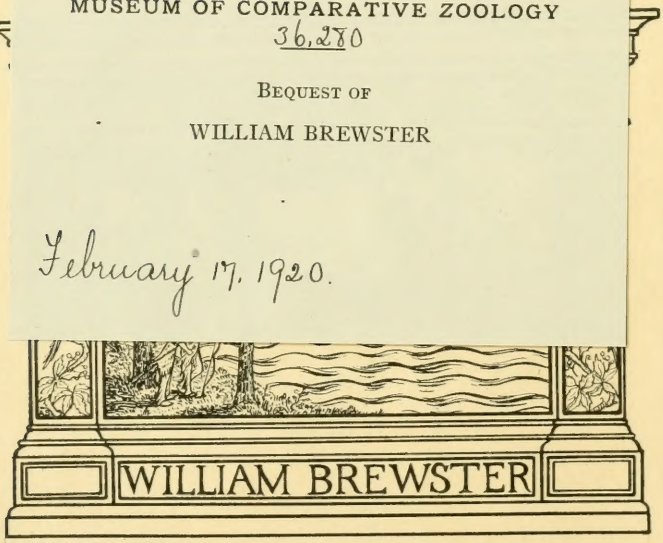

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J. Martin.
Oct. 18, 18[illegible]

W.D.

Vol. III. JANUARY, 1896. No. 1.

THE OREGON NATURALIST.

A MONTHLY
MAGAZINE DEVOTED TO
NATURAL SCIENCE.

PORTLAND, OREGON.

Exchange Column.

Our Exchange Column is free to all subscribers. All Cash offers for this column must be paid for at the rate of ½ cent per word.

TO EXCHANGE.— Opals both rough and polished. Garnets and all New England Minerals, for Western minerals and ores. Robert Burnham, Dennis, Mass

BILL — A Confederate bill to exchange for each Oregon Arrow point sent me.
Geo. O. Greene Box 41. Princeton Ill

EXCHANGE,—Polished Specimens of the handsomest fossil coral in the World, Bird's Eye and Fish Egg Marble, also fine Calcite Geodes and massive Calcite. Will give big exchange of above for Western Arrow Points Agates, Ores or Shells. C. E. BRIGGS. Lisbon, Iowa.

FINE identified fossils of the Carboniferous age and of the Niagara group, of the Upper Silurian age to exchange for those of other periods and localities. H. B. Derr, 6561 Michigan Avenue, Station O, Chicago Ill

SEVERAL—varieties of fossils. fossils and crinoid stems in limestone, pretty geodes, Sycamore balls., Sarpindus berries, sweet gum burrs, rose gypsum, flower seeds, roots and shrubs and books. To exchange for Indian relics. sea curios, wash floss, silk, feathers or any thing useful, write, Cora Jewell, Shannondale, Indiana.

SOUTHERN CALIFORNIA,—Abalone Shells wanted, in quantity will pay cash or give good exchange D. M. Averill&Co. 392 Morrison St, Portland, Oregon.

I HAVE—several skins of the Beautiful Trogon from Mexico, good native skins, for exchange. Write what you have to the Portland Bird Store 110½ First St. Portland, Or,

WANTED— Eggs in sets and singles with full data: for which I offer good exchange in fine fossils, Indian relics: minerals, books, polished agates, mounted birds. Send list and state which lists you desire exchange from. Have a good gold filled, gents, hunting case watch American style movement case warranted 20 years movement 10 years will exchange for $ 3.00 worth of fine sets. George W. Dixon. Watertown, S. D.

I WOULD — like to exchange California shells for those of Oregon — land, fresh-water and marine. Fred L. Button. 969 Broadway. Oakland, Cal.

WANTED—No. 11 and 12. vol.1 Oregon Naturalist. and No's. 2 and 5, (Austin) Naturalist. D. M. Averill & Co.

EXCHANGE—I will give 25 varieties of foreign stamps for each Arrow head sent me. Good singing canary for Indian relics. Stamp album with 300 stamps in good condition for curios, old fire arms or fossils. W. D. Humphrey, 103 Webster Ave. Yonkers, N. Y.

WANTED—A copy of No. 1 vol. 1 of the Cactus Journal, for which I will give viz: No's. of vol. 1, of the Austin Naturalist. Nos. 1, 2, 3, 7, or No. 4 vol. 2 Am. Mag. of Nat. Science, (Sac City, Iowa,) or can give insects and shells from this locality, or will buy a copy.
Philip Nell, 878 Marshall St. Philadelphia, Pa.

ARROW HEADS,—sinkers, small hoe, paint mortar, soapstone pottery and Gettysburg relics, will sell at fair price or exchange for Indian relics — western relics wanted. ½ doz. Vermont arrowheads to exchange. T. B. Stewart, Lock Haven, Pa.

WANTED — Butterflies and Moths, Cocoons and Chrysalides from Oregon and California in large numbers.
Offer Eastern Butterflies, Eggs in sets and supplies.
Prof. Carl Braun, Naturalist, Bangor, Me.

WANTED—A guitar in exchange for books, papers, and magazines on the subject of Natural History. Also have some eggs in sets with datas and a few singles.
Write me what your terms are on the instrument and I will send my list, all letters answered. Clyde Karshner, Big Rapids, Mich.

EXCHANGE—Broken Bank Bills, Cheap Stamps and a few fine sets, for Fossils Minerals, old Coins, or fine Eggs, in sets or singles. No postals answered. ☞ mention this paper when wriring. Walter E. McLain, New Vineyard. Me.

EXCHANGE.—Four varieties of Geodes, Zinc, Blende, Wurtzile, Silicate of Zinc, Beautiful Dolomites sprinkled with Chalcopyrite Crystals, all in perfect condition, for other Minerals. W. K. Kane, 1706 Harrison St Kansas City, Mo.

FIVE—different Numbers of Vol. II, Oregon Naturalist, our choice, for 15 cts. post paid. D. M. Averill & Co.

EXCHANGE—alcoholic specimens (with full data) and unclassified fossils for fully classified fossils, also Indian and War relics or pair snow shoes Send lists and receive mine. Harry E Spalding, 202 South Neil street Champaign, Ill.

WANTED—Raine's Bird Nesting in Northwest, Canada, will give Davie's Nest Eggs and some cash J. H. Brown, Iowa City, Iowa.

WE WISH TO SELL U. S. STAMPS.

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10c, "		1855	.40
12c, black		1861	.25
1c, buff		1869	.40
2c, brown		"	.10
30c, Columbian, un-used			.40
50c, "	"		.85
1.00, "	"		7 00
50c, un-watermarked	"	1894	.60
1 00, "	"	"	2.50
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3c, yellow-brown, due, un-used			.08
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1c bright claret,	"	un-used	.03
3c, "	"	"	.08
5c, "	"	"	.10

All the above un-used Stamps are well centered and original gum. Do not ask us to send them on approval, as we will not, but if any are not satisfactory, they may be returned.

☞Pleare mention the OREGON NATURALIST.

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"	30c. perfect,	3.00
"	24c. reprint, unused, fine,	15.00
"	Set unused reprint, (no 3c.)	115.00
1893,	$1. unused o. g. perfect	7.00
"	$2. unused, o. g. perfect,	4.50
1894,	$2. blue unused, o. g. unwatermarked,	4.00
"	$2. blue but perfectly centered,	6.00

ENTIRE UNUSED U. S. ENVELOPES.

1874,	15c. orange on white,	1.40
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"	" " " ori buff	4.50
"	" " " blue,	4.50
"	" " " manilla,	4.00
"	" " " manilla-amber,	4,00

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Add 8c. for orders under $5.00. These are XMAS. bargains and no mistake. All my business is done on CASH BASIS. I buy and sell for SPOT CASH. Parties wishing to buy and sell, are advised to send me their want list and lists of stamps for sale.

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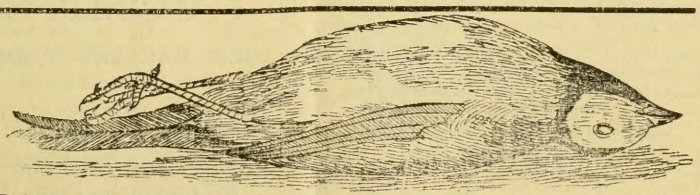

B. J. BRETHERTON, Newport, Oregon.

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THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, JANUARY, 1896. NO. 1

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 PENSILVANICUS,
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.

SALPINCTES OBSELETUS,
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 AMŒNA,
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 CASSINII,
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 Countios.

REGULUS SATRAPA OLIVACEUS,

Western Golden-crowned Kinglet,

Not uncommon winter resident.

REGULUS CALENDULA,

Ruby-crowned Kinglet,

Not uncommon winter resident of Washington County.

MYADESTES 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 occurence.

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 occurence 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 abie.

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 aunual 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, SanDiego, 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
Pfluger, 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 intrest 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 gutteral "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. *Helminthophilia* 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 Bavarian 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 are 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 thc 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 forgiviug to the last and prayed for the forgivness 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 bush and figure on the reserve. Surrounding the bust is the inscription, ECCLESIAM SANCTAM CATOLICAM 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 rinsciption on the obverse reads: "I believe tbat 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 Waliula owns an nteresting 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, gen erally entirely disappearing beneath the water. Rising with its capture, it starts away as if to devour it at leisure, but be fore 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 ouly a short time ago stretched the long gray herald of the approaching morn, we arrive at a jutting point where tha 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 appearence. 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 pupae 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 resemblence are said to be "in the flax seed state". At this stage of its developement 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 recomended, 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 memberhsip: 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.

"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 for 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* cutaneons horns of birds.

Not infrequently tumors are found in certain abdominal organs and in the sub-cutaneous tissues of man and other mammals, posessing 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, Pennsylvanin 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 or 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. Foot-prints of various animals, the claw of the bird, the wing of the insect have been seen again and again in ths 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 mry 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 11½ 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.

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 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.

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.*

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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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 portentious 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 corespondents 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.

ARROW :-: :-: POINTS.

We only sell Arrow Points from two states, Oregon and Washington. No dealer can sell Points from these states cheaper than we do, when quality and material is taken into consideration. That some idea of the value of these Points may be formed, we will here state that, only a short time ago we offered $25.00 for a small Opalescent Chalcedony Point, which was refused by the lucky finder.

A small lot has been received from a remote point in Oregon, not yet reached by railroads. They are of various shapes, but a singular feature of this lot, is that every one is made of a blackish translucent Obsidian. The price on this lot is 25cts., 50cts., 75cts., and $1.00 each according to size.

SOME HOLIDAY OFFERS.

50 broken Points,.....	$1.50
10 " "	.40
5 Points (quality fair).....	.25
Fine Points, good shape for mounting	.25
5 perfect Points,.....	.50
Single Points, 5–10–15 and 25cts.	
Fish Points,.....	.50
Serrated Points,.....	.50
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When several are ordered at one time we will send as great a variety of shapes and material as possible.

D. M. AVERILL & CO.,
Portland, Oregon.

Resurrection Moss.

Selaginella lepidophylla, is a roundish ball when dry. In a saucer of water, it soon expands into a dense circle of dark-green. From Lower California. Can be used repeatedly. Fine large specimens post-paid, 15cts.

D. M. AVERILL & CO., Portland, Or.

SPECIAL.

HORNED OYSTER.

Spondylus pictorum. This beautiful Shell by mail post-paid for $1.00. The lot we are offering at this price are 3½ x 4 inches and measure 16 inches around all.

Owl Shell or Giant Limpet,.....	.10
Helix fidelis,.....	.10
Helix townsendiana,.....	.05
Yellow Helix,.....	.15
Black Cats Eye drilled and polished,...	.05
White " " " " "	.10
Sharks Teeth, Hawaii, 3 for	.10
Mushroom Coral,.....	.05
15 named Shells, 25 examples.....	.25
Anodonta Wahlmatensis.....	.10
Copper Beads, Memaloose, Is.	.10

AZURITE (Blue Copper.)

This lot, a recent consignment, contains the largest crystals we have ever handled and we are reliably informed that they came from the finest showing in the Mine [Copper Queen] since a year ago last March.

Small specimen about an oz.....	.05
Beautiful specimens ..... for 50c. to	1.00
Opalized Wood,.....	.10 to .50
Petrified Wood,.....	.10 to 1.00
Galenite(Cube,).....	.10 to 1.00
Steel Galena,.....	.10 to 1.00
Carbonized Wood,.....	.10 to .50
Semi-opal,.....	.10 to 1.00

CURIOUS CUP SPONGES.

A peculiar species of Sponge from the Gulf of Mexico. Specimens in this lot occupy 128 cubic inches, and larger, price, 50cts.

IRIDESCENT MATTE, from the smelters.

Principally Lead, carrying Silver. Specimens from 10 to 50cts., show a very fine play of colors.

☞Orders under 25cts. must be accompanied with 5cts. extra for postage.

D. M. AVERILL & CO.,
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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 NATURALIST
THE AQUARIUM	$1.00	$1.25
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.
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Made by the Klickitat Indians,(Washington) None of these baskets are made now. They are water-tight and have designs woven in the outside and were used for cooking utensils.

The four that we now offer are in an unusally good state of preservation. .

One only: height; 16 in., circumference at top; 3⅔ ft., weight: 56 oz., price $3.00

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Two only: height; 7½ inches, circumference at top; 2¼ ft. weight 14 ounces, price $1.25 ea.

Buyer to pay expressage. It is not often that baskets made by the Klickitats can be had

This lot is from a private collection lately broken up. D. M. AVERILL & CO.

PORTLAND, OREGON

FOR SALE: INDIAN RELICS. I can sell good Arrows, for $2.00 per 100. Many more thing just as cheap

All letters answered. A. T. DUNLAP, Box, 301, Norwood, N. C.

"My Ad. in your paper [Oregon Naturalist] is a paying investment; five orders today from it.'
[Dec. 10, 1895.]

E. C. SWIGERT,
Indian Trader, Gordon, Nebraska.

WHY

DON'T you send 35c. for finely polished specimen of Itacolumite or Flexible Sand-stone? Its a great curiosity! No Cabinet complete with-out it. ☞See Oct. No. of OREGON NATURALIST, page 139, for full description.

A FEW BARGAINS.

100 var. good Foreign Stamps,	.15
1 Confederate Bill, genuine,	.10
1 Old Bank Bill,	.10
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3 Var. of Old Bills,	.15
1 Chinese Coin,	.05
1 Annam Coin,	.06
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1 Ancient N. C. Indian Arrow Point,	.06
1 Piece N. C. Indian Pottery,	.05
1 Large U. S. Cent,	.06

Send 2c. for large list of Stamps, Coins War and Indian Relics etc. No postals answered.

R. D. HAY, Winston, N. C.

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Clear Red Opals, not common and very desirable. The prices for these stones cut and polished, all ready for setting are according to size and quality, 75c., 1.00, 1.50, 2.00, 2.50 3.00, 4.00 and 5.00.

A. M. BROWN, 348 Clifton St. Portland, Or.

INSECTS EMBEDDED IN AMBER.

Our supply is nearly exhausted [only 11 left] with no prospect of more. They came to us labeled via: China, in a mixed lot of Shells from Japan. The price will remain 25c. each, post-paid. D. M. AVERILL & CO.,

Portland, Oregon.

VOL. 11, O. N.

Only 14 copies of vol. 11, complete, of the OREGON NATURALIST, now remain in our hands. The price of these, are 75 cents each: post-paid. A limited number of copies of March, No. 3, to Dec. No. 12, of the O. N. [inclusive,] for sale at 5 cents each.

OREGON NATURALIST.

Vol. III. FEBRUARY, 1896. No. 2.

THE OREGON NATURALIST.

A MONTHLY
MAGAZINE DEVOTED TO
NATURAL SCIENCE.

PORTLAND, OREGON.

Exchange Column.

Our Exchange Column is free to all subscribers. All Cash offers for this column must be paid for at the rate of ½ cent per word.

TO EXCHANGE.— Opals both rough and polished. Garnets and all New England Minerals, for Western minerals and ores. Robert Burnham, Dennis, Mass.

BILL — A Confederate bill to exchange for each Oregon Arrow point sent me.
Geo. O. Greene Box 41. Princeton Ill

I HAVE—several skins of the Beautiful Trogon from Mexico, good native skins, for exchange. Write what you have to the Portland Bird Store 110½-First St. Portland, Or,

I WOULD— like to exchange California shells for those of Oregon —land, fresh-water and marine. Fred L. Button. 969 Broadway. Oakland, Cal.

ARROW HEADS,—sinkers, small hoe, paint mortar, soapstone pottery and Gettysburg relics, will sell at fair price or exchange for Indian relics — western relics wanted. ½ doz. Vermont arrowheads to exchange. T. B. Stewart, Lock Haven, Pa.

WANTED—A guitar in exchange for books, papers, and magazines on the subject of Natural History. Also have some eggs in sets with datas and a few singles.
Write me what your terms are on the instrument and I will send my list, all letters answered. Clyde Karshner, Big Rapids, Mich.

EXCHANGE—Broken Bank Bills, Cheap Stamps and a few fine sets, for Fossils Minerals, old Coins, or fine Eggs, in sets or singles. No postals answered. ☞ mention this paper when wriring. Walter E. McLain, New Vineyard. Me.

EXCHANGE.—Four varieties of Geodes, Zinc, Blende, Wurtzile, Silicate of Zinc, Beautiful Dolomites sprinkled with Chalcopyrite Crystals, all in perfect condition, for other Minerals. W. K. Kane, 1706 Harrison St. Kansas City, Mo.

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EXCHANGE—alcoholic specimens (with full data) and unclassified fossils for fully classified fossils, also Indian and War relics or pair snow shoes Send lists and receive mine. Harry E Spalding, 202 South Neil street Champaign, Ill.

STAMPS—500 good Stamps, 125 varieties, over 30 countries, only 25 cts. 4 ounce piece of Zinc Ore, 15cts. A. P. Wylie, Prairie Center, Illinois.

I HAVE the following duplicates left over to exchange for sets, 622a⅛, 591b⅔, 552¼, 512-2⅓, also two sing. of 64. I desire to correspond with reliable persons who intend to do field collecting this coming season.
R. S. Daniels, Nordhoff, Ventura Co., Cal.

I PAVE four pounds soft Arsenical Soap that I do not need and would like to exchange for sets. R. S. Daniels, Nordhoff, Ventura, Co, Cal.

TO EXCHANGE.—Fifteen paper covered Novels for best offer of western Arrow Points, or Indian Relics. Also geogical specimens from the famous Genesee Valley, Lake Ontario Shells. U. S. and Foreign Stamps etc., for curosities. All Letters answered. J. R. Webster, 829 Powers Blk. Rochester, N. Y.

EXCHANGE.—Will give 337½ for the "Young Ologist," Vol. 1 and 2 Nos. 1 to 12-13 and 14.
[illegible] Frederick Hill, Lyme, Conn

TO EXCHANGE.—Fresh made Skins of Evening and Pine Grosbeaks, Greater and Mealy Redpolls, Fishawk and many other northern birds; for other Shins. Sea-birds especially wanted. J. N. Clark, Meridian, Wis.

EXCHANGE.— Stearns Bird Life in Labrador, for "The Ologist," Vols. 6 and 7 Nos. 36 to 50 and 51 to 62. Frederick Hill, Lyme, Conn.

WANTED:—John Trumbull's Satirical Poem, Mc Fingal and the English translation of "Leben und Schicksale des Abenteurers Barin von der Trenck." (erich. 1886.) Write stating condition and lowest cash price. I could trade first class $28.00 Guitar, (not scratched or marred a particle) for above books and 1st. class sets. Lloyd S. Pickell, Citizens State Bank, Wahoo, Nebraska.

WANTED to correspond with collectors who will collect eggs for me tne coming season in exchange for Natural History Specimens, such as Fossils, Minerals, Shells, Indian Relics, Agates, Mounted Birds or Books. I will furnish datas. Let me know what sets and about how many you can furnish me. Have a number of gold-plated and gold-filled Watches to exchange for sets. Geo. W. Dixon, Watertown, S. D.

WANTED:—The addresses of collectors who can furnish crystalized specimens and crystal groups, wholesale. Would like correspondent Fort Wrangel, Alaska and Province of Ontario, Funda Bay district, and Yellow Stone National Park. Address, R. A Edwards, 1004 Union St., Wilmington, Deleware.

If you have Curios or Specimens of Natural History for sale, try the OREGON NATURALIST, three months for a medium to reach buyers.

THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, FEBRUARY, 1896. No. 2

THE OREGON VESPER SPARROW.

(POOCÆTES 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 briers— 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 briers under which it had originally been concealed. The nest was now left unprotected and in plain view. The bird didnot 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 occurence, 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: 24¼ inches in length, 11⅜ wing, 36⅝ 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 fron 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 trowbridgii. 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 apecimens from Aberdeen, Wash. total length 103 mm.. tail vertebræ 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 vertebræ 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 conspiuous, 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 vertebræ 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 snmmer, 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 vertrebræ 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 vertebræ 68 mm. Hind foot 20 mm. Of twenty-one specimnns 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 vertrebræ 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, 2.09x147, 2.03x1.47, 2.13x1.47 1.98x1.47, 2.08x1.48, 2.09x1.45, 2.07x1.50 2.02x147, 2.08x 1.47. 2.06x147, 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 petrifactions 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 Matthiolus 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 Comerarius (1712) who taught that when God created the 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 far 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 laborius 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; *Posl-diluvian*, 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 prealled 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 clockmakers.

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.

Dr. C. C. PURDUM, BALTIMORE, MD.

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392 MORRISON ST. Portland, Oregon.

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 Jannary 18 1896, I secured a bird of this species. Is not this a rare occurence 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 incidently 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 of 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 tne 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 espeially 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) ***Aythia 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.* (*623*)
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 occurences:

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 irresistable impulse to migrate at certain seasons of the year.

When one considers the family *Sylvicolidæ*, 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 uutil 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 througnout 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 Artic 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 umdoubtedly 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-breusted 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 apperance 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 mantain an erect position when walking upon the ground as in man, or climbing trees as in monkeys. Humphreys, in reference to the large developement 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 declarlng 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 1765, 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-feet high palisades, had once stood that the relic was found.

ANGUS GAINES.

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THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, MARCH, 1896. No. 3

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 chiastolite.

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 resembance 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.

Volkmann, 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 Palebotany 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 Bethelehem, 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.)

Corda, 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 volumenous works are accurate and painstaking. Their value is universally rocognized, 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. Geogical 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 6½ inche in length, of which the tail measures 2½ 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 vermillion 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 unmistakeable. 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 (*Tetrao 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 Phoenician 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 numbor 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 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 whistlers 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 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, and its exact distribution has yet 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 tall 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,

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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 Willaamette 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 Milwaukee, 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 Milwaukee, 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 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.

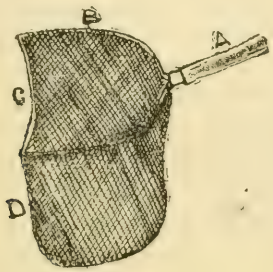


Fig. 1.

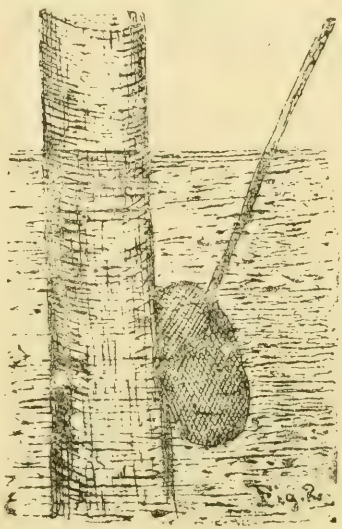
The scrape-net, is of a quite peculiar shape which I have tried to illustrate in Fig. 1. In this drawing A represents the handle, which should be eight or nine feet long, and of tough wood, BBC the iron frame work of the net, and D the net itself. The net should be of strong twine with meshes about a 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 "scraper" 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 spile 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 calcareus 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 preceeding. Its color is the same as that of Grantia. A fair idea of how it looks can be obtained from the cut.

METRIDIUM 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 Metridium 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 temperture 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.

EDITORS.

A. B. AVERILL, PORTLAND, ORE.

Dr. C. C. PURDUM, BALTIMORE, MD.

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146½ SIXTH ST. Portland, Oregon.

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 he 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.

Vol. III. APRIL, 1896. No. 4.

THE OREGON NATURALIST.

A MONTHLY
MAGAZINE DEVOTED TO
NATURAL SCIENCE.

PORTLAND, OREGON.

Exchange Column.

Our Exchange Column is free to all subscribers. All Cash offers for this column must be paid for at the rate of ½ cent per word.

TO EXCHANGE.— Opals both rough and polished. Garnets and all New England Minerals, for Western minerals and ores. Robert Burnham, Dennis, Mass.

BILL — A Confederate bill to exchange for each Oregon Arrow point sent me.
Geo. O. Greene Box 41. Princeton Ill

I HAVE—several skins of the Beautiful Trogon from Mexico, good native skins, for exchange. Write what you have to the Portland Bird Store 110½-First St. Portland, Or,

TO EXCHANGE:—All kinds of Musical Instruments and Music. Write stating what you have for exchange. I. M. Marsh, Delavan, Ill.

WANTED:—The addresses of collectors who can furnish crystalized specimens and crystal groups, wholesale. Would like correspondent Fort Wrangel, Alaska and Province of Ontario, Funda Bay district, and Yellow Stone National Park. Address, R. A Edwards, 1004 Union St., Wilmington, Deleware.

SIX—different Numbers of Vol. II, Oregon Naturalist, our choice, for 15 cts. postpaid. D. M. Averill & Co.

TROGON Skin, and all kinds of South Sea Island Curios and Shells, to exchange for Live Ferrets, Fox, Squirrels, Red-birds, Mocking-birds, Rose breasted Grosbeaks, large Snakes, etc. Write what you have, to Portland Bird Store, 110½ First St., Portland, Or.

Birds, Animal and Snake Skins, Eggs in sets or singles original data. Skulls of Alligator, Wild-cat, Turtles, Fox, Fish, etc., that I will exchange for Guns, Fishing tackle, Musical Instruments, Ornithological, Taxidermist and other instruments. Glass Eyes, good Books on Conchology, Zoology, Oology or Taxidermy. A. M. Nicholson, Orlando, Fla.

I offer identified Land and F. W. Shells, Silurian Fossils and Indian Relics of this section, for identified Shells, Fossils, Minerals, copies of Oregon Naturalist, Books on Natural Science, etc. Send list and receive mine. Allen Jesse Reynolds, Box. 802, Connersville. Indiana.

THE AUK, vol. xii, 1895. For Sale, Price 1.75 post-paid. D. M. Averill & Co., 148 Sixth St., Portland, Oregon.

WILD West and Southern Museum, to exchange for good clean Dry goods and Notions. It is a valuable collection of stuffed Mammals, Birds, Reptiles, Fish and Land Curios, Shells, War and Indian goods, South Sea Islands etc. Mrs. N. J. Rofinette, Democrat, Va.

EXCHANGE:—Fossils and a few first-class Alcoholic specimens with data, for coins. Harry E. Spalding. 202 So. Neil St., Champaign, Illinois.

WANTED:—No's. 2 and 5 of vol. 1, Naturalist, of Austin, Texas. Six months subscription to the Oregon Naturalist, will be given for each number. D. M. Averill & Co., 148 Sixth St., Portland, Or.

I HAVE a few pieces of Pottery, found within one-half mile of Ft. Winnebago, that I will exchange for Arrows from other places. Chas. C. Camp, Portage, Wis.

FOR EXCHANGE—I will exchange a secret for trapping Foxes by scent, which will call them one-half mile to the trap. The scent has to be made in April, and it costs you nothing to make it. Until May 15th I will exchange the secret for $10.00 cash or $12.00 worth of such things as I can use, in the line of Microscopes, Telescopes, Field-glasses, Mounted Birds, Rare Eggs, Books or U. S. Stamps. ☞No postals answered. Walter E. McLain, New Vineyard, Maine.

I WILL exchange scientific books and magazines to the value of $20.00, for an American Typewriter in good condition. List sent on request. P. Wilbur Shoop, Box 157, Abingdon. Ill.

TO EXCHANGE—A large list of Fossils; want fine showy Minerals, cloth bound Books and Sets. Geo. W. Dixon, Watertown, S. D.

FOR SALE—A good 22 cal. Rifle in fine condition $3.50 cash; cost $5.50 when new. Write for further particulars and description, inclosing stamp, for reply. Harry E. Spaulding, 202 S. Neil St. Champaign, Ill.

WANTED—Correspondence with Mineral Collectors. Good Western Minerals for exchange. T. E. Fleming, Kewanee, Ill.

FOR SALE—A good collection of Stamps, Foreign and U. S., list value about $140, about 1000 Fossils from Cayugo Co., 50 dollars worth of Indian Relics, several hundred specimens of rock, many kinds from Cayuga Co. Address, J. Minchin, Fleming, Cayuga, Co., N. Y.

LOT of curiosities, Printing Press, size of form 2½x4 inches, Coins, Bills, Albums and Stamps, War and Indian Relics to exchange for U. S. Stamps, Fencing Foils, Masks, Striking Bag and other athletic goods. List for 4c. stsmp. R. D. Hay, Winston, N. C.

IF YOU want fancy Chickens or Eggs for hatching write enclosing Stamp to H. L. Johnson, Diamond, Cal.

PANSY and other fine Seeds to exchange for OLD or RARE Stamps, Coins, Medals, Confederate Money, Old Bills, Fractional Currency, or desirable Curios generally. Send most anything worth from one dime to ten, and I will give you good value in Seeds—List Free. David B. Woodbury, P. O. Box 45, Paris, Maine.

THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, APRIL, 1896. 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 islan 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 abrubtly 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 continously. 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 terrestial mammals found on Kodiak

island, is the barren-ground bear—the American black bear, having been introduced during the writers 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 avairy, 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, unless 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 saturatior*. 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; 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 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 tuttles 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 1¼x⅞ 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 bowlders 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, Oregon, and 2½ 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 nearest 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 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.

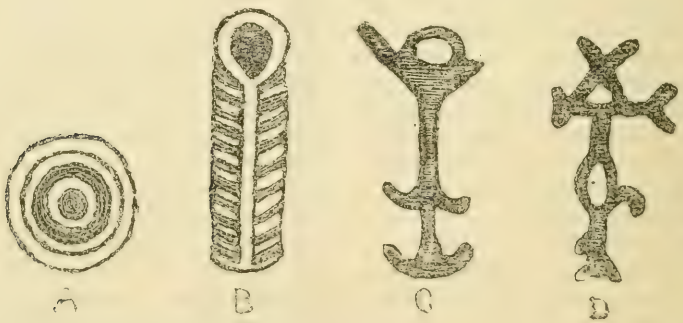


FIG. 69,—PETROGLYPHS IN LAKE COUNTY, OREGON.

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:

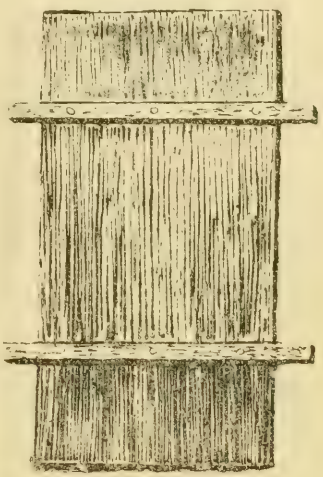
The Tillamuk warriors living on the Pacific coast were often at variance with the several Kalapuya tribes. One day, passing through Patten's valley to invade the country of the Tualati, they inquired of a woman how far they were from their camp. The woman, desirous not to betray her own countrymen, said 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. Denlson, 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.

EDITORS.

A. B. AVERILL, PORTLAND, ORE.

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THE OREGON NATURALIST.

146½ SIXTH ST. Portland, Oregon.

APRIL, 1896.

All mail for the Oregon Naturalist, should be addressed to 146½ 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 (Txaidermists, 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 appearance. 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 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 enlivener 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 unaminously 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

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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Vol. III. MAY, 1896. No. 5.

THE OREGON NATURALIST.

A MONTHLY
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PORTLAND, OREGON.

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TO EXCHANGE.— Opals both rough and polished. Garnets and all New England Minerals, for Western minerals and ores. Robert Burnham, Dennis, Mass.

BILL — A Confederate bill to exchange for each Oregon Arrow point sent me.
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TROGON Skin, and all kinds of South Sea Island Curios and Shells, to exchange for Live Ferrets, Fox, Squirrels, Red-birds, Mocking-birds, Rose breasted Grosbeaks, large Snakes, etc. Write what you have, to Portland Bird Store, 110½ First St., Portland, Or.

THE AUK, vol. xii, 1895. For Sale, Price 1.75 post-paid. D. M. Averill & Co., 148 Sixth St., Portland, Oregon.

FOR EXCHANGE—I will exchange a secret for trapping Foxes by scent, which will call them one-half mile to the trap. The scent has to be made in April, and it costs you nothing to make it. Until May 15th I will exchange the secret for $10.00 cash or $12.00 worth of such things as I can use, in the line of Microscopes, Telescopes, Field-glasses, Mounted Birds, Rare Eggs, Books or U. S. Stamps. ☞No postals answered. Walter E. McLain, New Vineyard, Maine.

FOR SALE—A good collection of Stamps, Foreign and U. S., list value about $140, about 1000 Fossils from Cayuga Co., 50 dollars worth of Indian Relics, several hundred specimens of rock, many kinds from Cayuga Co. Address, J. Minchin, Fleming, Cayuga, Co., N. Y.

LOT of curiosities, Printing Press, size of form 2½x4 inches, Coins, Bills, Albums and Stamps, War and Indian Relics to exchange for U. S. Stamps, Fencing Foils, Masks, Striking Bag and other athletic goods. List for 4c. stsmp. R. D. Hay, Winston, N. C.

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Wanted:—Butterflies and Moths, Cocoons and Chrysalides from Oregon and California in large numbers. Offer Eastern Butterflies, Eggs in sets and supplies. Prof. Carl Braun, Naturalist, Bangor, Me.

FOR EXCHANGE:—Flobert Rifle, Remington action, Checkered walnut pistol grip stock. 22 caliber 6½ lbs. nearly new, cost $6.00 accurate shooter. Will exchange for best offer of Indian Relics. A. B. Roberts, Weymouth, Ohio.

THE AUK, vol., xii, 1895, in best of condition. For best offer. G. Ford Axtell, Box 50, Howell, Mich.

EXCHANGE:—Foreign Stamps and old U. S. 5Cts., for Chinese Coins, also some Minerals for Indian Relics. Would like correspondance with collectors in Arizona, Utah and Idaho. S. V. Wharram, Harpersfield, Ohio.

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TO EXCHANGE:—A fine genuine Dueber Gold Filled Hunting Case Watch, stem wind and set; made by the famous Dueber Case Co., fitted with a 11 jewel Springfield movement fully warranted for 5 years. Will exchange a ladies or gents, for good sets I can use to value of $40.00. Geo. W. Dixon, Watertown, So. Dak.

NICE Geodes, Fossils, Curios, Minerals, Cave Specimens, Petrified Moss, a few Mounted Birds, Crinoid Stems, Fossils on Limestone etc., to exchange for Indian Relics, Arrow and Spear Points, Drills, etc. Cora Jewell, Shannondale, Mont. Co., Indiana.

I WOULD like to exchange English Curios. Specimens, Stamps, Coins, Photographs, Newspapers, Magazines, &c., for American and other countries. Address, Elam Dicks, Pilton, near Oundle. Northamptonshire, England.

THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, MAY, 1896. No. 5

KADIAK ISLAND

A CONTRIBUTION TO THE AVIFAUNA OF ALASKA.

Cyclorrhynchus 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 everthing 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.

Cepphus 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

crevise 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 refered 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 indentification 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 pollicoris

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 kittawakes in countlesst housands 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 inaccesible 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 paradisaëa.

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 minature 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 uri'e

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-BREASTED 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 numerously. Their great breeding grounds being in the neighborhood of Illiamna 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 observation of the materials discovered by well digging and boring; and it has occured 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 becomes 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 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

FIG. 2, 78 ft.

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 lanscapes were beautified by a clothing of evergreens!

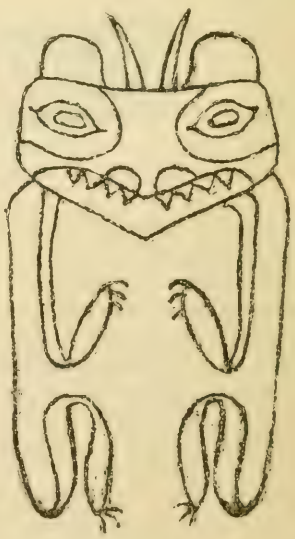
It is hoped that some will be stimulated to make collections of the different materials found in wells and the depth at which they are found. All such facts and specimens will be of great value when the time comes for unravelling the later geological history of Oregon.

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 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 vermillion. 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 employd 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; flkamkostan, 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-hmexl of

BEAR; DRAGON-FLY; THUNDER-BIRD; SCULPIN.

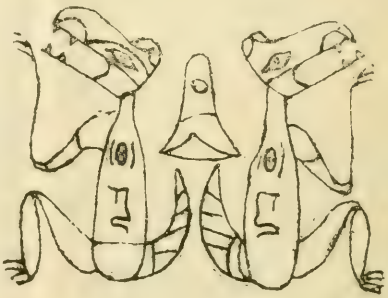
the Makah Indians, an antediluvian demon supposed to live in the mountains." Other designs were observed and copied, notably, the tshimos, a mystic animal, and the double thunder bird and double raven.

Mr. James G. Swan made a valuable contribution on tattoo marks, published in the Fourth Annual Report of the Bureau of Ethnology, and reproduced, much condensed in the Tenth Annual Report, as follows:

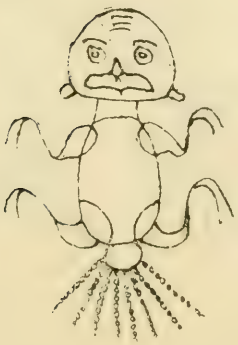
"Among all the tribes or bands belonging to the Haida family, the practice of tattooing the person in some manner is common; but the most marked are the Haidas proper, or those living on Queen Charlotte islands, and the Kaiganis, of Prince of Wales archipelago, Alaska.

"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 Vancouvers 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 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

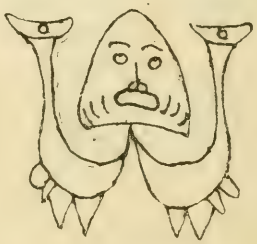
FROG.



WOLF.



SQUID.



COD.

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 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.

DOG-FISH.

"Almost all of the Indian women of the northwest coast have tattoo marks on their 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.'"

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 Britian. 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 delighful 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 apperance.

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 ot the Mountain Ash alluded to by Oliver W. Holmes in "ElsieVenner" 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 genuiue 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 beautifnl 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 amog 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 indentity 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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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. fowarded, 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 carfully 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.

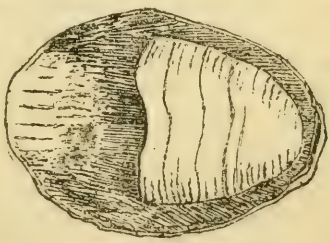
MYTILUS EDULIS.

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 Metriduims, 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 with-draws 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 probaly 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 comparitively 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 experienced 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 wander! "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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OREGON NATURALIST.

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To judge the price ($125.00) for such an outfit—of a *Cupola Smelter, knock-down bottom type*, with extension when smelting ores, made of No. 10 steel plates with slag and metal spouts, rotary steel blower, countershaft with geared pulley for blast supply, by either water, steam or hand power; with three graphide crucibles, three steel ladles, six furnace steel bars and tools, only weighing complete 1285 pounds—when the prospector can determine the value of one ton of the ore in a five-hour heat by the output of the bullion.

With a little ordinary intelligence of the average prospector, this five feet by three feet inside diameter little smelter, run on low grade ores, will not only pay for itself every week, but it will convince the skeptic beyond redemption who does not believe with us that the little smelter must come to the ore.

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Vol. III. JUNE, 1896. No. 6.

THE OREGON NATURALIST.

A MONTHLY
MAGAZINE DEVOTED TO
NATURAL SCIENCE.

PORTLAND, OREGON.

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THE OREGON NATURALIST.

VOL. III. PORTLAND, OREGON, JUNE, 1896. No. 6

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 it's 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 foward 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 sportsmens 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 untill 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 ferroprussiate 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 as 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 ferroprussiate 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, hase 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; northwall, 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—*Dendragapus 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 fined a suitable camping spot, and that two, 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 unsed 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 satfsfied 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 bnt 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 nowalso to be found in the neighboring states. Oregon has long been know 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. HILL.

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.

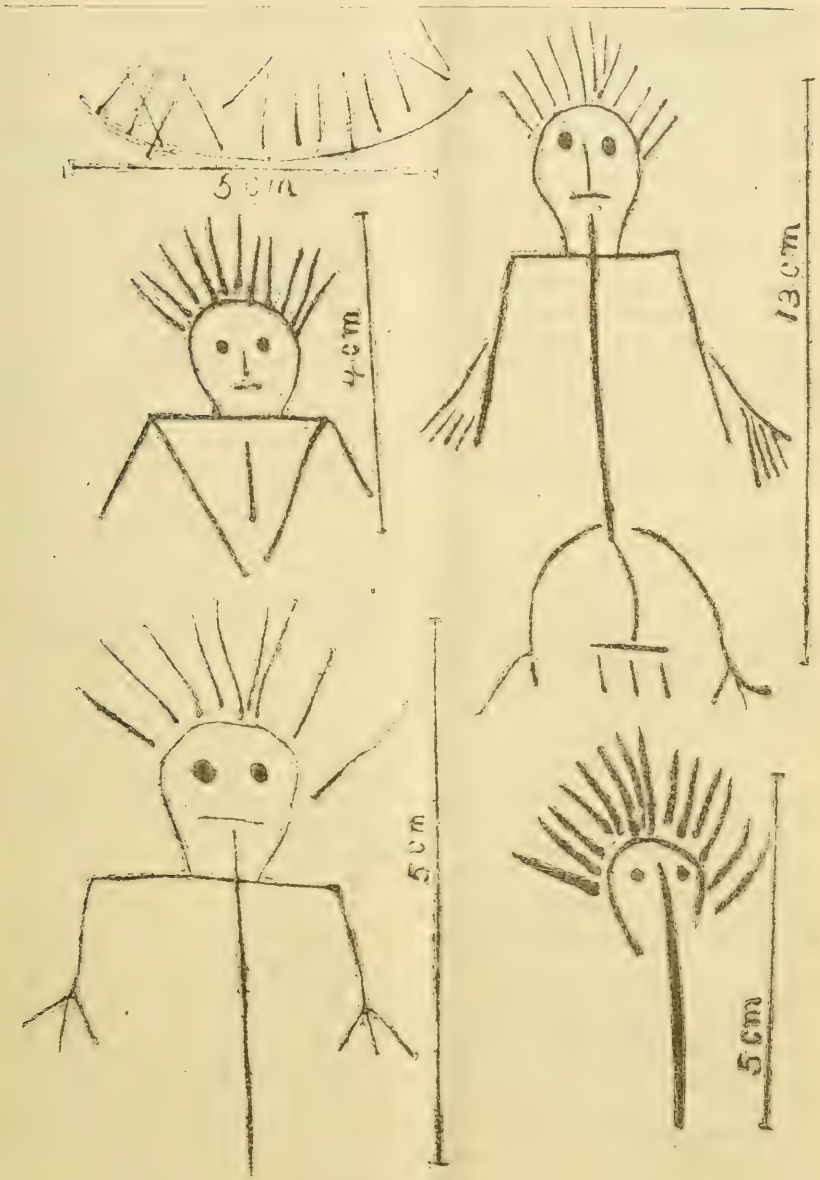
In a previous issue of this journal there occured a review of the work of the U. S. Bureau of Ethnology * in regard to the Petroglyphs in sandstone rocks in Patton's Valley, about two miles from the village of Gaston.

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.

EDITORS.

A. B. AVERILL, PORTLAND, ORE.

Dr. C. C. PURDUM, WOODS HOLL, MASS.

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THE OREGON NATURALIST.

146½ 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 x83 and 1.15x.82 the other two were lighter than the average egg of this bird; one marked with 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 Philadephia, 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.

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 concious 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 varities 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 thickne s 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 s.ruck 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

Lincoln 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.

Chrysoprase 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 bowlders.

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 occured 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 Representives 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 Minister 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, capercailzie 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 capercailzie 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 announcment through this paper."

Next month watch for "Habits of the Chipping Sparrow" by C. O. Ormsbee of Montpelier, Vt. whese articles on bird life are so well known to the readers of ornithological literature.

DO YOU WANT CURIOS? THEN READ THIS:

You will find something new each month—

	Price Each.
5 Shell Crowns, used as head-dress by Samoan women	$ 1 25
6 New Guinea Fetich Necklaces, with large shell pendant, worn as charm to prevent death	2 00
1 Same, with 2 large boar tusks forming pendant	2 25
1 New Guinea Warrior Shield, wood, 1 ft. by 2 ft. 7 in., decorated in colors	6 00
1 Marshall Island Grass Mat, woven in colors	2 00
1 Caroline Island Loin Cloth, finely woven in colors, extremely handsome, 2 yards long	3 00
1 New Guinea "Lava-Lava," or Loin Dress, fiber, complete	2 00
1 New Caledonia Loin Dress, made of inner bark of tree	2 50
2 Samoan War Clubs, ironwood, 2 ft. long	5 00
1 Salomon Island War Club, heavy wood	5 00
1 New Guinea Witch's Rattle, or Drum, snake-skin head, used by witch doctor, hard to get	6 00
2 New Guinea Bamboo Pipes, 1½ and 2 ft. long, figured with black design	2 00
2 New Guinea Lime Spoons, used by the lime-eaters, large and small size	$2 00 to 2 50
1 Fiji Canoe Model, 1 ft. long	2 00
12 Samoan Shell Necklaces	30
1 New Guinea Ironwood Idol, not very chaste	5 00
1 Australian Boomerang, heavy wood	4 00

STONE RELICS.

Mound Pottery Vessel, nearly perfect			5 00
Perforated Implement, disk-shaped, perfect			1 50
Half-Section Perforated Hatchet			50
Perforated Pendant, perfect			2 50
Grooved Hammers, perfect			2 50
Hammer, finer workmanship			3 50
Burnt Arrowheads from sacrificial mound			10
Triangular War Points	25	Ax, good	2 50
Spear Heads	50	Ax, slightly brok'n	1 50
Flint Cutting Tool, small	1 25	Curv'd Fish Spear	2 00
Arrow Truer or Smoother	3 50	Broken Hammer	50
Small Drill, perfect	2 50	Plummet, perf'd	2 00
Skinners, perfect	1 50	Sinkers, large	1 50
" slightly nicked	50	Large Skinners	2 00
Pendant, chipped slightly	50	Pestles	1 00 to 2 00
Hatchet, very small, fine	4 50	Small Mortar	5 00
Adze, nicked slightly	4 00	Oregon Pipe	4 00
Bronze Spear Head	5 00	Fine Scraper, flint	1 50
Drill, leaf-shaped	1 50	Pottery Fragm'ts.	15
Very Large Spearhead	3 00	Lance Head	50

(Outlines and description of any of above for stamp.)

MISCELLANEOUS.

12 Navajo Indian Necklaces, wampum and beads, with abalone pendant	50
12 Indian Necklaces, red, white and black beads	25
1 Sioux War Club, horse-tail ornament, handle covered with beads, very handsome	3 00
1 Sioux Pipestone Pipe Bowl	4 00
Indian Newspaper, printed in Cherokee	10
Alaska Bone Salmon Spear, 8 in. long	2 25
1 Alaska Indian Idol, arms broken off	75
Indian Jawbone from Oregon shell mound	50
Zuni Indian Charm Necklace, leather, fine	1 75
Esquimaux Models of snowshoe, ice pick, bear spear, snow staff, etc	25 to 50
Buffalo Horns, polished, pair	3 50
Perfect Arrowheads	5
Japanese Silk Panels, embroidered in silk and artistically painted, landscapes, etc., handsome	50

	Price Each.
Japanese Devil Faces, will grace a cabinet or mantel, something that is curious and attracts attention; money refunded if not satisfactory, three sizes, 35c, 60c and	1 15
Box Chinese Bone Jackstraws	35
Japanese Bronze Pocket Stamp Box, handsome	25
Japanese Paper Knife, bronze, very fine	25
Japanese Bow and Four Arrows	25
A Handsome Japanese Vase	25
2 Var. Chinese Nuts	5
5 Different Chinese or Japanese Curios	10
Chinese Back-Scratchers, bone, very curious	25
Chinese Straw Slippers, pair	30
Chinese Sandalwood Fans, carved	60
" " Card Cases, carved	1 00
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enares Hammered Brass Cup, from India, native engraving	1 25
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Vol. III. JULY, 1896. No. 7.

THE OREGON NATURALIST.

A MONTHLY
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NATURAL SCIENCE.

PORTLAND, OREGON.

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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 iu 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 tranparent 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 protuberences, 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 limited. 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 McNeeley. 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.

E. H. HARN,

Henry, N. C.

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 examinati n 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 protuberences 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.

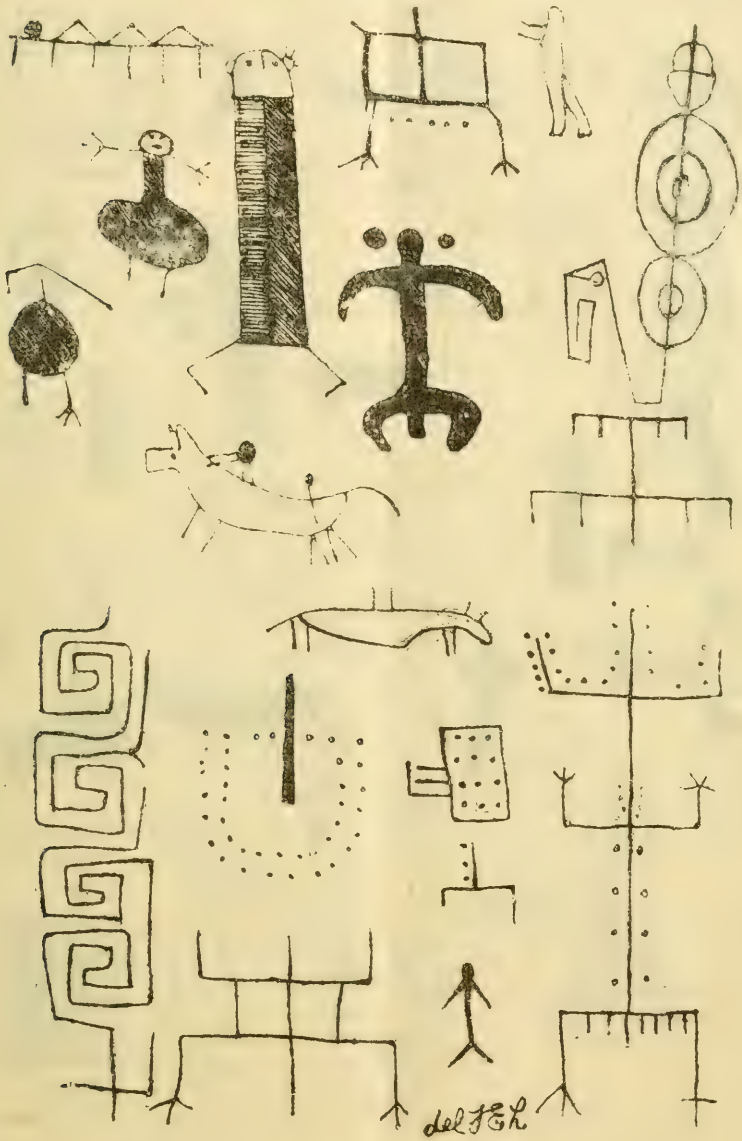
FLAMINGOES SEEN HERE.

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 indentical 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.



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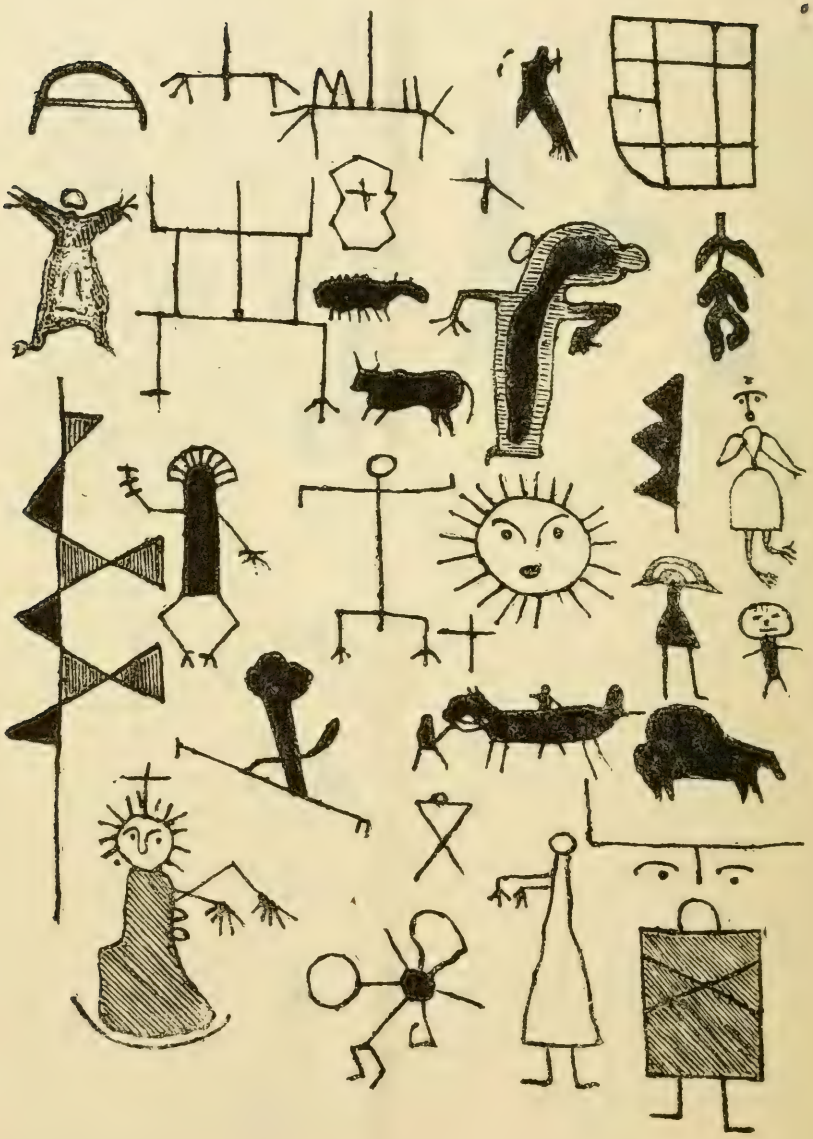

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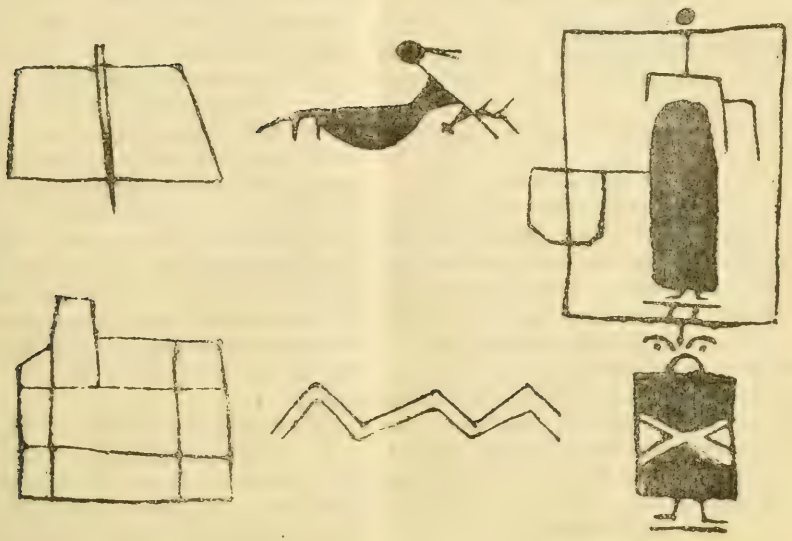


MEXICAN HIEROGLYPHS.

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 occured in a conglomerate. On the floors were found corncobs 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) Soldiery, (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 lagopus sancti-johannis

AMERICAN ROUGH-LEGGED HAWK

Resident during the summer months, breeding in the interior.

Haliœtus 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.

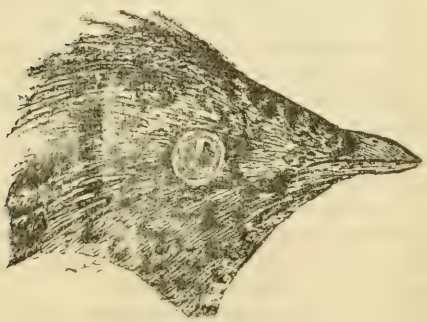
The writer is well aware that it has several times been stated that this owl does not kill the ptarmigan but only preys on wounded birds; yet I have actually seen one of these birds strike down a ptarmigan which to all appearances was in good health and most assuredly was in full flight at the time, 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 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 4¾ inches in length, of which the tail measures 1¾ 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 6¾ inches, of which the tail measures 2¼ inches. The beak is half an inch long, black, short, and thick; the iris is cheastnut 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 yeild fruit in due season.

The bullfinch is a very docile bird; and although the natural song of both sexes is harsh, reaembling the creaking of a door or wheel barrow, 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 Wolffias 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 Philadephia, 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 indivieduals 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———l!

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,
Unite 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, bnt 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; 37¾ inches; spread of wings; 8 feet 9½ inches.

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Vol. III. AUGUST, 1896. No. 8.

THE OREGON NATURALIST.

A MONTHLY
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NATURAL SCIENCE.

PORTLAND, OREGON.

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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 8½ inches in length, of which the tail measures 2½ 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 2¼ 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 generaly 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 "Sis'i!"

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 Macgillivrays 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 fly catchers. 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 Appalachain 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; ere he slept till morn—slept till the sun as high in air, then arose and joined 's tribe far down the mountain. At ight he came again; again he slept till orn. Each visit bore a charm that rew him back again. Each night ound him sleeping above the rocks; ach 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 miles of rugged cliffs standing abruptly from the water's edge. To the left is Wizard Island; beyond stands Llao

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 you appli ation 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 crossbill, to be itself, must be a "loxian, fringilline, oscine, passerine, carinate, modern, avian vertibrate animal. The more characters, of all grades, that any birds 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 bounderies, 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 inseperably 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, bv 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. Sometimes, 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 mauufacture. 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, Superintendant 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.

We are now booking orders for Denny Pheasants (Phasianus torquatus) skins. Send in orders early. They will be filled in rotation. Good birds in full plumage are not plentiful during the time the law allows them to be shot.

D. M. AVERILL & CO.,
148 Sixth St., Portland, Or.

Vol. III. SEPTEMBER, 1896. No. 9.

THE OREGON NATURALIST.

A MONTHLY
MAGAZINE DEVOTED TO
NATURAL SCIENCE.

PORTLAND, OREGON.

Exchange Column.

This Exchange Column is free to all subscribers. All Cash offers for this column must be paid for at the rate of ½ cent per word. Each exchange notice must not exceed 30 words. The right is reserved to reject any notice when considered to be for the best interests of subscribers.

Wanted:—Butterflies and Moths, Cocoons and Chrysalides from Oregon and California in large numbers. Offer Eastern Butterflies, Eggs in sets and supplies. Prof. Carl Braun, Naturalist, Bangor, Me.

WANTED:—I can use almost any desirable Oregon or Western single eggs for which I will give even exchange in nice sets. Send me your full exchange list. I have many fine sets not usually offered by collectors. Walter F. Webb, Albion, N. Y.

WANTED:—A second hand microscope in good condition; books or shells, and beetles; back numbers of "The Nautilus" and "The Observer." O. B. Montgomery, Lock Box 181, Allentown, Pa.

I WISH good, clean copies of the AUK for which I offer some nice sets. Write for list; also want Vol I, Oregon Naturalist and back volumes of Oologist, from I to IX. R. W. Williams Jr. Tallahassee, Fla.

WHAT have you to exchange for fine skins of Florida Diamond back Rattlesnake skins, either tanned or flint. Box 447, Orlando, Fla.

WHAT have you to offer for two live Alligators 9 feet long. A. M. Nicholson, Orlando, Florida.

A GOLD filled, open faced, Trenton movement watch, and books on travels, history, Indians, Archaeology, Geology, and fiction, to exchange for good ancient and modern Indian relics, old arms, and war relics. Send list with prices, all letters answered. L. V. McWhorter, Berlin, W .Va.

FOR each 20 different U. S. Stamps I will send an arrow point. Geo. O. Greene, Box 41 Princeton, Illinois.

WANTED: Persons to accept, gratis, in view of future orders: 25 envelopes with their name and address printed on. Write plainly and enclose five postage stamps to defray, mailing, packing, etc. "Happy Hours," South Columbia, N. Y.
☞Mention O. N.

$2.00 Columbian Stamps, unused, exchange for U. S. and Revenue Stamps or cash for $2.25 each.

A. LOEWIT,

218 E. 76th St., New York.

Wanted:—A good camera, will give advertising space in the Oregon Naturalist or good exchange in Oregon material. D. M. Averill & Co., 148 Sixth St. Portland, Oregon.

I have been using your exchange column for advertising duplicate specimens etc., and it has more than repaid me many times a years subscription. Any collector, amateur or professional can well afford to pay 50 cts. a year for the Oregon Naturalist, a sample copy will convince him of that fact. Harry E. Spalding.

WANTED:—Resurrection Moss, will give, "Singles" Oregon Material or Advertising Space in the Oregon Naturalist. D. M. Averill & Co., Portland, Or.

NEW cloth-bound Mekeel Album, $35 due-bill on bicycle, scientific and philatelic papers, books, and many other articles to exchange for camera, typewriter or anything I can use. P. P. Fodrea, Grand Island, Neb.

EXCHANGE:—Fossils for Fossils. I have a few perfect specimens of unclassified fossils which I want to exchange for classified ones. H. E. Spalding, 202 South Neil St., Champaign, Ill.

I WILL give three back no's of Gameland or 6 of the Oregon Naturalist for 25 cts worth of perfect U. S. or British Colonial stamps catalogue over 3cts each. F. C. Hammond, Eldora, Hardin Co., Iowa.

FOR every good Oregon or Arizona Point sent me I will send in return one good U. S. Cent before 1855. C. E. Briggs, Libson, Iowa.

EXCHANGE:—For eggs of other localities I have complete sets with data of the following A. O. U. numbers: 316, 339a, 387, 420, 443, 487, 508, 511, 552, 611, 622a, 703 and 273; Taylor's Catalogue as basis. W. E. Sherrill, Haskell, Texas.

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THE OREGON NATURALIST.

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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, aud 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 crecket-frog are all too small for table use, and the bull-frog, *Rana cantesbiana,* 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 tadpales 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 subdueing 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 canght 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.

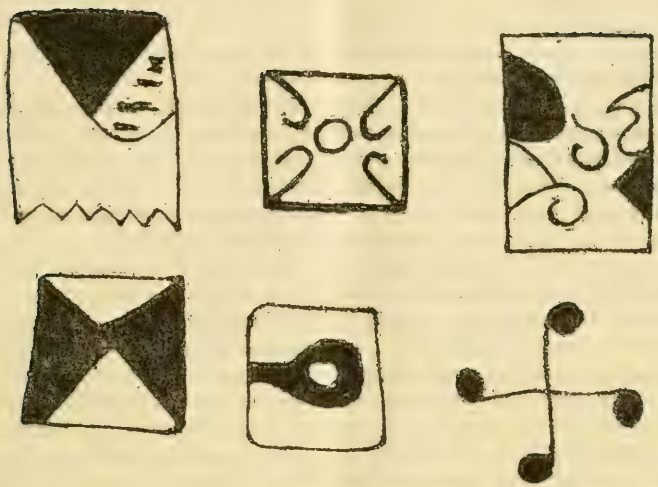
II.

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 Shahaptian 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 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 aforetime 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, harminous 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 tenex, 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; bnt 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 usuage 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 surely 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 settlement 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 stones, 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 spodumene 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. Backburn 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 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 progess there for hiddenitein 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 felsdpar.

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 lends 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.

E. H. HARN,

Henry, N. C.

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 (*Cicundella sex-guttata.*)

The very beautiful geometrid moth *Rhumaptera 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 feelling 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 chiastolite; 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)

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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 cantesbiana*) 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.

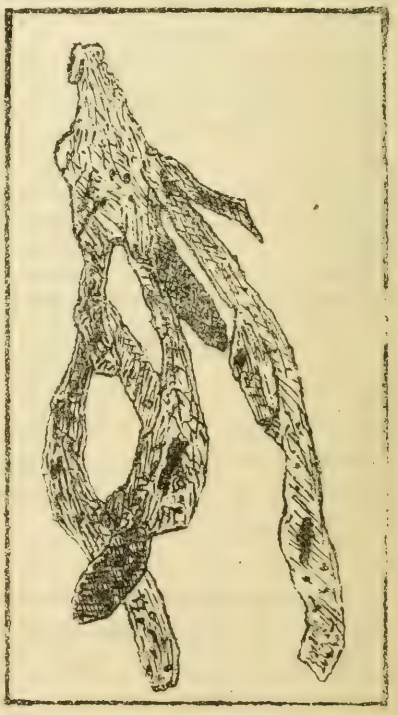
He must use his own judgement as to the use of each one of these implements but I will give a few general hints. For collecting star-fish, urchins, sand fleas, and some shells no tool is required, while for shrimps, Physalia, and crabs, which are not apt to take kindly to the eager grasp of the collector's hand (I do not mean to say that they do not usually take to his hand for some of them "*take*" to an alarming exteut) 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 defined 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 coarse 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 farnivorous 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 bettle (*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.

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PORTLAND, OREGON.

Exchange Column.

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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 posionous. 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 agressive 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 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 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.

THE OREGON NATURALIST.

Official Organ North-Western Ornithological Association.

A. B. AVERILL, - EDITOR.

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THE OREGON NATURALIST.

146½ SIXTH ST. Portland, Oregon.

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 eminentiy 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 beeen 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 ORNITHOLOGISTS 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 asssociation, 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 presi lent, 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 know 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 preceeding 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.

NOVEMBER, 1896.

THE OREGON

Vol. III. No. 11.

NATURALIST.

PALESTINE, OREGON.
1896.

Exchange Column.

This Exchange Column is free to all subscribers. All Cash offers for this column must be paid for at the rate of ½ cent per word. Each exchange notice must not exceed 30 words. The right is reserved to reject any notice when considered to be for the best interests of subscribers.

Wanted:—Butterflies and Moths, Cocoons and Chrysalides from Oregon and California in large numbers. Offer Eastern Butterflies, Eggs in sets and supplies. Prof. Carl Braun, Naturalist, Bangor, Me.

WANTED Marine Shells in exchange for Bird skins also want to buy of collectors any or the Murex family. B. J. Bretherton, Newport, Oregon.

WANT good Oregon Arrowheads; have 37 fine single Indiana bird's eggs in case. Some scarce Confederate documents, war relics, fine centipedes and Tarantula in alcohol, all to exchange for fine perfect Oregon points. C. E. Tribbett, Thorntown, Indiana.

Albite, Amblygonite, Clay Stones, Dendrite, Felspar, Graphite, Lepidolite, Mica, Quartz and Tourmaline, to exchange for fine Natural History Specimens. G. H. Brigg, Livermore, Me.

WILL give 50 foreign stamps for every stamp paper sent me. W. Leissring 935 9th. St., Milwaukee, Wis.

TWO philatelic papers or 100 different foreign stamps for a perfect arrow point; 200 different foreign for a perfect spear head. German silver coin, over 800 years old, for perfect grooved ax. Will exchange good foreign for U. S. or Confederate, or pay cash for latter. Address, Dr. W. O. Emery, Crawfordsville, Ind.

FOR EXCHANGE:—War Relics, Indian Relics, Geodes, Crinoid Stems, Worlds Fair Tickets, etc., for Coins, Stamp, Relics, etc. Write. C. F. Alkire, Box 288, Mt. Sterling; Ohio.

FOR EXCHANGE:—Calcareous tufa, petrified moss, crinoid stems and fossils on limestone for the postage. Above and many specimeans to exchange for Indian relics. Cora Jewell, Shannondale, Indiana.

COPIES of Lattin's "Oologist," 2 Roman Coins, Missouri Defense Notes, Indian Arrow Heads, Pipe Stems, Large Bead, Sinkers and Scrapers for Indian Relics. Gettysburg Relics for sale. T. B. Stewart, Lock Haven, Pa.

A fine line of Joplin, Missouri Calcites, Dolomites with Chalcopyrite Crystals, and other minerals, to exchange with advanced collectors from other localities. W. G. Kane, 1706 Harrison St., Kansas City, Mo.

TO EXCHANGE:—Natural History, and Stamp papers, Coins, Stamps, Minerals, Shells, Curios, Eggs, Insects, Relics and Tobacco Tags for Coins, Minerals, Shells, Curios, Eggs and Relics from other localities. R. L. Wheeler, 43 Varney St., Lowell, Mass.

I HAVE a small, but valuable collection of rocks, from Brazil, Canada, S. Islands and U. S., that I will exchange for bird eggs in sets or Indian Relics. C. E. Leonard, Cor. W. 22½ St., Austin, Texas.

50 VAR. of fine U. S. and foriegn stamps for every large Washington cent piece, 2 cent piece or any 3 pence sent me, I will give 2 packages for every silver half dime. Burns J. Cherry, Santa Rosa, Calif.

WANTED:—A 22 cal. rim fire or a 32 central fire, single shot rifle. Condition of rifle not an item. Can offer Invertebrates and Coleoptera. F. P. Browne, 20 Benefit St., Providence, R. I.

PETRIFIED MOSS:—A fine specimen, cabinet size, for 3 good U. S. copper cents or ½ cents prior to 1845, or 3 fine arrowheads. Arthur B. Roberts, Weymouth, Ohio.

WANTED:—Old U. S. stamps. Will exchange Invertebrates, nicely preserved, and Coleoptera in papers for same stamps must be clean and in good condition. F. P. Browne, 20 Benefit St., Providence R. I.

WANTED:—Skins of A. O. U. Nos., 295, 405, 443, 445, 446, 453, 463, 465, 469, 47-a, 479, 484, 503, 511a, 512, 513, 702, 707, 712, and Wrens. Cash or exchange. Enclose stamp. W. E Snyder, Beaver Dam, Wis.

WANTED;—A copy of Coue's Key in good condition. Will give good exchange in Invertebrates and Coleoptra. F. P. Browne, 20 Benefit St., Providence, R. I.

A 1¾ x 2 inch Specimen of Cone in Cone. for each perfect arrow point or good old cent. E. J. Garlock, 1602 20 St., Des Moines, Ia.

A SET of Bookbinders tools and Machinery for a new Columbia or Victor bicycle or compound Microscope, Green Opal unpolished, "Cone in Cone." Fossils. Mexican Onyx unpolished, for showy Petrified Wood. Labridorite, Agates, or any material that is showy polished. John G. Buxton, Milo Center, N. Y

FOR EXCHANGE:—First class singles for good common sets with data, 13, 125, 202, 273 two eggs; 310, 420, 428, 452, two eggs; 461, 493, 507, two eggs; 511, 540, 546, two eggs; 549, 563, 575a, three eggs; 597, 598, 612, 617, 616, 619, 624, 684, six eggs; 703 three eggs; 707, two eggs; 751, four eggs; 755, 761. The above singles all first class. Joe H. Armfield, 358 South Ashe St., Greensboro, N. C.

FOR EXCHANGE:—Have many marine invertebrates, and coleoptera to exchange for same, bird skins or recent publications on invertebrates and the lower vertebrates. Back numbers of Natural History papers wanted. F. P. Browne, 20 Benefit St., Providence, R. I.

— THE —

OREGON NATURALIST.

VOL. III. PALESTINE, OREGON, NOVEMBER, 1896. NO. 11

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 2¼ 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 2½ 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 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 general'y 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 person 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 infects, 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 Sitka 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 demonstated 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 vicinty 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 commerical 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 crystalographically. Both pyramids are perfect and regular but the prisms instead of presenting the usual number of planes show double the number. Crystals of 1½ 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.

TO THE MEMBERS OF THE N. O. A.

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). Northwestern Flicker (Colaptes cafer saturatior) 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 neighborhood, all of which have been partially explored. Right on the highest point of the bluff, where the band 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 peice 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 martins 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, 1½ ounces of fine starch and ½ 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 startch 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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THE OREGON NATURALIST.

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*, "North-west 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 PENNSYLVANNIA 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.

BACK NUMBERS.

The supply of back numbers of the Oregon Naturalist is nearly exhausted. The following numbers can be had at this office. Austin Naturalist, No's 1, 6, 7, of Vol.I at 5 cts. each. Oregon Naturalist, Vol. I No's 3, 4, 5, 7, 8, 9, 10, 11 &12, Vol.II at 5cts. each and No. 6, Vol. II at 10 cts.

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A two or three line advertisement under this heading, twelve insertions, including subscription to the Oregon Naturalist, $1.00. Extra lines twenty-five cents each, payable in advance.

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DECEMBER, 1896.

THE OREGON

Vol. III.

No. 12.

NATURALIST.

PALESTINE, OREGON.
1896.

Exchange Column.

This Exchange Column is free to all subscribers. All Cash offers for this column must be paid for at the rate of ½ cent per word. Each exchange notice must not exceed 30 words. The right is reserved to reject any notice when considered to be for the best interests of subscribers.

Wanted:—Butterflies and Moths, Cocoons and Chrysalides from Oregon and California in large numbers. Offer Eastern Butterflies, Eggs in sets and supplies. Prof. Carl Braun, Naturalist, Bangor, Me.

WANT good Oregon Arrowheads; have 37 fine single Indiana bird's eggs in case. Some scarce Confederate documents, war relics, fine centipedes and Tarantula in alcohol, all to exchange for fine perfect Oregon points. C. E. Tribbett, Thorntown, Indiana.

TWO philatelic papers or 100 different foreign stamps for a perfect arrow point; 200 different foreign for a perfect spear head. German silver coin, over 800 years old, for perfect grooved ax. Will exchange good foreign for U. S. or Confederate, or pay cash for latter. Address, Dr. W. O. Emery, Crawfordsville, Ind.

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TO EXCHANGE for Sets and Singles the Crow Black Bird, and their food. F. E. L. Beal. Food of Woodpeckers, F. E. L. Beal. The Cowbirds, Charles Bendire. The Common Crow of the U. S., Walter B. Barrows, and fine Sets and Singles. Send lists and receive mine. All letters and cards answered. W. J. Wirt, Naturalist, Box 23, Oak Orchard, Orleans Co., N. Y.

TO EXCHNGE:—Vive Camera not used one month, in perfect condition. Wanted pistol, snakes (alive) and Natural History books. R. G. Paine, 1416 R. I. Ave., N. W. Washington, D. C.

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SNAKES! Have you got any you want to get rid of? If so address the undersigned. I want large ones, but small ones will do. Good exchange. R. G. Paine, 1416 R. I. Ave., N. W. Washington, D. C.

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— THE —

OREGON NATURALIST.

VOL. III. PALESTINE, OREGON, DECEMBER, 1896. NO. 12

SOME SLIPPERY ACQUAINTANCES.

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 aud 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 YAMHILL 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 CANADENIS 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 companies of seven or eight in wet boggy localities.

AEGIALITIS 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.

ACGIPITER 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 VILLOSUS 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 seen 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 depriviug 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 PENSILVANICUS. 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 Chicadee. Common. A hardy fellow, cheerful at all times but at his best during a snow storm.

PARUS RUFESCFNS. 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 causaul 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. Variously 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 attractve from the beauty of its plumage and song, is 5¾ 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 poriod 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 troublsome 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 involucres—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 6⅓ inches in length of which the tail measures 2¾ 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 of affection, which also seems to announce a a change of weather, is 'Treef, treef;' 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 though 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 arachnidan, 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 invertbrates 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 posesses 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 preceeding 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 Paridæ.

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.

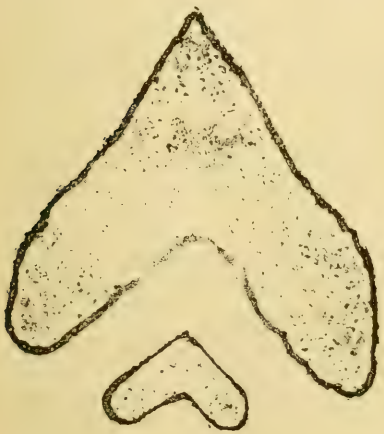
White gophers, squirrels of several species, mink, deer, crows and blackbirds have been taken in Oregon, but we believe this to be the first record for a white chipmunk.

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 (Λ). One of the barbs extends slightly below the other and measure 1 in. x 1¼ in. respectively.



ACTUAL SIZE.

The other specimen is exceedingly small measuring only slightly over ½ 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 archæology.

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 hy the Artic 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.

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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 regard 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.

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