antlers suffer first and then the beam. At this stage the antlers become powerful weapons, and the stag, instead of taking every precaution not to knock or bruise them, now fears nothing, for they are dead bone, devoid of sensation. In time the necrosis extends along the antler, until it reaches the pedicle — that part which is covered with the natural hairy skin of the deer.

In course of time a line of demarcation is formed by leucocytes and the antler falls by a process exactly analogous to that by which a piece of dead bone is separated.

We may turn to the consideration of processes in disease which are dominated by the physiological process peculiar to a particular animal, and illustrate this by reference to cutaneous horns, especially that form of horns which arises from the mollification of warts. Not infrequently in many mammals and birds the free portions of warts become readily and easily transformed in a tissue identical with a horn. Such a specimen was procured by the celebrated John Hunter. It shows a large horn, projecting from the forehead of a cow. The horn is fifty centimeters in length and is preserved in the Museum of the Royal College of Surgeons. A careful examination of the horn and of the material which occupied the cavity in the horn, indicate that it originated in a wart.

Such horns are somewhat common in man and have been known to attain a large size. A *physiological* type of such horns is furnished by the nasal horn of the rhinoceros, which in its structure, connections and mode of origin, resembles in its main particulars, the pathological horn on the head of the cow.

Birds not infrequently exhibit this peculiarity of wart horns and an example growing from the leg of an oyster catcher was seen by the author in a dried skin, in a private collection. Such horns in birds, follow the course of avian dermal organs in general and are usually shed at the moult. (To be continued.)

C. C. PURDUM.

NATURAL HISTORY IN CANADA.

The Field Naturalist's Club of Ottawa, the Capital of the Dominion of Canada is perhaps as active an Institution of the kind as the country possesses, the majority of its members taking both an active and lively interest in its proceedings. During the summer months this Club has a monthly excursion to some point of interest accessible by rail, boat, or conveyance, within a radius of forty miles from the city, and the surrounding country, diversified as it is by mountain, river and forest, affords excellent scope for outdoor work. These excursions are very largely attended, the Club numbering three hundred members. Northwards from Ottawa the Laurentian range of mountains, acknowledged by geologists as remnants of the earliest land on record, affords charming exploration ground, rolling in long undulations with rounded rather than rugged summits they leave a margin of some eight or ten miles dropping in a gentle slope to the edge of the Ottawa river, whilst back beyond that margin lie mountains rich in minerals of most every description. Southwards from the city there is not only abundance of forest, but there is also a remarkable formation known as the "Mer Bleu", evidently the bed of a long ago dried up lake, over thirty miles in length with a width of from two to five miles, the soil of which, a deep black mold still remains wet enough to be covered with *sphagnum* and a substratum of peat. To the Botanist this lake bed yields, many rare and valuable flora.

In addition to the monthly excursions every Saturday sub-excursions are organized, on foot to wooded nooks and grassy meadows, within easy distance of the city. The leaders of the various branches take charge of different parties attending, acting as instructors and materially aiding the younger members of the party. During the winter months a course of lectures is organized and very well attended the subjects chosen being always some matter of local interest. In this way an interest is kept up in the proceedings of the Club which otherwise the interruption of the winter months might interfere with. The experience of the Club shows that

there is nothing more productive as a means of exciting interest in Natural History than outdoor work, for, with some given object in view, such as botanising, fossil hunting, or shell gathering, a zest and pleasure is given far more conducive both to mental and bodily health than an ordinary listless stroll with no object in view. There is no-one who goes out among the wild flowers of the woods or the birds of the air who does not come back with a feeling of satisfaction and happiness, all wrought by the salutary influence of Nature. We may get ideas from books but we get them better from Nature direct, books and nature being, one a reflex of the other. Added to this, one great use of the society is the interchange of ideas, and questions asked at its gatherings, although perhaps unanswered at the moment, eventually lead to subsequent information thereon.

H. B. SMALL,

Ottawa.

WARD'S HERON IN FLORIDA

My knowledge of this bird is confined to one small cypress swamp near Tallahassee.

In the spring of 1893 while searching for Snowy and Little Blue Heron's eggs I came upon one large nest which I learned afterwards was a nest of the Ward's Heron. It contained three young birds which I suppose must have been one month old. This was in April. I searched diligently for other nests of this Heron but without success.

In 1894, I again visited this swamp and found three young birds in this same nest and another nest very near, which also contained three young.

On the 13th. of April this year, I again visited the swamp. In the first nest which was now about as large as an ordinary umbrella, there was three young as before, and in the second nest of '94 there was also three young. There was three more nests in the swamp, in all five, and in two of the new nests were young. In the third, were three eggs heavily incubated. These were the first eggs I had seen in the three years. The nest of '93 was in a small cypress

about ten feet up. The others with the exception of the fifth were about twelve feet up.

These Herons are increasing every year as they have not been disturbed they have remained in the swamp and the young from each years nest, I think, breed the next year which accounts for an increase in the number of nests.

All these nests with the exception of one are within a radius of about fifteen feet.

A very amusing incident happened this spring in connection with the Ward's Heron nest. A friend of mine, not a collector, went out to this swamp with one of the Tallahassee collectors and on seeing a nest he thought he would go up and peep into it. As he looked in three young herons popped up and startled him so, he came near falling out.

R. W. WILLIAMS JR.

Tallahassee, Fla.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

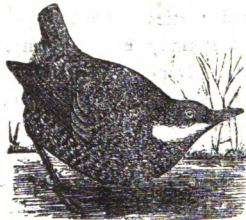
SERPENTINE,

Serpentine is a mineral composed of silica and magnesia in nearly equal proportions, with about 13 to 15 per cent of water and a little protoxide of iron. It is generally green, black or red, the color sometimes uniform, sometimes spotted, clouded, or veined. It receives its name from the serpent-like form which the veins often assume, and is cut or turned into ornaments of various kinds. Precious or Noble Serpentine is of a dark green color, hard enough to receive a good polish, translucent, and some times contains imbedded garnets, which form red spots and add much to its beauty.

The ancient Romans used it for pillars and for other ornamental purposes. Vases, boxes and other articles are still made of it, and highly prized. The ancients ascribed to it imaginary medicinal virtues.

“The birds of prey, the majority of which labor day and night to destroy the enemies of the husbandman, are persecuted unceasingly, while that gigantic fraud — the house cat — is petted and fed and given a secure shelter from which it may emerge in the evening to spread destruction among the feathered tribe.”

[From ‘Hawks and Owls as Related to the Farmer.’ By A. K. Fisher, M. D., a paper in the ‘Yearbook of the U. S. Department of Agriculture, 1894.’]

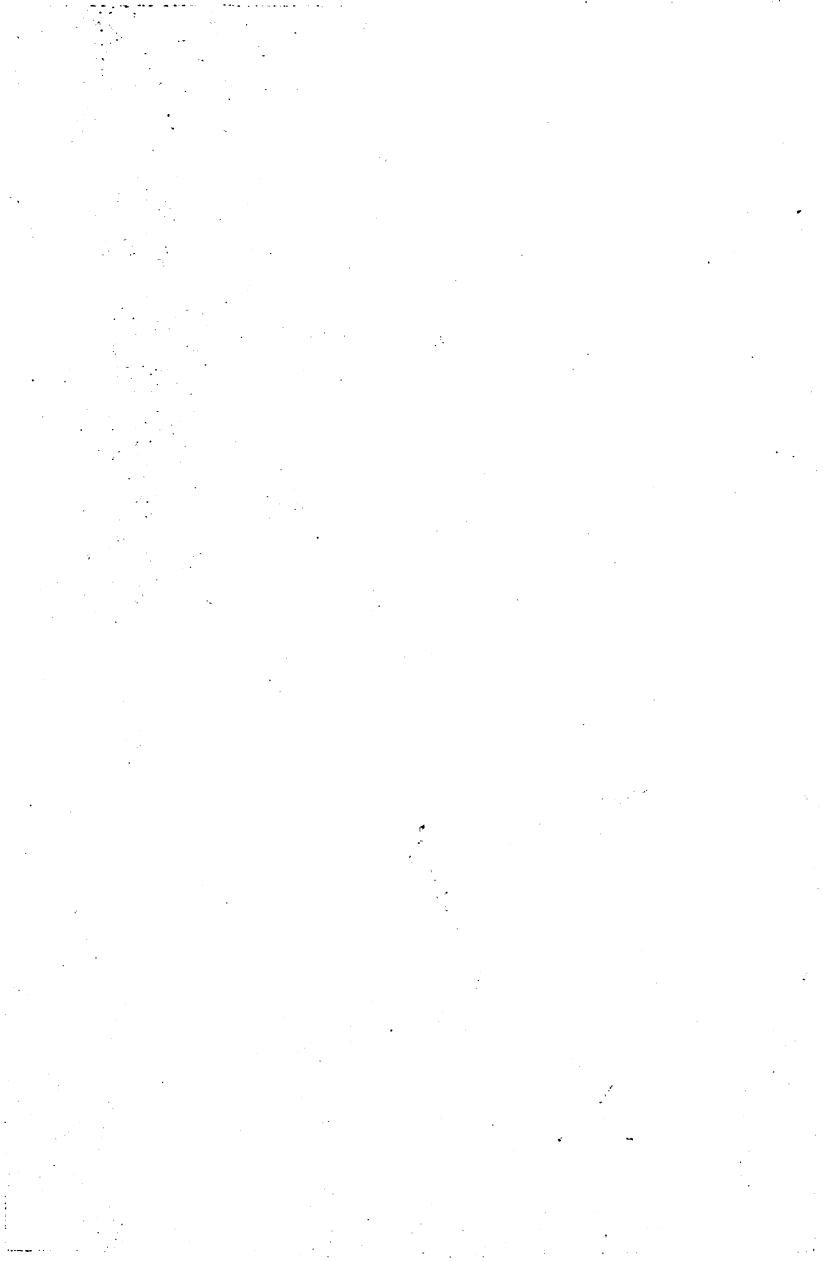




SUPPLEMENT TO
OREGON NATURALIST,
DECEMBER, 1895.

DRAWN FOR THE OREGON NATURALIST
BY E. S. CHENEY.

WESTERN YELLOW-BELLIED FLYCATCHER.



Vol. 2.

OCTOBER.

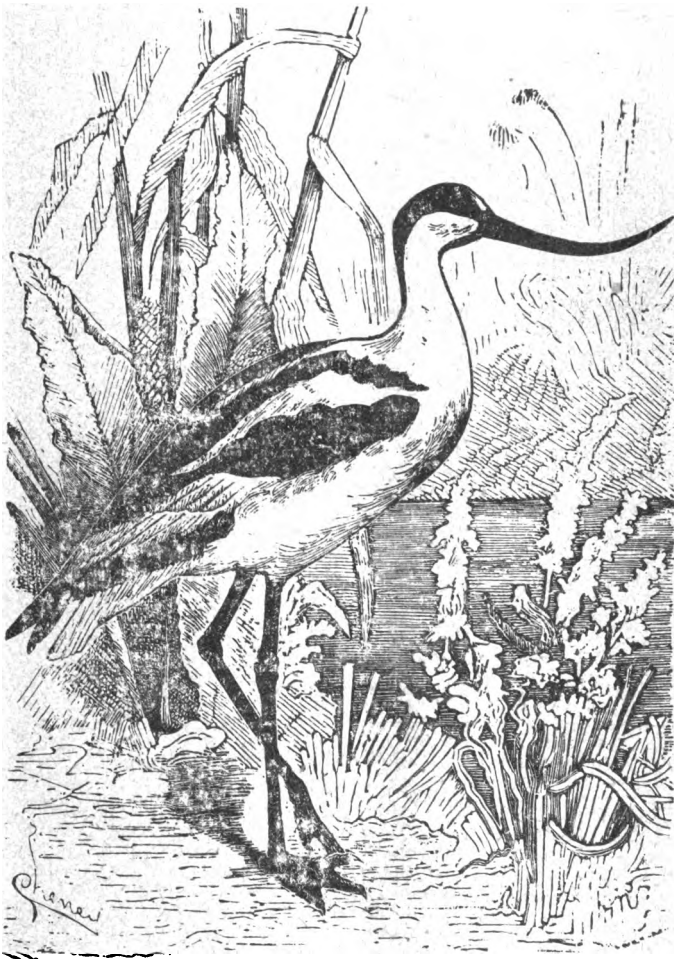
No. 10.

THE OREGON NATURALIST.

A MONTHLY
MAGAZINE DEVOTED TO
NATURAL SCIENCE.

1895.

1895.



PORTLAND, OREGON.

1895.

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n-teen, pistol, lot of large cents, Indian relics, opera glasses and other articles to exchange for Columbian and other U. S. stamps. I want a kodac also. List for stamp.
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OREGON NATURALIST.

The Mineral and Book business of Dr. A. E. Foote will be carried on as heretofore, under the management of Warren M. Foote.

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THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, JANUARY, 1896.

No. I

A LIST OF THE BIRDS OF OREGON.

(Continued from Vol. II.)

ZONOTRICHIA CORONATA.

Golden-crowned Sparrow.

Rather common migrant of Washington County.

SPIZELLA SOCIALIS ARIZONÆ,

Western Chipping Sparrow.

Common summer resident.

JUNCO HYEMALIS OREGONUS.

Oregon Junco.

Abundant resident.

MELOSPIZA FASCIATA MONTANA.

Mountain Song Sparrow.

Common resident of Eastern Oregon.

MELOSPIZA FASCIATA GUTTATA.

Rusty Song Sparrow.

Common resident of Western Oregon. More common in summer than winter.

DENDROICA NIGRESCENS.

Black-throated Gray Warbler.

Quite common summer resident of Washington county.

DENDROICA TOWNSENDI,

Townsend's Warbler.

Reported rare in Washington County.

DENDROICA OCCIDENTALIS

Hermit Warbler.

Reported not uncommon summer resident of Washington County.

GEOTHLYPIS MACGILLIVRAYI,

Macgillivray's Warbler.

Common summer resident.

GEOTHLYPIS TRICHAS OCCIDENTALIS,

Western Yellow-throat.

Common summer resident.

ICTERIA VIRENS LONGICAUDA,

Long-tailed Chat.

Common summer resident.

SYLVANIA PUSILLA PILEOLATA,

Pileolated Warbler.

Reported rather rare migrant of Washington County.

ANTHUS PENNSYLVANICUS,

American Pipit.

Common winter resident.

CINCLUS MEXICANUS,

American Dipper.

Common summer resident in mountainous localities.

OROSCOPTES MONTANUS,

Sage Thrasher.

Common summer resident of Eastern Oregon.

SALPINCXES OBSOLETUS,

Rock Wren.

Common summer resident of Eastern Oregon.

Mr. A. W. Anthony took a specimen in Washington County in May 1885.

THRYOTHORUS BEWICKII SPILURUS,

Vigor's Wren.

Not uncommon summer resident, a few remain all winter.

TROGLODYTES ÆDON PARKMANII,

Parkman's Wren.

Very common summer resident.

TROGLODYTES HYEMALIS PACIFICUS,

Western Winter Wren.

Not uncommon resident.

CISTOTHORUS PALUSTRIS,

Long-billed Marsh Wren.

Reported a summer resident of Washington County. Not very common.

MELOSPIZA LINCOLNI.

Lincoln's Sparrow.

PASSERELLA ILIACA UNALASCENSIS,

Townsend's Sparrow.

Not uncommon in Washington County, a few being seen in spring and fall and occasionally in winter.

- PIPILO MACULATUS ARCTICUS.**
 Arctic Towhee,
 Common migrant of Eastern Oregon.
- PIPILO MACULATUS OREGONUS.**
 Oregon Towhee,
 Common resident.
- HABIA MELANOCEPHALA,**
 Black-headed Grosbeak.
 Common summer resident.
- PIPILO FUSCUS CRISSALIS,**
 California Towhee.
- PASSERINA AMGENA,**
 Lazuli Bunting,
 Common summer resident.
- PIRANGA LUDOVICIANA,**
 Louisiana Tanager,
 Quite common summer resident.
- PROGNE SUBIS,**
 Purple Martin.
 Summer resident of Benton, Multnomah and
 Clackamas Counties.
- PETROCHELIDON LUNIFRONS.**
 Cliff Swallow.
 Common summer resident.
- CHELIDON ERYTHROGASTER.**
 Barn Swallow,
 Rare summer resident.
- TACHYCINETA BICOLOR,**
 Tree Swallow.
 Reported abundant summer resident of
 Washington and Multnomah Counties.
- TACHYCINETA THALASSINA,**
 Violet-green Swallow.
 Abundant summer resident.
- CLIVICOLA RIPARIA,**
 Bank Swallow.
 Common summer resident of Yamhill
 County.
- AMPELIS GARRULUS,**
 Bohemian Waxwing.
 Winter resident of Eastern Oregon; rare in
 Western Oregon.
- AMPELIS CEDRORUM,**
 Cedar Waxwing.
 Common summer resident.
- LANIUS BOREALIS,**
 Northern Shrike.
 Noted in Linn County, by Dr. Prill.
- VIREO GILVUS SWAINSONI,**
 Western Warbling Vireo,
 Common summer resident.
- VIREO SOLITARIUS CASSINI,**
 Cassin's Vireo.
 Common summer resident.
- VIREO HUTTONI,**
 Hutton's Vireo
 Reported from Washington and Yamhill
 Counties. Rare.
- HELMINTHOPHILA CELATA SORDIDA,**
 Lutescent Warbler.
 Common summer resident.
- DENDROICA ÆSTIVA,**
 Yellow Warbler.
 Common summer resident.
- DENDROICA AUDUBONI,**
 Audubon's Warbler.
 Common migrant, a few remaining to breed.
- CERTHIA FAMILIARIS OCCIDENTALIS,**
 California Creeper,
 Reported common during winter of 1894, by
 Mr. G. D. Peck.
- SITTA CAROLINENSIS ACULEATA,**
 Slender-billed Nuthatch,
 Not uncommon resident.
- SITTA CANADENSIS,**
 Red-breasted Nuthatch,
 Found common in favorable localities of
 Washington County.
- SITTA PYGMÆA,**
 Pigmy Nuthatch.
 Noted in winter in Linn County by Dr. Prill.
- PARUS ATRICAPILLUS OCCIDENTALIS,**
 Oregon Chickadee,
 Common resident.
- PARUS GAMBELI,**
 Mountain Chickadee,
 Specimens have been taken in Umatilla
 County, in October.

PARUS RUFESCENS.

Chestnut-backed Chickadee,

Not uncommon in winter. Quite rare in summer.

CHAMÆA FASCIATA, Wren Tit.

PSALTRIPARUS MINIMUS,

Bush Tit,

Common resident.

PSALTRIPARUS PLUMBEUS,

Lead-colored Bush Tit,

Reported common resident of Benton, Clatsop, Multnomah and Clackamas Counties.

REGULUS SATRAPA OLIVACEUS,

Western Golden-crowned Kinglet,

Not uncommon winter resident.

REGULUS CALENDULA,

Ruby-crowned Kinglet,

Not uncommon winter resident of Washington County.

MYAESTES TOWNSENDII,

Townsend's Solitaire,

Mr. Swallow of Clatsop County took a specimen March 16 1892.

TURDUS USTULATUS,

Russet-backed Thrush,

Abundant summer resident.

TURDUS AONALASCHKAE,

Dwarf Hermit Thrush,

Quite rare summer resident of Washington County.

MERULA MIGRATORIA PROPINQUA,

Western Robin,

Abundant resident.

HESPEROCICHLA NÆVIA,

Varied Thrush or Alaska Robin,

Common winter resident. Its nest and eggs have been taken in Yamhill County. Very rare occurrence.

SIALIA MEXICANA,

Western Bluebird,

Common summer resident. A few remain during winter.

SIALIA ARCTICA.

Mountain Bluebird,

Common summer resident of Eastern Oregon. Reported from Clackamas County.

This completes the list of Oregon Birds which embraces two hundred and fifty four species and sub-species. It will be the object of the Association to add to this list other species, as evidence of their occurrence in the state is produced.

ARTHUR L. POPE.

THE NORTHWESTERN ORNITHOLOGICAL ASSOCIATION.

Organized Dec. 28th, 1894.

Object—To advance the science of ornithology in the Northwest.

Officers.

Pres. William L. Finley, 237-4th st. Portland, Or.

First Vice Pres. Ellis F. Hadley, Dayton, Or.

Second Vice Pres. Guy Stryker, Milwaukie, Or.

Sec. Arthur L. Pope, McMinnville, Or.

Treas. Dorsie C. Bard, Portland, Or.

Any person interested in ornithology, residing in the Northwest may become an active member.

Any person interested in ornithology may become an associate member.

The membership fee for all members shall be fifty cents; this shall cover all dues to the first of January after initiation.

The Oregon Naturalist shall be sent free to all members

Applications for membership should be sent to the secretary.

The work of the Northwestern Ornithological Association for the next few months will be the study of the family Tetraonidae, including the grouse and quail found in this locality.

All persons having any items on the Bob-White are requested to send their observations to the president before Feb. 20 '96.

Answers to the following questions are earnestly desired from any one interested, especially those in whose locality the bird is found.

When was the Bob-white first introduced into Oregon? In what part of the state is it now found? What other parts of the coast do they inhabit? Are the birds increasing in number?

The work of the association for March will be on the four species of partridge in the list of Oregon birds, viz: Mt. Partridge Plumed Partridge, California Partridge, and Valley Partridge.

What evidence is there, that each of the above birds inhabit Oregon?

What is the distinguishing feature of the Plumed and Mountain Partridge?

How far north has the Valley and California Partridge been found?

Is there any record of the eggs of these two species being taken in Oregon?

Any answers to the above questions or any other items of interest should be sent to the president not later than March 20th

The cooperation of all western ornithologists is earnestly desired in order to make the report of any value in determining the distribution of the above species.

Report of the President of the North-Western Ornithological Association for the Year 1896.

According to the Constitution this report is to consist of two parts - first, a report of the work accomplished during the year, - second, of the work to be accomplished the coming year.

The main work done by the association the past year is the compilation of a list of Oregon birds, numbering 254 species and sub-species publication of which was begun in November number of our Official

Organ. The most complete list of the birds of Oregon heretofore published was a list of the birds of Washington County by A. W. Anthony published in the "Auk" for April 1886, which contained 119 species and sub-species. So the association can justly claim to have accomplished a work of considerable value and importance, although the list as now compiled does not contain all the species to be found in the state, probably by at least fifty species.

In addition to compiling the list of Oregon birds, the association has published articles on several Oregon birds, compiled from notes sent in by the members. An article on Gambel's Sparrow was published in the May number of our Official Organ one on Rusty Song Sparrow in June number, and one on Oregon Junco in July number. There were no notes sent in which would justify compiling articles on the birds which were chosen for June, July, August and September work. It is to be regretted that so few of the members sent in notes for the monthly work adopted by the association. We have enough members to make valuable and interesting articles, if only all would send in a few notes. We cannot expect to accomplish good work unless all will co-operate and each one do what he is able.

As to work to be attended to the coming year there is any amount of it. First will be the plan of work for the year which will be adopted at this meeting. Next in importance will be the enlargement of our list of Oregon birds, There are a large number of species on our list of which it is not stated whether they are common or rare, resident or visitant, whether they are found in every part of the state or only in one locality. These details should be ascertained and published to make the list of the most value. New species should also be added to the list as rapidly as possible. But this work cannot be completed in a year, or in two years. It will take a

number of years, and much diligent field work, before our list can be brought to a degree even nearing completion. Or as far as that is concerned it can never be brought to *completion* in the full sense of the word, but a few years of faithful work and study by members of the association will bring the list to a state of as great perfection as is ever attained in compiling lists of birds of localities.

Another work which should receive the attention of the association is securing the passage of a law favorable to ornithologists. The present law protects only a part of our useful native birds, and does not make any provision for scientific collecting.

A just law takes into consideration all classes of people, and is in the interest of the whole people, not of any one class.

The sportsman is recognized and is permitted to kill game during a certain length of time each year. The ornithologist is not recognized, or permitted to collect specimens. Is it because the sport of the sportsman, who kills for the love of killing, is more noble and worthy of being encouraged than the collecting of specimens for the purpose of studying Nature? I think not. It is because the sportsman has organized and demanded recognition, and the ornithologist has not.

Would it not be worth an effort to have a law passed protecting all our useful native birds, and making provisions for scientific collecting?

ARTHUR L. POPE.

You can be an associate member of the N. O. A. and receive its Official Organ free for only 50 cents, by application to the secretary and complying with its by-laws,

SECOND ANNUAL MEETING OF THE N. O. A.

The second annual meeting of the Northwestern Ornithological Association was held at Portland, Oregon, Dec. 27th. 1895. The Association was called to order by Pres't Pope at 10 a. m., The roll was then called by Sec'y Weeks, most of the members responding. Then followed reports of officers, which showed the Association to be in a flourishing condition.

A plan of work for the coming year was then presented to the Association by Mr. Finley in behalf of the Council, and discussed by the members. It was adopted as presented, which may be outlined as follows. A family of birds is to be taken up for special study and divided into monthly work; taking one or more species each month until through with the family, when another family will be chosen.

Each month there will be an article prepared on the bird which is under special consideration, by a member who has been previously appointed by the president.

This article, together with a synopsis of articles sent in by other members on the same bird is to be published in the Official Organ.

Two amendments to the constitution were offered and discussed, and finally adopted. One was, in effect, to make it the duty of the secretary to "prepare results of investigations for publication" instead of the president as heretofore. The other was to change Article V so that persons interested in ornithology not residing in the Northwest may become associate members.

The matter of dues was then discussed, and the by-laws amended so that the membership fee shall be fifty cents, which sum shall cover all dues from the time of initiation to the first of next January. The annual dues of all members shall be fifty cents, and the official organ, the OREGON

NATURALIST, shall be sent free to all members, who are not in arrears. The meeting was then adjourned until 2 p. m.

In the afternoon session the following papers were read, each one being followed by an interesting discussion. The *Sooty Grouse* by Ellis F. Hadley; The *Oregon Vesper Sparrow* by Harvey M. Hoskins; Nesting of the *Red-breasted Sapsucker* by Fred H. Andrus: (the author being absent, it was read by the secretary;) and the *American Bittern* and *Nashville Warbler* by C. W. Swallow, Mr. Benj. Roop also gave an interesting talk on the globules of the blood as a means of determining the family to which a bird belonged. He stated that the shape of the globules of the blood, of one species of bird was precisely the same shape as those in the blood of another species of the same family "Thus" he said "the Magpie of America was shown to be of the same family as the Bird of Paradise of New Guinea."

After reading of the papers, officers were elected for the ensuing year as follows.

President, William L. Finley, Portland, Or., first vice president, Ellis F. Hadley, Dayton, Or., second vice president Guy Stryker, Milwaukee, Or., secretary, Arthur L. Pope, McMinnville Or., treasurer, D. C. Bard, Portland Or., It was decided to hold the third annual meeting at Salem, Oregon.

A LIST OF MEMBERS OF THE NORTHWESTERN ORNITHOLOGICAL ASSOCIATION.

January 1 1896.

Omission of date indicates a founder.

Honorary Member.

A. W. Anthony, San Diego, Cal.	1894
Active Members.	
Andrus, Fred H. Elkton, Oregon.	1894
Averill, A. B. Portland, "	—
Bohlman, H. T. Portland, "	—

Brazee, A. J. Portland, Or.	—
Bard, D. C. Portland, Or.	1895
Cheney, G. B. Oregon, City, Or.	—
Cauthorn, Dr. Frank. Portland, Or.	1896
Finley, Wm. L. Portland, Or.	—
Gibson, J. M. McMinnville Or.	1895
Haines, Robt. W. Baker, City. Or.	1894
Hadley, Ellis F. Dayton, Or.	—
Hoskins, Harvey M. Newberg, Or.	—
Malleis, W. B. Cedar Mills, Or.	—
Pope, Arthur L. McMinnville, Or.	—
Peck, Geo. D. Salem, Or.	1895
Pflugger, C. F. Portland, Or.	1896
Stryker, S. Rey. Milwaukee, Or.	—
Stryker, Guy. Milwaukee, Or.	—
Swallow, C. W. Willsburg, Or.	1895
Washburn, Prof. F. L. Eugene, Or.	1894
Weeks, D. F. Portland, Or.	—

THE AMERICAN BITTERN

(*Botaurus Lentiginosus*)

and

NASHVILLE WARBLER

(*Helminthophila Ruficapilla.*)

Read at the second annual meeting of the N. O. A. at Portland, Oregon, by C. W. Swallow:

As both of these birds are more especially eastern species, my description of them may not be just in line with the object of this meeting, but I hope it may be of interest to some present.

The American Bittern is one of those birds that is known by various common names in different localities. It is called Post-driver, Stake-driver, Indian-hen, Bog-bull, Thunder-pumper, and I presume has still other names. Its range is given by Coues as the entire Temperate America and South to Central America. I have never seen the bird myself west of the Rockies. In the New England States it is a common summer resident. It is a low ground dweller, haunting the bogs and meadows, nesting in some thick tangle of bushes, weeds or grass. Its nest is little more than a rude pile of sticks and roots, making a kind of platform for its three to five grayish-brown eggs. The

bird is ungainly and awkward, with long neck and legs and short tail. It has a long, stout, pointed bill, yellow below, with brown ridge. They utter a guttural "squawk", besides their peculiar post-driving note. In color they are a rusty brown, blotched with black and white, with a black patch on each side of the neck and the top of the head is brown. The birds are rather more than two feet in length, with expanse of wings over three feet. Oftentimes when alighting they have a peculiar trait of remaining rigid some time, with neck stretched out and bill pointing upward. On one occasion I found a nest of eggs only a few feet from a nest from which I had taken eggs about two weeks before.

THE NASHVILLE WARBLER.

This is a very shy, retiring, plainly dressed bird, but, like some of the small birds, has a very long scientific name. *Helminthophila* is taken from the Greek *Helminthos*, meaning "a bug", and *phileo*, meaning "I love". This is more appropriate, I think, than the specific name *ruficapilla*, derived from two Latin words one of which means "rufous" and the other "a hair". This bird is yellowish olive-green above, with ashy neck and head; the male having a chestnut crown. The under parts are clear yellow, this being a distinguishing feature of the species, as they are the most yellow below of any of the warblers. The wings and the tail are more of a rusty brown, than the back, a faint white ring around the eye. They are birds of rather retiring habits, and ground builders, the single nest that I found in Massachusetts being in an old Pine field growing up to White Pine and Birch. The nest was by the side of a tuft of grass, partially sunk in the ground, and pretty well concealed. It was well made, of grass and rootlets, lined with finer material. It contained four eggs, of a light, grayish, slate color, quite thickly spotted with brown about the large end, forming something of a wreath. Not knowing the bird at the time. I went back a day or two later with my gun and secured one of the old birds for identification.

CONTRIVANCES FOR THE DISPERSAL OF SEEDS

As Darwin and many subsequent observers have shown, there are manifold contrivances for the dispersal of the seeds of plants. Familiar examples of such contrivances may be seen in the hooks and viscid hairs of the involucre and seed pods of various plants (*Desmodium*, *Madia*, etc.) which thereby are attached to the hair of animals; or in the down or pappus of the dandelion or epilobium and the wings of the seed vessels of the elm and maple which materially increase the surface of the fruit without to an appreciable extent the volume thus enabling them to be wafted by the wind. Many seeds however are small and round, and although it has been shown that these too may be carried over great distances by the wind and in other ways which I shall point out later, these probably depend upon some means such as the sudden dehiscence of the seed pod. It is in this way that the seeds of that beautiful plant *Impatiens* or jewel weed are scattered and also those of its congener, the commonly cultivated lady's slipper.

Seeds however, whatever their color or shape, may be carried in other ways than that for which some character has adapted them. Thus many seeds are eaten and subsequently voided. An examination of the tops of stumps in a Western Oregon clearing during the fall will result in the discovery of seeds of the flowering dogwood (*Cornus Nuttallii*) divested of their covering of red pulp, lying white and bleaching in the sun. They are often associated with the excrement of birds and the writer has repeatedly observed that the blue jays and other birds feed on these seeds. Now the seeds thus found on stumps are merely those which happened to be voided in those positions. Many others doubtless find their way from the

parent tree in this way and so too with myriads of other seeds.

An examination of the mud sticking to the feet of birds will frequently discover seeds which have been thus picked up and would without doubt be deposited in more or less distant situations.

My attention was drawn some time ago to four curved lines running across a bare spot—in fact a tennis court. They were readily observable because of their green appearance which was due to large numbers of seedlings of grass and other plants growing along them. The curves were continuous and even and on closer examination showed that they were wagon tracks. The tires and felloes of the wheels, while the wagon was being driven through the wet grass, had picked up numerous seeds and these, deposited in the soil of the tennis court, had germinated along the tracks.

These few examples have been given to stimulate if possible the habit of observing such facts. Those interested in birds would find many opportunities to collect data on the subject of seed dispersal.

FRANCIS E. LLOYD,
Professor of Biology.

Forest Grove, Or.

AN INTERESTING MEDAL

For the benefit of such readers as may be interested in numismatics, I present herewith a sketch of a medal now in my possession, which has been in possession of members of my family for several generations. The medal was cast in commemoration of the burning at the stake of John Huss, who was burned for heresy by the Catholics in the town of Constance, in Bohemia, in 1415.

Huss was born about 1369 at Hussinecz, not far from the Bararian frontier. His

parents were without wealth or position.

His pious mother thought only of educating her son. After great sacrifices and by prodigious industry the young man was graduated from the University of Prague and ordained to the ministry at the age of 30. He was elected rector of the University at Prague and confessor to the queen.

Meeting with the writing of Wyckliffe, he was deeply stirred against the errors of his time. But he was concerned more with the practice than with dogma. He dwelt with great force upon the claims of this life, and urged more complete imitation of Christ and his apostles. Huss was a preacher of righteousness in daily life.

He dwelt upon practice and upon the conduct of life. The weight of his rebuke fell whenever he thought men ought to mend their ways. This earnestness brought him into conflict with some of the more selfish spirits of his time. He was denounced as a heretic. But from his impassioned plea for right living he had nothing to retract. His position was misunderstood or his zeal was dreaded, until at last he was summoned to the Council of Prague; unfairly tried, degraded of his priestly office and sentenced to be burned.

He was gentle and forgiving to the last and prayed for the forgiveness of his enemies.

The medal is of silver, and was cast in a mold. The inscription is Latin, and in high relief, as are also the bust and figure on the reverse. Surrounding the bust is the inscription, ECCLESIAM SANCTAM CATHOLICAM CREDO VNAM ESSE, and separated by the bust the name IOA HVS. The reverse side reads, in the inner circle: NATO 1415 IO HVS ANNO A CHRISTO, while twice divided by the figure are the words, CON-DEM NA-TVR.

The outer circle reads: CENTVM REVOLVTIS ANNIS DEO RESPVNDEDITIS

ET MIHI.

Translated, the inscription on the obverse reads: "I believe that there is one church, the Holy Catholic. Joa Hus." The outer inscription on the reverse: "One hundred years having rolled away you will answer to God and to me." The inner inscription: "Jo Hus was condemned in the year 1415 from Christ having been born."

The medal is in strictly fine condition, and having a blackish appearance, caused by casting. Two duplicates of it were seen by a former owner, one in the museum at Vienna and one in Berlin.

ED. A SCHLOTH,
Portland, Oregon.

AN INTERESTING RELIC.

Charles F. Cummings of Wallula owns an interesting relic of the Lewis and Clark expedition of 1804-5. This expedition was sent overland by President Jefferson, and its objects were explorations and the negotiation of friendly relations with the various Indian tribes of the great West. The expedition carried with it presents and medals for the chiefs, and the relic now owned by Mr. Cummings is one of these medals.

This medal is of silver. It is about three inches in diameter, and upon one side is a bust portrait of President Jefferson, with this inscription surrounding it:

"Th. Jefferson, President of the U. S.,
A. D. 1801."

On the opposite side appear two hands clasped in greeting, with a pipe and tomahawk crossed, and the phrase "Peace and friendship."

This medal was found last summer on an island in the Columbia river, presumably an old Indian burying-ground. It is believed it was given to Chief Yellept, of the Walla Walla tribe, as an account of the presentation of such a medal to that chief is found in the journals of the expedition.

EASTERN DEPARTMENT,

CONDUCTED BY THE ASSOCIATE EDITOR.

WINTER BIRD LIFE IN SOUTHERN
MASSACHUSETTS

C. C. PURDUM.

Continued from page 169 Vol II.

Having discussed at some length in the last two papers the habits etc. of the common and Arctic terns we will pass over the other two varieties viz: the Roseate (Sterna dougalli) and the Least (Sterna antillarum) varieties, which resemble in most points the two previously considered. The food supply of the terns, consists entirely of small fish which they take in an interesting manner. Flying along about ten or fifteen feet above the surface of the waters; when a proper opportunity affords, the bird makes a quick upward turn and describing a complete though small circle, drops straight into the water, generally entirely disappearing beneath the water. Rising with its capture, it starts away as if to devour it, at leisure, but before many seconds you will look in vain for that unhappy fish. He has disappeared down that capacious throat and its well satisfied captor has turned his eyes to the water again as if to say "Oh! There are others." As indeed there are, for suddenly as you watch him, he again drops into the water and another "minnow" has joined his luckless comrade. Again and again this is kept up till one is almost bewildered at "where he puts em." Digestion is very rapid and strong in these birds however and as long as the food supply lasts, just so long will you find "Sterna" splashing here, rising there and always keeping up that incessant -chee-chein- as if their lives depended upon it.

To make the acquaintance of our next "item of interest" let us take our trusty Parker, a large

number of heavily loaded shells, decoys and lunch pail, and start about 4 o'clock a. m. for a short collecting trip. After a short pull during which despite the exercise our ears and toes tingle with the cold, for the sun is not up yet, although a faint reddish tinge is noticeable, where only a short time ago stretched the long gray herald of the approaching morn, we arrive at a jutting point where the wind blows from "off shore" and proceed to "set" the decoys within easy shooting distance of the point and going ashore conceal ourselves behind some of the large boulders on the shore. Now comes a short wait and then - whive - splash! What was that? Oh yes there he is right in among the decoys; no! yes! there are two - three! No time to count any farther for your trusty old Parker has somehow gotten to your shoulder and then you press the trigger as your friend's gun speaks close to your ear, and out there on the water, in their last struggle lie a male and female, (130) Merganser leviator (637) Red-breasted Merganser: Shelldrake; and picking them up we examine them. The first thing that strikes us is the long bill, which looks for the world as if it were supplied with a row of teeth. Then the head with its long scraggily plumes, the short tail and relatively short wings, all make an impression at once, and together with the pure whiteness of the belly and variegated breast of the male, make you involuntarily exclaim "A Beauty!" These birds are much esteemed by the fisher folk for eating, and the "sea fowl stews" of Cape Cod have become almost proverbial, certain however it is, that the flesh of *Merganser Leviator* is not to be despised by a hungry stomach.

The nostrils are rather nearer the base of the bill than in most of the species hitherto mentioned. The head and neck all around are a beautiful dark green; the back quite dark; the breast a delightful brownish red, streaked with dusky, and the whole under parts with a long pointed occipital crest is present in both sexes and when erected give the bird a most ferocious appearance.

The female is much smaller than the male

and presents a more sombre appearance. A peculiar tendency to alight at decoys has been mentioned. This is intensified in the spring on account of the birds being anxious to form into flocks for the migration. This feeling is so strong that the birds will frequently alight to pieces of wood or "debris" floating upon the surface.

(To be concluded.)

POTATO BUG AND HESSIAN FLY.

Thirty-five years ago the worst enemy to the potato crop in the eastern part of the United States was a species of beetle having dark striped wing covers, elongated form, and narrow thorax, but in 1861 a far more destructive insect, classified long before as *Doryphora decemlineata*, made its first great onslaught upon the cultivated potato.

The insect had previously fed mostly or entirely upon various species of the *Solanum* indigenous to the West but it soon began its progress eastward, traveling at the rate of sixty miles a year. It would be useless to enlarge upon the destructiveness of this insect, but although its ravages and its appearance are known to every one, its metamorphoses may not be understood by all.

The eggs are deposited on the under side of the leaves in clusters of from ten to twenty five, each female laying from seven to twelve hundred eggs. From these eggs the larvae soon hatch out, and after feeding upon the plants for some eighteen or twenty days hide themselves in the earth, where they remain as pupæ for ten or twelve days, then emerge as fully developed beetles, to begin again the work of destruction with all the vigor of renewed youth, and to produce fresh generations.

The head of the larva is black, there is a ring of black upon the first segment of its body and each of its sides is ornamented by two rows of black dots upon a reddish brown ground.

The perfect insect is a shortened oval in shape, yellowish, or orange brown, in color, and has upon its wing covers the ten black

lines that give it its name, *decem-lineata*.

It is difficult for the casual observer to follow the career of many of our most common insects, and fully understand their habits, on account of the many changes they undergo, and this is doubly true of the Hessian fly. It is said that this insect made its first appearance in America about the time of the Revolution, and travelled westwards with the star of empire. However that may be the flies are with us, and in vast numbers. During the first warm weather in the spring, as soon as the wheat has begun to grow the flies appear. The female alights upon the plant, and standing with her head toward the extremity of the leaf deposits her eggs in the minute depressions or furrows in the stalk, or in the shelter afforded by the sheath, where the leaf branches from the stalk, or sometimes in the creases in the blades. When the weather is favorable these eggs will sometimes hatch in four days, though the hatching is sometimes delayed to fifteen days. The larvae, currently termed maggots, feed upon the wheat until they are fully grown, and then become pupae, in which state they look very much like flax seeds, and from this resemblance are said to be "in the flax seed state". At this stage of its development the insect is hidden in the sheathing of the leaf where it clasps the wheat stalk near its base. In due time the larva tears open its puparium, crawls upwards through the straw, which by this time is dead, and when it reaches an opening it discards its larval skin, unfolds its wings, and after "pluming" them a moment, to prepare them for use, flies away, the imago or perfect insect. The first brood of the flies issue early in the spring, the second late in the spring or summer, and if the weather continues warm until late, a third brood is sometimes hatched. The injuries they have done to the wheat crop may be discerned in the fall and winter by the yellow color of the leaves, and in the summer by the undeveloped head and shrunken stalks.

Innumerable devices for destroying the flies or escaping from their ravages have been tried, but with little or no success. Late planting

of wheat has been recommended, on the supposition that the insects' eggs are all deposited before the 20th, of September, which is not always the case. Pasturing sheep upon the wheatfield has been tried to some advantage, the sheep, turned in late in the fall and early in the spring, cropping the plants close enough to destroy many of the eggs and larvae.

Salt sprinkled over the field, about one barrel to the acre, is said to be good, but although salt will doubtless improve the soil, enough of it to destroy the flies could not fail to be injurious to both soil and crops. Farmers sometimes plant an early strip of wheat near their main fields to attract the flies and serve as a trap, hoping to check their increase in this way, but with no marked success, for the flies will lay their eggs in the grass and keep up the supply, no matter how many are destroyed.

ANGUS GAINES.

Vincennes, Indiana.

The annual meeting of the Kent Ornithological Club was held at Grand Rapids, Michigan December 12th.

At this meeting the name was changed to Michigan Ornithological Club and the following were elected to active membership: Prof. C. A. Whittemore and Hattie M. Bailey of Grand Rapids, Dr. Morris Gibbs of Kalamazoo, L. Whitney Watkins of Manchester, T. L. Hankinson of Hillsdale and W. A. Davidson of Detroit.

The following officers were elected for 1896: President, A. B. Durfee, Vice President, R. R. Newton; Secretary W. E. Mulliken; Treasurer Prof. C. A. Whittemore and Librarian Leon J. Cole.

All Michigan ornithologists should address the Secretary at 191 First Ave. Grand Rapids, Mich. for particulars.

By special arrangement with the publishers we can send the "Nidologist" and the "Oregon Naturalist," both one year for \$1.00 only.

Address, OREGON NATURALIST, 392 Morrison Street, Portland, Oregon.

 "CHAT."

What facts are you going to endeavor to establish in the interests of science this year?

We have a nice article on hand; upon "How to take notes on the migrations," which we will print in the March issue, and which will undoubtedly be of general interest and benefit.

The Editor is pleased to recognize the receipt of several very useful and interesting notes to his "Report on odd and peculiar nests and nesting," and desires to take the opportunity of formally thanking his friends who have thus far aided him. Anything *you* may have, will be equally acceptable.

If you want a definite plan of work for the coming season; join the Oologists' Association and write to President Isador S. Trostler, 4246 Farnam St., Omaha, Neb. for full particulars. We are going to lay out a particular line of work, and hope to make our efforts appreciated. "In Union there is Strength."

 EVOLUTION AND DISEASE.

BY THE EASTERN EDITOR.

(Continued from Page 170, Vol. II.)

The shedding of pathological cutaneous horns and their subsequent reproduction has more than one physiological type. Among birds the horned puffin (*Fratercula corniculata*) will be selected. Growing from the eyelid of this bird is a slender, pointed, black-colored horn, eighteen millimeters in length.

There was also a thin horny scale connected with the lower lid. In the adult bird these horns are shed and reproduced annually.

It has also been mentioned that the corneous cap of the cavicorn ruminants is merely modified portions of the integument. In the Prong-buck, (*Antilocapra americana*) the hard cap

of the horn is annually shed: an observation first made in 1865, in the Zoological Gardens of London. Subsequently, doubt was thrown upon the matter, but the observations of Mr. W. A. Forbes, have definitely settled the matter. Thus we are able to furnish types among normal cutaneous horns, not only in birds, but among mammals, as parallels to the annual shedding of *Pathological* cutaneous horns of birds.

Not infrequently tumors are found in certain abdominal organs and in the sub-cutaneous tissues of man and other mammals, possessing skin and its appendages, such as hair, wool and glands. Such tumors, contain in man, horses and oxen, hair; in pigs, bristles; in sheep, wool and in birds, feathers; thus harmonizing with the physiological characters special to the animal in which such tumors occur. Further the hair in such tumor becomes grey as age advances and may—and generally does—fall out, leaving the tumor literally "bald" as is the case with the hair upon the exterior of the body.

This—together with the two previous papers—paper will give the reader a general insight as to the "reason why" the supposition that what is generally regarded as abnormal (so far as many structures are concerned at least) may be truly regarded as merely stages of gradation from a previously existing normal tendency. In the succeeding papers I shall endeavor to discuss several questions which necessarily arise from such a hypothesis.

C. C. PURDUM.

 THE PALISADES OF THE HUDSON.

Among the wonders of this Western World of ours which excite the interest and admiration of travelers from foreign countries, stands prominently among their foremost attractions, the Palisades of the Hudson River, one, in attempting to portray its wonderful magnificence soon finds himself lost among a countless host of beautiful visions. Visions of river and cloud,

of hill and tree and visions too, of goblin and ghost and good old days as told to us in merry legends and songs.

Washington Irving is sleeping his last long sleep, but still yet in the Highlands 'tis said, may be heard the sound of the "balls" and the "pins" when thunder storms come—and not long ago—but the dreamer must don her science cap and leave visions and ghosts to flit away as do mists of the Indian summer from Palisade's crest, when the cold frosts come.

The Palisades of the Hudson as recalled by the tourist, consist of a perpendicular ledge of brown gray rock on the western banks of the Hudson River, rising to the height of from 200 to 500 feet in almost an unbroken line, for a distance of something like 20 miles northward from New York City. This natural bulwark is but a part of what is known as the Highlands of the Hudson, and which in turn is but a portion of a range of hills extending from Rockland on the Hudson River, southwest through New Jersey, Pennsylvania and Virginia east of the Blue Ridge, a distance of 110 miles and with an average width of 20 miles.

Geology tells us that during the third great age or period in the history of the North American Continent, known as Mesozoic, these Highlands were formed. The rock of which they are composed, is generally a reddish sandstone, with occasionally a region of shale or conglomerate and again in two or three vicinities chiefly south of New York, are found valuable beds of bituminous coal. It might be well for a moment to cast a thought back to the first and second periods of our Continents history, in order to connect this condition of affairs in this Mesozoic Period with those which preceded after the Azoic Time, in which the rocks found were chiefly Metamorphic, (granite gneiss syenite,) and the life chiefly of the vegetable kingdom and that of the lowest order, came the Paleozoic Age. This Paleozoic Period, producing the animals of all the lower orders, piling up rocks of a stratified nature upon the granite foundations and storing away coal for the use of man, laid the way for what was to come—

the life of reptiles, insects and birds of the Mesozoic Time.

Of these last named branches of the animal kingdom, do we find innumerable signs in the rocks forming the Palisade Highlands. Footprints of various animals, the claw of the bird, the wing of the insect have been seen again and again in this sand-stone rock.

If some time the reader should find himself in the region of Amherst, Massachusetts, and if he will make a visit to the College collection, he may see for himself thousands of these very prints and fossils, brought from different sections of the Highlands by Prof. Hitchcock, who has made this study a specialty. All this, to prove the time in the history of our continent at which these hills were formed and of which the Hudson Palisades constitute the most marked feature.

It would be of interest to picture to the reader the Palisades themselves as they are seen from the river, on the New York Central Road which winds along following closely the river's bank on the opposite side. But how shall I describe their beauty to you, what language use? For the Palisades, on a winters day when the sky is clear, and the sun well up and the river nine miles wide at one place forming a great white sheet of glistening ice, are not the Palisades of an early March day, when a thousand desolate cakes of gray ice jostle about in a murky sea, and the clouds are low down, and the Palisade's sides seem dreary and dead.

But when Maytime comes, the rocks put on a garb of fresh green verdure, and each opening tree nods laughingly down to the bright sparkling river, which glistens and flashes back its own happiness to the soft white clouds and smiling Palisades. Riding along the banks of the Hudson on a midsummer day just at the time when the sun will set, gives one perhaps the most transcendent view which can ever be seen of River and Height.

The sun is gradually sinking, a ball of crimson light, down into some break in the mountain ledge. The sky is aglow with crimson and gold sent off from the sun; a long broad path—

way of light, opalescent in hue, leads away and away over the expanse of the water, until it seems to unite itself to the glow of the sun in the distance. Tiny white sails cross and recross and sail down again toward the light from the sun, while the Hills loom up, solemn and grand in deep purple shades and are crowned by gold bands from the fast sinking sun.

Once again, during the October days, the Palisades assume a yet novel aspect. Of all their glories this is the culmination. For in October, the foliage of the trees which clothe their side and crown the summit, is changed to red and gold, and the old Palisades stand gloriously forth, one glowing, gorgeous mountain. So, indeed, the reader will now perceive why it is that I exclaim,—“How describe the beautiful Palisades of the Hudson to you?” But a few pertinent facts must be related which will give a clearer Geological conception of their appearance. The Palisades proper, as has been said, consist of a nearly perpendicular wall of trap rock some three or four hundred feet in height, and extending for twenty miles northward from New York City along the banks of the Hudson River. The Palisades following apparently the river's course bend in and out, occasionally throwing forward a rocky promontory in the form of a single precipice overlooking the expanse of the water. In other localities, may be seen breaks in the precipice, where the slopes of two adjacent hill-sides shelter pretty farms and sometimes even villages, But in general the Palisades stretch out one unbroken line of rocks in winter, and green mantled in the summer season. In exceptional localities may be seen at all seasons of the year, the rock completely bare and dark, extending in a perpendicular plane to the river's brink apparently. But this sight is now rare. In the wintertime when the leaves have all fallen away, leaving the precipice as a background, against which the collective tree trunks and branches stand forth with an ashen gray tint, seems the suitable time for carefully noting the structure of the rock mass. This is seen to be entirely perpendicular for heights of over a

hundred feet, and then at the base gradually stretching out to the river by a rocky incline.

The perpendicular rock shows on its surface immense vertical columns extending the entire height and which seem like mighty buttresses placed there by nature to ward off further destruction of the great bulwark. Although I never have heard it so stated, from the appearance I am of the opinion that these columns are but “joints,” (to use a Geological term) as the jointed structure occurs commonly in trap rock formation.

In the summer seasons when the Palisades are again covered with verdure, signs of life and business may always be noticed, not only in the villages nestled between the mountains as mentioned before but all along the scattered roads which wind in and out, up the precipitous mountain sides, only made visible to sightseers on the opposite banks at occasional openings among the trees, where the road appears white and ribbon like, in its distant windings. Along at the summit of the cliffs, are palatial homes, all partly hidden from view by the fringe like trees on the Palisade's crest. Then again, along the further bank of the Hudson at the base of the cliffs, are cottages, farms, immense summer hotels and places of business, built close to the river brink.

All this land on which they stand has been made by gradual deposition, from age to age, of loosened material brought down from the Palisade's side and the heights above and to that is also due the verdure which so completely hides the rock during the greater part of the year.

“In olden climes, on foreign shores,
In lands across the seas,
Where find, throughout the whole wide world,
Old rocks so grand as these.”

— Anon.

WHAT will probably be the most complete list ever published on the “Birds of Kodiak Island,” by Bretherton, with notes, will soon be begun in the columns of this paper.

A MICHIGAN RELIC.

Some time ago I found on the shore of Bear Lake, this vicinity, a curiosity that has puzzled me considerably. It is a stone in the exact shape of the earthen vessels of the Indians, fragments of which are found in large quantities around the lake. It is 10 inches in height 11 ½ inches in width through the widest part, 9 inches at the neck, and weighs about 60 pounds.

It is not quite perfect, perhaps a third of it is missing, split off in clean fractures. It seems to be a kind of limestone and in layers, thin at the bottom and gradually widening at the top. Where the piece is gone from the top it shows about an inch of the outside to be lighter than the inside. I cannot imagine what it can be, it is certainly not a natural formation, unless an earthen vessel had been dropped in the lake, filled with marl and hardened. It shows the action of water and also of fire. I found it at the water's edge, where I supposed it had been heaved out by the action of the frost.

I would like to correspond with collectors who could give me any information about it.

H. M. CONNELL.

Clarion, Mich.

either of the above theories. I examined the outcropping of a hill of porphyry the other day and found the whole mass brittle, easily broken into small angular pieces, and full of imperfect arborescent forms, and but few fine specimens could be obtained from the whole vast ledge. One mile from this point is an old tunnel, abandoned by some unfortunate prospector "rustlin" for a "grub stake," hoping to "strike it rich." Fifty feet into this drift is a ten-foot yellow porphyry vein. Here are fine and large dendrites. Upon studying the overlying formations the direction of seams containing the finest "fern pictures," the coloring matter which stains the porous rock, often dark brown, one cannot but come to the conclusion that these flowering delineations have been formed by the infiltration of manganese in solution, which has entered between the seams and spread into branches resembling trees, ferns, etc. The handsome dendrites are usually in porphyry. White quartz, quartz mica, chalcedony, etc., become dendrites. The moss like forms in chalcedony are dendrites from dissemination of iron oxide, and are called moss-agate.

L. W. STILWELL,

Deadwood, S. D.

DENDRITES.

Dendritic rock is abundant. The arborescent, slender, spreading branches, resembling ferns upon cleavable surfaces, are better known by the amateur as "Forest Rock," etc., and there are many vague, senseless theories advanced toward solving the cause. The effect is apparent, but what produced it? The idea that the sun's rays photograph the surrounding trees and herbage is preposterous. The finest dendrites are frequently far beneath the surface. The theory of electricity photographing surrounding objects on stone is less objectionable; but no one can examine the porphyry beds, through which dendritic ferns run in every conceivable direction, and believe for a moment in

The oldest bank-note probably in existence in Europe is one preserved in the Asiatic Museum, at St. Petersburg. It dates from the year 1399 B. C., and was issued by the Chinese government. It can be proved from Chinese chronicles that, as early as 2697 B. C., bank-notes were current in China under the name of "flying money." The bank-note preserved at St. Petersburg bears the name of the imperial bank, date and number of issue, signature of a mandarin, and contains a list of the punishments inflicted for forgery of notes. This relic of over three thousand years old is probably written for printing from wooden tablets is said to have been introduced in China only in the year 160 A. D. — *Exch.*

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JANUARY, 1896.

Mr. Angus Gaines's admirable work for The Oregon Naturalist is suggested by the characteristic and delightful article entitled, "My Water Snakes," which appears in the New Year's double number of the Youth's Companion. It is to be followed by others, so highly valued by The Companion that they have a conspicuous place in its Announcement for 1896, of which, by the way, more than a million copies have been circulated.

CORRESPONDENTS' COLUMN

I have a catalogue of all the books, etc. ever published by the U. S. Government. It is a finely bound book of portentous size and is of no value to me. Any one who has any use for it can have it by paying expressage.

ANGUS GAINES,

Vincennes, Ind.

Can any reader of this Magazine supply a list of the Ophidians of Oregon? Such a list would probably be found good matter for the Oregon Naturalist, and certainly be highly appreciated by all those who are interested in the problems of distribution and local variations.

ANGUS GAINES.

GROUSE NOTES

How will it do for some of your cores; on-dents to try and express in letters, some of the bird's notes and songs? Here is what I tried to write for the Blue Grouse at three different dictations. Hoop—hoop—oop—op—ohp—hp. Hoop—hooh,—hooh;—hoh,—hoh.

Hoop—hoo—hoo—hop—h—hop—hup.

Who can say which we have in the Willamette valley? *Dendragapus obscurus* D. O. *fuliginosus* or *D. O. richardsonii*? Three specimens that I have examined had eighteen tail feathers, with a broad slate bar.

C. W. SWALLOW.

Queries and Replies.

[We invite contributions to this column from any subscriber who has a question to ask, or who can answer a question asked by some one else. The only condition will be: the utmost brevity consistent with clearness of statement, and that questions are not asked that can readily be answered by consulting a dictionary or an encyclopedia.]

(Query No. 13.) How long do bats live, or, what is the average life of a bat?

J. Maurice Hatch, Escondido, Cal.



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THE OREGON VESPER SPARROW.

(*POCÆTES GRAMINEUS AFFINIS.*)

Read at the second annual meeting of the N. O. A. at Portland, Or., by Mr. H. M. Hoskins.

The Oregon Vesper Sparrow is quite a common summer resident in this part of the state, [Yamhill county,] and in a short time after its arrival in the spring, from its winter home — usually about the first of April — it may be seen in pairs in the open fields and pasture-lands, which seem to be its favorite haunts. It is not as musical and does not have as attractive plumage as many other birds, yet to me it is one of the most interesting of our summer residents.

They begin nesting about the last of April or the first of May. From my own experience I would judge that the best time for finding fresh eggs is from the first to the 15th of May; although the breeding time varies considerably according to the season.

The nest is usually placed under a tuft of grass or a brier, in a slight hollow so that the top of the nest is flush with the ground and is almost invariably well hidden. It is composed of rather coarse grass

and straw and lined with hair. About an average measurement, I think, is, inside: diameter, two inches, depth, one and one half inches; outside: diameter, three and one half inches, depth, two and one half inches.

I once flushed a female Vesper Sparrow from her nest and upon examination, found what I took to be an incomplete nest — a few straws in a small depression under the side of a thick bunch of briars — and was about to leave intending to return in a few days when the nest was completed, when I saw a narrow passageway leading farther into the bunch. I explored it carefully for about a foot when to my surprise I found the real nest, containing a beautiful set of four fresh eggs. Leading in the opposite direction from the nest I found another path similar to the first one. These two paths, as far as I could find, were the only ones by which the bird could reach the nest.

The eggs are almost invariably four in number. The ground color "is a dull pinkish white or sometimes bluish white clouded and spotted with burnt umber of various shades." Some eggs are marked very heavily while on others the markings are barely visible. They average about

.80 of an inch in length by .60 in breadth.

In the spring of 1894 a friend of mine, while plowing in an orchard, covered up the nest, eggs and bird of this species. It was the first furrow he had plowed and he did not turn the nest over but simply piled a lot dirt upon it. He did not notice it until he saw the old bird flutter out from among the clods. He immediately suspected what had been done, and upon removing some of the dirt, found the nest containing four eggs and an abundance of dirt. He then carefully removed the eggs and in order to get all of the dirt out took out all of the lining. Having thus rid the nest of all of the dirt, he replaced the eggs and marked the place so as not to cover it up the next round. He did not expect the bird would return, but thought he would try, as anything would do as well as to leave them covered. But the next day when he returned to his work he found the faithful old bird setting on her precious eggs as though nothing had happened.

My friend told me about the circumstances but did not tell me where the nest was. So a few days afterwards I started out to hunt for the nest, and it was not until I had gone over almost the entire orchard that I found the nest, which was close to the last tree in the last row. At my approach the old bird slipped off of the nest and went hopping from clod to clod, pecking occasionally at something as if busily engaged hunting for food. This, I believe is their usual method in alluring or trying to allure the intruder from their nests. On examining the nest and its contents, I found them to be exactly as represented:

the nest without any lining and all the weeds near it covered up except a part of the bunch of briars under which it had originally been concealed. The nest was now left unprotected and in plain view. The bird did not abandon the nest as I would have expected, and a few days afterward four little birds made their appearance and were raised in safety. Here again comes up the perplexing question, "Do birds have reason?" and considering this bird alone we are compelled to answer it in the affirmative. At least it seemed that this bird knew that the person who cleaned out her nest was a benefactor and not one of those persons sometimes styled "egg cranks." It certainly seems that this bird's conduct could not be attributed to either "chance" or "instinct". But I do not think this is a common occurrence, in fact I believe it is an exception. I have more than once found their nests while plowing and rather than cover them up I would remove the nest together with a portion of the adjoining sod, returning it to the same place when the plow had passed. I would then withdraw for some distance and watch the actions of the bird. She would hop along and peck at worms until quite near when she would suddenly slip inside of the bunch of grass. While inside I could not see her but upon my approach she would slip off, only to return when I had disappeared. After awhile however, she would leave it and not return.

A Mallard, (possibly a hybrid) recently shot on the Columbia river, weighed 4 lb and measured: $24\frac{1}{4}$ inches in length, $11\frac{3}{8}$ wing, $36\frac{1}{2}$ stretch of wings and 4 inches tail.

NESTING OF THE RED-BREASTED
SAPSUCKER.

[Read at the second annual meeting of the Northwestern Ornithological Association.]

In presenting the following notes to the Association it is not my intention to contradict the statements of others on this subject, but to call attention to the variation in nesting of *Sphyrapicus ruber*.

In "Davie's Nests and Eggs," it is stated on the authority of Captain Bendire, that the Red breasted Sapsucker breeds "in healthy live aspen trees" and also that the nest "is situated from fifteen to twenty-five feet from the ground and usually excavated below the first limb of the tree." In these particulars my observations differ from those of all other reports that I have seen.

My first record of a nest of this species, is June 25th, 1892; when I saw a pair of these birds feeding their young, in a hole in a dead fir tree. I did not measure the height, but estimated it to be 60 feet. This was when on a fishing excursion to Loon lake. The remainder of my finds were about half a mile from my present home, near Kelloggs, Or. and as all the nests were near each other it is not only possible but probable, that they were made by the same bird.

In 1893 I found another nest in a dead fir tree about fifty feet from the ground, but in 1894 the birds had come down some, nesting only twenty-two feet above the ground, in a dead fir stub about three hundred yards from the tree occupied in 1893. This nest was found June 6th and contained young.

May 27th 1895 I collected my first eggs, The nest was in the same dead fir as the nest

found in 1894 and about three feet higher up. The hole was seven inches deep and four inches in diameter at the bottom. The entrance was one and one half inches in diameter. I had to cut away the wood with a hatchet to secure the eggs and a chip falling in, cracked one of them thus damaging the set. They were one fourth incubated; pure white when blown, with but slight variation in the ends and averaged .72 x .90 inches.

Some time after, I found the birds feeding young in the hole occupied in 1894. I cannot give the date, for I failed to make a note of it at the time. In closing I desire to state that the nests which were excavated nearest to the ground, were but a few feet from the stub in which they were situated.

FRED H. ANDRUS.

RECENT PUBLICATION.

The tenth Bulletin of "North American Fauna" published by the U.S. Department of Agriculture comes to hand this month containing a revision of the Shrews of the American Genera, *Blarina* and *Notiosorex*, by C. Hart Merriam; The Long-tailed Shrews of the Eastern United States, by Gerrit S. Miller jr.; Synopsis of the American Shrews of the Genus *Sorex*, by C. Hart Merriam.

The first two parts of the Bulletin contain nothing relating to Oregon Species but the third part, (Synopsis of the American Shrews of the Genus *Sorex*), contains a description of six Oregon species, two of which are new. They are as follows: *Sorex (at phyrax) bendirii*. *Sorex (atophyrax) bendirii palmeri*. *Sorex vagrans*. *Sorex bairdi*. *Sorex townsendii*. *Sorex pacificus*; and are described, in part, as follows:

SOREX VAGRANS, Baird.

General characters.— Size, small, tail medium about equaling body without head; third unicus-

pid smaller than the fourth. Color, — Upper parts dark brown, varying to almost russet; under parts ashy. Tail dusky above, pale below.

Cranial and dental characters. — Skull normal, presenting no marked peculiarities and measuring about 17 mm. in greatest length by 8 mm. in greatest breadth, this being the smallest of the Northwest Shrews. Interpterygoid fossa, rather broad and short,

Measurements. — Average of 20 specimens from Aberdeen, Wash. total length 103 mm., tail vertebrae 43 mm., hind foot 12.3 mm.

Remarks. — *Sorex bairdi* is the common small shrew of the Northwest coast. Specimens were examined from the following localities in Oregon, Salem, Oregon City, Sheridan, Gold Beach, Port Orford, Florence and Fort Klamath.

Sorex bairdii, sp nov.

General characters, — Size rather large; tail long; color dull brownish chestnut. Color, — Upper parts, dull dark chestnut brown, under parts, dull chestnut brown (similar to back but lacking the admixture of black-tipped hairs).

Tail bi-color; dark brown almost dusky above flesh color or pale buffy brownish below.

Cranial and dental characters. — Skull 20 mm. in length and 9 mm. in breadth.

First and second unicuspid very large and broad differing markedly from any known species.

Measurements. — Total length 129 mm. tail vertebrae 57 mm. hind foot 15.1 mm.

Geographical distribution, restricted so far as known to the coast near Astoria.

Sorex trowbridgii, Baird.

General characters, — Size rather large, tail long, ears conspicuous, color dark slate or sooty plumbeus, with no brownish or chestnut.

Color, — Upper parts blackish slate or sooty plumbeus. Tail sharply bicolor, blackish above whitish beneath; feet; flesh color.

Measurements. — Total length, 121 mm. Tail vertebrae 57.7 mm. Hind foot 13 mm.

Specimens were examined from the following

localities in Oregon, Astoria Beaverton, Yaquina Bay, Marshfield and Siskiyou.

Sorex pacificus, Baird.

General characters. — Size, largest of the long tailed shrews of the restricted genus *Sorex*.

Color, unique cinnamon rufus. Ears, conspicuous. Hind foot large. Tail about equal to body without head.

Color in summer, pelage uniform cinnamon rufus above and below; in winter, pelage everywhere darker, the upper parts darkened by dark-tipped hairs.

Measurements. — Total length 150 mm. Tail vertebrae 63 mm. Hind foot 17 mm.

Specimens were examined from the following localities in Oregon, Yaquina Bay, Umpqua River, Marshfield and Myrtle Point.

Sorex (Atophyrax) bendirii, Merriam.

General characters, — Size, large. Tail, long, coloration, uniform sooty or sooty-brown, sometimes paler below,

Color. — Dull sooty blumbeus changing in worn pelage to sooty brown, faintly paler on under parts. Tail, dusky all round.

Measurements. — Type specimen (measured from alcohol in good condition). Total length 150 mm. Tail vertebrae 68 mm. Hind foot 20 mm. Of twenty-one specimens examined only one (the type specimen) was from Oregon; it having been collected in Klamath Basin.

Sorex (Atophyrax) bendirii palmeri.

General characters. Similar to *S bendirii*, but larger, blacker, skull heavier.

Color. — Upper parts, glossy black changing gradually to sooty plumbeus on under parts. Tail dusky all round. The black of the upper parts is less pure on the head and shoulders than the brownish subapical part of the fur.

Measurements. — Total length 165 mm. Tail vertebrae 73 mm. Hind foot 20 mm.

Only three specimens examined, one each from Astoria, Beaverton and Oregon City.

B. J. B.

SOMETHING ABOUT SAGE GROUSE.

The Sage Hen, Sage Cock or Sage Grouse, as it is variously called, is truly the largest of the family known to exist in North America and comparatively little has been written about it. Its range includes the sage-bush covered regions of nearly all of the western states. In this locality and in fact the whole of Eastern Oregon, it is an abundant and a constant resident.

Among the sportsmen of this section this grouse is considered a favorite game bird, and by many, it is esteemed as excellent food; but, in the winter months the flesh is rank and unpalatable, owing to the sage leaves on which they feed during this season, which imparts an unpleasant flavor to it.

The food of this bird in summer is sage leaves various kinds of berries and insects, but they subsist entirely on sage leaves in the winter.

They may be found in large flocks during the winter, and until about the first of April, when they begin to pair and scatter out, building their nests about the last of the month.

This is a slight depression at the foot of a sage bush, lined with feathers from the breast of the bird, and sometimes a few grass stems. The nest is placed on the hillside. Instinct teaches it to build its nest in such a position as to command a good view of the approach of an enemy from any direction.

While nesting, this grouse is quite fearless. It sits so close that it will allow a person to approach within a few feet of it. Once while out hunting, I stepped within three feet of one before it took flight.

The number of eggs deposited is seven to fourteen of a greenish-buff color, speckled with reddish-brown spots, pretty evenly distributed over the entire surface.

In shape the eggs resemble those of the domestic fowl, in some a little more pointed, but averaging smaller. Before me lies a typical set of twelve taken by me May 10th, 1893, which exhibit the following measurements,

2.05x1.47, 2.09x1.47, 2.03x1.47, 2.13x1.47
1.98x1.47, 2.08x1.48, 2.09x1.45, 2.07x1.50
2.02x1.47, 2.08x1.47, 2.06x1.47, 2.10x1.47.

During the season of incubation the females remain solitary; the males do not assist in these duties, but flock together, and remain thus until fall, when they are joined again by their mates.

About the last of May or the first of June, depending somewhat on the season, the young are hatched and leave the nest at once directed by the cluck of the mother bird, something after the manner of the domestic hen.

Sometimes one may find the old bird with a brood only a few days old, and at the cry of alarm, uttered by the mother bird, it is really surprising how quickly these little fellows can hide and it is almost impossible to find them, as their color so closely resembles that of the ground and the surrounding sage-bushes.

Their growth is so rapid, that by August they are as large as quail.

September has come and now is the time for the eager hunter, the grouse are in better condition for the table at this season, as they feed principally on partridge berries, which impart to the flesh a very delicate flavor.

As winter approaches again and the ground is covered with snow, they confine themselves to the sage-bushes on whose leaves they feed during the long dreary winter. The merciless storms are beating down upon them coupled with the piercing cold while this brave bird is anxiously awaiting the appearance of the warm days of spring, when he comes forth in search of a change of diet. He has not been fooled; he had faith in the change of seasons. Spring has opened at last, and with it came the verdure of sweet vegetation. Now he may be seen along with his industrious mate searching for a suitable place to build their nest and rear their young.

ROBERT. W. HAINES.

Baker City, Or.

Oregon Kaolin is said to equal the best.

PALEOBOTANY.

AN HISTORICAL SKETCH.

It is only in our own times that Paleobotany, the study of ancient plants by means of the remains and imprints found in geological formations, has risen to the rank of a science. Even now it has not entered upon the full light of day, yet it has behind it a misty dawning of centuries of duration, a twilight in which earnest investigators have groped in a vain search after truth.

The first definite mention we have of vegetable petrifications is in the *De Mineralibus* of Albertus Magnus in the thirteenth century, for strange to say the ancients, although acquainted with various other kinds of fossils and devising ingenious theories to account for their origin, have left us no mention of fossil plants. Considering the vast extent of Greek and Roman public works and the rich beds of fossil plants now found in what were once Roman territories it seems remarkable that the attention of thinking men was not earlier attracted to the remains of ancient vegetation.

Brongniart's explanation, that coal was not mined by the Greeks and Romans and that fossil plants were not studied until coal mines were opened applies only to carboniferous vegetation and fails to account for their inattention to the fossil plants found in the vast Roman mines and quarries. The true explanation is to be found in the artificial civilization which leads men to disregard natural phenomena until the multitude of new facts compel their attention.

The mention made by Albertus Magnus of petrified wood attracted no attention until Agricola repeatedly discussed the subject (*De Re Metallica*, 1546) and led other writers to take the matter up. Specimens were discovered at different places from time to time and described by various writers who urged fantastic theories to explain their origin and nature. Thus a new complication was added to the controversy which had been raging for centuries regarding fossils in general.

Aristotle's doctrine of spontaneous generation was revived and enlarged upon by some who declared that it was possible for stones to produce themselves in any form, while others, like Libavius, protested that fossils came from true germs or seeds.

A specimen was at length found in which one side was stone and the other coal and this excited great curiosity and gave Matthioli a clue from which he elaborated a new theory. Wood, he said, changed into stone, and stone into coal, stone being the second and coal the third and final step in a systematic transformation.

A few incrustations and impressions of the folia organs of plants had been discovered and described without attracting especial notice, even among those who had given their attention to fossil wood, and the study of fossil plants as we understand it remained untouched until the close of the seventeenth century.

In 1699 Lhwyd published his *Lithophylacii Britannici Ichnographia* in which he described and figured with marked fidelity a considerable number of fern leaves from the British coal measures. This publication opened all departments of paleontology to discussion and a period of research and great activity in this branch of study followed.

At that time men had not yet learned that the first steps in a new science must be the investigation of facts, and theory and speculation proceeded far more rapidly than the accumulation of material for study. One mystic view would be held for a time and then be replaced by another equally irrational and maintained by the slightest show of proof. The belief in a creative "stone spirit", an inherent tendency in all nature to turn to stone, *vis lapidifica*, and finally in an all pervading petrifying juice, *succus petrificus*, each had its adherents, while still others looked upon fossils as meaningless freaks of nature. The belief which gained widest credence was, however that of Comenius (1712) who taught that when God created the earth he made the fossils in its interior just as He made the plants and animals on its surface. Nor was the subject kept entirely out of the demonology of the time, for there were people

who chose to imagine that the devil, trying to imitate the living creations of God had succeeded only in making stone images of animate objects and had not the power of endowing them with life.

Early in the eighteenth century all these crude and vague speculations were swept entirely away by the general acceptance of a hypothesis which had been quietly advanced from time to time for nearly two centuries. Thus the 'flood theory', that is the idea that all the plants and animals now found in the earth as fossils had lived upon its surface up to the Noachian deluge, and then had been tossed and floated about during that great cataclysm and had finally been covered with debris and left to be petrified by natural agencies where we now find them. A poor and fantastic theory indeed, but philosophically a great advance upon all former hypotheses, for, as Huxley says, it is easier for truth to make its way out of error than out of confusion.

Martin Luther in his commentary on the book of Genesis suggested that abundant evidences of the action of the deluge might still be found, and it was this hint that had finally turned speculation into the new channel.

This theory was highly elaborated and fortified by laborious arguments by Dr. John Woodward, a collector and student of fossils, in his great work published in London in 1695. According to his hypothesis the earth's crust had been broken up and dissolved at the time when "all the fountains of the great deep were broken up", and when the waters receded all this debris was deposited according to its specific gravity in strata containing organic remains as we now find them.

There arose soon after this another and still greater champion of the flood theory, Johann Jacob Scheuchzer, a man of rare ability, who had at his command all the learning of his time. He divided the history of the earth's crust into three periods: *Prediluvian*, including the minerals, supposed by him to constitute the solid parts of the globe; *Diluvian*, including all fossil bearing or stratified deposits; *Post-dilu-*

vian, including such obviously recent deposits as are left by certain streams.

His learning was great and his reasoning was so forcible that it carried conviction with it, and he left the imprint of his genius upon the thought of his time. Investigators accepted his views without demur, vied with each other in their eagerness to find arguments and facts to sustain the position he had taken, and the dissenting voices were few and feeble indeed.

While it cleared away one set of difficulties and gave a new basis for research it called out a new set of problems, profounder and more difficult of solution than any propounded before. The most important of these were: Are these fossils the remains of plants of the same species as those now living on earth, and when did the vegetation thus preserved flourish?

The manner in which these topics were discussed appears inconceivable to us, but we must remember that Geology had not then become a science, and the densest ignorance prevailed regarding the earth's crust. Science was made subordinate to an inspired cosmogony which declared that the earth was but a few thousand years old,

Scheuchzer asserted that fossils were the remains of ordinary plants and that their living representatives were still to be found on the surface in the same locality, and in his *Herbarium diluvianum* (1723) he attempted to arrange them according to the system of Tournefort. He determined the genera to which they belonged, to his own satisfaction, and even gave the species of some of them, *Papulus nigra* for example.

(Concluded in March.)

ANGUS GAINES.

Vincennes, Ind.

A STEEL BIRD'S NEST. — The "English Mechanic" says there is reported in the Museum of Natural History at Saleure, in Switzerland, a bird's nest made entirely of steel clock springs, which had been thrown away by the clock-makers.

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EDITORS.

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FEBRUARY, 1896.

N. O. A.

The work of the N. O. A. for April will be the study of the Dusky Grouse (*Dendragapus obscurus*) and Sooty Grouse (*D. obscurus fuliginosus*.)

All members are requested to send any information they have in regard to the above species to the president not later than April 20, 1896.

We desire to discover any difference in the habits of these birds and especially to

find in what regions each bird is found.

In order to accomplish this we must hear from the members in different parts of the state. No matter how small an item you have, send it in for it may be of some value.

W. L. FINLEY.

287 Fourth St. Portland, O.,

We would call attention of readers to the "ad" of Mr Ed A. Schloth in this issue, advertising South Sea Island Curios. We have had dealings with Mr. Schloth, and find him reliable in every respect.

THE DWARF HERMIT THRUSH.

While out collecting January 18 1896, I secured a bird of this species. Is not this a rare occurrence during winter? It was alone, in a heavy fir timbered spot, taking a bath in a small pool. Mr. Pope gives it as rare in summer. I am sure of its identity, and Mr. Peck of this place, also identified it as the dwarf hermit thrush.

J. Earl Ludwick.

Salem, Or.

Price List No. 34, 82 pages, published by The Standard Stamp Co. No. 4 Nicholson Place St. Louis, Mo. is sent to all applicants. In two weeks another edition, revised, enlarged and containing 96 pages, will be issued. This firm have been established in the stamp business since 1885. Their success has been so phenomenal that they publish and distribute ten or twelve thousand of these Price Lists monthly.

THE MAINE SPORTSMAN says; Amos P. Abbot of Dexter, [Me.] recently shot an albino partridge with feathers delicately tinted in pink.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR.

CHAT.

F. V. Coville, Botanist to United States Department of Agriculture, in his admirable "Flora of the Death Valley Expedition," dwells upon a point incidentally treated of by other authors, that apparently herbaceous plants in our "American deserts" have really underground trunks, after going to great depths into the earth.

In this way plants can live through the long drought with very little moisture. Mr. Coville also remarks upon the comparatively smaller foliage surface of the plants of these regions, large leaved plants being very rare. Out of forty-one specimens of woody plants the leaves of which were measured, only four had leaves over the fifth of a square inch. Plants which in other parts of the world have berried pulpy fruits, have allied representatives here, bearing dry fruits. How these desert plants become co-related to the circumstances is a great question. Some contend that they gradually changed through the influence of many years of environment, while others contend, that the geological and geographical conditions, known under the general term environment, were not of gradual, but of sudden introductions, and that plants unsuited to these sudden changes would all have died before the change could have been effected. The great question of the origin of this peculiar desert flora will possibly be settled when more facts are brought to bear on the generalizations.

Now is the time to join the Oologists Association if you wish a definite and systematic plan to work on during the coming migrations, and collecting season.

Do not forget that you, by earnest work may make a discovery of importance to science.

WINTER BIRD LIFE IN SOUTHERN MASSACHUSETTS.

C. C. PURDUM.

(Continued from Page 10.)

In this article I shall only attempt to enumerate and give a few concise notes upon the rarer species of the water birds and with it bring to a close the discussion of the, 'Winter water birds', after a few papers upon "General" and "Field" ornithology, I will then return to the consideration of the "Winter land birds" and present a few papers upon them, touching especially food supply, time of migration, etc.

To resume then.

(133) *Anas obscura*, (602)

BLACK DUCK.

Seen often in small numbers. Generally travel in pairs and frequent the large fresh-water ponds in the evening. Also found feeding over shallow ledges, etc. along the coast. Subsist upon both animal and vegetable life.

(140) *Anas discors*, (609)

BLUE WINGED TEAL.

Often seen on our fresh water ponds in small numbers. One flock generally remaining for some time upon the same body of water, but not nearly as abundant as,

(139) *Anas carolinensis*. (612)

GREEN-WINGED TEAL.

These birds "used to be" very abundant here but my notes fail to disclose a record of any having been observed for the past two years.

(146) *Aythya americana*. (618)

RED-HEAD.

A few have been taken recently but older notes show a decided diminution in number during the past ten years.

(154) *Clangula hyemalis*. (628)

OLD SQUAW.

Always seen in winter in great numbers, some flocks containing several hundred individuals.

The male is a gaudy bird and makes a very handsome figure, with his two long tail feathers. The flight is a series of quick zigzag movements, making them very difficult objects to shoot. They never alight at decoys although many times they will swing in over a "string" thus affording the gunner a fine shot. In the water they are as quick as when in the air and often succeed in avoiding destruction by 'shutting the door' or diving at the flash.

(160) *Somateria Dresseri*. (627)AMERICAN EIDER; ISLE OF SHOALS
DUCKS.

Often seen in large flocks during the winter months. One of our most brightly colored birds and the great difference in the plumage of the male and female add additional interest to the birds. They are of large size, measuring about 24.50 inches in length. Their food consists entirely of mollusks which they swallow, shell and all, consequently the muscular walls are of great thickness and capable of doing a large amount of work. This spring I shot one from a flock flying by the decoys and upon dissection found a huge lump, measuring nearly two inches in diameter lodged in the intestine. Extensive adhesion had developed, but perforation of the gut had not taken place; from the extensive inflammation I should judge that it soon would have resulted. The mass was composed entirely of partially digested mussel (*Mytilus*) shells and the whole mass was deeply stained with bile. Despite this huge "tumor" the bird was flying swiftly along with the rest of the flock as if nothing whatever was the matter with it.

Among the few remaining water birds which remain or are observed with us in the winter

are to be mentioned as usual occurrences:

American Golden-eye, (*Glaucionetta clangula americana*) has been observed in fairly abundant numbers, but not lately.

Harlequin Duck, (*Histrionicus histrionicus*). One shot by Mr. V. N. Edwards during the winter of '93-4. Velvet Scoter, (*Oidema fusca*) often observed but not abundant. White-winged Scoter, (*Oidemia deglandi*) observed in small numbers during the winter, but very abundant about the first part of May when they pass along the coast in large flocks, from their feeding grounds, northward. The Surf Scoter, (*Oidemia perspicillata*) is often observed in small numbers, as is also the Ruddy Duck, (*Erismatura rubida*). A few flocks and scattered individuals of the Canada Goose, (*Branta canadensis*) and large numbers of the common Brant, (*Branta bernicla*) and often a few Black Brant (*Branta nigricans*).

But, by this time the winter has been fast disappearing, and some frosty morning while the air still shows traces of the icy touch of the fingers of winter; while you are setting your decoys to have a last morning's sport with the spring Mergansers, suddenly with the breaking dawn overhead, you hear a hoarse "Quawk" and high up, in the dim light there moves laboriously along a black-crowned night heron, heralding the approach of spring which soon bring to a close the study of "Winter Bird Life in Southern Massachusetts."

THE END.

A FEW NOTES ON MIGRATION IN
EASTERN MASSACHUSETTS.

Bird migration undoubtedly arises from a source of direct instinct which each individual has inherited from its predecessors. Love of the nesting ground probably constitutes part of the object in the movement, but birds as well as other forms of life have an irresistible impulse to migrate at certain seasons of the year.

When one considers the family *Sylvicolidae*, or warblers, of which a few species extend their

flight hundreds of miles south of the equator. The natural theory suggested is the failure of the food supply or the changing conditions of the weather. Birds are not at all punctual in their arrival until the middle of April, as the earlier visitants are generally those that pass their winter in the states. The song sparrow is undoubtedly the first spring visitant although it often passes its winter here in Massachusetts. The following, appear in order as the vernal tide increases, including the bluebird robin, phoebe and golden-winged woodpecker. The meadow-lark might also be placed in the above list. The blackbirds passing the winter throughout the Southern States make their appearance in March, the red-wing, crow, rusty, bronzed grackle and cow-bunting representing the family. The swallow tribe appears in New England by April 15th, one species, the white-bellied, often by the first of the month. The purple martin enters the United States early in February and speeding northward, arrives in Ohio by March 20th and New England by April 15th. The cliff or eave swallow is a bird of wide range, extending its summer sojourn to the Arctic shores and its winter rambles to Southern Mexico. The thrushes spend their winter in the tropics. The hermit arrives in New England from the swamps and everglades of the Gulf States in April; within a month he passes onward to the deep primeval forests of New Brunswick and Nova Scotia, where it breeds.

The brown thrush appears by April 25th.

Of the family of warblers, the yellow-rump is undoubtedly the first to arrive, quickly followed by the pine-creeping, while the snow still lingers in unsheltered localities. The former winters along the Atlantic coast from Massachusetts to the West Indies, migrating with the red-poll. Nearly all of the family sing in passing.

The Baltimore oriole and rose-breasted grosbeak enter the United States in March and arrive in New England by May 10th, taking their journey northwards very leisurely.

The chimney swift arrives by the 20th of the same month and the kingbird by the first.

C. B. HADLEY, Arlington Heights, Mass.

EVOLUTION AND DISEASE.

(Continued from Page 12.)

It is well established that the increased use of a part, tends to enlarge and to strengthen it. That disease on the other hand often leads to its diminution and enfeeblement. Structural modifications thus are indeed inherited.

The truth of the first part of this statement may be demonstrated by a simple experiment. Let the arm of a healthy person, be firmly strapped for several consecutive days upon a splint, in a few days the muscles will be softer than usual and actual measurements will show that the limb has diminished in size. Allow the arm to resume its function; the lost ground will be quickly recovered.

When a young and vigorous person has the misfortune to lose a limb, the remaining arm or leg being used for all purposes, will rapidly increase in size and strength. The same facts may be observed in dogs and cats who have lost a limb or a part of a limb.

A woman in the Baltimore City Hospital had her great toe amputated, three months ago, the wound having entirely healed, the second toe has enlarged and stands out from its fellows, in such a way as to resemble in size and general appearance the lost toe—indeed when the foot was exhibited to a class of students this large second toe was mistaken for the hallux. This observation is of interest, the large size of the first toe and the great development of its muscles are owing to the greater use and importance of the hallux in mammals which maintain an erect position when walking upon the ground as in man, or climbing trees as in monkeys. Humphreys, in reference to the large development of this toe, says "Man literally stands in the animal world on his great toe".

The same remarks apply to the thumb in man, increased function develops its special muscles, thickens the bone and toughens the nail,

In man we may attribute the disproportion of the hallux and pollex, in comparison with the

neighboring digits, to inheritance through a long line of ancestors of gradual increments of size, induced by excessive use.

Such gradual enlargement of a digit and its hereditary tendency or transmission may be demonstrated in Equidæ. The modern horse walks upon the greatly enlarged third digit of the hand and foot respectively, the hoof representing the nail. Hidden in the tissues on each side of this functional toe we find vestiges of the second and fourth. These are familiar to veterinarians as the splint bones

(To be continued)

C. C. PURDUM.

A RELIC OF THE PIONEERS.

Last summer a curious relic was unearthed in the central part of the city of Vincennes, Indiana. This was a Crusader's sword, two edged, cross hilted, brass mounted and ivory handled. It was found about 18 inches below the surface in a spot which as the "oldest inhabitant" well remembers, was once a pond. The blade was badly eaten by rust, the brass mountings were awry, and the ivory was yellow and crumbling.

This dilapidated weapon became the subject of much speculation, and newspaper correspondents united in declaring that the gaps rusted in the edges of the blade were the marks of some deadly encounter.

When General George Rogers Clark was commander at Vincennes, Virginia, whose territory this whole region then was, did not give him adequate financial support, and he often spoke bitterly of his state. It is said that when Virginia presented the general with a sword of honor he threw the weapon away exclaiming: "I asked Virginia for bread and she gave me a sword!"

Powerful imaginations have proclaimed this

to be that identical sword. It is possible however; that it may have a still greater antiquity for it is quite different from the swords usually carried by the colonists during the Revolution.

When the French pioneers descended the Wabash and founded a settlement at this place, not in 1702, as is absurdly stated by a ridiculous tablet in the facade of our county courthouse but over 30 years later, they built a fort near the river, just below the Piankeshaw Miami town of Chippecoke.

After the close of the French and Indian war the great chief, Pontiac, continued hostilities making Vincennes the base of his operations.

Vincennes, or Au Poste, as it was then called, did not come into the possession of the British until 1766, when the fort was rebuilt and christened Fort Sackville. Fort Sackville was a primitive, quadrangular affair, 40 feet back from the river bank. It was furnished with a large magazine, which was probably always empty, and afforded quarters for 1000 men who certainly never materialized.

This fort was twice captured by General Clark, once by intrigue and once by a desperate game of bluff, and the British general, Hamilton, who had made it his headquarters when paying rewards for colonists' scalps, was taken to Virginia a prisoner.

After that the history of the fort was of a very pacific description and the "oldest inhabitant" is silent regarding its ultimate fate and the final destiny of the 6 and 10-pounders that defended it.

It was near the place where the eastern wall of the fort, an eight-foot wall of earth and a double row of 20-foot high palisades, had once stood that the relic was found.

ANGUS GAINES.



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NOTES ON A NEW ALKALI MINERAL.

Mr. C. H. Northup, of San Jose, [Cal.] while searching at Borax Lake, California, for the new species sulphohalite, discovered small crystals of what he considered to be a new form of that mineral and is described in the *Mineral Collector*, as follows:

Crystallization, etc.—The mineral crystallizes in regular octahedrons, whose diameter rarely reach one centimeter. They occasionally exhibit triangular markings and a habit of parallel grouping in more or less regular aggregates. Fractured crystals show in the interior a cross of faint lines running perpendicularly to the crystal faces. These are divided by darker planes lying parallel to cubic symmetry, and passing through the angles of the octahedron, dividing it into eight parts. The same thing is noticeable in the clearest of the complete crystals, a bundle of striæ coming from the center of the crystal to the center of each face with the dividing planes clearly visible. This phenomenon is strikingly similar to that observed in cubes of boleite (figured by Bombicci in a memoir on

mimetical pyrite, Bologna, 1893.) The markings in the present instance are probably due to inclusion of organic matter, as in chialstolite.

The color varies from dirty white, pale yellow and greenish gray to dark brown; the lighter colored crystals closely resemble senarmontite, Cleavage is imperfect. It is brittle and shows uneven fracture. Luster, vitreous on broken surfaces, occasionally bright on crystal planes. Hardness 3.5 to 4.

Chemical examination.—In powdering the mineral a fetid odor is distinctly perceptible. It is easily fusible before the blowpipe; in the closed tube it blackens and gives off a burnt odor with violent decrepitation and liberation of water (which subsequently proved to be mechanically included,) finally fusing to a gray mass. Boiling water effects partial decomposition of the powdered mineral, with separation of a bulky white residue, consisting mainly of basic carbonate of magnesia. It is decomposed with effervescence in cold dilute hydrochloric acid, with slight residue insoluble.

A careful qualitative analysis of crystal fragments showed it to consist essentially of sodium, magnesium, hydrochloric and

carbonic acids, indicating a double chloride and carbonate of sodium and magnesium. Traces of phosphoric acid, silica, iron, calcium and organic matter were also found. This composition is quite as remarkable as that of other species peculiar to the Borax Lake region.

The name "*Northupite*" is proposed for this new species, since it was entirely due to Mr. Northup's indefatigable zeal in collecting that the mineral was brought to light. The entire find was forwarded to Dr. A. E. Foote, of Philadelphia.

PALEOBOTANY.

AN HISTORICAL SKETCH.

(Continued from Page 23.)

In 1706 Leibnitz called attention to the presence in Germany of what he thought to be the fossils of Indian plants, and in 1718 the celebrated Antoine de Jussieu, published a monograph upon the carboniferous flora of St. Chaumont, discussing the features wherein it differed from the indigenous flora of to-day, and resembles that of the tropics. Thenceforth the theory that fossil plants were the remains of exotic forms, was frequently advanced, and was given its final shape by Walch who pointed out that the living floras of France, Germany and England were very dissimilar while their fossil floras were substantially the same. This he thought could only be explained by assuming that the fossil floras were all brought from the tropics together. There were fossils, to be sure, in which he could find no resemblance to living plants, but he was helped over this difficulty by the assumption that their congeners must still be living in the unexplored tropics.

When it was supposed to be fully demonstrated that the fossil plants had grown in the tropics, it was assumed quite as a matter of course, that they had been transported by the flood to their final resting places.

Volkman, in his *Silesia subterranea*, gave a new complication to the question by advancing the degeneration theory. He thought that antediluvian vegetation was of a much higher order than that of to-day, that plants had been degenerating and wholesome, fruitbearing trees had been changed into thorns, thistles and other familiar pests. Ideas like these became common, and even the great Buffon believed that retrogressive atavism had taken place in both animals and plants.

Still another theory began finally to take shape. This was that a considerable number of species both of animal and plants had been utterly exterminated by the flood. The fossil flora was supposed to contain the forms once indigenous to Europe, but which were destroyed, leaving no living representatives. In this way they also explained the presence of a fossil vegetation on desert islands destitute of living plants.

Vague theories and speculations, however, gave way before the growing mass of facts and at last it ceased to be possible to check investigation by an authoritative allusion to the literal six days of Moses. The principles of deposition and stratigraphy were beginning to be understood. Geology was fast becoming a real science and about the close of the eighteenth century the sound views of Blumenbach prevailed, and the real dawn of Paleobotany marked the beginning of the nineteenth.

The diluvian theory, as we have seen was the prevailing one throughout the eighteenth century. It was thought to be the only one by which the teachings of nature could be reconciled with those of revelation, and to question, its correctness was equivalent to discrediting revealed religion. Yet all this time knowledge was increasing and a great store of facts were accumulating which demanded a more rational explanation and forced a revolution in human thought. A great advance upon the mysticism which preceded it, the theory had outlived its usefulness, and had become a barrier in the way of intellectual progress when Blumenbach overturned the tottering ruin and

opened the way for the modern science of Paleontology.

Blumenbach confined himself chiefly to the study of animals, but he was closely followed by Schlotheim, who began his scientific career in 1801 by publishing his "Treatise on Vegetable Impressions in the Tile Clay and Sandstone of the Carboniferous Deposits." (*Abhandlung uber die Krauter - Abdrucke in Schiefethon und Sandstein der Steinkohlen Formation.*) This was soon followed by his "Description of Remarkable Plant Impressions and Petrifications of Plant, a Contribution to the Flora of the Primeval World," (*Flora der Vorwelt.*)

These works were copiously illustrated by well drawn figures of carboniferous plants, giving us the most rational and comprehensive account of fossil plants published up to that date, and constituting the first really scientific work on Paleobotany.

Schlotheim defended the expression "Flora of the primeval world" (*Flora der Vorwelt*), declaring his belief that fossils "were the remains of an earlier, so called preadamite creation, the originals of which are now no longer to be found." Almost all later German works on Paleobotany have borrowed this title and appear as "*Beitrage zur Flora der Vorwelt.*"

A period of great activity in Paleobotany began with the century. England, although slower to throw off the shackles of current fallacies, began to do her share of the labor of research, and in 1804 there appeared a great work on "Organic Remains of a Former World," by Dr. James Parkinson. Dr. Parkinson was a very learned man, and was assisted by the distinguished botanist Dr. James Edward Smith of the Linnaean Society. Together they studied and compared all the specimens obtainable, and their work was a compendium of the knowledge of their time, yet they were unwilling to adopt the modern modes of thought but "conjectured" that fossil plants "were all foreign, and productions of a warm climate"

The first work to bear strictly modern appearance was Schlotheim's "Petrefactenkunde" which appeared in 1820. By far the larger portion of this work was devoted to animal remains, but the plants mentioned were arranged in families, genera and species according to the binomial system of classification of Linnaeus.

It is frequently said that in this same year Steinhauer, laid the foundation of Paleobotany in America. This is scarcely to be taken literally, for although the Rev. Henry Steinhauer resided at that time in Bethelhem, Pa., and his paper, "On Fossil Reliquia of Unknown Vegetables in the Coal Strata" appeared in the "Transactions of the Am. Philosophical Society," he confined himself almost exclusively to the discussion of the fossils of the British Isles, where he appears to have spent most of his life.

The work which marked the beginning of the study of American deposits was Ebenezer Granger's "Notice of Vegetable Impressions on the rocks connected with the coal formation of Zanesville, Ohio." (*Am. Jour. of Science, 1821.*)

Conrad, the eminent Bohemian Paleobotanist was sent to Texas in 1847 to collect scientific material. He remained there two years, but the vessel on which he was returning went down in the middle of the Atlantic and the scientist was lost with his collections and the results of his studies.

Sir J. W. Dawson, who was born in Pictou, Nova Scotia, in 1820, has given us the larger part of the information we possess regarding the vegetable remains of Canada and the British Northwest. His very voluminous works are accurate and painstaking. Their value is universally recognized, and well deserved honors have been heaped upon him.

Heer, the Swiss Botanist and Entomologist, united with his many other scientific pursuits the study of the fossil floras of many lands and wrote a work on the "Fossil Plants of the Lower Cretaceous Beds of Kansas and Ne-

braska," and also figured the "*Phyllites Cretacees du Nebraska*," collected by Marcou and Capellini. Sir Charles Bunbury confined his labors mainly to other lands, yet he elaborated the material collected in America by Lyell and Dawson.

Leo Lesquereux, who like Agassiz and Guyot, abandoned his native Switzerland for America, has studied the Carboniferous, Cretaceous and Tertiary floras over wide areas in the United States and has probably done more than any other one man to diffuse a knowledge of the vegetation of former epochs.

Dr. John Strong Newberry, of the School of Mines, Columbia College, N. Y. began his scientific career as a member of the Ives Exploring Expedition, and at once gained a reputation as a Paleontologist. He is the author of many excellent works on the extinct floras of North America, several of which have been published by the U. S. Geological Survey.

This hurried sketch is merely a brief and imperfect outline of the progress of the knowledge of fossil plants, as it emerged from mysticism and rose to the great science of Paleobotany. The writer has sought merely to show the various stages in the growth of the science, and has not tried to mention the names of all the great workers in this field, and of course has not touched upon the labors of the host of great investigators of to-day.

ANGUS GAINES.

IMPORTED AND ACCLIMATED GERMAN SONG BIRDS IN OREGON.

By C. F. Pfluger, Sec'y of the Society of the Introduction of useful song-birds into Oregon, at Portland.

THE CROSSBILL (*Loxia Pytiopsittacus*. *Der Kreuzschnabel*.)

Of these song birds 20 pairs were introduced into Oregon by the Society in 1889.

This remarkable bird, which is about the size of a Bullfinch is about $6\frac{1}{2}$ inches in length, of which the tail measures $2\frac{1}{2}$ inches. The

beak is almost one inch long, blackish, very thick and bent crosswise at the point the upper mandible bending downwards, and the lower mandible upwards, cross each other; hence arises the name of the bird. The general hue of most males, is vermilion mixed with brown, and varying in shade on different parts of the body. The neck, breast and rump, are a purer red, the wing and tail feathers dark grey, with black shafts. This bird also like some others, appears to vary in colour according to its age. The female is dark grey, tinged on the back with olive green; the rump is a lighter green; the belly and vent whitish.

This bird is a native of Germany. It frequents fir and pine woods. If not seen in summer, the traces which they leave behind them in winter, in the fir and pine cones lying stripped of their seed beneath the trees, are unmistakable. They sit very still, and eat nearly the whole day, and only when hopping from tree to tree do they utter a harsh call, "Gep, gep, gep!" They are generally seen in parties of from twelve to twenty-four. They are not at all shy, nor will a flock of them disperse even if fired at.

Its food, chiefly consists of fir seeds, which it partly extracts from the scales of the cones with its bill, and partly collect from the ground. It also eats the seeds of the pine and alder.

Its time of incubation is the most remarkable of its peculiarities, for it breeds between December and April. It builds its nest in the upper branches of coniferous trees, of thin pine or fir twigs, on which is placed a thick layer of earth moss, lined within with the finest coral moss. The female lays three to five greyish white eggs, having at the thick end a circle of reddish brown stripes and spots. The heating nature of their food preserves both old and young from the effects of the winter's cold. They feed their young with food disgorged from their own crops. The Crossbill uses its bill and feet for purposes of locomotion, like the Parrot. The males often utter the ringing note like "Reitz," or "Kreitz," called by amateurs the Crossbill's crow; they are very

constant singers, and their song is not unpleasant in low but very agreeable notes.

THE SINGING QUAIL (*Tetra Coturnix*.
Die Wachtel.)

Of these birds 5 pairs were introduced by the Society in 1889, they were turned loose in the Waldo Hills in Marion County. This bird in appearance almost like the Bobwhite, is little more than 7 inches in length. The beak is short; blackish brown in summer, grayish in winter and resembling in form that of the Partridge; the iris is olive brown the feet a whitish flesh colour. The upper part of the body is spotted with blackish brown and rust color, with a few small white stripes; the throat blackish brown, and encircled by a double streak of chestnut brown. The lower part of the neck and breast are pale rust color, marked by indistinct longitudinal stripes; the belly dingy white; the shanks reddish grey; the wing feathers dark grey, crossed by narrow streaks of rust color. The tail is dark brown, with transverse stripes of rust color and white, and very short. The female may be distinguished by the fact that the throat is white, and the breast like that of a Thrush, spotted with black.

This Quail which is a native of the old country, is a bird of passage; arriving in Germany in May, and departing about the end of September. It chiefly frequents the fields of grain; and especially those of autumn-sown wheat.

The only nest formed by this Quail, is a hole scratched in the ground, and lined with a few straws or grass stalks. The female does not lay her eggs, which are 10 to 14 in number, and bluish white with large brown spots till late in the year, often not till July; the brood is hatched in three weeks, and the young birds run about with their mother before they are fledged, though this takes place before the autumn migration. The males are exceedingly ardent.

Their food consists of all kinds of seed and grain; for example, wheat, millet, rape, hemp and poppy seeds. It feeds also on green plants. It moults twice a year, namely in

spring and autumn.

This Quail is a clean and lively bird; and creates amusement by the singular manner in which it walks on tiptoe, with outstretched neck, and continually nodding its head. Its cry, however which is very peculiar, is its chief recommendation. In pairing time it consists of the syllables: Verra, verra! very softly uttered, followed by Pikvervik, pikvervik! repeated with a loud voice, closed eyes, and a continued nodding of the head. The more a bird utters the former of these words, the less does he pronounce the latter; and a Quail which repeats Pikvervik! ten or a dozen times, is highly prized. As the call is chiefly heard in harvest time, the peasants in Germany interpret it into Bueck den Rueck! (Bend the Back) and consider it as an exhortation to industry. The song of the female is merely Verra, verra! and in pairing time Peu, peu! Peupeu! when discontented or alarmed, they utter the syllables Ghillah, and when pleased, a sound like the purring of a cat.

In confinement, the male will begin to sing soon after Christmas, and continue to do so till September.

A WELL-PRESERVED IDOL.

According to the Nooksack Reporter, an idol has been discovered on Dr. Thompson's ranch, near Nooksack, in a good state of preservation. The idol is carved out of lava, is 21 inches high; widest breadth across the face, 12½ inches; the face and neck is 16 inches and the bust 5 inches long. The carving preserves true lines, and the whole figure reminds one of Phœnician handwork, as recently uncovered in portions of Central America. The bust carving, in defining the arms, makes a nearly perfect keystone of the base, with a smaller one on the breast. No hieroglyphics are visible. The block has been about seven inches in the thickest part, but a portion of the back has been broken off, probably struck by a plow share.—*Exch.*

THE ELK'S SENTINEL.

HABITS OF THE WHISTLING MARMOT
OF THE OLYMPICS.

Five years ago the Olympic mountains were described as the last tract of unexplored land within the United States, and the same statement holds good today, for, although a few parties have crossed the range from east to west, no one has yet traversed the entire distance from the Skokomish river to Cape Flattery, and even the location of the largest peaks—Olympus and Constance—is to a great extent undecided.

As a game region, the Olympics have gained a world-wide reputation, and a goodly number of dollars are annually spent by hunting parties in attempts to penetrate into the interior of the well-known Jupiterhills, where the cow elk raises her calf in security; the she bear, guards her cubs against the attacks of the gaunt gray wolf, and the doe with fawn flees to a higher altitude for security when she hears the warning cry of that guardian of the gorge, the whistling marmot (*Arctomys caligatus*). The whistling marmot is the largest of American rodents, being equaled in size only by the beaver. The marmots are thick-set animals, weighing, when full grown, from forty to sixty pounds, and measuring overall from twenty-six to thirty inches, with a short, bushy tail of about eight inches in length. The head is broad and massive, and rests on the powerful shoulders with hardly an apology for a neck. The fore limbs are short, thick, five-toed, and armed with

strong claws for digging. Like all the other members of this family, they are provided with powerful gnawing teeth, which can bite through a shoe-lace or an alpine staff, as the case required. In color the animal is very variable, individuals being found that are nearly black, while some are gray, But the predominating color is tawny rufous, generally blotched with black and gray. The pelage is composed largely of hair, and the fur is so short and poor as to render the hide of no commercial value.

This species of marmot is also met with in the Cascade range, but not so numerously as in the Olympics, where it dwells in large colonies, sometimes numbering over 100 individuals.

As the weary traveler toils laboriously up the mountain trail his progress is suddenly arrested by the sound of a long, clear whistle, floating down the canyon. The sound is so human that unless he has heard it before he instinctively answers it, thinking it to be the call of a comrade. The cry is repeated at short intervals, until the traveler approaches too near the warren, when it suddenly stops, and all is as still as the grave, and nothing is to be seen to indicate the animal's presence except the few holes among the rocks. It is this cry that gives the animal its name, and so peculiar is the call that, once heard, it is never forgotten, and several times when making inquiries of Indians as to whether the animal inhabited their locality the writer has had recourse to imitating it, when the Indian would recognize the animal desired at once.

These rodents choose their homes in

the grassy glades of the higher ranges, commonly known as elk meadows, which are located close to the line of perpetual snow. Here they excavate deep burrows of considerable extent, in which they live, the entrance in some cases being concealed by a large boulder or other natural protection, but oftener being plain to be seen. In the selection of their food they are strictly vegetarian; their chief diet being grass and stalks of alpine plants. A peculiarity of these animals is that they spend nearly eight months of each year in their underground dwellings, and a considerable part of the time is passed in hibernation. In May the young, four or six in number, are born in the burrows, and about the first of June the parents appear active above ground, even if the snow has not yet gone off. At first they turn their attention to a general house-cleaning, and all the old remnants of grass and other food that has been left over from the last winter's supply is thrown out of the mouth of the burrows. Then comes a short period of fun and frolic, during which time the young of the previous year choose their partners, and build, or more literally, dig their homes, for only one family live together in a burrow. By this time the alpine herbage on which they live is well grown, and these busy little workers commence to gather large quantities for winter use, first carefully drying it in the sun. and then carrying it into their burrows. Toward the end of September the marmots hole up for the winter, which commences about that time in the high altitudes at which they dwell. The regions in which the whist-

lers live are too high to be of use for agricultural purposes; therefore it is safe to say that they will never be looked upon as a farm pest. This, unfortunately, cannot be said of their next of kin, the woodchuck (*Arctomys monax*).

The woodchuck of the Olympic mountains is of a dirty slate color, and about one-half the size of the whistler. It inhabits the same regions, but also descends and makes its home along the headwaters of the mountain streams. Its diet is the same as that of the whistler, but it prefers for its dwelling place a grassy meadow, where rocks are not so plentiful, and it does not live in colonies. The cry of the woodchuck resembles a weak, poor imitation of the whistler, but as the animal is shy and dodges into its hole on the approach of danger, instead of warning its comrades, as does its larger relative, it is not so often heard. The cry of the whistling marmot is a danger signal, but the woodchuck's cry is a call to its mate, and is only heard when everything is still and no danger apprehended. In habits and life history the woodchuck resembles the whistler so closely as to render its needless to describe it further, except in one respect, which is the slight proclivity of the woodchuck to climb small trees. These are the only true marmots found in the Olympic range, but the next species is so nearly related to them and so far removed from any other genius as to be treated under the same head.

The mountain boomer (*Aplodon rufus*), also known as the mountain beaver, is pretty evenly distributed throughout the

mountain ranges of Oregon and Washington, but its range is restricted to these two states. This wonderful little animal, whose industry surpasses that of the beaver, was first discovered by Lewis and Clark on their expedition to the Pacific in 1804, but it attracted little attention until brought more prominently to notice by Dr. C. Hart Merriam in 1885,¹ and its exact distribution has yet to be defined. This animal was known to the aborigines for ages back by the name of "showtl" or "sewellel," and by them held in superstitious regard, their belief being that by its constant excavations and incessant labor it had dug out the valleys and built the mountains of the universe; but commercial enterprise has taken the place of mythology, and the siwash of today recognizes but the fact that the hide of the sewellel is worth "tenas dollar," which is willingly paid by his new found friend, John Chinaman. The mountain beaver, as it is most commonly called, is a heavy-set, sturdy little fellow of marmot-like appearance, measuring over all about twelve inches. The limbs are short, powerful and five-toed, each toe being armed with a strong claw. The eyes are very small and deep set, and the place where the tail ought to be is indicated by a tuft of extra long hairs, but the tail is conspicuous by its absence, giving the animal a decidedly incomplete appearance. This rodent is found in suitable localities, from the highest altitudes down to nearly the ocean beach. Its fondness for damp or swampy ground, together with the color of the fur and general appearance, have given rise to its

name of mountain beaver, but it has really very slight relationship to *Castor fiber*. It should be of especial interest to residents of Washington and Oregon, for it is found only in these two states, and it has no counterpart in the fauna of the world.

The sewellels live in large colonies, often covering three or four acres. They are more industrious than the two species described, and in their workings show a great similarity to the gophers, not only excavating burrows in which they dwell like the marmots, but also runways underground, of great extent, in which they travel from one burrow to another.

In high altitudes the sewellels lay in a winter store of dry grass in the same manner as the marmots, but in localities where little or no snow falls they rely for food in the winter months on evergreen shrubs, roots and ferns. They remain active all winter, and do not hibernate, but reach their food by tunnels through the snow when necessary.

These animals, in spite of their clumsy appearance, are fairly active climbers, and ascend small shrubs to a height of four or five feet in order to obtain the young shoots and leaves.

Sewellels are easily caught with a naked trap set in their runway, and therefore they disappear rapidly before the approach of settlers, but were it not so they might do considerable damage to the farmers, several instances having come to the writer's notice of their having destroyed fine rose trees.

BERNARD J. BRETHERTON.
in Post-Intelligencer.

THE NORTHWESTERN
ORNITHOLOGICAL ASSOCIATION.

Organized Dec. 28th, 1894; Object—to advance the science of Ornithology in the Northwest. President; William L. Finley, 287 4th, St., Portland, Or., Secretary; Arthur L. Pope, McMinnville, Or.,

Any person interested in Ornithology, residing in the Northwest, may become an active member.

Any person interested in Ornithology may become an associate member.

The membership fee shall be fifty cents; this shall cover all dues to the first of January, after initiation.

The OREGON NATURALIST, shall be sent free to all members.

Applications for membership should be sent to the Secretary.

The work for the N. O. A., for April will be the study of the Dusky Grouse, (*Dendragapus Obscurus*) and Sooty Grouse, (*D. obscurus fuliginosus*.) Any items on the above species should be sent to the Pres. not later than Apr. 20th.

The study for May will be on the Oregon Ruffed Grouse (*B. Umbellus Sabini*), and Sage Grouse (*C. Urophasianus*). All members should send in their observations on these birds not later than May, 20th,

The regular monthly meeting of the Portland Annex, of the Northwestern Ornithological Association, was held on Feb., 22d, to discuss the subject under consideration of the Association.

A fair number were present and a very successful meeting was held. The work for

last month was the "Bob-white," in Oregon. Mr. Henry Hoskins, of Newberg, conducted the work for the month. The following article, written by him was read and discussed, and proved to be interesting, and was appreciated by those present.

THE BOB-WHITE IN OREGON.

Several attempts have been made to introduce the Bob-white into this state, but all have been more or less unsuccessful. However, at the present time there are a great many scattered throughout the Willamette Valley.

In the spring of 1890, I saw my first wild Bob-white, in Oregon. I do not remember the exact date, but I think it was sometime in May. They were in pairs, and it is quite probable that they had nests at the time. This was about six or seven miles south of Dayton, on the road to Wheatland. I saw several pair, and I supposed that they had either been introduced for some time and become quite common, or several birds had been liberated near there. They appeared to be quite tame and would let me approach within a few feet of them. It is possible that these were some of the original birds and had become tame during their confinement.

About the last of June, 1892, a male Bob-white, was seen and heard as he stood on top of a fence giving at intervals his clear whistling notes. This one seemed to be the only one in the vicinity at the time, and from what I heard from others I think it came from the south, and was slowly making its way northward. It remained near here for a day or two and then disappeared.

The next spring there were several seen and heard near here. Last year they were quite common during the whole spring and summer, and I have every reason to believe that they nested near here, but I was not so fortunate as to find one.

A little over a year ago Mr. D. P. Thompson, of Portland, imported 25 birds. In

answer to inquiries, Mr. Thompson writes: "About one year ago I had twenty-five Bob-white Quails sent me from Omaha. They reached me in good condition, I kept them in a house I had on my farm, until in February, I turned them out in a small park I have on my farm. I never saw nor heard of them afterwards. The experience of raising the 'Bob-white,' has been a failure in Oregon and Washington. Several attempts have been made, but the result in most cases have been similar to mine. The Bob-white, roosts near the ground, and it is believed it is the victim of minks, weasels, rats and other small destructive animals with which our Oregon and Washington woods are filled."

Mr. Thompson's belief that many of these birds are destroyed by small rodents is probably not incorrect, and no doubt this is the main reason why they do not increase more rapidly. At least it does not seem that their scarcity could be attributed to the lack of the climate to meet their requirements.

I am informed that several pair were liberated along the Columbia river, and from there they have spread south until they have reached the suburbs of Portland, in considerable numbers.

I have never heard of but one nest being found in Yamhill county, and that was destroyed before the set was complete. I know very little about the nesting habits of the Bob-white, except what I have read. Therefore I cannot perhaps do better than to quote from an article in a recent number of the "Oologist": "The nest of the Quail is very easy to find, as they build on the ground. It is usually a hollow, scratched in the ground, well lined and arched over with grass; with an entrance at one side. *** Their nests with fresh eggs may be found from April to July, and one of their favorite places to build, is in the ridge of an old road, where the grass has been left standing. Both birds assist in building the nest. The material of which it is composed is gathered close at hand, and I have seen the female in the nest seemingly fixing things to

suit herself, while the male was on the outside carrying material within reach of his mate. When the birds are disturbed during the process of building, they will abandon the nest."

In another place we read: "The eggs vary in numbers. I have found a great many nests, ten eggs were the least, and twenty-seven the most, found in one nest, fifteen to twenty are the usual number. The eggs being of such a pure white color, are very easily stained, and it is very seldom a full set can be found, without a number of stained ones."

Again, "The young have a peculiar peep, similar to a young turkey and usually utters two or three peeps in succession. When disturbed while quite young they give several loud peeps when the old ones will fly about the intruder and run around with their feathers ruffled up and their wings down making a crackling noise.

The flock will stay together if not disturbed during the whole winter. When roosting they sit close together in a bunch with their heads outward and when disturbed, they start from the bunch in a flutter in all directions. In spring they disband and mate."

HERVEY M. HOSKINS.

An interesting letter from Mr. W. A. Howe, of Carleton, Oregon, was then read by the President. Mr. Howe, writes that; "In 1893, Mr. Chas. E. Ladd and myself purchased six dozen Bob-whites, in Wichita, Kansas, and had them shipped by express, to my residence, at Carleton. The birds came through in poor condition, one dozen having died upon the way.

Upon arrival I placed them in a room with a very high ceiling, putting fir brush on the floor to make a covering for them and kept them there until the snow had entirely disappeared. I finally liberated 52 strong birds, some of which were liberated near Carlton, and the rest on the farm of Ladd & Howe, two miles from North Yamhill. From all appearances, these birds bred and did well during the first year, and are still to be found in these localities ***

"I am inclined to believe that the numerous skunks, weasels and mink, interfere seriously with them while breeding, and in the course of time, when the vermin of this locality shall have been more subdued, our Bob-white will increase and flourish to a marked extent ***

"Some ten or twelve years ago two pair of birds were brought here as I am told, by Hon. R. P. Bird, and set free at his place near La Fayette, but never have increased to any extent. Some were also liberated near Denny, Or., but they are only found in small numbers."

Mr. Howe, has had a fine opportunity for studying the habits of this bird, consequently his letter was of great interest at the meeting.

Mr. G. D. Peck, of Salem, in a short letter says; Bob-whites are heard whistling in that vicinity every June, which he believes is a sign that they are mated. In Nov. last he saw a flock of five or six, an old bird and her young; the young, being about half grown.

A very valuable letter was then read from Mr. Ellis F. Hadley, of Dayton. He writes: "The first Bob-white Quail that were introduced into Yamhill county, Or., to my knowledge was in 1875, by Hon. A. R. Burbank, of LaFayette, who brought two pair from Whinby's Island, Washington, which were formerly brought from Illinois. The two pair cost him eight dollars, and were kept in confinement a while, but escaped and what became of them is unknown.

"I first saw a Bob-white in 1878, also in '88 and again in '92. Several are now seen every year. In '94 a nest and 14 eggs were found near here as was the case last year."

Mr. Rey Stryker, of Milwaukie, Or., remembers having seen a few Bob-whites near Albany, about '82 or '84, which were quite tame and which he evidently believed had recently been turned loose.

Other facts were given by the members present and a general discussion was indulged in, much valuable data was produced and it was generally conceded that the Bob-white Quail was slowly, but surely increasing in Oregon.

Mr. Bard, of Portland, read a short article on the Bob-white, which was very interesting.

D. F. W.

THE PIED-BILLED GREBE.

I do not know of a more interesting bird than our common grebe, or dab-chick and as it is common in Oregon, I think it must breed here. In Iowa, it breeds in rather small marshes, and its nest is the most curious thing connected with its life-history. It is composed of half decayed flags and rushes in sufficient quantity to fill a half bushel basket.

The nest floats, rising and falling with the water in the marsh and only a small part shows above the water. It is neatly finished off and hollowed just enough to keep the eggs in place and as it is nearly on a level with the water the Grebe climbs on with out trouble. I have examined a number of these nests and they were as warm as a hot-bed. It may not be the design of the Grebe to incubate her eggs in this way, but she could leave the nest for hours with out injury to her eggs.

When she hears an intruder approaching, she covers the eggs with decayed vegetation, which I think she keeps on hand for the purpose, and then tries to decoy the intruder away from the nest. I once surprised one of these Grebes with a young one on her back, as I approached she sank, leaving the chick struggling in the water, being helpless it would have drowned I believe, if I had not placed it upon a nest. The young Grebes are very neat and pretty, and when two or three days old can slip under water as easy as their parents. Full sets of from five to eight eggs are found from the first to the twentieth of June.

GEO. D. PECK,

Salem, Ore.

THIS winter the Western Robin has failed to make its appearance as usual. In previous years it came about Nov., 1st, with the bluebirds. I would like to know if the W. Robin is present as usual in other localities in southern California.

J. MAURICE HATCH,

Escondido.

Feb., 10th, S. Rey Stryker, secured a specimen of Townsends Solitaire, male, near Milwaukie, Or.

JAPANESE DAIMIO SWORDS.

Among the nations of Eastern Asia, the Japanese were known as skillful workers of iron, which their armorers transformed into famous weapons of steel. They produced blades by which one could cut through iron, without nicking the blade in the slightest degree. Skillful sword cutlers gained for themselves high social positions, and won immortal glory and fame with their swords. In no country has the sword been made an object of such honor as in Japan. It was at once a divine symbol, a knightly weapon, and certificate of noble birth. Previous to 1876 the wearing of swords was the custom in Japan, but that year (March, 28) the wearing of them by any individual was abolished, unless in court dress, a member of the military, naval force, or a police officer.

LEE ROY J. TAPPAN.

TO-DAY, Feb., 10th, I saw for the first time a live Pigmy Owl. For three years I have searched for this little Owl. It seemed to be fearless and I had a good opportunity to observe it, for the sun was shining bright, but it was evidently on a hunt, for it dropped into a thicket in pursuit of a small mammal and I saw it no more. Is it not very rare in western Oregon.

GEO. D. PECK,
Sslem, Ore.

[Mr. C. W. Swallow, reports several seen near Oregon City, during February. Mr. W. B. Mallies, reports them in the vicinity of Cedar Mills, and one was shot near Portland, with a dead junco in its talons. ED.]

EDITOR, OREGON NATURALIST:

Dear Sir:—In the August number of the OREGON NATURALIST, 1895, Mr. H. C. Lillie, of Visalia, Cal., questions the identity of the Hummer that I observed bathing near Santa Barbara. I want to say in justice to Mr. Lillie and the readers of the "NATURALIST," that I believe him to be right. It was many years ago that I made the observation and had carried the idea that the "Anna" and "Ruby-throat" were identical.

G. W. HARVEY,
Kanab, Utah, Feb. 9th, 1896.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR.

CHAT.

Look out for the migrants.

We are pleased to announce the addition to our staff of writers of Mr. F. P. Drowne, whose first installment of "Spile Scraping," appears in this number. Mr. Drowne is in every way capable of discussing "invertebrata" and we can safely promise many interesting articles from his pen.

The writer has received notes appropriate to "Odd and Peculiar Nests" from the following gentlemen; Mr. Angus Gaines, Mr. L. B. Gilmore, Mr. J. H. Bowles and desires hereby to thank them for the interest shown. As before stated, this "Report" is made under the auspices of the Oologists Association, and will probably be out sometime in June.

The articles following Evolution and Disease viz: "Disease and its Effects," "Vestigial Structures," "Dichotomy," "Atavism," "Malformation," etc. will begin in the May number.

SPILE SCRAPING AND SOME OF THE
MARINE INVERTEBRATES
OBTAINED BY IT.

Spile scraping or post scraping yields to the collector of marine invertebrates a great many interesting and important forms. Those who live near the salt water, in places where there are wharves, can, with the aid of a scrape-net, become acquainted with a good many of the lower forms of animal life, which live either attached to the spiles or in the masses of hydroid and algae usually found on sunken posts.

The only articles required for this kind of collecting are a small boat, narrow enough to pass between the posts in the wharves, a couple of pails and a scrape-net.

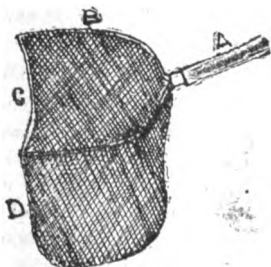


Fig. 1.

The scrape-net, is of a quite peculiar shape which I have tried to illustrate in Fig. 1. In this drawing A represents the handle, which should be eight or nine feet long, and of tough wood, BBC the iron frame work of the net, and D the net itself. The net should be of strong twine with meshes about a quarter of an inch in diameter. The part C or the blade is sharp and curved inward slightly so as to scrape the spiles more effectively.

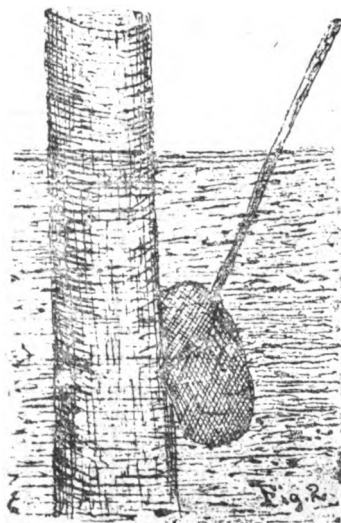
To meet with the most success a good day should be chosen, when low tide comes at the time which is to be spent collecting and when the water is smooth.

Having provided ourselves with the necessary tools we will get into the boat row to the nearest wharf which we will suppose to be a good one for collecting.

I will say at this point that the collector must learn by experience where to go to obtain the best results, for, while one wharf may yield an abundance of specimens another wharf, perhaps within a few hundred feet of the first, may be an exceedingly poor collecting ground.

Two persons make just the right number to manage the work properly, one to do the scraping, and the other to guide the

boat among the spiles. Upon arrival at the wharf the "scrapper" should let the net down into the water as far as he can without letting go the handle and clasp it against the post he intends to scrape, in the manner shown by Fig. 2.



Then pressing hard on the handle so as to keep the blade against the post pull up the net scraping the side of the post as clean as possible.

Thus the animals detached from the pile fall into the net and in a good collecting ground this operation does not have to be repeated many times before the pails begin to fill with specimens.

Although the handling of the scrape-net may seem very hard at first, after a while it will become easier although I do not think that even a skilled operator would call it easy.

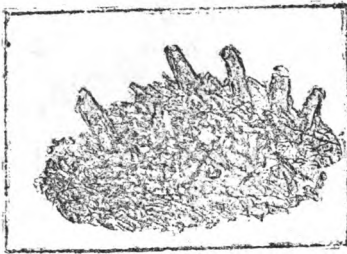
Now that I have described the methods of collecting, I will note briefly some of the invertebrates which I found on the spiles at Woods Holl, Mass.

GRANTIA SP.



This little calcareous sponge was quite common. They vary from one-half to over an inch in length, and are found attached to the spiles by a root like base, usually in clusters. They are of a dirty straw color.

LEUCOSOLENIA SP.



This is another sponge which is not so easy to obtain as the preceding. Its color is the same as that of Grantia. A fair idea of how it looks can be obtained from the cut.

METRIDIDIUM MARGINATUM.

The common Sea Anemone was brought up in the scrape-net quite often. It was found attached to Mussel shells and more frequently to the spile itself. None of those found were very large.

When expanded the Metrididium is very beautiful but as it draws in its tentacles when in the least disturbed, it must be carefully approached if one would see it in its full beauty. When detached from the spile, if they are placed in some *fresh* sea water, they usually expand.

CRIBRELLA SANGUINOLENTA.

Once in a while one of these bright red starfish come up in the scrape-net. The bright red soon disappears in preserving liquid and they become pinkish white in color. They have five rays and measure three inches or more in diameter.

ARBATIA PUNCTULATA.

This urchin was very seldom met with on the spiles, though it was quite common in running water on the under sides of the rocks. The color is dark, almost black, and the spines are quite long.

F. P. DROWNE.

(To be continued.)

NOTES ON MIGRATIONS.

To every true student of ornithology there is no more interesting or more pleasurable occupation than that of watching the migrations of his feathered friends.

To many, however, who would desire to "go about it" in a systematic manner, the difficulty of finding an appropriate method, presents itself as an all but insurmountable obstacle, and with this view in mind I offer my little experience to "ye editor" and as he was gracious enough to allow it to pass his waste basket, I will proceed. First as to our stationery: First and most important, a note book. The most convenient size is an oblong book about five inches long by three inches wide, opening at the end, and held together when closed by a strong rubber band. Next a large plainly ruled invoice book, about the size of an ordinary sheet of "legal cap" when it is properly folded. These are all you need as far as paper is concerned. The rest of your outfit must consist largely of enthusiasm. Now of course we know that we can find the birds *any where*, but the best way by far is to select a certain route and go over it twice a day regularly at, say about 9:30 a. m. and 4:30 p. m. each day. Now in selecting a "route" I have always found one which if possible takes in a variety of topo-

graphical features, the most lucrative. For instance, my route consists of a stroll of about a mile in length, first down into a valley along the *south side of a hill*, which slopes gradually to a marsh and is thickly covered with oaks; and here let me say, is where I find my birds the most plentiful—from here across a pasture and through some isolated clumps of trees standing in it, thence across a low marshy stretch of land to the sea shore, and then for some distance along the sea shore to where the forest runs down to the shore, and then through the pine forest home.

Of course, all are not blessed with such a wide variety of "locations" as have been described, but where it is not, the route should be made as varied as possible. As you walk along with your eyes on the tree top, or bush top as the case may be, each species or if possible each individual (approximate) should be carefully noted in your note book, and then when you return, be sure and note the *temperature direction and force of wind, and condition of atmosphere, and don't forget to put it down*. Then at night after having gone over the route again, you should reduce the whole to as compact a form as possible, draw your own deductions from your notes as to the effect of temperature etc., upon the number of birds seen, and enter the whole under its proper date in your note book.

If this is kept up throughout the year; by glancing over your notes you will be at once able to tell the beginning, height and ending of the migration of any of the species you have observed, and many a valuable hint have I received from my notes as I have read them over. At the end of the migration season I always make it a practice to recapitulate the seasons work and write it out in full.

Before you are fully familiar with the birds of your location, take along your gun for the purpose of identification, and if you are a collector, carry it with you always; you will learn why, before you have gone over the route very many times.

MERGANSER.



The above are outlines of some Indian relics I found in Champaign county not long ago. Fig. 1 is a grooved stone ax. Fig. 2 a stone bead made of jet black material with bluish green lines running through it. Fig. 3 is a stone hatchet which I found when I found the ax. All three are perfect specimens and highly polished. The bead has been used considerably as can be seen from the worn end.

HARRY E. SPALDING.

Champaign, Ill.

In OREGON NATURALIST for January, I advertised a catalogue of Government Publications. The first order for it came by telegraph, reaching me the same day that the magazine, containing the notice. Other orders have been coming in ever since. Hereafter I will not advertise a book in your journal unless I have a whole library to dispose of. I don't know how many readers you may have but those whom I hear from are widely scattered.

ANGUS GAINES.

"Blue Jays, in several instances have been seen preying on the English Sparrow."

CHAS. C. CAMP,

Portage, Wis.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

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A. B. AVERILL, PORTLAND, ORE.
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MARCH, 1896.

Now that the Oologists' harvest has begun, young collectors should bear in mind, that a set of eggs about which there is the least question in the collectors mind, is worthless. If you are not sufficiently familiar with the bird to recognize it by sight, secure the parent bird, and here again mistakes are often made. Be sure you get the owner of the set. When this can not be done, let the eggs remain to fulfill their destiny.

A good field-glass will be found an useful adjunct to the Oologists' outfit.

Fred H. Andrus, of Elkton, Or. who is working to secure our premium offer of Davie's Taxidermy, writes: "I find that nearly all live collectors are already subscribers to your paper."

Patrons of the Dr. A. E. Foote's establishment, during this month can secure large reductions on minerals and books, owing to removal to new quarters.

The Iowa Ornithologist, was so unfortunate as to have its entire January issue burned, while in transit from the printers. Mr. Savage writes, that it will be reprinted at once.

Mr. C. A. Sharpe, the "Erie and Huron" agent, at Pt. Lambton, Ont. has perfected a system by which telegraphy, can be learned by mail. "A sample lesson will be sent for stamp, by addressing A. E. Pub. Co. Box 24, Roberts Landing, Mich.

The following publications have been received. Sixth Annual Report Missouri Botanical Garden. St. Souis, Mo. 1895. Pp. 134, Pl. 56 plus 6.

Regular agents for the sale of Garden publications, are Dr. A. E. Foote, of Philadelphia, W. Wesley & Son, of London, and R. Friedlander & Sohn, of Berlin.

"Second Report of the State Zoologist including a synopsis of the Entomostraca, of Minnesota," with descriptions of related species comprising all known forms from the United States, included in the orders Copepoda, Cladocera, Ostracoda. By C. L. Herrick and C. H. Turner. Pp. 525, Pl. 81. This work is "Zoological Series II," of the, "Geological and Natural History Survey of Minnesota. Henry F. Nachtrieb, State Zoologist."

Electric Light Bug or Belostoma. By Theodore William Schaefer, M. D. Kansas City, Mo. Birds of Narbeth, Pa. and vicinity, by W. E. Rotzell, M. D. Narbeth, Pa. Some Vestigial Structures in Man By W. E. Rotzell, M. D. Narbeth, Pa.

The Observer, March. The Naturalists Chronicle, February. Vegetarian, February. The Nidologist, March. The Oologist, January. The Baltimore Cactus Journal, February. Le Naturaliste Canadien, January. The Dog Fancier, February. Gameland, February. The Mineral Collector, March. The Numismatist, February. Printers' Ink, February. The Naturalists Journal, February.



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No. 4

KODIAK ISLAND.

A CONTRIBUTION TO THE AVIFAUNA OF ALASKA.

Research has shown that geographical distribution of species, is governed largely by climatic conditions, to a certain extent regardless of latitude. With this in mind, the writer will endeavor to familiarize the reader, with the climatic conditions existing on Kodiak Island, before passing to the main object of this paper.

Kodiak Island, lies on the west side of what is known as the Gulf of Alaska, in Lat. 55.00, N. and Long 153.00, W. It is separated from the mainland on its west coast by Shelikoff Straits, which have an average width of thirty marine miles. The total length of the island is about seventy-five miles, and an average breadth of forty miles, but its coasts are so heavily indented with bays, that in several places the island may be crossed from east to west by a portage of only ten or fifteen miles. It is bare of timber, excepting a small portion on the northeastern extremity, which, together with the adjacent island of Afognak, is thickly covered with spruce and small fir.

The main island is entirely surrounded

with small islands varying in size from the needle like structures rising abruptly from the sea, to the larger bodies of land such as Sitkalidak, Spruce and Whale islands.

Topographically, Kodiak is extremely rough, there being no main chain of mountains or back bone, it might appropriately be described as a lump of bumps rising out of the ocean; for as the highest peaks only reach an altitude of two thousand feet, they are hardly to be considered as mountains. The two principal settlements on the island, are Karluck and Kodiak, the former on the southwest corner of the island, is the center of the Salmon Cannery trade, and probably the largest plant of its kind in the world.

Kodiak, is the headquarters of the Alaska Commercial Co., and also the North American Commercial Co., the fur trade of Alaska being divided between them. It is one of the oldest settlements of Alaska, and Baranoff, the celebrated Russian ruler, maintained his headquarters at Kodiak, for many years before he founded the town of Sitka.

Although Sitka and Kodiak, are in the same degree of latitude, they vary greatly in temperature, climate and fauna, in fact slight similarity exists between the two

places.

In climate, Kodiak is neither arctic nor temperate, but rather intermediate between the two, and perhaps the best way to convey a correct impression to the reader's mind, will be to describe, an average year, month by month.

The first of January, finds the island covered with a deep mantle of snow, furious gales sweep over hill and valley, tearing shingles off the houses, blowing down fences and occasionally driving the thermometer down to a point at which cattle freeze to death in the very settlements, snow falling almost continuously. During February, the winds are not so boisterous, and the snow-storms are less frequent, and bright sunny days begin to break the monotony of the long dark winter; for it must be borne in mind that at this time of the year, there is but from five to seven hours of daylight, and on snowy days not half that number. The ocean does not freeze, but as the tide recedes, the water on the beach freezes so that the bowlders in time, accumulate coat upon coat of ice, and assume prodigious proportions, and great rolls of ice mark the height to which each tide has risen. In extreme winters, the small sheltered bays freeze over. March, and the first half of April, differ but little from February, excepting that the days grow longer, snow storms less frequent, so that a crust forms and snow-shoe travel is then practical. Towards the latter end of April, the heat of the sun begins to make an impression on the snow, so that by the first week in May, bare spots on the

southern hillsides appear. Then comes June, with its extremely long days and warm sunshine, soon driving away the remainder of the winter's snow, and giving birth to myriads of wild flowers, characteristic of this northern territory.

To the traveler, these long days almost devoid of night, are really harder to get used to than the dark winter months; for it is not easy to go to bed and sleep in broad daylight, at least, not to most people. July and August, are generally warm, and would be pleasant months, were it not for the frequent heavy winds. About the middle of September, the rains commence, and last with but little interruption through to the end of November. Then it begins to freeze, and continues to do so until the ground is frozen solid for a considerable depth, how deep I do not know, because I never could succeed in driving a pick down deeper than a couple of inches.

I wish to call the readers attention to two facts in this connection; first, that the ground freezes to considerable depth *before* the snow falls; second, that the fall of snow is quite heavy.

I do so because a good deal has been written by unscrupulous persons about the "agricultural resources" of Alaska, and particular stress has been laid on the advantages of Kodiak Island for cattle raising, all of which is pure and unadulterated "trash."

Before passing to the avi-fauna of this region, a few words relating to the mammals, may not be out of place. The only large terrestrial mammals found on Kodiak

island, is the barren-ground bear—the American black bear, having been introduced during the writer's residence there. Two races of foxes; the black and red, and a hybrid between the two, locally known as the cross fox, the otter, a local variety of Spermophile, or ground squirrel, the ermine-weasel, brown-rat, common house mouse, brown-bat, also, probably shrews, comprise the list as far as known.

In a community whose inhabitants subsist almost entirely by hunting, it becomes almost impossible for any animal to exist without its presence being known; therefore it is safe to say that the above small list contains nearly all the mammals found on the island.

Although the writer believes that the following list of birds, though small, is reasonably complete, yet, the peculiar geographical position of the island makes it almost impossible in anything short of a life's experience, to compile a list containing all the migrant species that visit this island on their route to their breeding grounds farther to the north.

The birds of the island may be divided into four classes, namely: Residents; Winter Migrants; Summer Migrants and Visitors.

By residents is meant those birds which pass their entire existence on the island, or the waters surrounding it. Winter migrants, are those northern species which spend the winter months in the vicinity, but breed in higher latitudes. Summer migrants, are those which come to the island to raise their young, and

then depart.

Visitants are birds which stop on the island while on their way to, or from their breeding grounds.

In compiling the following list, I am greatly indebted to Mr. William J. Fisher, for the use of his notes, also for a description of the capture of "Fisher's Petrel."

Aechmophorus occidentalis,
WESTERN GREBE.

A resident living on the coast in winter, and retiring to the lakes in summer to breed.

During the stormy months of winter, from December to the following May, this Grebe is very common in all the small bays on the island; it then resorts to the lakes on the island, choosing those in the interior and most inaccessible, where they raise their young in security.

Colymbus nigricollis californicus,
AMERICAN EARED GREBE.

Like *A. occidentalis* in habits, but does not associate with it.

Urinator pacificus,
PACIFIC LOON.

A summer migrant, arriving about the middle of May; nests in June, and leaves about the first of September. On account of its large size, and a habit it has of flying round before it finally alights, makes the arrival of this bird very noticeable.

These birds approach the island from the east, flying very high and in pairs, seeming at once to give their attention to selecting a suitable place to nest. They fly from one lake to another, describing large circles in the air, and giving forth

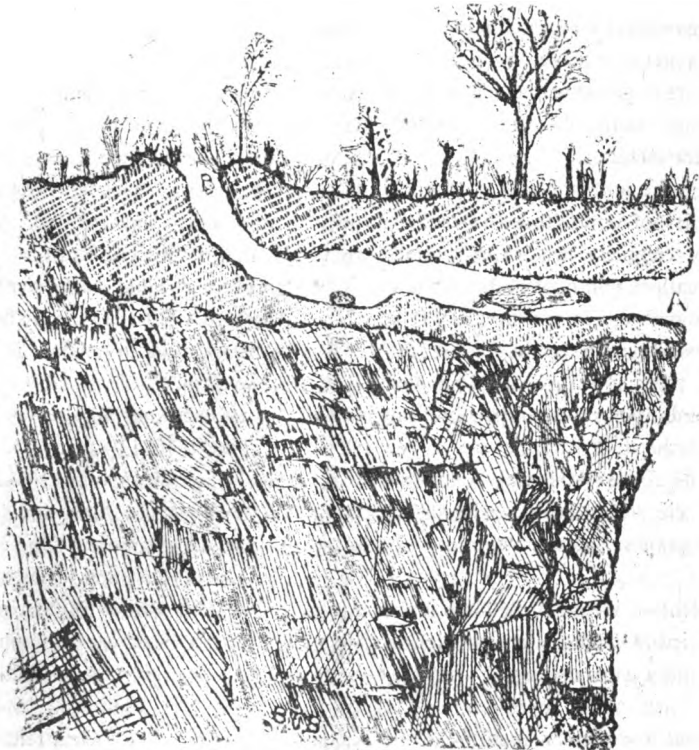
their harsh cry, which gives rise to their native name of "Googara." They were never noticed to arrive in the night, as many migrants do. Eggs of this species were obtained in June, and on the ninth of July a downy chick was taken from a nest on Lesnoy island, that had been visited four days previous, and then contained eggs. A number of the young remain throughout the winter, and specimens in the first plumage were taken November 3, 1891, and December 9th, 1892.

Lunda cirrhata,
TUFTED PUFFIN.

A summer migrant, arriving about the first of June, and nesting on the small islands; associating with the next species, but is not nearly so numerous, being in a ratio of about one to twenty.

But four nests of this species were found; all were in crevices in the rocks, and *not* in burrows.

About the first of September they all leave



SECTION OF BLUFF, SHOWING NESTING TUNNEL OF *FRATERCULA CORNICULATA*.
A Sea entrance. B. Land entrance.

and are seen no more until the following spring.

Fratercula corniculata,
HORNED PUFFIN.

Summer migrant, arriving about the first of June, and remaining until September. On first arriving, these birds do a great deal of flying; they gather in bands, and sit perched on the rocky face of some high bluff, and keep up a continuous whistling call, at irregular intervals the whole band will leave the bluff and fly a short distance out to sea and return.

The eggs of this species are laid in a tunnel, or burrow, dug in the ground by the bird, and a few handfuls of dry grass and feathers constitute the nest. (From my own experience, I have never known the nest of this species to be in crevices in the rocks).

The construction of the tunnel is unique; it always has an opening at both ends. The nesting site, is some high rocky bluff overhanging the sea, and near the top where the soil lies on the rock, the bird commences its excavations, first constructing a sort of runway for a few feet along the face of the bluff, then going directly inward, sometimes in a straight line, while others are crooked. In the same way, the length of the tunnel is very variable, and the nest may be at most any distance from two to ten feet from the face of the bluff. From the nest, the tunnel passes on inland, making a sharp upward turn to the surface of the ground. Only one egg is laid; it being of a dead white color and lusterless, having much the appearance of chalk. The surface is very rough.

Both parents assist in incubation, and the chick is hatched about the the first part of July.

On the eleventh of July, 1893, a nest containing an egg was found; the possession was desperately contested by the parent bird; on investigation, the egg was found to contain a chick ready to hatch, which was covered with a heavy black down.

The same burrows are used year after year, but whether by the same birds or not was not ascertained. Some burrows have by long usage become as large as rabbit holes, while newly made ones, are only just large enough to admit the birds. Both entrances are used indiscriminately by the bird, and it is surprising to see with what accuracy they can fly directly into the holes in the ground.

BERNARD J. BRETHERTON.

MOUNTAIN PARTRIDGE.

[The work of the N. O. A., for February.]

The members of the Northwestern Ornithological Association, living near Portland, held their monthly meeting Friday evening March, 20th.

The subject under study for the past month, was the Mountain Partridge; after a well prepared article had been read by Mr. Rey S. Stryker, the topic was thoroughly discussed.

The principal characteristics and nesting habits of this bird, are probably too well known, to need publication again.

Mr Stryker, records this bird as very common several years ago in southern Oregon, and says that as many as twenty-five or thirty, have been caught in traps at one time. Several times he remembers of catching the California Partridges, with the Mountain Partridges, so that in Southern Oregon these two birds intermingle. But contrary to the statements of some of the works on Ornithology,

no record can be found of the California Partridge inhabiting the region any where around Portland

"Last summer, as I was going through a wooded piece of land, I suddenly ran on to an old mother quail, and when she flew, the ground seemed literally alive with young ones. I caught nine of them and by that time all the rest had escaped. Six to fifteen eggs of a cream color are usually layed. Of six nests I have examined, two were beside large fir trees, and contained ten and fifteen eggs respectively, two were beside small stumps, and contained ten and fifteen eggs; one was under a cedar bush, and had six eggs, and the last was near an old house, and contained twelve eggs. Only two of these sets were fresh."

Mr. Ellis F. Hadley, of Newberg, writes: "I have several Mountain Partridges, in confinement in an aviary, and they are as healthy and as well contented as those outside. Two pair I have had about three years. For a while, I had about a dozen of these birds, but they all escaped, and with the exception of four birds, they all went away, but these four, stayed about the yard and tried to get back in the aviary, and they were tame enough to let us catch them and put them back.

"They lay in confinement, and begin about April 25th; but I have in the past, had too many in the inclosure, and they would not incubate the eggs.

"Mountain Partridges, gather in bands of from eight to forty in the fall, and stay in bands all winter, till about March 15th, when they begin to pair.

"They generally roost on the ground, but I have a few times, on a wet stormy night seen a whole band go up in some bushy young fir

tree.

"They sometimes lay their eggs in a Grouse, or Pheasant nest."

Mr. Arthur L. Pope, of McMinnville, writes:

"The Mountain Partridge, begins its call about the same time as the Sooty Grouse, the time varying with the season."

"All the nests that have come to my notice, were found in June, and I have collected fresh eggs in the latter part of that month. As I have not known of any eggs being found in any other month, I am led to believe that only one brood is raised in a season. Their nests do not differ materially from those of the grouse. Sometimes they are well concealed, and at other times conspicuously in plain view.

A nest found last season was situated in the side of a small bank; a tree was growing on the bank, and its roots which had been washed bare by high water, were hanging down the side of the bank, and in behind these roots was the Partridge's nest, containing fourteen fresh eggs—a queer place furnished with the finest of natures curtains. The eggs are nearly always badly stained on one side."

Mr Hoskins states that this bird usually begins its call in February, but this year he heard one on January 23d. He has a pair of these birds in confinement, and at the proper time last year they made a nest inside a small box, that was in the aviary, scratching out a small hollow in the ground and lining it with fir leaves, which was the only material they could get. They layed fourteen eggs, laying I believe, about one every three days. The hen set on them, and about the last of June hatched them all. Although small, they were very bright, and when any one came near the enclosure, they would get out and hide in the

grass. The chickens took advantage of this, and it was soon discovered that they had killed the last one.

Mr. William L. Finley, records the Mountain Partridge, as being very common in the southwestern part of Oregon, in certain parts of Coos and Curry counties.

The nesting of this bird in that locality, seems to be the last of June and the first of July, and only one brood is raised. While out on a hunting trip on August 9th, and 10th, 1895, he saw large numbers of these birds. They were all in coveys of from ten to forty, and most of them were just about half grown, while some were just able to fly. The only old birds that were seen, were one or two with each covey.

They are not hunted much in that locality, and are quite tame.

If one is quiet for a few moments, after a covey has been flushed, the old bird will get on a log, or some raised place and begin calling, and soon is answered by others of the scattered covey, and in a very short time they are all together again.

The Mountain Partridge, is the only species of the partridge that was seen in that locality.

An effort has been made to find the difference between the Mountain Partridge and the Plumed Partridge, as they are given as separate species, but no distinction has been reported. They are probably one and the same bird, and is merely another instance of a species, that has been divided and sub-divided, until one cannot positively identify a bird even if he has the best works on Ornithology, that are published. It is doubtful in the extreme, whether the very men that did the dividing, could tell one of the birds from the other, un-

less they had a large series of specimens to compare them with. Take for instance the Flicker, it has been divided from the western species, into the western and north western species, and from the works on Ornithology, one has no way of distinguishing one from the other; they inhabit the same territory; build the same nests, and lay the same eggs; all the difference claimed, is that one is a little darker than the other, and an amateur has no way of telling, when he collects a set of Flicker's eggs in Oregon, whether he has a set of *Colapates cafer*, or *C. cafer saturator*. He might kill each bird when he took a set of their eggs, but even then he could not determine. He might send them East for identification, but it is a question whether he would then know any more about it.

W. L. F.

AN ALBINO JUNCO.

Feb 16th, 1896, an Albino Oregon Junco, was around all day with a large band of Oregon Juncos. Its under parts were pure white; upper parts cream colored; head and neck, which are generally black, were a very light tan; wings and tail white; all the dark on it was a very narrow ring around the base of its mandibles, which was brown. It seemed to be in full plumage and good health.

ELLIS F. HADLEY,

Dayton, Or.

March 25th, I collected my first set this season; $\frac{1}{4}$ —Western Meadow Lark, incubation begun. The earliest record previous to this that I have, is April, 14th, 1895.

ELLIS F. HADLEY,

Dayton, Or.

NATURAL HISTORY IN A PRIMARY SCHOOL.

Wishing to ascertain whether or not Natural History had penetrated the public schools, I visited a primary school lately to investigate. The teacher was a lady well known as a writer of juveniles and of historical sketches, and who under the name of "A. Hoosier," assisted in compiling the *Life of Lincoln*, now running in McClure's Magazine.

She informed me that no instruction in any branch of science was included in the curriculum, but that she was allowed considerable freedom of choice, and could impart information and direct studies in lines not directly included in the school work as she saw fit.

To my disappointment, I was not allowed to hear a recitation, but was requested to talk to the school.

Almost all the boys, and most of the girls, informed me that they had been fishing, and they knew the names and peculiarities of many kinds of fishes, something about their food, and how little catfishes, burrowed in the mud, or hid themselves in mussel shells. They had no acquaintance however, with the habits of nest building fishes, and did not know that certain species took care of their young. The habits of the Sticklebacks, were new to them, and when I told how I had once "seen a father Stickleback, whip his wife, for eating up her own babies, the children were delighted, but the teacher gravely remonstrated with me.

The children were of an enquiring turn, and I learned that they had been keeping horse hairs in bottles of water in the school room, to ascertain whether or not their teacher was right when she told them that horse hairs would not turn to worms or snakes.

I spoke of the rarity of Bluebirds, and declared that the severe weather of over a

year ago had almost exterminated them. At this, several hands went up in various parts of the room. One boy declared that he had seen Bluebirds lately, and gave me a description of them, which showed at once that he was a close observer, and that the bird he had seen, was not a Bluebird, *Sialia sialis*, but a Bluejay, *Cyanocitta cristata*. Another boy who had seen Bluebirds, described the Indigo bird, *Passerina cyanea*, which is fairly common here, frequenting the edges of old fields, and nesting in clumps of shrubbery, or in isolated bushes, often near the ground.

All boys know that fine feathers do not make fine birds, but town boys naturally think that blue feathers do make blue birds, and I am afraid that my own explanation, that a bird may be blue without being a Bluebird, was not very luminous, and I was glad to shift the subject to birds' nests.

I showed the school a series of Photographs of birds nests, some taken by myself and others by Mr. E. S. Cheney, well known to the readers of the Oregon Naturalist.

Some pictures of Grebe nests aroused their curiosity. Few of them knew the Grebe by that name, though most of them were acquainted with our representative of the *Podicipidae*, the "Didipper," or "Dabchick," *Podilymbus podiceps*.

These curious tailless birds, breed farther north, but are always common here in October and November, and the school knew much of their habits, how they refused to take flight, and could dodge stones and bullets by diving. Several boys confessed that they had thrown stones at them, at which their teacher was very properly horrified, though I refused to be shocked, callously regarding stoning "Didippers," as the most innocent sport imaginable.

One small boy knew the Wren, "very little fellows, who hold their tails differ-

ently from other birds, come about houses and build their nests in sheds and barns." He described their eggs pretty accurately, and said that the family he had watched, raised their young safely and flew away.

Other children had watched various birds, and before our topics were exhausted the hour for dismissal came. When the pupils had departed, I had an opportunity to examine the schoolroom, and found it a very attractive place. There was a good array of maps and charts, a painted vine with green leaves and red blossoms was twined about one of the blackboards, a grooved stone celt served as a paper weight on the table, and in the window, there was a row of thrifty pot plants and a glass jar containing bones immersed in some liquid, probably to show that an acid will make bones flexible by acting upon their carbonate of lime. The walls were hung with the portraits of great men, though I failed to recognize any naturalist among them, at which I was surprised, for who could be more appropriately introduced to children as a subject of study and a model to emulate than Darwin, or Agassiz?

There was a well filled bookcase in one corner of the room, and in the only other available corner was the school "museum." A number of shelves had been nailed in the corner, and the collection they held had been made exclusively by the children. I think that there was not an object there, that had been bought, or that had been given by any older person. There were several boxes of stones, many of which were simply water-worn pebbles collected because they looked pretty, but there were also crinoids, crinoidal limestone, Zaphrentes, Holocystes, impressions of carboniferous plants and a fair display of fossil corals, mostly Favosites and Organ pipes.

The children had certainly gathered enough in this line to illustrate many

valuable lessons in Biology, and to show the use of each object in studying Geology.

I noticed the skulls of a cat and of a rat, also several turtle shells. Picking up one of the latter I expressed regret that so harmless an animal should have been sacrificed, but was informed that only the dry shell had been found, and that none of the boys were cruel enough to kill little animals.

All the articles in the cabinet had been used as texts for school talks, and every one contributing a specimen was expected to contribute some facts regarding it. Being asked to furnish an outline for a talk on some specimen I selected a small olive-green turtle shell, and having been informed that one of these turtles had been kept in an aquarium in the schoolroom and that the school was interested in it, wrote:

"PAINTED TORTOISE.

(Chrysemys marginata)

Upper shell called carapace. Lower shell called plastron. Divisions of shell called scutes.

In life, carapace was marked with a narrow red stripe along middle row of scutes, and red crescents on the outer scutes; which are called marginals. Marks now faded. Neck and legs beautifully marked with yellow.

Harmless. Feeds on worms and insects. Burrows in mud. Goes into water to avoid rain. Fond of basking in sunshine and of floating near surface of water with only tip of nose exposed.

Lays eggs $1\frac{1}{4} \times \frac{7}{8}$ inches in diameter.

Buries itself in mud in middle of October, and sleeps until April."

The teacher informed me, that she had received no training in Natural Science, yet I inferred from what I saw of the school, that she possessed in a marked degree, a talent for interesting her pupils in the study of nature, and for prompting

them to investigate and find things out for themselves. I was sure from my conversation with them that the boys and girls had done remarkably well, considering their circumstances, and I appreciated the knowledge and tact that had been exercised in training them to think and observe.

Where schoolrooms are over-crowded, and teachers over-worked, it is not easy to see how any school could do much better than this one, yet I venture a few suggestions regarding primary school "museums"

Pupils giving specimens, should mount them, or furnish little boxes to display them in, and all specimens should be labelled. This would dignify the specimen, and add to its importance.

A catalog should be kept of all specimens, and after each entry, any interesting facts should be written down by the discoverer and preserved.

Children value their rights just as "old folks" do, and all gifts should be credited to the donor either on the label, or in the catalog.

Boys and girls often have collections of their own which they cannot give away, but which they would be glad to lend if such loans were appreciated.

Any form of collecting, or experimenting—which inflicts suffering or death upon any animal, should not be tolerated.

An herbarium would be a good addition to the ordinary school cabinet. Some large heavy book of no value for anything else, could be used for this purpose. Contributors should bring in their offerings every day pressed and dried, and the "Curator of the Herbarium," chosen from among the pupils, could secure the specimens to the leaves with slips of gummed paper.

Any boy or girl could learn, with a little showing, how to make plaster casts of suitable objects for the school.

I believe that the plan of work I have suggested would lighten the teachers' labor, instead of adding to them.

ANGUS GAINES,
Vincennes, Ind.

SCHOOL MUSEUMS.

Ten years ago the Editor of the *Naturalists' Journal*, speaking to a conference of teachers, ventured to predict that before long Natural History would be brought forward in schools as a class subject, and some things then rigidly insisted upon would have to give way; but the conference laughed. The progress of events, however has shown that he was right, and now we find learning from things, in preference to an exclusive book-learning, more and more insisted upon. The reason is not far to seek, because the evidence is so plain. The study of leaf nature is in itself an education, and a naturalist, although perhaps an unlettered man, is nevertheless an educated man. We know naturalists who can neither read nor write (few of this sort certainly) who for exercise of mental capacity, are far ahead of others who have had a college education, not that we deprecate a good schooling—it is a desirable thing, and we wish it had been our lot. But what we do insist on is that the study of Nature shall have its proper place—which is no mean place—along with other subjects. The progress during the last ten years has been very gratifying indeed. To be brief: a teacher may take his or her class to a public museum, give lessons there to the pupils, and mark their attendance as if they were at school. The Education Department, has issued an order that Natural History Object Lessons are to be more frequently given, and the children encouraged to bring objects to the school, for the purpose of eliciting information upon them; there is in consequence, a growing desire to form School Museums. In this special matter there is however, one thing more that needs to be done, and that is the appointment of In-

structors whose duty it shall be to go from place to place, giving instructions to teachers how these Museums must be formed, and inspecting what has been done. The establishment of a School Museum, is by no means an expensive matter if properly carried out; it is a work which may largely be done by teachers and pupils, who in doing it receive the information they seek, and the health they need, but now so often lack.

At present the matter is left, in most cases, entirely with the teacher. School authorities too seldom vote money for this object, and the teacher has to do it out of his or her own pocket. The consequence is that little or no regard is paid to what is obtained, anything is accepted and put in a cupboard (if the school happens to have one) in most cases without any plan or system, and if the objects have their names attached, that is usually all. The time is probably not far distant when the Education Department will issue instructions how these School Museums should be formed, but as they have not done so yet, it may be useful if we give our opinion.

In the first place the school should be provided with a folding-door glass-fronted specimen case, the lower part having drawers, of a size proportionate to the size of the school, and also a number of small boxes with glass movable lids. The next important thing is to have a plan to work to, and whenever anything is obtained to put it in its proper place, so that the Museum shows at a glance to every scholar who looks at it what the system of Nature is. In addition to this, every object should have attached to it, not only its name, but an explanatory note giving its life-history in brief, and its economic utility. Within easy reach of most schools there is ample material in the way of rocks, plants, insects, shells, etc., which need only to be gathered in, and this could very well be done by the class going out one half-day a-week, and surely in every school there is at least one teacher who could manipulate the objects, and put them up in their exhibition boxes, and it should be so arranged that he could have at any rate one day a week

for this work. Representative objects of departments not obtainable in the district would be presented by someone, or in some cases it may be necessary to purchase. The Museum Room should be so situated as to be accessible to all the school, and to other schools under the same board, and it should be open free on Saturdays to anyone. — *The Naturalists' Journal*, Huddersfield, England.

Editor Oregon Naturalist:—In Robert W. Haines' valuable and interesting article in February Oregon Naturalist, a point suggests itself to me, which I think would bear investigation.

In his article, he says of the Sage Grouse: "They may be found in large flocks during winter, and until about the first of April, when they began to pair and scatter out. *** During the season of incubation the females remain solitary; the males do not assist in these duties, but flock together, and remain thus until fall, when they are joined again by their mates." From this it appears that the Sage Grouse remains paired only a short period in early spring, or if paired, the mates remain apart from each other. If this is true, it is a habit worthy of notice, as nearly all birds, even of the grouse family, in my experience, remain mated at least through the whole nesting season.

Now the N. O. A. work for April, is on the Dusky and Sooty Grouse, and in the early future the Sage Grouse, will be taken up. Let every person on the coast send in his notes, giving especial attention to mating habits. It does not seem probable that one species of grouse remains paired only a short period in spring, and another the whole season, but possibly it is a fact. If so, we should confirm it, if not, the facts should be made known. The young ornithologist, need not be discouraged and think that there is no field in which he may gain fame.

Hoping that the ornithologists of the coast will take an interest in this question, I am,

Yours in Ornithology,

ARTHUR LAMSON POPE.

PETROGLYPHS IN OREGON.

[Taken from the "Tenth Annual Report of the Bureau of Ethnology. Pages 104-106].

Many boulders and rock escarpments at the Dalles of the Columbia river, Oregon, are covered with incised or pecked glyphs. Some of them are representations of human figures, but characters of other forms predominate.

Mr. Albert S. Gatschet, of the Bureau of Ethnology, reports the discovery by him, in 1878, of rock etchings 4 miles from Gaston,

est the mouth of the canyon, consists of horizontal zigzag lines and a detached straight line, also horizontal. On another side of the same rock is a series of oblique parallel lines. Some of the most striking characters found upon other exposed portions of the rock appear to be human figures, i. e., circles to which radiating lines are attached, and bear indications of eyes and mouth, long vertical lines running downward as if to represent the body, and terminating in a furcation, as if intended for legs, toes, etc. To the right of one figure is an arm and three-fingered hand (similar to

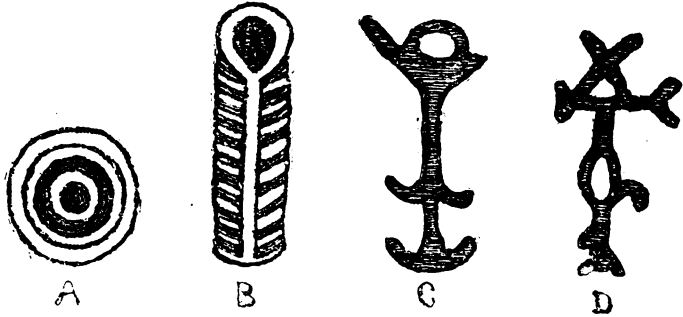


FIG. 69.—PETROGLYPHS IN LAKE COUNTY, OREGON.

Oregon, and $2\frac{1}{2}$ miles from the ancient settlement of the Tualati (or Atfalati) Indians. These etchings are about 100 feet above the valley bottom on six rocks of soft sandstone, projecting from the grassy hillside of Patten's valley, opposite Darling Smith's farm, and are surrounded with timber on two sides.

This sandstone ledge extends for one-eighth of a mile horizontally along the hillside, upon the projecting portions of which the inscriptions are found. These rocks differ greatly in size, and slant forward so that the inscribed portions are exposed to the frequent rains of that region. The first rock, or that one near-

some of the Moki characters), bent downward from the elbow, the humerus extending at a right angle from the body. Horizontal rows of short vertical lines are placed below and between some of the figures, probably numerical marks of some kind.

Other characters occur of various forms, the most striking being an arrow pointing upward, with two horizontal lines drawn across the shaft, and with vertical lines having short oblique lines attached thereto.

Mr. Gatschet remarks that the Tualati tell a trivial story to explain the origin of these pictures, the substance of which is as follows:

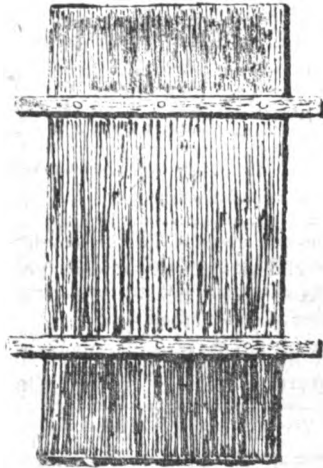
The Tillamuk warriors living on the Pacific coast were often at variance with the several Kalapuya tribes. One day, passing through Patten's valley to invade the country of the Tualati, they inquired of a woman how far they were from their camp. The woman, desirous not to betray her own countrymen, said they were yet at a distance of one (or two?) days' travel. This made them reflect over the intended invasion, and holding a council, they decided to withdraw. In commemoration of this the inscription, with its numeration marks, was incised by the Tualati.

Dr. Charles Rau received from Dr. James S. Denison, physician at the Klamath agency, Lake county, Oregon, a communication relative to the practice of painting figures on rocks in the territory of the Klamath Indians in Oregon. There are in that neighborhood many rocks bearing painted figures; but Dr. Rau's description refers specially to a single rock, called Kta-i Tupakshi (standing rock), situated about 50 yards north of Sprague river, and 150 yards from the junction of Sprague and Williamson rivers. It is about 10 feet high; 14 feet long; and 12 or 14 feet deep. Fig. 69, drawn one-twelfth of the natural size, illustrates the character of the paintings seen on the smooth southern surface of this rock. The most frequent designs are single or concentric circles, like Fig. 69, *a*, which consists of a dark red circle surrounded by a white one, the center being formed by a round red spot. Fig. 69, *b*, painted in dark red and white colors, exhibits a somewhat Mahadeo-like shape; the straight appendage of the circle is provided on each side with short projecting lines, alternately red and white, and almost producing the effect of the so-called herring-bone ornament.

Fig. 69, *c* and *d*, executed in dark red, are other designs seen on the standing rock above mentioned. The colors, which, as the informant thinks, are rubbed in with grease, appear quite distinct on the dark surface of the rock.

A HOME-MADE PRESS.

A cheap portable botanical press can be made by any one, at small or no expense, by taking two pieces of half inch board—the sides of any small box can be taken, if of suitable thickness—and sawing them any convenient size; 8x13 will be found a good size, and large enough for most specimens; then nail two cleats, three inches longer than the width of the board, across each board near the ends, allowing the ends of each cleat to project beyond the edge of board.



SHOWING ONE SIDE OF PRESS.

Place the boards together, with the cleats on the outside, and a quantity of paper and cloth, cut the same size as boards, between them. Pressure is applied by four strong rubber bands, such as can be bought at any stationers. Slip a band over the projecting ends of opposite cleats.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

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APRIL, 1896.

All mail for the Oregon Naturalist, should be addressed to 146 ½ Sixth Street.

Read special offer for new subscribers in another column.

Some of the articles to appear in May are continuation of "Contribution to the Avi-fauna of Kodiak Island," by B. J. Bretherton, "Imported German Song Birds in Oregon," by C. F. Pfluger, "Mountain Ash and Rattlesnake," by Angus Gaines, and "Some Haida Tattoo Marks."

The following manuscript will be published shortly. A Mocking Bird, Animal Parasites, Peru and Peruvians, Leaf Printing, Sea Urchins. Sketches in Alaska, pertaining to its Natural History, and Mr. C. F. Pfluger, will contribute each month an article on the introduced European species of birds in Oregon, until the list is exhausted. The regular work of the Northwestern Ornithological Association, will not be neglected, and a contribution may be expected each month.

Why not become a member of the N. O. A. the dues are only 50 cents per year entitling you to all its benefits, including the official organ free. It is rumored an exchange department among members will soon be instituted.

Manuscript for "Eastern Department," has not been received up to time of going to press.

Some very fine sets yet remain in the Pope collection, that can be secured at a bargain, mostly Mr. Pope's personal collecting and identification.

Frank Blake Webster's (Taxidermists, Hyde Park, Mass.) series of photographs from work and from life, has taken ten years to make, aside from their value to the taxidermist, they will grace the album of any lover of Nature.

Collectors in want of fine quartz, in groups, crystals, inclusions, rare planes, or anything in quartz from North Carolina, or crystalized zircon, mica, garnet, hiddenite, rutile etc., would do well to correspond with Mr. E. H. Harn, of Henry, N. C. who is offering some very fine specimens in his advertisement on another page.

THE IMPORTED AND ACCLIMATED
GERMAN SONG BIRDS IN OREGON.

BY C. F. PFLUGER.

THE SONG THRUSH, (*Turdus musicus*, *Throstle*
or marvis, *die Singdrossel*).

Of these lovely and useful song-birds, 35 pairs were introduced into Oregon in 1889 and 1892, and since that time they have increased remarkably well.

The song-thrush is a well-known bird throughout Europe, and frequents woods near streams and meadows, and is one of those birds which, whether in a state of liberty or confinement, may always be listened to by the lover of melody with gratification. It is the finest of the imported singing-birds, not only for the sweetness and the great variety of its notes, but for the long continuance of them, as it delights us with its song for two-thirds of the year.

It migrates south about the middle of September, and it returns about the first of March, when every male may be found singing his spring song, perched on the same tree from which he sang the year before.

Its food consists principally of worms, with which they feed their young, and various flying and creeping insects, larvae and caterpillars, is very partial to snails and is also fond of berries like all other birds.

The song-thrush prefers to build its nest on small pine or fir trees, or on oaks, pear and apple trees. The nest is large and is constructed of various kinds of lichen, mixed with earth, loam or cow dung. The female lays twice a year, from three to six greenish eggs, covered with blackish brown spots. The first brood is usually fledged about the middle or end of April. On the upper part of the body the young have a spotty appear-

ance. The song-thrush builds by preference near water. It is eight inches and a half in length, of which the tail measures three inches and a half. The beak is nine lines long, horn brown, except the half of the lower mandible, nearest the root, which is yellow. The iris is nut-brown; the feet, one inch in height, have a pale lead color. All the upper part of the body is olive-brown; the throat whitish yellow, with a black stripe down each side; the sides of the neck and its breast, light reddish yellow, covered with numerous dark brown heart-shaped spots. The belly is white, with dark brown oval spots. Both rows of the larger wing coverts have triangular orange spots on the tips, the inner coverts are light orange; the pen feathers greyish brown, as are also the tail feathers, the outermost of which are edged with white on the external plume. In the female several little streaks are substituted for the black lines on the throat; the breast is a pale whitish yellow, and the orange tips of the wing coverts are not so large as in the male.

The song-thrush is a great enliverer of the woods—announcing from the highest trees the arrival of spring by its varied and beautiful song, and continuing its melody throughout the summer. It is especially fond of singing in the morning and evening twilight. Amateurs prize it chiefly on account of its charming song, which, as early as February, at times is heard in such sonorous and melodious strains as to delight the whole neighborhood.

The naturalists have oftentimes called attention to the circumstance that thrushes render great service to men by destroying vast numbers of snails and injurious insects and their larvae.

TURTLE MORTAR.

There has recently been found on the Lower Columbia River a splendid specimen of Indian work in stone. A turtle, about six inches long by four in width. The head and tail project at right angles to the shell. The legs have the position observed in life, when at rest, and upon its back is a small mortar, with a comparatively deep bowl. This relic of an ancient race, is carved out of trap rock, the entire surface worked smooth and showing a decided polish in many places. The workmanship and resemblance to life is marvelous, when its supposed origin is considered. This specimen now rests in the collection of an enthusiastic Portland collector, and is one of his most cherished possessions.

TACOMA, WASH.,—April 6th, 1896.—The Tacoma Rifle, Rod and Gun Club, is taking a very active interest in the introduction and preservation of new species of game birds in Washington. At a recent meeting of the Club, the following resolution complimentary of one of our citizens was unanimously adopted:

“Whereas, Frank Alling has for the past two years been importing from the Orient, many valuable species of Pheasants, Quails and other game birds, and as said birds will within a few years add greatly to the number, value and variety of the game birds of Washington.

Therefore, be it resolved, that the Tacoma Rifle, Rod and Gun Club, as a mark of its appreciation, does hereby make and constitute said Frank Alling, an honorary member of this Club, and further pledges to him its hearty cooperation in his work.

MERIDEN S. HILL.

At the last meeting of the Portland Annex, Mr. Rey Stryker, exhibited a Bullock's Oriole nest, in which a Western Bluebird had become entangled and died. The Bluebird in its search for material to build its nest, had been caught around the neck by the horse-hair, in the Oriole's nest and could not free itself.

THE NORTHWESTERN ORNITHOLOGICAL ASSOCIATION.

Organized Dec. 28th, 1894, Object—to advance the science of Ornithology in the Northwest. President; William L. Finley, 287 4th, St., Portland, Or., First vice-pres. Ellis F. Hadley, Dayton, Or. Second vice-pres. Guy Stryker, Milwaukie, Or. Sec. Arthur L. Pope, McMinnville, Or. Treas. Dorsie C. Bard, Portland, Or.

Any person interested in Ornithology, residing in the Northwest, may become an active member.

Any person interested in Ornithology may become an associate member.

The membership fee shall be fifty cents; this shall cover all dues to the first of January, after initiation.

The OREGON NATURALIST, shall be sent free to all members.

Applications for membership should be sent to the Secretary.

CLUB RATES

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GAMELAND,	\$1.00	“	“	\$1.25.
MINERAL COLLECTOR	\$1.00	“	“	\$1.25.
THE NIDOLOGIST,	\$1.00	“	“	\$1.15.
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FARMERS MONTHLY,	50 cts	“	“	55 cts.
BUSINESS JOURNAL,	50 cts.	“	“	65 cts.
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THE OREGON NATURALIST.

VOL. III.

PORTLAND, OREGON, MAY, 1896.

No. 5

KADIAK ISLAND

A CONTRIBUTION TO THE AVIFAUNA
OF ALASKA.

Cyclorhynchus psittaculus.

PAROQUET AUKLET.

Mr. Wm. J. Fisher informed the writer that this species is occasionally met with, but it was not the writer's fortune to obtain a specimen.

Simorhynchus cristatellus

CRESTED AUKLET.

A breeding resident more numerous in winter than in summer.

These quaint little birds are locally known as Sea Quail, their chief breeding ground lays off the south end of Kadiak Island and the writer was not able to visit them. They are very numerous all round the coast; during the winter gathering in large flocks in the small sheltered bays. Like everything else with feathers on they constitute an item in the diet of the natives.

The eyes of all specimens taken had a white V shaped iris.

Simorhynchus pusillus

LEAST AUKLET.

Reported by Mr. Wm. J. Fisher. Not met with by the writer.

Synthliboramphus antiquus

ANCIENT MURRELET.

A common but not plentiful resident shunning the neighborhood of settlements except when driven in by stress of weather.

This species undoubtedly breeds in the island but no nests were found.

Brachyramphus marmoratus.

MARBLED MURRELET.

Only two specimens of this species were obtained and nothing of their habits was ascertained. A few are said to breed on the island.

Cephus columba

PIGEON GUILLEMOT.

A summer migrant but numbers of the young of the year remain through the first winter.

These birds arrived at the island about the last week in March in bands of from ten to thirty individuals and at once resort to the localities frequented in former seasons. They are by far the commonest sea bird on the island in summer; nesting in every headland and small island along the coast and their low toned but penetrating whistle may be heard almost incessantly.

They choose for their nesting site a

crevice in the rock which may be only just large enough to admit the bird and in which but one pair will lay, or an aperture large enough to admit the body of a man and in which several pairs will lay.

In either case no pretense of a nest is made and in a few instances the eggs were found laid on the bare gravelly beach out of the reach of the tide. Eggs are laid from the middle of May till the end of June, that is, fresh eggs may be found during that period. Two eggs form a set but how many eggs the bird is capable of laying in a season is hard to tell. The writer has taken six eggs from the same nest and to all appearances laid by the same bird.

The young are hatched in July and are covered with a heavy down, black on the dorsal and dirty white on the ventral surfaces. By the middle of October they have all left the island except some of the young birds as before stated. Two theories may be advanced to account for these young birds remaining neither of which may be correct but both of which are reasonable. The first and most probable is, they are hatched late in the season and are not strong enough to fly with their parents, and so are left to shift for themselves. The second is that the parents have been killed.

In the museum of the Oregon State Agricultural College may be seen a series of these birds collected by the writer illustrating every phase from the egg to the mature bird; also one unique specimen in which every alternate feather of the entire plumage is white while the others are

slaty black.

Uria lomvia arra

YARRA. [PALLAS'S MURRE]

Resident. The great egg bird of Alaska is not so abundantly plentiful on Kadiak Island as they undoubtedly are in other localities.

The writer never found their eggs, although many eggs were brought by the natives and said to be Yarra, but for reasons that will be shown when treating of the Black Oyster-catcher the writer learnt to mistrust all native ornithologists,

This bird is without doubt the most stupid that it has been my fortune to deal with. The writer was camped on Chineak Bay with a party of natives in January when a Yarra was seen approaching the beach swimming along leisurely, as I reached for my gun one of the natives touched my arm saying in Russian not to use it, at the same time picking up a rock about the size of a brick he quietly strolled down to the waters edge and that fool bird came right on to meet him until they were within a few feet of each other, then the native let fly his rock and Mr. Yarra literally turned up his toes. Afterwards several specimens were taken in this manner by the natives many of whom are quite proficient at stone throwing.

Stercorarius pomarinus. (?)

POMATORHINUS JAGER.

A young and badly damaged specimen was taken in July 1893 which might be referred to this species, and in 1894 a pair of birds were seen all during the summer months and undoubtedly nested there. The writer spent several day and rowed

many weary miles trying to obtain a specimen for identification or to find their nest, but in vain for the birds, wary and shy of approach, would fly from one island to another, alighting on all but showing a preference for none.

The natives know the bird by a Russian name a yard long which when translated is not edifying, they assured me; it bred on the island which it undoubtedly does.

Rissa tridactyla pollicoria

PACIFIC KITTIWAKE.

In the months of April or May vast schools of small fish about two inches long called sand eels swarm into the bays and harbors and with them come kittiwakes in countless thousands feeding on these fish and following them wherever they go, and until the ragged edge is taken off their hunger, they show no fear of man. They nest in May choosing the most inaccessible places in the face of high bluffs overhanging the sea.

Fresh eggs were obtained until the end of June which may be accounted for by the fact that the natives collect the eggs for food. After the young are raised they all leave for the south.

Larus glaucescens.

GLAUCOUS-WINGED GULL.

Resorts to the island to breed arriving about the same time as the Kittiwakes but remaining at least a month longer. They nest in May on the out lying islands, building their nests on the tussocks of grass and using the same material with which to construct them. Great numbers of these eggs are annually gathered by the natives for food, but the writer feels sure

that Senator Mitchell was misinformed when he stated in the U. S. Senate some time ago that ship loads were annually gathered on Kadiak and sold for albumen.

It takes a good many eggs to make a ship load and a good deal of packing to get them safely home.

Larus occidentalis.

WESTERN GULL.

Arrival, departure and habits same as the last described species, but is not nearly so common.

Larus argentatus smithsonianus.

AMERICAN HERRING GULL.

Similar to the last in habits but more abundant.

Sterna paradisaea.

ARTIC TERN.

This elegant little sea bird arrives in small bands about the middle of May. They nest in June choosing low sandy islands for the nesting site which is in marked contrast to the Gulls which always nest on the high rocky islands. They nest in colonies but the nests are not placed close together.

The nest is a poor affair placed in a tuft of grass and composed of the same material.

The eggs which resemble miniature sea gulls eggs are two in number.

As far as noted the Terns do not associate with Gulls, but different species nest in the same colonies. The natives annually destroy great numbers of the eggs of these birds.

Sterna aleutica

ALEUTIAN TERN.

Not so plentiful as the last species but

associating with it and of like habits.

Hydrochelidon nigra surinamensis.

BLACK TERN.

Reported by Mr. Wm. J. Fisher, but not met with by the writer.

Diomedea albatrus.

SHORT-TAILED ALBATROSS

A single male bird obtained in Shelikoff Straits October the first 1893.

Phalacrocorax urie

RED-FACED CORMORANT.

A common but not plentiful resident more numerous in the summer than winter months. The nests of this species are built on the face of a high bluff overhanging the sea; in most case in inaccessible places. The eggs, two in number are of a very pale blue color and a rough lusterless surface, when blown sometimes drying out white.

Merganser americanus

MERGANSER.

This species arrive at the island about the same time as the Loons. They are not so plentiful as the next species but in habits are similar. They nest along the banks of rivers and lakes, building the nests of reeds and rank grass. The eggs are laid in June and are of a cream color, ten to thirteen in number.

Merganser serrator.

RED-BREADED MERGANSER.

In habits resembling the last species.

Lophodytes cucullatus.

HOODED MERGANSER.

A few of these birds resort to the island to breed they may rightly be styled a rare bird in this locality. No nests were taken and as but two or three birds were seen

nothing was learned of their habits.

Anas boschas.

MALLARD.

The Mallard nests on the island but not very numerous. Their great breeding grounds being in the neighborhood of Iliamna Lake on the mainland further to the north. A number stop for a while on Kadiak Island during the fall migration and a noticable feature of these birds is the immense amount of fat that they carry.

They are also extremely fishy in flavor.

Anas penelope.

WIDGEON.

Not at all a common bird and not known by the writer to breed on the island.

Anas carolinensis.

GREEN-WINGED TEAL.

A few specimens of this species were obtained;—All migrants and nothing learned of their habits.

Spatula clypeata.

SHOVELLER.

Three specimens obtained during the spring migration. Can only be considered a visitant upon the island.

Dafila acuta.

PINTAIL.

Four seen May 11, 1894.

Aythya marila nearctica.

AMERICAN SCAUP DUCK.

One specimen obtained March 28, and a large flock seen May 19, 1894.

Glaucionetta clangula americana.

AMERICAN GOLDEN-EYE.

Reported by Mr. Wm. J. Fisher, but not met with by the writer.

BERNARD J. BRETHERTON.

WOOD IN WELLS.

Recently, in the town of Forest Grove, Or., two deep wells have been sunk. At a depth of 78 ft. in one of them, some wood was struck, while in the other similar pieces of wood were brought up from a depth of 138 ft.

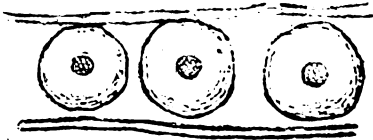


FIG. 1, PINE.

Now a great deal of information of very great interest to the geologist can be gathered together by the systematic ob-

comes possible for a clever dendrologist, or one who studies trees in the fullest sense, to determine very nearly what kind of a tree produced a certain specimen of wood, and it happens that it makes no difference how old the wood may be so long as certain conditions, such as may be found in any swamp or marsh, are present. In other words, wood buried in mud and water and organic matter, may be preserved indefinitely. On the other hand, wood left exposed to the air is attacked by all manner of living forms, which very soon change it back to the simple chemical compounds of which it was made.

If this be true, it follows here that at some time, a long while ago, the general surface of the ground was a good deal lower at Forest Grove, than it is now, and that trees were growing at that time. After probably many many generations of these trees had passed away, some of

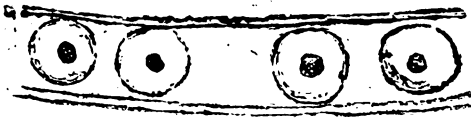


FIG. 2, 78 ft.

servation of the materials discovered by well digging and boring; and it has occurred to the writer that a little talk about the wood found in these two wells at Forest Grove, would set some of the readers of the "Oregon Naturalist," to thinking about, and studying the wells which may be dug in their vicinity.

Now the wood which one kind of tree produces, is different from that which another kind of tree produces, and this difference extends to the minute or microscopical structure as well as to the quality and general appearance. Hence it be-

their remains being preserved in the way already indicated. Afterwards some geological agency has been at work, piling up on these tree remains, in one place 46 feet in thickness of blue clay, then some pebbles and sand which strongly suggest glaciers, and finally a thick body of clay and soil. It has further occurred to the writer that it would be interesting to know what kind of trees lived in that long ago, but to be very correct it was not *very* long ago according to a geologist's way of thinking, and so to get some idea of what the mountains and plains were clothed with

when, *perhaps*, there was no human eye to see it all. I say *perhaps* because if some readers eyes are sharp enough, he may find some implement of stone or some such token, buried along with the wood, in which case it would be very necessary to be sure of the depth and the kind of material it was associated with.

In order, then, to satisfy curiosity, though not idle, I hope, I took the wood and cut some very thin slices of it with a razor, and these I placed, after proper preparation, under a microscope and it was soon evident that the trees which produced these specimens, at least, were of the kind to which are closely related the spruce, fir, pine and their cousins. Let us see how this may be determined. If we take a piece of

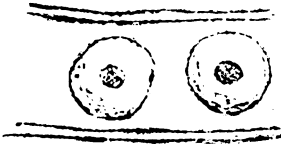


FIG. 3, 138 ft.

pine or cedar in this same way, we shall find upon examination that many of the vessels making up the wood are marked with rows of double concentric circles. These are termed by botanists "bordered pits" and are means of communication between the contiguous vessels. Pits of this particular form are very characteristic of the cone-bearing trees. They are as represented in Fig. 1.

Now, on comparing the specimens taken from the wells with pine and cedar, it was found that these same bordered pits were present and the drawings reproduced in Figs. 2 and 3 were made by means of a camera lucida, and are magnified about 300 times.

So it appears that these ancient landscapes were beautified by a clothing of evergreens!

It is hoped that some will be stimulated to make collections of the different materials found in wells and the depth at which they are found. All such facts and specimens will be of great value when the time comes for unravelling the later geological history of Oregon.

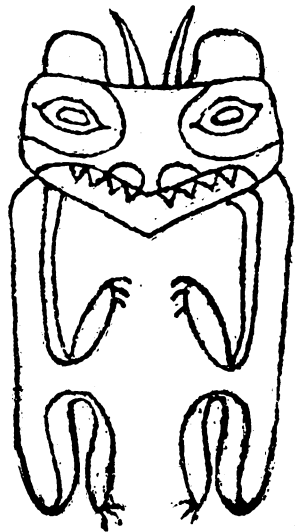
FRANCIS E. LLOYD,

Pacific University,
Forest Grove, Or.

SOME HAIDA TATTOO MARKS.

[Extracts from the Tenth Annual Report of the Bureau of Ethnology.]

"During the summer of 1884, Dr. Hoffman, met at Port Townsend, Washington, a party of Haida Indians, from Queen Charlottes Islands, who were encamped there for a short time. Most of them were tattooed after the manner of the Haidas, the breast, back, fore-

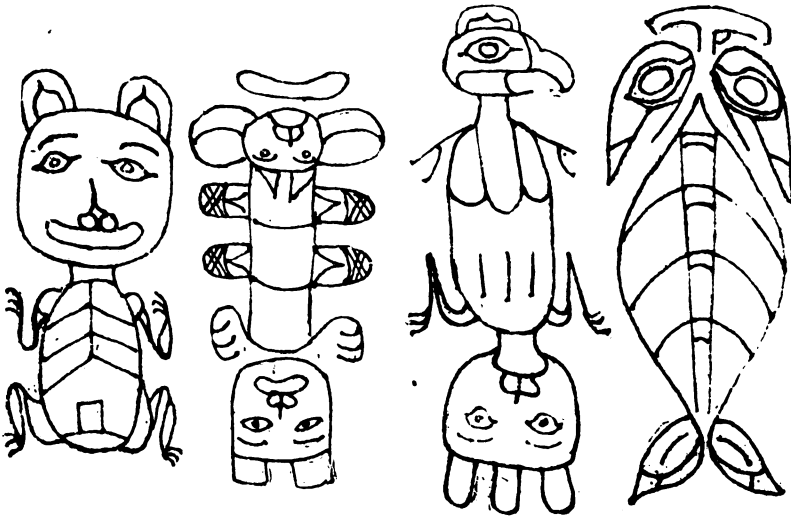


MOUNTAIN GOAT.

arm, and legs bearing partial or complete designs of animate forms relating to totems or myths. *** In persons tattooed upon the breast or back, the part operated upon is first divided into halves by an imaginary vertical line upon the breast through the middle of the sternum and upon the back along the middle of the vertebral column. Such designs are

poyd in tattooing are painted upon property belonging to various persons, such as boats, house-fronts, etc. In such instances colors are used that could not be used in tattooing."

The eagle, or skamskwin the thunder bird figured, was copied from the tattooing on the left arm of a woman. The sculpin represents kul, a totemic animal and was copied from the



BEAR;

DRAGON-FLY;

THUNDER-BIRD;

SCULPIN.

drawn double, facing outward from this imaginary line.

"The colors are black and red, the former consisting of finely powdered charcoal, gunpowder, or India ink, while the latter is Chinese vermilion. The operation was formerly performed with sharp thorns, spines of certain fish, or spicules of bone; but recently a small bunch of needles is used, which serves the purpose to better effect. ***

"Sometimes the simple outline designs em-

ployed in tattooing are painted upon property belonging to various persons, such as boats, house-fronts, etc. In such instances colors are used that could not be used in tattooing." The eagle, or skamskwin the thunder bird figured, was copied from the tattooing on the left arm of a woman. The sculpin represents kul, a totemic animal and was copied from the

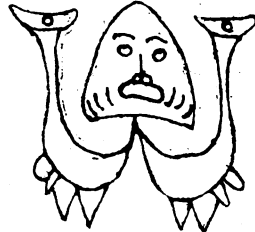
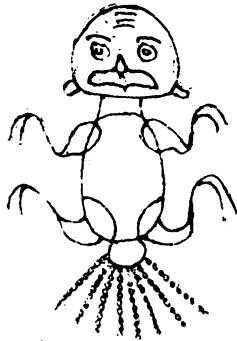
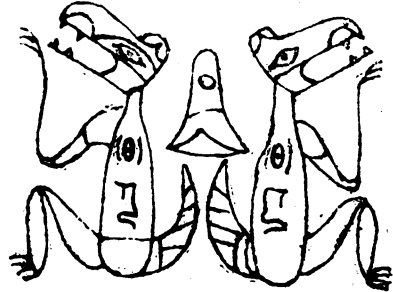
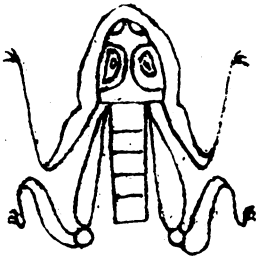
left forearm of a woman. The dragon-fly, a mythic insect, represents mamathlona and was copied from the right arm of the same woman. Kahatta, the dog fish, copied from the back of a subject. Met, the mountain goat, copied from the leg. Hoots, the bear; fikamkosta, the frog; wasko, the wolf; the cod and the squid were all copied from various parts of the body.

"Wasco is a mythological being of the wolf species, similar to the chu-chu-hhuxl of

the Makah Indians, an antediluvian demon supposed to live in the mountains." Other designs were observed and copied, notably, the tshimos, a mystic animal, and the double thunder bird and double raven.

Mr. James G. Swan made a valuable contribution on tattoo marks, published in the Fourth Annual Report of the Bureau of

"I am of the opinion, judging from my own observation of over twenty years among the coast tribes, that but few females can be found among the Indians, not only on Vancouver's island, but all along the coast to the Columbia river, and perhaps even to California, that are not marked with some device tattooed on their hands, arms, or ankles, either dots or straight



FROG.
SQUID.

WOLF.
COD.

Ethnology, and reproduced, much condensed in the Tenth Annual Report, as follows:

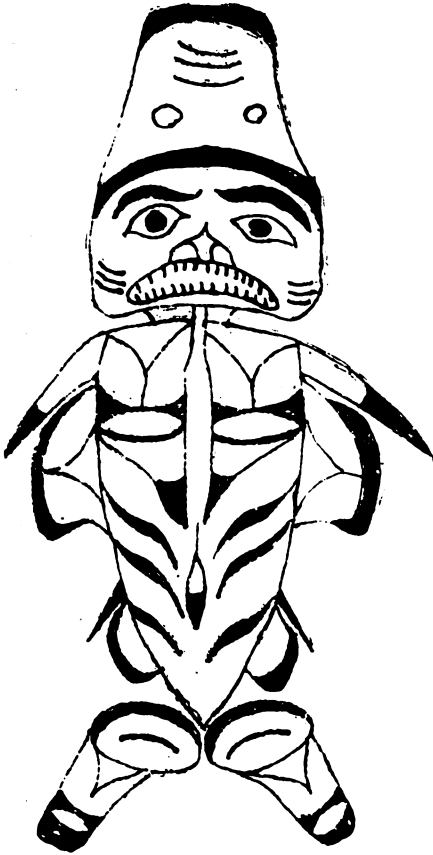
"Among all the tribes or bands belonging to the Haida family, the practice of tattooing the person in some manner is common; but the most marked are the Haidas proper, or those living on Queen Charlotte islands, and the Kaiganis, of Prince of Wales archipelago, Alaska.

lines; but of all of the tribes mentioned, the Haidas stand preeminent for tattooing, and seem to be excelled only by the natives of the Fiji islands or the King's Mills group in the south seas. The tattoo marks of the Haidas are heraldic designs or the family totem, or crests of the wearers, and are similar to the carvings depicted on the pillars and monuments around the homes of the chiefs, which casual

observers have thought were idols.

"These designs are invariably placed on the men between the shoulders, just below the back of the neck, on the breast, on the front part of both thighs, and on the legs below the

hands and arms, and some on the face; but as a general thing these marks are mere dots or straight lines having no particular significance. With the Haidas, however, every mark has its meaning, those on the hands and arms of the women indicate the family name, whether they belong to the bear, beaver, wolf, or eagle totems, or any of the family of fishes. As one of them quaintly remarked to me, 'If you were tattooed with the design of a swan, the Indians would know your family name.'"



DOG-FISH.

knee. On the women, they are marked on the breast, on both shoulders, on both forearms, from the elbow down over the back of the hands to the knuckles, and on both legs below the knee to the ankle.

"Almost all of the Indian women of the northwest coast have tattoo marks on their

THE IMPORTED AND ACCLIMATED GERMAN SONG BIRDS IN OREGON.

BY C. F. PFLUGER.

THE BLACK THRUSH (*Turdus merula*, *Merle*, *die Schwarzamsel*).

Of these most useful birds 35 pairs were introduced in 1889 and 1892 into Oregon by the society.

It is a native bird of Europe, and is very numerous in Germany and Great Britain. It is the only species of thrush which is not migratory.

The haunts and habits of the black thrush are nearly the same as those of the song thrush, its size being nine inches and a half in length, of which the tail measures four inches. The beak is one inch in length, and bright yellow; the iris dark brown; the feet black and fourteen lines in height. The male is black all over the body; the female blackish brown, tinged on the breast with rust-color, and on the belly with gray, and is somewhat larger than her mate. Its food is the same as that of the song-thrush, though, in winter, it is often obliged to be content with the berries of the elder and white thorn, and at the same season of the year it can frequently be seen near warm springs, in search of insects and worms. As the black-thrush is not a bird of passage, it pairs very early in the year, so that the young birds may often be found in the nest as early as the end of March.

The nest is placed in some thick bush, often not very high from the ground, and is constructed of earth and moss interlaced with twigs, and lined with fine grass-stalk and hair. The female lays twice or thrice a year four to six eggs, of a grayish green color, covered with light brown and liver-colored spots and stripes.

The song of the male is melodious and consists of deep sonorous passages, like those of a nightingale, though intermixed with others which are rather harsh. It sings from March to the end of July, especially by night, and in so loud and joyous a tone as to be audible at a considerable distance. Although the black thrush sings at all times of the day, it is more especially in the morning and evenings that it pours forth its delightful melodies which are as loud, rich, mellow, and much more surpassing in effect than those of any other song bird, excepting the nightingale, black-cap, song thrush and mocking-bird.

Considering the great usefulness of this bird as a destroyer of insect pests, I will illustrate by the following anecdote:

A grass plot attached to a country house was once visited by a dozen or two black thrushes for several days in succession. They ploughed it up so diligently with their bills as to make the surface look rough and decayed. The owner of the property, unwilling to shoot the intruders, caused the grass plot to be dug up in several places when it was found to be overrun with the larvæ of chafers. The birds were left in undisturbed possession; and, although the walls were covered with ripe fruit, they left it for the grubs which they effectually destroyed, and the grass plot soon resumed its original appearance.

The term "Merle" is derived from the habit of this bird of flying mera, or solitary; hence, too, its generic name, *merula*.

MOUNTAIN ASH AND RATTLESNAKES.

BY ANGUS GAINES.

Nearly two years ago an eastern paper of wide circulation published a letter from a Mississippi lady who complained that

she had been annoyed by snakes entering her greenhouse. The visits from snakes were not frequent but the knowledge that the serpents could invade her premises was a source of constant uneasiness to her and she was anxious to obtain plants of the Mountain Ash alluded to by Oliver W. Holmes in "Elsie Venner" as having a fatal influence over Rattlesnakes.

Negroes, she said, planted gourds around their cabins to keep snakes away, but the first frost killed the vines and then the snakes could enter unchecked whenever the weather permitted them to travel. Any one who could furnish genuine Mountain Ash of the kind warranted to keep away snakes was assured that he could find a ready market for his plants.

This letter attracted a great deal of attention among the readers of the journal which published it and many suggestions were offered by other correspondents regarding the plant which was fatal to venomous serpents.

One writer stated that the plant which was so obnoxious to snakes was the beautiful shrub, the White Ash, or White Fringe Tree, *Chionanthus virginica*, which, by the way, is not on ash at all although it belongs to the same natural order. Another maintained that the plant sought was the real White Ash, *Fraxinus americana*, which is a magnificent tree, attaining a height of over 100 feet. Still others insisted that Dr. Holmes was right and that the noxious plant was Mountain Ash, but there was still uncertainty as to what was meant by "Mountain Ash".

No Ash at all, some one who knew informed us, but the *Pyrus americana*, which is commonly called by that name. It was said to be commonly believed in Connecticut that this tree would drive away snakes and that *Fraxinus acuminata* was useful as an antidote in case of snake bites.

The most important fact brought to light by this discussion was that there was once

a wide spread belief that some plant exercised a fatal effect upon venomous serpents. That Rattlesnakes held it in such fear that when one of them was surrounded by a circle half of fire and half of the leaves of this plant the terrified serpent would dart into the flames to escape from the green leaves. Birds, it seems, possessed a knowledge of the virtue of this tree and sought safety from nest robbing snakes by building among its branches. Birds nesting elsewhere so the story goes, on seeing their nests invaded by some scaly monster, have had the rare presence of mind to gather leaves of the fatal tree and drop them down upon the intruder's head, whereupon the terrified Ophidian would straightway yield up the ghost, or would seek safety in flight.

Most narrators related this story as a curious tradition, while others seemed to accept it in perfect good faith, but unfortunately could not agree as to the identity of the tree possessing this marvellous power. Some of those who related the story with the greatest apparent sincerity insisted that the same tree would also keep away witches.

Of course Dr. Holmes had nothing to do with the origin of these singular beliefs but had simply woven into his narrative the material already at hand.

There should be no dispute about a question which can be settled positively by experiment, and although I felt inclined to question the authenticity of these stories. I knew that it might be possible for some plant to be poisonous to serpents but harmless to man so I offered to try the effects of any leaves or twigs sent me on some of my pet snakes.

Quite a number of people responded and the variety of leaves sent me was surprising. I tested them all impartially and the result of my experiments was negative.

Some of my correspondents stated that the singular tradition had been handed

down to them by their fathers who had said that such beliefs were prevalent in various parts of Europe, while others declared that it was a legend borrowed from various tribes of the North American Indians. Probably both were right.

Taken altogether this matter was not very edifying to the student of Herpetology but it was interesting to the student of Folk Lore.

One of the stories brought to my notice during this correspondence would seem to point to a very singular combination of inaccuracies. It is the story of a man who found a Rattlesnake in the woods and in the presence of witnesses proceeded to test the virtues of Mountain Ash upon it. The reptile indulged in very threatening demonstrations, but when touched with the twigs of the potent tree it subsided, turned upon its back and lay still, apparently dead. The twigs were removed in a short time, the reptile recovered and became as pugnacious as ever, but was again subdued by the Ash twigs.

This story was told in evident sincerity and the explanation is plain to any one familiar with snakes and with the general ignorance regarding them. The common "spreading adder," *Heterodon platyrhinus*, is frequently mistaken for the Copperhead and even for the Rattlesnake. When this snake is tormented it will make threatening demonstrations and will frequently go into hysterics and turn upon its back as if dead, just as the snake in the story did. A man who mistook this serpent for the Rattler and experimented upon him with twigs, those of the Mountain Ash would do as well as any other, might, if his faith were sufficiently robust, prove the legend true.

It is reported from Kelso, Wash. that workmen while excavating preparatory to placing a new boiler in position in a mill, unearthed a portion of a stone image or idol.

THE OREGON NATURALIST.

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THE OREGON NATURALIST.

146½ SIXTH ST.

Portland, Oregon.

MAY, 1896.

We hope that a number of our readers will follow out the suggestion made by Professor Lloyd in his article on "Wood in Wells". All questions, we are sure, will be cheerfully answered by him.

About four pages of the work of the N. O. A., owing to its late arrival and a desire to print it entire, was unavoidably left over for next month from lack of space. The number of pages of the Oregon Naturalist will be doubled just as soon as its receipts will permit. There is not much money behind it, but it is conducted on business principles, and it is self sustaining. Although its circulation is large for a paper of this class, yet it is not sufficiently large to warrant an increase of pages. If all of its friends, who think it is worth the subscription price, will secure for the Naturalist, one new subscriber; it would be enlarged at once. The price is cheaper than any other paper on Natural Science, and attention is called to special offer, "for new subscribers," in the advertising columns.

"The Stamp Collectors Hand-Book. A lexicon of terms and hints to philatelists," by Chas. W. Egan, and edited by Clifford W. Kissinger.

This pamphlet of 64 pages, bound in flexible cloth covers, is a veritable 'mine of knowledge' for the philatelist. Especially useful to the beginner, yet may be read and studied with profit, by the more advanced collector.

Mr. H. R. Taylor, writes: "The climate and bird life of the West, are so alluring to me that I shall remove with the Nidologist, to my old stamping grounds, at Alameda, California, before issuing the May number.

"Taylor's Standard American Egg Catalogue, conforming to the Nomenclature of the New A. O. U. Check-List." Compiled by H. R. Taylor, with the assistance of eleven Oologists. Gives valuation of nests for exchange, and a partial list of introduced species.

N. O. A.

In our work for the last few months we have continually been compelled to face this objection in the study of our birds, viz: that in all the works on Ornithology, that we have access to, and that includes all the principal ones, we are unable to positively identify the birds of some families from the sub-species of those families. We have decided that the only method we have of finally over-coming this difficulty is to bring together a series of skins of those birds, and establish for ourselves the difference between them if there is any. We have therefore determined to form a collection of skins to be the property of the N. O. A. We cannot expect to accomplish anything definitely very soon, nor maybe in quite a time to come, but if the plan is carried out there will be a time when we can accomplish our purpose.

We do not expect to acquire skins very fast because at present, it is merely a voluntary offering on the part of our members, and others, but it is hoped each will take an interest now and then if they come across a skin that they feel like donating to a good cause, we will be glad to receive it. Each skin ought to have the sex, where collected, by whom, and the date if possible. We have a good start, and any skin may be sent to the secretary or president, and will be gratefully received. The work of the N. O. A., for the next few months, will be on the Woodpeckers.

WILLIAM L. FINLEY.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR.

CHAT.

The editor owes his sincere apologies to the many readers of the Oregon Naturalist for the failure of the department to appear in the April issue. However sickness is a matter that attacks each and all of us unexpectedly and for which we are not responsible.

The editor will carefully review any articles, magazines, etc. forwarded, and comments upon same may appear from time to time in this department.

We are pleased to recognize the reception of a charming monograph "The Electric-light Bug or Belostoma" by Theodore William Schaefer, M. D. Kansas City, Mo. The matter is carefully written in a scientific manner and his application of the bug to medical science, with the deductions drawn are of considerable merit.

If you want a definite system of work or want your notes incorporated in a scientific compilation, join the Oologists Association. Full particulars from President Isador S. Trostler, 4246 Farnham St. Omaha, Neb. or from the Eastern Editor.

Articles on Osteology, by "Ossa" begin next month.

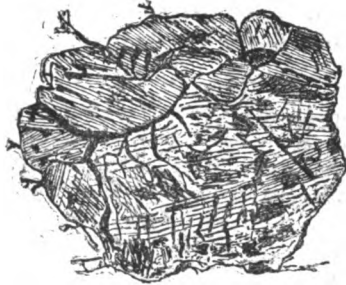
Did you do your duty with your notes on the Hawks and Owls?

For a few months the Eastern Editor will be located at Woods Holl, Mass. All mail pertaining to Eastern Department, should be addressed to him at that place.

SPILE SCRAPING AND SOME OF THE MARINE INVERTEBRATES OBTAINED BY IT.

(Continued from Page 42.)

AMAROECIUM.



Amaroecium or "sea pork" was very common at some wharves. It resembles a chunk of gelatine as much as anything I can think of. The specimens, when fresh from the water, vary very much in color. There are some colored white, others different shades of red and still others a greenish yellow. In preserving liquid these colors bleach out.

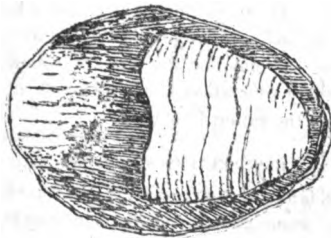
MYTILUS EDULIS.

This common mussel grows in large colonies on the spiles usually near the surface. The specimens in these colonies are generally small.

Farther down are found the old mussels with their shells covered with *Serpula* tubes, small *Metridiums*, *Crepidulas*, and various other things.

These old and large mussels and sometimes some of the smaller ones are inhabited by a little parasitic crab which I shall treat of later.

CREPIDULA.



Crepidulas were often found on the spiles.

Frequently three or four would be attached to each other. A very good idea of their appearance can be obtained from the cut.

SERPULA DIANTHUS.

The round crooked tubes of the *Serpula* were found on the old mussel shells and sometimes on the spile itself. When disturbed the worm withdraws into its tube and closes the end with a little plug called the operculum. When fully displayed the branchiæ are very beautiful. They are in a round cluster parted into equal halves with about eighteen delicate filaments on each side. The colors vary remarkably but are always brilliant. The usual color is purplish at the base with narrow bands of light red or yellowish green. In other varieties they are all citron yellow or whitish banded with brown.

NEREIS PELAGICA.



This worm was found in the masses of hydroid. It varied from an inch and a half to over four inches in length. It is light brown in color. I think that this was the commonest of all the worms which I met with and it was certainly the easiest to obtain.

LEPIDONOTUS SUBLEVIS.

This is another of the worms and was found in the same places and in company with *Nereis pelagica*. It is a smaller worm, (the largest I saw did not measure much over an inch) and is broader. The color is about the same as that of the preceding species.

BALANUS BALANOIDES.



The common acorn barnacle can be seen on almost any spile or rock on the sea shore. When the tide goes down their shells appear as a band of white.

LIBINIA DUBIA.

Of this crab I found only two or three specimens. Those were taken from a mass of hydroid and were themselves covered all over with hydroid or algae. I preserved no specimen and so am not able to furnish a drawing, but I do not think that this species can be mistaken for any other. If I remember correctly it was about two inches long.

PINNOTHERES MACULATUS.



Many stories are told about these little crabs acting as guardians of the shells which they inhabit but science has shown that all these tales are false and that they seek these homes merely for protection and convenience in obtaining food. They live on the nutritive matter in the currents of water caused by the cilia on the gills and mantle of the mollusca. There are two species; *P. maculatus* inhabits the mussel and *P. ostreum* the oyster.

Several species of hydroid are found on the spiles but I am not familiar enough with them to describe them. There are also other tunicates, several species of small shells and probably many more species of various orders which I did not happen to find. And now in closing I wish to say that although there is plenty of hard work, still there is a great deal of enjoyment to be derived from this kind of marine collecting.

F. P. DROWNE.

PRINCIPLES OF ORNITHOLOGICAL
CLASSIFICATION.

C. C. PURDUM M. D.

Every student of nature knows what a bird really is; knows its history, how it has gradually evolved from the lowest and can trace its relation to mammals. But to the majority of students of ornithology the question of classification presents itself more as something which has been gone over thoroughly and about which they need not bother their heads. As a matter of fact however, classification is the prime object of our study, and brings the science out of the chaos of a meaningless terminology, and places it upon the sound foundation of reality and practice. Classification strives to make an orderly disposition of facts, and to arrange them with reference to the reciprocal relation of the things it knows. Classification presupposes that such relations do exist and that the relations are the result of certain fixed inevitable laws. It is therefore a rational disposition of observed facts, and with regard to the varieties of facts, and their arrangement, we speak of "Taxonomy" (or the natural affinities defined and compared) and "Morphology" (or a classification based entirely upon structure or form). It would be readily seen then that a complete taxonomic classification could only be completed by having before us a specimen of every kind of bird which exists and thoroughly comparing their like points and separating their unlike points. This is obviously impossible; in fact we *do not* know all the birds which now exist, and only a comparatively few extinct birds have been discovered; consequently many of our links in the chain are thus quickly found to be missing and in many cases great difficulty arises in joining the others together.

The result of all this has been the rearing up of separate schemes of classification by different leaders in the Ornithological world, (each having *some* natural advantages) and although depending in the main upon the old

"natural" system, still in some points, branching out on different points of structure,

The reaction from the "partial" method of classification has been complete. As if internal and external parts were not reciprocal and mutually exponent of each other! As if a natural classification should not be based upon *all* points of structure, internal as well as external! But the taxonomic goal is not now to find the way in which birds can be classified with the least inconvenience, but to establish their ancestry—as it were—to find and prove their *pedigree*, and this would be the only "natural classification" and becomes necessarily a "morphological classification" for these reasons. Every offspring tends to take on precisely the same structure as its parent and no outside influences being imparted to it continues to "breed true" forever; but counter influences are incessantly at work in consequence of different surrounding conditions or environment.

The plasticity of organization rendering them more or less susceptible of modification by such means, and they become unlike their ancestors in various ways. Obviously in this manner, degrees of likeness or unlikeness, denote with greater exactness the nearness or remoteness of physical kinship. Huxley has so clearly and completely stated the "Reasons why Morphological Classification is Important" that I can do no better in concluding this paper, than to quote his masterly words on the subject. In the introduction to his "Classification of Animals" page 2-3, he says.

"As a matter of fact no mutual independence of animal forms exists in nature. On the contrary the members of the animal kingdom from the highest to the lowest are marvelously connected. *Every* animal has *something* in common with *all* its fellows; *much* with *many* of them; *more* with a *few*, and generally *so much* with *some* that it differs but little from them.

"Now a morphological classification is a statement of these gradations of likeness which are observable in animal structures, and its

objects are two-fold. In the first place it strives to throw our knowledge of the facts which underlie and are the cause of the similarities discerned, into the fewest possible general propositions, subordinated to one another, according to their greater or less degree of generality; and in this way it answered the purpose of a *memoria technica*, without which the mind would be incompetent to grasp and retain the multifarious details of anatomical science."

"But there is a second and even more important aspect of morphological classification. Every group in that classification is such in virtue of certain structural characters, which are not only common to members of the group, but distinguish it from all others; and the statements of these constitutes the group. Thus, among animals with vertebræ, the MAMMALIA is definable as those having two occipital condyles, with a well-ossified basi-occipital; which have each ramus of the mandible composed of a single piece of bone and articulated with the squamosal element of the skull; and which possess mammæ and non-nucleated red corpuscles in the blood".

"But this statement of the character of MAMMALIA is something more than an arbitrary definition. It does not merely mean that naturalists agree to call such and such animals *mammalia*; but it expresses, firstly, a generalization based upon, and constantly verified by wide experience; and secondly a belief arising out of that generalization. The generalization is, that in nature the structures mentioned are found associated together; the belief is that they always have been and always will be found so associated. In other words the definition of the class *mammalia* is a statement of a law of correlation, or coexistence of animal structures, from which the most important conclusions are deducible".

COLLECTORS DIFFICULTIES AND HOW TO AVOID THEM.

BY MERGANSER

To the old soldier in the field, to the ex-

perienced collector, this article does not apply, but to some of the more inexperienced who through lack of knowledge "how to go about it", the following hints may be of benefit.

This paper will deal entirely with the bird collector's troubles and should it succeed in running the gauntlet of the editor's waste basket and shears, I will in some future papers endeavor to help some of our brother collectors in other branches, to "get at 'em" in the proper manner. Now in the first place to be a good collector, is in itself a very small affair, but to be a good scientific collector, is a great deal. A collector goes out and destroys life to satisfy his longing for a lot of well made skins, to display. A scientific collector, goes out to observe the habits of the feathered denizens of the forest, and destroys a few that he may understand them more thoroughly. But I wonder! "Where shall I search for birds?" I am often asked. I invariably answer, "Every where".

"When shall I search for them?"

"Always".

"What kinds shall I collect?"

"All kinds".

But as a matter of fact, we can not search every where; we can not search always; and we cannot collect all kinds of birds. What shall we do then? Why! Choose that locality that affords the greatest variety of topographical peculiarities, and there you will find the greatest variety of "flora" and consequently the greatest variety of birds. Here then is your field. The early spring and the autumn are the best times to collect. Of course I do not mean to collect only in those seasons. One of the greatest difficulties of the novice, is—strange as it may seem—in finding birds to collect. He may range field, valley and woodland, and when he returns, report nothing but robins, song sparrows and bluebirds. You follow him once and you will see him go crashing through bushes, over rotten stumps and scarcely waiting for a breath. No wonder he is unsuccessful. What bird would stand such a racket? Tell him to sit down for a moment and keep quiet. Mark the change; from here and there appear the birds, and in a short time you have material enough to keep you busy for a long-time, not merely shooting, but with open note-book observing and writing down actions, notes and habits of the little fellows and with a bag full of birds and a book full of notes about them, you have work enough to keep you busily employed till long after the lamps are lit that evening.

(To be continued)



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KADIAK ISLAND

A CONTRIBUTION TO THE AVIFAUNA OF ALASKA.

(Continued from Page 64.)

Clangula hyemalis OLD SQUAW.

A rather numerous species during the winter months having not been met with during the summer, but it is more than probable that they breed on the island, which they could do in many of the unfrequented bays or inlets, many of which are never visited by travelers.

From November to the following April they were frequently met with on the open waters outside the smaller islands, generally in small flocks of six to twelve individuals, but sometimes they were noted associating with Steller's Eider. As a general thing they were wild and did not approach so near the shore while feeding as other ducks.

These ducks are surpassed by no others as expert divers, in fact they are about the most aggravating water fowl with which the collector has to deal and to get them one must kill them sufficiently dead to guarantee their remaining dead, for, as long as they have an atom of life left they will endeavor to dive. Their food consists largely of mollusks of which the Wrinkled Purple (*Purpura crispata*) forms a large part, the shells being swallowed whole as

shown by many examples taken from their crops.

Histrionicus histrionicus HARLEQUIN DUCK.

A bird of the surf; loving the breaking water and deserting its ocean home only to raise its young on some adjacent river and again return to wage endless war upon the decapods and mollusca, to check whose increase seems to be its mission in creation.

This duck is a resident on Kadiak throughout the year but to associate it with ponds and lakes as is so often done in pictures seems a misconception as the bird is as much a surf lover as any of the "surf ducks" and when hunted or wounded will dodge in among the rocks where it well knows no boat can follow.

In June they resort to the rivers to breed but never ascend them far and regularly fly back and forth to the ocean to feed. Their cry is a shrill whistle descending in cadence from a high to lower note, commencing with two long notes and running off in a long trill.

The writer has often watched the males in spring, calling, and the actions of these birds may justly be said to resemble the crowing of a rooster. In giving forth their call the head is thrown far back with the bill pointing directly upwards and widely open; then with a jerk the head is thrown forward and downward, as the cry is uttered and at the same time the wings

are slightly expanded and drooped. Afterwards they will raise in the water and flap their wings.

These ducks do not gather in flocks of more than eight or ten and from the writer's observation the conclusion was reached that the mated birds remain together all the year. Mature birds are much shyer than the younger ones so that a large percentage of the specimens taken are in immature plumage and full plumaged birds are not common. The method employed in hunting this duck is extensively used in hunting by the Alaska natives and as it may be of use to some of the readers on some future occasion, it is given here.

When first the writer went to Kadiak he tried hunting with a boat relying on wing shooting to get his birds, but without much success, and seeing that the natives always got more birds he changed his plan and took to the natives' method as follows: When a band of ducks was seen feeding, a landing was made and the beach approached from the land, the hunter being careful not to be seen. By watching the flock it would be seen that they all dived about the same time and the time they remained down was about the same length each time. When the last duck dives the hunter runs toward them dropping in the grass or behind a rock about the time he calculates the first duck should be coming up again. In this manner he can approach close to the flock that nearly always feed in the shallow water along the shore. When the last run is made, the hunter, if an old hand, stands on the edge of the water, the gun at "ready," and a couple of extra shells in the hollow of his right hand, the flock all being down. The first duck that comes up gets it, and the second one gets the second barrel and in this way by sharp practice it is often possible to bag six or seven out of one flock.

Sportsmen might call it pot hunting, but if they try it once they will find that it calls for a good deal more mental and physical exertion than sitting in a blind and luring hungry and weary migrants to their doom with a lot of decoys. Any way, a collector is a pot hunter by force of circumstances and does not kill for the love of taking life but only as a means to secure specimens. Can our sportsmen friends say as much in defense of their favorite pastime?

Eniconetta stelleri.

STELLER'S DUCK.

This beautiful species is a common winter visitor from November to the following April, during which time they gather in small flocks and associate with the King Eider.

Although their food is the same as that of the last species they seek it in deeper water and seldom feed near the shore. Dr. Coues states that this duck associates with the Pacific Eider and therefore the writer concludes that it does so in some localities but at Kadiak it does not, as they leave for the North about the first of April and the Pacific Eider does not arrive until the end of the same month or the first part of May.

Somateria v-nigra

PACIFIC EIDER.

A summer resident, arriving about the first of May and nesting in any suitable locality approximate to the ocean. These birds arrive on the island in pairs and at once go to nesting. The localities chosen for making the nests are so varied that it is almost impossible to describe what would be a typical location; but they are seldom situated more than a hundred yards from the ocean beach and generally on low ground, as the nest is always more or less hidden. They are always placed among long grass or reeds. The nest is composed almost entirely of down plucked by the female from her own body, the

other, or bottom materials, are a few layers of dry grass, but many nests were found composed of nothing whatever but down. The first egg is laid about the first of June and a set contains eight or ten greenish colored eggs that greatly resemble common tame duck eggs. The males show no interest in either nest-building or incubation, but it is said that they help to care for the young when hatched.

During the period of incubation whenever the female leaves the nest to feed, she carefully pulls the down over the eggs in such a manner as to entirely cover them with a thick coating and this seems to keep them warm.

If the first nest is taken they at once make another, and it is stated that to supply the down for the second nest, the female strips it off the male. The writer's experience, has unfortunately, done much to shake his belief in this little romance, for almost all nests found late in the season contained very little or no down; in fact a great many were nothing but forms scraped in the sandy soil.

Somateria spectabilis

KING EIDER.

King Eider are tolerably common during the winter months, sometimes gathering in flocks of fifty or sixty individuals associating with Steller's Duck and Old Squaw.

They arrive at the island in November coming from the North and leave again in the following April. The native name of this duck is "Skatch" while the Pacific Eider is known as "Pistreek".

Oidemia americana

AMERICAN SCOTER.

Common from November until the following May; gathering in large flocks and feeding on mollusks and crustacea.

Oidemia deglandi

WHITE-WINGED SCOTER.

Habits same as last named species. Neither of these species were seen during

the summer months and they were not known to breed in the island as far as the writer could ascertain.

Branta canadensis

CANADA GOOSE.

These geese pass over the island on the way to their breeding grounds in Cook's Inlet, about the middle of April, but seldom even stop to rest except on the south and where they are said to be numerous in the fall migration. As far as known they do not breed on the island.

Branta nigricans

BLACK BRANT.

Passes about the same time as the last species, but a few remain to breed.

Ardea herodias

GREAT BLUE HERON.

This is a rare bird on the island and old residents assured the writer that it was not known there, yet on August 16, 1891 the writer saw one, and on March 1, 1894 a young female was obtained. Why this bird should not breed on the island is inexplicable, for the island abounds in shallow lakes teeming with fish and on the northern end are plenty of large firs suitable for nesting. Still there can be no question but that this species occur on the island as stragglers only.

BERNARD J. BRETHERTON

(To be continued.)

MORE PHEASANTS FROM JAPAN.

May 30, 1896—Frank S. Alling received three coops of golden pheasants on the Victoria. They came in care of Capt. John Panton, R. N. R. The birds are pretty well used up by their long voyage. Mr. Alling will place them in his chicken hospital and after a couple of months, when they are recruited will turn them loose on Fox island. Mr. Alling reports that the pheasants he has previously placed on the island are doing well and breeding rapidly.—*Tacoma Ledger*.

LEAF PRINTING.

The study of leaves is at once one of the most important and interesting departments of Botany, their infinite variety of color, form and venation affording an inexhaustable fund of entertainment and instruction.

The leaves must be seen and studied as they grow in bewildering multitudes and in apparently endless variety and they must be gathered and compared that the order which prevails in their confusion may be traced and that the system may be found in their resemblances and differences. It is useful to preserve the leaves themselves for reference, for comparison and as mementoes, and the skeletonizing of leaves is also an excellent practice. Still another way of studying leaves, not to take the place of the methods I have mentioned but to supplement them, is by making photographic leaf prints.

No expensive materials are necessary for no camera is required, the leaves themselves being used as negatives and the print being made directly from them upon the sensitized paper.

Instead of using the paper employed in ordinary photography it is the best to use ferro-prussiate paper and make blue prints, these being much cheaper and far easier to make, while they are quite as satisfactory as the costly gold-toned salt of silver prints.

If you wish to prepare your own paper take one ounce each of ferroprussiate of potash, and of citrate of iron that has been neutralized with ammonia, and dissolve them in one half pint of water. This will make a rather thick dye which must be kept in a stone bottle, or if in a glass bottle must be carefully wrapped to exclude the light.

In the evening by a dim lamp light pour out a little of this dye in a saucer and with a feather or flat brush spread it over your paper, which should be stiff and unruled. The sensitized surface will appear of a dirty yellowish hue, giving but little promise of the rich blue which it is to assume, for the dye needs direct sunlight to make its real color appear. Put the paper away in a dark place until it is dry and

then it is ready for use.

A substitute for a printing frame may be made of any smooth board of suitable size. Place the paper, sensitized side upward, on the board, lay the leaf to be printed upon that and cover it with a piece of glass of the same size as the board. Fasten the glass and board together by attaching a common clothes pin to each end and place it in the sun.

After it has been exposed to the sunlight a sufficient length of time take out the paper and wash it in an abundance of clean water. Wherever the paper has been exposed to the direct sunlight the dye will have become "fast" and the paper will remain a dark blue, while in the spot shaded by the leaf the coloring will wash off leaving the paper white, showing the white print of the leaf on a blue background.

If the exposure has been sufficiently long all the details of the leaf structure will be accurately and beautifully printed in, but if the sun has not had time to do its work thoroughly the lighter shades of color will be entirely washed out, the venation disappear and the print show only in outline.

The thickness and opacity of leaves varies greatly and the sunlight has so many degrees of brightness that no rule can be given as to the exact length of time necessary in exposing a print. The beginner must experiment and learn to use his own judgment. It will be found a great convenience if the board used as a printing frame is made of two pieces fastened together by a hinge so that one end may be folded back and the paper examined to ascertain how fast the printing is going on.

I have frequently prepared my own paper in the manner described but I find it much more convenient and almost as cheap to buy ferro-prussiate paper of some dealer in photographer's supplies. The usual cost, postage included, is three cents for two dozen leaves, size 4 x 5 inches.

It has been my practice to mount prints on cheap white cards, writing the name of the order to which each specimen belongs at the top of the card and the generic and specific

names at the bottom, together with any memoranda deemed helpful.

ANGUS GAINES,

Vincennes, Ind.

GOLD MINES TRIBUTARY TO BAKER CITY, OREGON.

A complete list of the mines tributary to Baker City, compiled by Mr. F. R. Mellis of Baker City, gives in addition to name and owners, the district, mineralogical formation, character of output and other information. There are given 36 districts as follows:

Auburn District, formation porphyry, has ten gold mines.

Bay Horse District, formation limestone, has five silver and gold mines, one coal, one gypsum and one kaolin mine.

Big Creek District, formation dolorite, has two copper and gold mines.

Bonanza District, formation metamorphic slate, has 16 gold mines.

Cable Cove District, formation metamorphic slate; north wall, granite; south wall, porphyry; has 47 gold mines.

Cabell District, formation metamorphic slate, has 15 silver and gold, and three gold mines.

Camp Carson, formation slate and granite, has three gold mines.

Cow Creek District, formation porphyry, has five gold mines.

Conner Creek District, formation limestone, has four gold mines.

Cornucopia District, formation slate and granite, has 14 gold mines.

Cracker Creek District, formation slate, has 20 gold mines.

Elkhorn District, formation metamorphic slate; north wall, granite; south wall, porphyry, has one silver and gold, and 24 gold mines.

Granite District has one silver, two silver and gold, and 23 gold mines.

Greenhorn District, formation metamorphic slate; north wall, granite; south wall limestone has 18 silver and gold mines.

Hannover District, formation metamorphic slate, has five gold mines.

Idol City District, has one gold mine.

Malheur District, formation porphyry and granite, has 11 gold mines.

Minersville District, has three gold mines.

Mormon Basin, formation granite and porphyry, has 17 gold mines.

North Fork District, has six gold mines.

North Powder District, formation porphyry, has five gold mines.

Pedro Mountain District, formation granite, has 15 gold mines.

Pocohontas District, formation porphyry and limestone, has one lime, and 21 gold mines.

Quartzburg District, has 18 gold mines.

Robinson District, formation porphyry and metamorphic slate, has one silver and gold, and nine gold mines.

Rock Creek District, formation metamorphic slate, has eight silver and gold, and four gold mines.

Rye Valley District, formation slate and granite, has two silver, one coal, and 17 gold mines.

Sanger District, formation slate and porphyry, has one copper, and 27 gold mines.

Sparta District, formation porphyry, has 21 gold mines.

Stice's Gulch District, has six gold mines.

Sumpter District, has five gold mines.

Sutton Creek District, formation porphyry, has two gold mines.

Susanville District, formation slate and porphyry; north wall, granite; south wall, limestone, has nine gold mines.

Timber Canyon District, formation gneiss and granite, has seven gold mines.

Virtue District; formation metamorphic slate and limestone, has 33 gold mines.

Weatherby District, formation slate, has 15 gold mines. Making 483 mines tributary to Baker City, nearly all of which are gold.

N. O. A.

The regular monthly meeting of the Portland Annex was held on April 24, at the residence of President, W. L. Finley. Secretary, A. L. Pope reported the following members as having been admitted to the Association.

N. A. Shaw, Grand Forks, N. D.

E. B. Guthrie, Washington, Pa.

F. A. Stuhr, Portland, Or.

C. R. Bean, Salem, Or.

Communications on the Sooty Grouse, from Messrs. A. W. Anthony; C. W. Swallow; H. M. Hoskins; A. L. Pope and E. F. Hadley were read. Mr. Anthony writes.

"The Sooty Grouse—*Den. tragapus obs. fuliginosus*—ranges from the Southern Sierra Nevada in California to Sitka, being confined to the mountains in the southern part of its range, but extends to the coast in Oregon, where the heavy fir timber affords it shelter.

"The Dusky,—var. *D. obscurus*; inhabits the mountains of Northern New Mexico, Arizona, Colorado, Utah and as far north as; perhaps, Southern Idaho and Montana, where it gives place to Richardson's—var. *richardsonii* which extends northward along the Rocky Mountain system into the British possessions.

"The difference in plumage may be briefly given as follows: taking as a standard the Oregon bird. The Dusky Grouse is lighter colored, the band on the end of the tail is much broader, the throat is mostly whitish, in males; blackish with a white border in the Oregon birds, males. The Richardson's Grouse only differs from the Dusky in the tail, which lacks the terminal band of gray in Richardsons, but is very prominent in both Dusky and Sooty.

"As far as the habits of the two species; Dusky and Sooty are concerned, I see but little difference. Both are much given to 'hooting' in the nesting season; a note that is familiar to every Oregon and Washington sportsman. I have on several occasions heard the notes at all hours of the night during the spring months on the Columbia, but do not think I ever heard the Dusky 'hoot' at night,

though I have been in their haunts in the Rocky Mountains a great deal. Either species is remarkably hard to discover when they have once disappeared in the branches of a fir or spruce, and I have often spent considerable time looking for a bird that was in plain sight, within easy gunshot, a fact that was not discovered until the bird took wing, which by-the-way, very often occurs just as the hunters eye falls upon the object of his search. It is probable that some involuntary movement on the part of the hunter, warns the watchful bird that it is discovered.

"In Colorado I have often found flocks of Dusky Grouse, consisting of a pair of adults and brood of young, at a distance from timber; at times along the willow-lined streams, but more often in clearings where wild berries had attracted them. As a rule they stay well within the shelter of the coniferous timber. In winter they seldom descend to the ground, a habit shared with the Sooty also, but spend the time in the tree tops often living for days, or even weeks in a small grove of thick spruce, living on the leaves which give their flesh a rather bitter taste at this season. Their presence is usually discovered by their droppings on the snow under the trees and the spruce 'needles' which they dislodge.

"I was once descending from a high pass in the mountains, between the headwaters of the Rio Grande and the tributaries of the Rio San Juan, in Southwestern Colorado, I think it was July 15, I was still in the snow banks, for the timber line lay far below the sea of alpine willows that surrounded me on every side. The sun had set, and I knew that I had a trip to make in the dark, for several miles perhaps, before I could find a suitable camping spot, and that too, over a broken country and without a trail. Just before dark a female Dusky Grouse flushed at the pack horse's feet and I found a set of nine eggs in a leaf lined nest at the base of a willow, far above timber line; hastily laying the eggs in my hat I followed on after the horses and for the next two hours

had all I could attend to climbing over fallen timber, rocks, etc. in the dark, often carrying my hat in my teeth. At camp I 'dug up' a box and packed the eggs away, carrying them behind my saddle for ten days before I had a chance to blow them, only to find them on the point of hatching. These eggs were very similar to those of the Sooty which I have since taken in Oregon.

"In Oregon I have often found nests by looking along the openings in the timber along trails until I found the piles of droppings which indicated a setting bird, then a short search among the ferns under the shelter of logs, etc. usually revealed a nest with from five to nine eggs. One nest was found in an old hay stack; near an old unused barn, and was exactly such as an old hen might make under similar conditions—a hole dug out of the edge of the stack. Another set was found in a field of growing grain, usually however, they select a dry sunny hillside where the trees are not too thick; and hide the nest under a bunch of ferns."

Mr. Pope writes: "About the middle or latter part of March the Sooty Grouse begins to 'hoot'. The nesting season extends from about April 20, in the valley until July in the foothills and mountains. The earliest date on which I have known of a full set being taken was April 18, containing five eggs. In the valley fresh eggs are rare after the first of May. The latest date on which I have known of fresh eggs being found in the valley was May 10".

Mr. Swallow writes: "A number that I have examined only had 18 tail feathers, while they are credited with 20".

"Mr. Hadley writes: "The eggs are creamy buff, speckled with reddish brown. The markings are mostly at the large end, but one set of six had a wreath around the smaller end. About 24 days are required for hatching, the female doing the incubating. As soon as the young are hatched they leave the nest with the old birds. While young they live almost entirely on insects and larvæ. When older they are taken by the old birds to the grain fields * * *

"I have known of several cases where Denny Pheasants and Sooty Grouse layed in the same nest and the grouse was the one that did the hatching. The reason they are becoming so scarce in the valley, is undoubtedly because the timber is being cut at such a rapid rate, and they are never satisfied unless they have a grove of fir timber for their home, nor are two females satisfied to nest near each other".

GUY STRYKER.

NESTING OF THE RED-BREASTED NUTHATCH.

March 24 while working near a piece of timber I heard a tapping much like a woodpecker's and upon investigation, found it to be a Red-breasted Nuthatch (*Sitta canadensis*). After watching it for some time I decided that it was going to nest there. I found several holes but only one looked like it was being prepared for nesting. It was about 9½ feet from the ground in an old snag about 12 feet high.

April 24 thinking from their actions that the nest was about completed I climbed up to it but could not see anything, because the nest was so near under the hole. The hole was about one inch by one one quarter inches and was about six inches above the nest. Around the hole was a coat of pitch, probably put there by the birds for protection.

As I could not see the eggs I made an opening and peeped in. Four beautiful eggs! As this seemed a small set I fastened up the opening I had made and hid behind a tree to watch the birds. What do you suppose they did? As soon as they found that no damage was done they went to work carrying more pitch and daubing it around the entrance.

On the 27th, I returned, and finding only four eggs I took them. They were almost fresh. They looked much like the eggs of the Chickadee—ground color white, (pinkish-white before blown) spotted uniformly with reddish-brown. On three eggs the spots are rather large; on the other they are very small.

The nest was originally rather large for the size of the bird, but owing to the falling of some rotten wood, it was only about one and one half by two and one quarter inches in size.

This is my first record of the nesting of the Red-breasted Nuthatch. I believe it is a rare summer resident although I have heard of their nests being taken. I have sometimes seen them in large flocks in the fall and winter. They are usually in company with the Oregon Chickadee.

HERVEY M. HOSKINS.

Newberg, Or.

"BIRDS AND POETS."

John Burroughs writes, in his book entitled "Birds and Poets". "Is not the bird the original type and teacher of the poet, and do we not demand of the human lark or thrush that he 'shake out his carols' in the same free and spontaneous manner as his winged prototype?"

I clip from THE INTERIOR, of Chicago the following pleasant item in regard to the ornithology and the poetic possibilities of Oregon.

"It seems that one of the standing grievances of the poets in regard to America, namely that it has no skylarks, is in a fair way to be remedied. Old World songsters, such as thrushes, skylarks, nightingales, finches, and starlings have been domesticated in Oregon, and are now also to be found in the neighboring states. Oregon has long been known for its red-cheeked girls, and with the fields and woods vocal with skylarks and nightingales, we may look for the American Shelly and Keats of the future to the region whose poetic possibilities Bryant was the first to hint at in his lines about the woods

Where rolls the Oregon and hears
no sound
Save his own dashings."

MERIDEN S. HULL.

Tacoma, Wash., May 27th, '96.

MELANISM IN EGGS OF THE HOODED MERGANSER.

At one time the Hooded Merganser was common on the Cedar river, Iowa. In looking over my old notes I find that in 1868 I collected 40 eggs of this bird. I believe it is well known that the Wood Duck often drives the Merganser from her nest, and in one nest I found 30 eggs of Wood Duck and five eggs of Merganser. The hollow in the tree in which the nest was placed, was not very large and the eggs were several layers deep.

The eggs of the Hooded Merganser are clear white, the shell thick and hard, but the most singular set that I ever saw, were eggs of this species. The nest contained ten eggs; the first egg was perfectly black, the second a little lighter, until I think the fifth egg was nearly white. This is the only duck that I ever saw carry anything in its bill, I once saw a duck of this species fly away with a small fish.

GEO. D. PECK.

PETROGLYPHS IN PATTON'S VALLEY.

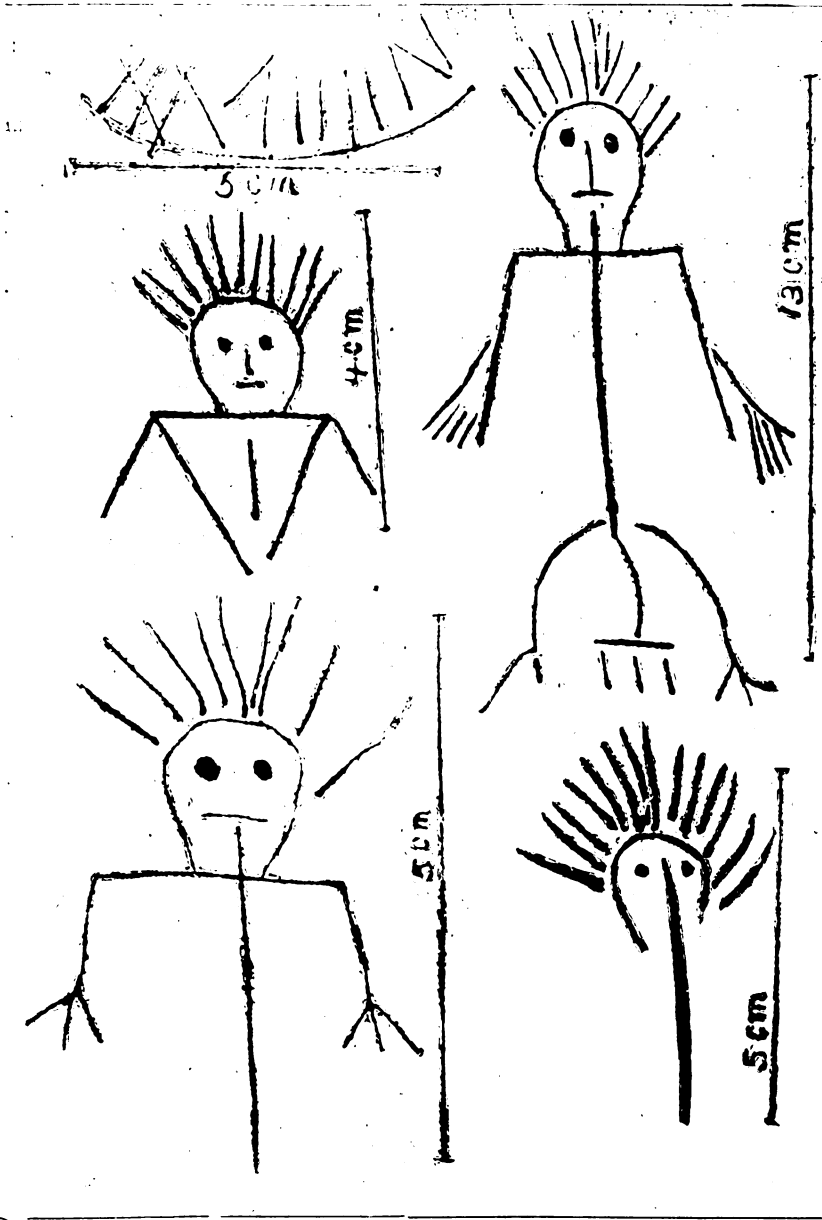
In a previous issue of this journal there occurred a review of the work of the U. S. Bureau of Ethnology* in regard to the Petroglyphs in sandstone rocks in Patton's Valley, about two miles from the village of Gaston.

The cuts accompanying this note are from sketches of the aforesaid Petroglyphs. These are associated with numerous other "petroglyphs" of a decidedly more modern character. Even these pictures here reproduced are the object of considerable skepticism of the part of many who have seen them. However, there is some reason to think there are aboriginal in origin, and in order to invite criticism the writer has taken the liberty of submitting them for publication.

FRANCIS E. LLOYD.

Forest Grove, Or. Pacific University.

* "Tenth Annual Report U. S. Bureau of Ethnology."



PETROGLYPHS IN PATTON'S VALLEY.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

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A. B. AVERILL, PORTLAND, ORE.
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THE OREGON NATURALIST.

146 ½ SIXTH ST. Portland, Oregon.

JUNE, 1896.

N. O. A. work for July will be Lewis' Woodpecker and Pileated Woodpecker.

Special features for July number.

"Mexican Hieroglyphs." Three pages illustrating some of the pictures observed by Prof. Lloyd, when in Chihuahua, Mexico.

"A Birth and a Tragedy." by Angus Gaines. Of the many excellent contributions from the pen of Mr. Gaines, this will undoubtedly be pronounced, one of his best.

"Birds of Kadiak Island" begun in April, will be continued. These notes were

compiled during a residence of several years in Alaska, by Bernard J. Bretherton. A true lover and student of birds and a close and accurate observer.

Continuation of "Some North Carolina Minerals" by E. H. Harn: Each article in this series of papers will be complete in itself. The authors extensive field work together with his familiarity with the subject and the science, make these articles of especial interest to collectors of minerals.

Received—"BASKETRY OF THE COAST AND ISLANDS OF THE PACIFIC, ETC.

Exhibited April, 1896, at the Portland Library." 31 pp. Price 25cts. For sale by the J. K. Gill Company, or D. M. Averill & Co, Portland, Or.

This pamphlet opens with an interesting article "Ancient Art and Custom," by Col. James Jackson, U. S. A. followed by several valuable contributions to the Basketry of the Pacific Coast and a neatly arranged list of exhibits and exhibitors.

Photographs of the Basketry lately exhibited at the Portland Library can be had of Miss Myrick, 595 Johnson Street, Portland, Or. These pictures, five in number, one being Klickitats exclusively, are 6 x 8 in size. Price 70 cents each.

ALBINO EGGS.—While plowing in a stubble-field, April 20, 1895, I found a western meadowlark's nest with four eggs, two of which were perfectly white and measured 1.18 x .83 and 1.15 x .82 the other two were lighter than the average egg of this bird; one marked with fine spots of purplish and reddish-brown, the other marked the same but had four blotches of reddish-brown from ¼ to ½ inches across; these two eggs measured 1.19 x .84 and 1.23 x .84. Incubation was commenced in all four eggs. Bird seen on the nest.

Ellis F. Hadley, Dayton, Oregon.

THE NORTHWESTERN ORNITHOLOGICAL ASSOCIATION.

Organized Dec. 28th, 1894, Object—To advance the science of Ornithology in the Northwest. President; William L. Finley, 287 4th, St., Portland, Or., First vice-pres. Ellis F. Hadley, Dayton, Or. Second vice-pres. Guy Stryker, Milwaukie, Or. Sec. Arthur L. Pope, McMinnville, Or. Treas. Dorsie C. Bard, Portland, Or.

Any person interested in Ornithology, residing in the Northwest, may become an active member.

Any person interested in Ornithology may become an associate member.

The membership fee shall be fifty cents; this shall cover all dues to the first of January, after initiation.

The OREGON NATURALIST, shall be sent free to all members.

Applications for membership should be sent to the Secretary.

WILLAMETTE VALLEY CHAUTAUQUA ASSOCIATION.

The Third Annual Assembly of the Willamette Valley Chautauqua to be held at Gladstone Park, Oregon City, July 7-17, 1896, promises to open under the most brilliant auspices. By combining with the other Coast assemblies the very best talent has been secured at reasonable figures. One thousand dollars has been expended on the platform alone, guaranteeing a speaker of national celebrity each day of the session. The list includes Dr. Carlos Martyn, of Chicago; Frank Lincoln, of New York City, Rev. Anna Shaw, of Philadelphia, Susan B. Anthony, Mortimer Whitehead, of New Jersey; Mrs. Marion B. Baxter, Edwards Davis, of Oakland, Elbert R. Dille, of San Francisco; Selah Brown, of Los Angeles, Alice Hamill-Handcock, of Chicago, and Ella Higginson, the poet, of New Whatcom, Washington. The best talent possible for each department of the

Chautauqua schools has been secured. The State Pioneer Association and Portland Historical Society are planning for headquarters that will especially attract students of the early Oregon era with its relics and romances; the State Horticultural Society is arranging for headquarters, with many admirable features; the State Grange will have a Grange Day, Wednesday, July 8, on which occasion the assembly will be addressed by one of their greatest speakers, Mortimer Whitehead of New Jersey, the various colleges and universities are arranging for headquarters on a more elaborate scale than ever before. The State Agricultural College is arranging for a Farmers' Institute to be held each day from 9:00 to 11:00 A. M. at their headquarters. Many other departments are under consideration and will be announced later.

April 6, '96, I found a nest of western meadowlark containing young three or four days old. From this it seems that they must have commenced nesting near the first of March. I also found a nest April 12 containing three eggs which began hatching the next day. These are my earliest records of the nesting of *S. m. neglecta*.

HERVEY M. HOSKINS.

Newberg, Ore.

THE OREGON SUMMER SCHOOL will be held this summer for one month — July 21 - August 18 — on its grounds at Gearhart Park.

Teachers Review Course, Normal Course, Physical Training, Art, Elocution, Vocal Music, Biology, Chemistry, Astronomy and English Literature.

Leading teachers in the state.

Tuition for session, all courses, \$5.00.

For further particulars address,

C. H. Chapman, President,

Eugene, Oregon.

May 17, flocks of 100 or more evening grosbeaks were observed in the city of Portland.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR.

CHAT.

Are you fully prepared for the collecting season? What have you taken thus far? If you have any thing out of the general "run of things" or have learned anything that you think will be of value to brother ornithologists, write them up and send them on. Especially notes on migrations; first records, etc

The Oologists Association wants your observations this year, whether you are a member or not. Write President I. S. Trostler, Omaha, Nebraska., or the Eastern Editor, for full particulars.

Watch our marine articles this summer, Some on methods, some on descriptions, habits, etc, but all interesting.

The editor of this department will carefully review any publication, monograph etc. mailed him for that purpose, and reviews of such may be looked for in these columns monthly.

COLLECTORS DIFFICULTIES AND
HOW TO OVERCOME THEM.

BY MERGANSER.

(Continued from Page 76.)

You will find however that simply keeping quiet will not always bring the birds about you. A very excellent device is to apply the partially opened lips to the back of the wrist and simulate the act of kissing. This makes a sound very similar to that produced by a young bird in pain, or in the hands of a captor, and will soon draw to you those birds which are within hearing distance. "That is all right for small birds," I hear some one remark, "But how about large one?" "Of course I can not give directions as to how you shall shoot a

crow but will say "What you can't shoot, trap." A small steel trap placed upon the top of a post in those localities where crows or hawks are abundant, will generally be rewarded with good results. The smallest steel trap which you can procure will give the best results as the heavier and more powerful ones frequently breaks the leg bones. With the smaller traps, which are strong enough for anything in the owl, hawk, or crow line, this is avoided.

Now you frequently are at a loss to know how to load your shells properly in order to do the best work. Don't put in too many shot. It diminishes the force of discharge and thus detracts from your chances of killing. Every unnecessary shot is one against you. For the largest land bird I would never think of using over one and one half ounces of shot, with three drachms of powder. For warblers and birds to the size of a robin I use about one half an ounce of "dust"—no twelve shot—and one drachm of powder. Following this gradation, you will get a very fair load, corresponding to the specimen you wish to take. Of course you will often be compelled to shoot small shot at big birds, but I do not believe you will ever be compelled to shoot big shot at small birds, if you carry a proper supply of cartridges with you. I remember an instance of this kind, when I secured a most perfect specimen of *Bubo virginianus* with a charge of "dust". I was sauntering along with my eyes on the tree tops and listening to the angry "cawings" of some crows in a neighboring field, when looking up I saw at a distance a good sized specimen of *Circus hudsonius* flying low over the fields. The crows soon saw him and made an angry rush at him, driving him within easy gun shot of where I stood. I discharged the right hand barrel—I always carry my heavy charge in the right hand barrel—and missed him entirely. At the moment of pressing the trigger I was conscious of a whirr of broad wings, and, beating the underbrush in frantic efforts to disentangle himself, was a large Great Horned Owl. No time to load again. I took a step or two nearer, bringing

me within ten paces of him and just as he cleared himself from the bushes, discharged about a half an ounce of dust squarely at his breast. It placed him upon his back, but by no means daunted him, for "right royally" did he defend himself with beak and talons till I was forced to end the matter with a second charge of "dust" from a slightly greater distance.

So it appears that one can scarcely be sure what he will secure or when he will meet it, and to provide for such surprises I use a fairly large charge of "eights" in the right hand barrel and a light charge of dust in the left. Of course if you are "stalking" any particular game you should load for that alone and leave any unsuspected occurrence entirely out of consideration.

Next month we will discuss some "difficulties" occurring after the specimen has been shot.

PRINCIPLES OF CLASSIFICATION.

C. C. PURDUM M.D.

In the last paper we considered briefly the reasons for classifying birds according to "characters," and decided that we should not be content with the mere external examination, but that to make our system complete, we should consider also internal "characters" and varieties of structure.

Now a "character" in ornithological, and indeed in entire zoological meaning and application, is any point of structure which can be seen, described, and used, for the purpose of enabling us to distinguish one animal from another. Thus, differing conditions of sternum, palate; larynx, etc. are made use of in our efforts to group together those forms which most nearly correspond. But here great difficulty may also be experienced: for instance; a bird with a known oscine larynx, but unknown as to its feet and wings, it would be reasonable to suppose that these last when

"discovered" would correspond, or present the character, which had been observed to occur in like cases. But the first bird examined, for instance a lark, (*Alaudidæ*) might, and indeed would, show such a deduction to be clearly and completely wrong: For although the lark has an elaborate singing apparatus, and distinctly characteristic larynx, still it presents a tarsus far differently constituted than we would expect. Instances like these overthrow one of the most definite and precise axioms which we have attempted to lay down with regard to birds in general. But the failure not only teaches us how great is the modification of geologically recent birds from their primitive ancestry, but also gives us an insight to the various steps of such a modification and enables us to estimate with a tolerable degree of accuracy the length of time which has been required for that purpose. These failures in our attempts to make a few hard and fast rules to which we can pin our faith, are not (as has been said) a gauge of our ignorance. This would in truth be so could we have all the steps of the process before our eyes, for then we should be able to limit no groups, for all by insensible gradations would pass into one another and at last merge all but insensibly into a single or at most a few starting points or individual organized beings. It will thus be readily seen, even though the process is one which we can hardly demonstrate, by personal examination during one decade, that all of our present forms are inseparably linked, by actual lines of evolutionary processes, determined by external surrounding conditions or environment. Happily however for ourselves, (although the philosopher may deplore the implied ignorance) degrees of similarity and dissimilarity *do* exist, and which if correctly fathomed and sensibly compiled, permit us to separate groups with ease and correctness, and to build up a classification which is alive to and states these various gradations and works them out thoroughly and completely upon the principles of Evolution.

(To be continued)

SOME NORTH CAROLINA MINERALS.

In presenting these sketches, of some North Carolina minerals, necessarily crude and imperfect, taken for the most part from notes written in the field, it is not my intention to enter into minute scientific technicalities and details as it is presumed that all are familiar with them in some form or other or at least theoretically, but rather to touch on such points as quantity, quality, modifications, mode of occurrence, localities and such other matters as it is hoped will be of interest to the general collector.

Before proceeding I wish to disabuse the reader of two ideas that seem to have taken a firm hold on the popular fancy, viz: that everything found here is abundant and of fine quality.

There is truly an abundance of material to select from at every turn but the destructive agencies of heat, cold, sun and water, working through untold ages, slowly disintegrating all, has ruined the fine crystal as well as the shapeless granite. So truly is this the case in very many instances that a really fine specimen for cabinet or for gem purposes is the exception rather than the rule.

The list of species that are most sought after by collectors is not confined to any one locality or county but distributed over the entire state, no single locality furnishing a large proportion.

I will say further that it is not my intention to write a history of the minerals or mineral localities of North Carolina, but to speak in as plain a manner as possible of only such species as will interest the average collector and shall observe no regular sequence in their order of presentation.

Thus prefaced I will take from the fact of its being the most abundant and highly developed the quartz group.

QUARTZ.

The quartzes of this state have been handled in a small way by a few northern dealers for several years. As long ago as 1868 material was collected in this section and in Burke Co.

and offered for sale. No mining was done and only surface rocks were collected. But the great wealth of material from a scientific and commercial standpoint has been known and studied but for a short time.

It may be said that the introduction to the general collector dates from about the beginning of the eighties. This honor I believe should belong to Mr. Stephenson of Statesville, N. C. and Mr. Hidden of N. J. Most of their material came from Alexander county. Several varieties from that county are altogether distinct from any found elsewhere in the state. All come from the vicinity of Hiddenite. The finest forms and those most sought after by collectors are regular crystals, locally known as "gun barrels" from the size of a lead pencil in thickness up to forty or more pounds. The faces on many of the larger ones are just as completely filled out, as perfect in color and finish as the smaller ones, though frequently the centers are clouded and milky.

The color of a fine specimen is dark, a deep wine-color and singularly clear.

A peculiarity, not noticed in specimens from other places and giving much interest to the student is a system of etching (lacking a better word) deeply cutting the angles of the prisms. Other forms noticed here are flat crystals and crystals in almost endless variety of contortion, giving the impression at a glance that they are alterations from some oblique mineral. The quartzes of this section contain a great deal of some kind of gas for when struck a sharp blow with a hammer they break with a sharp noise like the crack of a pistol.

The topography of the county differs but little if any from the rest of the quartz sections of the state. Mostly low rolling hills growing bolder as you approach the foot-hills of the South Mountains on the west. The rocks are metamorphic, gneissoid and granitic with an abundance of the various schists. But as fine as are the quartzes of Alexander county their value has been totally eclipsed by those of the so called "Lincoln county" belt.

This section, which does not, however, lie in

Livcoln county alone but in Catawba county as well, has produced some of the finest and rarest quartz on record. Its wealth in this line is little known as yet.

It will be years and after the expenditure of a great deal of money, before anything like a systematic collection of these quartzes can be gathered together. A collector working every day for a year could make but an indifferent collection of them. I believe that every known variety of crystalized quartz will ultimately be found here. The belt is not very extensive, only a few square miles.

To the east the rocks change and the quartz loses its crystalline form. To the south and west long stretches of territory intervene with no quartz worth the name.

The forms most commonly met with are the crystals, in all sizes and twisted into every conceivable shape, with cavities filled with foreign matter as clay, ochre, wad, mica, chlorite, kaolin, water etc. and at the same time presenting modifications of the greatest interest to the scientist. The so-called "basal-plane" is found more plentiful here than any where else and highly developed.

What seems like a very complex system of etching is common in places, the causes of which seems to baffle the best judgment to account for. Dana seems to think one series at least (the fine striæ running across the prism faces) is produced by an oscillatory movement, an indecision so to speak, on the part of the matter as to whether a single or a twin crystal should be produced. This may be true but it fails to account for many strange things seen in some crystals. The erosive power of heated mineral waters has been very active here and has had much to do in producing these odd forms.

One true "twin of opposite relation" at least was found here. Many specimens found here are very large and very beautiful. The colors are clear, smoked and purple in a profusion of tints. The great drain on the locality for the past year is diminishing the supply very perceptibly. They are dug out of old rotten veins

with no trace of a rock wall other than a yellow earthy matter showing where the old wall has utterly changed. Very few minerals are found in association. Always mica, sometimes tourmaline, rutile, crystals of magnetite and hematite, zircon, monazite, and xenotime. One small lot of crystals had small crystals of tourmaline netted all over the surface. Specimens of this kind are rarities.

Fine specimens have been found in other counties but sparingly, Henderson, Macon, Yancey, Mitchell, Cleveland, Burke, Gaston, Polk, and Transylvania are among them. Some few fine specimens enclosing chlorite to such an extent as to color the stone have been found in Guilford county. Tabular crystals in perfection are found in Mitchell county.

Chrysoptase of a fair quality is found near Mooresboro, in Cleveland county.

The color is blue-green and translucent. No work has been done. The mineral is found in mica schist enclosed in chalk like boulders.

Clear wedge-shaped crystals enclosing silvery mica are found sparingly in places in Cleveland county, near Toluca. Amethyst and rutilated quartz will be treated under separate heads. Agate, opal, chalcedony, jasper, and bloodstone have been found but I cannot speak of them personally. E. H. HARN,
Henry, N. C.

AN INDIAN MOUND.

On April 14, my friend Gilman Winthrop, and myself, left town for a snipe hunt. We went to a very large lake, about three miles from town, known as Lake Jackson. After shooting a few snipe, we set out for this Indian Mound, of which I had often heard, but never seen. We soon reached the place and I was surprised to see such an immense piece of work. The mound is about sixty feet high and perfectly flat on top. The sides are almost perpendicular, and to reach the top, it is necessary to use the trees growing on the sides. On the flat top grow many varieties of trees, some reaching the height of about forty feet. On the north side there is a thick growth of underbrush and vines, so thick that to make your

way through, it is necessary to crawl. On this side you get a fair view of Lake Jackson in three directions north, east and south. The lake curves around this mound and then spreads out into a beautiful sheet of water.

When we saw this mound it occurred to us that may be a Black Vulture was nesting there, so when we reached the top we began to look for the most likely place for a nest,

On the north side just as we began our descent, a Black Vulture hopped upon a fallen China tree, and of course the natural deduction was that two eggs were somewhere near, and it was but a few seconds before we had the eggs, two in number in our possession.

It is unnecessary to speak of our delight. The eggs, partly incubated, lay on the bare ground, under a fallen China-tree, which had two large limbs projecting in different directions parallel with the ground; here the ground took a more gentle slope and was not as steep as elsewhere.

The eggs measuring 3.07 x 2.04 and 3.27 x 2.00 are in Gilman's cabinet, and in future years will remind us of the mound with its beautiful surroundings.

In size the top of this mound would about be large enough to build an ordinary dwelling on.

R. W. WILLIAMS JR.

Tallahassee, Fla.

HAWAIIAN STAMPS.

Honolulu, H. I. May 22—The Finance Committee, to whom was referred Joint Resolution No. 14, relating to the sale of postage stamps, postal cards and envelopes, recommended the following amended resolution be adopted.

"Be it resolved by the Senate and House of Representatives that on and after November 1, 1896, the sale of postage stamps, postal cards, and stamped envelopes issued previous to the present issue, shall cease at the postoffice, after which date all, if any, that may remain will be destroyed, and the President shall appoint a committee of three disinterested persons who shall serve with out pay, to act with the Mini-

ster of Finance and Postmaster-General, for the purpose of checking off all remaining stock on that date and see that the part of this resolution relating to the destroying of same is strictly carried out."

The following figures were given of stamps in the possession of the Government.

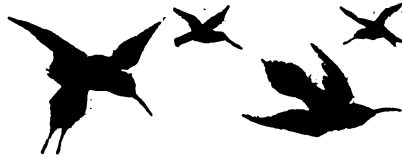
Surcharged postage stamps and envelopes on hand. Packages contain 250 sheets to a package and 50 stamps to a sheet.

Thirty-eight packages 2 cent postage stamps, \$9,500. Twenty-five packages 5 cent postage stamps, \$15,625. Seven packages 10 cent postage stamps, \$8,750. Two thousand one hundred and thirty-five sheets 13 cent postage stamps, \$12,810. Two thousand and seventy four sheets 18 cent postage stamps, \$18,673.20. Five hundred and five sheets 50 cent postage stamps, \$12,625. Eight hundred and seventy five sheets \$1 postage stamps, \$43,750. Twelve thousand 5 cent envelopes, \$600. Ten thousand 10 cent envelopes, \$1,050. Total, \$123,383.20.

Report comes from Maine that the two species of grouse, capercaillie and black game, imported from Sweden and on March 29, 1896, set at liberty in the woods of New Sweden, Aroostook county, Maine, are alive and seemingly doing well. Four capercaillie and seven black game were liberated and they are carefully guarded that no harm befall them, for they are a pleasant reminder of the old home to the majority of the inhabitant of New Sweden.

Mr. E. C. Swigert of Gordon, Neb. writes, "Please make a statement in your paper that on account of business interests in Iowa requiring personal attendance, I am out of the relic business, but as soon as I return will make an announcement through this paper."

Next month watch for "Habits of the Chipping Sparrow" by C. O. Ormsbee of Montpelier, Vt. these articles on bird life are so well known to the readers of ornithological literature.



THE OREGON NATURALIST.

VOL. III.

PORTLAND, OREGON, JULY, 1896.

No. 7

A BIRTH AND A TRAGEDY.

The water flowed in fitful currents back and forth across the microscope slide, flakes of dirt rose like black islands in the stream, the light reflected from the concave mirror gave the liquid an amber tinge, and the animal which rocked listlessly in the channel seemed basking in direct sunlight.

It was one of the Foraminifera, creatures low in the scale and scarcely distinguishable from plants, but strong through numbers, found in all waters, except those of the frigid zones, and playing an important part in the economy of nature.

They are found in endless variety and with incredible diversity of shapes. The specimen I was watching, known as the monothalamous *Lagena* was shaped much like a wine bottle except near the larger end there was a compressed ring dividing the animal into two unequal parts. The testaceous Foraminifera have no shells, but surround themselves with tests built up of particles of sand and similar substances from the bottom where they live, taking, on a small scale, the appearance of the Caddice worm in its portable hut. Not so the *Lagena*, it had a true shell formed of carbonate of lime drawn by its tissues from the water, and it was marvelous to find that so lowly an animal should have its shell marked with such an array of delicate longitudinal bars and

flutings.

As I watched the living speck of jelly in its half transparent shell of intricate lacework its organization appeared so simple that it seemed wonderful that it could perform any of the functions of life. Yet it was doing more than that, it was providing for the continuation of its species.

The constriction near the end grew deeper and deeper until the mass divided at the compressed line and there were two animals where there had been but one, each pursuing a separate existence and capable of multiplying itself indefinitely.

As the water on the slide evaporated I would pour on a fresh drop and allow it to flow down beneath the cover glass. While watching the two Foraminifera, parent and offspring, rocking in this microscopic tide a new actor appeared upon the scene. From the outer darkness a writhing transparent arm was thrust into the lighted circle. A yellowish current seemed pouring into this, it grew larger and drew itself forward until the whole amorphous animal had flowed into sight, an *Amœba*. Again a slender portion of the body mass was advanced like an arm and again the creature flowed into the arm. Reaching forward once more it touched some obstruction, the "arm," *pseudopodia*, was at once withdrawn, another was put out on a different side and the *Amœba* changed its course.

It was a bundle of paradoxes. A tiny

speck of transparent jelly, without vital organs yet alive, without limbs, cilia or any organs of locomotion yet moving against the current, without nerves yet feeling its way, without mouth or stomach yet seeking food.

Changing its form every instant, now wormlike, now spherical and now, as if uncertain which way to move, putting out pseudopodia on different sides, then flowing out in one of those protuberances, it moved across the field.

At length in its erratic wanderings it approached the two Foraminifera and touched the smaller one. By what sense it perceived the fact I cannot tell but the Amœba knew its food at once and assailed its hapless victim without delay. Casting one process around one end of the shell and a second around the other it flowed over its prey, the edges of the extended mass coalesced and the Foraminifera was engulfed, swallowed.

Under the action of the structureless but chemically active jelly the body of the victim grew fainter and fainter in its outlines and then disappeared entirely, absorbed by its captor. For a long time the gorged Amœba lay still, enjoying its feast, then it put forth a process, poured itself into that and gradually flowed away, leaving behind a beautifully wrought, transparent shell.

I had seen a living creature ushered into the world, enjoy its brief span of life and become the prey of a ravenous animal and now its dry bones marked the scene of the birth and the tragedy—but all this was under a powerful microscope.

ANGUS GAINES,

Vincennes, Ind.

AMETHYST.

The supply of this beautiful stone from North Carolina of quality sufficiently deep and clear for gem purposes has been limit-

ed. I was shown some specimens recently secured in Macon county that are both deep and clear but of the exact locality and the amount I can say nothing

In a line running through nearly all the eastern part of Lincoln county and the southern part of Iredell county, amethyst has been found for years. These localities have produced specimens that are magnificent but little of any value for the lapidist. They are found tolerably abundant in beds in a whitish gravel all through the region mentioned. Groups of 40 to 60 pounds are occasionally taken out of a pale purple, pink and lilac tint. These like the clear crystals found twenty miles further west contain inclusions of water and other substances adding greatly to their attractiveness.

Another locality in the same county near Henry P. O. has furnished some gems of a highly modified character in fine tints. Fine examples of the "scepter," three-quarters to one inch over the prism and making nearly a perfect square were found here. The deposits are thought to be exhausted.

In several localities throughout this county elegant crystals have been mined containing water bubbles. The color in nearly all was deep but not evenly distributed. The largest about two inches across. Mitchell, Yancey, McDowell, Madison, Henderson, Alexander, Gaston and Catawba counties contain them in greater or less quantity and as work goes on some fine stones may be looked for. Some fine groups of small crystals in rosettes and radiating lumps of a clear lilac tint have lately been found in Catawba county. The locality is one mile north of Henry postoffice.

An interesting vein about two miles from the same place is on the farm of David McNealey. The amethyst here is very deep, and clear and filled with countless crystals of fine brown rutile and blood-red scales of hematite. It occurs

here in groups adhering to slabs of smoked massive quartz, intimately associated with fine mica crystals and crystals of brilliant hematite of excellent quality.

It is a matter of regret that the crystals are all small few if any will cut gems of over two carats in size.

Henry, N. C.

E. H. HARN,

SEA URCHINS

Probably there are no animals of our marine waters less understood by the general public than the common star fishes, or five fingers as some call them, and the sea urchins of our coasts. It is of the latter especially this article is written. With the exception of those living on the sea coast, and those, who during the summer frequent the shores and are interested in natural history the public in the interior have little knowledge of them. To the loiterer along the beach it is not an unusual sight to see a number of these queer animals thrown upon the beach by the receding tidal waves. This is especially true of the common star fishes. Those studiously inclined, will take advantage of this by securing several for examination and study.

Scientists have placed the sea urchins in the sub-kingdom of Radiates. Star fishes are also included in this sub-kingdom and all whose bodies internally and externally are radiate in arrangement, that is whose parts are similiar around a vertical axis. The urchin when first found in its natural state is covered with a thick growth of spines, completely concealing the beautiful skeleton or frame work underneath. There is only one opening into this skeleton, the mouth being located in the middle underneath. The bony jaws or "Aristotle's lantern" as it is commonly called is composed of five separate parts, armed at the points with sharp knife-like appendages. These jaws can be brought together at the point so that the five little knives can cut up

the food in suitable pieces for mastication. These five jaws work on hinges of a cartilaginous nature and can be worked separately or in unison at the will of the owner. Prof. Wood, who is an excellent authority on natural history tells us that the skeleton or shell is composed of a large number of pieces or plates whose juncture can only be seen by examining the shell from the interior. By holding one of the cleaned shells so the light can penetrate the interior through the aperture the plates can plainly be seen.

Externally the shell presents an unbroken surface, with the exception of the protuberances where spines were located. The urchins retain their original shape during growth and as the chalky matter composing the shell is added regularly to the edges of these plates, the globular shape is not lost by the enlarging of the shell.

I have before me a specimen of *Strongylocentrotus franciscanus* from the Pacific coast, and whose beautiful symmetrical proportions are pleasing to all lovers, of Nature's beautiful works. This shell is rather warty in appearance nearly 13 inches in circumference at largest part of shell. The projections on the outer surface of the shell show where the spines were located. On this specimen I have counted 20 rows of large projections and 35 rows of smaller ones running from base to apex, all arranged with mathematical precision. Interspersed throughout these larger rows are many smaller ones. Between the rows of these projections thousands of small openings or pores can be noticed.

The spines are peculiar in structure and present some interesting details. Each spine is movable at the will of its owner, and moves on a ball and socket joint, the cavity at the end of the spine, fitting exactly the round projection on the shell. The spines are fastened to the ball by a thin tenacious membrane which allows them free movement. After death this membrane becomes dry and fragile and is easily broken and the spines drop off, hence the difficulty of amateurs in keeping urchins in

their natural state, that is with the spines on. This difficulty has been largely overcome in late years by our energetic dealers and collectors, so that now they can be secured in all their beauty of natural shape and colors.

The Field Columbian Museum of Chicago have an exceptionally fine collection of the Radiate family. It may not be generally known that in some localities the sea urchins are used as an article of food, especially in the South Sea islands. In the bay of Naples where many of the finest species are found, hundreds of people can be seen diving after urchins. They are especially valuable to the natives before they deposit their eggs, being as highly prized as the eggs of the herring and some other fishes. The urchins burrow in the sand until almost hidden only being located by a funnel shaped depression in the sand. This burrowing is accomplished by working the spines back and forth; being perfectly rigid. The natives locate the urchins by the depressions in the sand. Urchins are very plentiful in the waters of the Florida coral reefs; Wyville Thomson at one time securing several thousand at one dip of the seine.

The food of the urchin seems to consist of both animal and vegetable matter, as fragments of both kinds have been found in the digestive cavity. It has also been stated that fragments of shells have been found in them which would prove that they devoured the mollusks. One species commonly called the heart urchin is said to live below the sand and secures its food from the animal substances that mingle with it, on examination it was found that much of its digestive organs were filled with sand. I have several specimens of fossil sea urchin, from Texas, they resemble the species commonly called sea beaver.

In the Indian ocean several species of the urchins are armed with sharp spines which injure the feet of many of the native bathers, inflicting painful wounds. It has been claimed by some writers that the sea urchins are terrible foes to the smaller mollusks. Without doubt there is much yet to be learned regarding

the habits, and actions of these peculiar creatures.

The most prominent species on the Atlantic coast seems to be *Strongylocentrotus drobachiensis*, what a formidable name for this poor creature; is it any wonder that the common name sea urchin is more popular.

H. B. DERR.

Chicago, Ill.

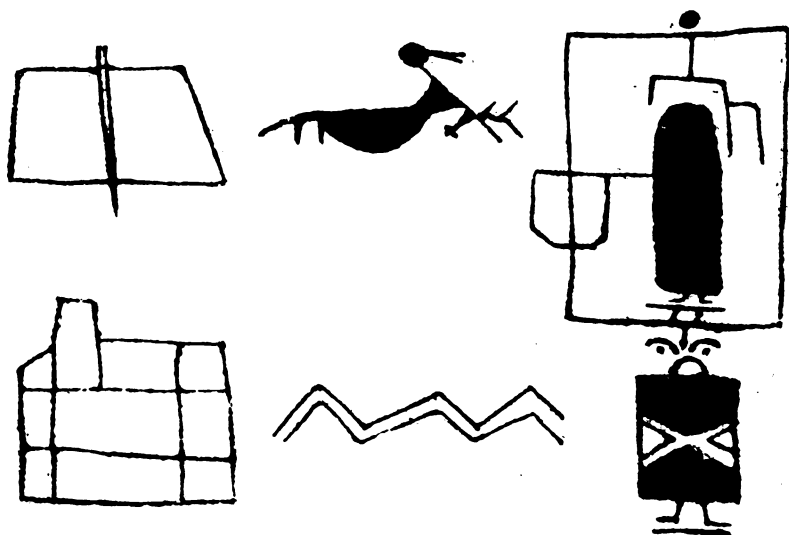
FLAMINGOES SEEN HERE.

THEIR APPEARANCE REVIVES AND CORROBORATES AN OLD INDIAN LEGEND.

Sunday morning as that dreamy haze known only to the waters of Puget Sound was being dissipated by the sun's rays, a few early sight-seers from abroad, while strolling about the ocean docks were treated to a most interesting and uncommon sight. It was no less than a flight of flamingoes, those timid and delicate birds from the bayous and morasses of the sunny climes far to the south of us.

Legends of the Siwash tell us that upon rare occasions a few birds of great beauty of plumage and form appear here, build their nests, rear their young, utter their plaintive cries, and in the early fall disappear towards the south. Their story is that the birds do not come again during the life of the Indian who saw them, and that when they do reappear it is only for one summer. And so it has been for countless ages, and the legend tells us it will be so for all time to come.

The description handed down from generation to generation tallies exactly with the flamingo, and so we must believe that those we saw are identical with the birds of the legend, and the harbingers of good times and prosperity, for, say the Indians, the visit of this bird means "plenty game, plenty fish and everything good."—*Tacoma Ledger*, June 24th. '96.



MEXICAN HIEROGLYPHS.

MEXICAN HIEROGLYPHS.

It seems to be desirable to put on record the pictures, seen and sketched by the writer, in certain cave dwellings in Chihuahua, Mexico. The pictures were drawn in black, red, and white, on the adobe walls of the rooms in one of the largest of the cave dwellings near a mormon settlement. The caves occurred in a conglomerate. On the floors were found corn-cobs of small size, fragments of pottery, and in one cave was unearthed a mummy of a man in sitting posture.

It seems fair to conclude that the artist or artists, authors of the pictures here reproduced, were more or less familiar with (1) Horses, (2) Roman Catholicism, (3) Soldierly, (4) Cattle, (5) Petticoated and corseted women, (6) Burros and the packing of the same.

To a practiced eye there may be still more significance, but I dare not venture into the higher speculations of

anthropology.

The drawings will speak for themselves.

FRANCIS E. LLOYD.

Pacific University,

Forest Grove, Or.

Mr. Guy Stryker writing from Eastern Oregon, says: It seems as if Malheur lake is the breeding place of all the water birds of Oregon; among others observed bitterns, avocets, snowy herons, etc. Killed my first antelope yesterday, also sage cocks in plenty.

June 7 I took a set of twelve Northwestern Flicker eggs; one of them was very small and had no yolk.—Ray Raley, Pendleton, Or.

Joseph Mailliard, of San Geronimo, Cal., has returned from a few weeks trip in Alaska, bringing back several additions in skins and eggs to his collection; one of them is sets of the fork-tailed petrel.

KADIAK ISLAND

A CONTRIBUTION TO THE AVIFAUNA
OF ALASKA.

(Continued from Page 79.)

Tringa couesi

ALEUTIAN SANDPIPER

Large flocks of these birds were seen during February 1893, but were not met with during other winters. They were met with on a low sand bar, after a protracted storm which had thrown up millions of sand fleas, upon which they were feeding so industriously as to be easily approached and to which feast they returned several times, even after their ranks had been thinned by raking charges of fine shot.

Tringa bairdii

BAIRD'S SANDPIPER.

One immature female obtained November 15, 1893. No others seen.

Totanus melanoleucus

GREATER YELLOW-LEGS.

This bird was found on the island from May to September and undoubtedly breeds there although no nests were found. Numerous specimens were taken, all being found either singly or in pairs and feeding on the rocks of the ocean beach on sand fleas and small marine worms found in the sea weed.

Heteractitis incanus

WANDERING TATTLER

Common throughout the summer months and undoubtedly breeds but no nests were found.

This species seemed to habitually frequent the sand or gravel beaches in preference to rocky localities, and had regular feeding grounds to which they resorted at certain stages of the tide, returning regularly each day at the same time. Their food consists largely of decapods together with small crabs.

marine worms and minute mollusks. As a general thing they were not shy and were easily approached.

Numenius hudsonicus

HUDSONIAN CURLEW.

Not very common but a few remain several weeks in the spring and fall but pass farther north to breed.

In the month of May they arrive going north generally in company with the Pacific golden plover. They remain probably a few days only, but specimens of this species may be met with throughout the month frequenting the bare spots on the uplands from which the snow has melted.

Charadrius dominicus fulvus

PACIFIC GOLDEN PLOVER.

Like the last this species only stops on the island a short period during migration. The earliest flock to arrive in the spring was noted April 28, but the main body did not arrive until the first week in May, by which time they were present in thousands, chiefly on the hills but a few on the beaches. By the sixteenth they had all left passing to the northwest.

In the fall migration, the first flock seen was on August 28 and from then until October 10, flocks continued to arrive and depart leaving in a southeast direction. During the fall migration they do not remain so long nor gather in such numbers as in the spring, which may be accounted for by two reasons: First, in coming north they must make a longer flight to reach the island than they do in going south and consequently would rest longer; secondly, as a general thing they arrive in the spring just as the winter's snow begins to leave and the country to the northwest of Kadiak is still frozen up, so that they have to wait until their breeding grounds on the mainland thaw out.

As far as known none breed on Kadiak Island.

Ægialitis mongola

MONGOLIAN PLOVER.

Two specimens obtained August 9, 1892. No others seen and nothing learnt of their habits.

Arenaria melanacephala

BLACK TURNSTONE.

A breeding resident frequenting rocky beaches, particularly on the outlying islands. No nests were obtained but specimens were obtained all through the summer months.

Haematopus bachmani

BLACK OYSTER CATCHER

Resident on the island throughout the year and undoubtedly breeds. Although the writer was very anxious to obtain an egg of this species he was unable to do so. An egg was brought by a native who represented it to be an egg of this bird; upon investigation it was found to be in an advanced stage of incubation and contained a well developed yow tern.

Lagopus lagopus

WILLOW PTARMIGAN

The willow ptarmigan or snow grouse as they are commonly called, are found in all parts of the island, but it is in winter when they gather in large bands that they are most noticable, particularly on account of the avifauna being so limited at that season of the year.

The habits of these birds, particularly their flight reminds the writer greatly of the prairie hen; they have the same habit of all not rising in a band, but always there are a few stragglers that get up after the first or second volley has been fired. In the winter their food consists of the shoots of the willow and the new leaves of the kinnikanic, but in summer they feed largely on berries and insects, chiefly the spider. They nest in the interior of the island and the eggs are laid in May or as late as the first part of June. They lay from ten to fourteen in number.

Lagopus rupestris

ROCK PTARMIGAN.

A few of these birds are found on the higher ranges of the island, but no new facts concerning them were learned.

Circus hudsonius

MARSH HAWK.

A summer resident breeding in suitable places in the island and feeding on *Arvicola* and *Spermophile*.

The nest being on the face of high bluffs are nearly always inaccessible.

Buteo swainsoni

SWAINSON'S HAWK

A very common summer resident and undoubtedly breeds although no nests were found.

Archibuteo laeopus sancti-johannis

AMERICAN ROUGH-LEGGED HAWK

Resident during the summer months, breeding in the interior.

Haliaeetus leucocephalus

BALD EAGLE

There are about a dozen pairs of these birds resident on the island but they are not nearly so common as on the mainland where they are in all probability more abundant than anywhere else on the American Continent.

Falco peregrinus anatum

DUCK HAWK.

A common resident throughout the year, nesting on high bluffs near to the ocean.

Falco sparverius

SPARROW HAWK.

A tolerably common summer resident

Pandion haliaetus carolinensis

AMERICAN OSPREY

One seen May 23, 1894.

Surnia ulula

HAWK OWL.

The light phase of the hawk owl was met with throughout the year and undoubtedly is a breeding resident though no nests were found. In summer their food consists of field mice (*Arvicola*) and in

winter small birds and ptarmigan. This owl's manner of hunting is to sit on the very top of a high tree and from there swoop down upon any moving object.

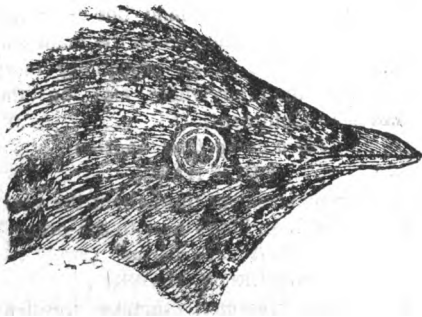
The writer is well aware that it has several times been stated that this owl does not kill the ptarmigan but only preys on wounded birds; yet I have actually seen one of these birds strike down a ptarmigan which to all appearances was in good health and most assuredly was in full flight at the time, and many were met with feeding on freshly killed birds.

BERNARD J. BRETHERTON.

N. O. A. WORK.

Owing to the absence of most of the members, during the summer, the monthly meetings will be postponed during July and August.

At the regular meeting in May the following article by Ellis F. Hadley of Dayton, Or., was read:



THE OREGON RUFFED GROUSE.

The Oregon ruffed grouse also called red ruffed grouse, timber pheasant, partridge and Oregon pheasant, was one of our commonest game birds along the streams, and in the thick timber of Western Oregon.

It is a very fine game bird and of fine flavor; sportsman have killed so many about here, that they are becoming scarce, some say that the Mongolian pheasants are driving them

away, by breaking their eggs and killing their young, but I have never seen anything to indicate this, but have found nests containing eggs of both birds, and the ruffed grouse was in possession of the nest each time.

The Oregon ruffed grouse is darker and has more of a red color, than the ruffed grouse of the East. In comparing it with the sooty grouse, I find, that it is a much smaller bird, brighter in color, and is generally found nearer water, and drums instead of hoots. It also differs from the sooty grouse in that it feeds, mostly on the ground the year round instead of going up into the big fir-trees to spend the winter months as the sooty grouse does.

They are generally found on low land, a river bottom or along some small creek, but in times of high water, they will go to higher ground. I have often seen them when the water is high, in some small tree or bush, when the water was several feet deep under them, and around them for half a mile. In a boat, at such times, one can row right under the bird, or within a few feet of it. A great many are killed along the river bottoms in this way by hunters.

About March first the males begin drumming. The sound is made by the bird, while on some old log, by striking the sides of its body with rapid strokes of its wings; the noise sounds like distant thunder. Sept. 4, 1895 while out hunting I heard and saw an Oregon ruffed grouse drumming.

In the fall the young are very tame, I have often seen them on top of houses and in grape vines in the yard.

Their food consists of insects, berries, grapes, wild crab-apples, wild rose-berries and mushrooms. I have often seen them feed on each of the above, have also killed them in the winter, when their crop contained nothing but hazel catkins.

Nesting time is April, May, and June, the nests are made on the ground, in a hollow made by the bird, by a bush, under a brush heap, fallen tree top or under a small pole;

have also found them in the grass in fence corners. The nest is constructed of dead leaves and grass with a few feathers of the bird. From six to thirteen eggs are laid, generally ten or eleven. April 27, 1895 I collected a set of ten fresh eggs, in color a creamy white, sparsely, spotted with redish-brown. They measured 1.62x1.19; 1.65x1.20; 1.63x1.18; 1.66x1.18; 1.65x1.19; 1.65x1.18; 1.68x1.21; 1.66x1.19; 1.67x1.20; and 1.63x1.18. April 27, 1895 I collected a set of eleven eggs, incubation begun, marked like above. May 3, 1895 I collected a set of eleven eggs, incubation about one half, also marked like first set. June 10, 1895 I collected a set of seven fresh eggs, which were unmarked, the ground color of this set was also much lighter. Of all the sets, which I have seen, this is the only one, in which the eggs were unmarked.

The young, when only a day or two old, at the call of danger from the mother bird, will run and hide under the grass, leaves or anything they can find close at hand. I have when going through the woods surprised an Oregon ruffed grouse and her young, whereupon she would give the alarm, spread her tail-feathers, ruffle the feathers of her body, especially on her neck, and come at me as if to fight. If I went toward her, she would go flopping off as if a wing or leg was broken, and by this time the young are hidden and it is almost impossible to find them. During this time, the old bird will stay close by giving the alarm call every little while, and the young will keep perfectly motionless and silent, some times for 25 or 30 minutes, they will then begin chipping, slip out from their hiding places, and hunt for their mother.

A few years ago I caught several young that were in the down, and thought, I would try to raise them. They were very gentle, when caught, and I put them with a gentle hen, in a wire netting corral, but for want of insect food, which at that time I did not know how to provide, they all died.

May 2, 1896, I collected a set of ten eggs, incubation about one half. May 2, 1896, I

collected a set of six fresh eggs and four Denny pheasant's eggs in the nest. May 6, 1896, I collected a set of six fresh eggs. May 7, 1896, I collected a set of eleven eggs incubation about one third. May 9, 1896, I collected a set of nine eggs incubation begun. All the above sets are marked like my first set in 1895.

Mr. G. D. Peck of Salem, Or. writes:

"I can see no difference in the habits of the ruffed grouse of the East and the Oregon ruffed grouse. In sparsely settled districts, they are very tame, but when alarmed take to the trees. They pass the night on the ground, drum at any time from October to July, and in Iowa I have heard them drumming in mid-winter, when the winter was very mild. I never saw two grouse on one drumming log, and I do not think they mate. They protect their young much better than the sooty grouse, but seem careless in selecting the nesting site. I have found nests in the woods in plain sight, the eggs not covered, and no grouse in sight. One nest found in Oregon in 1894, was in a dense swamp; it contained six eggs; May 11 I flushed a sooty grouse from a nest containing eight eggs of the sooty grouse and seven eggs of the ruffed grouse; it would be hard to say which had the best right to the nest, and almost in sight of this nest, on May 5, I found a nest with seven eggs of the sooty grouse and three eggs of the Denny pheasant.

The ruffed grouse is not very common in the vicinity of Salem, not as common as the sooty grouse."

WM. L. FINLEY.

THE IMPORTED AND ACCLIMATED GERMAN SONG BIRDS IN OREGON.

BY C. F. PFLUGER.

THE SISKIN, *Fringilla spinus*. (*Der Zeisig*.)

Of these useful song-birds, 40 pairs were introduced into Oregon in 1889, by the Society. The siskin is found throughout Europe, and

is very common in Germany, where he remains during the winter. It does not, however confine itself to one place, but flies about in search of food. This bird is $4\frac{3}{4}$ inches in length, of which the tail measures $1\frac{3}{4}$ inches. The beak is 4 lines in length, and contracted towards the point, which is very sharp. The tip is brown; the rest light gray, except in winter, when it becomes white. The shanks are 7 lines in height, and, with the claws, brown. The top of the head and throat are black; the neck, cheeks, and back, green; the latter speckled with black. The rump, as well as a stripe between the eyes, the under part of the neck, and the breast, are greenish yellow; the belly, vent and groin, whitish yellow; the two last being covered with black spots.

The pen feathers are black, bordering with yellowish green on the outer plume, and after the fourth, have a yellow spot near the root. The lesser wing coverts are green; the larger edged with yellow, which produces stripes of the same color. The tail is forked; yellow near the root, and the rest—with the whole of the two center feathers—black.

The plumage of the female is in general paler; the head and back are grayer, and are spotted with black; the throat and the sides are whitish; the breast and the neck white, marked with green and black; the feet grayish brown.

The male generally loses the black of the throat in the second year; and for the most part, the older he is, the greener, yellower, and therefore handsomer, he becomes.

In summer the siskin feeds on the seeds of the fir and pine and on leaf lice, it will effectually clear every tree, vine or shrub of this pest, not a leaf will escape its notice. In autumn, on the hop thistle and burdock; and in winter, on the alder. The siskin prefers to build its nest in forests of pine or fir, and places its nest on the highest bough of one of these trees, or sometimes on the branch of the alder. It is fastened to the branch with spider webs, coral moss, and threads from the cocoons of various insects, and is cleverly constructed

of these materials, woven together with small twigs, and lined with very fine roots. The female generally lays five or six eggs, of a grayish white, thickly spotted, especially at the large end, with purple brown. There are two broods in a year. The males increase in beauty until their fourth moulting.

The siskin is an attractive bird, in regard both to its plumage and its song. It imitates the song of other birds. It sings throughout the year, except during the moulting season; and by its continual twittering, invites all birds to sing. Its song is not unpleasant; it bears some resemblance to that of the canary, but it is less powerful—it is soft, sweet, and various.

March, September and October are their wandering months, and in their wanderings they make their appearance in flocks. It breeds freely with the canary, and the young bastard males will make excellent singers.

THE BULLFINCH *Pyrrhula vulgaris*,
(*Der Gimpel oder Dompfaff.*)

Of these handsome song-birds, 20 pairs were introduced into Oregon by the Society in 1889 and 1892.

This favorite bird is, like most of the family to which it belongs, somewhat thick in proportion to its length, which is $6\frac{3}{4}$ inches, of which the tail measures $2\frac{1}{4}$ inches. The beak is half an inch long, black, short, and thick; the iris is chestnut brown; the feet weak and black; the shanks 8 lines high. The top of the head, the circle round the beak, the chin, and upper part of the throat are a shining velvety black. The throat, back, and shoulders are a dark gray; the rump beautifully white; the breast and the upper part of the belly a beautiful crimson, which grows darker as the bird advances in age. The remaining portion of the lower part of the body is white.

The pen feathers are blackish, and darker in proportion as they are near the body; the hindmost being externally bordered with steel blue, and the last having the outer plume red. The larger wing coverts are a glittering black, tipped with reddish gray; the center, an ashen

gray, the lesser blackish gray edged with red, The tail is somewhat forked, and steel blue, shining with a black lustre.

The female may be distinguished from the male, by the fact she is smaller; that the red portions of her plumage are strongly tinged with gray; that the black is brownish gray; and the feet lighter in colour.

The bullfinch is a native of the old world. In Germany it is very common, and may be seen in pairs, in all woody districts. In winter it migrates in search of berries. It is an exceedingly affectionate bird; very averse, both when wild and confined, to being separated from his mate, and when with her continually caressing and calling to her. The bullfinch breeds twice a year; generally concealing its nest as much as possible in fir tree or hedges. The nest is badly built of twigs, and lined with moss. The female lays from 4 to 6 eggs, of a pale bluish green, with a circle of violet and brown spots as the large end. The young birds are hatched in a fortnight.

It feeds on the seeds of the pine, fir, ash, maple, beech, and all kinds of berries. It will also eat linseed, millet rape, nettle, and grass seed, and the worms and insects contained in the buds. Ornithologists contend that the whole of the buds which the bird destroys contain grubs, which are only eaten, the vegetable envelope being rejected, and there is no doubt that the buds of the cherry and other fruit trees which it destroys have a worm at the core, which would prevent the fulfillment of their promise to yield fruit in due season.

The bullfinch is a very docile bird; and although the natural song of both sexes is harsh, resembling the creaking of a door or wheelbarrow, they may be trained, as in Germany, to whistle many airs and songs in a soft, pure, flute-like tone, which is highly prized by amateurs. The bird is generally capable of retaining in its memory three different tunes.

Small double terminated quartz crystals, quartzoid form, are found in Crook county, Or. Only small crystals have been found, but search is being made for larger specimens.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

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JULY, 1896.

The present being an era of publications cheap in price, beginning with this number the subscription price to the Oregon Naturalist will be only 25 cts per year.

Only 25 cents for 12 numbers of the Oregon Naturalist, this extremely low price is made that all interested may become subscribers. If you have any friends interested in the natural sciences and who might become subscribers, sample copies will be sent them upon receipt of names and full address.

August number will contain "A New Industry" by Angus Gaines. "Hiddenite, Emerald and Beryl" by E. H. Harn. "Beach Collecting," illustrated, by F. P. Drowne. "The Flour Beetle," illustrated, by A. A. Andrews. "Mexican Hieroglyphs," part II, illustrated, by Prof. Lloyd. "Imported Song Birds in Oregon," by C. F. Pfluger.

The Stamp Collectors Hand Book and Directory of the State of Michigan, compiled by W. H. Kessler Jr. Detroit, Mich, has been received.

Curio Dealers should send to Mr. G. W. Tuttle, Pasadena, Cal., for his Price List of California Curiosities.

Mr. Arthur L. Pope is giving large discounts on the remainder of his collection to close out, write him at McMinnville, Or.

Mr. E. H. Harn of Henry, N. C. is offering splendid examples of green mica, crystalized, a recent find, and the price reasonable.

NEW PUBLICATIONS.

MISSOURI BOTANICAL GARDEN. SEVENTH ANNUAL REPORT. ST. LOUIS, MO. Published by the Board of Trustees. 1896 pp. 209 pl. 66 plus 6, cloth and gold. Contents—(1) Reports for the year 1895. (2) Scientific Papers: *a* Juglandaceae of the United States, By William Trelease. *b* A Study of the Agaves of the United States, By A. Isabel Mulford. *c*. The Ligulate Wolfias of the United States, By Charles Henry Thompson. (3) Anniversary Publications:—The Value of a Study of Botany, By Henry Wade Rogers. (4) Library Contributions: The Sturtevant Prelinnean Library.

Missouri Botanical Garden publications can

be purchased, at approximately the cost of publication, from Dr. A. E. Foote of Philadelphia, the Cambridge Botanical Supply Co. of Cambridge, Mass. W. Wesley & Son, of London, R. Friedlander & Sohn, of Berlin, or Dr. William Trelease, Director of the Garden, St. Louis, Mo.

MICHIGAN STATE AGRICULTURAL COLLEGE EXPERIMENT STATION, Bulletins 129, Fruits at South Haven, and 130, Fruits at the Agricultural College. Bulletin 131, Potatoes. Vegetable Tests. Bulletin 132, Some Injurious Insects.

The Bulletins of the Experiment Station are sent free to farmers and individuals interested in farming, in the State, as may request them. Applications should be made to the Secretary, Agricultural College, Michigan.

THE VARYING HARE OR WHITE RABBIT. *Lepus Americanus Virginianus*. By B. H. Warren, M. D. State Ornithologist, Harrisburg, Pa.

An excellent monograph on the life history, of the varying hare in Pennsylvania, two colored plates showing variations in winter and summer dress.

PENNSYLVANIA STATE, DEPARTMENT OF AGRICULTURE — DIVISION OF ECONOMIC ZOOLOGY, Bulletin No. 6. By B. H. Warren, M. D. State Zoologist, Harrisburg, Pa. May, 1896 pp. 128, ill. xi.

Chapter I treats of the methods of collecting, skinning, preserving and mounting birds as practiced in the field and laboratory.

Chapter II deals with matters of law with which collectors and hunters in Pennsylvania should be familiar.

Chapter III embraces the game and fish laws of the State.

Plates ix, - xi, made from photographs taken from specimens in the Author's collection are exceptionally fine.

GEORGE D. PECK recommends coloring immediately after mounting, or before the colors have faded, the parts of birds that require it.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR.

CHAT.

The Marine Biological Laboratory at Wood's Holl opened its eleventh consecutive session on the first of the month. The large and ever increasing number of students each year is a sufficient testimonial of the merits of the school. Under the competent management of Dr. C. O. Whitman, the work progresses with the best of results. Mr. Waldron, the collector for the institution promises us a complete description of buildings, methods of work and lectures, next month.

After this issue the office of Eastern Department will be located in Providence, R. I.

Anything out of the usual, in regard to nests and eggs will be thankfully received by the Oologists Association and incorporated in their report on old and peculiar nests and nesting. Address President I. S. Trostler, Omaha, Neb., or Eastern Editor.

A Massachusetts daily newspaper has had a lot to say about a new warbler which "one of its hustling reporters" saw in a local taxidermists shop. It calls the "new species" the *brimstone warbler*; Oh, the d——!

That human bodies are not to be thought of in certain places on the earth's circumference, upon the dates of August 8 and 9, seem a foregone conclusion. The total eclipse of the sun, visible in the northern part of Norway and Finland, Nova Zembla, and the northern part of Japan and Sandwich Islands, will for the time being at least, bring the importance of the heavenly bodies forcibly before the minds of the natives. Many expeditions have started and most of them are at their several stations, to watch and make known every gradation of the phenomena.

HABITS OF THE CHIPPING SPARROW.

BY C. O. ORMSBEE, MONTPELIER, VT.

Vermont, in common with the other New England states, and with New York, boasts of five species of sparrow, so closely resembling one another that the practiced eye of the expert is necessary in order to distinguish them by their general appearance. They are the song sparrow, the tree sparrow, the field sparrow, the swamp sparrow, and the chipping sparrow, respectively. In their food habits they resemble one another as closely as in their external appearances. With the exception of the swamp sparrow, which prefers a marshy or swampy locality, and one that is far removed from any human habitation, they closely resemble one another in their general habits. With the exception of the song sparrow, which has a musical, and a remarkably pleasing voice, they have so close a resemblance to one another in their vocal sounds, that I can seldom distinguish them by their notes.

In the location and construction of their nests, in the color and marking of their eggs, and in their general habits of nidification, they differ widely.

Perhaps the most interesting of all is the chipping sparrow, which on account of its domestic habits while nesting, has been named *fringilla socialis* and *spizella socialis*. They arrive in this locality early in April and sometimes as early as the middle of March. They come in flocks of about twenty and do not seem to be mated upon their arrival. They mate soon after, and then separate from the flock, which is soon dispersed; but it is not until the first of May that they begin to build. Their nests are flimsy affairs, composed of hay, and lined with long horse-hairs, from which circumstance they are often called "hair birds." The nests are always in trees, and generally in apple-trees, and from five to twenty feet from the ground. There is no attempt at concealment, and often the nest is by the side of, or above

a well-traveled path. They have been known to build within an arm's reach of an open window. The noise of passing vehicles appears to disturb them, and they seldom, if ever, build near a public highway.

The eggs are from three to five in number, and are blue with a wide ring of minute black spots encircling an open space at the larger end. Eighteen days are required for incubation, and during this time neither bird is ever out of sight of the nest. Often the parent will allow itself to be lifted from the nest rather than leave it. I think that both birds assist in the incubation, but as the sexes and individuals so closely resemble each other, I cannot be positive. Both birds assist in feeding the young. At first worms form the chief article of diet; but later, several species of insects are added to the bill of fare. They do considerable damage by preying upon the honey-bee. About the first of September they abandon this kind of food, and subsist upon the small seeds of various kinds of weeds. Grain, they never touch at this season. In the spring when the ground is covered with snow, and they are pressed with hunger, they will pick up a few kernels of wheat, but they do not seem to relish them. They are fond of bread-crumbs, and will hop to the threshold, and often inside the door-way in search of them.

I do not know that they accompany any other birds in their migrations. In fact there is little foundation for the statement that they do so. But they arrive about the same time as the robin, and, for a while they seem to associate intimately together. Also about the middle of September they begin to seek the society of the king-bird, and both species migrate about the middle of October. They do not associate with robins or migrate with them in the fall.

A New Deer.—A new species of deer has been sent with a small collection of mammals from Ecuador to the British Museum by H. M'S. consul at Quito. It is proposed to give it the name of *Padua Mephistophelis*.—*The Naturalist's Chronicle, Cambridge, Eng.*

A MOCKINGBIRD.

ARCHIE A. BELL.

Not imitator, but original,
 In all the gorgeous carvinal
 Of birds which come in Spring
 And make the woodlands ring
 With songs;
 'Tis yours, the note that sweet prolongs.
 We love to hear you in the trees
 Your whistle floats upon a breeze
 Which passing shadbush shrub of white
 With all their fragrance doth unite
 And pleasure gives our senses all.—
 It comes to us, a magic call.
 The earth enjoys your happy lay,
 And deep in woodlands far away
 The other members of your throng,
 Unte the strain and swell it long,
 They each would imitate your voice.
 And make their hearts as ours rejoice;
 They each would know the magic trill
 And each would catch your carol shrill.
 Imitators, all are we,
 We imitate the good we see;
 The artist's brush, the poet's pen
 Are guided by the lives of men
 Who lived and died of noble worth,
 Who lived while here upon the earth
 Their lives of truth and honesty.—
 Now plain their form in all we see.

TALLAHASSEE, FLA —[TO THE EDITOR]—In my article "An Indian Mound" in June number, the height of the mound should be, 'about thirty feet high' not 'sixty feet.' In the same number I note a record of two albino meadowlark's eggs: Two seasons ago I had brought to me four full sets of albino eggs; they were common in this locality, but since that time I have not taken any.

R. W. WILLIAMS JR.

Mr. Wm. Piedrit, of Warsaw, Ill., sends photograph of a large white pelican, lately shot on the Mississippi river; near Warsaw. Height; 37¼ inches; spread of wings; 8 feet 9½ inches.

Your subscription to the Oregon Naturalist is solicited; price twenty-five cents per year,

THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, AUGUST, 1896. No. 8

Imported and Acclimated Song Birds in Oregon.

By C. F. Pfluger, Sec'y of the Society for the Introduction of useful song-birds into Oregon, at Portland.

THE STARLING *Sternus vulgaris*. (*Der Star.*)

Of these useful birds 35 pairs were introduced into Oregon by the Society in 1889 and 1892. They were turned loose in the city of Portland near the city park, and have since increased remarkably well.

The starling inhabits all parts of the old world, and frequents woods and thickets which are at no great distance from meadows and ploughed fields. In October it departs southwards, and does not return until the beginning of March. It is $8\frac{1}{2}$ inches in length, of which the tail measures $2\frac{1}{2}$ inches. The beak is one inch long, awl-shaped angular, somewhat flattish and, a little blunt. It is a pale yellow tipped with brown, and in winter blackish blue. The iris is nut-brown; the feet one inch in height, and dark flesh-color. The whole body is blackish, having a purple tinge half way down the back and breast, with a bright green lustre on the rest of the body, and on the wing-coverts. The pen and tail feathers are black, speckled with gray, and together with all the coverts edged with light rust color. The feathers of

the head and nape of the neck are tipped with reddish white; those on the back with light rust color, and on the outer part of the body with white. Hence the general appearance of the bird is speckled. In the female the beak is rather blackish brown than yellow; the light colored spots, especially on the head, neck and breast are larger, and the edges of the wing feathers broader, which give the bird a lighter and more mottled appearance.

The starling eats not only worms caterpillars and their larvae, snails, grasshoppers, mole-crickets, and the insects which tease the pasturing cattle, but berries, grain of all kinds, millet and hempseed. The starling builds in hollow trees, under the roofs of houses and in wooden boxes and earthen vessels, which are often hung on trees or under the eaves of houses for their accommodation. The nest is carelessly built of dry leaves, grass stalks, and feathers, and is occupied by the same pair year after year, being cleaned out when they take possession. The female lays twice a year from 4 to 7 greenish gray eggs. Before the first moulting the young are not so much black as a smoky fawn color, without spots; and their beak is dark brown.

The starling, in respect of docility and sagacity, deserves to be compared with the dog. It is always lively, understands and obeys every gesture and motion of those that come near him, and though tottering about with a sober step and stupid appearance, allows nothing to escape its notice. It learns to repeat words, whistles airs, and to imitate the voices of men and animals, and the song of birds. The starling sings throughout the year, with the exception of the moulting season, and their song is peculiar and harp-like.

THE ROBIN REDBREAST, *Sylvia rubicula*.
(*Das Rothkehlchen*.)

Of these lovely and useful song birds but 5 pairs were introduced into Oregon by the Society in 1889 and 1892. There were many more of them when they first arrived, but unfortunately they died.

This handsome bird is a native of the old world, is 5 3-4 inches in length, of which the tail measures $\frac{1}{4}$ inches. The beak is 5 lines long, and brown except at the root of the lower mandible and in the inside, where it is yellow.

The iris, as well as the feet, which are eleven lines high, are blackish brown. The forehead, cheeks, and lower part of the body, and the wing-coverts, are dingy olive-green; the rump, sides and vent, of a lighter hue. The sides

of the breast are a beautiful pale gray, the belly white, the pen and tail feathers dark brown edged with olive green and the first wing coverts are tipped with a triangular yellow spot. In the female, which is somewhat smaller, the orange on the forehead is not so broad, the color of the breast is paler, and the feet are a yellowish brown. The yellow spots on the wing coverts are also generatly wanting.

The robin redbreast feeds on insects of various kinds, leaf-lice, earth worms, larvae and all sorts of berries. It builds its nest which is made of lichens loosely put together, and lined with grass stalks, hair and feathers on the ground, among moss, stones, roots, or upon leaved tree stumps, in thick brush, or in currant and gooseberry bushes, in hedges and sometimes in holes under the roofs of houses.

The female lays twice a year, from 5 to 6 yellowish white eggs, spotted and striped with orange, and having a ring of light brown at the thick end. It is a bird of passage and goes south during the month of October, and returns about the middle of March. Occasionally, a number of these birds will remain here throughout the winter. But when the cold grows more severe, and snow covers the ground, or frost hardens its surface, it approaches the houses, taps at the closed casement casting side-long glances in-doors, as if envious of the warm abode. It is attracted to the habitations of man by the shelter that it there obtains from the rigor of the weather, and in search of the insects that are collected in great numbers by the same cause.

Its song is sweet and well supported which though loudest in spring lasts almost throughout the year, and has a solemn and melancholy effect. During spring the robin redbreast haunts the

grove and the garden, while in summer it retreats into the woods. They are very pugnacious in their habits and will fight others of its kind with relentless ferocity and ardor. Its call note is "Sisri!"

Some Notes on Migration taken at Salem, Oregon, by George D. Peck, 1896.

March 2.—Violet-green swallow first seen. On April 4, they were common.

March 22.—Rufous hummer male, first seen. On April 4th, females were observed and on the eleventh of the month a nest was found containing two eggs.

March 23.—Saw lark sparrow.

April 2.—Dwarf hermit thrush, male taken, also lutescent warbler, male.

April 4—Maryland yellowthroat, male.

April 5.—Vesper sparrow, first seen.

April 8.—Band-tailed pigeon, first seen. On this date Audubon's warbler was observed in full plumage. This species has been common all winter and as late as May 5th was seen in thousands, but on May 6th only one bird was seen. No more were observed until May 15th when a small flock of females were seen.

April 9. Saw four hermit thrushes.

April 15.—Nest of sooty grouse found containing four eggs.

April 16.—Black-throated gray warbler male seen and on the 29th heard singing. Arkansas goldfinch first seen.

April 20.—Cassin's vireo first seen.

April 29.—Lincoln's sparrow, one seen. A rare sparrow here. On this day Townsend's warbler was taken from a small flock that constantly stayed in the tops of the trees.

April 30.—Saw a small flock of Savannah sparrows.

May 2.—Cliff swallow and two Macgillivray's warbler males first seen.

May 7.—Saw red-bellied nuthatch excavating a nest.

May 8.—Saw male yellow warbler.

May 11.—Russet-backed thrush first heard but not seen. Saw two little flycatchers. Pileolated warbler first become common.

May 12.—Saw two male lazuli finches in the company of a large flock of gold finches. Carolina dove first heard.

May 13.—Long-tailed chat heard and Bullock's oriole first seen.

May 15.—Not a ruby-crowned kinglet was seen to-day; they have been here in numbers numberless.

May 18.—Black-headed grosbeak and Parkman's wren first seen.

Crater Lake and the Mazamas.

The Mazamas are a society with headquarters at Portland, Oregon, whose purpose, similar in nature to that of the Alpine Club of England, the Appalachian Club of New England, and the Sierra Club of California, is the exploration of the mountains of the Pacific Northwest and the publishing of information concerning them. With this object in view they are accustomed to make annual expeditions to points of leading interest, which are attended by large numbers of people, and which have become celebrated throughout the country. Thus in 1894 they assembled, nearly two hundred strong, on the summit of Mt. Hood; last year their rendezvous was at Mount Adams; while the present year they will during the week beginning August 16th conduct an excursion to Crater Lake, which has every prospect of being the most largely attended and the most successful of any similar event ever known upon the Pacific Coast.

In his book, "The Mountains of Oregon," Mr. Wm. G. Steel, who assisted a party sent out by the U. S. Geological Survey in 1886, to survey and sound the lake, thus describes it:

"It was discovered by a party of twelve prospectors on June 12, 1853. * * * They decided to call it Mysterious, or Deep Blue Lake. It was subsequently called Lake Majesty, and by being constantly referred to as a crater lake, it gradually assumed that name, which is within itself so descriptive.

"From Allen Davey, Chief of the Klamath tribe, I gleaned the following in reference to the discovery of Crater Lake:

"A long time ago, long before the white man appeared in this region to vex and drive the proud native out, a band of Klamaths, while out hunting, came suddenly upon the lake and were startled by its remarkable walls and awed by its majestic proportions. With spirits subdued and trembling with fear, they silently approached and gazed upon its face; something within told them the Great Spirit dwelt there, and they dared not remain, but passed silently down the side of the mountain and camped far away. By some unaccountable influence, however, one brave was induced to return. He went up to the very brink of the precipice and started his camp fire. Here he laid down to rest; here he slept till morn—slept till the sun was high in air, then arose and joined his tribe far down the mountain. At night he came again; again he slept till morn. Each visit bore a charm that drew him back again. Each night found him sleeping above the rocks; each night strange voices arose from the waters; mysterious noises filled the air. At last after a great many moons, he climbed down to the lake and there he bathed and spent the night. Often he climbed down in like manner, and frequently saw wonderful animals, similar in all respects to a Klamath Indian, except that they seemed to exist entirely in the water. He suddenly became

hardier and stronger than any Indian of his tribe because of his many visits to the mysterious waters. Others then began to seek its influence. Old warriors sent their sons for strength and courage to meet the conflicts awaiting them. First, they slept on the rocks above, then ventured to the water's edge, but last of all they plunged beneath the flood and the coveted strength was theirs. On one occasion, the brave who first visited the lake, killed a monster, or fish, and was at once set upon by untold numbers of excited Lloas (for such they were called,) who carried him to the top of the cliffs, cut his throat with a stone knife, then tore his body in small pieces, which were thrown down to the waters far beneath, where he was devoured by the angry Llaos—and such shall be the fate of every Klamath brave, who from that day to this, dares to look upon the lake.

"The lake is almost egg-shaped, ranging northeast by southwest and is seven miles long by six in width. The water's surface is 6,251 feet above sea level and is completely surrounded by cliffs or walls from one thousand to over two thousand feet high, which are scantily covered with coniferous trees. To the southwest is Wizard Island, 845 feet high, circular in shape, and slightly covered with timber. In the top is a depression or crater—the Witch's Cauldron—one hundred feet deep and 475 in diameter. This was evidently the last smoking chimney of a once mighty volcano. The base of the island is covered with very heavy and hard rocks, with sharp and unworn edges, over which scarcely a score of human feet have trod. In the immediate foreground to the north lies the lake, with its twenty odd mile of rugged cliffs standing abruptly from the water's edge. To the left is Wizard Island; beyond stands Llaos

Lake, solemn, grim and grand, over two thousand feet perpendicular; while still beyond stands Mount Thielsen, the lightning rod of the Cascades. Just to the east of the lake is Mount Scott, partly covered with snow; while close to the camp on the east is a high cliff known as Cathedral Rock, running far down to the right and at last disappearing below the tree tops.

"Crater Lake is but a striking memento of a dread past. Imagine a vast mountain, six by seven miles through, at an elevation of eight thousand feet, with the top removed and the inside hollowed out, then filled with the clearest water in the world, to within two thousand feet of the top, then place a round island in one end eight hundred and forty-five feet high, then dig a circular hole tapering to the center, like a funnel, one hundred feet deep and four hundred and seventy-five feet in diameter, and you have a perfect representation of Crater Lake.

"It is hard to comprehend what an immense affair it is. To those living in New York City, I would say, Crater Lake is large enough to have Manhattan, Randall's, Ward's and Blackwell's Islands dropped into it, side by side without touching the walls, or, Chicago or Washington City might do the same. Our own fair city of Portland with all her suburbs, from the City Park to Mount Tabor, and from Albina to Sellwood inclusive, could find ample room on the bottom of the lake. On the other hand if it were possible to place the lake, at its present elevation, above either of these cities, it would be over a mile up to the surface of the water, and a mile and three-quarters to the top of Llao Rock. Of this distance, the ascent would be through water for two thousand feet. To those living in New Hampshire, it might be said, the surface of the

water is twenty-three feet higher than the summit of Mount Washington.

"What an immense affair it must have been, ages upon ages ago, when, long before the hot breath of a volcano soiled its hoary head, standing as a proud monarch, with its feet upon earth and its head in the heavens, it towered far, far above the mountain ranges, aye, looked far down upon the snowy peaks of Hood and Shasta, and snuffed the air beyond the reach of Everest. Then streams of fire began to shoot forth, great seas of lava were hurled upon the earth beneath. The elements seemed bent upon establishing hell upon earth and fixing its throne upon this great mountain. At last its foundation gave way and it sank forever from sight. Down, down, down deep into the bowels of the earth, leaving a great, black, smoking chasm, which succeeding ages filled with pure, fresh water, giving to our day and generation one of the most beautiful lakes within the vision of man.

"In conclusion I will say, Crater Lake is one of the grandest points of interest on earth. Here all the ingenuity of nature seems to have been exerted to the fullest capacity, to build one grand, awe-inspiring temple, within which to live and from which to gaze upon the surrounding world and say: 'Here would I dwell and live forever. Here would I make my home from choice; the universe is my kingdom, and this my throne.'"

Eastern Department.

CONDUCTED BY THE ASSOCIATE EDITOR.

CHAT.

Address all mail for Eastern Department to Dr. C. C. Purdum, 274 North Main Street, Providence, Rhode Island.

Better send your application for membership to the Oologist's Association, to President Trostler at once, as the yearly reports will soon be made and you want to have a hand in their work.

An immature wood ibis was shot near Seekonk, R. I. lately. First record for Rhode Island? Bird was mounted at Critchley's establishment in this city.

Is the hair-worm a parasite of the cricket?—Suggested by an exchange.

Principles of Classification.

C. C. PURDUM, M. D.

(Continued from page 89.)

We have said that a "character" in zoological language, means any point or feature which may be perceived and described, and utilized in comparing the similarities and separating the differences between each animal. Thus the condition of the tarsus and larynx, as spoken of in previous papers, are "characters" which can be used in describing individual birds, or in selecting a name for a group of birds.

Embryological characters are those afforded by the bird during the time it is developing in the egg, from the lowest stage of the germ to the fully developed chick. These embryological characters are of the utmost significance, for it has been conclusively demonstrated that the germ of the higher organisms goes through a series of developmental changes which, at each successive step in its development, causes it to resemble the adult state of animals lower than itself. In so many words then, the history of the evolution of every individual bird, illustrates the history of the changes which birds have collectively undergone. Such stages of any embryo therefore, give us glimpses of those evolutionary processes which have affected the group to which it belongs. As the

germ develops, and becomes more complicated in structure by the formation of organs and parts, each of which are successively differentiated and specialized, it gradually rises higher in the scale of being.

It will be obvious that every ulterior modification presupposes inclusion of all prior ones; for a white winged cross-bill, to be itself, must be a "loxian, fringilline, oscine, passerine, carinate, modern, avian vertebrate animal. The more characters, of all grades, that any bird's share in common, the more closely are they related, and conversely, obviously, the possession of more or fewer "characters" in common, result in greater or less degrees of likeness. To carry any scheme of classification into practical effect, naturalists have found it necessary to invent and apply a system of grouping objects whereby the like may come together and the unlike be separated. They have also deemed it expedient to give names to all these groups, of whatever grade, such as *class, order, family, genus, species*, etc.; and to stamp each such group with the value of its grade, in order that it may become current among naturalists. Of course this coinage is entirely arbitrary until it becomes sanctioned and fixed by common consent. It can not be too thoroughly understood that—*natura non facit saltus*—Nature makes no bounds, and although she does not skip from one group to a higher by a stride, neither does she make her way by imperceptible degrees of advancement. But however arbitrary they may be, however obscure may be their boundaries, groups we must have, and groups of different grades, to express different degrees of likeness of the objects examined and so classify them. I can not be too bold in assuring the reader that no such thing

as species, in the old sense of the word, exist in nature, any more than have genera or families an actual existence. Species are *modifications*, which are inseparably linked together; and their nominal recognition is a pure conventionalism.

No infallible rule can be laid down for determining what shall be held to be a species, what a sub-species, or what a variety. The actual classification of birds has undergone radical modification of late years, though the same machinery is employed for its expression. This of course was to be expected as the theory of evolution has so profoundly affected our principle of classification; and our knowledge of the structure of birds and their chronological relations has progressed.

(*The end.*)

New Publication.

MICHIGAN STATE AGRICULTURAL COLLEGE EXPERIMENT STATION.—Bulletins 133, Tuberculosis, by E. A. A. Grange, and 134, Pasteurization of Milk, by Clinton D. Smith, June, 1896.

The Michigan Agricultural College maintains a college extension course of reading designed especially for farmers, gardeners, fruit growers and stock breeders. The course is open to all interested. In connection the Farm Home Reading Circle offers a course in systematic reading on subjects of practical interest to every farmer. They have already a large and rapidly increasing number of readers. Full information can be obtained by sending a postal card to Herbert W. Munford, B. S., Agricultural College, Mich.

In Florida the green heron does not nest in colonies as does the little blue and snowy herons, but prefers some isolated tree, away from its kin. Some-

times, though, they nest on the out skirts of a little blue heron rookery, as was the case with two nests found by me this season. One contained four eggs, the other, three. The usual number is three. R. W. WILLIAMS, JR., Tallahassee, Fla.

A \$35.00 Bicycle at Last.

Ever since the introduction of the Bicycle, predictions have been freely made that it was only a question of time when a high-grade wheel could be purchased at a low price consistent with the actual cost of manufacture. It is a well-known fact that the original manufacturers of bicycles have become enormously rich from the large profits in the business, and have been able to maintain high prices by constant advertising. High-salaried racers paid to *win* on their wheels; expensive bicycle shows; souvenirs given away, and numerous other expedients are resorted to to keep the name of the wheel before the public, all of which the user pays for, and gets no better wheel than one under a less known name could be bought for at half the price.

In another column is shown a cut and full description of the "Maywood"—a first-class, high-grade wheel in every respect, at the low price of \$35.00. If one will read the specifications carefully he will be readily convinced that this particular wheel has many points of superiority over any other on the market, and the manufacturers are a responsible, well-known firm, and guarantee the wheel in every particular.

Bird Day.

Oregon observes Arbor Day in an appropriate manner, why not a Bird Day?

Circular No. 17 by Prof. T. S. Palmer, Acting Chief of Division, recently issued by the U. S. Department of Agriculture,

Division of Biological Survey, advocates the setting apart of one day in the year to be called Bird Day and be observed as such.

The idea apparently originated with Prof. C. A. Babcock, superintendent of schools in Oil City, Pa., and is endorsed by the Hon. J. Sterling Morton, Secretary of Agriculture who first suggested Arbor Day nearly twenty-five years ago. For the past three years the day has been successfully observed in the Oil City schools. May 29, 1896 was set apart by Prof. C. H. Morrill, Superintendent of Schools at Fort Madison, and observed in the schools in his jurisdiction, with the result that the children received both enjoyment and instruction. Prof. Morris in speaking of the day, says: "It is safe to say that we shall celebrate the day next year."

The matter is being agitated in Connecticut and Nebraska. The object of the day is to diffuse knowledge concerning our native birds, that they may be protected and the beneficial species become better known.

Prof. Palmer, speaking of the value of the day says:

"The study of birds may be taken up in several ways and for different purposes; it may be made to furnish simply a course in mental training or to assist the pupil in acquiring habits of accurate observation, it may be taken up alone or combined with composition, drawing, geography, or literature. But it has also an economic side which appeals to those who demand purely practical studies in schools. Economic ornithology has been defined as the "study of birds from the standpoint of dollars and cents." It treats of the direct relations of birds to man, showing which species are beneficial and which injurious, teaching the agriculturalist how to protect his feathered friends and guard

against the attacks of his foes. This is a subject in which we are only just beginning to acquire exact knowledge, but it is none the less deserving of a place in our educational system on this account. Its practical value is recognized both by individual States and by the National Government, which appropriate considerable sums of money for investigations of value to agriculture. Much good work has been done by some of the experiment stations and state boards of agriculture, particularly in Illinois, Indiana, Massachusetts, Michigan, Nebraska and Pennsylvania. In the United States Department of Agriculture, the Division of Biological Survey (formerly the Division of Ornithology) devotes much attention to the collection of data respecting the geographic distribution, migration, and food of birds, and to the publication and diffusion of information concerning species which are beneficial or injurious to agriculture. Some of the results of these investigations are of general interest, and could be used in courses of instruction in even the lower schools. Such facts would thus reach a larger number of persons than is now possible, and would be made more generally available to those interested in them."

Let some leading educator in Oregon make a move in this matter and in time, a general observance in Oregon of a day for this purpose would be assured.

A collector of stone relics has been offering inducements to break commandments. He lives on an island in the Willamette river, and is now sorrowfully trying to locate a stone idol two feet tall, and a carved Indian, prepared for burial in a canoe, all of stone about 18 inches long. He left them out in the rain and cold until someone took pity on them and took them in.



THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, SEPTEMBER, 1896. No. 9



A NEW INDUSTRY BY ANGUS GAINES.

In England, many people regard frogs as great delicacies and in France, they are still more highly esteemed, but in America, there is a general prejudice against them which is being dispelled by very slow degrees. Restaurants and hotels did not until recently keep frogs on their bills of fare, and though they were usually retained on their order-list they were rarely called for, except by foreigners, or by young men of an adventurous turn who tasted them out of curiosity. Those who did taste frogs recognized them at once as most delicious tidbits, and the despised batrachians began to grow in public favor.

The frogs in their native ponds had been but little disturbed, for few people thought seriously of catching these for the market, and it was only occasionally

that boys out on some hunting and fishing trip would secure a few and offer them for sale. As soon as a steady market was found for them the price rose and the hunt for frogs became so general that their numbers diminished rapidly. As the demand continued to increase the supply diminished until a new industry, frog raising, arose to supply the deficiency.

Our most common frogs, such as spring-frogs, wood-frogs and cricket-frog are all too small for table use, and the bull-frog, *Rana catesbiana*, is the only really esculent batrachian. Holbrook says that these frogs sometimes attain a length of twenty-one inches. Their color is an indescribable blending of green, brown and yellow which so perfectly matches the hues of the aquatic herbage in which they lurk that a sounding splash in the water is often the first intimation which the intruder has of the animal's presence. People whose acquaintance with bull-frogs extends only to such chance meetings in the swamps would not think them very promising subjects for domestication, yet the work of raising them for the market is very simple.

Starting a frog-farm is not very expensive, for the frogs do best in places where the land could not be used for any other purpose. The frog-farm best known to me is a large pond, shallow throughout,

for the yellow pond lilies and dense rushes grow far out from the shore, with only narrow expanses of open water showing between their rank clusters. The sloping bank is covered with a thick growth of willows, with here and there a towering elm or misshapen wateroak.

A substantial plank fence separates this miniature wilderness from the fine open pastures which surround it. There is no danger of the frogs trying to leave the pond for the surrounding country is high and dry, and bull-frogs never venture far from water. The fence was built to keep hogs, cattle and domestic ducks and geese from invading the pond.

The frogs are not by any means tame, yet the pond is visited so often that they have grown somewhat accustomed to the sight of men, and are not frightened as easily as wholly wild ones are. They leave the water in large numbers and perch upon the bank, or on rocks, sticks and stones, some of them basking in the sunshine, others hidden in the deepest shade. They sit perfectly motionless, watching the visitor with their great goggle eyes as if fascinated by the sight until some frog more timid than the rest plunges into the water. This breaks the spell and on all sides there are sudden flashes of white bellies and long mottled legs as the whole colony of frogs splashes into the pond.

In the wider openings in such a pond the water is often clear and bright, but in the narrow bays between the weeds and willows the surface is usually covered with a thick coat of *confervæ* and duckweed. It is in this green scum of low vegetation that the frogs deposit their spawn, stringy masses of a jelly-like substance which floats upon the water. These masses are composed of innumerable very small eggs held together and protected by the slimy glue in which they are imbedded.

In the spawning season the frog raiser wades about over his pond and with a large dipper carefully skims the scattered masses of spawn from the surface of the water and places it in a bucket. The spawn thus collected is poured into hatching boxes made of rough boards and anchored in some small stream which flows into or out of the pond. These boxes, which are usually about two feet square and one foot deep, are covered with nettings of tarred wire and have bottoms of the same material to admit the water freely as they float into the stream or rest on the oozy bottom. Here the frog's eggs are kept, well protected from birds, fishes, old frogs, and any other animals that might wish to devour them.

In from seven to fifteen days, owing to the temperature, the eggs begin to hatch and the bottoms of the boxes are soon covered with little tadpoles quietly basking in the sun or dodging about and trying to hide. It is not very expensive to feed these little fellows, for their food is microscopic, or nearly so, consisting of particles of organic matter found in the water or on the bottom. The tadpoles do very well in their boxes for the first few days of their lives, but as they grow larger they need a wider range, and are liberated in a small pond that is surrounded by a fence, usually of fine meshed wire netting.

You would scarcely believe that there could be so many tadpoles in the world as are to be found in one of these little ponds. Frogs lay their eggs in such great numbers that if they were allowed to increase unchecked they would soon overrun the world. There is little danger, however, of their ever becoming too numerous, for they have an infinite number of dangers and difficulties to contend with and if tadpoles were not hatched in vast numbers none of them would reach maturity.

The myriads of little fellows with big heads and fine, whip-like tails in one of these enclosed ponds show how they might increase if duly protected, but what do you think is the worst danger from which the wire netting shields them? Nothing more or less than the old frogs themselves. Bull-frogs are extremely voracious and will eat any animal that they can overcome, small fishes, crawfishes, toads, worms, insects, anything and everything and of course they find the young of their own species acceptable morsels.

The tadpoles grow to a large size, many of them attaining a length of four and one half inches. They usually develop into the adult form in two years, but it is said that there are many exceptional cases in which individuals live three years and even longer before undergoing their metamorphoses. The young frogs are allowed to remain in the small enclosed ponds until they are thought to be old enough to take care of themselves, then the fence is lowered and they are driven out to take their chances with their older relatives. In the larger pond they usually find an abundance of food and they are useful in subduing the myriads of insects and other vermin which find a breeding place in the water, and in the rank vegetation. In spite of this abundance of natural food the owners find it advisable to feed them occasionally, scattering about considerable quantities of waste meat which has been chopped fine. The frogs eat greedily and soon attain a large size.

Killing or capturing the frogs for market is not at all difficult on a well stocked farm. Sometimes they are knocked over with a long switch, sometimes shot with a spring gun, and sometimes they are caught on a hook, baited with a strip of red flannel, a bait which they are said to take readily. In some countries the whole frog is eaten, but in America, it is usual to send nothing but the hind legs to

market, the rest of the animal, on which there is but little good meat, being used to feed the survivors in the pond.

Sometimes however it is found best to ship the frogs alive. They are then caught in a small net on the end of a light pole, a contrivance very much like a butterfly net with a long handle. The consumer can then, without danger of loss, lay in a considerable supply of live frogs to be kept and killed as needed. They are kept in dark pits or large boxes, without food but with plenty of water. They are often kept for weeks in this way, spending their time huddled up together and indulging in low croakings, or, if the weather is cold, lying buried in the wet straw and awaiting their doom in a torpid or semi-torpid state.

Although frog raising is a comparatively new industry and but little familiar to the general public it has already risen to the dignity of statistics, for 60,000 lbs of frog meat, mostly that of domesticated animals, are sold annually in New York City where the average retail price is thirty cents per pound.

In their natural state frogs are solitary animals, except in the spring when they congregate in large numbers, making night hideous with their hoarse bellowings which, it is said, have been heard over five miles. At such times the males often fight furiously and have frequently been found struggling so fiercely that they did not notice the intruder.

At the approach of winter they bury themselves in the mud at the bottom of their pond or stream, and there, in a torpid state, await the coming of spring.

The smaller wading birds, such as "teeter snipes" and sandpipers, often grow fat on the young tadpoles, and the larger wild fowls, ducks, geese and herons, feast upon the growing frogs. Fishes, too, keep both tadpoles and frogs on their bills of fare, and certain snakes subsist mainly on frogs.

Frogs, however can at times get their revenge on most of these foes, for the full grown, wide mouthed batrachians will eat young birds whenever they can catch them, and one of them was seen to swallow a robin that had been shot, though the tail feathers, being too long for its stomach, protruded from its mouth. They will eat small snakes and one of them has been known to swallow a "grass snake" three feet long. Frogs also eat fishes, but there is one foe, besides man, on whom they cannot retaliate, this is the raccoon. Raccoons often prove very destructive to frogs and on them the unfortunate amphibians can have but little hope for revenge.

A white pelican, shot this season on the Columbia river near Umatilla, has been mounted and is now in the collection of a lady taxidermist of Umatilla.

Skins to be of any value should have a tag attached to them, giving sex; where collected, date of collection, who by, length, stretch of wings and wing measurements.

MEXICAN HIEROGLYPHS.

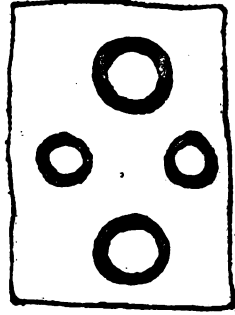
II.

The hieroglyphs reproduced in (the last issue of this journal) were found on the adobe walls of the rooms in a cave-dwelling. The cave itself is a large one. The front part of it only having been used as a dwelling, and is one of a number scattered here and there on either side of a narrow valley a few miles from the mormon settlement of Pacheco, in north-western Chihuahua.

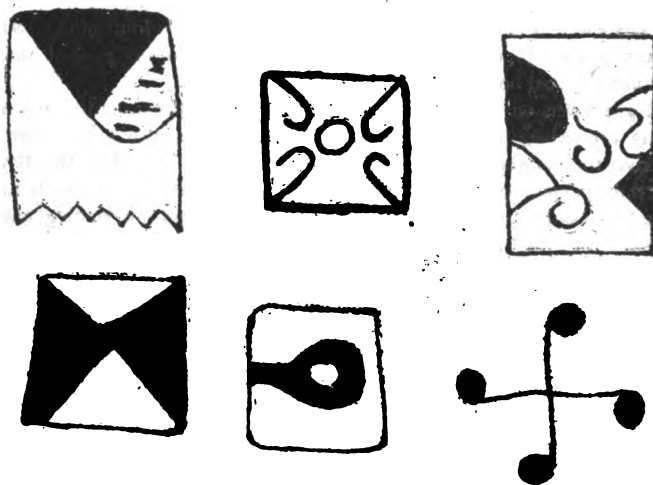
On the opposite side of the valley from this cave is one having a wide entrance and upon its rock face, in a sheltered position, may be found the nine drawings, done in white, which are here reproduced.

FRANCIS E. LLOYD,
Pacific University,

Forest Grove, Or.



MEXICAN HIEROGLYPHS.



MEXICAN HIEROGLYPHS.

THE BASKET OF THE KLICKITAT.

MRS. VELINA P. MOLSON.

The archæologist is frequently caused to halt in the reconstruction of ancient society by the ignorance of the arts of savages around him. This is especially true of an art which had its culmination in savagery or barbarism, and which began to decline at the touch of civilization. This may be said of the Klickitat baskets. These rare and beautiful baskets are made by the different tribes belonging to the Shapshian linguistic stock, "a name based on Scouler's report to the Royal Geographical Society in 1841, and confirmed by later scientific men, Gallatin, Hale, Schoolcraft and Latham. The derivation is Salishan, but the meaning is unknown."

The habitat was along the waters of the Columbia and its tributaries, from the Cascade mountains on the west to the Bitter Root range on the east, and from 46° north to 44° south, or what is now Eastern Washington and

Northern Idaho.

The Klickitats have been styled the "Iroquois of the Northwest." They were marauders and robbers. The very word Klickitat means "robber."

One of their favorite haunts in time gone by was the Cascades of the Columbia, and another the dalles or long narrows of the Columbia. They were a constant menace to the trappers and voyageurs from the foundation of the Pacific Fur Company in 1811, and continued to worry and harass the pioneers until they were subdued by the Yakima war of 1856.

The Klickitats are fine-looking and intelligent Indians; they are tall and clean limbed, and as they followed the chase from all time and lived in a higher altitude, they were the superiors in every way of the miserable-looking tribes of the Willamette valley and coast Indians, as the latter tribes traveled about squatting in canoes, subsisting on fish, and had not the benefit of the bracing air of the plateau

* Reprinted from "Basketry of the Coast and Islands of the Pacific, etc." This pamphlet can be had of the J. K. Gill Co., Portland, Or. Price 25 cts.

of the Klickitats' country.

The Klickitats were bold and fearless riders. Their marauding journeys carried them from the present international boundary line on the north to Rogue river on the south. They were masters everywhere until they reached the Rogue river tribes, who rightfully gained their name through cunningness, or until they reached the Indians of the plains, on the eastern watershed of the Rocky mountains, whither they went on annual expeditions to trade and gamble, carrying the wampum from the coast, dried salmon and other articles, to trade for dried buffalo meat and robes.

They went down to the ocean on the west, carrying the wild hemp dried and twisted into neat bundles and much sought after by the coast Indians for fish nets, to exchange for the wampum or dentalia, a small shell collected in those days at Nootka. The wampum was the circulating medium, and Alexander Ross said in 1814 three fathoms bought ten beaver skins.

The Klickitats held the gateway between the East and West, for the river was the natural and only easy route for passage from the Western valleys to the Eastern World.

Their domain included Mount Adams on the north and Mount Hood on the south of the Columbia river, but territorial bounds did not confine them, for they were everywhere robbing, trading, horse-racing, and holding under burdensome tribute many lands they did not own.

They had a complete and euphonious language of their own, as became a people who influenced the world around them, and possessed both statesmen and warriors whose enterprise covered so broad a field.

Before the white man came to occupy and pervert, the Indians were numerous. They had their great annual gatherings, for exchange of products and to regulate affairs. They owned their special privileges, as fisheries, berry fields and camas grounds, and hunted their own territory. All seasons had appropriate

duties. It was no light or brief task to gather, cure and store the fruits of the earth, the fish of the streams, or the game of the forests for their winter use.

Besides they had many arts and manufactures that became almost obsolete when they could purchase from the Hudson's Bay Company cloth, manufactured goods, tools and trinkets, and pay for them by hunting animals whose fur was in demand.

When they procured firearms bows and arrows were soon out of date and the art of making beautiful arrow heads became a lost one, and finally buckets superseded baskets.

Holding the natural waterway and occupying the mountains, valleys and plains of the eastern country, they held the key to the Columbia region, the gateway between the East and West. They maintained intimate tribal relations with both sections and levied tribute on all west of the Cascades, from the waters of Puget Sound on the north to Rogue river on the south. Through all this region they rode rampant, and their lodges were full of spoils taken in their forays

South of the Columbia along the ocean shore and foot-hills, there is still a well-worn trail, that antedates history, known now and aforesaid as the "Klickitat trail." They usually journeyed south by that trail, but for peaceable reasons they traveled north by the Klamath trail, on the eastern side of the Cascades, to their home of homes, the beautiful Klickitat valley.

Basketry is an art which may be called "par excellence" a savage art, and the several tribes of the Shahaptian stock controlled it, for the imbricated basket of the Klickitat surpasses all other baskets in beauty of workmanship, general contour, harmonious blendings of the colors, and, what is most important, utility and durability.

The tool universally used in the manufacture of all baskets is a bone awl, and the woman is generally the maker.

The woman of all untutored and uncivilized

nations is a deft worker; witness the delicate drawn work of the Mexicans, the rich work from the far East, the bead and basketry of the North American Indians.

To gather, prepare and manipulate the raw material meant time and arduous labor.

The foundation consists of the roots of young spruce and cedar trees; it is macerated and torn into threadlike shreds, and soaked for weeks and months in water to rid it of any superfluous vegetable matter and to render it strong and pliable. The ornamentation is almost all made of *Zerophyllum tenax*, which is commonly called "squaw's grass." It grows on the east side of the Cascade mountains and can only be gathered during the late summer, when the snow has melted and the grass has matured. This grass resembles the plant of garden cultivation, *Yucca filamentosa*.

The broad, swordlike leaves are split into the requisite width, and if they are to remain the natural color, an ivory white, they are soaked in water only; but if they are to be dyed they are soaked in mud and charcoal for black, for brown a dye made from the willow bark, and for yellow a longer time in the water.

Sometimes the bast or inner bark of the cedar tree is dyed black instead of the grass; but it is not so durable owing to its short fibrous texture; or the willow bark itself is used instead of dyeing the grass brown; but the willow looks slightly shriveled, and neither presents the smooth surface as when made of squaw's grass, although only apparent to the practiced eye.

The mode of dyeing was handed down from generation to generation.

After these preliminaries, that ran through weeks and months, the deft worker seated herself upon the ground and began her work, either by a spring or stream, by taking a small bunch of these water-soaked spruce roots, which, when tightly compressed, was about the size of a lead pencil.

She began at the bottom of a basket by a coil, tightly lashing it with a soaked thong of spruce root, each time piercing the stitch in

the preceding row with the bone awl and threading the spruce through and tightly drawing it into place, thereby making a locked stitch and water tight, so that if it were possible to draw out the coil the basket would still preserve its shape. This coiling and whipping is continued with the spruce alone until the bottom is completed, for the decoration seldom if ever appears on the bottom; if it does, only in a sparsely made pattern.

When the last coil of the bottom is made, then the decoration begins. A strip of the grass is laid on and lashed in place, then turned back and lashed again, each time being held in place by the all-important spruce thong. This lapping back and forth gives it the name "imbricated."

Every time a stitch is made it takes the circuits of the spruce whipping to hold it in place, each time following the puncture made by the bone awl, which is exceedingly hard work. One round of a large basket or three of a small one is a hard day's work for an experienced basket maker.

The different colors and shades are introduced according to the weaver's fancy, and always forming a complete and well-designed pattern, oftentimes intricate and elaborate. When the requisite number of stitches of one color has been made, the grass is cut off and laid aside until it appears again, for the ornamentation never appears on the inner side, for it would be ruined by the berry juice or hidden by the contents.

This wearisome labor goes on round after round until the top is reached, when some are finished smoothly and plainly, while others are given a scallop. The last round of all is curiously and closely interlaced, with the ends dexterously hidden and secured, well calculated to withstand rough usage over mountains and plains, on the backs of women, on the sides of horses and in boats, loaded and unloaded, times without number and lasting a lifetime.

The labor of making a basket had many interruptions, for the basket maker gathered the fuel, gathered and prepared the food, which

often meant excursions to the mountains or down to the rivers. She tanned and fashioned the skins into garments, besides caring for her children, for the aboriginal mother is well known to be an unselfish and tender one.

Some baskets are covered throughout from top to bottom with the decoration, while others have a pattern appearing only at intervals, allowing the spruce not to intentionally form the background. The figures are always triangular or angular, never round in the original shapes, as the circular figure meant civilization.

The scallops before mentioned were for utility, for if broken and worn a new edge could be made more easily than a solid edge, or when filled and covered the contents could be held in place by a lashing made from wild hemp, and passing back and forth through the scallops.

The shape is well planned: The bottom is almost always round, then it flares rapidly at first, and then very gently until the top is reached, when it usually converges toward the center, for if it flared all the way in proportion to the beginning the mouth would be so large that the contents would be lost; but even the strength of these firm baskets would be sorely tested.

One is rarely seen other than round; if so, they have an oblong base and top, and a rare one has a lid. This shape was in imitation of the trunks seen on shipboard in the early part of the century, and copied by the Cowlitz and Lewis river tribes, who also belong to the parent stock, Shahaptian; but this shape was not copied by the tribes over the range.

These large round baskets were carried on women's backs, and are today, by a broad strap passing around the forehead or across her chest, and when gathering berries they are thrown over her shoulder and into the basket; or for convenience sake a small one is secured to her belt in front, and emptied at intervals. Her hands are thus left free for work, for she is ambidextrous.

These baskets were also fastened on either side of a horse in pannier fashion, and the woman sought her camp or the nearest settle-

ment either mounted on the same cayuse, or riding another and driving the berry-burdened beast before her.

The Indians say that the berries keep sweeter in these baskets than in a metal bucket, and as they are watertight there is no loss.

The baskets are prized by the few makers that are left, and by their children.

And thus is ended a work of art by these rude and untutored people, scorned and despised, but sought for by scientists and lovers of the curious and beautiful.

SOME NORTH CAROLINA MINERALS.

HIDDENITE.

As this mineral has gained a world-wide reputation, not only among gemists as a beautiful and expensive gem stone, but among collectors as a new species. I wish to speak of it more in detail than others of equal importance.

From traditions of the locality where it is found it is not a very recent discovery, as it has been plowed up by the farmers for many years.

Mr. Hidden of Newark, New Jersey, can lay claim to nothing but the honor of having had it identified. Prof. Smith of Louisville, Kentucky, analyzed it and gave it the name it now bears.

The mineral was first collected and placed on exhibition by Mr. Stephenson of Statesville, North Carolina, and it was there that Mr. Hidden first saw it. Neither of the above gentlemen knew what it was and from the color and form naturally took it to be diopside which mineral it somewhat resembles. Mr. Hidden visited the locality and through his efforts a company was formed to work it.

Considerable work was done and several thousand dollars worth of stones secured but from some cause the property became entangled in litigation and for aught I know to the contrary still remains so to-day.

The mines, which are situated at Hiddenite in Alexander county were worked by open trenches and the finest gems are said to have

been found in loose veins in the soil at depths running from the surface down to about 35 feet. The formation surrounding is metamorphic, the immediate habitat of the gem being in all probability the gneissoid rocks common throughout the western part of the state.

Mineralogically this stone is a *spondumene* and only differs from the typical mineral in color which is some shade of purple.

When pure hiddenite is bright grass-green in color and when cut is indeed a splendid gem.

If rarity and beauty constitute value in a gem, this should rank with the best for it is rare in the locality where found.

It is reported from Macon county, this state and in a letter from W. M. Beckburn of Pierre, South Dakota, he says a specimen was found in the glacial drift near that place. Other properties adjoining the mines at Hiddenite have furnished good gems, notably the Lyons property and on the plantation of Mr. J. O. Lockey.

Quite a list of interesting minerals were found in association, viz: Rutile of the finest quality, xenotime, tourmaline, emerald, beryl, etc.

Hiddenite is a gem of the finest rank when cut, but its ready cleavage renders it somewhat difficult to manage. It will always command fancy prices. Whether further work at the mines or even in the vicinity will reveal a larger output remains of course to be seen.

Much of the ground has been trenched to considerable depths and pretty thoroughly prospected, and unless it can be found deeper down one is naturally led to believe that the cream of the deposit has been "skimmed off."

If water could be introduced as a power to lessen the expense of mining handsome profits could be realized, for as it is, in comparison to the yield, the labor is great; but this can be done with much difficulty and at considerable expense.

Good specimens of hiddenite and a beryl of good quality can occasionally be secured but the "finds" few and at long intervals, when

found and offered for sale it is a matter of some difficulty to get possession as the prospectors have in many cases an exaggerated idea of its value and very frequently entrust their specimens to some disreputable dealer at a distance and realize but a fraction of that offered by home buyers. Cases have come under my own observation where material has been sent out and a return of less than a fifth in real value.

EMERALD AND BERYL.

There seems to be a considerable amount of beryl and its varieties in the state and a fair percentage of the product is of real gem quality.

It is found in some form or other at widely separated points and in over a dozen counties. There are at least four distinct varieties found, viz: Emerald, sea-green, golden and blue.

The emerald was found at Hiddenite in Alexander county, in magnificent specimens while operations were in progress there for hiddenite in 1884. The crystals found at that point differ from those of other localities and seem to carry their own distinct characteristics.

The planes, instead of showing the usual polish are pitted and feel rough to the touch.

The crystals as a general thing are very symmetrical, are solid and of a fine blue-green color, except in the case of the larger crystals the "cores" of which are milky. The gem stuff from here is mostly from small and medium sized crystals. These like the hiddenite are from loose rotten veins in the clay. The small crystals from here are unsurpassed for color and transparency.

The mica mines of Macon, Mitchell, Yancey and Madison counties are producing some good material of late in both emerald and aquamarine.

The bright green variety called emerald commands the highest prices. But just why this is so is hard to tell, unless the popular fancy is controlled by a craze for that which is old and well established. While it commands the highest price it is certainly not the most beautiful. The bright, clear, golden colored crystals found sparingly in the South Mountains in Burke and McDowell counties are certainly

very handsome. Many of them show different terminations and when thus found are of considerable value as specimens alone.

The whole group when found in place occur in veins of feldspar, usually the variety orthoclase. They are gregarious in habit, essentially "pockety" and seems to be intimately connected with masses of a pure watery quartz, around which they cluster and sometimes penetrate. The associates are black tourmaline, much mica, (Muscovite) in masses, one or more species of garnet and large crystals of feldspar.

These are constant but at different places other crystals are found as hiddenite, xenotime, monazite, apatite, etc., in Alexander county, and samarskite, allanite, gummite, and minerals of the uranium group in the Mountain counties to the west.

If we except the work done by Mr. Hidden at Stony Point in 1883-1894 in his exploits for hiddenite no regular mining for them has been instituted, though of late I believe the mica people of the Western counties are giving them some attention.

There are a few isolated points through Catawba, Lincoln, Gaston, Cleveland, Rutherford, Henderson and some other of the border counties where the stone is found. Many of these localities are of much interest as a study from the fact of their being altogether disconnected with the beryl belt. One locality in Lincoln county—Deadman's—has produced crystals six inches in diameter but of poor color.

Stories of wonderful crystals found in former days and of mines of fabulous wealth can be heard on every hand but the prospector that leads a willing ear generally follows the will-o-the-wisp and catches the mist for his pains.

In this same old mine I was told of the finding of a beryl crystal, perfectly clear, two inches in diameter and eight inches long, by mica miners. Surely a gem of priceless value, but it was a long time ago, and they broke it and divided the pieces.

Henry, N. C.

E. H. HARN,

A VACATION TRIP TO THE WHITE MOUNTAINS OF NEW HAMPSHIRE DURING THE SUMMER OF 1892.

BY J. ELWYN BATES.

Having finished my term of school at Springvale, Me., my daughter and self left the town for Portland on the morning train of July 7th. We then took the first train to Gorham, N. H., where we arrived at 12.30 P. M. I engaged board at the Willis Cottage; and, leaving Inez there, went over to Shelburne, some four miles distant, to see the Hubbard Bros., with whom I had formed an acquaintance on a former visit to the mountains. They were much pleased to see me, and the next morning one of the brothers went with me to the top of the water-fall on Mt. Hayes. The fall was at an elevation of some 1500 feet above the valley and 1½ miles from the Hubbard home. We followed a logging road up the mountain side.

This road was built by a man who intended to get logs from the mountain; it was built at a great cost to him and proved nearly a dead loss, as only a few thousand logs were ever taken out by him. I am told that he with 10 or 12 men worked about six months upon the road, and that the men received little or no pay for their work.

After a tiresome climb for an hour and a half we reached the top of the fall. The stream is scarcely more than a brook at this time, but in the spring of the year, and after heavy rains, it becomes an angry mountain torrent. It is the natural outlet of a pond upon the top of the mountain, near which a logger's house is located.

At the place we visited the stream, it takes a sudden and nearly perpendicular leap for 200 or 300 feet. This fall of water is greater in perpendicular height than any other that I have yet seen in these mountains, although it is, perhaps, less beautiful at this time than Glen Ellis Falls, owing to the smaller amount of water flowing.

On the road near the top of the falls I discovered the nest of a black snow-bird (*Junco hyemalis*) in a hole in the muddy bank. There were four eggs, only slightly incubated. It was the first set of the species I had ever taken and I was, therefore, much pleased to obtain them. I also took a fine specimen of the beautiful green tiger-beetle (*Cicindella sex-guttata*.)

The very beautiful geometrid moth *Rhmaptera hastata*, Hub. was flying abundantly; but, as I had no net with me, I took no specimens. I had hoped to obtain some minerals of interest, but in this I was disappointed. Among plants I saw some fine specimens of moose-wood or striped maple (*Acer Pennsylvanicum*, L.) in bloom. I returned to the house scelling well pleased with the trip, and in the afternoon, went to Gorham.

Mrs. Evans, the proprietor of the Willis Cottage, kindly gave us the use of her team whenever we wanted it, and we took several delightful and instructive rides about the country; in one of which we visited the "Alpine Cascades," near Berlin. These are well worthy of a graphic description; but, as time was limited, I took no notes about them.

One day Mr. Trafton (the Methodist minister of Gorham) took us to ride with him up the Glen House road, so that we obtained a good view of the "Summit House," on the top of Mt. Washington.

On the 12th I succeeded in making the long desired trip to the summit of this king of New England mountains. As I desired to make the ascent on foot, I left the team at the Glen House and set out at 10.30 A. M. for the summit. After passing the toll-bridge the first thing of especial interest was a marble tablet, in a large granite rock by the roadside, in memory of John P. Rich, who died in Windsor, Cal., Nov. 15th 1863. He was one of the original contractors and superintendant of the finishing of the Mt. Washington road. The road was completed in 1861, and opened Aug. 8th of that year.

It was a very hot day, and I found the ascent a very laborious task. The best of water for

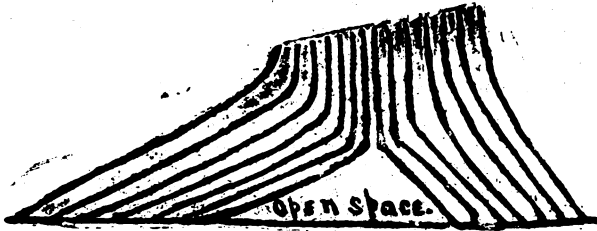
drinking purposes may be obtained at frequent intervals by the roadside, and I was glad to test its virtue many times while making the trip to and from the summit.

I spent considerable time by the way in studying the scenery, the trees, the flowering and flowerless plants, the birds, animals, insects, the rocks, and the peculiar effects, of physical causes not observable elsewhere in New England. Among rocks, gneiss seemed to be most plentiful and varied in form and makeup. One variety contained numerous imbedded specimens of of macle or chialstolite; which, while very beautiful in large masses, did not furnish any distinct crystals of much interest. I obtained a few of the best, however.

White or milky quartz is nowhere abundant on this side of the mountain and I could find no crystals.

Some good specimens of amethystine and smoky quartz have been found upon the mountains but I failed to obtain any.

After gneiss, granite is the most abundant rock, but no interesting varieties were seen. It was very interesting to study the general contour of the mountains and the rocks upon it that came in my way, as illustrating the effect of past and present forces of nature, which have here acted upon a large scale; so that many of their effects are clearly manifest to an ordinary observer; while, to the special student, they may be studied as object lessons of great value. Many of the rocks are very much distorted, and in some instances, even folded; thus illustrating the effect of two or more counteracting forces; as, for example, the forces of gravity and cohesion combining to resist the upward pressure of super-heated steam or gasses contained in internal fissures or other cavities, during the period of uplift; the force of cohesion proving stronger than the combined action of the other two. In some cases two masses of rock material are so placed in relation to one another that the force of gravity is a force acting against the force of cohesion, thus producing flexure in the material of one or both rock masses, as may be illustrated by the following pen sketch.



The strike and dip of the rocks vary greatly in short distances, and I could not, in the time I had to give, determine what an average would be in either case. The disintegrating forces of water, frost, air and light, are all beautifully illustrated. The rocks, especially near the summit, have the appearance of great age. I noticed much erratic material, and some large boulders more or less rounded and worn. There seemed to be few accessory minerals in the rocks. Mica, hornblende, feldspar, and tourmaline were only found in small sized pieces. No beryl was seen.

Below the half-way house the mountain is heavily timbered, but above that point only a dwarfish growth of arborescent plants remain; which, in the next mile or two die out and are replaced by a few grasses and cryptogams; the latter represented mostly by lichens and mosses. These are found plentifully all over the top of the mountain, and among them are some interesting species. It is among these boreal plants and moss covered rocks that the very interesting Alpine butterfly (*Chionobas semidea*) finds its only habitat in New England. The caterpillar feeds upon lichens. The butterfly flies at ordinary elevations in Labrador, and the colony upon Mt. Washington was probably left there in the latter part of the Glacial Period; and, after a time becoming completely isolated from its kind by the recession of the ice to the northward, has gradually become extinct upon other mountain summits, until, at the present time, it finds the

conditions of environment suitable for continued existence and increase upon this one mountain summit only. As it is a desirable species in many collections, and as collectors are beginning to make large captures of it when possible, it is an open question how long it may be found here. It is pretty certain, however, that it will become extinct on this mountain in the near future, unless protective legislation is secured in its behalf. I found the species well represented by individuals from the 5th mile post to the summit, and was fortunate enough to take nine specimens without a net. The coloration and habits of the butterfly might be taken as a fine illustration of protective resemblance, if it could be shown to have natural enemies that could be effected thereby, other than man. So nearly does its color harmonize with the color of the rocks and lichens upon which it alights, that it requires the sharp eye of the trained entomologist to detect it when not in flight. The butterfly has the habit of rising suddenly from its resting place, flying a few rods more or less, and alighting quickly, much like certain moths; which, indeed, it much resembles in its general characteristics. This is the only species which I observed upon the upper part of the mountain, except a single example of *Vanessa Milbertii*, in fine condition, about a mile below the Summit House; which I desired to capture very much, but could not do so without a net.

(To be continued)

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

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A. B. AVERILL, PORTLAND, ORE.
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Sometime ago Angus Gaines published in the Chicago Record, for which he is special correspondent, a history of the Bull-frog (*Rana catesbiana*) with a detailed account of the manner in which this batrachian is reared for the market.

The profound ignorance of Natural History which sometimes prevails among otherwise well informed people was strikingly displayed by the manner in which this article was received by the press, various newspapers quoting it as "a gross fabrication" and declaring that the Bull-frog was "a purely mythical animal, having no existence except in the writer's imagination."

Mr. Gaines has another article on the same subject, in this issue of the Oregon Naturalist, and in spite of self sufficient critics, it is perfectly accurate in every particular.

Competent Herpetologists all indorse Mr. Gaines' work and his statements may be received without question.

October number among other special and attractive features will contain; "A True Story of a Scaly Playmate" by Angus Gaines. This article is well recommended by several teachers, who have read it in manuscript form to their schools and enthusiastically endorsed by the pupils of all ages.

EASTERN DEPARTMENT.

CONDUCTED BY THE ASSOCIATE EDITOR.

BEACH COLLECTING.

This is one of the most enjoyable, simple, and at the same time invigorating kinds of collecting that I have ever tried, and in addition to all these fine points, it furnishes an abundance of specimens as the following papers will show.

Who is there with so little appreciation for the beautiful in nature that he cannot enjoy a collecting trip on the edge of the ocean, which is, as Hornaday well puts it, "one of the jolliest picnics in the world."

The tools required are exceedingly few and inexpensive, the only articles necessary being a pail or two, a fine meshed dipnet and in a few instances a lantern. Perhaps also the collector, especially if he intend to gather shells, had better take along an old case knife and a shovel.

He must use his own judgement as to the use of each one of these implements but I will give a few general hints. For collecting starfish, urchins, sand fleas, and some shells no tool is required; while for shrimps, Physalia, and crabs, which are not apt to take kindly to the eager grasp of the collector's hand (I do not mean to say that they do not usually take to his hand for some of them "take" to an alarming extent) a net is very desirable.

I will specify the cases in which I have found the lantern useful in describing the animals obtained by it. The shovel will be found necessary in unearthing some species of shells and also a few other animals which bury themselves in the sand.

There is one other requisite for this collecting which is perhaps the most important, namely, a sharp pair of eyes. In walking on the beaches it is necessary to keep a very sharp lookout for specimens in the water and often it is better to wade in the water itself.

Beach Collecting, then, may be briefly de-

finied as follows: Walk along the beach and seize upon any animal, which you can see (and catch), as your lawful prey.

The following descriptions will be of animals which I have found to be common at Wood's Holl, Mass., and also, for the most part, on Rhode Island shores and will include several different orders.



CHALINA OCULATA.

This is the well known Dead-man's finger sponge. It is found both on the beaches, cast up by the waves, and adhering to spiles and rocks and grows to the height of two feet. The color of the living animal is more or less brown and that of the skeleton, which is easily broken when dry, a light brown sometimes almost white. Its general appearance can be told from the accompanying cut.

*Physalia pelagica.*

PHYSALIA PELAGICA.

Although this species is so rare on the New England coast that a specimen is seldom taken I have decided to include it in my list as it is very common at times, I believe, on the southern coasts. The most conspicuous part of this animal when seen in the water, is an air bladder six or eight inches in length with a beautifully coloured crest above, and on the under side a large number of appendages. They are sometimes driven on the New England coast by severe storms, twelve being taken one summer at Woods Holl.

HYDRACTINIA POLYCLINA.

There is an excellent description of Hydractinia, one of the hydroids, in the "Standard

Natural History" which I will quote in part:

"Many of the small spiral shells found in the shallow salt-water just below the waters edge are found to be inhabited by hermit crabs, which travel about very actively by protruding their legs from the aperture of the shell. On the backs of many of these shells is what appears to the eye, a white, delicate mossy growth, covering most all of the shell, excepting that part which drags on the bottom as the crab travels. Under the microscope, this mossy growth proves to be a colony of very beautiful hydroids named *Hydractinia*.

ASTERIAS VULGARIS.

This is a very common object on most beaches. The starfish in the water looks very much different from those specimens which are sent out by curiosity dealers and which are, for the most part, poorly prepared.

In the water they generally cling to the sides of rocks and some of the positions into which they can bend themselves in order to enter a small crevice are really like unto the well known feats of the contortionists.

There are many varieties of color, some of which are very beautiful. I remember one shade of purple which was always very pleasing to me.

On the under side of each ray are the ambulacral feet furnished at their ends with suckers by means of which the animal moves.

There is an old saying which applies to the starfish very well, namely, that "he does not move very fast but he gets there just the same."

F. P. DROWNE.

(To be continued.)

THE FLOUR BEETLES.

BY A. A. ANDREWS.

During the past few years two little tenebrinoid beetles, commonly known as "flour weevils" viz: *Tribolium confusum* and

T. ferrugineum have occasioned considerable alarm among millers, flour and feed dealers, grocers and dealers in patent foods. These two species resemble each other so closely that it is only with the aid of a magnifying glass that a difference can be detected. Their habits are also very similar.

For many years these insects have been known in Europe as enemies of meal, flour, grain and other stored products, and even as pests in museums. Although they live in grain, their chief damage probably is to flour and patented articles of diet containing farinaceous matter. The eggs are deposited in the flour, and these and the young larvæ being minute and pale in color are not noticed; but after the flour has been barreled or sealed up in boxes for some time, the adult beetles make their appearance and in due course of time the product is ruined. A part of the trouble caused to purchaser, dealer and manufacturer, is due to the fact that the insects are highly offensive, a few specimens being sufficient to impart a disagreeable odor to the infested substance. In addition to these two species of *Tribolium*, there is another similar beetle that attacks grain, viz, the slender horned flour beetle (*Echocerus maxillosus*) which will be described further on.

The confused flour beetle (*Tribolium confusum*, Duv.) is a minute, reddish-brown beetle, elongate and depressed.

It can be separated from *ferrugineum* chiefly by the structure of the antenna which is gradually clavate. The head also differs somewhat.

Chittenden's experiments during the years 1893-'94, proved that this species is an exceptionally high temperature, is capable of undergoing its entire round of transformation in thirty six days, but in spring and autumn weather it requires a much longer time. In well heated buildings, at this rate, there are at least four and possibly five, broods during the year.

The injuries reported of this species, as noted down in the records of the U. S. Department of Agriculture, far outnumber those of any

other famivorous insect. During the past year the species has been found in patented food at a local grocery, in wheat from New Mexico, in flour from Massachusetts in oatmeal, flour and meal from Indiana, and in corn, peanuts and seeds. It has also been found upon snuff, orris root, baking powder, rice chaff, graham flour, red pepper, and upon dried insects.

The rust-red flour beetle (*Tribolium ferrugineum*) resembles in general appearance the preceding species, but may be distinguished by the antenna having a distinct terminal three jointed club. The larva and pupa also resemble strongly, those of *confusum*. It has been found in cotton seed, and at the Columbian Exposition it was present in injurious numbers in most of the cereal exhibits from the tropics; also in cakes, jams, nuts, and seeds of many kinds. The species is common throughout the United States, particularly through the South.

The slender horned flour beetle (*Echocerus maxillosus*) has habits similar to those of the preceding species, and is frequently found in the Southern States, where it lives on grain in the field as well as upon the stored product. It has also been found under the bark of trees. This species is probably a native of tropical America, and although not positively known to have established itself north of Southern Ohio, is gradually extending northward. Species resembles *Tribolium*, but is of a lighter color and is somewhat smaller, measuring a trifle over an eighth of an inch in length. On the head between the eyes are two pointed tubercles, and the mandibles in the male are armed with a pair of slender, incurved horns.

A solution of gum arabic, to which has been added a very slight quantity of corrosive sublimate, may be used for fastening small insects to mica or paper triangles.

Only 25 cents for a years subscription to the Oregon Naturalist.



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TED, A SCALY PLAYMATE.

ANGUS GAINES.

VINCENNES, INDIANA.

Ted was a snake, one of those short, thick, sharp nosed fellows which boys usually call "spreading adders," or "hog nosed snakes." It was in the early spring that I found him basking in the sun on a pile of crisp brown leaves in the open woods.

His dingy hue matched the color of the last year's leaves so closely that I did not notice him until I had almost stepped upon him, and then a sharp hiss brought him to my notice. There were so many good hiding places near at hand that I did not dare to wait to see what he would do lest he should escape, so I snatched him up and put him, writhing, squirming and trying to bite, into a paper bag, where he soon quieted down and became motionless and sullen.

He certainly appeared strong enough to tear the bag open and escape at once, but snakes, whatever their power for compressing and crushing may be, have but little power for outward pressure. I have sometimes caught snakes large enough to offer considerable resistance but which could not escape from a light paper bag.

A sharp rustle in the bottom of the bag told me that my captive had changed from sullen submission to active resistance.

There was a sudden tearing of paper and I had to grab quickly to keep the snake from escaping through a hole in the bag. This was something new and unexpected, but then "spreading adders" have sharp snouts for burrowing and can dig out where no common round or flat nosed snake could escape. Finding greater precautions necessary I shut him up in my basket and carried him home without further trouble.

Securing a large, light barrel I covered its bottom with loose, dry sand and turned my snake loose in it. Filling a large cigar box with crumpled paper I fastened down the lid, cut holes in the sides and put it down in the barrel to serve as a bedroom and hiding place for my pet. Although snakes of this kind are usually found in high and dry places I knew that he would need water to drink and to bathe in, so I looked around for a suitable vessel for him. Finding an old paint bucket I sawed it in two and the lower half of it made a very nice little tub.

A snake cannot climb up a smooth vertical surface, and so to escape from a barrel must be longer than the barrel is high. My new serpent was not this long and the barrel needed no cover to hold him in. Indeed he made little effort to ascend the side of the barrel, but merely searched around the bottom, rooting furtively in the sand, and finally crawled into his box and hid.

Next morning I found Ted, for that was

what I named him, crawling around, inspecting his new premises. When he saw me he displayed all the characteristics which have given his race the popular names of "spreading adders," or "blowing snakes." Drawing in his breath with an audible wheeze he flattened out his head and neck until they were wider than three of my fingers and then raising his head four or five inches from the ground he uttered a sharp threatening hiss. Drawing himself up in a close coil, a snake's favorite posture for defense, he raised his head still higher, hissing furiously and writhing about in such a threatening manner that he really looked like the terrible East Indian cobras which I had seen in pictures, and it was easy for me to understand why so many people believe that "spreading adders" are poisonous. It was wonderful how large the little snake could make himself appear by drawing in his breath, but then a snake's one useful lung extends nearly the whole length of his body and is merely a simple sack capable of great distension.

Finding that I was not scared away by his display of mock valor Ted abandoned his aggressive tactics, dropped upon the ground and tried to crawl away. Picking him up I held him awhile in my hand, writhing and struggling a little but making no attempt to bite. His terrible threats had been nothing but threats, for he was perfectly harmless.

When I put him down he crawled into his box at once and did not come out again until that afternoon. As long as I kept Ted he always greeted me with the same demonstrations of hostility though he soon learned to submit to being handled and when once quieted would lie peacefully curled up in my hand or coiled around my wrist until I would grow tired of him and put him down.

Ted was not nocturnal in his habits and never ventured out of his box at night but

he was a very early riser and every morning as soon as I would get up I would find him burrowing in the sand at the bottom of the barrel and turning up the earth in a way that reminded me of the rooting of a little pig. He enjoyed a bath and when he became tired rooting he would crawl into his little tub and come out all dripping with water. Creeping around on the ground again the fine dry sand would stick to his wet scales and cover him so thickly that you could scarcely tell which was head and which was tail. Then he would crawl back into his tub and wash the sand off only to get as sandy as ever as soon as he came out of his bath. He would repeat this performance so often that his little tub would soon be filled with sand. When he tired of this amusement he would stretch himself out in the sun to dry. When thoroughly dried he would twitch his skin all over and the loose sand would all shake off leaving him perfectly clean. He would then go into his box and remain there through the middle of the day to come out again and hunt or play late in the afternoon. Contrary to what most people believe about snakes he did not enjoy the full glare of the mid-day sun but sought a shade during the heat of the day.

I tried in vain to find some account of the food of the "spreading adder" and had to experiment with Ted to find out what he would eat. I thought from his rooting in the sand that he might be hunting for earthworms, so I offered him earthworms, grubs and cutworms. and all the insects that I could capture, but it was no use, he never paid the slightest attention to any of them.

I then put three small cricket frogs in his barrel, expecting him to make a hearty meal off of them, but for some unknown reason they did not suit his taste and he never offered to touch them. I do not know whether the frogs ate any of the worms or insects or not, but after they

had been in the barrel for three weeks I began to fear that they were starving, and concluding that they had been punished long enough for nothing, I turned them out. At the same time I put three nearly grown toads into the barrel. Ted did not offer to touch any of them while I was watching him, but the moment that I turned away I heard a pitiful squeak, the snake had caught a toad.

The poor toad made no resistance whatever but still you might suppose that he would be a rather difficult object to swallow for he was bigger round than his captor and snakes have no teeth suitable for cutting up their food.

Having to swallow his food whole the snake has a peculiarly constructed mouth. The upper jaws are not firmly jointed to the lower but are united by highly elastic ligaments so that they may be stretched far apart and allow the reptile to swallow objects larger around than himself. In like manner each side of the jaw is loosely joined to the other so that the snake can open one side of his mouth and keep the other shut.

As Ted swallowed his toad I saw a fine example of the snake's mouth at work. Holding his victim firmly with one side of his mouth he would open the other side, push the raised side of his upper jaw forward a little, catch a fresh hold, then he could raise the other side of his upper jaw, advance it and catch a fresh hold in the same way. As the toad was being drawn into his mouth the snake's head was stretched so completely out of shape that you could scarcely have told what the creature was, but as soon as the great lump disappeared down his throat his head reassumed its natural shape.

Ted had eaten nothing for over three weeks and even this very hearty meal was not enough to satisfy him, and incredible as it may seem, he caught and ate the other two toads the same day. I had read

of snakes eating until they would burst, but still I was astonished at this wonderful voracity. There may be some excuse for Ted's gluttony, for eating was not an every day affair with him and he did not touch food again for ten days.

Of course my young friends were eager to see the curious snake. When they saw his threatening actions they always asked, "Is he venomous?" "Will he bite?" and when I answered "no" to both questions they said that he must be a "great bluffer."

"How can he flatten himself out so, and how can he travel about so fast without legs?" were questions put to me by almost all my young visitors. A snake, I would explain, has a great many pairs of ribs. I never counted the ribs of but one snake and it had one hundred and seventy five pairs. The ribs of a snake are not fastened together, or to the backbone, firmly and immovably as yours and mine are, but are secured by joints almost like our shoulder joints, so that the snake, having no breast bone, can spread out his ribs and flatten himself. When he travels he moves them back and forth, using them very much as the centipede uses his many legs, except that the snake's ribs, being beneath the skin, are not provided with feet. There are no scales on the under side of his body but he has a large number of horny plates reaching from one side to the other. The back edges of the plates are loose and sharp and as the serpent's skin is worked back and forth they catch on the rough places on the surface over which he is travelling and help him along. Many snakes can ascend trees, these plates catching on every little projection of the bark.

One evening I put Ted in my pocket and took him to town to show him to a merchant. When I took him from my pocket and put him down on the glass top of a large show case in the store he squirmed and twisted but could not crawl

about for there were no rough places on the glass for his plates to catch upon.

Ted usually took his meals about ten days apart but on one occasion he went an unusually long time without eating and then went entirely blind, his eyes turning to a blueish white. After remaining in this condition for about a week his eyes began to grow clear again and in three more days he began to shed his outer skin. His blindness had been caused by the secretion of the material that was to form a new covering for his eyes, for snakes cast off the outer coat from over the eyes with the rest of the skin.

The first time he moulted he had considerable trouble in getting rid of his old cuticle, for it came off a little at a time and it was two days before he succeeded in discarding the last of it. About two months afterward he moulted again and with much less labor for that time his skin came off all in one piece, loosening first at the lips and turning backward until it was dragged off inside out like a stocking. While removing his old coat Ted frequently crawled back and forth through his little tub, and when his hard work was over he curled up in the water with nothing but his nose above the surface.

In every snake's mouth there is a little opening just beneath the snout which is never closed. Through this opening the reptile thrusts out his long forked tongue to feel of everything that comes within his reach, for with the snake the tongue is the organ of touch. With Ted this little opening served another purpose for he did not drink, as snakes in books do, by lapping up the water with his tongue, but would put his mouth down to the water and with his lips closed would drink through that small aperture, puffing out and drawing in his cheeks as he sucked up the water.

I think that I could have kept Ted very well through the winter by putting his barrel down in the cellar, or by piling straw around it, but I did not care to do so, for I do not believe that it is right to keep any wild animal in captivity all its life; so when summer was over I liberated him in ample time for him to find suitable winter quarters before cold weather set in.

The boys often ask me if Ted will remember me and come back in the spring, and I always feel obliged to say that he will not. Snakes are capable of doing many remarkable things, but still they are of very low intelligence and probably cannot distinguish one person from another. I may meet with Ted again some day, but if I do he most certainly will not recognize or remember me.

Ted's scientific name was *Heterodon platyrhinus*, and he belonged to one of the most curious of all the genera of snakes. One of the most remarkable traits of this species of snakes is their extreme liability to go into hysterics, or to have the lockjaw, when they are tormented. When a spreading adder is ill treated he will make terrible demonstrations of rage and then will actually go into a fit, turning over on his back and lying motionless for an hour or more. Many people imagine that when the snake is in this condition it is deliberately pretending to be dead, simulating death to escape further molestation. I never saw Ted take fits of this kind for I always took care not to hurt him in any way.

There is a common belief regarding snakes which is so utterly silly that I would not think it worth mentioning if I had not been asked about it so often. The snake is thought to have marvellous power of "charming" its prey, of fascinating men and other animals by simply looking at them. Many people also believe that there are men who have

the power of controlling snakes in the same way. These stories are the veriest nonsense. The snake's sight is poor and its eyes are dull, but as they are not covered by any movable lids, but are always open, they have a strange, uncanny look to people who know nothing about serpents. So far from "snake charmers" fascinating snakes and holding them under a spell the snakes cannot tell their keeper from any body else.

A VACATION TRIP TO THE WHITE MOUNTAINS OF NEW HAMPSHIRE DURING THE SUMMER OF 1892.

BY J. ELWYN BATES.

(Concluded from Page 128.)

I afterwards saw another example of this rare butterfly, near the Glen House at the base of the mountain. These two examples are the only living representatives of the species that I have yet seen. Among other butterflies, I obtained a few examples of *Argynnis montinus* on the lower part of the mountain, one fine pair in copulo.

At the summit I saw several species of dragon flies (*Neuroptera*) and house flies (*Musca domestica*), also two potato beetles (*Doryphora decem-lineata*). A red squirrel was also seen upon a rock near the Summit House. No birds were seen or heard on the upper half of the mountain. The mercury reached 60° Fahrenheit for a short time that day, which is about the highest record during the season. Snow was to be seen in several valleys, where the sunlight had little access.

Very little can be seen from the summit this afternoon as it is very hazy; still, the

part of the mountains that remain in view present a wonderful picture to the eye. It is like nothing else that I have ever seen, and must be viewed by each one for himself, in order to be appreciated. An irregular series of mountain summits is to be seen on every side, until lost to view by distance or haze. Here and there a cloud may so blend with the mountain as to appear inseparable or a silvery band of light may appear in the distance, which serves to define the location of some body of water. Thus are some of the solid and substantial realities of the lower world, here transformed into poetical imagery or phantom and transient forms. I went to the top of the observation tower, the highest point on Mt. Washington, but the view was scarcely improved.

The train came up from the south side at 6.30 P. M. well laden with people. I judged that about fifty people took supper at the Summit House that night. One lady informed me that she had been there two months.

I left the Glen House at 10.30 A. M.; reached the Half-Way House at 12.45 P. M.; rested here fifteen minutes; reached the 5-mile post at 2 P. M.; the 6-mile post at 2.40 P. M.; the 7-mile post at 3.20 P. M.; and the Summit at 4.00 P. M.

The prices for board are; for lodging, \$1.00. For supper, lodging, and breakfast, 4.00. Per day, 5 00. I am told that the rent of the Summit House is \$10.000 per year.

Glen Ellis Falls, located about three miles from the Glen House, are more beautiful than any other falls I have seen in the mountains. The water falls about fifty feet perpendicular, and the rocky gorge, whether viewed from the top or bottom, is one of peculiar interest and beauty. A series of long wooden steps enables the visitor to reach the bottom of the gorge without danger. Trout fishing, so generally enjoyed by most persons where there are any trout to be caught at all, here becomes a profitable business to those who are initiated fully into its secrets.

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A. B. AVERILL, EDITOR.

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OCTOBER, 1896.

The Oregon Naturalist has been sold to John Martin of Palestine, Or., to whom all matter pertaining to the paper should be sent. Mr. Martin will complete all advertising contracts and fulfill all obligations of the paper. It is his intention to conduct the paper on the same lines as in the past, and it is hoped the same liberal support and patronage will be given the Oregon Naturalist under the new management.

September 7th the Smithsonian Institution celebrated the fiftieth anniversary of its foundation. Tablets were erected in honor of its founder, James Smithson, and the regents ordered the issuance of a commemorative work to contain the achievements and history of this great institution.

On May 26, S. V. Wharram of Harpersfield, Ohio, found a nest of the Phoebe bird containing nine fresh eggs. Female flushed from the nest.

Mr. E. H. Harn, having just returned from a long and laborious tour of the Western counties of North Carolina, writes that his trip was eminently successful in securing some very fine quartzs and other minerals peculiar to the section visited.

The next issue of the Oregon Naturalist will contain as a continuation of "Some North Carolina Minerals," "Rutilated Quartz and Zircon" by Mr. Harn.

The first number of the Osprey, a monthly magazine devoted exclusively to ornithology, published at Galesburg, Ill. and edited by Walter A. Johnson and Dr. A. C. Murchison, is out. It bears the stamp of good work throughout. Ornithologists should not wait to see if it is to be a success, but make it a success from the start by sending in their subscriptions. A California Department, edited by Donald A. Cohen, assures Western collectors that their wants will not be neglected.

A collector of curios named James Hartley, who for many years robbed Indian graves on this coast, has met retribution presumably at the hands of the Indians. He had been missing for some time. September 3, his body was found by a timber cruiser on a small island in Deadman's lake near Mt. St. Helens. The body was found in an old canoe, the feet and hands bound with hazel withes, and fastened to the bow and stern of a canoe with a stake driven through it, just below the breast bone, showing that he had been put to death by torture such as was inflicted upon white men in the early history of this country.

CONSTITUTION AND BY-LAWS OF
THE NORTHWESTERN ORNITHOLOGICAL
ASSOCIATION.

The study of ornithology being a foremost science of the day, calculated to cultivate the better qualities of man and to strengthen the powers of systematic investigation and close observation, the undersigned agree to form an association, and for its government do hereby adopt the following constitution.

ARTICLE I—NAME.

This organization shall be known and designated as the Northwestern Ornithological Association.

ARTICLE II—OBJECTS.

The object of this association shall be, by the active co operation of its members, to advance the science of ornithology in all its forms, to disseminate ornithological knowledge in the Northwest, to awaken an interest in ornithology in both old and young, and to impart mutual benefit to its members.

ARTICLE III—MEMBERS.

Sec. 1. Members shall be of three classes; Honorary, Active, and Associate.

Sec. 2. Honorary members shall be elected for their eminence in ornithology.

Sec. 3. Any person, interested in ornithology residing in the Northwest, may become an active member. Active members only, shall have the power to vote.

Sec. 4. Any person, interested in ornithology, may become an associate member.

ARTICLE IV—OFFICERS.

The officers of this association shall be a president, first-vice president, second vice president, secretary, and treasurer. A committee consisting of the president as chairman, the first vice-president, and second vice-president shall be called the council.

ARTICLE V—DUTIES OF OFFICERS.

Sec. 1. President. It shall be the duty of the president (1) to preside at all meetings of the association; (2) to appoint all committees; (3) to have general management of the association

and direct all investigations; (4) to report to the association at the end of his term of office of the work accomplished during the year, and work to be attended to the following year, (5) and to perform any other duties that may be required of him by this constitution.

Sec. 2. First Vice-President. It shall be the duty of the first vice-president (1) to preside at meetings in case of the president's absence; (2) to become president in case of a vacancy in that office; (3) and to perform any other duties that may be required of him by this constitution.

Sec. 3. Second Vice-President. It shall be the duty of the second vice-president (1) to become president in case of a vacancy in the office of both president and first vice-president, (2) and perform any other duties that may be required of him by this constitution.

Sec. 4. Secretary. It shall be the duty of the secretary (1) to keep a record of all meetings of the association and of its members and officers, and make reports of the same in the official organ; (2) to notify persons of their election to membership, and members of their election to office; (3) to prepare the results of investigations for publication in the official organ; (4) to collect all fees and dues, receipting for same; (5) to purchase, with consent of the council, such supplies as are needed by the association, and turn over all money not so used to the treasurer, and keep a correct account of all money received and expended; (6) to report to the association at the end of his term of office (7) and to perform any other duties that may be required of him by this constitution.

Sec. 5. Treasurer. It shall be the duty of the treasurer (1) to hold in trust all money received by him from the secretary, receipting for same; (2) to pay out money only by a written order signed by at least two members of the council; (3) to report to the association at the end of his term of office; (4) and to perform any other duties that may be required of him by this constitution.

Sec. 6. The Council. The members of the

council (1) shall vote upon the names of all candidates for membership and the chairman shall notify the secretary of all persons elected to membership; (2) to present a plan of work to the association at the annual meeting, said plan of work being subject to the approval of the association; (3) and to draw orders on the treasurer, to meet expenses of the association not otherwise provided for.

ARTICLE VI—ELECTION OF OFFICERS.

Sec. 7. The election of officers shall be held annually at the annual meeting.

Sec. 2. The officers of this association shall be elected by a majority vote of the active members voting, and shall be chosen from among the active members.

ARTICLE VII—OFFICIAL ORGAN.

Sec. 1. The official organ of this association shall be the magazine known as the Oregon Naturalist.

Sec. 2. It shall contain all reports and proceedings of this association.

ARTICLE VIII—MEETINGS.

An annual meeting of this association shall be held at a convenient time and place, during the month of December of each year; place of said meeting to be decided by the members, at the preceding annual meeting, and time to be designated by the president.

ARTICLE IX—EXPULSIONS.

Any member who shall be detected in any fraudulent acts whatsoever, shall, upon conviction thereof be expelled by a two thirds vote of the members present at any annual meeting.

ARTICLE X—AMENDMENTS.

All proposed amendments to this constitution shall be presented at the regular annual meeting and may be adopted by a two thirds vote of all active members present.

BY-LAWS.

Sec. 1. Each active member shall be required to send to the secretary, or to such person as the president may direct, any notes he may have upon the family of birds which is under special consideration

Sec. 2. Associate members are expected to furnish notes on the family of birds which is

under special consideration whenever they are able to do so.

Sec. 3. Applications for membership shall be sent to the secretary, who shall forward the same to the council.

Sec. 4. The president shall have the power to appoint an editor, to assist the secretary, who shall have charge of the space assigned to the Official Organ.

Sec. 5. The membership fee of all members shall be fifty cents; this shall cover all dues to the first of January after initiation.

Sec. 6. The annual dues of all members shall be fifty cents, payable January first of each year.

Sec. 7. The Oregon Naturalist shall be sent free to all members, who are not in arrears.

Sec. 8. The constitution and by-laws of of this association shall be kept by the secretary. Each member shall be entitled to copies free of charge.

Sec. 9. All papers presented at the annual meeting shall become the property of the association, and shall be filed with the secretary.

Sec. 10. The by laws may be amended under the same conditions as the constitution.

Kansas City, Mo., Aug., 30, 1896.

[To "The Oregon Naturalist."]

During this summer I have been studying the common fire-fly, *Sampyris noctiluca*. Works on entomology give but a very meager account of the anatomy of its light-bearing organs and give also a paucity of information of the nature of the light produced by them. I have studied its organs of light with the aid of the microscope and the peculiar light with the spectroscope. I am working on a spectroscopic chart of the light of the fire-fly.

The study of light is engaging the attention of physicists all over the world. I believe that the study of the light of the fire-fly is just as important as that of the electric light and may be a link to its solution, for the drift of thought is in the direction of producing light without heat.

DR. THEODORE W. SCHAEFER.

— THE —
OREGON NATURALIST.



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THE IMPORTED AND ACCLIMATED
GERMAN SONG BIRDS IN OREGON.

By C. F. Pfluger, Sec'y of the Society of the Introduction of song-birds into Oregon, at Portland.

THE GRAY LINNET (*Fringilla cannabina*,
Der Haenfling).

Of these beautiful song-birds 35 pairs were introduced by the Society into Oregon in 1889 and 1892.

The Linnet is a well-known bird all over Europe. During the summer it frequents woods, groves, etc., and in autumn betakes itself to the open fields. It is a migratory bird, passing in winter from one place to another in search of food. In March, by which time it has usually paired, it may be noticed in its usual haunts. It is more than 5 inches in length, of which the tail measures $2\frac{1}{4}$ inches. The beak is 6 lines long, dirty blue in summer, and in winter whitish gray, tipped with brown. The iris is dark brown; the feet are black, and 8 lines in height. The plumage of the male Linnet varies exceedingly at different ages and seasons of the year, and has produced great confusion in works on ornithology.

A male of 3 years old answer in spring to the following description: The forehead is blood-red; the rest of the head reddish ashen gray, spotted on the poll with black, and on the cheeks, the sides of the neck, and round the eyes, with reddish white. The feathers of the upper part of the back are rusty brown, bordered with a lighter shade of the same color; the lower part is mottled with gray and white;

the upper tail coverts are black, edged with reddish white, sparingly spotted with reddish gray. The feathers on the sides of the breast are blood red, edged with reddish white; the side of the belly light rust color; the rest of the lower part of the body reddish white. The first row of coverts are black edged with reddish white; the rest are rusty brown, with margin of a lighter hue. The pen feathers are black, tipped with dirty white, the first row being edged with white almost up to the points.

The white margin of the narrow plume forms a stripe parallel with the pen feathers. The tail is forked and black, the four external feathers having on each a deep margin of white, which in the two center feathers is narrower, and tinged with red. After the autumnal moulting, the red on the forehead disappears. Males of one year have no red feathers on the head.

The female, which is somewhat smaller than the male, is without the reddish tints, and the other plumage, though the same as the male, is paler.

The Linnet feeds on all kinds of seeds, which it shells and softens in its crop, before digesting them. It is especially fond of rape, cabbage, hemp, poppy and linseed. It breeds twice a year, the female laying each time five to six bluish white eggs, thickly marked with flesh colored and reddish brown specks and stripes. The nest, which is most frequently found in pine and fir trees, or in thick bushes and hedges, is well built of fine roots, grass stalks, and moss, lined with wool and hair. The old birds feed their young from the crops.

The song of the Linnet is loud and flute-like, and exceedingly agreeable. It consists of several connected passages, and is esteemed in proportion to the frequency with which certain clear, sonorous notes, called the Linnet's crow, recur. It sings throughout the year, with the exception of the moulting season.

The hybrid between the Linnet and Canary is well known. It is hardly to be distinguished from the Grey Canary, and has not only a very excellent voice, but is quick in learning to whistle.

The Linnet gives place to few birds in point of song. His tone is mellow, and his notes sprightly, artfully varying into the plaintive strain, and returning again to the sprightly, with the greatest address and most masterly execution.

It is probable that the term Linnet is derived from the fondness of this bird for the seeds of the flax plant. Except during the breeding season these birds are usually seen in flocks, feeding generally upon small seeds, particularly those of the cruciform plants, with other seeds of the flax, and thistle.

THE GREEN LINNET OR GREENFINCH
(*Fringilla chloris*, *Der Gruenling*.)

Of these song birds, 15 pairs were introduced by the Society into Oregon in 1889 and 1892.

The Green Linnet is to be found all over the continent of Europe. In Germany it is one of the commonest birds. It may be observed in summer in the thickets, gardens, and wherever there are willow trees; but in winter, migrates in large flocks, and does not return until March.

This bird, which is somewhat longer than the Chaffinch, is 6 inches in length, of which the tail measures $2\frac{1}{2}$ inches. The beak is 5 lines long, flesh-colored, darker above than below, and light brown in winter. The iris is dark brown; the feet flesh-colored, tinged with blue, and 8 lines high. The general color is yellowish green; on the under part of the body a lighter green, which is lightest at the rump and belly, and on the latter tinged with white. The quill feathers are blackish, bordered with

yellow; the few outside tail feathers yellow from the middle to the root, but else-where black with a white border.

The female is smaller, and easily distinguished from the male, by having the upper part of the body of a browner green, and the lower part more ashen gray than yellowish green. There are some yellow spots on the breast and the belly, and the under tail coverts are rather white than yellow. It feeds on all kinds of seeds; hemp and rape seed, linseed, juniper berries, spurge laurel berries, turnip, thistle and lettuce seeds. It is especially fond of the seeds of the milk thistle, it feeds also on insects.

The Green Linnet or Greenfinch generally attaches its nest to a thick branch of a tree, though it is sometimes found in a thick hedge. It is well built of wool, coral-moss, etc., and lined with fine root-fibres and hair.

The female lays twice a year four or five eggs, pointed at the ends, and silvery grey, spotted with violet or brown. At first the young are greenish grey, although the male may from the first be distinguished by a somewhat yellow tinge.

Although their song has no great recommendation, it is not unpleasant, so that some people even prefer it to the grey Linnet's. They sing throughout the year. Their call while on the wing is Yek, yek! and when perched, Schoving.

The young are mostly fed on green caterpillars and small insects, of which the species destroy immense numbers at this period, it is in this respect partly of insectivorous habits.

SEA OTTER HUNTERS.

SITKA INDIANS ON A TRIP TO PUGET SOUND.

"Fred," "Jackson," "Lizzie," "Kadashan," Robert Irmschee and W. S. Hammond are a party of Sitka Indians in Seattle to see the sights and incidently to see what they can do towards disposing of this year's catch of furs and skins, says the Seattle Times. The party

arrived on the steamship Alki, and will return north on the same boat. All are Siska Indians and live on Baranoff island, and every one of them is a hunter save Lizzie—the crack men of their tribe. They came down, as Hammond says, to see what Seattle can afford in the way of a permanent market for their skins. Heretofore buyers of furs and skins have always gone to Alaska every year and bought up the skins and furs from the Indians, and have always had to pay stiff prices. The Indian is always looking out for the very best bargain he can make, and that is why the Alaska hunting party is in Seattle. This trait of the Indian never was more neatly demonstrated than when a Times reporter engaged them in conversation upon the manner and style of hunting sea otter, black bear and marten. After proceeding to relate in part, in very fair English, how it was all done, one of the spokesmen promptly demanded \$2 before proceeding any further.

When told that Seattle reporters seldom possessed so much money, they were not one bit appeased, and got up and strode away, refusing further details.

The party have three otter skins, a number of black bear skins and marten skins. The Indians frequently get as much as \$500 for a sea otter in Alaska, and they expect to get better figures. Black bear frequently bring \$50 apiece in Alaska, and as high as \$9 is paid for marten. The hunters expected to do better by bringing their skins and furs here, and say that, if such proves the case, they will bring all their catches here next year.

Fred, who is a small man, with keen, black eyes, is said to be the best hunter in Alaska, and apparently felt very proud of the distinction. He has a record of five sea otter killed last year, for which he received \$1500. These were killed during a three days' hunt.

This year sea otter were very scarce, and the hunters say that next year and the year following no otter will be taken, and they will be given a chance to multiply. This year, with 100 canoes out, but 15 sea otter were taken. The chase after the sea otter is along the coast of Alaska, in the vicinity of Latuya

bay, which is under the frowning brow of Mount Fairweather. The Indians say it is a very dangerous coast for canoemen, and this year they had three of their canoes thrown upon the beach by the tremendous surf and broken to pieces. Nearly every year several of the hunters lose their lives by being upset off shore during the storms, or are thrown upon the rocks along the coast.

Last year, while Fred was out at the time he made his banner killing, his uncle's canoe was upset and his friend drowned. The hunters use a small shotgun in killing the sea otter. The animals are most often seen well out from land, and when one is sighted, every hunter is immediately upon his feet in the bow of his canoe, and the next time the otter sticks his head above water a score of guns throw their leaden pellets in his direction. The sea otter is very wary, and is perhaps the most difficult of all fur-bearing animals to kill. White men never attempt its capture in Alaskan waters.

The Indians hunt the black bear back in the interior from Latuya bay, near the base of the mountains and in the gorges. They use trained Alaska dogs, usually four or six in a party. The hunters provide themselves with rifles, but say they could not succeed in capturing many without their dogs. They also use bear traps such as are to be bought in the hardware stores, in capturing them, and a long time ago they say they used to make a trap themselves which was not dissimilar from the deadfall of the backwoodsman. A big log, heavily weighted on one end and elevated and held up on triggers at the other, constituted the trap proper. To get the bear to place himself in position to be struck down by the log, a fence of logs was constructed about the trap and bait, so placed that, when the bear attempted to pull it away, he sprung the trap.

Marten are hunted and caught along the coast of Alaska from Sitka westward, and for some distance back in the interior. The Sitka Indians do not go much farther west than Latuya bay, but do a great deal of hunting about the southern end of Baranoff island.

SOME NORTH CAROLINA MINERALS.

(Continued from Page 126.)

RUTILATED QUARTZ.

If you will imagine a perfectly limpid piece of ice with fine hairlike, blood red strands of silk running through it in all directions you will get a very fair idea of this mineral in its finest state. There are several kinds that depend for greater excellence altogether on individual taste.

The main difference is in the quality of the rutile penetrating and degree of limpidity of the quartz. Besides the stones with a net work of red rutile there are others containing a rutile dark steel-gray to nearly black, and again it may be golden yellow or silvery, still holding its power of throwing tints of reflected light. In one kind the quartz is very slightly wine tinted and when filled with the red rutile the whole specimen receives a decidedly red cast, evenly distributed and is much strengthened by cutting. Crystals are occasionally found thus penetrated but when fine in form and quality are indeed "cabinet rarities".

The most unique of these I have yet seen is a medium sized single crystal of regular shape in which the rutile starts from a nucleus near the base of the prisms and radiates in a fan-like arrangement through all the upper part of the crystal. The crystal is very valuable. The mineral generally occurs massive in boulders from a few ounces up to as many pounds, scattered over the surface of the ground.

No regular deposit has yet been found. The finest quality yet found was formerly met with in some quantity a few miles from Casar P. O. in Cleveland county. Near Henry in Lincoln county the silvery and dark threaded kinds are sometimes found in crystals. At this point some of the crystals of quartz are shot through and through with a square hole showing where the rutile has rotted away.

A good quality was formerly found at Stony Point in Alexander county. It is rare at all the localities.

There is still another variety to be mentioned. This is an amethyst penetrated by rutile. A few pounds of this was found in Lincoln county

last year. Though it was very fine few if any of the crystals would cut gems of more than two carats.

The crystals were all small, grouped, planted on slabs of dark-quartz and coated just under the surface with bright red scales of hematite. This seems to be a true vein accompanied with mica and brilliant perfect crystals of hematite. It is yet sparingly found and may be expected at this point and under favorable circumstances at any time in the future. The pit is situated about two miles west of Henry P. O. in Lincoln county.

ZIRCON.

If one per cent of the zircon that could be mined in North Carolina were of gem quality the world could be abundantly supplied, but few if any stones sufficiently clear for the purpose have yet been noticed in the state. In the gold bearing gravels of the gold belt—Mechlinburg, Rowan, Cabanus, McDowell and other counties, zircon is very plenty. Though finely crystallized and colored in subdued tints of pink, yellow blue, clear and etc. They are small, too small for gems, not larger than a good sized grain of wheat.

In the monazite washings in Cleveland county a few of this kind were found that might be cut into small gems but during operations very little attention was paid them. The largest deposit of zircon in the state, possibly in the world lies along the Green river in Henderson county. In the hill bordering on the river and in the neighborhood of the Saluda Mountains they are found quite abundantly in a decomposed magnesian formation. And associated with several magnesian minerals. The crystals seldom vary from the type but interesting twin forms are sometimes found. They are regular tetrahedrons without modifications, in size from a mustard grain up to one inch along the longest axis.

The color is a light snuff to nearly white.

This deposit was worked for commercial purposes some years ago for a German company and several tons taken out, but nothing has been done there in recent years.

Another deposit, much less in extent but of far more interest mineralogically occurs in Iredell county, not far from Statesville.

These crystals are much larger and are a light brown or chestnut color. But the interest lies in the form alone as none that I have seen are clear in any degree.

They are very interesting crystallographically. Both pyramids are perfect and regular but the prisms instead of presenting the usual number of planes show double the number. Crystals of $1\frac{1}{2}$ inches across the base are found here. This form occurs nowhere else in the state to my knowledge.

In both the latter deposits groups containing as many as 25 crystals have been found. The crystals from the Iredell county locality command fancy prices, but the others are cheap and of much interest to the beginner.

E. H. HARN,

Henry, N. C.

A COIN OLD AND RARE.

Lynn Sterns, of Baker City, has in his possession a rare curiosity in the shape of an old gold coin. It is a \$5 piece of native gold. On one side in a circle are the words: "Oregon Exchange Company;" on the face, "130 G—5 D;" on the reverse side, in circle, the letters, "K. M. T. A. W. R. C. S;" below the letters a cut of a beaver and the letters, "T. O.," with date "1849."

A HUGE PELICAN.

James Osborn yesterday brought to this city an American white pelican, measuring exactly eight feet from tip to tip, which he killed on Monday afternoon on Geo. B. Sturgill's farm on Lower Powder. It is the first bird of this species that has been seen in this section, when it was brought to the ground by a single No. 6 shot which winged the infrequent visitor.—*The Morning Democrat*, Sept. 23, Baker City, Oregon.

Owing to the fact that the majority of our members have been absent from home for various reasons during the summer months, it was thought best to discontinue our local meetings until the vacation season was over. But now, after our release we must continue our work with renewed energy. Now is the time to embody the results of our summer observations in systematically arranged notes and papers, to be presented in person or by mail at our monthly meetings.

This plan is expedient for as soon as we can demonstrate to the ornithological world that we are a wide awake, hard-working association of students of bird life, instead of mere mercenary egg collectors, then can we be assured of due recognition from the older and more scientific societies of the East. We are not as obscure and insignificant as we sometimes feel. We are being hopefully watched by many of our chief ornithologists who are waiting to see of what stuff we are made. An extensive, untrodden field is open to us: Let us do what we can to explore it.

At our next two monthly meetings the following birds will be taken up.
Saturday, Oct. 24th.,

Western Winter Wren (*Troglodytes hiemalis pacificus*). Vigors' Wren (*Thryothorus bewickii spilurus*). Parkmann's Wren (*Troglodytes ædon parkmannii*).

Saturday, Nov. 21st,

Lewis' Woodpecker, *Melanerpes torquatus*. Redshafted Flicker (*Colaptes cafer*). Northwest-

ern Flicker (*Colaptes cafer saturator*) All notes for the October meeting should be sent in before October 20th.

Hoping to see you personally on the evening of October 24th at my residence in Portland, Or., or, if not sooner, at our annual meeting in Salem.

WM. L. FINLEY.

A SPECIMEN EXPEDITION.

About the 20th of June 1892, in company with a younger brother, I left the city of Petersburg Ill., and started down the Sangamon River on a relic hunt. We loaded our tent, bedding, fishing-tackle, provisions, guns, etc., into our boat and pushed off. The day was quite warm and we allowed the boat to float along with the current. We stopped occasionally at the sand bars and dug in the sand for turtle's eggs, and succeeded in finding about one hundred and seventy-five. Most of them were round as marbles but some were quite elongated.

At night we landed and camped at the foot of a bluff famous for its so-called petrifying spring. A spring gushes from the bank near the top, and flowing, deposits a covering of lime over the moss and rushes.

The next morning after gathering a few specimens from the spring, we packed up and continued our journey. Some time before noon we arrived at the place where we intended to camp and as we expected to stay several days we set about arranging the place for comfort.

A more beautiful camping place would have been hard to find. Situated at the foot of a huge bluff, on a grassy plateau, with the river in front and not a house or cornfield in sight to remind one of civilization, it was indeed a spot that a lover of nature could enjoy. Near by in a deep and shady valley a spring gushes out and flows down to the river. We dug a little reservoir just below and stored our meat, butter, and milk where they kept perfectly fresh and cool.

After supper we baited our fish lines and slept soundly till morning. We were up before dawn and rejoiced greatly over several fine fish, which we found on our lines. These we cleaned and cooked for breakfast and it makes one's mouth water now to think how good they tasted.

After breakfast, armed with pick and spade, we went to the mounds on the hill above. There are a number of mounds in this neighbor-

hood, all of which have been partially explored. Right on the highest point of the bluff, where the bank slopes abruptly off to the river, 100 feet below, is a large shell mound. Part of the mound has caved off and the contents lie scattered along the bank. We hunted over the bank and obtained many pieces of pottery many of them being curiously figured. We afterwards dug through the mound and found that it extended down about four feet and was composed of shells, bones, fragments of pottery and ashes. In the bottom we found fragments of clay bricks bearing the marks of human hands. It is evidently the old kitchen or cooking place of the Indians. In the mound we found five or six flint arrow points and many long, sharp scales of flint. We found also the lower canine tooth of a bear with two holes drilled, in the side, down to the nerve cavity, so that it might be strung on a string, a horn knife handle and another piece of polished bone with a hole in it, many fragments of deer horns, beavers skulls, turtle shell, etc.

Neither the shells or the bones had the appearance of great age although we know that the last of the Indians left this part of the country eighty years ago and no Indians have lived at the spot within the memory of the oldest inhabitant.

Some years ago I secured a fine stone pipe from this place and a copper chisel.

The next day I visited a number of farm houses in the neighborhood and collected three stone axes and about forty arrow points.

We spent about ten days, digging or wandering about as we felt inclined. There was a steep clay bank near in which hundreds of sand marins had built their nests. We did not fail to gather a number of "sets" for exchange. At last we packed up and floated down the river to a point where we could ship our boat home by rail.

We returned home thinking that those who never camped out did not know what enjoyment was.

E. H. HAMILTON.

GEYSERS IN THE YELLOWSTONE PARK DECLINING IN STRENGTH.

That the geysers of the Yellowstone Park are losing in activity is vouched for by W. W. Wylie, who has spent more years in the National Park than any other man. Mr. Wylie, in a dispatch from Helena, says: "As compared with 16 years ago, I should say there is not more than one-half the activity in the upper basin. I believe that there will be few, if any, geysers in 50 years from now."

The Yellowstone Park geysers are the greatest, in number and activity, in the world, those of Iceland and New Zealand being insignificant in comparison with the larger ones. The Yellowstone Geysers have been scientifically observed since about 1870.

The geyser of Iceland and New Zealand have been observed for the last 100 years, and it is known that in that time they have declined in power and activity.

PROFESSOR WINCHELL'S PASTE.

At the request of a subscriber we give receipt for above, as follows: Take 2 ounces of clear gum arabic, $1\frac{1}{2}$ ounces of fine starch and $\frac{1}{2}$ ounce of white sugar. Pulverize the gum arabic, and dissolve it in as much water as the laundress would use for the quantity indicated. Dissolve the starch and sugar in the gum solution. Then cook the mixture in a water bath until clear. The cement should be as thick as tar. This cement will stick to glazed surfaces and is good to repair broken rocks, minerals, or fossils.

WHITE CROWS.

Mr. F. A. Stuhr the bird man of Portland, Or., has four live crows, taken from a nest in Lane county, Or. Three of them are almost entirely white, only showing slight black coloration on the primaries and at the base of the bill. Iris, brown. Feet and legs nearly white.

AN ALBINO FROG.

Mr. Hugo Mulertt, the editor of THE AQUARIUM of Brooklyn, N. Y., writes, under September 29, 1896, as follows:

"Yesterday a young student of the Packer Institute of this city told us of a curiously colored frog which she had caught a day or two before near her country home at Orient, Long Island. When the specimen was brought to us afterwards for identification, we recognized it at once as an albino leopard frog (*Rana halecina*).

The upper side of the body of the common leopard frog is green or brown in color, in both cases, with a brilliant bronze lustre; the two folds along its back are bronze colored, standing well out from their darker base; upon its back are dark, round spots arranged in two lines, while the upper parts of the hind legs are ornamented with dark bars.

The specimen in question is a fully developed male, about three years old. The color of all parts of its body, seen from above, is a brilliant cream; while the underside of the specimen is pure white; along its back and on the hind legs the markings, characteristic to the species, appear indistinctly also in cream color, just a trifle deeper in shade; they can be made out by close inspection. The eyes are of a beautiful deep pink. Owing to the absence of dark colors in the skin, the animal has a very delicate appearance; it looks as if it was carved of ivory.

We have seen albino deer, fox, squirrels, ferrets, cats, raven, eel, and years ago had an albino catfish (species *Amiurus marmoratus*) in our collection, not to mention the more frequent albino rabbits, rats, and mice, but for nearly half a century during which we collected and handled large numbers of every known species of batrachians, we have never before seen an albino frog, nor have we read or heard that any one else ever has noticed such a freak in frogdom. It may, therefore be safely said that this albino frog is the first one on record.

The specimen is now in one of the smaller aquariums of the Institute, where it is admired by the students at their leisure moments.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

Official Organ North-Western Ornithological Association.

JOHN MARTIN, EDITOR.

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Palestine, Oregon.

NOVEMBER, 1896.

With this issue we undertake the publication of the OREGON NATURALIST. We hope we shall succeed in our endeavors to maintain the excellent standard attained by the former publishers. We will publish instructive articles and live notes each month, in short, make it one of the leading papers devoted to Natural Science.

All advertisements and exchanges should reach this office by the 15th to insure insertion in the current number.

A. B. Averill of Portland has one of the "Northwest Tokens" in copper. These tokens were used by the Astor Company, in its trade relations with Indians. On one side is the word "Token" over a bust facing to the right; under bust, date, "1820." Reverse, "Northwest Company" over cut of a beaver.

Near Stockton, Cal. finds have lately been made of several L shaped obsidian knives, (?) serrated. Considerable shell wampum of various sizes one kind appearing to be sawed sections of some round tooth. The knives are small, the largest not more than four inches long.

INTERESTING DISCOVERIES BY PENNSYLVANIA MOUND EXCAVATORS.

Great interest is manifested over the discovery of implements in a mound at McKee rocks, which is being excavated for scientific purposes.

The work is being done under the direction of Thomas Harper, of Pittsburgh, who believes that the specimens found here are not less than 1000 years old, and proves that they were made by the most ancient people that inhabited this country. The list includes a bone implement which Mr. Harper believes was a flaker, the pieces of which are separated in five or six parts. Bone needles or awls also were found, and Mr. Harper says they can be partially restored.

A Tomahawk, which Mr. Harper regards as being not less than 1000 years old, was found. The same kind of weapons are also found on the British isles. It is made of gneiss. He considers this an extraordinary discovery. The specimens will be placed in the Carnegie museum.

— THE —
OREGON NATURALIST.



VOL. III. PALESTINE, OREGON, DECEMBER, 1896. No. 12

SOME SLIPPERY ACQUAINT-
ANCES.

BY ANGUS GAINES.

You all have seen lizards, those bright and active little animals that come out of their hiding places under loose stones, or old boards, and bask in the sun or catch flies until they see you and then dart away as quick as a flash, but how many of you have ever seen a salamander?

In size and shape the salamander is very much like a lizard, but it is entirely different in its ways. Lizards lay their eggs in dry dirt and the little ones, when they are hatched, have the same shape as their parents, although they are of a different color, but the mother salamander, after living on land nearly the whole year, goes down to the pond or river and lays her eggs in the water. When the eggs hatch you would scarcely believe that the mother would know her own children, for they are not the least bit like her. In fact they are not salamanders at all, but tadpoles, having no legs to walk with and no lungs to breathe the air, but instead of these they have gills for use under water and good tail fins for swimming.

The salamander tadpoles are not alone for there are other tadpoles there, some of which are to become frogs while others are to develop into toads. A jolly good time they have together, coming out into

the shallow places to get the warm sunshine, darting back into the deep dark holes to hide from some passing enemy, playing and chasing each other through the sparkling waves, or hunting through the slimy mud in search of food.

It seems a pity but this kind of life cannot endure forever and a wonderful change gradually comes over the tadpole. His body grows longer, his gills disappear and he acquires a habit of coming to the surface of the water every now and then after air. At length the time comes for him to undergo his last change and he comes out of the water, his skin splits open, he crawls out of it and is no longer a tadpole but a land animal with lungs for breathing air and four legs for walking. Four legs? Yes but they are very short and weak ones and his poor little toes are so thin and soft that you can almost see through them. With such feeble limbs he is, of course a very poor traveller and could never run away from his enemies, as the lizard does, so he crawls under some loose stone or fallen log and lies hid,—lies hid almost all the rest of his life.

You might suppose that salamanders would have a dull and miserable time, yet it is quite probable that, although they prefer dark wet places to dry sunshiny ones, they enjoy life quite as much as other animals do.

They are not very industrious even

when hunting food, but lie still in their hiding places, half buried in the damp ground, and content themselves with such grubs, earthworms or insects as are obliging enough to come up to be eaten.

They do not change their shapes any more, but they do shed their skins now and then and get new coats. It is said that they swallow their cast off skins though I have never seen them do this.

There are many different kinds of salamanders. Some kinds are of a dull blue black color, others are a beautiful red or yellow with bright black spots, stripes or bars. Still another kind has clear white bars across his black back and is called the marbled salamander, while another kind is called the tiger salamander on account of the yellow stripes down its sides.

Some of them are soft weak and helpless looking and make no attempt to escape when found, but although all of them are sluggish in their dispositions there are a few that can move quite rapidly when scared, travelling with a gait that is a strong and wonderful combination of squirming, running and leaping. You can never understand this singular way of travelling until you find an active salamander and watch him run. You must be careful, however, not to play with the little fellows too much for they are very soft and easily hurt.

Salamanders are found so often in damp old cellars, in dark caves and other gloomy places where superstitious people might imagine ghosts would stay that the ignorant imagine that there is something ghostly and supernatural about them. Many years ago people actually believed that salamanders could live in the fire. Foolish as this appears to us it was really believed until a philosopher wiser than the rest put one in the fire to try it. This was a cruel experiment, for of course the poor little animal was burned up at

once, but it settled forever the story of salamanders living in fire.

There are still people who believe that these harmless little animals are poisonous and who kill them whenever they can find them, but this is the result of the grossest ignorance. The salamander will not try to bite and could not hurt you if it did. No one who understands how curious, beautiful and innocent they are could ever harm one of them.

Salamanders do not make satisfactory pets, yet I have kept a good many of them to study their habits. I once shut up some marbled salamanders in a pen on the ground, with old chunks of wood for them to hide under. They never showed any sign of becoming tame but would lie hid all the time and refused to eat when I was watching them and at last they burrowed out and escaped.

Another that I tried to keep was brown, dotted over with white spots, and was one of the kind called scaly or four toed salamander. One day when it was crawling about over a piece of bark, the bark tipped up and the salamander fell on his back. Instead of turning over again the little animal lay perfectly still as if dead, until I touched him and then he was all right again. This, I found, was his usual way of meeting trouble, simply lying still. His limbs appeared to be very feeble, and yet he climbed up the side of a glass jar in an effort to escape and was rewarded for his labor by being set at liberty in a safe place.

One day when I was handling a slimy salamander it wrapped its tail around one of my fingers and held on for awhile head downwards. I afterwards saw it repeat this trick frequently, hanging by its tail from the stem of some plant.

Salamanders bury themselves in the ground and sleep through the winter without food.

NOTES ON WINTER BIRDS OF YAM-
HILL CO., OREGON.

The following notes are not compiled from the observations of many years, and are not intended as a list of the winter birds of this county, as they are more or less incomplete in general and especially so regarding ducks and other water birds, great numbers of which congregate on our lakes and sloughs, and hawks and owls, numerous species of which abound here which the writer has been unable to identify. But it is hoped, however, that these notes, incomplete as they are, will give the Eastern bird lover, who is snowed under three months of the year, an idea of what the Oregon ornithologist enjoys during the winter months.

BRANTA CANADENSIS. Canada Goose. A common winter resident, wanders about in flocks from place to place during the day, sometimes alighting on a wheat field until scared up by a hunter. As night approaches they alight on a wheat field or body of water, and at this time many are shot. As they fly low when about to alight, the hunters conceal themselves behind fences or trees until a flock is over them, when they fire into them. It is said that when a flock is feeding, a man can drive a horse ahead of him and get nearly among them before they suspect danger, but I have not had the opportunity to verify this statement. A few years ago geese did considerable damage to winter wheat, being such a nuisance in Southern Oregon that farmers stretched twine over their fields to keep the geese off, but we are not troubled now as the pot-hunter has been so successful in thinning them out.

BRANTA CANADENSIS HUTCHINSI. Hutchin's Goose. The remarks on above species will refer equally as well to this species. It is sometimes called California Goose.

GALLINAGO DELICATA. Wilson's Snipe. Jack Snipe, rare. Occasionally seen in com-

panies of seven or eight in wet boggy localities.

ÆGRALITIS VOCIFERA. Killdeer. Rather rare. Sometimes heard after nightfall flying over in early winter. *

OREORTYX PICTUS. Mountain Partridge. Not uncommon.

DENDRAGAPUS OBSCURUS FULIGINOSUS. Sooty Grouse. Seldom seen, as they remain hidden in tops of fir trees.

BONASA UMBELLUS SABINI. Oregon Ruffed Grouse. Not uncommon, but keeps out of sight most of the time.

ZENAIDURA MACROURA. Mourning Dove. Generally considered only a summer resident, but last winter several birds of this species were seen.

ACGYPHTER VELOX. Sharp-shinned Hawk. Rare.

FALCO SPARVERIUS. American Sparrow Hawk. It is a very common sight to see this pretty little falcon perched on a fence post at the side of road, or hovering in the air a few moments, pounce down upon a mouse.

BUBO VIRGINIANUS SATURATUS. Dusky Horned Owl. Rather uncommon in the valley, but common in the mountains.

CERYLE ALCYON. Belted Kingfisher. Common along our creeks.

DRYOBATES VILLOSUM HARRISII. Harris's Woodpecker. Common.

COLAPTES CAFER SATURATIOR. Northwestern Flicker. Abundant.

OCTOCORIS ALPESTRIS STRIGOSA. Streaked Horned Lark. Always abundant along the highways, sitting on the fence posts favoring passersby with their peculiar jerky song. They are some-times called "Polly-wash-dishes."

CORVUS AMERICANUS HESPERI. California Crow. Abundant, frequently holding meetings which I call caucuses, because when a lot of crows get together and talk all at once it reminds me of a lot of politicians.

CYANOCITTA STELLERI. Steller's Jay. Common.

APHELOCOMA CALIFORNICA. California Jay.

Not uncommon.

AGELAIUS TRICOLOR. Tricolored Blackbird. A few have been seen in company with *Scolecophagus cyanocephalus*.

STURELLA MAGNA NEGLECTA. Western Meadow Lark. Exceedingly abundant. They furnish us with superior songs nearly every day in the winter, a rain storm seemingly making no difference in this respect. They have two songs, a bold rollicking one which has often been described, and a low song which much resembles the song of *Agelaius*. The latter song is not often heard.

SCOLECOPHALUS CYANOCEPHALUS. Brewer's Blackbird. Common. A flock stayed with me several weeks last winter while I was plowing and with the help of robins and other birds took care of a large number of angle worms which were plowed up.

SPINUS TRISTIS. American Goldfinch. Occasionally seen in flocks about our orchards.

ZONOTRICHIA LEUCOPHRYS GAMBELI. Gambel's Sparrow. For the most part this species winters farther south, but one was seen here February 4th 1895.

JUNCO HYEMALIS OREGONUS. Oregon Junco One of our most abundant birds, alway in flocks They seem to enjoy snow better than sunshine

MELOSPIZA FASCIATA GUTTATA. Rusty Song Sparrow. The majority winter farther south, but a few remain with us to enliven our dreary, rainy winter days with their cheerful appearance and soul-stirring song. There were a pair staying about our premises last winter and desiring a specimen, I took one of them. For a time the lonely mate was about daily giving me concerts, even when snowing heavily, seemly to chide me with his beautiful song for depriving him of his companion. But in a short time a new mate appeared and now these two are constantly about, as happy as can be.

PIPILO MACULATES OREGONUS. Oregon Towhee. As is the case with above species, the Oregon Towhee is not as common in the winter as in the summer, but yet it is a common bird, twitching about the bushes uttering his

note of inquiry, "why"?

ANTHUS PENNSILVANICUS. American Pipit. Flocks of twenty to thirty are not uncommon.

THRYOTHOROUS BEWICKII SPILURUS. Vigor's Wren. Not uncommon. Always in pairs.

ANOTHURA TROGLODYTES PACIFICUS. Western Winter Wren. Common about brushy localities, frequently entertaining you with their very pleasing song which is as small as the bird itself.

PARUS ATRICAPILLUS OCCIDENTALIS. Oregon Chickadee. Common. A hardy fellow, cheerful at all times but at his best during a snow storm.

PARUS RUFESCENS. Rare. Sometimes seen in flocks in company with *P. atricapillus occidentalis*.

PSALTRIPARUS MINIMUS. Bush-tit. Not uncommon in flocks.

REGULUS SATRAPA OLIVACEUS. Western Golden-crowned Kinglet. Rare. Sometimes seen in flocks, generally in company with *P. minimus*.

REGULUS CALENDULA. Ruby crowned Kinglet. The only bird I ever saw of this species was on January 26th 1895. While cutting wood, a strange olive-colored bird alighted on a branch a few feet from me, but was gone again like a flash; that moment was long enough, however, to make known the little stranger, for the stripe of ruby on its crown unmistakably pronounced its identify.

MERULA MIGRATORIA PROPINQUA. Western Robin. Abundant. One has been around here nearly every day which has about half the wings white. The first song of the season of this species was heard on February 26th.

HESPEROCICHLA NAEVIA. Varied Thrush. Often called Alaska Robin. I have found this bird rather rare in this county, seeing but a few during the winter and these being shy and staying for the most part in the thick fir timber. During January and February of 1894, however, they were exceedingly abundant, so much so their appearance was noted by the casual observer and heralded by the press

as a "new bird to Oregon."

SIALIA MEXICANA. Western Bluebird. Appears in January and becomes common by February.

PHASIANUS TORQUATUS. Mongolian Pheasant. Various called Denny, Chinese, China, and Ring Pheasant. Fifteen years ago this bird was unknown in Oregon, but from three hens and fifteen cocks turned loose in 1880, and twenty eight more turned loose in 1881, they have increased at such a rapid rate that to-day they are an abundant bird throughout the Willamette valley. They are our most common game bird during the winter.

ARTHUR LAMSON POPE.

THE IMPORTED AND ACCLIMATED GERMAN SONG BIRDS IN OREGON.

By C. F. Pfluger, Sec'y of the Society of the Introduction of song-birds into Oregon, at Portland.

THE GOLDFINCH OR THISTLEFINCH. (*Fringilla carduelis*, *Der Stiglitz*.)

Of these handsome birds 40 pairs were introduced into Oregon by the Society in 1889 and 1892. They have become very plentiful throughout the State, and can be seen quite often on the east side of the city.

The Goldfinch is a native of the old world, and attractive from the beauty of its plumage and song, is $5\frac{3}{4}$ inches in length, of which the tail measures 2 inches. The beak is 5 lines in length very sharp, and slightly bent at the point, and compressed at the sides. In color it is whitish, with a tinge of brown at the tips. The feet are brown, slender, and 6 lines in height. The front of the head is bright scarlet, and a broad stripe of the same color encircles the root of the beak. The poll of the head is black, and a similar stripe passes over the back of the head down each side of the neck. Behind this stripe is a white spot on both sides, and the cheeks and upper part of the neck are also white. The back and nape of the neck are a beautiful brown; the rump whitish,

with a tinge of brown; and the larger feathers black. The sides of the breast and groin are light brown; the middle of the breast, the belly, and the vent, are whitish, tinged with brown. The thighs are grayish, the pen feathers velvety black, with tips, which becomes smaller in old birds, and are sometimes wanting in the first two feathers.

The middle pen feathers are edged on the outer plume—for about an inch—with bright yellow; which, in conjunction with the yellow tips of the hindmost large coverts, produces a most beautiful bright spot on the wings. The outer coverts are black, the tail is slightly forked, and black; the two, or, sometimes the three first pen feathers, having a white spot on the middle of the inner plume, and the rest being tipped with white. Occasionally, also, the third feather is quite black at the sides.

The female is somewhat smaller, and almost alike in plumage with that of the male.

The Goldfinch throughout summer frequents gardens, groves, and such mountainous districts as are not altogether uncultivated, or are planted with coniferous trees. It is not a bird of passage, but in autumn collects in flights of at most from 15 to 20, and makes excursions in search of thistle-down; forsaking districts where the snow is thick upon the ground, for others where the weather is more genial.

The food of the Goldfinch consists of various species of small seed; for example, plantain, chiccory, burdock, lettuce, cabbage, rape, canary, and thistle seeds.

The Goldfinch prefers to build its nest, which with that of the Chaffinch is among the most remarkable for the strength and beauty of its structure, in apple and pear trees. It is semispherical, and composed of moss, lichens, and fine root fibers, finely woven together, and lined with wool, hair and thistle-down.

The female lays once a year 5 to 6 pale-green eggs, spotted with light red, and often surrounded at the thick end with a circle of small blackish stripes. The young, which before the first moulting are grey on the head, and are fed from the crop. The males may at a very early period be distinguished by a narrow

white ring round the beak. The Goldfinch is a lively handsome bird, continually in motion, and uttering its pleasant and sonorous song at all periods of the year, except when moulting. It consists, besides several intricate and twittering notes, of certain tones, which resemble those of a harp. Of all the sweet songsters that delight the ear with their music, and the eye with their lively motions, graceful forms, and delicately blended tints, there is none more universally admired than this beautiful finch, termed Carduelis, or Thistle Finch, on account of its fondness for the downy seeds of a class of plants, which would be much more troublesome to the agriculturist, were it not for the assistance rendered by this bright-winged goldfinch. How curiously they hang on the prickly stems and leaves of the thistles—with what adroitness do they thrust their bills into the heart of the involucre—and how little do they regard any one as they ply their pleasant pursuit, unconscious of danger, and piping their mellow call-notes.

THE CHAFFINCH. (*Fringilla coelebs*,
Der Buchfink.)

Of these lovely song-birds 40 pairs were introduced by the Society into Oregon in 1889.

The Chaffinch is found all over Europe, and is exceeding common in Germany. It is a true bird of passage, although some birds may occasionally winter here. Their time of departure lasts from the beginning of October till the middle of November, and they return throughout March. It is wellknown that the Chaffinch, on account of its beautiful and extraordinary song, is the favorite of many persons. It is $6\frac{1}{2}$ inches in length of which the tail measures $2\frac{3}{4}$ inches. The beak, which is conical, as is the case with all birds of this genus (*Fringilla*), is white in winter, but at the time of pairing, when the bird begins to sing, it becomes dark blue, and remains so till the moulting season. The iris is chestnut brown, the feet are 9 lines high, and blackish brown. The claws are very sharp. The forehead is black, the top of the head and nape of the neck, grayish blue, and

in older birds dark blue with a very few feathers standing up like a crest. The upper part of the back is chestnut brown, tinged with olive green; the lower part of the back, and the rump, are greenish. The cheeks, throat, breast, and belly, are a reddish chestnut brown, tinged with white towards the vent. The shanks are gray, the pen feathers bordered on the outer plume with green, on the inner with white, and white also at the root. The smaller coverts are white; the larger black, tipped with white, from which arise two white stripes across the upper part of the wing. The tail feathers are black, the two in center being with ashen gray, and the two on the outside having each a large wedge-shaped white spot. All have a hardly perceptible border of green.

The female, which is easily distinguished from the male, is smaller; on the head, neck, and upper part of the back, greyish brown; on the lower part, dirty white; on the breast reddish grey. The beak is greyish brown in summer, and in winter whitish grey. The food of the Chaffinch consists of seeds, grain and all kinds of insects.

The Chaffinch's nest, which is built upon the branch of a tree, is constructed with great ingenuity. Its upper part is formed like a compressed sphere, as round as if it had been turned, and fastened to the bough by cobwebs and hair. It is composed of moss and small twigs, lined on the inside with feathers, thistle-down, and hair, and covered outwardly with the lichens of the trees on which it stands. The reason of this last mentioned precaution is probably to elude hostile observations, at all events, it is very difficult to distinguish the Chaffinch's nest from the trunk of the tree to which it is attached. The female hatches two broods every year, laying each time four to five light bluish grey eggs, covered with copper-colored spots and stripes.

The first brood, as indeed is the case with all birds which breed twice a year, consists almost exclusively of males; the second as exclusively of females.

The chief attractive qualities of the Chaffinch is undoubtedly its fine song. It has besides,

however, different cries by means of which it expresses its desires and wants. The cry of affection, which also seems to announce a change of weather, is 'Tref, tref;' the call which it utters while on its migration is a repeated 'Yak, yak;' and the call 'Fink, fink,' from which it derives its name, is heard so frequently as to warrant the conjecture that it is involuntary. Its clear, penetrating song, however, is still more remarkable than these notes, and is distinguished from that of all other birds, by its near approach to articulate speech. This is expressed in German by the word 'Schlag.'

Each bird possesses one, two, three, or even four different songs, each of which is divided into several parts, and occupies perhaps ten seconds in the utterance. The names by which the various songs of the Chaffinch are known, are generally derived from the last syllable of the sentence which these birds are supposed to utter

The male Chaffinch is one of the most handsome of our common small birds, and in his general deportment is as lively as he is handsome, and as his gay appearance and song frequently, noticed as early as February, points him out as one of the first birds, to afford an indication of returning spring, he is for these various reasons a general favorite among the lovers of birds.

MOTHERLY DEVOTION.

On April 19th., 1890, when passing through a heavy woods near my home I noticed a hole in a decayed stub where a large limb had been broken from an oak tree, and thinking it might be the nesting site of some species of woodpecker I rapped on the tree with a stick where-upon a Flying Squirrel (*Sciuropterus volans*), emerged from the opening and made a flying leap to an adjacent tree. Thinking that she might be trespassing on the rights of others I broke open the snag and noticing nothing but a little wad of rabbit's fur was about to leave the spot when I thought I would like to

see her "fly" again, so throwing a stick up in the tree in which she was, I had the pleasure of witnessing the interesting sight. Strange, I thought that when frightened from the tree she should return to the stub. I again started her from the stub and she went to the same tree as when first routed. I again threw a stick in the tree when she for the second time returned to the stub. Surely I thought there must be something there to attract her. I stood still a moment or so to see what she would next do. Presently she entered the bunch of fur, and four young, their eyes not yet opened, fell to the ground. These I took in my hand and they soon began to utter a little squeak, which I interpreted as their call for "mamma," and apparently my interpretation was correct, for the mother soon emerged from the nest and began answering her babies calls. Slowly she descended the tree, in the meanwhile keeping up the conversation with her children. I wondered what she would do next and was not long in finding out. Fearlessly she ascended my leg, went out on my outstretched arm to my hand wherein her young lay. Here she hesitated a moment or two as if considering where to take the little ones and was not long in making a decision. Blinking her pretty eyes as if a brilliant thought had entered her busy mind she tenderly took one of the young in her mouth as does our familiar friend, pussy descended to the ground and scampered away about sixty feet to the foot of an old oak and disappeared into a hole at its base. She soon returned to the opening of the new retreat and receiving an answer to her call secured baby No. 2 in the same manner as No. 1. This she continued until the last one was placed in the new home. After leaving the last one she once more appeared at the door way, uttered her call, and receiving no response, seemed to say "Thank you sir," and went in to care for her family. Such fearlessness I have never seen exhibited before or since by a creature that apparently shuns man.

(From my Note Book.)

WILL EDWIN SNYDER.

Beaver Dam, Wisconsin.

EASTERN DEPARTMENT.

CONDUCTED BY DR. C. C. PURDUM.

Begin to classify, overhaul and record your collections of the past six months, and after they are safely stored away in your cabinet, write up what you have been doing and let us know about them.

An event which has long been anticipated by the children took place in the editors household last week. The family cat is now proudly strutting about with the lofty mieu of a mother of five kittens and all the more proudly because one of the kittens has no paws upon its forward legs. Children delighted! Cat mistyfied! Kitten with the air of "a sacrifice to science" pursues the even tenor of its way which consists of remaining upon the cotton at the bottom of its box and disposing of large quantities of milk and cream.

BEACH COLLECTING.

(Continued from Page 131.)

ARBATIA PUNCTULATA.

Occasionally this species is met with on the rocks, and in some places where the tide rushes through a shallow "canal", from the sea, into a salt water lake or marsh, if there are any rocks in this canal they are liable to have Arbatias on their under sides.

STRONGYLOCENTROTUS DROBACHIENSIS.

As one might infer from the name, this urchin is larger than the preceding. I have never found this species but mention it because on the coasts farther north it is common. Its color is green.

And now we come to the molluscs which I have never studied to any extent and, with the exception of a few common forms, never collected.

Beach collecting, however, affords fine opportunities to the conchologist provided he can "get on" to the localities where shells abound. I will note a few of the most common shore molluscs.

PECTEN IRRADIANS.

The common scallop which is very much in demand as an article of food and highly prized by epicures. The quickness with which these animals can push through the water by rapidly opening and shutting the two valves of their shells is remarkable. It was found in muddy marshes where "eel grass" was plentiful.

MODIOLA PLICATULA.

This mollusk was locally common. They inhabit marshes, especially those in which the water is slightly blackish, and live in the mud buried to the depth of one or two inches.

MACTRA SOLIDISSIMA.

Often when walking along the shores with bare feet I have found this mollusk by treading on it. This, by the way, is a plan, commonly adopted, to obtain these animals. They are valued as a food product and make the famous "quahog chowder" for which Rhode Island is famous.

MYA ARENARIA.

Probably the clam is the most important food mollusk in America. At any rate *immense* quantities are devoured each summer at the various shore resorts, each of which caters to from two to ten thousand people daily, and and the gathering of this supply gives employment to a large number of men.

TEREDO NAVALIS.

Some of the old water soaked timber which floats in from mid ocean is filled with the tubes of this destructive creature.

It is difficult to procure perfect specimens as their tubes run through the wood in every direction and somehow the wood seems never to split in the way you wish it.

There are but few worms which I think can really be placed under the head of Beach Collecting. The collecting of marine worms differs entirely from real beach collecting although many species are found in the mud and sand near the shore. Perhaps at some future date I may give some idea of this, another kind of Marine Collecting.

SERPULA DIANTHUS.

This worm I mentioned at some length in one of my former papers and will not describe it again here. Its crooked tubes were often found, on the beaches, twisted around stones.

PODARKE OBSURA.

A small worm which was taken among the "eel grass" with dipnet. They are very dark in color.

LIMULUS POLYPHEMUS.

This is the interesting animal which has caused so much discussion in the scientific world.

The question is whether the "horseshoe crab," as *L. polyphemus* is commonly called, is a crustacean or arachnid, and many able arguments have been offered on both sides. I believe that there are still doubts as to its position in the scale of invertebrates though by most naturalists it is placed among the crustaceans.

It receives its common name of "horse foot" or "horse shoe crab" from the resemblance of the outline of the cephalothorax to the foot of a horse.

It has a wide range extending from Maine to Florida.

The "king crab," another of its common names, is common on sandy and muddy shores as many batners, who have stepped on the tip of the long "tail" could testify. It burrows just beneath the surface and the sharp point of the caudal spine can make a good sized hole in the naked foot of any person who may be so unfortunate as to come in contact with it.

The many small animals and worms living in the mud form the main part of its food. *L. polyphemus* possesses great vitality not only in the adult form but also the eggs which are laid in the sand and, being uncovered twice each day by the tide, lay exposed to the action of the elements.

My father remembers the time when the large one were gathered, at spawning season, in great numbers as food for hogs, who were very fond of them, and certainly at this season they possess a fair amount of eatable matter.

F. P. DROWNE.

NOTES FROM THE JUNCTION OF THE WILLAMETTE AND COLUMBIA RIVERS.

The advance guard of the Western Golden-crowned Kinglets was first observed on the morning of September 23rd. They had likely crossed the Columbia from Washington the preceding night,—that is, if the statement of some writers that Kinglets migrate by night is reliable.

To me it seems wonderful that such a small piece of vitality can successfully brave the long mile of water which separates the Oregon and Washington shores. Especially so, when we consider that usually this little insect hunter never flies more than one or two hundred yards when getting his breakfast—which occupation, by the way, lasts all day so that in reality *Regulus* eats but one meal.

As far as my observations extend they confine themselves generally to the fir trees, scrutinizing every nook and cranny of the bark and needles, in search, no doubt, of some rare entomological specimen, performing the while acrobatic feats worthy of any tit-mouse, spite the fact that our scientists say that *Regulus* must not be placed with the *Paridae*.

Some birds are not early risers, but no such false accusation can be brought against our little *Satrapa*. Almost before the winter night has finished gathering up the folds of her cold starry-decked garments, the "Tsee, tsee, tsee" of a Kinglet may be heard announcing to his fellows and the world in general that breakfast is ready and that he is already partaking thereof.

D. C. B.

Quartz inclosing rutile is found among the washed pebbles and agates at Yaquina bay, Oregon. Some of it showing the rutile in very handsome hair like form.

A number of quail and ring-neck pheasants have been turned loose on the John Day river on Canyon creek in Grant county, Or. These birds are protected by law east of the Cascade mountains.

WOOD STAINS FOR TAXIDERMISTS.

There are times when the taxidermist would like to imitate some of the more expensive woods. The receipts here given, with a little experience will be found to work well. Parts are by weight. After staining, polish and finish as in natural woods.

CALIFORNIA RED WOOD.

Tincture of alkanet root.

BLACK OR EBONY.

Brush with a solution extract of logwood (1 to 20), then apply a solution of bichromate of potassium (1 to 50). Thoroughly dry without heat, oil and polish.

DARK OAK.

	Parts.
Cassel brown.....	10
Pearlash.....	1
Water.....	125
Boil together and stain	

LIGHT OAK.

	Parts.
Gum Catechu.....	300
Water.....	200

Boil together, strain hot, and add to it a solution of 25 parts of bichromate of potassium in 100 parts of water.

MAHOGANY.

	Parts.
Alkanet.....	25
Aloes.....	50
Dragon's blood.....	50
Alcohol.....	650

Digest for a week and filter.

Mordant the wood with nitric acid, and apply the stain from one to three times, according to the shade required. Oil and polish.

WALNUT.

	Parts.
Permanganate of potassium.....	10
Water.....	300
Dissolve.	

Brush quickly over the wood from one to eight times without waiting to let it dry; after

5 to 10 minutes the wood is washed with cold water, oiled and polished.

ROSE WOOD.

	Parts.
Tincture of Alkanet.....	700
Analin blue.....	3

SATIN WOOD.

	Parts.
Fustic extract.....	300
Water.....	700
Dissolve, strain and add a solution of 10 parts of pearlash in 35 parts of water.	

A WHITE CHIPMUNK

Mr. W. B. Malleis of Cedar Mills, Or., has a white chipmunk, caught in Washington county, in a woodpile. The prevailing color of the specimen is pure white. The scalp, stripe above, and below the eye are a creamy white, quite distinct. On close examination the bands on the back can be seen faintly, in color a creamy white, slightly darker than the body. The tail is comparatively quite dark, and of the same shade as the scalp. The eyes are brown.

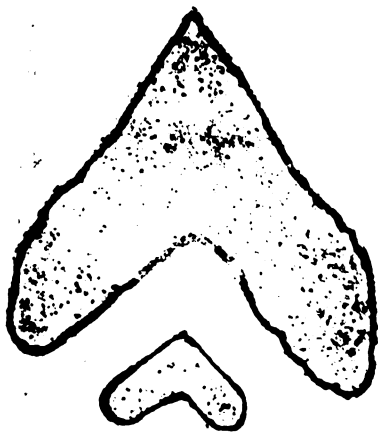
White gophers, squirrels of several species, mink, deer, crows and blackbirds have been taken in Oregon, but we believe this to be the first record for a white chipmunk.

Recently the Berlin police arrested the antiquary Kyrieleis and his wife, charged with having sold numerous falsified Luther autographs at prices running from 50 to 200 marks. These counterfeits were remarkably well executed. The couple, whose arrest had been prepared for months, were taken while on the point of departing for Frankfort from a third-rate hotel, where they had been lodging under an assumed name. The autographs are found in ancient Bibles and books of a religious character of the time of Luther, which the counterfeiters pretend, have been collected by the ancestors of the man Kyrieleis.

RARE POINTS.

Noting in last month's *Naturalist* a short article chronicling a find near Stockton, Cal., of several L shaped obsidian "knives" (queried), I send herewith outlines of two such which lately came into my possession, and which I prize very highly.

The largest is of clear, grayish flint, having an opalized appearance and is 2 inches across the lower barbs. Its shape is well represented by the letter V inverted (Δ). One of the barbs extends slightly below the other and measure 1 in. x $1\frac{1}{4}$ in. respectively.



ACTUAL SIZE.

The other specimen is exceedingly small measuring only slightly over $\frac{1}{2}$ an inch across the barbs. They were found near Sellwood, Oregon, on the bank of the Willamette river. I do not class them as knives, as the foregoing part of this article would indicate, but as a rare shape of spear and arrow points. I have never seen any but these two, and write this for the benefit of your readers interested in archaeology.

ED A. SCHLOTH.

Portland, Oregon.

NOTES.

Last week the university of Washington received from Alaska a fine specimen of jade, dark green in color, and showing signs of having been used by man first as a sort of quarry from which he slowly and laboriously cut stone knives and spear points. Later one end was ground down to an edge to permit the stone to be used as an ax. Along the sides of the stone are deeply cut grooves, at the bottom of which are shattered edges, showing where a knife or spear point had been cut out. It is said that natives cut these grooves with a stick and sand. The wood holds the particles of sand and grinds away the jade, though the latter is one of the toughest stones known. This specimen was found on the east side of Kotzebue sound, north of Behring strait, in Northern Alaska, at about 66 degrees 30 minutes north latitude.—It was presented to the university by the Arctic Trading Company, of which C. L. Webb, of Seattle, is president, and Miner W. Bruce, of Alaskan fame, is a prominent member.—*Oregonian*.

A string of elk teeth containing over 100 were sent to D. M. Averill, the past week. These teeth had been saved for a long period by an Indian of the Grande Ronde. It appears that it is only a question of a short period of time when the elk will be extinct.

A Mr. Reeves, who has been placer mining on the Chetco river, cleaned up nearly three ounces iridium; said to be pure and not in combination with platinum or rhodium.

Eugene, reports two, and Salem, two snowy owls

Query Column.

Is Chlorate of Potash, a good remedy for cankered mouth, which is so prevalent among serpents?—R. C. Paine, 1416 R. I. Ave., N. W. Washington, D. C.

THE OREGON NATURALIST.

A cross opposite these lines, indicates that your subscription has expired. A prompt renewal is requested.

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JOHN MARTIN, EDITOR.

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The following item going the rounds of the press, if true suggests the idea that Europeans have not wholly emerged from barbarism. "In one consignment recently a feather dealer in London received 6,000 birds of paradise, 360,000 birds of various kinds from the East Indies, and 400,000 humming birds. In three months another dealer imported 356,398 birds from the East Indies."

Up to the time of going to press eight snowy owls have been offered for sale in Portland. For three days a severe rain storm prevailed, followed by snow, hail and sleet; unusual for Western Oregon at this time of the year. The owls came with the snow and vary much in plumage. One specimen was nearly white, with only a few spots and bands of brown.

Oregon has a game law that savors too strongly of class legislation. It appears to have been drawn for the sole benefit of sportsmen only, and as changes are even now talked of for the more exclusive benefit of the city sportsman, the N. O. A. should take a hand in the matter, that a clause may be inserted permitting the collecting of specimens for scientific purposes.

That unmitigated nuisance the English sparrow is rapidly increasing in Portland.

It is desirable to ascertain if possible to what extent the imported song birds have adapted themselves to their new surroundings; while it is known that some of them are doing well and increasing in numbers, notably the skylark and starling, very little information can be obtained regarding the others. Mr. Rey Stryker reports the mocking bird as having nested near Milwaukee. Observations on these birds should be kept for future reference.

In November a female sooty albatross was brought to the establishment of D. M. Averill & Co., to be mounted. It measured 31 in. in length; 85 in. stretch of wings and was captured on the ship Brynhilda, when two days sail from the mouth of the Columbia river.

November 17 a pair, male and female, of snowy owls were shot near Astoria and sent to D. M. Averill & Co., to be mounted.

— THE —



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*
BASKETRY OF THE NORTHWEST.

H. K. McARTHUR.

The beginning of a collection is accidental. The eye is attracted by a bit of artistic coloring or quaint design, and we become its possessor. The gift of a friend and mementoes of travel are subsequent additions, the collection becomes interesting and we wish to enlarge it. It may develop into a fad that only pleases for the passing moment, or it may suggest research and study of the habitat of the maker, materials employed, origin of design, manner of construction and utility of the work, and it becomes most fascinating.

In the limited time allotted to the consideration of so comprehensive a subject, it is quite impossible to enter into detail of materials and workmanship, but a passing mention cannot fail to be of interest.

The baskets made by the Indians of the western part of the United States are the most beautiful in the world—beautiful as to design and coloring, with dyes of their own manufacture—and finest as to skill in construction.

One cannot but be impressed most deeply by the strange incongruity of the wretched lives of degradation, poverty,

ignorance and roaming habits of these oft-times homeless people and the unsurpassed results of their skillful and patient labor. Patience is the one characteristic of these toilers of an uncivilized race of which we are profoundly conscious—the patience that endures much, suffers with stoical indifference and uncomplaining, and which leaves its imprint upon their pathetic faces.

The labor of gathering materials and preparing them, before the work of construction begins, occupies many months, and is most arduous. The weary and toilsome climb to distant mountain tops, for rare and beautiful grasses that only adorn the face of nature in these lofty solitudes. The digging of certain tenacious roots and cutting of twigs, bark and fibre, all of which must be cured, made into proper lengths and macerated to a desired flexibility before being woven into the intricate and enduring beauty of baskets. Coaxing from coy Nature her secrets of dyes, whether from peculiarly colored earth, charcoal, extracts of barks, or immersion in water.

Who of us, living in the Willamette valley, have not seen some ancient dame trudging home, with dew-bedraggled skirts, with a bundle of hazel sticks on her bent shoulders, after an early expedition to the cops. or, it may be, grasses and roots from a neighboring swamp? She is ancient; in our day, because the beautiful art is not taught to the young women; they do not desire to know it, and

* Reprinted from "Basketry of the Coast and Islands of the Pacific, etc." This pamphlet can be had of the J. K. Gill Co., and D. M. Averill & Co. Price 25 cts.

so the work is relegated to only the aged, who are skillful and learned.

Summer is the season for this preliminary work. The kindly elements favor these children of Nature, the twigs and grasses are flexible, the barks are easily peeled and are rich in juices, and the store of materials is gathered in.

We will first consider the work of the Aleuts of Atter island, the most westerly point of Ounalaska and the most isolated of our possessions. In this little sea-girt land, scarcely more than a stepping-stone to Asia, we discover the finest weave in the world of basketry. The barabas or home of the Aleuts is a sodden hut, for it is literally made of sod. The roof is gay with brilliant flowers during the long days of their brief summer, in winter it is inconceivably damp and dreary in the interior of the barabas, and it requires many months of these days of scanty and most welcome light to construct a single basket. Luxuriant grass springs up while the sunshine lingers, and this is gathered and dried and split many times. There is little variety of shape in these baskets; the finest are perfectly round, having covers and holding about a pint, and perpendicular; the others are much larger, have no covers, and are round and not so fine. The weave of the small ones is so fine as to resemble gros grain silk, the number of stitches to the square inch being almost double that of any other Indian basketry. No dyes are used, and only a little ornamentation of colored silk thread or worsted is deftly introduced. One rarely meets another style of Alaskan baskets from the remote interior of the Northern Yukon country. The only specimen here is a tiny affair with a lid, though in the very small collection from which this came there were jar-shaped ones, holding a gallon, and quite unlike other Alaska work—it is of the coiled pattern. It is simple, without

ornamentation, for Nature does not abound in materials, dyes, or suggestions for designs in this bleak and frozen world.

Other baskets of great beauty are made in Alaska, and the one with which we are the most familiar are those of Thlinkit stock. Here, too, the shape is quite unvaried, being round, rarely flaring, but of many sizes, and, like the Aleuts, the flexible bags or pouches of Eastern Oregon and those of Northern California and Southern Oregon, are known as twined basketry. The work is begun in the center of the bottom, with spruce roots, warp and twine, the former radiating, and forming the foundation. The cylindrical portion alone is ornamented in geometrical designs, the grasses and roots being in the dull natural green of the former, sparingly used, black and the most beautiful and harmonious browns, worked only half through the foundation fabric.

It is a quaint conceit to place pebbles in a most skillfully constructed hiding place with in the lid; the rattle of these gives warning to the owner when one less dexterous or industrious would purloin the treasure.

There are more simply constructed baskets along the coast; they are mostly flexible, of the checkerboard weave of cedar bast, half of it sometimes dyed black to accentuate the pattern, and the twilled splint of white birch wood and the bird cage of spruce roots. These two are of the Clallam Indians (Selish stock). Next come the Makah, more commonly known to us as the gay little Neah Bay baskets, yet quite remarkable as being very fine, and comprising the three distinct weaves. The bottom is the checkerboard pattern, in cedar of the Bilhoolas; the twined pattern comes next, and the bird cage pattern of the Clallams. This weave—the bird cage—is known to exist in but one other place in the world, and that is on the Congo, where the men make the baskets. Another quite interesting

fact concerning this little handful of people, coming down from the Wakashan stock, and settled about Cape Flattery:

The young girls, though intelligent pupils in the government school, are proficient basket makers. The early specimens are in browns, though now a beautiful white grass is used (the same may have been used in the former times, but age has given it the tender brown), and, like the Alaskan basket of the present day, has suffered sad degeneracy in form and coloring. The vicious and persistent aniline dyes have penetrated these remote places; the Indian of today loves not the labor of securing her own inimitable dyes; but she does love color, and so we buy no more lovely old browns from Alaska and Neah Bay.

These tribes also make cedar bark mats of the checkerboard weave, that find many uses, as covering for household effects, carpets, protection from the weather, and not infrequently a winding sheet, when their dead are laid to rest.

It is not necessary to speak of the Klickitats at length. Of all known basketry it is the most arduous, difficult and skillful of construction, as has been explained in a previous paper, in detail. It is of two-fold weave, the coil or inner one, and the imbricated external or ornamental one. White is the color of this strong grass, which is *Zerophyllum Lenex*, or "squaw grass." It is dyed yellow, brown and black, by lying in water, extract of willow bark, and earth and charcoal. There are fine specimens of this enduring work said to be seventy-five years old. Though old age, berry juices and much usage have robbed some of all their beauty, one detects a trace of the fine design in the ornamentation. We cannot refrain from calling attention to two rare ones here, because of unusual shape, age and association. The fine round one was purchased by the late

Captain John H. Couch, when he visited these shores in the *Chanamic*, in 1847. It was taken to Massachusetts, and has since doubled Cape Horn a second time on its return to Oregon, and now belongs to Mrs. F. A. Beck. The other, a small oblong one, belonging to Mrs. Ankeny, was purchased in Oregon City by her mother in 1845.

There are three other fine baskets from over the border in British Columbia, the handiwork of Indians of the *Shahaptain* stock, differing though, from the *Klickitats*, principally in shape. One is beautifully round, as an apple, and the others like a slightly oblong box, flared at the corners. They are quaintly ornamented with two or three rows of the imbricated stitch, and then two rows of the coil left exposed.

The *Cayuses*, *Umtillas*, *Nez Perces* and *Wascos*, and other tribes east of the *Cascades*, do not make stiff baskets, but being much in the saddle their baskets, being really pouches, both round and flat, and of the strongest, most durable workmanship and quite flexible, are suited to use when the owner rides.

The materials are often split corn husks and the wild hemp of the *Walla Walla* valley. Sometimes a fine grayish green appears, but here too the color-loving savage introduces gay worsted threads.

The hazel stick is very interesting, yet we who are so accustomed to its homely place in our domestic economy fail to appreciate its beauty. Only the Indians of the *Athapascan* stock, known to us as *Shastas*, excel in this work. The sticks are gathered in great quantities, the best ones from ground denuded by fire of its natural growth of fir and hemlock, where they spring up straight and strong from the rich soil. The teeth play no small part in peeling off the bark.

As in twined basket making, these are worked from the center of the bottom

outwardly—in and about the radiating sticks—no ornamentation nor other material than hazel being employed. Also, as in all basketry, the sticks, grass and other materials are kept in water, when not in the hands of the worker; during the time of construction. The hazel is not intricate and is rapidly made, as I have seen pretty and useful ones brought in while the early country breakfast lingered, and the worker offered hers wares and begged us to remember her needs, as she had begun the basket "tenas sun"—when the sun was small—the day was new. There is only utility here, though it assumes a variety of shapes and sizes. The fine sticks are used in the small handle and useful work or darning baskets. The sticks increase in size with the basket, until we have the market, laundry, and lastly the great clothes hamper.

We now come to the tribes inhabiting the country drained by the Klamath and Sacramento rivers—Southern Oregon and Northern California, and known as Klamaths, Rogue River, Galice Creek, Coquille, Umpqua, Shasta, McCloud, Pitt and Trinity Rivers and Hoopa Valley. Correctly speaking, they are of the Athapascan linguistic stock. Their work is a most excellent example of the twined basketry, in which grass stems and fibres are deftly twined, lapped and woven in and out, the strong radiating roots beginning always in the center of the bottom and working outwardly—adding more of the radiating roots or foundation as the sizes increases.

The Indians about Klamath lake and the marshes make the large round trays or plaques. The women thrust their feet into the rude sandals made of tules, wade in the water, gather the wild water lilies or wocus and throw it into the deep, conical burden basket at their backs, and trudge away to camp. Here it is tossed in the plaque until the friendly breezes winnow the chaff; live coals are then thrown in, and it is vigorously shaken, to prevent burning, until the grains are a rich brown. These are poured into a flaring, shallow basket, minus a bottom, placed on a flat rock,

and with a stone pestle the patient worker reduces this to meal. The meal is poured into a watertight basket—the aborigine's boiling pot—water added, then very hot stones are thrown in, and the shaking and stirring continues, until the gentle savage places before her lord a most toothsome dish. The women's hats and various baskets of the Klamaths proper are pliable or flexible, of white grass and the black of the maiden's hair fern stem, in zig-zag and geometric pattern, and sometimes a suggestion of the V-shaped flight of water fowl.

Those tribes living in the more westerly part of Southern Oregon and California—we usually, for convenience, speak of them as Shastas—continue to make fine baskets, as well as many other tribes in California and Arizona, though I do not know if the young girls are taught the industry. It is more likely to be the old women, and the trader has taught them the value of their wares. Their cooking baskets are shallow, dull grayish brown, and an ornamentation of the white grass. The wocus shakers and burden baskets are more elaborate, and the buckets, ornamental baskets for sale and the women's hats are finer and more beautiful still.

The fine white grass, like ivory in smoothness and tint, is obtained at great elevations, their excursions leading them to the summer snow line of Mount Shasta. The brown is obtained by dyeing with extract of alder bark; combined with the maiden hair fern stem, of unfading black and enduring beauty, in geometric and intricate zig-zag patterns, the effect is most pleasing. The ornamentation appears only slightly in the inside, and the ends are concealed and the finish is exquisitely neat. Those of Klamath have all the pattern showing on the inside, and the ends of grass are exposed.

Lastly we come to the baskets of Mendocino county, California, exhibiting the greatest variety of shape, size, weave, beauty of construction, materials employed, and commercially of the highest value in basketry.

I am not qualified to speak at all of these beautiful baskets, and only refer to the fine specimens here. These are both coiled and twined baskets, and at least three weaves—the bontouche, tsy and t; brown is the natural color of the grass, and black, which adds much to its value.

All are round; some are very shallow, others concave and very deep; many quite capacious one curve inward at the top, and others are small at the base, flare rapidly, then gradually gather in toward the top, the opening of which are small. There are plaques similar to those farther north—all are graceful and beautiful.

This means endless labor, for birds are snared, that no dainty feather, so artistically used in the weaving, will be marred; the distant mountains yield the grass and the sea shore the bits of shells; beads are obtained by barter.

The Mendocino country and Hoopa valley Indians make cradles for the infants from the peeled stems of tough young trees and shrubs.

One cannot but be impressed by the rare and skillful combination of beauty and utility in these baskets, and the wonderful adaptability to their various needs. The dwellers of the north coast obtain their food from the sea, so they make the loose-woven cedar bark receptacles for their store, both fresh and dried. The open mesh of the clam basket, of a coarse grass, which permits the sea water to escape as the weary digger trails home across the sands at dawn, with a breakfast for the waiting ones beside the curling smoke of the camp fire. The perfectly watertight boiling and baking baskets of the Alaskans and Shastas.

The Klickitats would retain the luscious juices of the berry, and resist the wear and tear of loading and carrying by pony-back and canoe, without the beautiful ornamentation, which is as enduring as the basket. Though they are savages, they love this bit of beauty in their homely lives of drudgery. The storage baskets of California and Arizona are

deep, capacious and strong, mostly of the true classical vase outlines and proportions.

The strong, flexible, round baskets and pouches of those tribes much in the saddle. It is quite impossible to enumerate the thousand and one uses for which these baskets serve, by the campfire and on the march, for the holding of spoil of rod and gun, and their few simple treasures.

They love these evidences of their handiwork and skill, and while in this day of trade and barter many are made for sale, the old basket maker only parts with her treasures because old age has robbed her of the power of gaining the necessaries of life by hard labor, and stern want looks in at the uplifted curtain of the tepee.

They love them, and though their uses are homely, they weave into them their prayers and hopes, their impressions of the beautiful world of Nature, and the completed work is as dear to them as the canvas of an artist, when the finished masterpiece brings him enduring fame.

The savage is an artist pure and simple; her unlearned and untutored mind seeks her designs in the vivid flash of lightning, the fleecy clouds, the seed pods of plants, the ripple of a stream, the scales of a fish, the graceful interlacing of twigs and stems, and the flight of birds across the sky.

Why should their work so prized, become so rare? The commercial value alone, should appeal to the powers that be, the grasses should be cultivated, and the secrets of dyes understood; the young should as well be taught that in the schools as the trying intricacies of the less congenial lace making. It is an art in which they excel; the demand is increasing, and the supply should be equal to it. How deplorable, that our enlightened government does not foster and encourage a beautiful and valuable industry that is passing away, with the passing of this generation!

The deepest gold mine in the world is at Eureka, Cal., and is 2250 feet deep.

REPORT OF THE THIRD ANNUAL
MEETING OF THE N. O. A.

The Northwestern Ornithological Association held its third annual meeting at Salem, Oregon, on the 29th. and 30 th. of December, 1896. The meeting was a success in every respect, members being present from all parts of the state. Rounding off the work of the closing year, reading and the discussion of the numerous reports and papers, and starting the work for the coming year on a solid, systematic basis was a task of such proportions that almost continuous session was required for its completion.

As it was desired to make the meetings interesting to the general public, arrangements were made by the program committee to have the sessions held in the Auditorium of the Willamette University. This being a large, well lighted hall, the collections were shown to excellent advantage.

George D. Peck, of Salem, had a large part of his extensive collection of birds artistically mounted which increased the interest taken in the meetings by the public. The most satisfactory feature of this beautiful exhibit, to students at least, was the large series of the eastern and western varieties of the same species. Those of us who are struggling with that intricate taxonomical science of dividing and subdividing, with which the A. O. U. has burdened us, can easily appreciate the value of such a collection. Mr. Peck's extended knowledge of the birds on both sides of the Rockies was of much assistance to the students in their comparative study of plumage variation.

One of the most complete and interesting collections of Oregon birds' eggs that has ever been gathered into one display, it was the good fortune of the society to exhibit on this occasion. Its completeness was accomplished only by the active and enthusiastic co-operation of the members; each one bringing with him, or sending by mail, if unable personally to attend, his rarer sets and nests.

An open session was arranged for the even-

ing of the 29th., the program containing essays written with a view of interesting the general public in our science. Until half-past eight those present were pleasantly occupied in examining and studying the collections which were explained and described by the members. Then our president, William L. Finley, called the meeting to order and welcomed those present with a polished address in which he gave a brief history of the society and the work it has accomplished since its organization in 1894. He then dwelt at length on the future before the society and the unequalled opportunities to advance the science of Ornithology which this association possesses. The mercenary ends and methods of the average pseudo ornithologist he strongly condemned, especially, the wholesale exchanging and buying of eggs, which practice has increased so alarmingly during the past decade.

In the absence of the author, D. Franklin Weeks read an interesting paper on "A Trip through Eastern and Southern Oregon," by Guy Q. Stryker.

Ellis F. Hadley followed by a paper on "The Red-breasted Nuthatch. His description of its nesting habits interesting everyone.

Master James Mott varied the program by a unique recitation entitled "The Owl Critic."

The experiences of a naturalist in a day's ramble were delightfully described by Herman F. Bohlman in his "Incidents of a Day's Collecting among "Aquatic Birds."

The "Notes on the Pileolated Warbler," by Hervey M. Hoskins, showed this observer's thorough knowledge of a rare warbler.

The session closed with an essay by Dorsie C. Bard, entitled "Biographical Sketches of Great Ornithologists," in which he gave some interesting notes from the lives of Buffon, White, and McGillivray.

Work began the next morning at 8:30, and, with an hour at noon and in the evening, for rest and refreshments, the president did not rap his gavel for dismissal until the night had spent itself by half.

The entire morning was devoted to a most

interesting lecture by George D. Peck on Taxidermy. He supplemented his remarks by practical illustrations in the art of skinning birds and mounting them. The value of such a lesson from one so experienced is inestimable to students who, as a rule, have access only to written descriptions.

Wednesday afternoon was devoted to the business. After hearing the reports from officers and standing committees, the club proceeded to plan the work for the coming year. A field work committee was appointed whose duties were classed as follows: (a) to revise and complete the association's check list of Oregon birds. (b) to superintend the preparation of migration co-operation with other ornithological associations (c) to direct the field of the society and to organize collecting expeditions among its members.

The committee for 1897 is: Secretary of the Association, chairman (Present incumbent of Portland, Oregon) Robert W. Haines, Baker City, Oregon. Fred H. Andrus, Elkton, Oregon. Guy Stryker, Milwaukie, Oregon, Ellis F. Hadley, Dayton, Oregon. The committee is well distributed geographically while its efficiency is beyond question.

The 1897 Library and Museum committee is made up as follow: Herman T. Bohlman, of Portland chairman. A. B. Averill, of Portland. George D. Peck, of Salem. This committee has a heavy share of responsibility, as the proper classification of specimens sent it for identification is only one branch of its manifold labors.

The membership committee appointments were: Arthur L. Pope, of Salem, chairman. D. Franklin Weeks, of Portland. Hervey M. Hoskins, of Newberg, Oregon. The committee has been especially instructed to employ due discretion and select only active conscientious workers. Quality and not numbers is their watch-word. The dues have been placed so low that they have no fear of not being able to enlist all the active students of bird life in the Northwest.

The society intends that no unscientific or

untruthful statements shall emanate from it. To preserve this high standard an editor was appointed to supervise all reports and papers which are published by the association in its official organ. Of course, for anything published independently by a member of the club, it cannot hold itself responsible. Our former secretary, Arthur L. Pope, was appointed to this responsible position.

The English Sparrow pest has not a very strong hold in this state, not having, as yet, been reported outside of Portland. In this city there may be, at present, in the neighborhood of *five hundred*. Active measures here will at least suppress if not exterminate them. To carry on this work a special committee was appointed composed of: C. F. Pfluger, of Portland. W. L. Finley, of Portland. Through the agency of the press, they are to arouse public opinion against the pest. This is, in reality, the only lawful way to go about exterminating them. If the owners of the dwellings and business blocks, in and around which they breed, could be enlisted in this work, their total destruction would be but a matter of a few years.

The election of officers for the ensuing year resulted as follows: President, William L. Finley, of Portland. First vice-president, Ellis F. Hadley, of Dayton. Second vice-president, Herman T. Bohlman, of Portland. Secretary Darsie C. Bard, of Portland. Treasurer, D. Franklin Weeks, of Portland.

The business having been completed the rest of the afternoon was devoted to reading the remaining essays. A paper by Rey Stryker on "The Audubon's Warbler" was enthusiastically received by the society after their long task of legislating. Darsie C. Bard followed with a paper on "Some Methods of Keeping Ornithological Records."

The final session was called to order by the president at 7:45 P. M. Up to now the society had not taken the time for any thorough study of the collections. So, with the general consent the remaining business was hastily dispatched, and, taking our manuals spent the

rest of the evening in studying and discussing the collection. This was, undoubtedly, the most enjoyable and instructive part of the whole meeting.

At 11:30 the third annual meeting of the Northwest Ornithological Association came to an end. That we were all loath to leave expresses it tamely; let it suffice to say, however, that the meeting was a success in every respect, and that we each, one and all, parted, feeling that we had been benefited by this annual union and that our share of the work for the coming year would be carried out to the best of our ability.

Owing to illness Sec. Arthur L. Pope was unable to attend the meeting. It is hoped that before long his health may be regained.

The fourth annual will be held in Portland.

DARSIE C. BARD.

Secretary, N. O. A.

OVERLAND JOURNEYS OF FIBER ZIBETHICUS.

W. E. SNYDER.

The year 1895 was noted for its deficiency of rain-fall in this section of Wisconsin. Beaver lake fell some seven feet below its highest water mark. This drained many of the larger adjacent marshes. The marshes are the home of great numbers of Muskrats. When it froze up in the fall the Muskrats had to look elsewhere for a living. One morning I found one trying to work his way under a rick of corn stalks. Then they were found in the shed, then in the pig pen, and even under the doorsteps. My home is about half a mile from a large marsh. After a light snow one could secure many by tracking them. A trapper would follow along the edge of a marsh, find a track and start on the trail and seldom failed to find the quarry. Sometimes he would have to follow it two or three miles. Whether they left the marshes in search of food or water or both I am unable to say.

BEAVER DAM, WIS.

THE CALIFORNIA TOWHEE.

Although a common bird very little has been written about it. It is to be found wherever there is under-brush, along the willowy, brambly edges of creeks winding through open country, in the wilds and thickets of hill and mountain, among either sage brush or bracken close to the waters of the Pacific, about civilization as well, in copses and clearings, venturing fearlessly about gardens and door-ways, everywhere a familiar bird, being just small enough to escape the pot-hunter, as "not worth while."

In winter it is quiet save for an occasional series of "chip-chip-chip," a note uttered about every second, with as many notes as the bird may desire. This note sounds so like friction of an axle, that I have often paused to ascertain if my bicycle was out of order. When suddenly alarmed it utters a few loud, quick chirps. In spring it becomes more restless and vehement in voice, betraying considerable emotion when its nest is approached, by excited "chirps." At this season it does a great deal of scolding among its kin, uttering a series of short, sharp-notes as one bird chases another over a short flight, seemingly acting more for sociability than for danger. An occasional intruder is often routed by one Towhee, while both may combine to drill the marauding California Jay, and then their notes are almost a series of angry squeals. I only detected one instance of this Towhee's song, short and, pleasing more from its novelty, perhaps, than from its sweetness.

The birds appear to remain mated for a lifetime, and late in summer, 5 or 6, probably a whole family, are often seen feeding close together, always quiet, and peaceful, going soberly and industriously about their own affairs.

The young usually leave the nest before they can fly, and often have I surprised one among the weeds and grass. When caught, the young bird gives vent to the most piteous cries, never failing to attract the attention of its parents who flutter about and beg distressfully for the captive's release. No doubt many young are destroyed by cats from this strange habit of

depending upon their legs before their wings have grown.

Most of their food is obtained from the ground, consequently they are more terrestrial than arboreal. They are chiefly insectivorous in diet and remain afoot later in the day than do most birds.

Here I find nidification begins in the last week in March, and if robbed, a new domicile is soon constructed in the immediate vicinity. The usual compliment is 4 eggs, often 3, and two sets of 5 eggs each came under my notice. A surprisingly large number of infertile eggs are found; occasionally two at one sitting.

In this locality, heavily wooded with live oaks, the nests are usually placed in these trees, the majority averaging 12 ft. from the ground, while an occasional one will be found at the height of over 20 ft. I seldom found a nest that was below a level with my head, and the lowest was 2½ ft. from the ground in a currant bush. Pines, cypresses, wild blackberry patches, vines and garden shrubs are also favorite sites for nests.

The female is a close sitter and will often allow the branch holding the nest to be vigorously shaken before she will leave.

The eggs have a considerable sameness about them and although the markings can be said to vary considerably they cannot be confounded with eggs of any other bird. They resemble at a hasty glance those of the Red-winged Blackbirds, *Agelaius* but lack the creamy or buff shade often prevalent and the lines and scrawls on the latter.

Very little variation exists in the nest construction, locally a foundation of dead stems and a few twigs, then rootlets, weeds and dry grass, and lastly a lining of fine rootlets, plant fibres and horsehair.

The nests are always placed in the twigs, but, one nest found this season rested on a cypress limb, the side of the nest resting against the trunk of the tree.

A pair of California Towhees, last spring, took possession of an almost completed but deserted California Jay's nest in the top of a

small oak about 20 ft. from the ground, and lined it after their own fashion, beginning with their coarsest materials until it was finished. It never held more than 2 eggs, nor did any nest in that field ever avoid the schoolboys' detection long enough to contain anything over—"set, ½."

DONALD A. COHEN.

Alameda, Calif.

"A FULL HOUSE."

I recall having found in the winter of 1890 what I consider almost a large family. One side of a large burr oak tree was dead, while the other was yet alive. The tree was a hollow one. Breaking in the dead shell I found twenty-two full grown Flying Squirrels, *Sciuropterus volans* (L). Of course it was several families united as one, for protection from the rigors of a Wisconsin winter. It reminded me of some of the tenement houses of our great cities.

W. E. SNYDER.

Beaver Dam, Wis.

Baron Henry Foullon von Norbeck, the Austrian scientist and explorer, who with several members of the party he was leading was killed and devoured last summer, by the inhabitants of Guadalcanor, an island in the South Pacific, was about 50 years old, and a man of high attainments. His vessel, the gunboat Albatross, had been specially fitted up with instruments and appliances to enable him to do effective work in zoological and ethnological lines, and the expedition's disastrous end will be regretted by scientists all over the world.

A prominent Portland member the Elk's society has an Indian dress on which can be counted over 700 elk teeth. This dress was formerly worn by an Indian of Eastern Oregon, from whom the present owner purchased it.

VARIATION IN THE GENUS SCIURUS. THE BOTANICAL CLUB OF CANADA.

W. E. SNYDER.

Of the several genera of Mammalia to be found in Dodge County, Wisconsin, there is none that shows as great a variation as is found in the genus *Sciurus*, the Squirrels. Two typical species occur, *Sciurus carolinensis* (L) and *Sciurus niger* L. Six years ago the former species was the more abundant, now the latter. I have observed it as a never failing rule that the advent of the Fox Squirrel is a signal for the departure of its near relative, the Gray. Jet black squirrels are very rare here, not having records of more than a dozen being seen in as many years.

Four years ago two, male and female were shot about three miles north of this city. I did not see them, so am unable to say whether they were black specimens of the Fox or Gray Squirrel, but from the description of them given me by the farmer who shot them I think they belonged to *niger*. I have in my collection eight specimens, all secured within this county, of which two may be considered as types of the two species, while the other six are variations, either natural freaks or due to cross-breeding. One of these, which was secured in the winter of 1891, north of Fox lake, has the belly, throat and inside of legs jet black, while the top and sides of the head, back, sides and tail are typical of the Fox Squirrel. I am of the opinion it is a cross breed between the pure Fox Squirrel and a jet black specimen, which might have been of either species. Another one has the whole under parts pure white, the tail typical of *carolinensis* and the balance resembles *niger*. Another has the belly resembling *niger* and the back *carolinensis*. Another has on each side a stripe like *niger*, bordered on both sides by a stripe of white. The other specimens show less marked contrasts to what is considered a typical *carolinensis*. I have not seen a pure *carolinensis* for over a year. *Niger* is still abundant.

Was organized by a committee of the Royal Society of Canada May 29th, 1895.

The object is to adopt means, by local efforts and otherwise, to promote the exploration of the flora of every portion of British America, to publish complete lists of the same in local papers as the work goes on, and to have these lists collected and carefully examined in order to arrive at a correct knowledge of the precise character of our flora and its geographical distribution.

The method is to stimulate, with the least possible paraphernalia of constitution or rules, increased activity in our botanists wherever there may be few or none at present, to encourage the formation of field clubs, to publish lists of local floras in the local press, etc., etc., for which purpose the secretaries for the provinces may appoint secretaries for counties or districts, who will be expected in like manner to transmit the same impetus to as many as possible within their own sphere of action.

To cover expenses of official printing and postage, a nominal fee of twenty-five cents per annum is expected for membership.

Where there is no botanist to commence work, all that is necessary is to get one or more collectors, whose collections can be determined and named at any time. Such collectors will find their correspondence with the Club officers an admirable means of facilitating their own botanical studies and of speedily transforming them into genuine botanists.

The secretary for the Province of British Columbia is A. J. Pineo, Victoria.

The deepest silver mine is at Virginia City, and has a depth of over 3300 feet.

It is predicted that Oregon will some day produce more gold than any other state in the Union.

RECENT LITERATURE.

Life in Ponds and Streams. By W. Furneaux, F. R. G. S. Author of the 'Outdoor World,' British Butterflies and Moths,' etc. With eight coloured plates and 311 Illustrations in the text. Longmans, Green and Co., 93 Fifth Ave., New York. Cloth and Gold, 8vo, pp 406. Price \$3.50

This book Part I of which treats of 'The Collector's Work' and Part II of 'Life in Ponds and Streams' is divided into twelve chapters, viz: Introduction, On collecting in ponds and streams. The collecting of minute forms of life, The use of the microscope, The pond hunters museum, Preservation of natural objects, Aquaria and their management, Lower forms of pond life. Worms, Leeches and their allies, Fresh-water mulluscs, Freshwater crustaceans and spiders, Aquatic insects, Fishes for the aquarium, Amphibians.

This is an extremely agreeable book about freshwater life, well indexed, excellent illustrations, strictly scientific, yet written in such a popular and pleasing manner, as to be very interesting. In the preface, the Author says, in part:

"To a lover of Nature all forms of life are interesting. But so numerous and varied are those forms that few students are able to give much time to the pursuit of more than one or two branches of Natural History. * * * But there is no reason whatever why the study of freshwater life should not be quite as fascinating and instructive to even the youngest naturalist as that of the more popular branches we have specified above and the chief reason why the weedy pond and the winding stream are so generally neglected is probably that our young naturalists have not had their attention sufficiently directed to the world of interest that awaits. * * * Let my reader, net in hand, ramble to the neighboring ponds and streams, following the simple instructions given in these pages, and they will find that everywhere the water teems with life, and yields such a charming variety of forms as can hardly be found elsewhere in such a small space.

"It is with the object of directing young

observers of nature to these productive fields of labor that so much space has been devoted to the practical side of the work; and if those who are led to take up this interesting branch of natural history will carefully follow the instructions given for work in the field, for management and rearing of creatures in the aquarium at home, and for the preservation of interesting specimens to be examined at times when outdoor study cannot be pursued, they will find themselves amply rewarded.

"The abundance of illustrations will, it is believed, greatly assist the pleasant labours of the worker in this department of animal life; and, to add to the interest of the subject, much space has been devoted to an account of the habits and life histories of the creatures described."

There is no better volume on the subject and it cannot fail to become popular and cause many to become interested in that most interesting branch of natural science; the study of freshwater life.

A Geological Reconnaissance in Northwestern Oregon. By Joseph Silas Diller. Department of the Interior—U. S. Geological Survey. Extract from the seventeenth annual report 1895—96. 80 pp. 13 pls. 14 fig. in the text. This paper is the report of Prof. Diller to the Director of the Geological Survey. The results being considered under two general heads: Part I, Historical and Structural Geology; Part II, Economic Geology.

Part I contains the 'Route of travel' Topography of western Oregon,' Features of Coast Range of Oregon' 'Features of the Oregon coast,' 'Historical notes,' Geological formations.'

Part II contains 'The coal-fields of Northwestern Oregon, 'Iron Ores,' Sandstone,' 'Limestone and marble,' 'Basalt' 'Gold.' In the chapter on Geological Formation, under Eocene; Prof. Diller says: One of the most important contributions to the areal Geology of Northwestern Oregon made by this reconnaissance is the recognition of a large tract of Eocene forming the mass of the Coast Range from near the Columbia to the Coquille.

THE OREGON NATURALIST.

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Official Organ North-Western Ornithological Association.

JOHN MARTIN, EDITOR.

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Palestine, Oregon.

JANUARY, 1897.

So little has been written about the Towhees, that it is a decided treat to be able to print in this number the article on "The California Towhee," by Donald A. Cohen who so ably conducts the California Department of the Osprey.

It gives us pleasure to announce that, the Observer of Portland, Conn., lately caused to suspend, by no fault of its own, will again resume publication under the same efficient editorship as in the past; E. F. Bigelow. Mr. Bigelow writes, "Nov. and Dec., 1896 will be issued by the new owner and presented to every subscriber." These with the 1896 index to be issued later will complete the 1896 volume." The Observer has long been one of the best magazines for natural students, and we trust all lovers of good reading will send in their subscription. Sample copies will be sent to all willing to aid in securing new subscribers.

An old Klickitat Indian says, the Indian straightened his arrow shaft with his teeth, and gave a practical illustration of the method by picking up an arrow, sighting along it and any sight deviations from a straight line were corrected by placing the shaft between as fine and regular a set of teeth as ever grew, and closing them on the wood. This being repeated until the arrow was considered to be as nearly true as it was possible to make it.

Upon examination of a lot of arrows from several Oregon tribes, all plainly showed the imprint of teeth.

Query Column.

On lower Memaloose island is a monumental shaft, with this inscription.

VIC TREVITT

died Jan. 23, 1883.

Age 59.

Erected on a foundation of dressed stone masonry, about eight feet square and high. The body of Trevitt is reported to be interred within this foundation. Can any reader of the Oregon Naturalist supply any facts about the life or history of Vic Trevitt?

A. B. AVERILL.

— THE —



OREGON NATURALIST.

VOL. IV. PALESTINE, OREGON, FEBRUARY, 1897. No. 2

THE PHŒBE-BIRD.

The Pewit flycatcher or Phœbe-bird, *Sayornis fuscus*, is one of the earliest birds to migrate northward in the spring, reaching as it frequently does, the latitude of 45° by the 8th. or 10th. of April, some time before Robin Redbreast puts in his appearance.

It is not a sociable bird; it does not delight in cities, towns or villages; it has no bright, iridescent hues, no "coat of many colors" to attract the attention of the passer-by and draw upon it the persecution of the fiendish feather hunter; it does not usually build its nests on almost inaccessible heights, there-by enhancing the value of the eggs it lays; nor again, does it possess sweet, melodious notes wherewith to enrapture those who frequent its haunts.

It is a shy creature delighting most in an unfrequented place, where, with its mate, it can live contentedly, untroubled by the "ceaseless swarm of humanity." Its color is modest and simple in the extreme, a veritable Quaker maiden it is, in its unassuming, olive-hued coat, whose ends, not otherwise being able to meet, are brought together by a whitish underpiece; a faint splash of yellow on the abdomen is the only attempt at relieving the monotony of this gray, sombre-hued garb.

The nests are usually placed with seemingly no regard for the ubiquitous boy-collector. About the only impediment to the cause of science, represented by our ceaseless juvenile investigators, is the difficulty in bridging a small but, nevertheless, wet stream—as our fearless "seeker-out of hidden things" experiences if this

improvised bridge collapses at the critical moment—and at the same time reaching upward about double the boyish height. The delay thus involved can be easily obviated by taking along a bare-footed companion to "boost" the would-be oologist, who, of course, offers him as an inducement, to accompany him a share of the "swag."

As to its voice, you cannot expect to find ravishing notes issuing from its little throat; it is a case where heredity is too much for the poor fellow, for its Family, alas! belongs to the non-melodious class of Perchers. Still it does the best it can; and, on a still quiet evening in early spring, some time before birds begin to arrive in such numbers as to make the sight and sound of them common, its sweet, sad notes, repeated again and again, seem to strike a responsive chord in our breasts as we look out over the landscape, still shrouded in the gray and sombre hues of winter. Lowell seems to have caught this inspiration, as witness the following beautiful lines:

"It is a wee sad-colored thing,
 And shy and secret as a maid;
 That, ere in choir the robins sing
 Pipes its own name like one afraid.
 It seems fain prompted to repeat
 The story of some ancient ill
 But Phœbe! Phœbe! sadly sweet
 Is all it says and then is still."

The nests are built under bridges, stone culverts, rocks, and under the walls and against the roofs of old houses and barns, a spot near a creek, river or other damp spot seems to be preferred, perhaps on account of the easiness with which the mud and moss which form an

important part of Phoebe architecture may be obtained. The nests are usually circular at the top and the external depth differs but little from the average diameter, 3 inches. The lateral walls are about $\frac{1}{2}$ inch thick; while the bottom is firmly laid with a thickness of three times that of the sides.

The materials of which the nests are composed differ considerably with the locality. Usually, however, the groundwork is of thick grasses, roots, and small twigs which are plastered to the supports and to each other by pellets of mud and moss; next comes a layer of hair, fine grasses, or feathers; the final layer is of fine wool or lint, everything in this future home being woven and interwoven with the greatest of engineering skill. Occasionally, especially if there be a late spring, I have noticed that they weave pieces of paper into the nest. This is with some intention as our northern builders have when they place building-paper between the outer and inner walls of our houses as a protection against the cold, yet in the one case it is dictated by Reason, while, in the other, merely by blind Instinct!

I remember trying, on one occasion, an experiment with the eggs of the Bridge Swallow and the Phoebe. These birds had built their nests within two feet of each other, the Swallows upon the rafters of a bridge, while the Phœbes chose, for their building site, the top of an old bridge-pile that stood under the bridge. The eggs, by some chance, had been laid about the same time, so that, by the time I discovered the nests, I found, by blowing an egg from each nest, that the incubation was about $\frac{1}{2}$ advanced. Bethinking myself to play a trick upon the old birds, I changed the eggs. "Great fun 'twill be," I thought, "the Bridge Swallows will be forever exhorting their young ones to grow more, while the Phœbes will be hard worked to provide for their over-sized brood."

Several days after, I came to look at the nests. Everything was calm and serene; the eggs had just hatched and but little difference could be distinguished between the two birds; if a fond parent paused to notice that one of the young

birds did not look exactly as one descended from a long line of the noble *Hirundines* or from the ancient race of the Phœbes, ought to look in order to do credit to his ancestors, I suppose he consoled himself with the thought that all the birds in the nest were alike, ergo, everything must be alright.

My work did not allow me to revisit the scene of my oological (or ornithological, which?) experiment for some time. When at last I went there again, a very different sight greeted my eyes. The young birds were now learning to fly. The anxious cries of the elder Phœbes as they saw one of their Bridge Swallows in my hands, produced no effect upon the birdlet that I held but brought all the little Phœbes out of their nest on the rafters of the bridge, to the great distress of Father and Mother Bridge Swallow. The young birds did not know their foster parents' language! The old birds then raised such a clamor that I retired, abashed. Two parent birds flying about his head, uttering piercing cries of distress and dashing towards his face in frantic endeavors to pick out his eyes, or with some equally dire intent, are about enough for any bold intruder; but who can withstand twice that number!

I determined to visit the place that night to see how the birds settled themselves. I was not able to carry out my plan that night, but the next found me on the spot with a lantern.

Mr. and Mrs. Bridge Swallow still occupied their home on the rafters but there were no young birds with them. On the top of the old pile. I found four little Bridge Swallows huddled together, but "no father or mother had they." No trace could be found of the Phœbes, old or young.

ROY A. COOK.

Independence, Iowa.

While Spokane, Wash., is introducing Mountain Quail, Bob-white and Denny Pheasants. Equally as good native game birds appear to be over-looked, namely Sooty Grouse, Ruffed Grouse and Sharp-tailed Grouse; not mentioning Sage Hens.

NORTHWEST ORNITHOLOGICAL ASSOCIATION.

Conducted under the Supervision of its Editor, Arthur L. Pope.

Owing to the much to be regretted illness of Mr. Pope this month's department was directed by the Secretary of the Association.

The prospects for accomplishing some solid work this year are very promising. Everyone seems to be taking an interest and the various committees have the work of their departments well under way. The Library and Museum Committee have about as much as they can attend to in making provision for and properly recording the specimens, books, and other donations which they are constantly receiving.

A report will be made by the chairman, at the next monthly meeting of the Association, which will include a list of the publications received since the beginning of the year, and also a list of all the specimens at present owned by the society.

A pamphlet on "A Simple Way to keep Bird Skins in Good Condition" is being prepared by the chairman of the committee, Mr. H. T. Bohlman. This will be a description of the methods employed by him in filing away and boxing the Museum's bird skins. To collectors and students this report will be of much interest and value.

During the past month the committee sent out the following circular:

Library and Museum Circular No. 1.

TO THE MEMBERS OF THE NORTHWEST ORNITHOLOGICAL ASSOCIATION:—

At the last annual meeting of the N. O. A., a committee of three was created to superintend the collection and proper care of whatever ornithological specimens and publications the society may receive either by purchase or donation.

From the nature of this work it is needless to state that the hearty co-operation and untiring assistance of the friends and members of the club, individually and collectively, are indes-

pensible. One branch of this work requiring your immediate attention is the formation of an Association Library. Very few of us have the pecuniary means necessary to purchase even a moderately extensive selection of ornithological works. But we can form a good working library associatively. As an ornithological society, copies of most government reports will be sent us without expense. The Association will be on the free mailing list of many high class periodicals and ornithological journals. The reports of other clubs will be given us. Dealers in naturalist's supplies will mail us their catalogues and lists. The society has only to provide a suitable and centrally situated location for the safe keeping of these possessions, and to regulate their distribution among its members.

In accordance with this design, the Library and Museums committee will shortly issue Rules and Regulations governing the lending of books to the members. Accompanying the rules will be a catalogue of the publications at present in our possession.

In addition to the above methods of obtaining material, a great many publications are in the possession of individual members which, although of comparatively little value to them personally, would, however, be of considerable worth, if placed at the disposal of the association. For example, many of us have back numbers of ornithological periodicals which are to us of very little use, but, if gathered together and placed on the shelves of our library, the incomplete files could frequently be completed, while useless duplicates could be traded to other clubs, whose files might thus be perfected by their addition. We may also have books which we prize very little, but which might be of assistance to some student working along special lines. In addition to this there are scattered over the coast quite extensive libraries, possessed by men formerly engaged in ornitho-

logical work, but who are now occupied in other pursuits, and consider the books of but little value. If they can be made to see by our progress that we are making rapid yet firm steps in our work they will, beyond doubt, gladly present the works to our collection.

There are other ways obtaining books which might be mentioned, but enough has been said to illustrate the spirit with which this committee is working. It only remains for the members to give us their enthusiastic co-operation, and the success of the work is beyond question.

The committee also desires to push with equal energy and along the same lines the collection of ornithological specimens—mounted birds, skins, nests and eggs.

As very few of us are collecting systematically in all of these branches, we frequently obtain specimens which we do not care to preserve. If these were forwarded to the association, however they would enhance the completeness of our museum.

If you are not able to skin a bird, forward it in the flesh, immediately, with accompanying notes, to one of the members of this committee. He will properly classify, take the required measurements, skin the bird, and will record in the museum catalogue the name of the collector, place collected, and other data.

In other respects this branch of the work will be carried along on the same lines as the preceding.

If a member making a collection of skins, desires the identification of any specimen in his possession, the committee has agreed to classify the same, if forwarded to the chairman without expense to the association. If too difficult for identification by the committee it will be sent by them to the Division of Ornithology and Mammalogy, U. S. Department of Agriculture, at Washington; where after proper identification it will be returned by the committee, and, by them, to the individual. By this method no one need have in his possession any specimen of the identification of which he is not positive. The only expense he will incur will be that of forwarding the specimen to, and receiving it from,

the committee. This expenditure need rarely exceed ten cents.

By this brief outline of our work the committee has intended to introduce itself to Northwest Ornithologists. Further particulars regarding our work will be communicated you as occasion requires.

Hoping, yes, expecting that you will take this work immediately under your consideration.

we remain, yours in ornithology,
(Signed) Herman T. Bohlman, Chairman,
46 N. Ninth St., Portland, Oregon.

(Signed) Geo. D. Peck,
230 Liberty St., Salem, Oregon.

(Signed) A. B. Averill,
286 Morrison St., Portland, Oregon.

THE SOCIETY'S NEW QUARTERS.

The city council has recently granted the use of a number of rooms in Portland's beautiful city hall to the scientific societies of the state. At least one of these will be obtained by our association.

Representatives from the various societies held a meeting during the past month to make the necessary arrangements for fitting up the quarters. The N. O. A. was represented by its President and Secretary. A committee was appointed, consisting of the president of each interested society, to attend to this matter.

This step will be of much benefit to the association as our monthly meetings can be held in these apartments. The Library and Museum Committee will have suitable cases and shelves made for our specimens and books. The bird skins can be kept in ideal condition in the spacious damp proof vaults of this building. Each member will be provided with a proper certificate so that we may obtain admittance to the rooms at any time, by presenting same to the head janitor of the building. But this will be explained more fully later.

At the above mentioned meeting the idea of uniting the scientific societies of the state or of the entire northwest was quite favorably considered. We might name such a union the "Oregon Association for the Advancement of

Science," or, what I think would be much better, the "Northwest Association for the Advancement of Science." There is no reason why we should be so narrow minded and center everything in Oregon, especially in scientific matters. Our work would be on a much broader and more solid foundation if we included the three Northwest states. There are not enough interested in any one of these states, taken separately, to conduct a live association, but the three combined could accomplish work of much value to science.

The societies which have thus far taken an interest in this matter are: The Oregon Academy of Science; the Portland Historical Society, the Mazamas, the Mathematical Club, the Forestry Association, and the Northwest Ornithological Association.

This union need not, in any way, interfere with the individual identity of any club, for it would still continue to have its own officers and government. For example, we would be called the "Ornithological Division of the Northwest Association for the Advancement of Science." There would be one great union every year, held in some centrally located city, with say, one day devoted to matters of general interest. Then each society would branch off and hold its own sessions which would be taken up with the special work and papers of the division.

We look forward expectantly to the time when this idea will have become a successful reality.

PRESIDENT'S ADDRESS.

After another year we have assembled together as an organization for the study of bird life. For our mutual benefit as well as advancing that study which above all others pleases us most.

We are again assembled to look over the past year's work and now with the experience of two years, to arrange our plans for a new period.

As we look back we see where many improvements might have been made, we are at times discouraged and at other times encouraged.

In regard to our first year's work much credit is due those who compiled our list of Oregon

birds. The other regular work of that year did not amount to a great deal but it served to keep up some interest during the time. During the past year we have not come up to our expectation but we succeeded better than the first, and for the coming year it only follows that with more experience our success will be greater.

The work of the past year included the study of different birds by families. The plan worked very well until the vacation months when most of the members were away from home and no reports of any value were handed in. This state of relaxation had somewhat of a demoralizing effect upon the work of the succeeding months. Nevertheless during the first part of the year a thorough study was made of the Tetraonidae family and very creditable articles were published in our Official Organ on the "Bob-white in Oregon." Mt. Partridge, Sooty Grouse and Oregon Ruffed Grouse.

We must all remember that it requires considerable individual work to keep a society of this kind in good condition, and one can gain neither honor nor fame by his efforts.

We have many disadvantages under which to work. Our membership is small and we are so scattered that most all of our work must be carried on by mail and is therefore not so effectual and interesting. We find many interested but few active members. What we need is a list of active field workers to furnish original notes.

We cannot expect to accomplish a great deal as an association while we have these difficulties to meet, but we need patience and persistence and with these qualities there will be a time when we can look back over our work and be proud of the efforts we have put forth.

Now and then a naturalist has passed through the Northwest going hastily over the ground, staying a season or two at the most, collecting skins, eggs and other specimens and making what observations the time allowed.

Such notes while valuable as far as they go are far from being complete. And the specimens taken are sent East to enrich private collections or the museums of other states.

We have the best opportunities for investigation I might say, in the whole country in that we have an extensive and almost untrodden field open to us. We are not far from the resorts of the sea birds, the dwelling places of the inland water birds, the haunts of those that live far back in the deep woods and on craggy mountains and the homes of those that build in the meadows and around our cities. We are surrounded by the aerie of the eagle along the Columbia, the plains of the prairie chicken on the east, the lakes and marshes of the ducks and geese on the south and the rocks and crags of the gulls, petrels and cormorants on the west.

Now, concerning our work for the coming year, we should for one thing do all we can to revise and complete the list of Oregon birds compiled a year ago. This will be brought about in time by careful observation during breeding season and keeping up work on the migration of birds.

In pursuing the study of some of our birds during the past year we have met with a few that we have been unable to properly identify. This is especially true where the birds of the same family have been subdivided into different species, on account of variations in color and each are said to inhabit this region. If this be true it will be readily seen that every time a bird of these species is taken, the collector has no way of properly identifying it from the works on Ornithology he may possess.

In way of illustration; the Woodpecker family has been subdivided on account of slight variations in color and it is said that both *Colaptes cafer* and *Colaptes cafer saturator* inhabit Oregon, but it cannot be definitely stated what territory is inhabited by one and not the other. Therefore every oologist who has a set of eggs of either bird taken in Oregon is not certain of the name unless the parent birds have been killed and sent to some authority for identification. We are organized partly for the purpose of removing such obstructions if possible. The step to span this difficulty has already been taken and I think we can succeed if our members will respond. Our plan is to secure skins

of such birds from various sections of Oregon during breeding season and have them properly identified, this will bring out any difference in the habitat of the birds. A number of skins have already been donated to our society and we are in hopes during the coming year of increasing the collection considerably.

The study of bird life like any other study requires, as I have said before, patience and persistence. But these requisites are unnoticed when one becomes interested in the study. It is fascinating; a study that one does not tire of.

The successful student of birds must be a careful observer, a persistent Rambler through field and forest, along streams and by lakes.

He who would know a bird must visit it in its own haunt and train his ear to distinguish it by its varied notes.

A knowledge of birds can be obtained from books or from the specimens in a collection but bird life can only be studied among living birds.

The beauty of a flower might be painted on canvass but its fragrance would never be imagined, so the song of a bird might be described in a book but no set of syllables ever suggested the melody of a birds song or imparted that thrill of gladness as when uttered in the deep solitudes of the forest or by the shady side of some rippling rill.

Ornithology is a life study, I do not mean by this that one's entire life should be devoted to that and nothing else. But if one becomes thoroughly interested in the study and the formation of a collection it has a fascination that grows more and more and no matter what position he may be placed his interest ever serves to keep him alert for the addition of new facts or specimens.

In making a thorough study of Zoology one must study Ornithology, should one become versed in the Science of Ornithology he must study Oology and understand the nidification of birds. This necessitates the collecting of eggs and the careful examination of nests.

The formation of an oological collection and the continuance of it will prove a constant reminder of days long gone by and recall the

memories which time cannot eradicate. But if there is any thing that should be avoided it is the collecting of eggs for collecting's sake, collecting simply to increase a collection. This tendency is carried entirely too far and it is for this reason alone that public opinion is against egg collecting and the oologist is despised and contemptible in the eyes of many people.

The simple collector of bird's eggs is not an Oologist or Naturalist, nor should he be recognized as one. The owner of a collection of eggs or birds should certainly have a large collection of facts and a redeemable store of knowledge in payment for the destruction of so many of nature's blithest and sweetest creatures.

We must realize that the only collecting which is justifiable is that which is done for the purpose of study.

The collecting of eggs for the purpose of exchanging and acquiring a larger collection has gained too much ground, the idea of depending upon the efforts of others for the specimens of a collection has no scientific motive whatever behind it. The taking of eggs for the purpose of selling them for a few paltry dollars is an outrage often perpetrated under the guise of collecting for scientific purposes.

A true Ornithologist will work on the line of the protection of our birds in every way.

Why is the study of nature not encouraged more in our schools and colleges? Glance at the lives of those who have achieved greatness. Have they been unmindful of the beauties of nature around them? How have they spent their hours of recreation? Has it been on the athletic field or have they sought to combine the exercise which is needed with some elevating study? Some study which rather leads one to seek the exercise in a quiet ramble through the woods where he may learn to realize the wonders of Nature, thrilled with her music, enraptured in his love for the things beautiful around him, his mind is elevated and enriched.

Why then do we prefer the study of Ornithology? Because each bird is one of the most fitting representatives of nature's beauty and greatness.

It not only affords a great pleasure but a fascinating study. Not only a pleasing recreation but an ideal exercise. It creates the love for great and glorious things and promotes the qualities which make nobler manhood and womanhood and we are brought fully to realize that:

"In contemplation of created things,
By steps we may ascend to God."

"RANCH MINERS."

In Jackson and Josephine counties, Southern Oregon, there is a class of people, called "ranch miners," who are undoubtedly better situated, happier and more prosperous as a class than any other people in the United States. During the winter months they wash gold from the streams, by primitive methods in sufficient quantity to supply their wants during the year. When the water in the streams get low, these rustling Oregonians betake themselves to their farms adjacent to their mining ground—in many cases the same land is alternately a gold mine and a farm—and devote the remainder of the year to a mixed farming that nets them good returns, and it is safe to say that a more prosperous, contented, free-from-debt people would be hard to find. There is plenty of land to be had at a nominal price. It has been estimated that the gold resources of these two counties alone, if properly worked by organized up-to-date mining methods, would support a population of 2,000,000 people.

An old and curious sword bayonet was found up on a bluff, one mile north of Juniper, Umatilla county. The blade is of steel, while the handle, made of brass in part, has the letter "B" backward, the numerals "13" and the letter "S," stamped on.

Guy Stryker of Milwaukie, Oregon, recently shot an uncommon visitor to this locality, that was annoying his chickens; a Great Grey Owl; female, 25 inches in length, 57 inches, extent of wings, stomach empty. Her ladyship was odorous with the perfume of *Mephitis*, but never the less has been mounted.

THE FLATHEADS OF THE NORTH-WEST.

It was customary for the Indians of the north-west to bury their dead with a coin placed in the mouth of the corpse. On Memaloose island, the old burial place of the Flat-heads in the Columbia River, many coins have been found corroded fast to the roof of the mouth of skulls. They comprise many varieties of foreign copper and silver coins, tokens, medals, etc., brought to the region by early traders whose vessels penetrated the Columbia. English farthings of the 18th. century have been found, but most of the coins are early Brazilian coppers and Spanish-American silver dollars. I have in my possession two American half dollars dated respectively 1858 and 1876, which were found, with a Chinese brass "cash," in the roof of the mouth of a skull. They were corroded together in a lump, but the coins were in good condition, the half dollars being only slightly oxydized. No interments have been made at Memaloose for many years, and the date on the halves shows that burials were still made there up to 1876. The object of this curious custom was to guard against the dead man's poverty on his arrival in the Indian paradise. Many of the coins had been perforated, showing that they had been used as ornaments before death overtook the owner. Since the great flood a few years ago, when the island was completely submerged, it has utterly devastated and washed out many of the graves, but many articles can still be found of interest to the student; that is, if he can elude the watchfulness of the Indian guards across the river, and a person found there by the wary sentinels over the decaying remnants of their forefathers, the Flatheads, would find himself in a dangerous predicament. The Flatheads are now extinct, the last survivor of the curious race with the receding forehead having died some years ago at a great age. The custom of flattening the skull has become obsolete with the present generation. The skulls are in great demand by colleges and medical universities, and will at no very late date command a good price. They are getting very

scarce. As a curious incident of fate, I mention the fact that I have a skull of one of these people that contains a wasp's nest where once was located the base of his reasoning and intelligence. The flattening of the skull was begun in infancy by tying the subject to a board and having another flat piece of wood extend over the forehead (thus >) and gradually depressing it until the skull assumes the desired flatness. This was considered an ideal of beauty by these aborigines.

ED A. SCHLOTH.

Portland, Oregon.

MORE PHEASANTS FOR WASHINGTON

Mr. Frank Alling of Tacoma, Wash., received two coops of Oriental Pheasants from China on the steamer Olympia which arrived at Tacoma on Tuesday, Feb. 16th. This shipment makes ninety two of these birds, including in all seven varieties, that Mr. Alling has imported at his own expense. They will be turned loose in a few weeks on Fox Island near the city. They are the finest birds he has ever received and are of a slightly different variety from the others. They are larger and their plumage is more brilliant. It is Mr. Alling's purpose to stock Washington forests with this prince of pheasants if he can succeed in getting the Legislature to grant a five year's closed season during which time the shooting of the birds shall be prohibited under a heavy penalty for a violation of the law.

MERIDEN S. HILL.

Tacoma, Wash., Feb. 19th. '97.

Last January, Dr. Hibbard of Portland shot a female Western Duck Hawk in Multnomah Co., Oregon.

The latter part of February a male surf duck (*Oidemia perspicillata*) was shot near Gevairs, Oregon; more than fifty miles inland.

An effort is being made by the Multnomah Rod and Gun Club to import and introduce to the state, Golden and Silver Pheasants.

— THE —
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A BIRD RETROSPECT.

HOW THE BIRDS HAVE RETREATED BEFORE THE
PROGRESS OF CIVILIZATION OF ALAMEDA AND
ITS ENVIRONMENTS.

We often recall with pleasure the times when our feathered friends were found in abundance and in all places, but now the country is so thickly settled that our birds are only found in the most restricted localities, and it seems but a question of time until they will be, foot by foot, forced out altogether. The advance of civilization into new country, agriculture especially, brings the birds along with it and new species in new districts, but when farms and orchards give way to streets and houses the birds introduced by the former medium are driven out by the latter medium.

Every bird on the "A. O. U." list has its share of mortal and immortal enemies. In this region excessive heat, cold, drouths, floods, wind storms and other such dangerous elements are practically of no consequence, so the chief danger to the avian race is man.

I have heard old timers recount on the myriads of Ducks, Geese, Swans and sea fowl in San Francisco harbor and that Gulls nested on Goat Island, but this has long ago been changed to a harbor bustling with all kinds of water craft with the birds in the background. The Gulls are there and a few Ducks and Cormorants, but Geese and Swans are no longer seen.

The duck shooting hereabouts was an assured success any winter's day, but the pothunter has killed and frightened the birds so constantly that

nowadays most of the Ducks we see are safely skulking on the bay in locations where the discharge of fire arms is contrary to law. Gunners on the railroad trestles over the sloughs, a dozen weapons at a time, will blaze incessantly all day and far into the evening when a flight is steady, but the Ducks are sky high and very few are killed, but the flash of the powder after sunset scares them worse than the noise.

Snipe, Plover, Curlew and other water birds are fast becoming scarce and those that are here are remarkably wild.

The California Clapper Rail are practically exterminated at the close of every shooting season, and if it were not for new birds that come in and breed extermination would be fulfilled.

The wily Great Blue Heron is well able to take care of himself. His nest is in such "hard to climb" trees that the collector don't often get the eggs, while the rookeries are not known to the gunners. On account of its usefulness in exterminating gophers, those noxious animals that destroy root crops and undermine levees, it is protected by law, yet the pothunter is no respecter of laws, but it takes a rifle to reach one of these wary birds as he sits like a sentinel on the marsh.

Although a few Gulls and Terns are shot they do not seem to have diminished in numbers.

The Mourning Dove is now very scarce, but is found in profusion in out-of-the-way places in the County.

The only thing that keeps Quail alive is city ordinances preventing shooting and "No Shooting" signs out of town, but traps are noiseless and diminish the flocks. The worst curse of all

is the army of cats belonging to every house. These marauding felines wander "all over the country" and the good they do in catching gophers, rats and mice is more than offset by the harm they do in destroying brooding birds. Quail are plenty in certain localities, but are present there only to feed and to take advantage of the cover and do not nest owing to the presence of the cats. In the foothills these birds have been shot off or driven in thick, almost impenetrable brush. The poor Quail has by far more enemies than any other bird: in addition to what has been above set forth, the scythe and mowing machine plays havoc with the eggs and even with the close-sitting hen herself. Removing weeds or brush too near the nest will often cause the bird to desert the eggs, in whatever stage of incubation they happen to be. When the young are newly hatched they must elude the egg eating and carnivorous Jay and must elude the prowling cat. Then comes a short respite until the shooting season opens and the Sharp-shinned Hawk arrives to persistently harry them.

Barn Owls are shot whenever the chance occurs. This useful bird should be on the law's protected list. Depending upon a diet of moles, gophers, rats, and mice they are more useful to rid the premises of these pests than cats are and they have none of the bad traits of cats and are the only birds or animals in my knowledge that catch and eat moles.

The California Screech Owl manages to enjoy life owing to its nocturnal habits, I hardly know whether to class it among useful birds, owing to its habit of eating small birds.

The Desert Sparrow Hawk has fallen before the gun and is now restricted to remoter districts, while the Western Red-tail seems better able to look out for himself.

Blackbirds and Larks, shot more or less for food, at all seasons, are fast diminishing.

Parkman's Wren and the Plain Titmouse are gradually being forced away by the pestiferous English Sparrow.

Of course the mania for shooting small birds for pastime, or brilliant plumaged birds for no good reason at all, will, as in any other locality, oc-

cur more or less, but it is to be hoped that the exponents of Ornithology and Oology will do all they can to further the protection of harmless and useful birds.

D. A. COHEN.

Alameda, Cal.

TAPA CLOTH.

The Sandwich Islanders made when first visited by white man a paper cloth called Tapa cloth from the bark of small branches of the mulberry tree. (*Broussonetia papyrifera*) which is indigenous to the islands. The first process in the manufacture of this cloth was a trip to the interior to secure the bark which was made into small bundles and wrapped in leaves of the tea plant. These bundles of bark after being wet with water were buried in some convenient swamp to partially rot for three weeks, after which time it was exhumed. The stench from it is now something awful, but this odor disappears during the process of drying. The villianous smell however does not seem to annoy the native woman who proceeds to knead and work the plastic mass like dough adding water from time to time. The pulp after being sufficiently worked by the hand is then beaten over a smooth log or other suitable surface with a heavy square club called a tapa beater, made from the wood of the kauwaiia tree. The beater has designs carved on each of its four sides which leave their imprint on the cloth as it is beaten out from the pulp which gradually flattens growing thinner and thinner and slowly spreading out under each successive blow. The thinnest cloth is considered the most desirable not being made now except on rare occasions and then only by the oldest native women. This cloth is consequently much sought after as a relic and curiosity of the Hawaiian Islands.

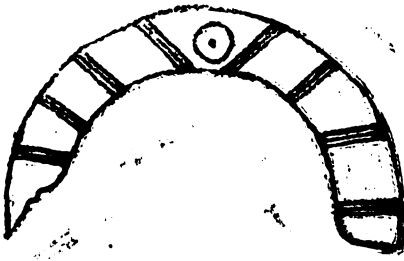
Mr. H. T. Bohlin records a large flock of Evening Grosbeaks and also some California Purple Finches as seen at Portland, Oregon, on March 21. This seems to be an early record for the Grosbeak.

Klickitat GAMBLING DICE.

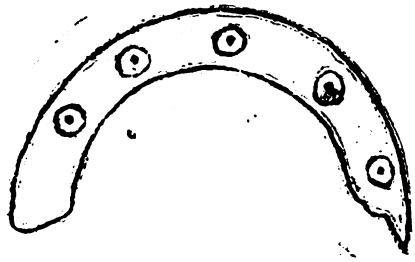
Gambling devices in the form of dice have been known for ages, and are common among civilized and barbarous races. They are generally in the shape of a six sided cube, but many forms of gambling sticks, teetotums, etc., come under the same head. Chinese dice differ only from the ones commonly used every day in that the ace is represented by an exceedingly large red spot. The Indian is an inveterate gambler, and dice are among his favorite gaming paraphernalia. The big "potlatches" held yearly among the tribes of the Northwest furnish opportunity for the gay and festive swash to indulge in his favorite recreation of gambling, and

ports, I will enter into minute details of the method of playing the game; upon the authority of the dusky lady from whom I obtained them.

Her husband, who is a Cowlitz, corroborated her statements. The dice are four in number, constituting a set, and are made of the incisors of a beaver. Two of each are marked alike, the ones with five spots representing "queens," and the ones with the stripes and single dot are "kings." One side of each is left blank. The players, of which there may be any number, but usually two, seat themselves on the ground, with a blanket or soft skin between them. The player takes the dice in one hand and throws them with a peculiar underhand, sliding motion in such a manner that they slide and fall on the



KING.



QUEEN.

He frequently uses a "hot shot" and is compelled to go home afoot, minus his pony, rifle and other worldly possessions. The writer has lately come into possession of an exceedingly curious set of four dice, which he obtained from a full-blood Klickitat squaw, a member of that great Western tribe the Nez Perces, who rank high among the Pacific coast Indian tribes. The "klootchman" was exceedingly loquacious for one of her race, and explained in great detail how the dice were cast, the highest and lowest throw, etc., etc. As I can find no such gaming device of the character of the one of which I write mentioned in any of the Smithsonian re-

ports, I will enter into minute details of the method of playing the game; upon the authority of the dusky lady from whom I obtained them. Her husband, who is a Cowlitz, corroborated her statements. The dice are four in number, constituting a set, and are made of the incisors of a beaver. Two of each are marked alike, the ones with five spots representing "queens," and the ones with the stripes and single dot are "kings." One side of each is left blank. The players, of which there may be any number, but usually two, seat themselves on the ground, with a blanket or soft skin between them. The player takes the dice in one hand and throws them with a peculiar underhand, sliding motion in such a manner that they slide and fall on the skin or blanket. Each player shakes in turn, and the one making the highest throw takes the "chickamin" (money). The highest throw possible is when all four blank sides fall face upward. The winner of the stakes in each takes first throw at the next cast of the dice. One cast determines the result of the player's luck. In case two players are tied, the result is determined by another cast. Following is a list of the high and low throws, beginning with the highest and graduating down to the lowest:

- 4 blanks—highest throw possible.
- 3 blanks and king.
- 3 kings and queen.

2 kings and 2 queens.

2 kings and 2 blanks.

2 queens and 2 blanks.

2 kings 1 queen and 1 blank.

2 queens, 1 king and 1 blank.

2 blanks, 1 king and 1 queen is the lowest possible throw, and counts nothing.

The spots and marks on the dice are very nicely done. The hollow ends of the teeth are filled with little wooden plugs, which are held in place by sinews bound tightly around the ends over the plugs. The squaw stated that they are very old, and remembered seeing them played when she was a young girl, which must have been 50 years ago, as she is quite an old woman. Besides, beaver are very scarce here now, where once they were very plentiful. Cuts of one of each of the set are published with this.

ED A. SCHLOTH.

Portland, Oregon.

THE CHIMNEY SWIFT.

(*Chatura pelagica*.)

The general range of the Chimney Swift extends from Eastern North America to the plains and the species is a common summer resident of the Atlantic states. It arrives in New England by May 10th, and commences building at once.

Many years ago, the bird was accustomed to employ hollow trees for this purpose, but the unused flues of chimneys were finally and are now invariably adopted for breeding purposes and if left unmolested, the same pair will resort to the same flue for several years.

The nest is built of small sticks, glued together by the saliva of the bird to the sides of the chimney and generally but one pair occupies the same structure for the summer.

For a few successive seasons, a pair bred in my chimney, appearing morning and evening, especially at times previous to showers, to play with others in the neighborhood or to secure food.

At such times they chase and twitter to each other, flying over the houses, fields, and orchards, frequently remaining out to enjoy the

coolness of evening until long after the sun has set. Occas only at sunset, I have stood and watched them sailing far above the earth, until they appear like specks in the sky and a well known theory has arisen that the weather at such times promises to be fair.

Once during the summer of '95, I opened the flue of a chimney, and by the aid of a broken mirror, saw a nest firmly fastened to the south surface, about twenty feet from the top. As I did so, one of the birds appeared, producing a dull, booming sound with the wings, similar to that made by blowing violently into an empty barrel. Instantly, the young set up a peculiar, loud twittering, accompanied by a flapping of their wings and much stretching of necks over the edge of the nest in their eagerness for food.

In every case, the parent or parents, descended the chimney in two or perhaps more successive flights, and rested at the top, before again leaving. The adult birds made eighteen visits within the four and one-half hours in which I watched them.

In the summer of '96, I again opened the flue and perceived that a new nest had been fastened on the opposite side from the one of the previous summer. The antics of both adult and young were precisely the same as those of the season before, but nevertheless, I am looking forward to the coming summer when I may again greet my sooty companions from the sunny south.

C. B. HADLEY.

Arlington Heights, Mass.

The Chinese have domesticated the Pelican and utilize their services as a provider for the family. A ring is fastened around the neck of each bird when fishing so that it will not swallow the fruit of its labor. Its owner rewards the fisher with a small fish after removing from its bill each fish as caught. It is said that the proceeds received from the sale of the fish captured by one bird will support a small family in China.

Students of basketry of the Pacific Coast Indians universally concede, that the best work as viewed from every stand-point was made by the Klickitat Indians.

NORTHWEST ORNITHOLOGICAL ASSOCIATION.

MEMORIAL RECORD OF ARTHUR L. POPE.

The Northwest Ornithological Association desires to place on record the expression of its sincere sorrow and its sense of deep loss it has suffered through the death of Arthur L. Pope, an active member and a true leader in this Association.

Arthur L. Pope was born near the village of Trumansburg, Tompkins County, New York, Dec. 26th., 1876. Died at the home of his parents near Salem, Oregon, Feb. 28th., 1897.



ARTHUR L. POPE.

His early life was spent on a farm where he was brought in close contact with Nature, and it was here that he showed an unusually keen delight in birds. His interest grew deeper and he became a reader of all the ornithological literature he could procure. His spare moments he spent in study and close observation and soon developed into an enthusiastic ornithologist.

In the fall of 1890, Mr. Pope moved to Yamhill County, Oregon and later to Marion

County.

Early in 1894 Mr. Pope started the movement to organize an ornithological society among the bird lovers of the Northwest. Mainly through his efforts the Northwest Ornithological Association was organized at Portland in December '94. He was elected as its first president and that year and the next he did more than any one else to keep the society in good condition. He was quiet and unassuming but a hard worker in everything he attempted.

A little over a year ago he entered the office of the Yamhill County Reporter to commence preparation for his chosen field of labor, journalism. Only those most intimate with him could judge of his deep disappointment when failing health compelled him to leave the office and seek his home for needed rest and medical aid. But that dread disease, consumption, already claimed its victim, and alike unavailing were the best medical skill of the state and the untiring ministrations of his friends.

Beautiful were the lessons of patient endurance and calm submission taught by the heroic soul in the three months brief struggle when he wished to live but was ready to die.

How small—how trivial seem the great expectations and plans built upon the future of this particularly bright young life now that God's greater plan is manifest. A brave, courageous spirit has gone from us, but left to all who knew him is the inspiration of a thoroughly pure, unselfish life. "O death, where is thy sting? O grave, where is thy victory?"

IN MEMORIAM.

I cannot say and I will not say
That he is dead—he is just away.
With a cheery smile and a wave of the hand,
He has wandered into an unknown land,
And left us dreaming how very fair,
It needs must be, since he lingers there.
And you—oh, you—who the wildest yearn
For the old time step and glad return—
Think of him as faring on, as dear
In the love of there as the love of here.
Wild and gentle as he was brave
When the sweetest love of his life he gave
To simpler things, where the violets green,
Pure as the eyes they were linked to,

The touches of his hands have stayed
 As reverently as the lips have prayed;
 When the little brown thrush that hardly chirped
 Was dear to him as the mocking bird;
 And he pitied as much as a man in pain
 A writhing honey bee wet with rain.
 Think of him still the same, I say;
 He is not dead—he is just away!

—James Whitcomb Riley.

No member has been of such value to our Association as Mr. Pope, and it is especially fitting that we should record our tribute of thankfulness for his eminent services and our great sorrow at his loss.

He was a man faithful in all things and has left behind him an enduring reputation.

The monthly meeting of the members of the Northwest Ornithological Association living near Portland, was held at Portland Feb. 27.

Report of the Field Work Committee showed that careful work was being done on the migration of birds.

The Membership Committee reported that the following new names had been proposed:

Wade H. Pipes, Dr. L. E. Hibbard, Mr. John Martin, Chas. L. Case, Dr. J. A. Lymn, Mr. Wallace Beebe, Dr. J. W. Cardwell and Mr. Ara W. McLaughlin.

The following written report of the Library and Museum Committee was accepted and placed on file:

The L. & M. Committee consisting of three members of the N. O. A. was appointed by the President at the last annual meeting and has been working faithfully to advance the interests of the Association.

The principal objects in view are the formation of an Ornithological library and a collection of Oregon Birds, their nests and eggs for study and reference.

Already a number of members have come forward with donations and a great many more have been promised. As we have now secured rooms in the Portland City Hall, we are enabled to properly care for and keep for reference and study such specimens and books as we may secure.

The following books and specimens have late-

ly been donated:

From Darsie C. Bard: "Manual of North American Birds," by Robert Ridgway. "Birds of the Northwest." Government Report of 1874 by Elliott Coues. "Field Study in Ornithology" Government report by H. B. Triseman. "Report on Migration of Birds."

From C. F. Pfluger the following Government Reports: "English Sparrow in North America." "Digest of Hawks and Owls." "The Crow Blackbirds and their Food and the Food of Woodpeckers." "The Common Crow."

From H. T. Bohlman: "Nests and Eggs of North American Birds" by Oliver Davie. Skins of six Oregon birds and seventy-five sets of Oregon birds' eggs.

From William L. Finley: "Birds of the Northwest" by Dr. Elliott Coues. Skins of six Oregon birds and collection of bird eggs.

From A. B. Averill: Skins of six birds.

Mr. H. T. Bohlman read some interesting notes on the migration of birds. He also exhibited a specimen that had been taken by him which was thought to be an albino Rusty Song Sparrow.

A paper on the Louisiana Tanager was read by William L. Finley. A review of all the obtainable matter that had been written on this Tanager was given together with his observations, making quite a complete report of the bird.

RED-BREASTED NUTHATCH.

(*Sitta canadensis*).

Read at the third annual meeting of the N. O. A., at Salem, Oregon, by Ellis F. Hadley.

The Red-breasted Nuthatch is a comparatively common resident of Oregon, although not often seen, and I have never observed more than three or four specimens at a time.

They are very retired in their habits, being generally found in thick timber, where they may be seen running up and down and around the trunks and limbs of trees in search of insects. Insects constitute the greater part of their food.

But I suppose they may eat some nuts, judging from their name, Nuthatch, which was given to this family of birds on account of their habit of placing nuts in cracks and crevices and hammering away on them to break the shell.

Very often in winter three or four of these birds may be seen with a flock of Oregon Chickadees in an orchard, in the timber or in the bushes and trees along some stream searching for food.

Nesting time is in April and May, but they very often commence digging the nest excavation in the latter part of March. The nest is usually placed in some small fir stub from six to twelve feet from the ground.

They do not dig as deep an excavation as the Chickadee but it is generally in harder wood so it sometimes takes them nearly a month to complete the nest.

The birds take turns at excavating and both work at the nest, which is composed of grass, hair, strips of bark and a few feathers.

I have noticed that while working at the excavation they seem to prefer to be above the nest, and reach down, which is just the opposite to most birds.

The best time to collect fresh eggs is the last week in April. The eggs are from four to six in number and are a white ground color the surface being evenly covered with reddish spots. One egg in each set seems generally to be lighter in color than the others.

It is a curious fact that this bird always daubs a quantity of pitch around the entrance to the nest. It is uncertain just what this is done for but it is probably for protection, although some think that it is used as a trap for insects, which coming in contact with the pitch will almost invariably stick fast, and then the birds can devour them at their leisure. Before I knew this trait of the bird I remember of often finding their nests I would rap on the stub and not flushing the bird, but noticing pitch around the entrance with feathers stuck in it, would suppose that it was a Chickadee nest and that they had struck a pitch pocket, and the pitch running out had bothered them so that they had left it.

Last April I found a Red-breasted Nuthatch's

nest about twelve feet up in a very shaky stub. There was a small green tree about five or six feet from the stub, so I went home and procured a small rope and brought my mother back with me. I climbed the tree and threw the rope over the top of the stub and tied it, so as to keep the stub from falling. Then climbing up to the nest I found it contained six beautiful eggs.

My brother was afraid that I could not get them out of the nest and into the collecting can safely, so he climbed the tree to hold the can. We succeeded in getting two of the eggs all right but he slipped and both of them were broken. I told him that next time I went after Nuthatch's eggs his help would not be needed.

COLLECTING AMONG AQUATIC BIRDS.

Read at the third annual meeting of the N. O. A., at Salem, Oregon, by H. T. Bohlman.

In May 1893 I was the fortunate possessor of a month's vacation, which I determined to spend in hunting and Ornithological work; for my field of labor and pleasure I selected a secluded mountain prairie named by the Indians, Camas Prairie, on account of the abundance of Camas plants growing there, when in bloom, turn the prairie into a sea of purple.

The Prairie is situated on the slope of Mt. Adams, about 15 miles from the summit and is about 10 miles in length by 3 in width, almost entirely surrounded by hills, the water from which drains into the prairie and forms a shallow lake or marsh, several miles long, in which grow reeds, bull-rushes, water lilies, and every variety of aquatic plant, in which water fowl delight. It is an ideal place for hunting and collecting.

On the morning of May 3, I started at day light bent on a collecting trip; following up the outlet of the lake, which was several miles distant and wading knee deep through the sweet scented grass almost before the birds are awake, is a delightful experience, which comes only to the lover of nature. After walking a quarter of a mile I came upon a fallow field, and was attracted by the shrill cries of a Killdeer, on looking

about I discovered the bird on the ground, fluttering around as if in mortal agony, tumbling from side to side, and seemingly unable to fly, or stand; on approach the bird suddenly revived sufficiently to flutter a few yards ahead of me, where it repeated the same innocent piece of deception, attempting thereby to lead me further away from its nest, which I knew to be near. On looking around I soon discovered the nest which was only a hollow in the ground, lined with a few sticks, and containing 4 beautiful clay colored eggs, thickly spotted and blotched with amber and dark brown, very pointed at the small end and blunt at the larger. The eggs were carefully laid in the nest with their small ends together in the center, which I also found to be the case with two other sets which I found in the same field.

I continued along the outlet, through grass knee deep, looking carefully around for any signs of a nest, when suddenly there burst from the grassy sea, a Mallard not ten feet from me, and swiftly sailed off toward the lake, without uttering a note, or making an attempt to save her nest and eggs, as the little Killdeer had done. On going to the spot from which she emerged I found a nest containing 8 eggs, which I decided to leave for a few days until the set should be completed; I visited the nest the following day while Mrs. Mallard was out shopping, and found that she had covered the eggs carefully with a blanket of fine gray down about $\frac{3}{4}$ of an inch thick, which kept them warm till her return.

On visiting the nest a few days later I was greatly astonished to find it deserted and four eggs missing; a careful search in the vicinity of the nest failed to reveal any trace of the eggs. Could the Mallard have carried them off to a new nest? It seemed impossible; I watched the nest for a few days but nothing farther transpired, so took the remaining 4 eggs which were quite fresh, but where the other 4 have gone to has ever remained a mystery.

Soon after finding the Mallard's nest I reached the marsh where I waded around for some time without success but toward noon I found another Mallard's nest with seven eggs; this nest

was on a small island in the swamp, underneath a number of small pine trees, from the needles of which it was composed, lined with feathers and down. While resting here and eating my lunch, I observed a flock of "Sandhill Cranes" about a quarter of a mile away, from all appearances, they seemed to be a team of college students practicing high jumping, and otherwise training their voices in the musical notes of the college yell. But for birds of this species they were acting very queerly, they were constantly screaming or whooping and occasionally one would jump straight up in the air about a foot high or more, this they kept up for a quarter of an hour, while I was watching them, but as I approached they all took flight.

I had the extraordinary good fortune to find one of their nests during the afternoon containing one egg. The nest was constructed of reeds and grass, was placed in shallow water, rising about 3 inches above the surface, and nearly flat on top, being about 2 feet in diameter and irregular in shape. The egg has a ground color of greenish buff and is blotched with reddish brown. I was highly pleased with my day's work which added some valuable specimens to my collection.

Beeswax can yet occasionally be found on the Nehalem Beach. It is tradition, but no man knoweth, that a French or Spanish ship loaded for the Catholic Missions on the Coast and having a good supply of beeswax aboard was wrecked on Nehalem Beach. After a severe storm in the early days, large cakes of wax and candles such as were used by the mission fathers would fathers would be washed onto the beach by the waves of the ocean.

Mr. W. Malleis of Washington County, Ore., lately secured a fine specimen of Townsend's Fly-catcher, (*Myiadestes townsendii* CAB.) This species is not common in Washington County.

Portland University has secured as an addition to its museum a valuable collection of exotic butterflies:

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No 5.

A Reverie.

Whether at walk in the glowing sunshine,
With green carpet 'neath my feet;
Or seated down in shady nook,
With a tree-trunk for my seat,
While the birds to me their stories tell
And the air is with fragrance sweet,
Is there ought where man doth dwell
That can with this compete?

ARTHUR M. FARMER.

The Imported and Acclimated German Song Birds in America.

BY C. F. PFLUGER.

THE SKYLARK.

ALANDA AVENSIS, DIE FELDLERCHE.

Of these useful and lovely song birds 50 pairs were introduced into Oregon by the Society in 1889 and 1892. They were let loose at the following places: Upon Ladd's tract of land in East Portland south of Hawthorne Ave., near McMinnville; near Milwaukee and Molalla in Clackamas County, and in the Waldo Hills at Judge Waldo's farm in Marion County. They have increased wonderfully since their introduction, and can be heard and seen at the proper seasons of the year upon most all the meadows marshy and bottom lands in Oregon.

Within the last five years it has been observed that they regularly returned from their winter migration during the month of February, for

they were seen and heard upon the Ladd tract in East Portland as early as that and during that month.

It has also been observed that with the return of the Skylarks, the Song Thrushes and Starlings make their appearance.

The Skylark is a native bird of the old world. It frequents meadows, plowed lands and clover fields, wheat fields and plains. It is a bird of passage, leaving in large flocks in October, and returning from their migration at the beginning of February. Of all birds of passage it is the earliest in its arrival. The male is seven inches in length, of which the tail measures almost three inches. The beak, as in all birds of this species, is soft, straight and conical. The mandibles are of the same length, the upper is a blackish brown, the lower white. The iris is grayish brown; the feet also grayish brown, with a tinge of yellow in the Spring, and are somewhat less than an inch in height; the hinder claw, or spur, is longer than any of the others. The forehead and poll are rusty yellow, longitudinally spotted with blackish brown; and when the bird is excited the feathers occasionally erect themselves into a crest. The cheeks are grayish brown and encircled by an indistinct whitish gray line, which passes between the

eyes. The feathers of the back are blackish brown, with a broad margin; in some parts, pale reddish brown, and in others, whitish gray. The rump is rusty gray striped with blackish brown; the chin, belly and vent, yellowish white; the lower part of the neck, the breast and the sides dingy white, inclining to rust color, and are covered with fine blackish brown lines. The wing covers are grayish brown, the larger ones being edged with pale reddish brown. The pen feathers are dark brown, the five first being whitish, the next reddish in their margin, and those next to the body, which are larger than those in the center are gray and they are all tipped with white. The tail feathers are blackish brown; those in the center have on the inner plume a broad margin of rusty brown; those on the outside, of whitish gray; the two external feathers, on the whole of the outer and half of the inner plume, are white.

The female is somewhat smaller than the male, and is characterized by the more numerous and larger black spots on the back and breast, as well as by the generally lighter color of the latter.

The Skylarks feed on insects and their larvæ, various kinds of small seeds, particularly the seeds of noxious weeds, and various green shoots, etc. It builds its nest on the ground, and chiefly in fallow fields, or in wheat, barley and oat fields, in clover meadows or among the young corn. It is roughly put together, of dry grass and hair, and is usually placed in some slight hollow.

The female lays twice and sometimes thrice a year four or five whitish gray eggs spotted with grayish brown. The period of incubation is fourteen days, and the young birds are often to be seen as early as the end of April. They are at first fed with insects, and begin to run about near the nest before they are fledged. Before the first moult the upper part of their body is covered with white specks. During the time of producing the eggs, the female will sing with a power and variety of tone equal to the voice of her mate. The male Skylark, though at other times timid, is, while the female is sitting, both bold and pugnacious, driving every other bird away that ventures too near his charge; both watching and feeding her with unceasing solicitude.

The song of the Skylark is exceedingly agreeable; and consists of passages, all of which may be characterized as trills or shakes on various notes of the scale, and only occasionally interrupted by the repetition of a loud whistle. When it starts to sing it flies upwards almost beyond the reach of sight, often warbling for an hour without any intermission.

The poet says: "It sings at heaven's gate as if it had learned its lovely divine music and motions from the angels, with its strains so full of gladness, joy and melody."

No bird sings with more method than the Skylark; there is an overture performed, vivace crescendo, while the singer ascends; when at its full height the song becomes moderato, and distinctly divided into short passages, each repeated three or four

times over, like a fantasia, in the same key and tune. If there be any wind, he raises perpendicularly by bounds and afterwards poises himself with breast opposed to it. If calm, he ascends in spiral circles; in horizontal circles during the principal part of his song, and zigzagly downwards during the performance of the finale. Sometimes, after descending about half way he ceases to sing and drops with the velocity of an arrow to the ground. Those acquainted with the song of the Skylark can tell, without looking at them, whether the birds be ascending or stationary in the air, or on their descent, so different is the style of the song in each case. In the first there is an expression of ardent impatience; in the second, an andante composure, in which rests of a bar at a time frequently occur; and in the last a graduated sinking of the strains after touching the subdominant before the final close. The time and number of the notes correspond with the vibration of the wings; and though they sometimes sing while on the ground, upon a fence rail or projecting stone, their whole frame seems to be agitated by their musical efforts.

A petrified fish found by Dr. Newberry at Delaware, Ohio, weighed 25 pounds, and is as perfect in form, position of fins, scales, etc., as though it had died but yesterday instead of 2,000 years ago.

Collectors of Pacific Coast Basketry should improve the present time to secure baskets. Many tribes now exist only as remnants and even now their work is not obtainable.

Old Notes.

The Evening Grosbeak was taken January 13, 1854, by Dr. Cooper at Fort Vancouver, Wash., and they have been taken in latter years quite frequently in Western Oregon as early as the middle of December. September 27, 1880, in Whitman County, Washington, a large flock of old and young birds were observed feeding on thorn berries.

Dec. 26, 1880 and Dec. 25, 1881, a pair of White-headed Woodpeckers, male and female, were taken in Whitman County, Wash. August 15, 1882, a male was taken in the mountains twenty miles East.

On these dates the Long-billed Curlew was first observed in Whitman County, Wash: March 18, 1879; March 21, 1880; March 22, 1881; March 15, 1882; March 20, 1883. After 1883 the extensive plowing of the virgin soil apparently caused them to seek a more congenial locality and few were observed, but on March 22, 1885, a record of arrival was taken. After this year none were seen in the vicinity of Colfax, Wash., where the records were taken. The birds all depart during the first week in July, after which not even a laggard can be found.

May 27, 1881, a set of three eggs of *Passerella iliaca unalaschcensis* were taken from a nest built in a thorn bush about three feet from the ground, on the bank of the South Palouse River, Washington. This set is in the collection of Mr. F. E. Newbury, Providence, R. I.

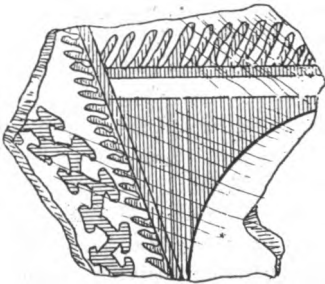
A. B. AVERILL.

Portland, Or.

Prehistoric Ruins of the Salt River Valley.

Arizona contains many wonders, both natural and artificial. Among the latter are pre-historic ruins of the Salt River valley. While not as well known as Casa Grande and "Montezuma's Castle," they are none the less interesting to the student of Archaeology.

There are seven important groups of ruins within a radius of 20 miles from



the city of Phoenix. In each of these groups of ruins there is one or more temple (?) ruins.

There are two "species" of temple ruins. The Sun Temple is elliptical in form, and in the center there is a depression. Many persons suppose on first sight that these Sun temples were reservoirs in which the Ancients stored water. They are not reservoirs, as the Ancients of this valley had a fine system of canals, and they no doubt would use the water from them for domestic purposes.

The other kind of temple ruins are rectangular in form and are generally the largest ruins in the group. Walls can be found in these ruins by digging a few inches below the surface, just

after a rain many of the walls can be seen very plainly.

There are other ruins in these groups, which are supposed to have been the residences of the common people. On digging into these ruins we find large chunks of dirt and fragments of cajons. The chunks of dirt once covered the thatched roofs, as many of them show imprints of sticks, corn stalks, reeds and the like. Particles of charred sticks, are often found imbedded in these chunks of dirt. The cajons are evidently from the walls, although one ruin which I examined, the walls appeared to have been made of stone mixed with mud. When the chunks of dirt and cajons removed, a layer of ashes and charcoal is brought to light. They are on the floor, and fragments of pottery (some of them decorated similar to the cut) are mixed with the ashes and charcoal.

It is quite apparent that the homes of these people were destroyed by fire, as this debris proves it.

I fear I have made this article too long, so I will close, hoping that I may have the pleasure of writing again.

BURT OGBURN.

More than 40,000 Sparrows have been destroyed in Gratiot County, Michigan, during the past twelve months, as shown by the bounties paid, but the birds appear to be as numerous as ever. One man makes a good income as a Sparrow hunter, collecting an average of \$60 a month in bounties.

Old Betty, a Nisqually Indian in Washington, is over 120 years old

Audubon's Warbler.

(DENDROICA AUDUBONI.)

READ AT THE THIRD ANNUAL MEETING OF THE N. O. A., AT SHLEM, OREGON, BY REY STRYKER, OF MILWAUKIE, ORE.

This is one of the most common warblers in this part of the state, being a resident from early spring till late in the fall. My experience with this species has been mostly in the nesting season when I have had little difficulty in locating nests and studying their habits. Although very shy and cautious at times when you are near the nesting place, by remaining quiet you can soon see they are not alarmed by your presence, and if you have patience, which every ornithologist should have, you will learn something to your advantage.

The female is much lighter than the male and the yellow throat and rump are not visible while she is flying. During the nesting season she is very busy from early dawn until late at night, always chirping and never seeming to tire of the work that is before her. When in search of material she is always followed by her mate, although he, like many other male birds, never seems to assist her in any way.

After a good place for a nest is found she begins by bringing small twigs and fine bark from the ground; after a good foundation has been made of this she next selects fine grasses, hair and other material for the body of the nest, then she is ready for the

lining and fancy work. For this she goes to the barnyard where she selects the best and prettiest feathers. I have always found the nest of this bird lined with feathers, and it is a peculiar fact that this bird always fixes some of the feathers so that they arch over at the top of the nest and make a fine covering for the eggs and young while the mother is absent and a splendid protection from the weather. I have always found the Audubon Warbler to be one of the earliest builders, finding their nests in March and April.

One nest I found last year was placed at the end of a large limb about seventy feet from the ground. Another was in a very large fir fully one hundred and twenty feet up. I could not see the nest distinctly but saw the bird go to it several times with material. A third nest was on a small limb, but so situated that it could be reached from another tree. Of the nests I found last year they were at an average of thirty to fifty feet from the ground.

The eggs, which are from three to five in number, are of a pale green or blue color, thickly speckled and spotted on the larger end with dark brown and lilac gray.

The horses working at the placer mine under the shadow of Pilot Knob, Plumas County, California, wear snow shoes. The altitude of the place is 5500 feet and the snow at times is 20 feet deep. The shoe consists of a thin steel plate eight inches in diameter, through which are holes for calks on the ordinary shoe. The plate is

fastened by a steel spring to the lower part of the hoof, and a nut that can be screwed tight with a wrench. The bottom of this steel shoe is coated with India rubber to prevent balling and clogging. The horses become quite expert in wearing these shoes and seem to prefer wearing them to going without.

Hawks of West Virginia.

BY W. EDWARDS.

MARSH HAWK.

Summer resident; tolerably common. Its food consists of mice, gophers and small birds.

SHARP SHINNED HAWK.

Resident; common. It is often found in the farming districts. Its food consists of small birds and young poultry.

COOPER'S HAWK.

Resident; tolerably common. It is bold specie which feeds largely on poultry, game and other birds.

RED TAILED HAWK.

Resident; common along the river bottoms. It is generally known as the Chicken-hawk. Feeds principally on mice.

RED SHOULDERED HAWK.

Resident; tolerably common. It is found principally in the mountain districts. Feeds on small mammals, reptiles and insects.

BROAD WINGED HAWK.

Resident; tolerably common. Feeds on mice, reptiles and insects.

SPARROW HAWK.

Resident; abundant throughout all sections of the state. Feeds principally on gophers mice and insects.

Peculiarities of Eastern Nests.

My collection of nests, although none have any very great peculiarity, contains a few with certain features that might be mentioned. Some difference more or less exists between all, and each has some characteristic introduced into the structure, showing various tastes of the birds even of the same species. First in prominence is one of the Baltimore Oriole, which arrives in Massachusetts about May 15th. Their nests are invariably constructed of glossy, flax-like weeds, which are woven together into a pocket nearly cylindrical in shape, pendulous and very strong.

Often they are hung from the elms of the town and a dozen or more can frequently be counted on a single street. Probably a few of my readers may know that certain districts within 20 miles of Boston are infested by the destructive *Ocneria dispar* (gipsy moth). These are exterminated by placing strips of coarse bagging around the infected trees. On June 8, 1894, I secured the Oriole's nest, built 20 feet from the ground in an apple tree, and woven entirely with strands of this bagging. It is the prettiest nest that I have ever seen, measuring 2½ inches in width and 4 in depth. It contained the rare set of six eggs, the usual number being four or five.

Another exception is one of the *Ampelis cedrorum* (cedar bird). It is an established fact birds will invariably choose material closest at hand for building purposes, provided that it answers all requirements. In this instance the bird used feathers nearly

throughout, obtained from a pile a rod away.

A nest of *Tyrannus tyrannus* (king-bird) is largely composed of oil-packing which after dropping from the car-wheels had been introduced into the structure. This nest was found ten feet from the railway. Another of the same species has built of soft, downy substances from the cat-o-nine tails.

A nest of *Empidonax minimus* (Least Flycatcher) has a wing of the dragon fly for a lining. Another of the same species is lined with dandelion seeds, and a third is built largely of wool waste. I might cite several other irregularities but will close with that of *Dendroica aestiva* (yellow warbler) which is lined completely with cotton batten.

C. B. HADLEY.

Arlington Heights, Mass.

The Klickitat Indian made four kinds of baskets. The emergency basket made from one strip of cedar or yew bark, known as the berry bucket; the regular coiled water tight carrying basket; the open work straw and cedar and a bowl shaped, tough sinewy basket made of inner bark of the yew, which is the material used in whipping the coil basket.

New Zealand has set apart two islands for the preservation of its remarkable wild birds and other animals. On them all hunting and trapping are forbidden.

Moss agate exists in considerable quantities in Colorado and other Western States.

Some Old California Indians.

Victorianno, chief of the Sobobas of San Diego county and Cassiano of the Mission San Antoine, are both one hundred and eight years old. Juan, a captain of the Sobobas, is ninety years old. Old Marie, a reservation Indian at Tajello, San Diego county, is one hundred and thirty years old. The evidence as attested by old Mission records is in favor of these ages being correct.

Memaloose Island, near the Dalles of the Columbia has been reserved and set aside as a burial place for the Warm Spring Indians. This island has been used from time immemorial as the burial place for good Indians. Its surface within a short time was literally strewn with their remains. This action on the part of the government is the result of white men trying to secure control of the Island, presumably for fishing purposes.

Twenty dozen Bob-white quails were received at Spokane from Kansas during April and were sent out to favored localities where they will be allowed to propagate unmolested until 1900.

Some German scientists have recently furnished information in regard to the ages of trees. They assign to the pine tree 500 to 700 years as the maximum, 425 years to the silver fir, 275 years to the larch, 245 years to the red beech, 210 to the aspen, 200 to the birch, 175 to the ash, 145 to the elder, and 130 to the elm.

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Since the last issue we have received the following: "Wisconsin Naturalist," Vol. 1, No. 1; 16 pages and cover; devoted to Natural Science in all its branches. Subscription price 25 cents per year. The Naturalist Publishing Co., 254 Grove Street, Milwaukee, Wisconsin.

* * *

"The Story of the Faralloners;" 36 pages and 27 half-tone illustrations; text by C. Barlow, and arranged and published by H. R. Taylor, Editor of The Nidologist. Price 50 cents; Alameda, California.

This is a most tasteful and artistic brochure, filled with descriptions and pictures of rare interest to Ornithologists. The vast rookeries of sea

birds breeding on the islands are well shown in the illustrations. The press work, on enameled paper, is most excellent.

Garfield, Wash., has a curiosity. It is a Yellowhammer's nest containing mummified remains of two Yellowhammers, all of which was found in the center of a pine tree four feet in circumference. There was evidence that there had been a hole in the tree that years ago had grown over, imprisoning the birds. The find was made by E. E. Darrow and J. R. Bennet, who now have the nest and the remains of the birds.

Illuminated by Nature.

People aboard the Northern Pacific oriental liner Tacoma were during her February voyage toward Asia, treated to the sight of a remarkable phenomenon. It was of more than ordinary interest, owing to the latitude in which it occurred.

St. Elmo's lights appeared after a storm, and danced and hovered about the metallic points of the ship.

When a short distance south of the Aleutian islands on the night of February 9, a heavy westerly gale was experienced, terminating in a severe thunder storm. The light appeared during the cannonading of the heavens and illuminated the vessel. The ship's masts and spars are said to have had all the appearance of being brilliantly studded with electric lamps. The phenomenon has been reported to the United States hydrographic department.

The Oregon Naturalist.

Vol. IV. PALESTINE, OREGON, OCTOBER 1897. No 6.

THE WESTERN MEADOW-LARK.

Sturnella magna neglecta.

Near the village of Langly on the lower Fraser, B. C., on the 13th of May, 1891, I first noted this species as a member of the avifauna of British Columbia. It was there in full song and Spring plumage, and though seeding was then in progress, yet clover was being cut so that this species, which is one of the earliest of Spring migrants and in some instances a Winter resident, was then probably incubating, or may have had young in the nest, as most of the nests that I saw of other birds in that country already contained young; though it was evident that the smaller birds had not yet begun to nest. I did not notice this species in any other part of the province that I visited, but it is not a bird of the seashore, the woodland, the hills, the rocky canyon or even of the recent settlement, but it loves the broad meadows, the level pastures and the wide rolling prairie and in such places from the opening of Spring till the close of Autumn it may be seen, and heard in more or less abundance, and through all of this period is more or less a songster. In some parts of British Columbia it is an abundant summer resident and

has been observed to Winter on the coast and in Vancouver Island.

I first made the acquaintance of this interesting bird on the morning of the fifth of May at Carberry in Central Manitoba. I had arrived at the station there late on the previous evening, and leaving the more settled parts of the village, directed my way towards the residence of my nephew, a short distance out, when I found myself walking on the first piece of virgin prairie that I had ever trod. There alone I stood and took a hurried glance around me. The air was wintry and the scenery of the midnight sky so much further north than I had ever viewed it before made a melancholy impression on my mind as I thought of my distant home, but I was soon among friends and slept peacefully till the advent of a new day.

Next morning I was early out viewing my strange surroundings, and strolling over parcels of yet unbroken prairie. The air was very cold, and the heavy frost glittering on the grass caused rather unpleasant sensations, but the bright sunshine gave promise of a warm day, and my ears were greeted by the cheery song notes of a number of birds, some of which I recognize as the voices of old, familiar friends. But the song of one species

then unknown to me, sounding wildly over the landscape, for the time more particularly attracted my attention and at first I thought it might be the Western Bobolink.

Proceeding to investigate I soon discovered the performer perched on a little mound of rubbish from which, at my approach, it flew away and lit on an old building, at the same time giving vent to various notes, and I then identified it as the Western Meadowlark. All its notes—both of call and song—were distinctively peculiar, having very little resemblance in sound to those of its Eastern congener, though there was much affinity in the manner in which those notes were uttered. Its modes of action and manner of flight were much alike, but from my standpoint its plumage seemed darker and less attractive than that of the handsome meadow lark in Ontario.

In that vicinity it seemed a common bird, but was little observed between that station and the Rocky Mountains and was not again noted until I identified it on the Langly Prairie within sight of the snow capped Cascades, in the land of the evening sunshine.

In size the *neglecta* is about the same as the *magna* while its general habits, nesting and the number and coloring of its eggs are nearly similar—except what variations its manners undergo or are rendered necessary by the difference of climate and the peculiarities of its haunts and home. On its specific difference Dr. Coues says: "The colors are duller and paler; the prevailing aspect, gray; black at a mini-

num, not prevailing over gray on the crown; yellow of chin usually encroaching on sides of lower jaw; black on wings and tail usually resolved into indistinct bars, alternating with gray bars."

A set of four eggs of this species in my cabinet compared with those of the Eastern Meadowlark are not so large, lack the rosy blush of the ground color, and are not so handsomely spotted.

Prof. Davie gives the eggs of this species as, "White, sparingly spotted and dotted with markings of reddish and purplish brown, the dottings are finer than in the eggs of the Eastern Meadowlark. Four to five are usually laid. Size 1.08 x .75.

WM L. KELLS.

ANCIENT EXCAVATIONS IN SOUTHWEST MISSOURI.

The existence of ancient remains of any sort has been and always will be a fruitful source for the lover of tradition and mystery to indulge his fancy and to weave fanciful stories of wealth, romance and power from his fertile, imaginative brain, all of which has occurred in the past when an extinct race lived and loved and were familiarly associated with the remains which the tradition lover has under consideration.

Such is the case with a series of ancient excavations found located in Southeastern Barton County, Missouri, and lying some three and one-half miles Northeast of Golden City, Missouri.

This series of excavations has been the maximum subject for discussion

concerning the ancients in this locality. It has been a fruitful source for wild speculations in theory as to its origin. Those whose minds are inclined toward the single standard of our monetary basis have woven theories regarding the undoubted existence of gold in Spanish times and was mined extensively by them, while others who lean toward the double standard of our monetary basis have woven equally fascinating stories of how silver mining was carried on by the French and Indians in the days of Jesuitism. And so it goes, with nothing positive in the minds of the people relating to the remains which are so familiar to them.

So it was when I first saw them and visited them, as everyone who visits here is immediately constrained to do. But I did not go until I was prepared to thoroughly investigate for myself the remains and the surrounding country, being rather inclined to doubt that the supposed people who caused these excavations were the real people and that the real people had an object and purpose for making the excavations, very remote from that ascribed to them. Accordingly, bent upon search and investigation I at last visited them and the country surrounding them, which is a strip of hilly, wooded land of about six square miles area. Lying to the north of this "grove," as it is called, is a small stream or creek known as North fork of Spring river. The Grove consists of a series of small stony hills and ravines covered with a comparatively recent growth of "black jack," and other scrubby timber growths.

The "mines" consist of a series of excavations situated on a small hillside and are about two acres in extent. The ground was covered with flint stone fragments and clay. The ground at present is very uneven owing to the presence of mounds and pits due to work of excavating. Some of the pits are fifteen feet deep. In these pits and on the mounds of dirt and stones grow trees, some of which are not of recent growth, being eighteen inches in diameter. We find no trace at all of mineral bearing rocks anywhere about there, even parties dreaming of vast finds of precious metal have dugged pits in various parts of the excavated area. One pit being near 100 feet deep with the same negative result, no mineral bearing rocks have ever been found.

Upon closer investigation I found a great many fragments of the flint showed signs of workmanship. I found it to be of an excellent quality for working purposes. In the small fields near the excavations stone relics of most all descriptions and stages of workmanship are to be found in abundance.

Out of a few hundred specimens I have seen and secured from that locality about 90 per cent are of the same kind of stone as that found at the site of excavation. "Blanks" are to be found in abundance. Most of the relics found, however, show a degree of workmanship rather inferior to those found in other localities not far distant, indicating to my mind a class of people somewhat more inferior than their neighbors.

The opinion I formed after an inves-

tigation is to be summed up as follows. These remains are excavations made by the Indians for the purpose of securing flint to manufacture implements, weapons, etc. That the Spanish and French know no more about the existence of gold and silver than we do, and had as little to do with their excavation as we have.

If my opinion be true, and to my mind it is, the beautiful traditions woven in connection with its memory will have lost their interest ere long, and will become buried with the people who love to rehearse the story of the old mines with their untold hidden wealth. Such is the story of one of a few excavations of a similar kind to be found in Southwest Missouri.

J. M. BROOKS, M. D.

Golden City, Mo.

CALIFORNIA PEARLS.

Every oyster does not contain its pearl, and only at intervals is a really valuable pearl thus discovered. The largest one ever found was about three quarters of an inch in diameter, and was sold in Paris to the Emperor of Austria for \$10,000. Many black pearls are found in Lower California, and are valued higher than the pure white.

A number of ornaments made of pipe stone have been found in the Salt River Valley. A tube or pipe made of that stone was found about three miles northwest of Phoenix, Arizona, on the surface of a small ruin or mound.

We wish to call special attention to the ad of D. M. Averill & Co., on the back cover page.

A FEW WINTER BIRDS OF BERTIE CO., N. C.

RED WINGED BLACKBIRD. Very common in the Winter months. Arrives in September and leaves in March for the North. It is seen in flocks of from one hundred to many thousand. Very common in the swamps.

MARSH HAWK. Not very common at any season of the year. Often seen in the Autumn and Winter months. Breeds farther north.

YELLOW WARBLER. A very common winter bird in this county, where it may be seen feeding on elm buds. This little bird leaves for the North in March.

GRASSHOPPER SPARROW. This bird has been identified and added to the birds of this county. Common after the first of November until the last of April. Feeds on grass seeds and small insects of various kinds such as small bugs.

TOWHEE. Common in Winter. The Towhee is sometimes seen in Summer. I hardly think it breeds, though I have taken specimens in mid-summer.

PIGEON HAWK. A rare bird here, a few are seen in the winter months. It feeds on small birds and mice such as it finds in the fields. Some people in this locality say they have seen the nest of this bird. I have never seen one of these birds in the summer.

SHARP SHINNED HAWK. Comes after the manner of the above but is much more common. Feeds on small birds and mice with occasionally a grasshopper or cricket.

FOX SPARROW. This is a common bird in this county. Winter resident only. Arrives in October or November departing in March.

CANADA GOOSE. Appears in flocks in December and January. Rather common down on the lands near the sea coast.

RED-HEADED DUCK. Great numbers of these birds are seen in the Eastern part of the state.

CANVASBACK. Comes much after the manner of the above; flocks of both birds may be seen together. The hunters slay large numbers of both kinds in January and February.

PIED-BILLED GREBE. A rare bird in this county, seen only in the Winter.

LOON. Not common at any season of the year.

WINTER WREN. Common winter visitor in this county. Its twitts may be heard on the cold winter days when everything seems to be dreary. This little bit of bird-life can make as much noise as some of our larger birds; its voice is not loud but pleasant to the ear.

GOLDEN CROWNED KINGLET. Very common in winter. May be seen in flocks with the Titmouse.

RUBY-CROWNED KINGLET. May be seen in company with the above which it very much resembles in size and color. It has a ruby spot of feathers on the top of its head. They arrive in November and leave in February. Both species may be seen feeding on a kind of little insect they find in the bark of trees.

AMERICAN ROBIN. A common bird in most parts of its range. In this county they are not known to breed

at all. In some parts of the state they are known to breed.

HERMIT THRUSH. A common bird in a large portion of its range. Here it is only a winter bird and does not breed at all in this section.

BROWN THRASHER. Common; frequents low marshy land. It is only a Winter visitor.

R. P. SMITHWICK.

Merry Hill, N. C.

WEST VIRGINIAN HISTORICAL AND ANTIQUARIAN SOCIETY.

The West Virginia Historical and Antiquarian Society have in their possession Daniel Boone's beaver trap, cane and a letter written by himself. They have, also, over four hundred Indian stone and flint celts, over sixty grooved axes, and thirty Indian and Mounds Builders' pipes.

W. E.

Charleston, W. Va.

Who would have supposed that the feminine hats of this country cost \$1,500,000 a day, in addition to the milliner's bill. The editor of Garden and Forest says the destruction of birds for their plumage causes that immense loss to the agricultural interests of the United States.

Advanced vegetarians in England have formed an association, binding themselves to eschew not only animal food, but also articles composed in any degree of substances involving the death of animals. This includes leather for shoes and gloves, fat for soap, ivory, skins and feathers,

A MONSTER INDIAN BASKET.

Indian baskets two and a half feet in diameter and about the same size from top to bottom are sights which delight the eyes of those interested in baskets. Though they are now very difficult to obtain the leading collections on the coast and in the east all contain one or more such. But baskets beyond these dimensions would be very hard to obtain, for the reason that the weaver would most likely get tired of the work and give it up long before the basket was finished. There are baskets in certain museums three feet in diameter, but they are very few, and for that reason and because of the difficulty of duplicating them they are very highly valued.

There is, however, one Basket (and it deserves to be printed with a capital) of nearly twice these dimensions. It is hanging now in the Market street office of the San Francisco & North Pacific Railway Company, and is an object of much interest to crowds of men and women who have no special interest in the ordinary Indian basket. This basket is known as the "Tee" weave, which is the most intricate of all the weaving done by the Indians. We quote the following words of description and history:

Fine reeds run through the basket from top to bottom, and around them are woven the strands of fiber of which the basket is composed. In among these are woven the different colored fibers which go to make up the pattern. Each of the fiber threads is put in its place as tight as the cotton in a piece of sheeting, and the pattern is

as plainly marked as if it were painted. In shape the basket is somewhat like a globe, with the exception that the upper half extends outward (upward) a little. That portion of the work, however, is not exceptional. It is the enormous size of the basket that makes it exceptional.

The basket was made by a Poma Indian woman in the village near Ukiah, and the work consumed nearly two years. It was commenced in November, 1895, and finished only a few days ago. Poor woman! When she started to make the basket she intended to eclipse all the previous efforts of her tribe (the most skillful and the most celebrated basket makers in the world) but she never considered just how big the basket was really to be. Possibly she did not think it worth considering. But when she came to remove it her difficulties commenced, for it was found that the basket was too large to be taken out by any of its exits. At last the problem was solved by the purchaser paying enough for the basket to make it profitable for the woman to tear her house away. This done the basket was soon on its way to San Francisco. The woman realized enough on it to enable her to live in affluence the rest of her days, and she is now looked up to as the millionaire of her tribe. Her basket is the largest ever made of its kind, and the chances are it is the largest that ever will be.—W. C. C.

During 1897 there were received in New York City alone the plumage of 3,000,000 birds for the adornment (?) of women's hats.

Feathers Worth More Than Gold.

Some feathers that are extremely fashionable bring more than their weight in gold. The hunting of birds on which these feathers are found is a more profitable business moreover than gold seeking. It is only natural to compare the two, because both gold and birds are found in the same section—Lower California.

The Egret feathers sell from \$32 to \$35 an ounce at wholesale; of course they bring at least double that when retailed over the counters of New York's most popular shop. They are not sold by the ounce there, though—they go by the piece.

While there are probably hundreds of men who make a business of killing birds for their feathers, the best known of the feather hunters in the West is Hamlin Smith, the white chief of the Cocopah Indians. Their reservation includes most of the land on Madeline Bay. In the marshes of this broad sheet of water are found the Egret, Heron and Crane in numbers.

Even the Heron feathers come high. They bring at wholesale from \$8 to \$10 an ounce. One Heron, Mr. Smith says, will yield often feathers worth \$150. If Herons are more plentiful than Egret, they are more profitable hunting, because there is only a small tuft of covering on the Egret that is marketable.—Morning Oregonian.

One laundress in Dawson City, Alaska, gets an average of three dollars in gold dust every day from the water used in washing clothes worn by miners.

Only nine miles from Flagstaff, over the best natural road in Arizona, all the way up a beautiful valley, are the ancient ruins of the Cliff Dwellers, who, some centuries ago, made their abode on the sides of the cliffs of the canyon, the walls of which are from 2,000 to 3,000 feet high. While sight-seers and relic-hunters have to some extent despoiled these ruins, they are yet of great interest, and all visitors go to the cliffs, as do the home people when pleasuring. The caves that were once the abode of men were no doubt at one time volcanic bubbles, requiring but little work to cut from one to the other, thus honeycombing the entire cliff that was once covered with dwellings.

Not as many Denny or Ring-necked Pheasants are being shipped to Portland as usual this season, yet many thousands will be sent to market during the month than can lawfully be sold. The method of packing is to put as many Pheasants into a grain sack as can be crowded in, sew up and deliver to express. The birds are drawn before shipment, usually in the fillet, seldom carefully, and when dumped on the sidewalk—not usually clean—before the markets, preliminary to being hung up by the neck until sold or, perhaps, sent to cold storage, they are truly a sight to behold.

During all this Klondike excitement, while pearls are being found in profusion in Arkansas and phosphorescent pebbles in California, Oregon mines each month continue to dump loads of gold into circulation without any fuss whatever.

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* * *

MR. WILLIAM L. KELLS, the well
known Ornithologist of Listowel, On-
tario, Canada, contributes an article to
THE OREGON NATURALIST, to be fol-
lowed by others each month.

* * *

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The Oregon Naturalist.

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HOW WISELY NATURE PROVIDES FOR THE BIRDS.

BY GEO. F. BRENINGER, PHOENIX,
ARIZONA.

One of the most interesting studies in Ornithology is the time of the year in which different species of birds nest, and the food supply upon which the young are to be fed.

We are told by those who have studied the relative effects of dry seasons upon the birds in regions of scant rainfall that species feeding principally upon seeds as the family *Calipepla colinus* (Quail) do not nest at all. This wise provision of nature is plainly shown in the genus *Loxia* (Crossbills) bringing forth their young amid winter's blasts, with its ice and snow. At that season of the year there is an abundance of pine seeds, which after April 1st have all fallen from the cones, and with the melting of snows and Spring rains have gone deep into the ground.

In the eastern states the American Goldfinch brings forth its young with the ripening of the thistle, usually in August. In California the same bird nests in May. Every farmer's boy whose home happens to be where Crows are abundant can tell you that their nests contain eggs early in

April. In the East many cattle die at the close of Winter and the advent of Spring, these serve in part as food for the young crows, while other things that make up the balance are found more plentiful then than later on. Strange as it may seem the White-necked Raven, a bird closely allied to the Crow, and to the casual observer known as such hatches its young in June. Last May and June it was my pleasure to learn a little of the nidification of this Raven.

Solitary Ravens were seen at intervals while crossing the desert, but not until Tucson was reached were any great numbers seen. Here I secured four birds, among these were two females. From my former experience with the Crow I naturally expected from the lateness of the season that I should not be able to collect any of their eggs. The ovaries of the two female Ravens taken were examined, and with surprise I saw that the ova had only began to enlarge.

Proceeding southward from Tucson we came upon the Santa Rita Mountains. Between this range of mountains with the Huachucas on one side and the Mustang Mountains on the other is a grassy plain stretching far to the southward into Sonora, Mexico. This plain has a mean elevation of about 4000 feet, in consequence of this

the rainfall is greater than that of the desert regions. These rolling plains are covered with a luxuriant growth of grass upon which thousands of cattle graze, congregating near water. During the winter season water is plenty, and but few cattle perish from thirst. As the sun climbs higher and the its rays become more intense these water tanks begin to dry up. Cattle are then forced to travel eight, ten or a dozen miles to water, many are too weak to travel and drop by the wayside. The young Ravens are reared on the flesh of these.

In the vicinity of Fort Huachuca Ravens were exceptionally numerous, flying about the post without any heed of danger.

On the 28th day of May, driving Southward from the Fort I saw a Raven's nest firmly saddled in among the limbs of a small mesquite tree growing near the road. The old Raven flew away with deep cawings. Driving up under the tree and by standing up on the seat of the wagon I could look into the nest, but there were no eggs. I could but look after the Raven and again into the nest to be sure that my eyes did not deceive me. So late in the season and no eggs? Fourteen miles South of the fort a camp was established and on June 1st I rode out upon the plains in quest of Ravens' eggs. I examined several groups of sycamore and nogales trees, and soon discovered a Raven's nest away up among the top branches of a large sycamore. After much climbing I had the pleasure of gazing upon a single egg, with the disappointment of not finding the set

complete. I did not care to repeat the climb and the one egg was carefully packed, the return to ground resulting in no mishap. All the Ravens for miles around had in the meantime collected about the nest being molested.

The next nest examined contained nothing, while others but one, two or three eggs, and I began to think that I should get no full sets. Turning my attention to a low growth of mesquite I outlined in the distance a nest of large dimensions, and as I drew near a large black head protuded from its depths. From this nest a handsome set of six eggs was taken; later several more sets were collected, and five of the birds.

Some sets of Swainson's Hawk and Roadrunner were also taken, and with these I rode back to camp. June 5th I was again among the Raven, from eight in the morning until six in the afternoon, riding many miles and collecting fourteen sets of Ravens' eggs.

Returning by the same road over which I had traveled but two weeks before, then no dead cattle were to be noticed, now their inflated carcasses could be seen at intervals that were entirely too frequent. Ravens and Vultures were enjoying the feast. Now and then one would fly away to its young with its beak full of meat torn from the carcass. Species that feed upon fruits lay their young and have the young hatch at a time when their favorite food is ripe. Such is the case with the Phainopepla that feed upon the glutinous seeds of the mistletoe.

SOME ACCIDENTAL DEATHS.

BY DONALD A. COHEN.

A record of cases by which birds have met an untimely end is to me a matter of interest from the various causes. Considerable has been written on this subject but I will attempt to present a few instances that have come under my notice since I wrote my last "obituary list" in another magazine, and I will also add a few cases which were at that time overlooked:

May 5, 1887—In a small hollow in a live oak, 2½ feet from the ground, wherein I once found a set of Plain Titmouse, lay a dead bird and a fresh egg near it. April 11, 1892, I found another dead Plain Titmouse in this same hollow. These two deaths were connected with no self-evident cause.

About 1883—An American Barn Owl was caught in a garret and given to a man who staked it out, parrot fashion, on a perch with a cord about the Owl's leg. During the night the captive "chewed" the rope and escaped. Another bird of the same species was soon after captured in the same garret and fell into possession of the same "bird fancier" who, intending to profit from previous experience, used a wire instead of a rope, but the bird got afoul of a limb of a tree and was hanging, dead, when his owner appeared next morning. Verdict:—premeditated suicide committed while under a fit of despondency.

April 30, 1889—A nest containing seven stale eggs of California Bush Tit and the bird dead and shrivelled

up in the nest. This death, in my opinion, was caused by something wrong with the ovary and seems to be a common occurrence with this bird and with the Plain Titmouse. A Yellow Warbler which was found dead on the ground May 7, 1889, and contained eggs, one of which was nearly ready to be deposited, may come under this head.

June 9, 1892—A Chinaman brought me two dead nearly fledged Hummingbirds in their nest, in which state he found them on the ivy on the side of a tank house. I had seen him on several occasions groping through the ivy after dark, endeavoring to catch English Sparrows and House Finches that roosted there, and in this manner the mother Hummingbird must have been frightened from the nest and in the dark could not retrace her way to her young that succumbed to the cool night air.

April 17, 1892—A female Parkman's Wren lying dead at the foot of an oak tree, a broken egg close by her and the nest in good order a few feet up in a hollow. Cause of death may come under same head as that of the California Bush Tits. English Sparrows may have thrust the egg out onto the ground.

May 17, 1893—After a high wind several dead fledglings and broken eggs of Brewer's Blackbird were found upon the road along a row of tall pines. A nearly fledged Western Chipping Sparrow was also dislodged and met a similar fate.

February 24, 1895—Found a dead, emaciated female Red-shafted Flicker on the garret floor, and my brother

noted a similar case about a month earlier; cause of death, starvation. Several birds a year for the last fifteen years came down an unused flue into the garret. In November a female bird came down a temporarily disused two story chimney, crawled out through the grate and into the room. She was caught and killed after several of her severe onslaughts on a window pane.

June, 1895—52 English Sparrows in various juvenile stages were taken from their nests in an ivy-covered oak stub by the writer who hopes this wholesale slaughter of British subjects will not lead to international complications.

June, 1895—The unusual rains (June is our dry season) dislodged a few nests of House Finch containing eggs and young from foliage of pine and cypress trees. Nests in twigs of other trees and shrubs having firmer foundation, did not fall, but an occasional very small bird in them was killed by the dampness of the nest.

August, 1895—Found a live Western Wood Pewee firmly held by a wing with spider web to a camomile plant growing along the roadside. The bird was not suspended—simply “staked out” by a wing, and it seemed apparent that a violent jerk or two on the bird’s part could have freed it, but it offered only slight resistance to being caught and it is probable it would have starved to death in bondage or fallen prey to one of the numerous roving cats of the neighborhood had I not relieved it.

January, 1896—A female California

Partridge found dead near the wire netting surrounding the tennis court. A bruise on the bird’s neck and shoulder indicates it probably killed itself by flying against the wire. Earlier in the season while hunting this Quail one bird came to its end by striking a strand of barbed wire and another by striking the top of a picket fence. Both birds were, just prior to flying against these objects, very slightly wounded by shot and were both shot the same morning.

WRENS OF YAMHILL CO., OREGON.

The Western Winter Wren is a very sly little bird, in this locality, generally found in retired places in the timber.

It begins singing about February 1. It has quite a musical song, and a very strong voice for so small a bird.

The greater number of them seem to leave the valley and go to the mountains to nest.

Nests are placed in hollows of logs, trees and in the roots of upturned trees.

I have found the nests of this Wren but have never collected a set of their eggs. The eggs are of a clear white ground color, spotted with reddish-brown and four or five in number. This Wren arrives in the valley from the mountains about November 1st, where it remains until about April 1st, when they leave for the mountains to breed.

Vigors Wren is a common resident in the valley and especially along the rivers, where it may be seen perched on some old stump or bush, pouring

forth its delightful song. It is often called the Mocking Wren, for it is a great singer, singing at all times of the year. They are seen in pairs as early as January 20.⁹

Nests are placed under the bark of old logs and stumps, and I have found two pairs nesting in old vacant houses, one of these nests was in the folds of an old rag carpet which was hanging up in the house. I also collected one set of six eggs from a nest in a hole in a bank, the nest was about 15 inches back in the hole, and there were roots hanging over in front of it. I found this nest by observing the bird carry the building material. The commonest place for them to nest is among the roots of upturned trees. The last week in April is the best time to collect sets of eggs. The eggs are five or six in number, white speckled with chestnut brown, mostly around the larger end, sometimes in a wreath.

Parkman's Wren is a very common Summer resident here arriving about the second week April. They begin nest building a few days after arriving. This Wren is also quite a songster, and is much bolder than the two preceding species.

They usually nest in and around houses. Nests are placed in all sorts of places, such as hollow trees, logs, limbs and roots, bird boxes and old woodpecker excavations, and under the bark of fence rails, where the bark is partly loose. They like very much to find some nook or corner under a porch or roof or better still just over a doorway. They are quite overbearing when they arrive here. The Blue

Birds often have their nests nearly completed, and I have several times seen the Wrens drive them from such nests and take possession thereof.

The above trick is not on account of any laziness on the part of the Wrens, for they will tear out all of the Blue Birds' nest and build one of their own.

Parkman's Wren is a great friend to horticulturists and beekeepers, for they destroy many hundreds of insects each day which would do much damage to the bees and orchards. I have often watched them of early morning in front of bee hives, catching moths and their larvæ before the bees were astir.

They lay five to nine eggs, generally seven, but I have seen sets of five and also of nine eggs. Eggs are white dotted with reddish brown quite thickly over the entire surface. I have one set that has a pinkish tinge. Two broods are raised in a season.

ELLIS F. HADLEY.

Dayton, Oregon.



It has been frequently said and generally believed that the Denny Pheasant is gradually supplanting the Oregon Ruffed Grouse, but the Portland markets display for sale this season more Ruffed Grouse and less pheasants than in previous years. Sooty grouse are rarely seen in the markets where formerly they were plentiful.



It is not generally known that rats cannot resist sunflower seeds. A trap baited with these seeds is the most effective method of catching them.

NESTING OF THE SORA RAIL.

Some thirteen years have passed away since the end of July, 1882, when I first detected the presence, and discovered the nest of a Sora, or Carolina Rail in some water-ponds on Wildwood; and wrote an account of the matter, that was afterwards published in the last issue of the "Canadian Naturalist and Sportsman." Since then a number of the nests of the Species have been observed on the same farm, and other places in this vicinity. I have noted that their nesting period extends from the first week of May, to the end of July. The set of ten eggs in my reserve collection were taken fresh on the 12th of July, 1893. In the Spring of 1894, three nests of these birds that were quite near to each other, in a small pond overgrown with willows and sedge-grass, contained in the sets eight, ten and twelve eggs. But it is of a nest of this bird, seen in the middle of July, of the past season, that I purpose now to speak. Its situation was on the edge of a water pond in a large tuft of sedge-grass, on Wildwood, and as I was engaged in cutting some grass a few rods off, my attention was arrested by the loud out cries, and peculiar actions of a female Sora Rail, who was evidently engaged in a desperate contest with some enemy of an other species of animal, whose form I then failed to see, but which I afterwards had reason to believe was a snake, one of the worst enemies of all birds.

The mother Rail was not only making a large outcry but by leaps and the beating of her wings against a

large bunch of sedge grass, was evidently attempting to drive off some enemy from that position. On my approach to the scene of conflict the Rail retired to a short distance, still uttering loud notes and evidently very angry. Then I discovered its nest in the tuft, which then contained five eggs, one of which was of small size. I returned to work and the Rail renewed her contest with her concealed enemy, and she was greeted by the calls of her mate a short distance off, and by the peculiar kitten-like notes of some other creature, which I afterwards took to be those of a young Rail. I then approached the nesting place again to investigate the cause of the birds warfare, but I could see no other object, as the grass was dense around. A closer examination of the nest showed that the eggs were far advanced in incubation and pieces of the shells of eggs indicated that some of the set had already hatched out; then down to one side of the nest I found the body of a young Rail that had just been hatched out, and apparently just killed, by being pulled violently through the tough stalks of grass; and having its head crushed. This was covered with black down, and it had a spot of crimson on the throat, and a yellow bill. Another look at the nest some hours after showed that three of the eggs were missing, but the peeping of the young in the two large indicated their presence at the foot of the tuft in which the nest was placed. I returned them to the nest and cleared the grass around.

The next day one of these was miss-

ing, and the young in two of the others were dead, and the mother Rail seemed to have forsaken the nest and only once after did I hear her notes in the vicinity. The runt egg and one of the others was addled. The nest itself was composed of the dry blades of the sedge grass, and more neatly formed and better concealed than are the nests of the Virginian Rail, while the eggs are smaller in size, more oblong in form and darker in hue than are those of the other species. The appearance of both species, though, at a short distance very much resemble each other.

WM. L. KELLS.

The "Nesike," "Aloha" and other women's literary clubs of Tacoma will during the Winter endeavor to secure the general observance of a Bird Day in the schools of the State of Washington, wherein children may be taught to protect the birds now so wantonly destroyed, and to be thoughtful and observant of all forms of life.

They will also discourage the use of birds for millinery purposes.

H.

The largest deposit of cinnabar or quicksilver ore in the United States, if not in the world, is situated in Lane County, Oregon. Croppings assay 20 to 40 per cent and in some instances even 70 per cent mercury. It is estimated that there is 3,000,000 tons of ore in sight.

The Weeping Spruce (*Picea Brewsteriana*), one of the rarest trees in the world, is found in Southern Oregon.

ROSY FINCH.

One winter several years ago a small flock of pretty birds came to us in a great storm, and finding shelter under our eaves concluded to remain with us. They soon became quite tame, would take food from the window sill and would flutter around my head when I went out to feed them. The birds left in the spring about the time bluebirds return from their winter quarters, but came back again with the first stormy weather of winter, and thus they come and go each year. The flock has greatly increased in size, last winter numbering more than a hundred.

From Dr. C. Hart Merriam I learned that they are Hepburns Rosy Finch.

I was surprised last winter to find that they were fond of animal food. I had always fed them grain and weed seeds. One evening we hung some pieces of pork out of doors and next morning I found the meat covered with a clamoring flock of Rosy-finches. Pieces of waste meat saved for cats and dog we divided with the birds and they showed their appreciation of bits of tallow which I fed them with their grain.

I would like to know something of the life history of these little birds, to whom we are much attached.

SUSAN TUCKER.

Black, blue and red ink, used in German public schools has been found to contain microbes. When scientifically developed they prove fatal to mice within four days.

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JOHN WILLIAM MARTIN.

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IF YOU have anything of interest to
our readers send it in for publication.

* * *

MR ELLIS F. HADLEY, of Dayton,
Oregon, will contribute an article on
the bird life of Oregon each month.

* * *

"SOME ACCIDENTAL DEATHS," in
this number is written by Mr. D. A.
Cohen, California editor of "The Os-
prey." Mr. Cohen will continue to
write for THE OREGON NATURALIST.

* * *

JUST BEFORE going to press we re-
ceived "Outdoors" for November.
Outdoors is a publication for Sports-
man, Naturalist and Traveller. It
contains over ninety pages of interest-

ing matter, including twenty-five
half-tone illustrations. This maga-
zine should have the support of every
Sportsman.

* * *

SEVERAL Exchange Notices were
crowded out of this number, but they
will appear in the next number.

* * *

OUR NEXT number will contain arti-
cles of value to the student of Ornith-
ology. If you want to have a com-
plete file of THE OREGON NATURALIST,
this is the time to subscribe.

* * *

IN OUR review of "The Osprey" last
month, owing to printer's mistake,
Mr. Walter A. Johnson's name was
mis-spelled. It is rumored the un-
paralleled success of this publication
has induced the publishers to remove
to New York in the near future.

* * *

IN RENEWING his subscription to
THE OREGON NATURALIST, Mr.
Archie Crozier, of Wilmington, Dela-
ware, writes: "The OREGON NAT-
URALIST is the best paper of its kind
published." This is one of the
many.

* * *

IF IN THE PAST you have been a
reader of THE OREGON NATURALIST,
but failed to renew at the expiration
of your subscription, do not fail to re-
new at once. Some of our futre
numbers will contain surprises for our
readers. This is the last free copy
you will receive. If you cannot sub-
scribe for a year subscribe for six
months.

The Oregon Naturalist.

Vol. IV. PALESTINE, OREGON, DECEMBER 1897. No 8.

NOTES ON THE LAND SHELLS OF DOUGLAS CO., ORE.

First to be noticed is *Helix Fidelis*, Gray, which is very abundant in Spring and appears in smaller numbers after the first Fall rains. If one has not looked for shells this is probably the only species he has seen, but it is not by any means the most abundant.

Pupa rowelli, Newc. is our common species; hundreds of them can be found on every bunch of hazelbush or mossy tree in favorable localities. I have collected over 500 from one hazelbush and there are more yet. While collecting this species I observed a Western Winter Wren at work on a small myrtle and when I went to that tree I found no Pupae though there were plenty on adjoining trees.

Under logs and rubbish numbers of *Selenites vancouverensis*, Lea. and *Helix columbiana*, Lea. are to be found. The *H. columbiana* are the most abundant and of these nearly all are of the toothed variety--var. *dentacula*.

Among the larger shells our rarity *Helix californiensis*, Lea. of which I have found five mature and perhaps a dozen immature specimens. *Helix loricata*, Gll. is also rare, I having

found only about 25 specimens all told. These last two are generally found under rocks, as far as I can tell from the few collected, though I have found both under logs and a few *loricata* under dead leaves when looking for small species.

A short distance down the river from my home is a small rocky cliff, facing West and shaded by a number of maple trees which grow at the foot. At this cliff are found *Punctum conspectum*, Bld. *P. Randolphi*, Dall and *Pristiloma stearnsii*, Bland. The first is found where the water is dripping down the rocks on dead weedstalks, leaves, etc. *Punctum randolphi* and a few *P. stearnsii* on the underside of the dead maple leaves, but most of the last species are under the moss which covers the rocks. I have also found a few *Vitrea pugetensis*, Dall under the maple leaves here.

Up the river about half a mile is a small grove of maple trees where I find all the species found at the cliff under dead leaves and also a few *Conulus pulvus*, Mull.

Here the *V. pugetensis* are more abundant and only a few *randolphi* and *stearnii* are found. Under a log in this grove I secured nearly a hundred *Vitrea arborea*, of which I have found less than a dozen in other places. I also found under this log a few dead

shells of *Vitrina limpida*, Gould.

On a couple of fir logs which were lying together was a small bunch of dead maple leaves. Here in a place about four feet by one I found *Vertigo decora*, Gld. var. *Columbia sterki*, and up to date it is the only place.

FRED H. ANDRUS.

Elkton, Oregon.

THE PREHISTORIC RUINS OF THE RIO SALADO VALLEY.

The prehistoric ruins of the Rio Salado Valley were supposed to have been built by the Aztec, Toltec or Zuni Indians. There are many things of interest to collectors found in and around these ruins. Their bracelets and ear rings were made of shell. They are very rare, I know of but two perfect shell bracelets in the valley. Their beads are made mostly of turquoise shell and slate. The arrow points are very fine being made mostly of obsidian or flint. The obsidian is a clear volcanic matter, and as hard as steel, some times it is used for cutting hieroglyphics upon the rocks. They also had hammers, axes and meal-ing stones, which were very nicely shaped. They also had small ornaments of different kinds, as the fetich which is supposed to have been used to tell the clan and drive the evil spirit away, it generally has a small ornament of some kind. Their pottery is very finely decorated not merely as a pastime, but they put their history, religion, emblems, etc., upon most of their pottery. I have picked up pieces with pictures of birds upon them. The most ancient kind of

manufacturing pottery is found in these ruins; the jar was formed around a basket and then the wicker work was burned out, this would leave the marks of the basket in the clay. There is a kind that is hard to find and that is called corrugated ware. This was made by laying strips of clay on top of each other until the jar is completed. There is a jar that has their emblem upon it, this is supposed to have been used in some religious work of theirs. It is evident that they were worshippers of the sun from the emblems we see on the pottery and the ruins we find. There is a round shaped ruin that some people think was a tank for holding water for domestic use, but they were the old temples of the people that occupied this valley at the time. It is supposed that those people were partly civilized, for we find their old cannals and ruined adobe houses and etc. They also used slate to write hieroglyphics upon. Their mode of burial was to cremate the dead bodies and then put them in jars for burial. It is supposed that this tribe was driven away by some hostile race, for in the ruins we find streaks of charcoal. It was were the roof had burned. In these ruins we find different household supplies that they needed as axes, hammers, arrow points, and jars and sometimes there are skeletons or some small trinkets found.

SYLVESTER DE MUND,
Student Ethnology.

Phoenix, A. T.

California Quail have been turned loose near Ilwaco, Wash,

ODD NESTING SITES.

In 1895 I found a Vigor's Wren's nest in between the folds of an old rag carpet that was hung up on a pole in an old house.

I knew that there was a nest somewhere around the house, but could not find it until after the birds had hatched out and flown away.

When one day I went to move the old carpet, I found the nest and it had one addled egg in it. By the way, I have noticed this peculiarity in Vigor's Wrens.

I have seen quite a number of their nests after the young had hatched, and in nearly every case there is an addled egg left in the nest.

I also found in 1895 a Parkman's Wren's nest in a pair of old overalls which were stuffed with straw and hung up in a cherry tree as a scarecrow. Here the old birds raised their seven young in peace.

In May 1894 I went to a sand bank where there was a colony of Bank Swallows nesting, to collect some eggs.

I found one egg of this specie about one foot in from the entrance of an old King Fisher's nest. There was no nest at all, the egg being laid in a hollow on the bare sand.

I once knew a Northwestern Flicker to make a nest in a gate post, where somebody was passing through several times each day.

Every time the gate was opened the old bird would leave the nest, but still they raised their young there.

I also knew of a pair of this specie of birds which chose as a nesting site an old apple tree stub, only two feet

from the ground.

They commenced excavating for the next cavity April 10th, but it was a very hard stub to dig in. They worked away at it until May 8th when the female was killed in a dead-fall which had been set for squirrels.

The male still remained around and worked at the nest some and called for his mate a great deal, almost every day until June 22d.

When the nest seemed to be finished excavation was 19 inches deep.

He had no mate but he still stayed around and kept calling for his mate. It seemed as if he could not understand that she was dead, but acted as if he thought she had just strayed away.

It seemed strange but this bird stayed here by his nest calling, all summer, but he did not succeed in procuring another mate.

A few years since a colony of Brewer's Blackbirds nested on an old straw stack near here. There were several nests, some on top and other on the sides of the stack.

I once found a Western Robin's nest in a hole that had been burnt out in a small fir tree about 15 feet from the ground.

A friend of mine told me that he knew of a Steller's Jay making a nest on a sill under a bridge.

I know of a twine box on a binder that has been used several times as a nesting site, by both Parkman's Wrens and Western Bluebirds.

In 1897 I found a nest of the Mountain Partridge on an old straw pile.

I also found a Western Lark Sparrow's nest on an old straw pile.

ELLIS F. HADLEY.

SOME COLLECTING IN "HERON SWAMP."

BY R. W. WILLIAMS, JR.

Heron Swamp, named by myself, is a small cypress swamp, covering about three acres or more, situated three and one-half miles West of Tallahassee, Florida. The cypress trees which grow therein are as a rule not over thirty feet high, though some reach the height of one hundred or more feet. In some places the trees are much thicker than in others; it is in these thick places that the Little Blue and Snowy Heron's nest, as also Reddish Egrets, Green Heron's, Anhingas and occasionally a Grackle's nest is found ensconced in a thick growth of Spanish moss.

The water is not over five and one-half feet deep in most places, and where the Herons nest it is sometimes not over knee deep.

I had heard much talk of "Robert's Swamp" and the treasures as well as the horrors it held. Sometime in 1893 a boy and myself started afoot for that wonderful land. When we reached a big oak which stands alone near the edge of the swamp we proposed to go in. The first sign of bird life which met my gaze was a big "Crane" sitting by her nest and inside of the nest two gawky looking nestlings. Of course I hastened my steps and before I knew it I was under the water, head and all. When I finally extricated myself from the weeds and mud I climbed up to see those "Cranes," and while examining the young birds, the boy with me took a $\frac{1}{2}$ set of An-

hinga and a little later I took a $\frac{1}{4}$ set. These three nests were in trees not over twenty feet high and in the most open part of the swamp.

Our attention was next directed to a clump of trees from which a number of Herons were flying. We entered the clump of trees and for the first time in my life I saw a "Crane's" nest. One egg lying on nest—a mere platform structure—composed of a few dead sticks placed on a small limb of a very small cypress. After getting a good look at this "wonder" my eyes came in contact with a sight that never before dazzled them so. It was about twenty nests, some containing two eggs and others but one egg. It was time before I could move, such a laughing spell took possession of me. I climbed up to get that one egg which I had seen first but as fast as I climbed one step I slipped a half one and before I reached the nest which which was only about 12 feet up, I was thoroughly exhausted. In future visits to the swamp I always left those leggings behind and had my pants free so that the water could run through. We took all the eggs, something like 25, and thought we were well repaid for our trouble. As I had no collecting box I was compelled to use my best derby to put that "immense take" in.

Imagine my feeling when I came out of the swamp, wet, tired, hungry and worst of all, my shoes were full of mud. I could not take them off for if I did I'd never get them back on again. We started for home. Were caught in a rain but kept on. When I reached home: "Where have you

been?" "I went fishing and fell overboard." What a lie! When this eventful day had past and night set in, and when I was clad in dry, clean clothes I could look back with pleasure on the adventures of the day.

My next visit to this swamp was some time in late May—I had no note book then, didn't want any, wouldn't have known what to do with it had I have one—and if I had had one—and if I remember correctly we took something like 500 eggs of the Little Blue Heron and one or two sets of Anhinga and Green Heron. In June another party went out there and took about forty eggs, evidently the third trial at nest of some of the birds.

In 1894 I again visited the swamp and took some eggs of the Little Blue, Snowy and Anhinga.

1895—This season the Herons changed their nesting site and went over to another thick part of the swamp. Here I took about 200 eggs of Little Blue and Snowy Herons. $\frac{1}{3}$ and 1-5 Anhinga, and the boy with me took 1-5 and $\frac{2}{3}$ same. Red Egret $\frac{1}{4}$ and $\frac{2}{3}$ Green Heron $\frac{1}{4}$, and Fla. Blue Jay $\frac{1}{4}$. The sets of Heron ranged from 3 to 4. Later on another party of boys went in there and took about 150 eggs.

1896—I took on the 3rd of March a fine set of five Wards Heron and a collector with me a set of four. Quite unfortunately he broke an egg in his set. There was another nest in a tall cypress which I did not climb to as I had not brought my climbers with me.

On the evening of April the 20th I rented a horse and buggy and made

my second visit to the swamp. In the way I picked up a negro boy. He was to hold the horse for me. When I reached the old oak I prepared to go in by putting on my wading clothes. This done, I asked the boy, who was 14 years of age, if he wanted to go in with me. He did, so we started in. He soon found it too deep for him, so said he would remain there. I went on to the rookery and began my collecting. Most of the nests contained three, so I left them and took only sets of four, and to my great delight and surprise three sets of five. I had never before seen a set of five, so I prize them highly. It took some time to collect and mark the sets so it was getting along toward dark before I finished. After an ominous silence of about an hour, from the direction of the boy I heard him crying, so I called. He begged me to come to him as he was "scared." I told him that I would be there in a few minutes and that nothing would trouble him and to go out if he chose. He said he did not know the way, so I told him to climb a tree. These were wasted words as he was already up one. Silence reigned a few minutes then came another call. So out of pity for him, as the sun was sinking in the west and frogs commenced to croak, making it a dismal place to be in, I stopped collecting and went to him. We went out. I put on dry clothes and packed my eggs carefully and went home. I had some 18 sets of Little Blue Heron.

May 2d my notes read, "I went to Heron Swamp today, to take incomplete sets of the 30th ultimo. In

coming out I struck very near shore, the new rookery from which I took the following sets:—1-3 Red. Egret, inc. begun, nest similar to that of the other heron nests but larger, placed about ten feet up in midst of an extensive Little Blue Heron rookery. Eggs measure 2.18 x 1.44, 2.04 x 1.47, 2.14 x 1.49. I also found two incomplete sets so left them for another day. 1-3 Green Heron, inc. very slight. On my way up to an Anhinga's nest I chanced to look down and saw this nest on top of a living cypress stump, about two feet up. Bird not seen. I find it to be a fact that one rarely sees this little Heron around its nest. Another fact I have noticed is that they choose isolated spots for nesting, preferring not to be near any other Green Heron. They are very unlike other Herons in this respect. 1-5 Anhinga inc. heavy, nest well made of sticks, bark and weeds, lined with Spanish moss and cypress needles. The nest was on edge of a Heron rookery. Also took a set of four in similar position."

On the 6th of same month my friend Gilman S. Winthrop and myself visited the swamp again. This time to get the incomplete sets of Red. Egret, left on the 2d. On our way in we fell in with some Grackle, Egret and Green Heron nests. My notes read, "1 6 Purple Grackle, inc. slight, nest about 30 feet up in top of a very slim cypress. Birds were very pugnacious. Was compelled to use two trees in obtaining this set. Nest very large and well built of mud, moss, sticks and straw, lined with pine needles. There were other nests, but as

we were in a hurry did not take them. From this same clump of trees we took 2-3 Red. Egret and 1-3 Green Heron and a little further on in a bunch of Spanish moss well hidden, I took a set of four, Green Heron.

We then went to the old rookery to get those sets of Red. Egret, but to my chagrin one nest was empty and the two eggs were floating around in the water. I went to the other nest and found it contained three eggs, which I took, marked and placed in my box. Gilman took a set of three and found a nest containing two, which he left. I saw a poorly constructed platform of a nest a good way up in a small cypress and thinking it might contain some thing, climbed up. It contained a set of four very large eggs and I may add the eggs contained very large young. I took another set of three Egret and on the way out a set of four Fla. Blue Jay not five feet from a Little Blue Heron's nest containing three eggs." We then went ashore, donned dry clothes, packed up our eggs and started for home. On the way the heaviest rain I have ever seen struck us. After raining in torrents for a while, hail fell in large flakes, pattering so heavily on the mules that they seemed not to know what to do. At times they tried to run and again they would stop, refusing to move. A vivid flash of lightening, followed immediately by a loud clap of thunder, frightened both mules and us. The buggy was very open and the rain had fair play upon us. When we reached home we were drenched. During all this rain Gilman was sitting upon my knee

and I had my box of eggs in my hand but not one was broken.

On May 23d F. C. Elliot and myself went to the swamp and found a new and extensive rookery wherein Little Blue Herons were nesting by the score. In the midst of this rookery we took 3-4 and 5-3 Red. Egret. Incubation fresh in most cases. Strange to say, he took all the sets of four and one set of three. I did not take any sets of Light Blue as I had on former visits taken all I wanted. He took some sets of three. This was, I am certain, the third nesting of most of the Herons. These Herons performed their nidification without any molestation, and I am glad to know that many young were hatched and successfully raised.

Before concluding, I will add a list of nests found by myself and others in this swamp. Most of them I have found myself.

Fla. Red-shouldered Hawk, Two young and 1 egg. Little Blue, Snowy, Green and Wards Herons. Anhinga, Reddish Egret, Purple Gallinule, Kingbird, Black-billed Cuckoo, Purple, Fla. and Boat-tailed Grackle, Fla. Blue Jay and Fla. Screech Owl. This is truly a fine collecting locality.

CHALCEDONY PARK.

INTERESTING FEATURES TRIBUTARY
TO HOLBROOK, ARIZ.

Chalcedony Park, or what is commonly known as the petrified forest, has something of a mining proposition associated with it.

Three years ago an agent was sent out by the Armstrong Abrasive com-

pany of Denver and he secured a mineral claim. Since the establishment of a station at Adamant several miles East of Holbrook, the company's supplies were shipped from the forest to that point and there transferred to the cars and billed to Denver. The plan of the Abrasive company was to work the petrified wood into emery, there being a market for that article. The company operated a ten stamp mill in the forest. The claim has been cancelled. More or less of the petrified wood has been taken out and sold at Holbrook and in curio establishments elsewhere. It is told of tourists, one party in particular, that they expected to see the trees standing in their majesty and disappointment was manifest when the contrary was found to be the case. Ten days ago an agent of the government was accompanied by Hon. F. M. Zuck on a trip to the forest. The agent informed Mr. Zuck that he would recommend the appointment of a keeper in the event of the 1,400 acres comprising the forest being set apart as a national park, which is soon to be made possible. Mr. Zuck has taken a great deal of interest in the park or forest and the appointment may fall to his lot. The forest is very little advertised and it is one of Arizona's attractions that should be made better known in the East, where so little attention is paid to our natural resources. Special conveyances can be secured, as well as a guide in Holbrook.

Several years ago Judge Denny gave to California a lot of China Pheasants that were liberated in the State.

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WE WISH our many friends, subscrib-
ers and advertisers a Merry Christmas
and Happy New Year.

* * *

THE MUSEUM" has commenced its
fourth volume. This publication de-
serves all support given it.

* * *

THE OREGON NATURALIST has re-
ceived favorable mention from "Chen-
ey Free Press," Cheney, Wash.

* * *

POSSIBLY with the January number
we will commence a series of half-tone
illustrations.

* * *

"THE OSPREY" has now removed to
New York City. Mr. Johnson accepts

a position with McClure Company. I
wish "The Osprey" all success.

* * *

Mr. FRANK H. LATTIN'S Oologist
closes its 14th volume with the Decem-
ber Number.

* * *

Mr. GEORGE F. BRENINGER, whose
interesting article appeared in the
November number of THE OREGON
NATURALIST, will contribute an article
to our January number. Mr. Bren-
inger has had great experience in that
locality, and gives us a very complete
knowledge of the birds of his vicinity.

* * *

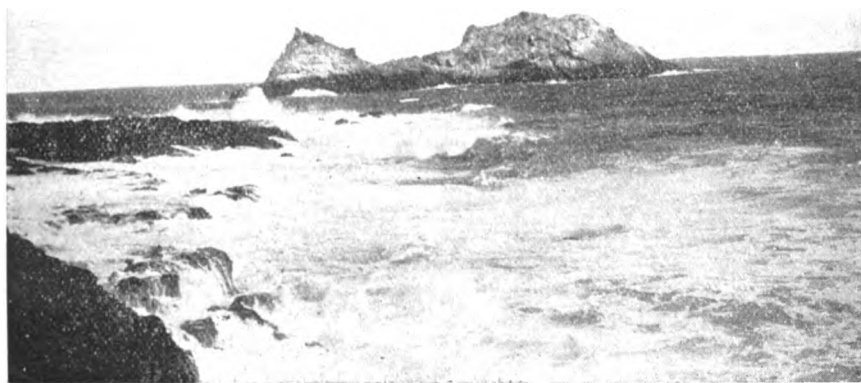
A PAPER claiming to represent Nat-
ural Science, in several branches,
writes the Editor that their exchange
list is already so large THE OREGON
NATURALIST will not come in for a
copy of their paper. If there is as
many as twenty-five papers giving
Natural Science a fair number of
pages it is a large number. That pa-
per looks for its support to the class
which supports THE OREGON NATU-
RALIST. I understand the above to
mean that that paper has a very lim-
ited number of copies printed. I
would advise that paper to print one
or two extra copies, as one might get
lost in the mails.

* * *

DAVID T. MACY, agent of the Cali-
fornia fish commission, has secured
216 of the 400 Denny Pheasants he is
commissioned to purchase and expects
to secure the remainder shortly. Only
birds bred and raised in confinement
can be lawfully shipped out of the
State.

The Oregon Naturalist.

Vol. IV. PALESTINE, OREGON, JANUARY 1898. No 9.



"Saddle Rock," a scene on the Farallones.

BULLOCK'S ORIOLE.*Icterus Bullocki.*

This bird—the only representative of the Oriole Genus found in British Columbia—is rather a rare Summer resident in this Province; and, so far, has only been noted in the Valley of the Columbia River, it has been known to nest at a few points.

The nest of this bird, like that of its near relative, the Baltimore Oriole, is among the wonders of bird architecture. This nest is made in the form of a long purse and suspended from several small twigs or crooked branches of trees, mostly those that are drooping or hanging over a water course, and at various elevations from the ground, ranging from ten to sixty feet. They are usually well concealed among the thick foliage and composed of a variety of such fine fibrous materials, either of a vegetable or animal nature, as it finds in its vicinity, and suitable to its purpose. This material may be fibers of bark, pieces of string, blades of grass, cotton rags, flax thread, or hair from the tails of cattle or horses, all carefully woven together and to some extent cemented by the saliva of the bird emitted in the process of construction; so that when it is completed it is quite firm on the outside.

The sets of eggs deposited by this species ranges from four to six; these are of a creamy-white hue with a pinkish or bluish tinge; and variously and curiously marked and mottled with strokes and dots of light brown, or blackish; mostly on the larger end. These eggs average in size .85 x .65.

This bird appears to subsist wholly on insects which it gleans mostly from the foliage of trees and bushes, seldom approaching the ground except to pick up some materials for its nest. Its song notes are not among the most melodious that fall upon the ear in those regions where it makes its haunts and home, but it has a pleasing effect, as the notes seem always to be delivered in a joyous spirit and to evince the happy feelings of the bird itself, to whose person the attention of the student of nature is thereby directed, and whose beautiful plumage when seen among the summer foliage of the forest trees or the blossoms of the orchard, cannot fail to delight the eye of all who have a genuine appreciation of the beauties of nature.

The male of this species is between eight and nine inches in length, and is clothed in a most beautiful variegated plumage of orange and black intermingled with whitish yellow, dusky and olive, a long description of which would give but a faint idea of the reality, which must be viewed on the living bird in order to be understood. The garb of the female Oriole is of a much duller hue than that of the male, and the color of the young in their nesting garb is very similar to that of the mother bird.

This species receives its specific name from Mr. Wm. Bullock, a naturalist of London, and in its habits, modes of life, form and general coloring it corresponds to the Baltimore Oriole, of which it is the general representative from the Western Plains to the Shores of the Pacific.

WM. L. KELLS.

AN ILLUSTRATION OF THE VARIABILITY OF NIDIFI- CATION INSTINCT.

BY H. TULLSEN, AUSTIN, MINN.

On May 28th, 1896, in Knox County, Illinois, I discovered the nest of a Turtle Dove (*Ectopistes carolinensis*) upon the bare ground. Or rather there was no nest, for the solitary egg was lying in a mere hollow on the ground. The nest if it may be so called was situated in the midst of a clump of horsemint and hazel sprouts. On the 29th of May a second egg was deposited in the nest. I paid a visit to the nest almost daily. On my approach the mother bird would leave the nest and seek to lead me away by assuming a limping gait.

On June 15th the nest contained two young Doves. Nine days afterward, when I disturbed them, the young birds left the nest, and ran about. When I placed them back they remained there. A few days afterward, when I returned, I found the nest empty and one of the young birds flying about near by, with one of its parents.

Now it is an unusual thing for a Turtle Dove to nest upon the ground. In fact I had never before heard of a nest so situated.

Their rude platform nests, built in bushes or trees, are well known. The instinct of nest building is not so perfect as we are apt to regard it. Instincts are subject to variation and in the case above referred to, we have a good example of the variability of the nesting instinct of the Turtle

Dove, or perhaps, instead of being an ordinary variation it is a reversion to a long lost habit of nesting upon the ground. For it does not require so very great an effort of the mind to imagine the steps by which a habit of nesting on the ground was discarded and a habit of nesting upon trees and bushes was acquired.

WINTER BIRD NOTES.

Since the first heavy snowfall at the middle of November when all our migrating birds disappeared, there has been but little manifestations of bird life in this locality, even among those species that remain with us all the year round.

With the first snowfall the Snowflakes usually make their appearance and these are now frequently seen in large flocks. A solitary Crow—an unusual sight here in the Winter Season—was observed on December 13th; and on the 30th one of our local papers reported the shooting of a White or Snowy Owl, not far from the town that measured five feet five inches from tip to tip of its wings. This species is but a rare Winter visitor. On New Year's day a Meadow Lark made its appearance at the barn on East Field on the East of the town.

Besides the House Sparrows which are always here, the only other species noted since the advent of Winter were: Chickadees, Ruffled Grouse, Kinglets, Downy and Hairy Woodpeckers, and White breasted Nuthatches.

W. L. K.

Listowel, Ont.

BIRDS OF THE DESERT.

One would hardly think that the desert region of Arizona, hot, dry and dusty as it is, was inhabited by even a single species of bird, save perhaps the Roadrunner (*Geococcyx californianus*), around which is wrapped much history, real and imaginary. In the Spring time, when migratory birds return to the North, these vast stretches of arid land are crossed in a single flight and that mostly at night, and few birds linger and then only in irrigated sections.

But there are many species that are resident—remaining the year round. Notable among these is the family Harporhynchus (Thrashers). Four species are known to breed in this valley, Harporhynchus crissalis, (Crisal Thrasher) is found in the vicinity of water nesting in the low bushes of *Atriplex* (Greasewood) and that of *Pithecolobium unguis* (Cat's claw), Harporhynchus c. palmeri (Palmer's Thrasher) and *H. bendirei* (Bendires Thrasher) are most frequently seen far from water, nesting far out on the desert.

H. lecontei (Lecontes Thrasher) whose range is farther to the West is rarely met with here, though a single instance is known of Lecontes Thrasher breeding near this city. Harporhynchus is gifted with great power of song; and many a cheerless desert scene is made pleasant by their presence.

In travelling among the forests of giant cactus, *Saguara* of the Spanish, one notices innumerable circular holes punctured into the fleshy parts of the

cacti. These are holes made by Woodpeckers. The Gila Woodpecker and Gilded Flicker use these excavations to bring forth their family of young, and in which to roost at night. The Gilded Flicker is not so prolific as is the Red-shafted or Yellow-shafted Flicker, four and five eggs is the extent of the set.

A sprightly little fellow is the Yellow-headed Tit (*Auriparus flaviper*) found commonly everywhere, desert and river bottoms alike. That which is most interesting about this species is its nest and its construction. The pair work for weeks in building it, building the whole exterior first, then the walls are completed, and finally lined with feathers. In shape and size it is much like a cocoon, with an entrance opening between two limbs with the opening visible from the ground only. The opening as well as the entire nest is thickly covered with thorny twigs from the cat's claw bush. Around the entrance these thorns are so placed that one's finger cannot be inserted or withdrawn without being severely scratched. In the fall of the year the Yellow-headed Tit builds another nest, this time of different material and used for a different purpose, and I am inclined to believe is made entirely by one bird and used by that bird as his place of rest and sleep. I have often approached these Winter nests in the daytime and frequently found the little occupant at home. In the construction of the Winter nest the usual shape is maintained, the neatly modeled entrance is there, the lining as soft as ever, and if anything a little

thicker and warmer than the Summer home, but the total absence of the cruel thorns guarding the entrance and the entire nest is at once noticeable. This practice of building a separate nest for Winter use, or reinforcing the old one is also carried out by the Cactus Wren.

Aberts Towhee, though common throughout this valley cannot be termed a desert species, frequenting such places as canal borders, abandoned fields overgrown with weeds and brush and the willow fringe of the rivers. Gambel's Quail is another bird which one finds on the desert but generally not far from water.

The Phainopepla is common where ever the Mistletoe grows, feeding on the seeds.

The Ash-throated Flycatcher and Sparrow Hawk are present wherever the giant cactus abounds, and the Red-tailed Hawk, var. calurus, builds its nest among the thorny arms of these cacti, often not more than 10 feet from the ground. Several other species deserve mention but time and space forbid.

GEO. F. BRENINGER.

Phoenix, Arizona.

Every person who subscribes before March 1 can have his subscription commence with No. 1, of the present volume.

Some birds may be tamed by feeding them in the winter time.

The oldest book in the world was found in Egypt.

A NEW BIRD FOR COLORADO.

The list of Colorado birds is already long but many additions will yet be made before it is complete. One of the latest to be added is the Calliope Humming-bird (*Trochilus calliope*). On July 25, 1897, one was found dead on the ground in Cheyenne Canon near Colorado Springs, Colo. It was an adult male. The specimen was brought to Mr. C. E. Aiken of that city, who now has it in his possession.

This is a Western Hummer, well known along the Pacific Coast and East to Montana, Utah and Arizona, but never before known from the Eastern slope of the Rocky Mountains.

W. W. COOKE.

SEALERS HUNT HERON.

Two years ago twenty-four sealing schooners left San Francisco for the hunting grounds; this year the schooner Kate and Ann is the sole representative of the fleet. This has necessitated the hunters looking for other means of livelihood and George Brown and George Keiger, who sailed on the Para are the pioneers in this new field. Equipped with six months supplies and a small arsenal in the way of rifles, shotguns and ammunition, they are bound for the marshes of Salvador where they will hunt the Heron or White Crane, for the sake of a certain tuft of feathers valuable as a decoration for the feminine head. These feathers have a market value of from 10 to 30 dollars an ounce and last

year Brown cleared over \$3000 in a few months. Brown said that the worst thing they had to contend with was the Indian, who collected tribute from all hunters and was in addition a most treacherous individual. A party of hunters bound on the same mission, is preparing to leave Bakersfield, and still another will hunt the Heron on the Gulf of California.

SANDHILL CRANES.

Oct. 9th, 1897 saw eleven Sandhill Cranes feeding in a wheat stubble field near here. Saw these about 10 o'clock a. m., but it was a very foggy day.

Some years ago these birds were quite common here, but for the last 10 or 12 years, only small bands have been seen passing in Fall and Spring migrations.

They generally fly very high, stopping to feed only at night.

ELLIS F. HADLEY.

Dayton, Oregon.

DOUGLAS COUNTY NOTES.

Since writing the notes which appeared in the December OREGON NATURALIST, I learn that my *Pristiloma stearnii* should be *Lansingii*, Bland. I have also added to my list *Selenites* (now *Circinaria*) *hemphilli* W. G. B., of which I have collected two specimens. For determining the above and many other specimens I am indebted to Dr. Dall. By a misprint in my article *Conulus fulvus* Mull is changed to *pulvus*.

Mr. Hadley's article in same num-

ber reminds me of the following odd nesting sites. June 21, '94, I collected a set of seven Parkman's Wren eggs from a bag hanging on a post. The birds entered from the top.

The Brewer's Blackbirds in this vicinity nest in holes in dead fir trees. The Flickers gouge out large holes in the bark and sap wood in their search for worms and in the cavity thus formed the Blackbird builds its nest.

To the list of accidental deaths I would add a Varied Thrush which was killed by flying against a window of our house, March 22, '97.

On May 11, 1897, father saw a Rufous Hummingbird fighting another small bird which he failed to identify. Later in the day passing the same place he found a dead Macgillivray's Warbler in the trail.

Has anyone found a set of five eggs of the Western Robin? At Omaha, Neb., in '91, I collected a set of five American Robin and saw another, but never saw a set of three which I could be positive was complete. Of the Western Robin about half the sets are of three eggs and I have yet to find five.

FRED H. ANDRUS.

Elkton, Oregon.

Vale, Malheur county, Oregon, has an artesian well that is a hot geyser, spouting at regular recurring periods, having done so for two years without fail.

In the Fall, Prof. A. K. Fisher, Department of Agriculture, will publish a list of Oregon birds.

THE RACINE MOUNDS.

I contributed to March, 1894, No. of THE NATURALIST an article on the Wisconsin Mounds, and gave a description of those that I had at that time personally investigated.

Last Fall while on a visit at Racine, Wis., I took a stroll to the cemetery known as Mound Cemetery which is composed of 40 or more acres, some parts laid out very artistically while other parts are left in their natural state.

Across one corner which cuts off perhaps five acres is quite a deep ravine at the bottom of which runs a small spring-fed brook that empties into Root River about two miles from its conjunction with Lake Michigan.

Just North of this ravine and twenty rods away we find a group of eleven finely preserved circular mounds which are located within a few rods of one another.

They have been cleaned up nicely but the natural aspect has never been disturbed except the drives that wind around among them. The size of these mounds vary from 10 to 20 feet across and from two to three feet in height. Every one of them have trees upon them of the oak and red cedar. Of the former I could see that they were of natural growth and were quite large but the cedars may have been planted by whites as they were not so large and planted with a precision that denoted the white man's work. I tried to find out if they were planted by a former race but could get no information on the subject. Nobody seemed to know how they came there. Some of the mounds have the trees

distributed promiscuously over them while the others have a circle of trees at the outer edge with the exception of an entrance of two feet in width.

I spent an hour in the "silent city" of a long past race, while my thoughts were ages back and I in fancy see a prehistoric funeral approaching. I gaze in wonder as they slowly descend into the ravine and cross the pearly brook. Slowly they thread their way up the little hill and finally rest the rude litter which contains the remains of a noted warrior upon the ground. With implements of stone they hollow out a shallow grave of perhaps two feet in depth and place the warrior in a sitting posture facing the East in the hollow. His skin robe is thrown about him and implements of the chase and war are laid near at hand. Then amid the death chants of the women he is neatly covered with barks and the earth piled about. I awake to the present and find myself sitting at the foot of one of the mounds of Racine cemetery, and after drawing a map of my surroundings I wend my way toward the city thoroughly paid for my trip.

FRED E. COLEMAN.

The business of growing flax for fiber is making some progress in Washington as well as Oregon. West Coast Trade says spinning apparatus is being put in place at Silver Beach, Whatcom county, Wash. The fiber has been prepared by experts who believe it equal to the best ever grown.

The largest millinery dealer in Worcester, Mass., will not sell either song birds' or Egrets' plumes.

The Oregon Naturalist.

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Science.

Edited By

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THE OREGON NATURALIST,
Palestine, Oregon.

THE NOTE, "A New Bird for Colorado," although short is very valuable. It is an addition to the "List of Colorado Birds" published by Prof. Cooke. This list embraced 360 species and varieties.

* * *

THROUGH the courtesy of the Publisher of "The Story of the Farallones" we are enabled to reproduce the beautiful plate, "Saddle Rock." We hope to publish many such valuable photographs during 1898.

* * *

MR. JAMES J. CARROLL, of Refugio, Texas, sends us a very interesting and lengthy article on the Great-tailed Grackle in Southern Texas. This interesting article will appear in our next number.

WE WISH to commence a series of half-tone illustrations at an early date. If any person, whether a subscriber or not, can furnish us with one or more photographs from life, we will reproduce them.

* * *

HOW MANY of our subscribers wish to see THE OREGON NATURALIST enlarged? If our friends will secure us some new subscribers it will be possible for us to do so.

* * *

WE WOULD be pleased to hear from all persons who wish to have these improvements made. If a sufficient number of our readers show an interest, we will make an increase in pages at once.

* * *

WE hope others will follow the example of Messrs. Carroll, Breninger, Cohen, Kells and those who aid the OREGON NATURALIST in various ways.

* * *

THE OREGON NATURALIST is the only paper West of the Mississippi River published in the interest of Natural Science. But few Western people seem to appreciate the OREGON NATURALIST. Almost our entire support comes from Eastern people. We mail a copy of this number to every person interested in Natural Science in the West, and we hope to hear from them in regard to the matter of helping the OREGON NATURALIST. This help may be extended by subscribing, inducing others to subscribe and by sending us your observations.

VOL. IV.

January, 1898.

No. 9.

THE OREGON NATURALIST.

A MONTHLY
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THE OREGON NATURALIST.

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