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VOL. XII }

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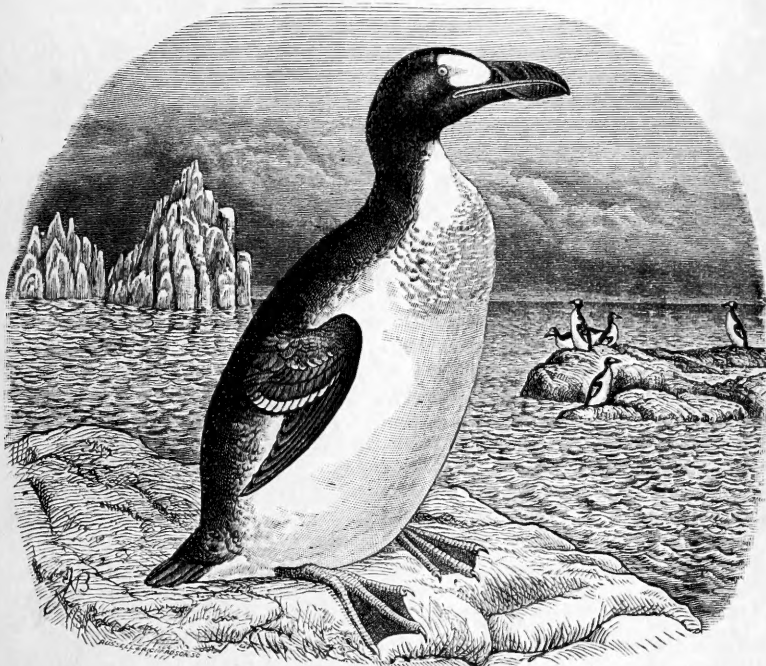
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VOLUME XII

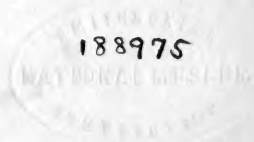
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MILLER, GERRIT SMITH, Jr., Peterboro', N. Y.....	1886
MILLER, HARRY E., Croton Falls, N. Y.....	1892
MILLER, JAMES HENRY, Lowville, N. Y.....	1894
MILLER, Mrs. OLIVE THORNE, 628 Hancock St., Brooklyn, N. Y.....	1887
MILLS, R. WALTER, Webster Groves, Mo.....	1893
MITCHELL, WALTON, 534 Summit Ave., St. Paul, Minn.....	1893
MONTGOMERY, THOMAS H., Jr., West Chester, Pa.....	1891
MOORE, J. PERCY, Univ. of Pa., Philadelphia, Pa.....	1886
MOORE, Dr. H. D., New Lexington, Pa.....	1891
MORCOM, G. FREAN, Opera House Building, Los Angeles, Cala...	1886
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....	1887
MORRIS, ROBERT O., Springfield, Mass.....	1888
MORRISON, GEORGE A., Fox Lake, Wis.....	1891
MORTIMER, BENJAMIN, 391 5th St., S. Brooklyn, N. Y.....	1888
MOULTON, LORENZO EDWARD, Monson, Maine.....	1893
MURDOCH, JOHN, Rock, Mass.....	1883
MURPHY, Prof. EUGENE EDMUND, Athens, Ga.....	1893
NACHTRIEB, Prof. HENRY F., Univ. of Minn., Minneapolis, Minn...	1892
NASH, H. W., Pueblo, Colorado.....	1892
NEAL, HERBERT VINCENT, 2 Shepherd Block, Cambridge, Mass...	1894
NICHOLAS, Rev. GEORGE L., M. D., Medford, Taylor Co., Wisc....	1888
NICHOLS, HOWARD GARDNER, Newton, Mass.....	1892
NICHOLS, J. M., Greene, Maine.....	1890
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NORRIS, GUY BRUNAUGH, Garden City, Kans.....	1894
NORRIS, Rev. JAMES AVERY, Hastings on Hudson, N. Y.....	1894
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NORTON, ARTHUR H., Westbrook, Maine.....	1890
NORTON, ARTHUR HENRY WHITELEY, San Antonio, Texas.....	1894
NORTON, RICHARD, Cambridge, Mass.....	1888
OBERHOLSER, HARRY C., 557 Quincy St., Brooklyn, N. Y.....	1888
OLDFIELD, W. A., Port Sanilac, Mich.....	1891
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ONG, PLUMMER L., Laclede, Mo.....	1888
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PARK, J. T., St. Elmo, Hamilton Co., Tenn.....	1890
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PENNOCK, C. J., Kennett Square, Chester Co., Pa.....	1888
PERKINS, CHARLES E., Hartford, Conn.....	1888
PERNOT, E. A., Granger, Benton Co., Oregon.....	1891
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PLEASANTS, J. H., Jr., 606 Cathedral St., Baltimore, Md.....	1888
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POPE, ARTHUR LAMSON, Sheridan, Oregon.....	1894
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PREBLE, EDWARD A., Dept. of Agriculture, Washington, D. C.....	1892
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PRILL, Dr. A. G., Sodaville, Oregon.....	1890
PRIME, Rev. WENDELL, 38 Park Row, New York City.....	1889
PURDY, JAMES B., Plymouth, Mich.....	1893
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RAUB, Dr. M. W., Lancaster, Pa.....	1890
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RATHBUN, SAMUEL F., Seattle, Wash.....	1893
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REDINGTON, ALFRED P., 23 Second St., San Francisco, Cala.....	1890
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REED, HOWARD S., 1320 Gaylord St., Denver, Colo.....	1894
REISER, Rev. F., Anaheim, Orange Co., Cala.....	1892
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RHOADS, SAMUEL N., Haddonfield, N. J.....	1885
RICE, FRANK L., 47 S. Canal St., Chicago, Ill.....	1886
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RICHMOND, CHARLES W., 190S 9th St., N. W., Washington, D. C....	1888
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RIECKER, ERNST, 900 South 4th St., St. Louis, Mo.....	1888
RIKER, CLARENCE B., Maplewood, N. J.....	1885
RIVES, Dr. WILLIAM C., 113 East 38th St., New York City.....	1885
ROBBINS, WILLIAM A., 178 Garfield Place, Brooklyn, N. Y.....	1888
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ROBERTS, W. F., 1421 G St., N. W., Washington, D. C.....	1888
RODDY, Prof. H. JUSTIN, Millersville, Pa.....	1891
ROOD, Mrs. E. IRENE, 202 Oakwood Boulevard, Chicago, Ill.....	1893
ROOSEVELT, Hon. THEODORE, Oyster Bay, Queens Co., N. Y.....	1888
ROTZELL, Dr. W. E., Narberth, Pa.....	1893
ROWLAND, THOMAS, 182 6th Ave., New York City.....	1890
ROWLEY, JOHN, Jr., Am. Mus. Nat. Hist., New York City.....	1889
ROZYCKI, STEPHEN, Bureau of Steam Engineering, Navy Dept., Washington, D. C.....	1894
RUSSELL, GEORGE C., Erie, Pa.....	1888
RUSSELL, ROY, Kokomo, Indiana.....	1891
RUSSELL, WILLIAM BLACK, Fiskdale, Mass.....	1893
SAGE, HENRY M., Albany, N. Y.....	1885
SARGENT, HARRY B., 366 W. 116th St., New York City.....	1892
SAVAGE, DAVID LEWIS, Salem, Iowa.....	1894
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SCOTT, W. L., 74 Sparks St., Ottawa, Ontario.....	1883
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SCUDDER, BRADFORD A., Taunton, Mass.....	1893
SHARPLESS, ROBERT P., Elgin, Ill.....	1894
SHEARER, AMON R., Wallaceville, Chambers Co., Texas.....	1893
SHEPPARD, EDWIN, Acad. Nat. Sci., Philadelphia, Pa.....	1892
SHERRÄTT, W. J., 263 North 2d St., Philadelphia, Pa.....	1891
SHORES, Dr. E. I., Soldiers' Home, Hampton, Va.....	1883
SHORT, ERNEST H., Chili, N. Y.....	1891
SHRYOCK, WILLIAM A., 823 N. Broad St., Philadelphia, Pa.....	1893
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SKINNER, FRANCIS B., Rockville, Conn.....	1894
SLADE, JOHN A., 1134 Herkimer St., Brooklyn, N. Y.....	1888
SLATER, JAMES HOWE, Webster, Mass.....	1894

SMITH, CLARENCE A., 182 Fifth Avenue, New York City.....	1889
SMITH, HORACE G., 2918 Lafayette St., Denver, Col.....	1888
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STANTON, Prof. J. Y., Bates College, Lewiston, Me.....	1883
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STEERE, JOSEPH H., Sault Ste. Marie, Mich.....	1894
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STREEKER, JOHN KERN, Jr., Waco, Texas.....	1894
STRONG, REUBEN M., Oberlin, Ohio.....	1889
STUDER, JACOB H., 114 Fifth Ave., New York City.....	1888
SURBER, THADDEUS, White Sulphur Springs, West Va.....	1890
SWINBURNE, JOHN, Guernsey, England.....	1887
TALBOT, D. H., Sioux City, Iowa.....	1885
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TAYLOR, TRUMAN R., 200 N. Union St., Rochester, N. Y.....	1892
TEST, FREDERICK CLEVELAND, U. S. Nat. Mus., Washington, D. C.....	1892
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TODD, W. E. CLYDE, Dept. Agriculture, Washington, D. C.....	1890
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TREAT, WILLARD E., East Hartford, Conn.....	1885
TROMBLEY, JEROME, Petersburg, Mich.....	1885
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TROVILLION, DR. E. B., Gold Hill, Colo.....	1893
TUTTLE, DR. CARL, Berlin Heights, Ohio.....	1890
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VAUGHAN, CLIFFORD WHEATON, 47 W. 83d St., New York City.....	1894
VELIE, DR. J. W., St. Joseph, Mich.....	1886
VILARO, DR. JUAN, Havana Univ., Havana, Cuba.....	1888
VOORHEES, CLARK G., 33 W. 42nd St., New York City.....	1888
WALCOTT, ROBERT, 11 Waterhouse St., Cambridge, Mass.....	1893
WALKER, DR. R. L., Carnegie, Pa.....	1888
WALL, EDWARD, San Bernardino, Cala.....	1894
WALTER, HERBERT EUGENE, 402 Center St., Chicago, Ill.....	1894
WARREN, DR. B. H., West Chester, Pa.....	1885
WARREN, OSCAR BIRD, Palmer, Mich.....	1892
WASHBURN, F. L., Corvallis, Oregon.....	1893
WATERS, EDWARD STANLEY, Holyoke, Mass.....	1894
WATKINS, L. WHITNEY, Manchester, Mich.....	1894
WEBSTER, FREDERIC S., 106 E. 23d St., New York City.....	1886
WEBB, WALTER F., Albion, N. Y.....	1891
WEEKS, DAVID FRANKLIN, Portland, Oregon.....	1894
WEIDMAN, JOE, Ames, Iowa.....	1893
WEST, LEWIS H., Roslyn, Queens Co., N. Y.....	1887
WEST, SAMUEL H., Flushing, Queens Co., N. Y.....	1889
WHITE, FRANCIS BEACH, Cambridge, Mass.....	1891
WHITE, STEWART E., Grand Rapids, Mich.....	1890
WHITNEY, Prof. E. R., Binghamton, N. Y.....	1891
WHITAKER, WILLIAM LINCOLN, Cedar Grove, Frankford P. O., Philadelphia, Pa.....	1894
WHOLEY, W. N., 204 Brady Ave., Baltimore, Md.....	1891
WICKHAM, H. H., Beaver, Pa.....	1890
WICKS, M. L., Jr., Los Angeles, Cala.....	1890
WILDE, MARK L. C., Camden, N. J.....	1893
WILLIAMS, DR. HENRY SMITH, 66 W. 84th St., New York City.....	1893
WILLIAMS, J. BICKERTON, 710 Sherbrooke St., Montreal, Can.....	1889
WILLIAMS, ROBERT S., Columbia Falls, Montana.....	1888
WILLIAMS, W. J. B., Holland Patent, N. Y.....	1893
WILSON, WM. EDWARD, 387 Olney St., Providence, R. I.....	1894
WINTLE, ERNEST D., 11 Hospital St., Montreal, Can.....	1887
WOOD, A. H., Painted Post, N. Y.....	1887
WOOD, Mrs. JOSEPH, West Brookfield, Mass.....	1893
WOODRUFF, FRANK M., Acad. Sci., Lincoln Park, Chicago, Ill.....	1894
WOODRUFF, LEWIS B., 14 East 68th St., New York City.....	1886
WOODS, WILLIAM J., State Bank Bldg., Richmond, Va.....	1892

WOODWORTH, MRS. NELLY HART, St. Albans, Vt.....	1894
WORTHEN, CHARLES K., Warsaw, Ill.....	1891
WORTHINGTON, R. B., Dedham, Mass.....	1893
WORTHINGTON, WILLIS W., Shelter Island, Suffolk Co., N. Y.....	1889
WRIGHT, FRANK S., 14 Cayuga St., Auburn, N. Y.....	1894
YORKE, DR. F. HENRY, Hallock, Minn.....	1891
YOUNG, CURTIS CLAY, 63 Greene Ave., Brooklyn, N. Y.....	1891
YOUNG, HENRY LATHROP, Poughkeepsie, N. Y.....	1894
ZWARG, EMIL, Marysville, Cala.....	1893

DECEASED MEMBERS.

ACTIVE MEMBERS.

Date of Death.

BAIRD, SPENCER FULLERTON	Aug. 19, 1887
Goss, N. S.....	March 10, 1891
HOLDER, JOSEPH B.....	Feb. 28, 1888
JEFFRIES, JOHN AMORY.....	March 26, 1892
WHEATON, JOHN M.....	Jan. 28, 1887

HONORARY MEMBERS.

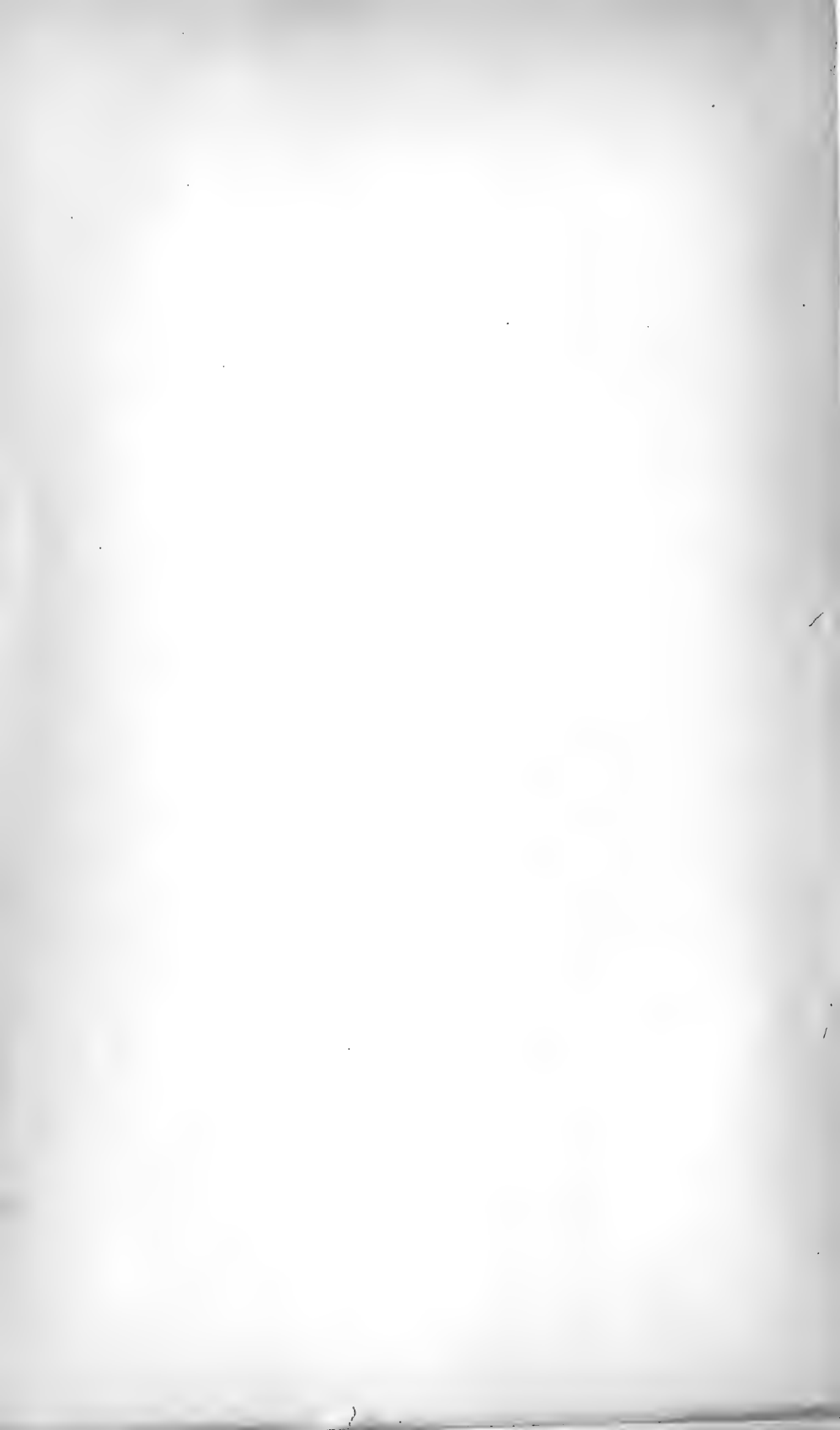
BURMEISTER, HERMANN.....	May 1, 1892
GURNEY, JOHN HENRY.....	April 20, 1890
KRAUS, FERDINAND.....	Sept. 15, 1890
PARKER, WILLIAM KITCHEN.....	July 3, 1890
PELZELN, AUGUST VON.....	Sept. 2, 1891
SCHLEGEL, HERMANN.....	Jan. 17, 1884
TACZANOWSKI, LADISLAS.....	Jan. 17, 1890

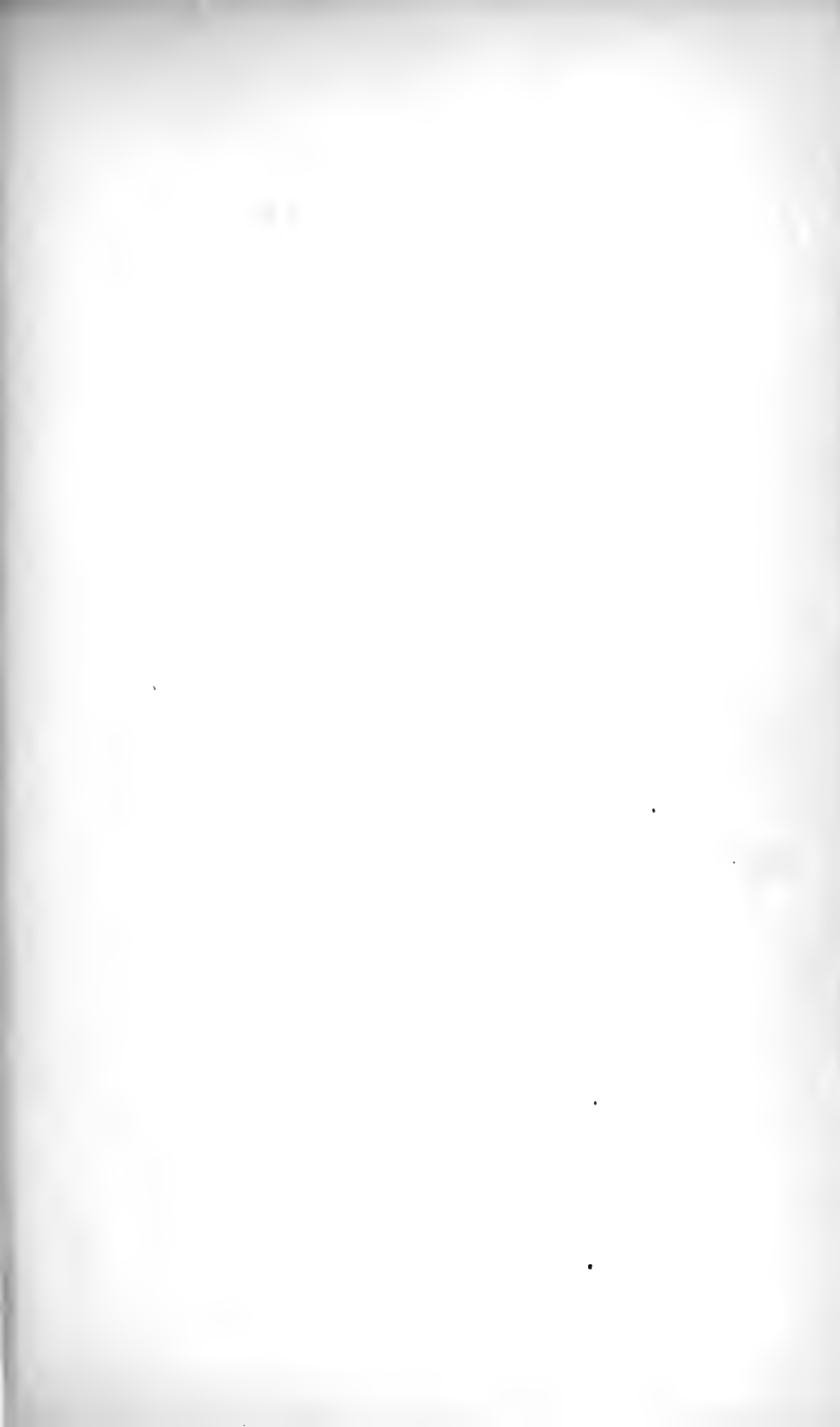
CORRESPONDING MEMBERS.

BALDAMUS, EDUARD, Halle, Germany.....	Oct. 30, 1893
BLAKISTON, THOMAS W.....	Oct. 15, 1891
BOGDANOW, MODEST N.....	March 4, 1888
HAAST, JULIUS VON.....	Aug. 15, 1887
HOMEYER, E. F. VON.....	May 31, 1889
MARSCHALL, A. F.....	Oct. 11, 1887
MIDDENDORFF, ALEXANDER THEODOR VON.....	Jan. 28, 1894
PREJEVALSKI, N. M.....	Oct. 20, 1887
PRYER, HARRY JAMES STOVIN.....	Feb. 17, 1888
SCHRENCK, LEOPOLD VON.....	Jan. 20, 1894
SEVERTZOW, N.....	Feb. 8, 1885
STEVENSON, HENRY.....	Aug. 18, 1888

ASSOCIATE MEMBERS.

ADAMS, CHARLES F.....	May 20, 1893
ALLEN, CHARLES SLOVER.....	Oct. 15, 1893
ATKINS, H. A.....	May 19, 1885
AVERY, WILLIAM CUSHMAN.....	March 11, 1894
BECKHAM, CHARLES WICKLIFFE.....	June 8, 1888
BOLLES, FRANK.....	Jan. 10, 1894
BREESE, WILLIAM L.....	Dec. 7, 1889
CORNING, ERASTUS, JR.....	April 9, 1893
COE, W. W.....	April 26, 1885
ELLIOTT, S. LOWELL.....	Feb. 11, 1889
GOSS, BENJAMIN F.....	July 6, 1893
HOWLAND, JOHN SNOWDON.....	Sept. 19, 1885
JENKS, JOHN W. P.....	Sept. 27, 1894
JOUY, PIERRE LOUIS.....	March 22, 1894
KUMLIEN, THURE.....	Aug. 5, 1888
LINDEN, CHARLES.....	Feb. 3, 1888
MABBETT, GIDEON.....	Aug. 15, 1890
MINOT, HENRY DAVIS.....	Nov. 13, 1890
NORTHROP, JOHN I.....	June 26, 1891
PARK, AUSTIN F.....	Sept 22, 1893
RICHARDSON, JENNESS.....	June 24, 1893
SMALL, EDGAR A.....	April 24, 1884
VENNOR, H. G.....	June 8, 1884
WILLARD, SAMUEL WELLS.....	May 24, 1887
WOOD, WILLIAM.....	Aug. 9, 1885







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NO. I.

A WINTER ROBIN ROOST IN MISSOURI, AND OTHER
ORNITHOLOGICAL NOTES.

BY O. WIDMANN.

I. OCTOBER, 1893.

MR. WILLIAM BREWSTER and Mr. Bradford Torrey made us acquainted with the Robin's summer roost. They tell us that the roosting flights diminish rapidly after the middle of September and that by the end of the first week in October the roosts are practically deserted.

This corresponds to what is going on at the winter roost. As the Robin deserts the former, it appears at the latter, and at the particular roost of which I will speak now, the maximum of frequency is reached by the middle of October, when the roosting birds must be numbered by thousands and, perhaps, tens of thousands.

This roost is situated sixty miles northwest of St. Louis in the northeast corner of Lincoln County, Missouri. It is a wide, open marsh, between King's Lake on the west and the Mississippi River on the east, near to the former, but about two miles from the latter. The ground is highest along King's Lake and lowest

half a mile east of it, where the rain and overflow leave a deep and long slough. The marsh dries up slowly during the summer and in dry seasons the slough may even become nearly or entirely dry in fall.

The higher levels of the marsh are cultivated and, when visiting the ground in October, we may find parts of it sown to wheat while on others corn has been shocked and some of the marsh grass has been made into hay and put up in large stacks.

King's Lake is fringed by a nice growth of trees among which we recognize pinoaks, elms, soft maples, pecans, persimmons, honey locusts, willows and in the fore ground several fine specimens of red haw, covered with scarlet fruit, which together with the adjoining farm buildings make a most picturesque landscape.

The lower parts of the marsh, with the exception of the slough itself, are overgrown with reeds¹ five feet high, bending over in all directions. These reeds are matted into a regular thicket which is not easily penetrated. In the fall the reeds are dry and yellow, some cinnamon and even dark chestnut brown.

It is in these reeds that the Robin finds a safe retreat for the night, sheltered equally well from wind and cold, rain and snow, and comparatively safe from prowling enemies. During the day nothing betrays the roost. Not a Robin is seen in the neighborhood all forenoon and for several hours of the afternoon. An hour or two before sunset a few may arrive and stay in the trees along King's Lake, but nobody would suspect anything extraordinary until half an hour before sunset when the great influx begins.

The new arrivals no more fly to the trees but alight on the ground, some in the wheat field, some in the meadows, some on the corn and hay stacks, but the majority flies directly into the reeds, while the others shift from place to place until they, too, disappear. They do not come in troops like Blackbirds, but the whole air seems for a while to be filled with them, and standing in the marsh, one can easily see that they come from all points of the compass, all aiming toward a certain tract of reeds, a piece

¹ Known in botanical works as fresh-water card-grass (*Spartina cynosuroides* Willd.).

of about forty acres on some of the lowest ground where the last remains of water are now vanishing, leaving heaps of dead and dying fishes in the puddles (mostly dog, cat, and buffalo fishes).

When unmolested the Robins are not long in settling down and out of sight amongst the high and thickly matted reeds, and it is not nearly dark when the last has disappeared and nothing indicates the presence of so many thousand Robins but an occasional clatter, soon to give way to entire silence. If one enters their domain at night, they start with a scold, one by one, and not until one approaches very closely, to drop down again at no great distance.

Associating with them in the roost sleep a goodly number of Rusty Blackbirds, while the Bronzed Grackles keep somewhat apart. They arrive in troops with the last Robins and leave also a little later in the morning.

The Robin leaves its roost with the break of day, in about the same mysterious way in which it came. For a few minutes the whole air is alive with Robins, not in troops or heading in certain directions, but every one seems to follow another route, some moving at moderate heights through the misty air, but the greater number rise rapidly, though with laborious wing, heavy with dew, in order to gain the drier and purer atmosphere above, where they disappear as mere specks in the first rays of the just now rising sun.

Where are they going? The sun is hardly high enough in the sky to throw its soft light on the dew-drops in the marsh when not a single Robin is either heard or seen. Several clouds of Grackles have swept over the marsh with heavy, whistling wing and have disappeared in the distance; the marsh now seems deserted. Silence reigns. The sun's rays are beginning to soften the chilliness of the October air. The Leconte's Sparrow creeps stealthily up to an elevated position to dry its wet dress in the sunshine. Swamp and Song Sparrows leave the reeds to visit the tussocks in the oozy slough. The two Marsh Wrens come out of their retreat for moments to air their tiny wings. Snipes and Pectoral Sandpipers are at work on the softer parts of the slough. Rails sneak from under the decaying leaves of water-plants and the Marsh Hawk has occupied its favorite perch in

the swamp. A few Rusties may still linger in the neighborhood, but no Robin is heard or seen. Where did they all go?

It takes considerable quantities of food to satisfy so many thousands of birds and we should therefore not wonder to find them fifty and more miles away from the roost, visiting certain known feeding grounds or wandering in search of new ones and still return in the evening to the same roost, day by day, for weeks, and some of them even for months.

With the advent of severe winter weather, generally about the middle or last part of November, the great majority leave this northern roost, presumably for another roost in more southern climes,¹ but enough remain in ordinary seasons, such as 1893-94, throughout the winter, to send detachments on foraging expeditions to regions as far away as St. Louis County. Suppose a frosty morning in midwinter, with the sun just rising in its cold splendor, finds us standing in the wooded bottomland on the right bank of the Missouri River, near Crève Cœur Lake, thirty-five miles southeast of the roost. Flickers have just left their sleeping apartments in the high old timber and are gathering on tree-tops to enjoy the first rays of the rising orb. Troops of Red-winged Blackbirds and smaller parties of Cowbirds have passed by, coming from a neighboring roost. The first Crows are appearing on the scene, tired by the uninterrupted flight from the distant roost. It is now ten minutes since the sun is in the sky, when all at a sudden the startling notes of the Robin are heard overhead and a dozen or so alight in the tree-tops to rest a minute or two. While we are yet watching them, a few more are seen coming from the same direction in the northwest and after making things lively for a few moments, calling and chattering, all are gone, proceeding on their tour through St. Louis County. We may meet them again, some time during the day, somewhere along the border of a shallow water or in the recesses of a dilapidated forest, feeding among the debris in company with several kinds of Sparrows, Bluebirds and similar braves who risk their lives to prove the mildness of a Missouri winter.

¹ Since writing the above I have visited, in the last week of October, a very large roost in the flags of Indian Slough, a branch of the St. Francis River, southern Missouri, not far from the Arkansas state line.

Later in the winter, the habits of the Robin change. Those who left this roost return no more in spring. With the very first awakening of spring the old Robin's love for home surroundings no longer allows of his wandering forth and back through the land like an aimless tramp; he no longer finds pleasure or seeks safety in hiding in the swamps like a thief. His only desire is to hurry to his old breeding grounds as fast as vanishing snow and melting ice permit. He braves all dangers and the rigors of late winter weather like a man, content with the all-inspiring company of his devoted spouse.

II. APRIL 12, 1894.

What a transformation has been going on at the site of the Robin's roost! Everything looks changed! The corn-shocks have been removed, the field ploughed and the marsh-grasses, even the flags, have been burnt to the ground. For miles around the level ground looks black and bare. No Robin and no Black-bird could be expected to roost on this charred waste; and it is questionable if any birds at all visit such an uninviting solitude. But let us try; let us go over the entire tract and see if it is really forsaken.

What at first seemed a universally and equally charred plain proves by closer inspection to be a checker-board of tracts, some lately burnt, some, not yet touched by fire, have only been trampled down by grazing animals, and in the region of the slough we find small islands of high and tangled grass, which have been saved from destruction by a belt of moist ground intervening. The winter and early spring have been exceptionally dry; the water in the slough or lake, as it is called where free from plant growth, is very low, nowhere more than six inches deep. There are large mud-flats from which the water is just receding. Adjoining these are zones of mire covered with the remains of withered spatter dock, and these in turn are surrounded by a girdle of partly burnt flags.

But we have not been on the ground long before we detect our error. The marsh is not the dreary void for which we took it. We have hardly reached the old cornfield, lately turned over

to be worked into a new cornfield — if only the Mississippi will be merciful enough to spare it from an untimely flood — when we notice that on and between the large clods everything seems alive with little birds. And how busy they are! Those nearest to us run in stooping attitude as fast as they can long distances down the furrows; the others walk by fits and starts with watchful eye, darting right and left, to pick up the bread and meat which the plow so kindly exposed. Now and then one will fly up into the air, ten or more feet, and with a dexterous turn will overtake a fleeing insect. This is a flock of Titlarks or Pipits, *Anthus pensilvanicus*; perhaps a hundred of the sprightly birds, and as long as they stay with us the marsh will not be the desolate wilderness for which at first we took it. They have a way of enlivening a region in the most interesting manner. They are not always on the ploughed field, and when they leave it and take to wing as if to say good-bye forever, they will shortly be back again and try another piece of ground, the very one which has been charred so recently that the cinders still preserve the shape of the plant of which they formed the frame.

And even if not seen their endearing voice is so often in the air, that we are always cognizant of their presence. Small parties follow us to the mud-flats in the lake and even walk deliberately into the water, up to the belly, to obtain a toothsome morsel from below its surface.

Though belonging to the Wagtail family, the wagging of the tail does not play such a conspicuous rôle as one might suppose. Indeed, it is only performed when its owner is in a sort of excitement, especially when in a state of undecision, where the fluctuations of its mind are expressed in, or at least correspond with, the vacillations of its tail.

The white tail-feathers do not form such a distinguishing feature as they do in Junco, for instance. The white is but little visible when the bird takes wing, but it shows very plainly on alighting, when the fully spread tail-feathers check the force of the descent. The dress they wear this time of the year varies greatly in intensity and in color with the individual. The cinnamon-buff of the lower part is mostly of a yellow cast, but not seldom a decidedly reddish hue. The amount of dark spots

is also greatly differing and some have even a pronounced maxillary line, enclosing a white chin and running down to a black patch in the middle of the breast. Some appear to be really blue above, others decidedly greenish. Their note is a short *tsit-tsilit* and the flight at first a fitful jumping from one side to the other, then undulatory like a Goldfinch's, changing at last to a more protracted rise and fall not unlike a Horned Lark's.

But *Anthus* is not the only inhabitant of the lonely marsh. Sometimes when a flock goes up we hear besides the well-known *tsit-tsilit* another note of abrupt sharpness, which can hardly belong to the gentle Pipit. It must come from a wilder bird, who only frequents the same feeding ground and goes up when they go. It is no less a personage than Smith's Longspur, *Calcarius pictus*, and if we go carefully over the ground we shall soon make its acquaintance. It needs care, because, when alone by themselves, they do not go up as readily as *Anthus*. We may walk right among them and they will not fly up; they only run with lowered head a few yards away from us and squat until we have passed. They use any depression to hide in, and on the low grounds they have not to run far, since nearly every square yard has its crawfish hill.

Upon the slightest indication of their presence we stop and look about us, scrutinizing every foot of ground. Before long, we may see one, two, three or more around us, some with conspicuous white shoulders, light gray and dark, black-striped head and yellowish napes; others without the white on the shoulders, comparatively plain birds, females. There is an obvious similarity of the under parts with that of the Titlark.

They give us plenty of time to look at every one, but as soon as one goes up with its sharp alarm-note, immediately birds are seen to rise from twenty different points around us, go straight and in spirals up above us, all showing in a striking manner the white patches on the under wing-coverts and the white outer tail-feathers; emitting their wild *click*, they hover right above our heads, go higher and higher until they gain an altitude, where even the best field-glass can reach them no more. Though they go high, they do not go far and after a little manœuvring may come down again and settle within half a mile of the spot from where they rose.

But while we are busy watching them, a troop of thirty Golden Plovers sweeps by, low over the marsh, and seeing us, they draw a few wide circles around us in a style which in beauty and precision of execution cannot be surpassed.

When satisfied that all is safe, they alight, all at once, as if moved by a single thought, all at the very same moment, and keep standing close together, all in one bunch, all pointing the head one way, all motionless for several seconds, all eyes fixed upon the suspicious looking intruder. They are most beautiful creatures; the symmetrically shaped body with head, neck, wings, tail and legs, all in the most pleasing harmony of proportions; the large, intelligent, dark eye, set off to best advantage by a pure white curve, half encircling it and running down along the side of the neck; the back reflecting golden light, while the white underparts begin to show dark cloudings, in some few even a black area.

Now they begin to feed, running swiftly over the newly burnt ground, gathering food at every run, when suddenly they spy a large body of others of their kind, coming nearer and nearer, in a long-stretched line, filling the air with a medley of melodious whistles in many different keys — and up they go like a flash to join their passing brothers. The whole troop, perhaps 500 in all, manœuvres now in common and like a regiment of the best drilled soldiers, they perform the most astonishing evolutions in turns and sweeps, now high, now low, now all a flash of brightest gold, then all a streak of silvery white, almost vanishing from view in the distant sky, to return with lightning rapidity so low as to almost touch the ground with the tip of their long, swift pinions.

The marsh is after all not the deserted waste for which it might be taken, and though the April moon rises upon it without throwing the shadow of high and floating grasses upon slumbering Robins and Blackbirds, as it did in fall, its soft light is reflected from many a golden back of north-bound wanderers who need no shelter during night but nestle down upon a lawn-like ground, and, judging from the countless number of white spots that mark their stay, return to their favorite roost for several nights.

And we have not yet visited the slough or lake, as it is called. It is just full of life and the birds there have to-day a holiday.

They seem to feel at home and when disturbed are loath to leave. This out-of-the-way slough is at times a true asylum for the poor hunted game-birds. A few St. Louis business men have acquired the sole right to hunt with the intention to spend the Sundays here a-hunting; but the county officials found it good to enforce the law which forbids shooting on Sundays. The consequence is that the birds have a good time generally and on some days it looks as if it were a veritable paradise for Ducks and Snipes, when they feed unmolested from morn till night.

If we slowly and carefully approach, there will be a little stir among them, but soon all will resume their vocation, especially when the day is cool and birds are hungry. In such weather the Snipes do not lie still but feed all day. See, one walks in the water just in front of us, knee-deep, unmindful of our presence, continually thrusting the long bill into the mud below, immersing the face to the edge of the eye.

A party of Mallards, an equal number of males and females, is swimming in the water, only a hundred yards away. They try to hide behind the spatter dock, the females at least, but the beautiful greenheads will never for a moment turn their watchful eye from us, and if we should make the least suspicious demonstration, all would be up at once.

Six Pectoral Sandpipers, *Tringa maculata*, come with a song, and, after alighting near the edge of the water, make immediately into it and begin to feed, picking at every step.

The slough forms here a small lake, a few inches deep, in fact just deep enough to allow two Yellow-legs, *Totanus flavipes*, to wade all over its midst, while the Pectoral Sandpipers with their shorter legs must remain along its edge. Thus they feed together for hours, if undisturbed, and we have ample opportunity to compare their appearance and behavior. At first sight, their dress seems pretty much alike, but the back of Totanus is finer and darker mottled, and viewed from the side the black wing-tips form a conspicuous patch, completely hiding the white upper tail-coverts, while in *Tringa* the corresponding region shows a white area, formed by the upper and lower tail-coverts. The superciliary in both birds is only obvious when the birds are seen from in front; the face of *Tringa* is more Snipe-like, the bill of Totanus is

darker, longer, straighter. There is no jerking with the head in *Tringa* as in *Totanus*. The former goes up with a Swallow-like note, the latter with a loud whistle, which it sometimes utters while in the water, and not seldom does it stretch its leg or raise its wings straight overhead, to show the pretty lining of that powerful wing which makes him such a wonderfully swift flyer.

As the Yellow-legs go up and fly away from us, the white tail is a striking object and when on wing the long and slender body, with legs sticking way out behind, is a peculiar sight. The white outer tail-feather of *Tringa* is just visible as a white margin and when the bird is speeding through the air it has some resemblance to a Swallow.

The Pectorals, though there are always a few together, seem disposed to be quarrelsome at this season, and frequent bickerings occur, in which they jump up against each other and utter something like bad language.

Following the border of the slough we come upon many solitary Snipes; they go up but do not leave the slough, which is about a mile in length, and has the shape of an S. In the peninsulas formed by the curves of the S the grass and weeds have escaped the fire entirely and remain in their original wilderness. Here is where the Savanna and Swamp Sparrows find a retreat to their liking, and the old Red-winged Blackbird is occupying a perch on one of the few small bushes, in which his last year's nest is still hanging. He declares with wonderful perseverance over and over again that he is the owner of the patch.

A pair of Shovellers, *Spatula clypeata*, fly low over the slough, and, as our eyes follow admiringly the showy birds, we detect a bunch of Blue-winged Teals, which upon nearer approach go up in pairs with a soft, peculiar whistle. Troops of Pipits and Golden Plovers come towards evening to bathe and drink and leave again. On a part of the marsh set aside for pasturage and with the old grass pretty thick in places, a number of small birds spring up and fly a few rods, low over the ground, and drop out of sight. Using a little strategy we succeed in driving one to the border of the slough, where he perches in full view and allows an easy identification: a Leconte Sparrow in high plumage, deep yellow head and neck with almost black stripes and markings in sharp contrast.

Approaching stealthily a small, isolated pool a pair of Baldpates is very much surprised to be so rudely disturbed and starts off with exclamations of genuine disgust.

We leave the marsh and as we near the farm a fine old Marsh Hawk, with azure on his back and a ray of sunset scattered over the breast, is started from a fence post. Traversing a patch of high weeds we are greeted on all sides by farewells of a restless throng of Tree Sparrows, assembled here to fix the day or rather the night for the approaching departure. With the exception of the Red-wings all birds, which we have met to-day, are only transient guests, and another week or two will carry off the last of them to the northward. The scene will then be changed and will be very different from what we saw to-day, since other forms of life will take the places of the departed ones.

ON THE NESTING OF KRIDER'S HAWK (*BUTEO BOREALIS KRIDERI*) IN MINNESOTA.

BY P. B. PEABODY.

THE following notes are based upon three years' observations in a region quite unfavorable to the Red-tails (*Buteo borealis* group), wherein, nevertheless, though I have never seen a *borealis* proper, I have found *krideri* fairly abundant.

The center of this region lies in Steele County, some sixty miles north of the Iowa line. Northward it extends into Rice County, explored, partially, for fifteen miles. To the westward it extends sixty miles into Nicollet County through a well-wooded region, and is practically unexplored. To the east and south of the central point is no timber for miles at all suitable to Buteonine needs.

All this region was originally covered with heavy timber, even far back from the water courses; but the primeval trees are now confined to very small and isolated patches, or to a very few

scattered individuals on steep banks or in deep ravines, along the creeks and rivers. I am hence justified in considering this region unfavorable to the Buteos, yet I have found *B. borealis krideri* fairly abundant, while at no season of the year, though constantly on the watch, have I ever seen a typical *borealis*, or even a specimen that could be considered in the least degree equivocal.

To the southwest of the indicated section lies what may be termed the Heron Lake region. From Mankato, which lies in the timber belt above mentioned, for a distance southward of fourteen miles, I was surprised to find, in an exceptionally well-favored region, no Buteo nests whatever. At Lake Crystal (fourteen miles south of Mankato)—a wooded and watered oasis in the waste of surrounding prairie—I found two pairs of *krideri* breeding. In the vicinity of Heron Lake, a typical prairie region, fifty miles to the south of Lake Crystal and at distances of from one to ten miles from the lake, I have observed some half a dozen specimens of Krider's Hawk; but, in all this region, no examples of *borealis* have been noted. The specimens of *krideri* near Heron Lake undoubtedly breed in the sparse timber along the Des Moines River, whose nearest point to Heron Lake lies about twelve miles away.

At the central point of the Steele County region, four pairs of breeding birds were found; in Nicollet County, one; in Blue Earth County, at Lake Crystal, two. From all these, ten sets of eggs have been taken, eight of which are herein described. All of these nests have come under my personal observation.

SET I.—Owatonna, Rice County, Minn., May 2, 1892. Incubation, two-thirds. Locality, a short, deep, wooded ravine, field girt, one-fourth mile from river. Nest evidently second year in use; of sticks lined with bark strips, grass and adventitious feathers; not large, but deeply cupped, in triple crotch of elm, forty feet up, midway of the large branches. Two eggs: No. 1, rounded oval, 2.26 x 1.86; many very obscure livid patches; large, dull spots of cinnamon, dispersed; spots of darker capping the larger end; very *borealis* like. No. 2, oval, 2.43 x 1.85; a few vague hieroglyphic markings of dull cinnamon, forming a quasi ring at smaller end, thus resembling eggs of *B. swainsoni*. Both birds near nest. Female on nest, and fully identified. The male demonstrative, but shy.

On May 2, 1893, the birds were repairing the above nest, three weeks later than the previous year; but they were driven away or killed.

SET II.—Nicollet Lake, Nicollet County, Minn., May 11, 1892. Incubation, complete. One egg 'pipped,' the other half cast off. Chicks preserved in alcohol. Locality, a heavily wooded island. Nest in a great elm, nearly inaccessible, far out on horizontally spreading branches of a large main bough, at the very top; an old, broad and flat nest, roughly made of large sticks, with hollow, twelve inches in diameter. Lining, fibrous bark, twigs, feathers of small birds. Two eggs: No. 1, oval, 2.27 x 1.28; marbled, chiefly at smaller end, with dull lilac, over-laid with a few spots of dull cinnamon at point; a blotch and a few small spots of dark, dull cinnamon at larger end. No. 2, oval, 2.36 x 1.78; obscurely spotted, over entire surface, with lilac and dull cinnamon, heaviest at larger end, where, a single large, lunate, semi-circling blotch. Both eggs very *lineatus* like. Female on nest. Both birds fully identified, as they slowly circled, close overhead, with loud and repeated screaming.

These birds bred, the following year, in the same locality, and the female, I believe, was taken with her eggs.

SET III.—Owatonna, Rice County, Minn., May 3, 1893. Incubation, advanced. Locality, the side of a long, deep ravine, one-fourth mile from river, one-half mile from nest I. Nest, in small basswood, midway up, in triple vertical crotch, thirty feet from ground; a slight, new nest of small sticks, bark-fiber, and a very little grass. One egg (incubated); elongate oval, 2.50 x 1.84; everywhere obscurely marbled and blotched with exceedingly pale lilac and cinnamon, heavier near and at the larger end. Female on nest. Fortunately secured, winged by a long high shot. Made little resistance when taken alive. Characterized as follows: Length, 21.75 inches; wing, 16; extent, 50. Iris dark hazel; cere plumbeous yellow. Upper parts throughout slightly blanched. Tail very pale red, subterminally and narrowly brown, white-tipped. Upper breast with a patch of chestnut brown on each side at bend of wing (precisely like the markings of a young Black Tern, though of relatively less area). Entire under parts otherwise perfectly white, save for an obsolescent transverse band of blackish brown (consisting of very narrow shaft-lines) between breast and belly; feathers on sides, under the wings, barred with fulvous.

At ordinary gun-range, this bird like all others observed, appeared underneath to be perfectly white.

On April 22, 1894, a pair of birds were at the above described nest and very uneasy. No repairs on nest, which was not visited by me later.

SET IV.—Owatonna, Rice County, Minn., May 3, 1893. Incubation, far advanced. Locality, the very steep, deep, and heavily wooded bank of river, fringing a cultivated plateau. One mile from nest III. A flat, old nest, far out, nearly over the water, on leaning branch of rock maple, sixty feet up. Large sticks. Lining, soft fibrous bark and grass. Female on nest; when the latter was discovered flew away, showing characteristic markings, but made no outcry, and did not return. Three eggs: No. 1, ovate, 2.50 x 1.89 (cracked and addled); largely unmarked; pale cinnamon blotch at smaller end; a cap of similar blotches at apex, over-laid by a very few dark cinnamon spots. No. 2, rounded ovate, 2.45 x 1.87; everywhere, but chiefly at the apex, very delicately marbled with an admixture of pale cinnamon and lilac, beautifully veined with deeper lilac; scattered lilac blotches at smaller end. No. 3, much rounded, ovate, 2.48 x 1.98; largely unmarked, apex capped with blotches of cinnamon lilac which are over-laid with three or four daubs of bright, dark cinnamon. This set thus like eggs of *B. lineatus*. The above nest was unoccupied April 22, 1894.

SET V.—May 6, 1894, Owatonna, Minn. Incubation, three-fourths. Locality, a hillside, on a wild 'quarter section' of timber land three miles east of the river; dense undergrowths of hazel, cherry, and poplar; scattered primeval white and black oaks. Nest, two-thirds the distance up a small black oak-tree, at base of small branches, close to trunk. The original nest had blown or settled outward, and the '94 nest was built on its upper edge, thirty-five feet from ground, of sticks, lined with poplar bark, grass and corn-shucks. Three eggs: No. 1, ovate, 2.49 x 1.87; white, a circle of longitudinal pale cinnamon streaks about larger end, over-laid with a few darker blotches. Scattered spots over the rest of the surface. No. 2, size, shape, color, quite like the above, save that the streaks center at the apex. No. 3, distinctly pyriform, 2.50 x 1.90. Whole surface spattered obscurely, and apex crowned, with spots of cinnamon.

A second nest appears to have been built in 1893 by these birds, in a white oak forty rods away, in a valley near the margin of the woodland. This nest was first seen from the highway in March, 1894.

SET VI.—On April 22 following, the above site was revisited. Nest V was unoccupied, but the female *krideri* was found on the nest above indicated, a slight structure, but little more than half the distance up a rather small, primeval white oak, close to the trunk. The deep hollow was lined with corn-strippings. Distance, fifty feet up. Two eggs: No. 1, remarkably like No. 3 of the preceding, 2.50 x 1.87; rather pear-

shaped than pyriform; the cinnamon spots a little larger and more scattered, thickest, however, at apex. No. 2, attenuate oval, 2.50 x 1.77; scattered spots and scrawls of cinnamon over the entire surface, with a delicate marbled circlet about the smaller end, where, also, a few bright spots.

The kinship between this and the preceding set is very evident. The female remained near the nest, but her mate was for some time invisible. A large blackish hawk (Western Rough-leg?) circling high above, long watched the female, whose mate, as typically colored as herself, presently appeared.

SET VII. — Taken for me at Lake Crystal, Minn., April 30, 1894, in a dense wood bordering a lake. Nest in a fairly large black walnut (a tree quite rare in Minnesota) not half way up, close to the trunk, not large, of coarse sticks, lined with bark-shreds and other fine substances. Identification well established. Incubation, none. Two eggs: No. 1, rounded, ovate, 2.47 x 1.88; white, with a few faint, livid and ferruginous markings. A spirally streaked cap of cinnamon-lilac at small end, the streaks not meeting at point. No. 2, nearly sub-spherical, 2.47 x 1.90. Blotches of lilac tinted with cinnamon, massed at apex. A few scattered spots of the same on remainder of the surface. Thus an exquisitely marked and colored set, the eggs very strikingly unlike.

SET VIII.— On the fifth of May, 1894, I explored the timbered country between Minneopa, near Mankato, and Lake Crystal. Though the region was highly favorable, not a single *Buteo* nest was found. Reaching the lake at nightfall, I passed rapidly through the singularly venerable belt of ancient, gnarled white oaks bordering the lake, and, just before dark, I stood in an open spot two miles from nest VII, at the base of a great isolated white oak, "feathered to the toes," in which, near the top, in a nearly vertical main branch, was a very large nest. After a half dozen raps with my spur, a hawk reluctantly spread her wings and sailed into the darkness. Identification was impossible. A ridiculously easy climb of seventy-five feet, without spurs, revealed, to my chagrin, but a single egg lying in the large nest-hollow, which was lined with bark-strips and a single corn-cob. On the edge of the nest lay the head and shoulders of a striped gopher. The egg proved fresh. June 9, the nest was revisited at daybreak. The female very reluctantly left the nest, and was clearly seen. Both birds moved noisily about. The nest, recently decked with leafy twigs and flecked with down, con-

tained two eggs. The three eggs taken are treated, arbitrarily, as one set.

Three eggs: No. 1 [May 5], fresh, small, ovate, 2.32×1.82 ; white, with bluish tinge. Beautifully painted here and there, chiefly at apex, with small blotches of vinaceous cinnamon, the only egg thus colored and marked in the whole series. No. 2 [June 9], incubation nearly complete. Rounded ovate, 2.33×1.87 ; spotted and specked, mostly near apex, with purplish cinnamon, thus intermediate between 1 and 3. No. 3, nearly oval, 2.34×1.82 ; specks of cinnamon everywhere; at small end a circlet of stippled and marbled cinnamon blotches.

The nest containing these eggs had been occupied for years. It is situated within forty rods of a farm-house. A number of times, I am told, one bird of the pair has been shot, the remaining bird persistently remating and returning. The eggs were taken in 1892 and in 1893. The tenacity of the birds to this particular nest cannot be attributed to lack of eligible sites.

While loath to generalize, especially on mooted points, I am yet very sure that the eggs in the series just considered much more closely resemble in their markings the eggs of *B. lineatus* than they do those of *B. borealis* proper. As to characteristic traits and habits, I have observed nothing whatever to differentiate Krider's Hawk from the species to which it is allied.

I must mention that a careful collector sent me, in 1893, from Nicollet Lake, he having taken previously a set of Krider's Hawk with parent bird, a set of the eggs of typical *borealis*. These eggs are characteristic of the species, and radically unlike any eggs in my series of Krider's Hawk, except one egg of set I. A nest of Buteos, — not *surely borealis*, and certainly not *swainsoni*, — was taken this season near the city of St. Paul. I am confident that these eggs will prove next season to have been those of Krider's Hawk. I am also confident that a more critical search for and study of the Minnesota Buteos will greatly extend the known breeding range of Krider's Hawk, many 'Red-tail' eggs taken in this and adjoining States being, very likely, referable to the subspecies. I shall be very grateful to any collectors in Minnesota, the Dakotas and Manitoba, who may be kind enough, now or hereafter, to send me their notes on *B. borealis*, and any thoroughly sifted and reliable information as to the occurrence and breeding of Krider's Hawk in their vicinity.

THE NEST AND EGGS OF THE OLIVE WARBLER
(*DENDROICA OLIVACEA*).

BY WILLIAM W. PRICE.

THE Olive Warbler, *Dendroica olivacea* (Giraud), is not uncommon in the higher pine-covered mountains of southern Arizona. I met with it during the summer of 1894, in the Huachuca, Chiricahua, Graham, and White Mountains.

My first observation of this species was made on May 22, in the Huachuca Mountains. I was on a ridge at nine thousand feet elevation, in open pine woods, studying a colony of Violet-green Swallows, which had nests in some dead trees. Suddenly an Audubon's Warbler, a male in full spring plumage, darted by me, closely pursued by a smaller orange-headed bird. Just as they had passed me, the smaller bird, which proved to be an adult male Olive Warbler, alighted on a low pine branch and uttered a low, short song. I secured it, and to my delight, held in my hand the first male Olive Warbler I had ever seen. Later in the day, in open pine woods at about the same elevation, I obtained another adult male from among low pine branches, where it was busily searching after insects. On this occasion, I saw no females, and I had reason to believe that with this species migration had just begun.

I next saw the Olive Warbler on June 10, on the summit of the Chiricahua Mountains, at about nine thousand feet. The open pine woods here were very similar to those in the Huachuca Mountains, where I had already taken the bird. On June 14, I secured three specimens, two adult males and a female. The female had evidently laid her set of eggs. I saw several other specimens on that day, all in open woods and all busy searching for insects.

On June 15, in the Chiricahua Mountains, I noticed a pair of Olive Warblers apparently at nest-building. The region was a dry open park, thinly set with young pines (*Pinus jeffreyi*), at between nine and ten thousand feet above the sea. I saw a female, closely followed by a male, fly from a bush of spirea

(*Spirea discolor*) to the top of a small pine, and busy itself on a small horizontal limb partially concealed by pine needles. She soon returned to the spirea, followed by the male, which did not enter the bush but perched on a pine branch near by. The female again flew with a dry flower-stem in her bill, from the bush directly to the pine, where a nest was in process of construction. The male again accompanied her and alighted on a twig, uttering at times a liquid *quirt, quirt, quirt*, in a descending scale. I watched them for over an hour, when they finally disappeared. During this time, the male did not once assist at nest-building, but accompanied the female back and forth. On June 18, I again visited the place and found the female busy at work, but the male was as idle as before.

On June 21, I was fortunate in securing a male and female, and two young Olive Warblers, the latter just able to fly. The adults were feeding the young which were noisy, as most young birds are. This male was not in fully adult plumage and was very similar in coloration to the female.

A few days after, a forest fire drove me from my camp, and it was not until July 1 that I was able to visit the nest. The female was sitting, and when frightened from the nest, kept hovering about, but made no sound. The male did not appear at all. The nest was compactly built and placed on a small horizontal branch, about forty feet from the ground, and about six feet from the top of the tree. The eggs, four in number, were in an advanced state of incubation.

I subsequently found the Olive Warbler both in the Graham and the White Mountains. This latter range is in east-central Arizona, and is apparently the northern limit of distribution of this species.

The body and walls of the nest are composed of rootlets and flower stalks of *Spirea discolor*, and the inner lining consists of fine rootlets and a very small quantity of vegetable down. It is a compactly built structure, measuring about 4 inches in outer diameter by $1\frac{3}{4}$ inches in depth; the inner cup measures 2 inches in width by $1\frac{1}{8}$ inches in depth.

The eggs are ovate in shape, the shell is fine grained and without lustre. The ground color is sage green and the egg is heavily

blotched and spotted, especially about the larger end, with clove and sepia brown, and lighter shades of drab and olive gray. They bear no resemblance to the known eggs of any of our Warblers. They measure .65 by .49, .65 by .49, .65 by .48, and 63 by .48 inches.

A CONTRIBUTION TO THE LIFE HISTORY OF
PORZANA CINEREICEPS LAWRENCE, WITH
CRITICAL NOTES ON SOME
OF ITS ALLIES.

BY CHARLES W. RICHMOND.

DURING a year's rambling in Nicaragua after natural history specimens in general, and birds in particular, I had many opportunities for observing this trim and neatly attired little bird in its home surroundings, not only through its abundance and perfect fearlessness, but also because the conditions favorable to its daily life existed on all sides. Upon landing at Greytown, our party cast about for lodgings convenient to the woods, and shortly decided upon a small house at the edge of town, where we spent the remainder of the day unpacking and arranging our extensive outfit. Next morning, February 1, 1892, the various members of the party sauntered forth to learn something of the surrounding country, and incidentally to collect anything of interest. My walk led me along a narrow, sandy roadway, flanked by impenetrable bushy thickets, with occasional open spaces and marshy spots, and branch paths leading to neighboring haciendas.

My first impressions of tropical bird-life were anything but satisfactory. There was no dearth of birds, but the thickets were so dense that without a machete it would have been impossible to reach them. With a single exception all the birds seen on this occasion belonged to families represented in North America by from six to nearly one hundred species. This scarcity of purely tropical forms was due mainly to the fact that

my trip did not include the heavy forest region, to which such forms are largely confined. Probably the most conspicuous birds noticed were the swarms of small black Seedaters (*Sporophila corvina*) flying back and forth across the road and chasing one another about, all the while chanting in a low, monotonous strain. Small squads of Jew-birds (*Crotophaga sulcirostris*) wandered about in the open places, and occasionally a spiny-tailed *Synallaxis pudica* would announce its presence from a brush pile close at hand. In addition to the absence of birds of bright plumage and strange forms, such common United States species as the Summer Warbler and Catbird conspired to break down my picture of tropical bird-life. Hence I was not a little disappointed with my first experiences. There was a redeeming feature, however, in the great variety of strange bird voices heard on all sides. All of them were perfectly new to me, from the explosive bickerings of a diminutive Flycatcher (*Todirostrum cinereum*) near the roadside, to the long-drawn chucklings of the Ant-thrushes deeper in the thickets.

Passing a small pool on the edge of the thicket I was suddenly startled by aloud *Chir-rr-rr-rr-rr-rr-rr-rr-rr-rr*, uttered in a high-pitched strain, with two or three wavering syllables falling off at the end. Almost at the same instant I caught sight of the author, a small, brown Rail, who walked leisurely and carefully about near the edge of the water, not more than seven feet away, apparently not at all alarmed by my presence. Thinking that, Rail-like, it might disappear at any moment I shot it without making any further observations. It proved to be a male *Porzana cinereiceps* in perfect plumage. At the time, I thought the bird was somewhat out of place, surrounded by dense thickets with sandy roads leading here and there, and the nearest available marsh several hundred yards distant, but subsequent observations proved the bird to inhabit all situations where the necessary marshy places and water occurred, except in the heavy forests. The birds are, however, most partial to the grass-grown banks of the rivers and smaller streams.

The note of alarm, which first drew my attention to the species, is very characteristic and quite unlike the notes of any other birds of the lowlands of eastern Nicaragua. On becoming more

closely acquainted with the bird, I found the approach of any strange object, or sudden movement, or unusual noise was sufficient to call forth this rattling cry. It was apparently not only an alarm note, but one of communication as well. The birds did not appear to inhabit extensive swamps to any great degree, but preferred to follow the margins of the various water-courses, where ample shelter and food supply prevailed. On several occasions in December, I explored a large swamp in the rear of one of the banana plantations on the Escondido River, but did not see any of these birds, although one was heard on one of these excursions, and two old nests were found. To reach this swamp it was necessary to wade through mud knee deep for about three hundred yards, then, after crossing a short interval of water, to plunge at once into the tall grass and among the silico palms and mangroves (or mangrove-like trees), where the water was up to one's shoulders. It was easier in some places to scramble about on the roots of the mangroves above water, but more than enough for comfort, the dead roots would break, and with a tangling of trousers let a bare leg project down into the darkness below — a splendid target for tabobas and alligators. Imagine a collector floundering about in such a swamp, with tall grass and other plant forms rising several feet above the water, obscuring the surrounding country; a dense carpet of dead and decaying vegetable matter covering the surface, making progress in any direction next to impossible, especially with a gun, and withal, a hot, glaring, tropical sun beating down over everything. To these discomforts is to be added another: the sharp-pointed seeds of the grass overhead hanging down in large panicles, ready to drop at the least jar, and during the collector's progress falling in large quantities down his neck and back, causing much irritation. In the interests of truth I must add that neither tabobas nor other snakes were seen on these excursions; nor alligators, although there were said to be many of them inhabiting the place. If any Rails had been lurking in the vicinity at the times of my visits, they would undoubtedly have announced their presence under the influence of the disturbance created.

This species was pretty generally distributed along the water-courses visited by me, and was found to be particularly abundant

on the Escondido River in the vicinity of the 'I. P.' Company's plantation, its supposed greater abundance at this place being due, probably, to the fact that eight months' almost continuous collecting was carried on at this place. It was one of the characteristic birds here, but of course more frequently heard than seen. To take a canoe trip up the river or creek without seeing or hearing several would be a very unusual occurrence. It is possessed of considerable curiosity, and to this failing on its part I owe my series of over twenty specimens. Many more might have been obtained had I known at the time of its rarity in collections. Those collected were obtained more by chance than by systematic search. My plan was, usually, to take them on the return trip. Upon hearing a call from one of these birds, the boat would be allowed to drift slowly down stream, and the time employed in imitating the call, or in squeaking like a young bird, when almost invariably the Rail would appear in plain sight from its retreat in the fringe of grass close to the water's edge. If shot at and missed, the bird would not repeat its call, but 'chip' similar to the birds of the breeding season. Although their search for food usually led them through the thick grass, they were occasionally noted in full view on bare mud banks, within easy reach of shelter, however. One morning in the wet season, during an unusually heavy shower, we heard the call of a *Porzana* above the din produced by the rain falling on the corrugated iron roof of our dwelling, and from a window saw the little fellow running unconcernedly about on the planks constituting our wharf, occasionally hopping up on the gunwales of the dorys moored there, either to satisfy his curiosity or look for something to eat.

This bird rarely takes to flight, and but two or three times in my experience with it did I see it on the wing. It does not always attempt to escape capture by flight, even if hard pressed. One of the Spanish laborers on the plantation brought in a perfectly sound and healthy adult alive, which he had caught in the grass; two days later he caught another, and also a *Porzana exilis vagans* Ridgw., all of which were secured while endeavoring to escape through the grass. The single specimen obtained by Prof. Nutting at Los Sábalo¹, on the San Juan River, was taken

¹ Proc. U. S. Nat. Mus., VI, 1883, p. 408.

in the same manner. Specimens were occasionally found in traps set for small mammals along the river banks. These traps were baited with pieces of almost ripe banana, and unquestionably this fruit enters to some extent into its bill of fare, as it does into that of so many other species frequenting the plantations.

As the birds were found almost exclusively in the rank growth of tall grass on the banks of running streams, it was quite natural to think they should nest in the same places, but this did not prove to be the case.

My first nest was found May 15, and this date, I believe, marks about the commencement of the nesting season for this species. I had gone ashore early in the morning to inspect some traps set the evening before, and was returning through an open space, when a quivering of the grass in front attracted my eye. A short search revealed a globular, rather compactly made nest with an entrance in the side. It contained three eggs, apparently quite fresh. The nest was about a foot and a half from the ground, almost as high as the dense grass supporting it, and was constructed entirely of these grasses, and lined with broad leaves of the same material. The entrance was at the side, and, in this case, facing the river. The location of this nest was a grassy knoll on the edge of a lemon grove, about twenty yards from the river, and was the highest point in the neighborhood, being about forty or fifty feet above the river level. The identity of the proprietor of this nest with the little Rail did not occur to me at the time. I rather had in mind the new Meadowlark described by Mr. Ridgway a few years ago, from the eastern part of Honduras (not so very many miles away), and the resemblance of the eggs to those of a Meadowlark was quite striking. After marking the spot I withdrew, intending to return later for the eggs and get the parent bird if possible. The rainy season had begun about the first of May, and the weather was not all that a collector could desire. However, there was a period of fair weather late in the afternoon, so I went ashore again to look about, visiting a neighboring banana plantation and the lemon grove before mentioned. On this trip I found another nest similar to the one discovered in the morning. It was fully three hundred yards from the river, but adjacent to a ditch which had now become quite a respectable creek. This

nest contained no eggs, but had the appearance of a new one. Two Rails were seen in the vicinity of this nest and I then suspected they might be the proprietors. One of these birds was flushed by a dog which had followed me from a neighboring house, and flew a short distance just above the grass but soon dropped out of sight again. On my return to the river the first nest was again visited, but notwithstanding my cautious approach, a rustling of the grass told of the bird's escape. Early the following morning I approached the nest from the river side in order to command a view of the entrance, and was this time enabled to see the bird make its hasty exit and drop into the grass. There were still only three eggs in the nest, but supposing the bird to be as prolific as other members of its family in the north I left them undisturbed, hoping to return for them later. That afternoon we sailed up the river to the 'I. P.' plantation, where, in the course of several months a number of additional nests were found. Here the birds were very common, especially so along a large creek which followed a tortuous path through the plantation and entered the river at this point.

May 30 a nest was found containing five well incubated eggs. It was a grassy affair shaped like that of a Marsh Wren, but slightly larger, and lined with bits of broad-leaved grass. It was inhabited by a colony of stinging ants and was not saved. This nest was situated in a neglected, grass-grown part of the plantation, where the bananas had been to a large extent choked out. I did not see the bird leave the nest, but its 'chip' of disapproval was heard from the grass close by, and the eggs had evidently just been deserted. Thinking it might return to the nest I withdrew a short distance and stood for fully twenty minutes or more, but during this time the bird showed no disposition to revisit the nest. The 'chip' was repeated at short intervals, and from the indication of the sounds it appeared that the bird was moving about in various directions.

On July 18, after an all-day rain, I embraced the opportunity to take a short tramp through the plantation, late in the afternoon. On this occasion I found a nest of the *Porzana* close to a decaying log. It was, as usual, about a foot from the ground, but in the grass among the banana plants, differing in this last respect from

those found previously, which were in the open. I came upon this nest so suddenly that I was enabled to see the bird, as it hastily took its departure, run under the log. A few short squeaks on my part sufficed to bring the bird (or its mate, possibly,) out into plain sight. After shooting this one, which proved to be a male, another bird was heard chipping in the same place, but the most earnest squeaking failed to draw it out of hiding. The nest contained five eggs within a day or two of hatching. The last nest found by me was on August 26. This contained three somewhat incubated eggs. In construction and location it agreed very well with the others.

It did not occur to me at first why these birds located their nests on the higher ground, away from their usual haunts, but in July, at the height of the rainy season, we became accustomed to almost weekly floods in the river, the water sometimes rising fifteen or more feet in a single night. The Rails had learned the lesson of the floods and had placed their nests on high ground. Nests of the 'Red-rump' or 'Soldier-bird' (*Ramphocelus passerinii*) were occasionally found in the tall grass near the water, and these nests must necessarily have been destroyed by the first flood, but, while the Rails lived on the water's edge and knew the limit of high water, the Soldier-birds passed their time in the plantations and were less experienced in this respect. In flood time it was not unusual to find, some morning, that the quiet river of the night before had become a raging torrent, carrying uprooted trees, banana plants, huge mahogany logs, fugitive canoes, and everything that happened to be in its path, on to the sea. The current carried an unbroken string of smaller debris, composed of vines, bark, sticks, thousands of 'sea beans,' and other products of the forests, while each floating mass contained its freight of ants, spiders, tree frogs, and other forms of life.

The first immature bird seen was on June 22, when a full grown one was taken. Two days later a young one in the down was secured, and from this date on until September the young and immature birds were seen quite frequently. On the morning of July 20 while paddling up the creek, a 'chip' which I had learned to associate with the breeding birds attracted my attention, and on the bank close by saw an old bird accompanied by four downy

young only a few days old. The birds were walking gingerly about over a mat of dead grass and drift that had become lodged in a bend of the creek. With my advent upon the scene the parent manifested some little concern and sought shelter in a dense growth of bamboo close at hand from whence it tried to persuade the young to follow, but before they had fully made up their minds to do so I secured two of them, and might have obtained all had not the refractory nature of my dory prevented. These young birds uttered a subdued peeping note, similar to that of a young chicken. Both the adult and the young had a habit of thrusting the head and neck in various directions, after the manner of a Pigeon, as if to obtain a better view of their surroundings.

The eggs of this species resemble very much in color those of the Virginia Rail (*Rallus virginianus*). They are pale creamy or buffy white with a slight gloss, spotted rather sparingly, but more thickly at the large end, with cinnamon-rufus and lavender. The longest egg in a series of twelve is 1.13 by 0.82 inches, the shortest 1.07 by 0.82 inches; the average is 1.09 by 0.83 inches. The nests are placed in the grass, about one foot from the ground, and are situated on ground above the normal high water mark. The breeding season extends from May to September, or during the rainy season, as far as my observations go. The full complement of eggs is from three to five.

The following note¹ on the egg of *Porzana albigularis*, a closely allied species, may be of interest: "Pale buff-white, sparsely spotted with small red spots, axis 1.1, diam. .9"; followed by a note by the collector, T. K. Salmon: "The nest is made of grass stalks and bents, and is round, with a side entrance, and placed amongst high grass and bushes in low swampy places, about two feet above the ground or water.—T. K. S."

In addition to the above notes on the habits, nests, and eggs of *Porzana cinereiceps*, the following descriptions and synonymy are added, with critical notes on other related species, and those of doubtful status.

An adult male (U. S. National Museum, No. 126286, Greytown,

¹ Sci. and Salv., P. Z. S., 1879, p. 546.

Nicaragua, Feb. 1, 1892, C. W. R.) agrees with the subjoined description:—

Back, scapulars, and wing-coverts, light bistre, passing gradually into clove brown on the rump and upper tail-coverts; tail and tertials almost black; primaries and secondaries similar to the back but slightly darker; under wing-coverts and axillars white, spotted somewhat obscurely with dusky, most pronounced at bend of wing and on under primary coverts. Top of head, including lores, cheeks, and malar region, slate gray; the brown of the back encroaching on the gray of the nape, and extending forward on the crown to a point almost between the eyes; throat dull white, varied on sides with pale vinaceous-cinnamon; breast vinaceous-cinnamon along median line, passing laterally into deep chestnut, darkest on sides of lower breast and on sides of neck, this color almost continuous over back of neck, there being only a narrow and indistinct dorsal line of bistre separating it; rest of lower parts white, barred with black, these black bars broadest and most conspicuous on the sides bordering the chestnut of the breast, becoming narrower towards the median line, and below on the flanks and under tail-coverts; tibia with still narrower blackish bars; some feathers of the under tail-coverts faintly tinged with chestnut; abdomen along median line white, without bars. Culmen, .70; wing, 2.82; tarsus, 1.10 inches. Iris, carmine; feet and legs, olive; bill, with a triangular apple green spot at base.

The above description will answer in a measure for all adults of this species, but individual variation is exhibited to a considerable degree, and it may be well to mention the chief differences. The most striking variation, perhaps, is in the amount of unmarked white on the breast and abdomen. In some examples this is very conspicuous, the white extending uninterruptedly from the throat to the lower tail-coverts, including the tibia. This feature appears to be due to age, and is to be noticed in specimens that have recently assumed the adult plumage. The type of *Porzana leucogastra* Ridgw. is one of this class. The several variations here mentioned, while to some extent to be accounted for by age, sex or season, are largely individual. A male bird shot July 18 is unusually white below. The head is dull gray, and there are traces of chestnut spots on one wing. It was one of the parents of a nest and five eggs.

The gray of the head is another character apparently dependent on the age of the bird, and is clearest and of greatest extent in the oldest birds. One apparently old adult, however, is without the gray on the head, this color being replaced by the umber

brown of more immature birds. In the younger adults the gray of the forehead, ear coverts, etc., is usually dull and much restricted, and sometimes entirely absent. The barring of the underparts varies considerably in different individuals, both in the width of the white interspaces and in the intensity of the black bars, but this is largely due to the condition of the plumage — whether fresh, or worn and faded — and is of little value for purposes of comparison. *Porzana alfari* Ridgw. is a specimen in fresh plumage without any line of unmarked white on the abdomen, but with deep black bars and narrow white interspaces. Two specimens of *P. albigularis* (Lawr.) in the National Museum Collection are, on the other hand, barred with dull brownish black, and at first sight appear to be quite distinct from the above specimen. A third example of *P. albigularis* from Frijole Station, Panama R. R., is heavily barred below with deep black, but the white interspaces are wider than in the specimen of *P. alfari*, otherwise it matches the latter very closely.

As to markings or bars on the wings, these may be due to sex; at any rate, in *P. cinereiceps* the two most strongly barred ones examined by me are females. These two birds have the lesser and middle wing-coverts well barred with white; some of the feathers have two bars, others only one; the feathers thus barred are almost black, and give the bird the appearance of having a black shoulder, barred with white. In a male of this species there are traces of white bars edged with chestnut on one wing, but no signs of bars on the other. Two other males have distinct spots of chestnut on the lesser and middle coverts. Of four specimens of *P. albigularis*, one has a few chestnut spots on each wing; one has slight chestnut spots on both sides, and a trace of white bars on one side; the third and fourth have both white and chestnut bars, without spots. In one of the latter examples (sex unknown), the barred feathers are not darker than usual. The specimen of *P. alfari* is entirely without bars of white, or chestnut spots.

A specimen of *P. melanophaia* (Vieill.) from Bahia has white bars on each wing. In a note on *Porzana albigularis* Messrs. Sclater and Salvin¹ write: "In these figures it will be noticed

¹ Exotic Ornithology, VII, 1868, p. 109, pl. lv.

that the wings are wholly unspotted, but it should be stated that one of the Panama skins shows black and white bars on the greater and lesser wing-coverts, and that a second has some traces of the same character. These markings would, however, probably disappear in the adult bird." In the birds examined by me it appears that immaturity cannot account for the presence of the wing bars, and two immature males before me are without any trace of them. It is probable, therefore, that age has nothing to do with this marking.

The under tail-coverts of *P. cinereiceps* are sometimes slightly tinged with rufous, thus showing its close relation to *P. melanophaia* of Brazil. One of the National Museum skins of *P. albigularis* also shows a trace of rufous on the under tail-coverts.

There is a slight difference in size between the sexes of *Porzana cinereiceps* which may be seen from the following table:—

Males:	Culmen.	Wing.	Tarsus.
	.70	2.82	1.10
	.73	2.90	1.26
	.71	2.85	1.21
	.71	2.83	1.17
	.71	2.95	1.19
	.65	2.75	1.10
	.70	2.95	1.19
	.70	—	1.15
	.75	2.83	1.19
	.70	2.75	1.20

Longest culmen, .75; longest wing, 2.95; longest tarsus, 1.26.

Shortest culmen, .65; shortest wing, 2.75; shortest tarsus, 1.10.

Average culmen, .70; average wing, 2.85; average tarsus, 1.17.

Females:	Culmen.	Wing.	Tarsus.
	.63	2.90	1.12
	.63	2.67	1.02
	.70	2.80	1.11
	.70	2.87	1.16
	.66	2.84	1.15
	.64	2.92	1.15
	.65	—	1.11

Longest culmen, .70; longest wing, 2.92; longest tarsus, 1.16.

Shortest culmen, .63; shortest wing, 2.67; shortest tarsus, 1.02.

Average culmen, .66; average wing, 2.83; average tarsus, 1.12.

The immature *P. cinereiceps* may be described as follows :—

(♂ im., U. S. National Museum, No. 128392, Escondido R., Nicaragua, Sept. 2, 1892, C. W. R.) Back, clove brown; rump, upper tail-coverts and tail, black; cervix, bistre, indistinctly edged with clove brown; pileum, smoke gray, edged with clove brown; cheeks, supra-auricular region, lores and sides of neck, light gray, rather broadly edged with a darker shade, giving to these parts a somewhat checkered appearance; throat, white, with the feathers of the sides narrowly tipped with dusky gray; breast dull grayish white, darker smoke gray on sides, the feathers with blackish tips, and an occasional chestnut feather; sides of neck similar, with individual chestnut feathers here and there; wings, similar to those of the adult but slightly darker; abdomen, white along median line, indistinctly barred with dusky black; sides, dull brownish black, narrowly barred with dull white, these bars nearly obsolete on flanks; tibia, smoke gray, with almost obsolete light bars; under tail-coverts dusky black with white bars. Wing, 2.90; culmen, .68; tail, 1.20; tarsus, 1.20 inches. Iris dark brown.

A young bird just leaving the downy stage (U. S. National Museum, No. 127052, ♀ juv., Escondido R., Nicaragua, June 24, 1892, C. W. R.) is shiny greenish black, duller below, with a grayish tinge on the abdomen. Feathers of the immature plumage are making their appearance in patches in various places. In this stage the breast is gray, the feathers broadly edged with dull black; abdomen similar, with a buffy wash; tibia drab gray; no white bars apparent anywhere on the under parts.

I am unable to say how long the birds remain in immature plumage before donning that of the adult, but as no immature birds were noted during the early spring months, it seems reasonable to suppose that they make the change sometime during the winter.

Moult appears to take place slowly. Two specimens taken September 8 possess half-grown new primaries, and pin feathers occur on various parts of the body. Other birds in moulting condition were taken May 20, July 18, etc., showing it to extend over several months. It is probable that, in common with most other species of this region, the moult takes place during the rainy season,—from May to December.

As to the status of *Porzana leucogastra* Ridgw., and *P. alfari* Ridgw., I think there can be no doubt that the former should be placed under *P. cinereiceps*. As to *P. alfari*, it is very difficult to attempt a satisfactory disposition of the single specimen. Its brown head would indicate a position under *P. albigularis*, but

there are slight traces of gray on the lores, auriculars, and under the eyes, so that it may be after all only a *P. cinereiceps* without the normal amount of gray on the head. The locality of its capture, Las Trojas, Costa Rica, is, as I am informed by Mr. Geo. K. Cherrie, near San Mateo, in the neighborhood of the Gulf of Nicoya, on the Pacific coast. It is, then, nearer (if not actually within) the habitat of *P. cinereiceps* than of *P. albigularis*. An examination of the bird without reference to its locality would lead one to place it with *P. albigularis*, from its apparently adult plumage (*i. e.*, brown head combined with heavy black-barred underparts), rather than with *P. cinereiceps*, although, as before stated, some apparently old adults of the latter species have very little gray on the head, while as a rule the younger ones combine this character with very light underparts.

In the synonymy at the end of this paper I have placed the references to this bird under *P. cinereiceps*.

Dr. R. Bowdler Sharpe¹ considers *Porzana cinereiceps* to be only a subspecies of *P. albigularis*, and so it may finally prove to be, but before this point can be settled, it will be necessary to examine birds from the region between Panama and Costa Rica, and such material is not at present to be had. It may be said here that the type of *P. cinereiceps*, collected by Prof. W. M. Gabb, and said to be from Talamanca, Costa Rica, is identical with some specimens from the Escondido River, Nicaragua, and is, in fact, *typical* of *P. cinereiceps*, although Talamanca is not so very far from Chiriqui and Veragua, where the other species or intermediates might be expected to occur.

The synonymy of *Porzana cinereiceps* is so mixed up with that of *P. albigularis* that it may be well to give a tolerably complete list of references to each, which will be found below.

Porzana albigularis (Lawr.).

Corethrura albigularis LAWR. Ann. Lyc. N. Y. VII, 1861, p. 302 [Panama].—SCL. & SALV. P. Z. S. 1864, p. 372 (part).

Porzana albigularis SCL. & SALV. Ex. Orn. 1868, p. 109, pl. 55 (part); P. Z. S. 1868, p. 454 (part); N. Av. Neotrop. 1873, p. 140 (part); P. Z. S.

¹ Cat. Bds. B. M., XXIII, 1894, p. 337.

1879, p. 546 [*Remedios, Colombia*]. — RIDGW. Proc. U. S. Nat. Mus. IV, 1881, p. 201 (part); *ibid.*, VI, 1883, p. 409 (note); *ibid.*, X, 1887, p. 111.

Aramides (Laterallus) albigularis G. R. GRAY, Hand-List Bds. 1871, p. 61, no. 10,442 (part).

Creciscus albigularis SHARPE, Cat. Bds. B. M. XXIII, 1894, p. 140 (part).

Porzana cinereiceps Lawr.

Corethrura albigularis SCL. & SALV. P. Z. S. 1864, p. 372 (part).

Porzana albigularis SCL. & SALV. P. Z. S. 1867, p. 280 [*Bluefields River, Nic.*]; Ex. Orn. 1868, p. 109 (part); P. Z. S. 1868, p. 454 (part). — LAWR. Ann. Lyc. N. Y. 1868, p. 142 [*Gulf Nicoya, C. R.*]. — SCL. & SALV. N. Av. Neotrop. 1873, p. 140 (part). — RIDGW. Proc. U. S. Nat. Mus. IV, 1881, p. 201 (part). — ZELEDON, Proc. U. S. Nat. Mus. VIII, 1885, p. 114; An. Mus. Nac. C. R. I, 1887, p. 131.

Aramides (Laterallus) albigularis G. R. GRAY, Hand-List Bds. 1871, p. 61, no. 10,442 (part).

Creciscus albigularis SHARPE, Cat. Bds. B. M. XXIII, 1894, p. 140, (part).

Porzana cinereiceps LAWR. Ann. Lyc. N. Y. XI, 1875, p. 90 [*Talamanca, C. R.*]. — RIDGW. Proc. U. S. Nat. Mus. I, 1878, p. 252; *ibid.*, VI, 1883, p. 409; *ibid.*, X, 1887, p. 111. — ZELEDON, Proc. U. S. Nat. Mus. VIII, 1885, p. 114; An. Mus. Nac. C. R. I, 1887, p. 131 [*Pacuare, C. R.*]. — RICHM. Proc. U. S. Nat. Mus. XVI, 1893, p. 528 [*Rio Frio, C. R.*; *Greytown*, and *Escondido R., Nic.*].

Creciscus cinereiceps SHARPE, Cat. Bds. B. M. XXIII, 1894, p. 141 (note), p. 337.

Porzana leucogastra RIDGW. Proc. U. S. Nat. Mus. VI, 1883, p. 408 [*Los Sábalo, Nic.*]; *ibid.*, X, 1887, p. 111.

Creciscus leucogaster SHARPE, Cat. Bds. B. M. XXIII, 1894, p. 140 (note).

Porzana alfari RIDGW. Proc. U. S. Nat. Mus. X, 1887, p. 111 [*Las Trojas, C. R.*]. — ZELEDON, An. Mus. Nac. C. R. I, 1887, p. 131.

Creciscus alfara SHARPE, Cat. Bds. B. M. XXIII, 1894, p. 141 (note).

THE TERNS OF MUSKEGET ISLAND, MASSACHUSETTS.

BY GEORGE H. MACKAY.

MUSKEGET ISLAND lies south of Cape Cod, and is situated in the southern portion of Nantucket Sound. It is about five miles southeast of Martha's Vineyard, and forms the westernmost of the

group of which Nantucket and Tuckernuck are a part. Its first recorded transfer that I am aware of, subsequent to the original deed of Lord Sterling in 1641, to Thomas Mayhew and his son Thomas, is in an old deed dated July 20, 1692, wherein it is described as "Mooskei-a-kit, the westernmost of the islands commonly called Sturgeon Islands," and conveyed by Matthew Mayhew of Martha's Vineyard to six men. These, on February 20, 1693, deeded one-seventh to still another, making him an equal partner, he having originally joined them in the purchase, but his name does not appear in the deed from Mayhew. Each had equal undivided rights in the whole island. This undivided condition exists up to the present time. Two hundred years has, however, so obliterated its ownership that the recorded evidence of title at this time only shows three twenty-eighths. Two of these are the property of a certain shooting club, the other belongs to the writer.

The island is scarcely more than a large sand shoal, portions of which are annually changing, owing to the action of the ocean, which some years ago severed it in two places on the south and west sides, thus forming two other small islands (Adams and South Point Island or Shoal) in addition to the present main island called Muskeget. These all come under the head of and are a part of Muskeget Island. The adjacent waters are very shallow, in a portion of which the eel-grass (*Zostera marina*) grows abundantly, where the pipe fish (*Siphonostoma fuscum*) makes its habitat, and on which the Terns depend to a considerable extent for food. According to Prof. N. S. Shaler (Geology of Nantucket) Muskeget Island is a postglacial deposit, being composed entirely of sand. Consequently there is but little verdure, running ivy (*Rhus radicans*) and sand reed or beach grass (*Ammophila arundinacea*) predominating. Here and there are clumps of beach plum bushes (*Prunus maritima*), which constitute the loftiest foliage of the island. Mosses and lichens are noticeable, — *Usnea barbata*, *Cladonia rangiferina*, *Cladonia boryi*, and *Cladonia cristatella*.¹

The main island of Muskeget runs east by south and west by north. It is about one mile and a quarter long (not including the

¹ I am indebted to Miss M. E. Carter of the Boston Society of Natural History for the identification of the above.

strip of sand known as South Point), and a little over a quarter of a mile wide at its greatest width, narrowing to a few hundred feet towards the western end. According to local testimony it was formerly of greater extent. Its greatest elevation is apparently not over a dozen feet above the surrounding water. Its surface is wind riven and undulating. There are about a dozen shanties on the main island, and a few on Adams Island, which are used at infrequent intervals by shooting and fishing parties; otherwise it is uninhabited. In close proximity on the south is Gravelly Island, and outside of all on the southwest is the South Beach, which serves as a barrier to the ocean on this side.

As it is of the Terns breeding on these smaller islands (Adams Island excepted), and also on what is now called Muskeget Island proper, that I propose to speak, I have deemed it advisable to particularize them, as I shall later on have occasion to refer to each island separately.

The Terns which frequent and become domiciled in this locality are Wilson's (*Sterna hirundo*), the Roseate (*Sterna dougalli*), Arctic (*Sterna paradisæa*), and a few Least (*Sterna antillarum*). To see them all here on their breeding grounds, the most extensive on this coast, in such countless numbers that estimates of them are vain, together with the thousands of their nests and eggs, cannot fail to create in the mind of the ornithological student a profound and most lasting impression. It is the first two of these species to which I would particularly call attention. Since the earliest recollection, they have been returning year after year to Muskeget to breed, and it is here that I have especially observed them. My attention the present year has been more than usually directed to them from the fact that a vigorous effort had been made by a number of the inhabitants of the adjacent islands, Nantucket and Tuckernuck, especially the latter, to obtain a repeal of the present law for their protection, in order to give these people the right to take the eggs for *food purposes* during the month of June (the breeding period). Having taken an active part with some friends in the birds' defense, the objectionable petition was not granted, and the satisfaction I have taken the past summer in seeing the results amply compensates me for the part I took in the matter; for they have not been so numerous or in so flourishing a condition, nor their eggs so abundant for many years.

As far as I am aware *Sterna hirundo* and *S. dougalli* first make their appearance in Muskeget waters any time after the first week in May, and they are remarkably constant in the time of appearing. In 1892 they arrived on May 10, in flocks of fifty or more, drifting sideways before a heavy southeast rain-storm. In 1893 they arrived on May 8, with light air from the west-northwest and clear weather. Twenty were first observed hovering over South Point, Muskeget Island, very high in the air; about five o'clock P. M. two were observed to come quite low down. The next day they were arriving in considerable numbers, flying high during the day time and settling down after sunset. The weather was clear with a light southwest wind. On the 10th, at sunrise, the Wilson's and Roseate Terns were rising in very large numbers from the northern-middle part of Muskeget proper, the weather being clear with a strong southwest wind. On the 11th they continued to increase; there was a strong southwest gale during the night, dying out in the forenoon. On May 19, 1893, I took a walk over Muskeget proper to ascertain how they were laying, as I also did the next day over Gravelly Island, Mr. John R. Sandsbury, who was charged with seeing that the law is maintained in regard to the birds and eggs, being with me. I did not visit South Point, nor South Point Island. On Muskeget proper we found 238 nests, 9 of which contained one egg each; 121 had two eggs each; 94 three eggs each; 10 four eggs each; and 4 five eggs each. On Gravelly Island we found 145 nests, 5 of which contained one egg each; 59 two eggs each; 74 three eggs each; and 7 contained four each. No nest with five eggs was observed. The birds here were mostly Roseates; those on Muskeget proper were largely Wilson's, with a good many Roseates among them. On Gravelly Island there is an unoccupied house and I found one nest of three eggs within eighteen feet, and another also containing three eggs within fifty-one feet of it. Only eight chicks and two chipped eggs were observed.

As a rule there was no regularity in the way the eggs rested in the nests. Of those containing three eggs the larger percentage seemed to be two eggs with the smaller ends towards the centre of the nest, the other lying crosswise. I found considerable

variation in color, size, shape and markings of the eggs, and I failed to detect any constant feature whereby they could be invariably distinguished.

I visited Muskeget again on July 3, and with a friend walked over the same ground that I did on June 20. I found about eighty-five per cent. of all the eggs hatched, and the chicks running about everywhere. I took from the mouth of a chick, from which it was protruding, a pipe fish (*Siphonostoma fuscum*)¹ four inches long. The bird was still too young to leave the nest. They also eat a kind of sea-worm, round in shape and of irregular diameter, and about four inches in length, resembling an earth-worm. I regret that the only specimen which I saved was destroyed before identification. It was probably "one of the Sipunculoids, *Phascolosoma* sp.?" The old birds remain until incubation is over and the young are able to fly and care for themselves, when some of them leave, others remain in these waters until the middle of October. On October 9, 1893, large numbers were observed resting on the water in detached groups of a dozen to thirty or forty birds, extending from Tuckernuck Shoals to East Chop, Martha's Vineyard. On the 16th the same thing was again noted. They were probably preparing to migrate. At such times they collect on the sand bars and points until a large number are together, when they all rise and continue to circle, going higher and higher until lost to view.

I have heard of but two instances of these Terns being captured here during the winter; namely, on February 20, 1891, Mr. Vinal N. Edwards shot a Wilson's Tern in immature plumage, in Woods Hole harbor, Mass., the only one seen at the time. Again at the same place on January 17, 1894, he shot another, which had been frequenting the harbor for about a week previous. The skin of this bird is now in the U. S. Fish Commission collection, Woods Hole, Mass.; that of the former I think is in the Smithsonian collection, Washington. They are not often seen resting on the water, preferring to rest on their breeding ground on the upland or on the sand beaches and bars, or occasionally on

¹I am indebted to Mr. Samuel Henshaw of the Boston Society of Natural History for the identification.

buoys, stakes, etc. They especially delight to be in the air. Their plumage is immaculate, for they are constantly washing themselves. I have yet to see one with soiled plumage. When fishing they arrest their flight suddenly, and maintaining their poise with repeated movements of the wings, look sharply for their finny prey beneath the surface of the water. When it is perceived, the wings are quickly closed, and with a rapid rush they dart headlong from their elevated position into the water, completely immersing themselves, if the fish is sufficiently deep to render it necessary. They reappear almost immediately with the fish held crosswise in the bill, and with a shake of their feathers continue on their way. Their principal food appears to consist of small fry, as lance, pipe fish, etc.

On May 5 and 6, 1894, the wind was strong southwest, and foggy, clearing on the afternoon of the 7th. The 8th was moderate, with southwest wind and foggy. This morning the Terns were observed for the first time this season to be quite numerous, having arrived during the night. At sunrise on the 9th they were abundant, hovering high up over Muskeget proper. The weather was fine, the wind N. N. W., moderate; partly cloudy. On the 10th at sunrise there were large numbers, as was evidenced by their rising in flocks of two to three hundred from the middle northern part of Muskeget proper. On the 11th a large number were noticed resting on the sand beach on the north side of the island. On the 19th and 20th they were hovering over the island in *thousands*; on the latter date a strong easterly gale prevailed, which continued during the next day.

In response to my request Mr. John R. Sandsbury walked over a portion of the breeding grounds on Muskeget proper on the 21st, and discovered three fresh eggs, — the first noted this season, and quite an early date to find them. On the 28th he walked in a direct line from his house to the north shore of the island. On his way he saw 4 nests with three eggs each, 16 nests with two eggs each, and 10 nests with each one egg. On June 2 he repeated the walk taken on May 28th, finding 24 nests with one egg, 25 nests with two eggs, 19 nests with three eggs, 2 nests with four eggs, and 1 nest with five eggs. On the morning of June 15 he again took the same walk, only a little more to the westward,

and found 57 nests of three eggs, 31 nests of two eggs, 19 nests of one egg, and 6 nests with four eggs. He saw two chicks to-day, the *first* noted this season.

On this same afternoon (June 15, 1894), I commenced an exhaustive survey of *all* the breeding grounds. To more fully explain the situation of these on Muskeget Island proper (excepting South Point), permit me to state that there is an ancient shore-line near the centre of the island, which is now nearly one-eighth of a mile from the ocean. I perceived several years ago that all accretions to the main island had been added to the northern side, and on examination also found that there were three other similar and distinct shore-lines between the central one and the ocean. These ridges form the most elevated portion of the island, and run through its entire length. They are composed of whitish sand, bare in many places, but in others covered with a scant growth of beach grass and running ivy. The Wilson's and Roseate Terns have selected these ridges, with their slopes and valleys, for their breeding grounds, all other portions of the main island, with the exception of the South Point, being little used by them for this purpose. It is to this particular section that I allude when describing Mr. Sandsbury's walks, as also in giving the results of my own observations on Muskeget proper, always, however, excepting the South Point, which will be described separately. The results of investigations made on June 15 and 16, 1894, with the aid of Mr. Sandsbury, in discovering the nests, I have tabulated in the following condensed form, giving a summary of the nests and eggs found on those dates in each place visited.

	<i>Nests.</i>	<i>Eggs.</i>	<i>Chicks.</i>	<i>Chipped Eggs.</i>
June 15, 1894, Muskeget Island proper.	363	970	14	4
“ 16, “ South Point, Muskeget Island.	348	943	2	2
“ “ “ South Point Island.	266	703	3	none
“ “ “ Gravelly Island.	268	753	1	none
“ “ “ South Beach.	9	20	none	none
Total,	1254	3389	20	6

Of the above nests on Muskeget Island proper, the birds being mostly Wilson's Terns, with more or less Roseate Terns, 35

contained one egg each, 83 contained two eggs each, 222 contained three eggs each, 12 contained four eggs each, and 11 contained five eggs each. On South Point, Muskeget Island, the birds being Roseates and Wilson's intermingled, 19 nests contained each one egg; 87, two eggs; 224, three eggs; 14, four eggs; 5, five eggs. On South Point Island, the birds being Roseates and Wilson's intermingled, 27 nests contained each one egg; 57, two eggs; 169, three eggs; 10, four eggs, and 3 contained five eggs each. On Gravelly Island, the birds, as far as I was able to determine, being exclusively Roseate Terns, 12 nests contained each one egg; 44, two eggs; 197, three eggs; 13, four eggs; and 2, five eggs. At South Beach, the birds I was able to identify were Roseate and Wilson's Terns. I am not sufficiently certain about the Arctic to say anything definitely, but think they were here also. I did not observe any nest here with one egg, but found 7 nests with two eggs, 2 with three eggs; no nests with either four or five eggs were discovered.

On July 1 and 2, 1894, I again, with Mr. Sandsbury, went over *all* of the above mentioned grounds, and following will be found the summary of the results.

	<i>Nests.</i>	<i>Eggs.</i>	<i>Dead Chicks.</i>
July 1, 1894, Muskeget Island proper.	106	206	182
" 2, " South Point, Muskeget Island.	51	99	72
" " " South Point Island.	72	144	33
" " " Gravelly Island.	106	226	20
" " " South Beach.	10	17	none
Total,	345	692	307

Of the above nests on Muskeget Island proper, 38 contained each one egg; 41, two eggs; 24, three eggs; 1 contained four eggs; and 2 contained five eggs each. On South Point, Muskeget Island, 19 nests contained each one egg; 20, each two eggs; 10, three eggs; 2, five eggs; no nest with four eggs was observed. On South Point Island, 24 nests contained each one egg; 29 had each two eggs; 15, each three eggs; and 1 nest contained five eggs. No nest with four eggs was observed. On Gravelly Island, 28 nests contained each one egg; 42 nests contained each two eggs; 31 contained each three eggs; 4 contained each four eggs,

and 1 contained five eggs. On South Beach, 4 nests contained one egg; 5 contained two eggs; 1 contained three eggs. No nests containing four or five eggs respectively were observed.

By a comparison with the former summary it will be seen that 80 per cent. of the June 15 and 16 eggs were hatched by July 1 and 2. The difference in the number of eggs observed in 1893 and 1894 may be accounted for by the fact that I did not visit South Point or South Point Island in the former year; nor was the search so exhaustive as in the latter year. There are also *many more* Terns this year (1894) than in 1893.

I found my impressions of 1893 regarding the manner in which the eggs rested in the nest verified, there being no regularity except as heretofore stated.

In order to arrive at a better identification of the eggs of the Roseate and Wilson's Terns, I gathered a large series (one hundred and fifty) on Gravelly Island, which seemed this year to be exclusively occupied, as far as I could judge, by the Roseate Terns; and I also investigated most carefully the eggs in nearly every nest found on that island. As a rule the eggs of the Roseate Tern have greater cubical contents than those of Wilson's Tern, being longer and tapering gradually to the smaller end. This, however, is not always the case, some being smaller than others, and some taper quite abruptly. Some are covered all over with small, irregular brownish marks, others have very small spots of brownish on a dirty white ground, as also on a coffee-colored ground; some have scarcely any spots on a dull white ground; occasionally one is seen of a greenish ground color; some are splashed all over with large brown spots, others with the spots barely showing through the surface, as it were; occasionally one is seen which is very large at the greater end, tapering suddenly towards the smaller. They are almost invariably well covered all over with irregular marks or spots of brownish color. There are some eggs which have a ring of brown spots blended together around the larger end, somewhat similar to some eggs of *Sterna hirundo*, while on others the brownish spots intermingle at the larger end, thus making it the most prominently marked portion of the egg. I have also noted a few of an oval-round shape. I have one egg which is covered with small, pale purple spots.

They also vary more or less in length. The larger clutches of four and five eggs generally vary in a striking manner, and this holds good in a less degree down to two eggs in a nest. I saw, however, in 1893, and also in 1894, several sets of five eggs each which were very much alike, both in size and color. Therefore, while there are many typical eggs which can be easily recognized, there are others which cannot always be distinguished from the eggs of *Sterna hirundo* or of *S. paradisæa*.

It is hence extremely difficult to absolutely identify all of them as they rest in the nest in such a haunt as I am describing, for aside from the fact of their laying in each other's nests, just before the pedestrian reaches the location where the nests commence he is surrounded by a countless screaming horde of bold assailants, who contest every step as an invasion of their precincts. The alarm is given from bird to bird, until it reaches those at the farthest end, who hasten to lend their vocal aid in driving off their common enemy, thus rendering it impossible to come to any conclusion regarding any particular nest and eggs. I have had Roseates dart down at me, and show every demonstration of anger and solicitude, when I have been examining a Wilson's Tern's nest and eggs, the identification of which I felt sure. I have also had the same experience with Wilson's Tern as the assailant, when I have been busy over a Roseate's nest and eggs. It must not therefore always be assumed that the solicitous bird is the owner. As far as my observation shows, I should say that not only do Roseate and Wilson's Terns lay their eggs indiscriminately at times in each other's nests, but also care for each other's young, and make united battle against intruders. It is for such reasons, and others of a similar character, that prevents me from speaking with greater certainty regarding some of their breeding habits. I am of the opinion that three eggs constitute the full complement for a female, and when more than that number are found in a nest, they have been deposited by more than one bird.

My attention the past two seasons having been attracted to *single* eggs resting on the bare, soft sand, without any semblance of a nest or footprints near them, I was puzzled to know how to account for it, such eggs having an unmistakable appearance of

being deserted. Those found last year in July were of a paler color than those in the nests, and had a bleached look. Those I found this season on June 15 and 16 were normal and did not have the bleached look. One day while sitting in the house on Muskeget, Mrs. Sandsbury, who was outside, called to me to come out. Responding to her call, she informed me that she had just seen a Tern drop an egg in mid air, while flying past within ten yards. As it fell on the hard sand beach it was broken, so I only saw the remains, but the incident served to solve to my satisfaction the riddle of the *single* egg. Mr. Sandsbury then informed me that he also had seen a Tern drop an egg this year as the bird flew past him. I offer the following in explanation. Here is a haunt where immense numbers of Terns are breeding. Out of the number an occasional bird fails to reach her nest in time to deposit her egg. Unable to retain it longer, it is dropped in mid air. Should it happen to fall in soft sand (it is invariably in such places that I have found them), from not too great an elevation, it remains unbroken and becomes bleached by the sun. Eggs which fall on harder ground, or from a greater height, are of course broken. I have one specimen a little indented, with the sand still adhering to the fractured part, where a little of its contents had oozed out. I found about a dozen such eggs on June 15 and 16, 1894, of which I saved six. They are all Roseate's eggs, and of the usual fresh color, undoubtedly having been recently dropped. On breaking one purposely, I found it to be particularly fresh. Those found last year on July 3 and 4 were probably old, and consequently bleached.

I have remarked that all the Terns in this locality construct their nests so that they shall harmonize with the surroundings. Nests placed on the beach are usually constructed of eel-grass (*Zostera marina*) or the eggs rest in a hollow made in the sand, without anything around them. On the higher ground they are composed of beach grass, or little sticks and stalks. To me they show a method in their apparent carelessness. Few of them, however, deserve the name of nest; usually there is little attempt at concealment, and they seem to like to place them in some spot from which there is a good lookout. They are often placed on top of the windrow of eel-grass washed ashore on the beach, close

to the water's edge. As far as I have observed neither the Roseate nor Wilson's Terns alight *on* the nest, but always several yards away from it, and then walk to it. They also walk away from it before flying. The repeated imprints of their little feet upon the sand have many times directed me to their eggs. They are quite active when on the ground, and can be daily seen on the sand, walking about in the vicinity of their nests.

I do not think the Roseate or Wilson's Terns lay as a rule more than one set of eggs. Should they lose them through accident or otherwise, it is probable they would lay again the same season, if not too late.

The eggs of Wilson's Tern are smaller, as a rule, than those of the Roseate, and they are shorter, and more blunt at the smaller end, yet some are not so. They vary in color and markings, as do those of the Roseate, but I think not so much so in size and shape. Some eggs have a coffee-colored ground with irregular brown spots all over the egg; others have them only at the larger end, where often they are merged in a ring, with the rest of the egg without spots or with very few. They do not often have the small irregular brown marks so characteristic of the Roseate's eggs, yet some eggs look so much like some Roseate's as to be with difficulty distinguished from them.

I have not had sufficient experience with the Arctic Terns to write very much regarding them. As far as I know, their habits and food in this locality are the same as those of the Roseate and Wilson's Terns. They are said to breed in small numbers on the South Beach, on the southwest side of Muskeget Island, which, I believe, is their southernmost breeding limit. I have never collected any eggs here that I felt sure were those of this species. They resemble the eggs of Wilson's Tern so closely that it is nearly impossible to distinguish them, and there is a very close resemblance between the birds themselves when flying. I have seen Wilson's Terns with breasts as dark as some Arctics, and the difference in their bills can be seen only at close range. I have seen but few of their identified eggs, and these I was unable to distinguish from those of *S. hirundo*.

When Mr. Sandsbury took up his residence for the season of 1894 on Muskeget Island, on May 4, he noted about one hundred

Least Terns hovering around South Point, Muskeget Island proper. On the arrival of the Roseate's and Wilson's, they seemed to have departed, for they were no longer observed. They are said to be the first Terns to appear here in the spring and to always leave when the other Terns arrive. They do not lay on the uplands in this locality, as do the Wilson's and Roseates, but usually along the beaches. They lay from two to three eggs. On June 16, 1894, one nest containing three eggs was found on the South Point of Muskeget Island. It was placed a few feet from the edge of the low bank, which divided the upland from the beach on the ocean side, at the foot of a bunch of beach grass, and partially concealed. The eggs were not quite half the size of those of the Wilson's Tern, and were nearly equally covered over with very fine brownish spots on a pale buff ground. They are said to breed in small numbers on the sandy point at the southeast end of Tuckernuck Island, and formerly on Smith's Island (now washed away), south of Tuckernuck Island. I am informed by an old resident that they were sometimes called 'Oyts,' from a resemblance of one of their notes to the sound of this word, and that formerly they were much more abundant than at the present time. Not having particularly observed them recently, I cannot speak with confidence in regard to them. I am, however, inclined to regard the nest above mentioned as accidental, it being the first I have known here.

In considering the chicks in the down of *S. hirundo* and *S. dougalli*, I have been somewhat puzzled regarding their identity, and am unable to speak of them with certainty. One has a black throat, white breast and abdomen, the entire upper parts, including the top of the head, being of a pale yellowish gray, intermixed with small irregular black marks; the feet, legs and bill are of a reddish yellow, except the tip of the latter, which is blackish brown. The other chick has the entire upper parts, including the top of the head, of a rather more decided gray than the other, and rather less of the yellowish tinge, with black and brown markings intermixed. The throat is blackish, and the feet, legs and bill are flesh color, with the tip of the latter blackish brown. As this chick advances in age, the upper mandible becomes brownish black, while the lower still retains the

flesh color nearly to the tip, which is brownish black. When a few days old they are somewhat similar in general appearance: both have blackish throats, but the throat of the reddish-legged chick is decidedly blacker than that of the other. As I have often seen the reddish-legged chicks in what I call Roseate's nests, with unhatched Roseate's eggs beside them, and the same day seen a similar chick crouched beneath the breast of a Wilson's Tern, it will be understood why I am not prepared to speak more definitely.

I have frequently heard the chick peep while in the shell prior to its being chipped. At such times the chick is doubled up, with the head between the legs at the larger end of the egg. On carefully breaking open such eggs the chick instantly opened its eyes. I have also watched the process of the chipping of the egg while the chick was endeavoring to release itself. This process is slow and laborious. As soon as a small hole is pierced a little to one side of the larger end of the egg with the bill, which is provided with a little hard white knob at its point, the chick seizes hold of, and bends back and forth, a minute fragment of the shell until it is detached. This effort is continued for only a few seconds at a time, and must be repeated a number of times before the fragment is broken off. The labor seems exhausting, the chick panting while resting after each effort. In a few seconds later the attempt is again renewed, and so on until its release is effected, and a wet little chick appears. As soon as it is able to run it leaves the nest, and its first instinct is to hide. A few blades of grass or a leaf is sufficient for the purpose; provided its head is partially covered it will not move, no matter how closely it is approached.

During this early period of their existence, and while in the nest, they suffer considerably from the attacks of a small, red ant, which is numerous on Muskeget Island proper, including South Point. These ants get on them in numbers, and by an incessant biting and pulling at their wet down, with accompanying worryment, cause the death of many of them. I have stated in a previous part of this article the number of dead chicks I found; but they doubtless represent but a part of the whole number. As there had been no inclement weather in the neighborhood since

these chicks were hatched, I am inclined to attribute more or less of this mortality to these ants. My record shows that 307 dead chicks were found on July 1 and 2, 1894.

This year the Terns left this vicinity earlier than usual, large numbers having departed by September 1. Should one desire to see them in all their glory, it would be well to visit them about the first of July and walk out among them at sunrise or at sunset. The former is the better time, for then they are preparing to depart for the 'rips' for food, many of them going long distances. While making a passage to Nantucket I have often observed them when it was nearly dark, when flocks of a few to fifty would be flying close to the water, all headed for Muskeget. It is when among them at their breeding grounds that their wonderful aërial movements can be best observed. Some of them are very bold and fearless, especially the beautiful Roseates, when guarding their eggs or young. The roseate tint on their breasts, so noticeable in the spring, vanishes after death. Beautiful and graceful, who can view them without feelings of admiration and delight? Thick fog does not seem to disturb them, and the local boatmen can usually tell under such conditions how Muskeget Island bears by watching the course of these birds. They also direct the fishermen to where the schools of bluefish are feeding, by hovering over the school, and darting down after the small fish which the bluefish have driven to the surface. Yet these men have but recently sought to appropriate their eggs by wholesale, during their laying period, the result of which would be the breaking up of their haunt, reducing their numbers, and driving them from these waters.

I cannot refrain from describing one Tern's nest containing two eggs which I found on the South Beach, June 16, 1894, as it was different from any I have ever before seen. It was but a hollow in the beach sand, about thirty yards from the water. The floor of this hollow was lined with small, flat stones about half an inch across, and smooth, their upper surfaces being on a level. I examined it critically, in order to ascertain if it were accidental or artificially constructed. My conclusion was that the stones had been brought and placed in position by the owner of the nest. I was careful to examine the immediate surroundings

to see if any such result could possibly be produced by the blowing away of the sand, and decided it would be impossible. I then called up Mr. Sandsbury, who was near at hand, and asked him his opinion without expressing my own; as he agreed with me in every particular I considered the circumstance worth recording. As I knew of no way then of taking it, as it was in place, I left it until my next visit, July 2, when I went after it with the proper appliances to preserve it. This time, however, I failed to find it, the eggs having probably been hatched in the mean time and the loose sand had blown over and covered it up.

Although my remarks have already reached considerable length I would beg to add a few words regarding the colony of Laughing Gulls (*Larus atricilla*) inhabiting Muskeget Island proper (see Auk, Vol. X, p. 333). I visited it on June 15 and July 1, 1894, finding it in the most flourishing condition. Their number had nearly doubled, as nearly as I could judge, since last year. They were nesting a few hundred yards west of where they were last year, on the northern side of the island. On June 15 I found fifteen nests containing forty-one eggs, of which, four nests contained two eggs each, and eleven nests three eggs each. I noted one egg which was pale olive brown, practically unspotted. These nests were in tall beach grass, and placed in the middle of a narrow path or alley, where the grass had been trodden down by the birds in going in and out. They apparently do not turn around to go out the way they enter, the passage being too narrow to permit of it, without disarranging their plumage. All the bare knolls of sand in the immediate vicinity of the colony had been much used by them as resting places. They are extremely gregarious in this breeding haunt, which is not more than one hundred yards in diameter, and their nests are at times placed within a few feet of each other. They are apparently on the best of terms with their neighbors, the Roseate and Wilson's Terns, whose breeding grounds adjoin and encroach on theirs, and with whom they intermingle. When I again visited them on July 1, I found most of the eggs hatched and the young chicks in the grass. I found, however, two nests with one egg each, and six nests with two eggs each. The chicks in the down have the entire upper parts grayish, with a yellowish tinge, intermixed with

black. The top of the head is pale yellowish, irregularly spotted with black; abdomen grayish; throat light reddish yellow; breast whitish. The legs are reddish chocolate, as also the bill at the base, the tip being a pale flesh color, and very blunt, having the appearance of being cut off squarely. While handling one of the chicks from which this description was taken it twice ejected considerable portions of a soft shelled crab. Another nest, containing one egg and two chicks; the chicks were younger than the one above described, and were of a generally darker color. The yellowish tinge of their down was also rather stronger in tone. The red ants had found them out and were troubling them, but they were probably too large and strong to be killed by them. I saw no dead ones. The chicks utter a chirping sound, repeated three times in succession.

The pleasure derived from the many instructive days which I have passed in companionship of these Terns has led me to prepare this contribution to the life history of these beautiful and interesting birds.



A SWALLOW ROOST AT WATERVILLE, MAINE.

BY ABBY F. C. BATES.

NOT FAR from where a small stream, called the Messalonskee, joins the Kennebec River, one may see at evening from the middle of July to about the third week in September, an interesting sight in the bird line.

The willow trees along the banks of this stream, particularly a close row some five or six hundred feet in length, form the roosting place of vast numbers of Swallows. During the forenoon and early afternoon very few Swallows are to be seen in the sky, — indeed they are conspicuous by their absence, — but a little before sunset the birds begin to arrive in the vicinity, flying, sailing, chasing each other around in the upper air, everywhere within eye's reach. From north and south, east and west, in they

come out of the distance till one thinks the barns, banks, martin-houses and swallow nests of whatever description all over Maine must have yielded up their inmates. Shortly after sunset they gather more nearly in the region directly above the trees, incomers from every point of the horizon still joining them and toward the last exhibiting great hurry and intentness, as if fearful of being "late to meeting."¹

Then begin the movements that are the most interesting feature of this gathering. At intervals *clouds* of Swallows will evolve something like order out of their numbers and perform *en masse* some of the most fantastic curves, spirals, counter-marches, snake-like twists and turns, with the sky for a background, that ever a company of genus homo executed on a finely polished floor. For instance, one evening they separated into two parts, one going to the right, the other to the left, each division making a grand circle outward, then joining again for a forward movement. There were some stragglers, but the figure was distinct and was twice performed, with other evolutions interspersed. Then a long snake-like movement from the upper air down very slightly inclined from the vertical, with two twists in it, a loop around a tall tree farther down the stream, and back, brought them into the tree-tops for roosting. That was the cleanest and most astonishing figure I ever saw them perform. Occasionally they drop down into the trees like pieces of paper, but oftener the final alighting is a combined movement, sometimes in the shape of an inverted cone, — usually in a grand sweep after their most elaborate evolution. Frequently they swoop out from the trees company after company, several times before the last settling, their wings not only making a tremendous whirring, but a perceptible movement of the air. Their chattering keeps up from half to three quarters of an hour after they settle in the trees and their dark little bodies against

¹ Just here let me say that having asked six men of reputed good judgment to give their individual ideas of the number of Swallows when this congregating season is at its height, the average of guesses (for such only could they be) brings the number about thirty thousand, the highest guess being one hundred thousand, the lowest, five thousand. Attempts have been made to photograph them, but at the time when they are best massed and sufficiently near for a photograph, the light is so dim that nothing whatever appears on the film.

the sunset sky look as numerous as the leaves. Often they weigh down a branch and then a great chattering, scolding and re-adjustment ensues. Sometimes there is a movement through the tree-tops to one spot as if a conference were called, and a more surprising amount of chattering than before. Then in a few minutes back they come till the tree-tops are about equally full. The noise which they make is suggestive of the whirring of looms in a cotton mill, heard through the open windows, — or of some kinds of water-falls.

They leave the trees in the morning a little before sunrise. August 26 we watched them go out. At 4.15 there were sounds as if of awakening and gradually the noise increased. At 4.25 they began to arise in companies at intervals of two or three minutes. They did not remain long in the locality and by five o'clock not one was to be seen.

During a heavy wind and rain-storm late one afternoon, the Swallows came about our house and those of our neighbors' on both sides of us, alighting on windows, blinds, cornices, gutters — every conceivable perching place, as well as the trees about the houses. Two electric wires running from one of the houses to the stable, a distance of fifty feet, were literally packed full, great scolding and pecking going on at new comers trying to find a foot-hold. Reckoning at least five to a foot, there were five hundred birds on the wires and they were quite as plentiful on many of the trees and upon the houses. This, and one or two similar occasions, afforded us a good opportunity for verifying our conjectures as to the kinds of Swallows. The greater proportion is Barn Swallows, but there are large numbers of Martins with them and also Bank Swallows. I see no reason why there should not be White-bellied Swallows and Eave Swallows too, as they build about here, but we have not seen them with the others. Swifts frequently fly in and out among the companies as they are gathering and even during some of their evolutions, yet they seem to be on different business, and very important at that, and we have never seen them going into the trees, though several people claim that they roost there.

At the time of the wind and rain-storm mentioned, we had sufficient curiosity to get into water-proofs and rubbers and

visit the roost. Not a bird was to be seen or heard about the trees and the Swallows were still perching upon our house when we went to bed. A gentleman who has a martin-house told us his Martins came back that night, though it had been several weeks since they left. We concluded the probable explanation of the episode was that perching upon the willows in the strong wind was too serious an undertaking and that they had to disband for the night and lodge wherever a safer place offered.

My note-book says: "Sept. 9.—Field glasses revealed only Martins in the group at the willows. These went through the same evolutions as formerly." "Sept. 26.—Birds at willows practically gone. Only about forty left."

This congregating has been noticed for many years; indeed I cannot find in the minds of the oldest inhabitants of our little city of Waterville, a recollection of a summer without them.

We suppose that the time of their appearance, middle of July, is regulated by the nesting season and the strength of the young to accompany their parents; but just why they gather, if such roosts are common, and whether their evolutions are thought to be intelligent and performed with any real purpose, we should be glad to know.

I asked two little urchins one evening what the birds were doing up there. One said, "I guess they're marchin'"; the other, "No, they ain't! I know what they're doin'—they're dancin'."

A NEW SPECIES OF *THRYOTHORUS* FROM THE PACIFIC COAST.

BY A. W. ANTHONY.

A SERIES of Wrens collected the past summer, by Dr. Edgar A. Mearns and myself, on the island of San Clemente, California, prove to be so different from Vigors's Wren of the mainland that I have ventured to describe it as a new species to be known as:—

Thryothorus leucophrys, sp. nov.

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

Type, No. 5514; ♂, Coll. A. W. A., San Clemente Island, California. Above sepia brown with grayish wash, especially on the interscapulars; superciliary stripe conspicuous, reaching posterior border of nostril in a heavy white line, much more pronounced than in any *spilurus* I have seen; chin, throat, middle of breast and belly pure white; sides of breast and sides, of a shade of gray approximating Ridgway's No. 7; flanks with a slight wash of bister; lower tail-coverts grayish-white with inconspicuous black bars; lower surface of tail light slate-gray, tipped with smoky gray. Wing, 55 mm.; tail, 60 mm.; culmen, 16 mm.; tarsus, 20.5 mm.

Although the present species is obviously closely related to the mainland bird, *T. v. spilurus*, I see no reason at present for regarding it as a subspecies of that form. San Clemente Island lies seventy-five miles from the mainland, and it is quite evident that the species does not intergrade through the other islands of the Santa Barbara group, as the *Thryothorus* from those islands proves to be no nearer related than does the mainland form.

The differences are at once noticeable even at a glance; the longer bill, the more purely white and much more conspicuous superciliary stripe, together with the more gray upper parts are quite striking to one acquainted with the mainland bird. The species is quite common in the thick cactus and low brush on the south end of the island, but owing to its habits is quite difficult to secure.

A NEW SUBSPECIES OF *HARPORHYNCHUS* FROM
LOWER CALIFORNIA.

BY A. W. ANTHONY.

A SERIES of *Harporhynchus cinereus* taken from San Quintin to San Fernando differs so radically from the typical bird from Cape St. Lucas that I have separated the northern bird as a subspecies to be known, in honor of Dr. E. A. Mearns, as:—

Harporhynchus cinereus mearnsi. MEARN'S THRASHER.

Subsp. char. — Differing from *H. cinereus* in much darker upper parts, the rump vandyke brown in contrast, more rusty flanks and crissum, much larger and more intensely black spots on the lower parts and in the less curved bill.

Type, No. 4760, Coll. A. W. A., Jan. 2, 1894, San Quintin, Lower California. Above sepia brown, the rump and upper tail-coverts vandyke brown in contrast; below white, the throat, breast, sides and abdomen heavily spotted with large triangular spots of black; anal region, lower tail-coverts and sides with a strong rusty wash. Wing, 120 mm.; tail, 118 mm.; culmen, 28 mm.; tarsus, 36 mm.

The difference between the present race and typical *H. cinereus* is noticeable at a glance, even without comparison. The much darker upper parts, the rump brighter in contrast, together with the more heavily spotted under parts and rusty abdomen are very characteristic. The hair-brown upper parts of the St. Lucas bird gradually change to a shade approximating bister on the rump and upper tail-coverts. The lower parts are but slightly washed with bister on the flanks and with buffy on the lower tail-coverts, the abdomen being white.

This race is quite common about San Quintin, and in all suitable places as far south as I have collected. They were not common at the mines but between that point and the coast were several localities where they were always seen. They were always remarkably shy, making it almost impossible to secure specimens. On June 13 I was stalking a herd of antelope on the San Carlos mesa, near the coast, and had prostrated myself under a large cholla cactus to wait for the game, which was slowly feeding toward me; and in this uncomfortable position I spent about half an hour, during which not less than half a dozen of these usually shy Thrashers took up stations on adjoining cacti, within fifteen yards, showing great curiosity and making frequent remarks, uncomplimentary, no doubt, on the new species of lizard they had found, but always ready to drop out of sight at the first movement on my part.

THE LECONTE THRASHER, *HARPORHYNCHUS*
LECONTEI.

BY DR. C. HART MERRIAM.

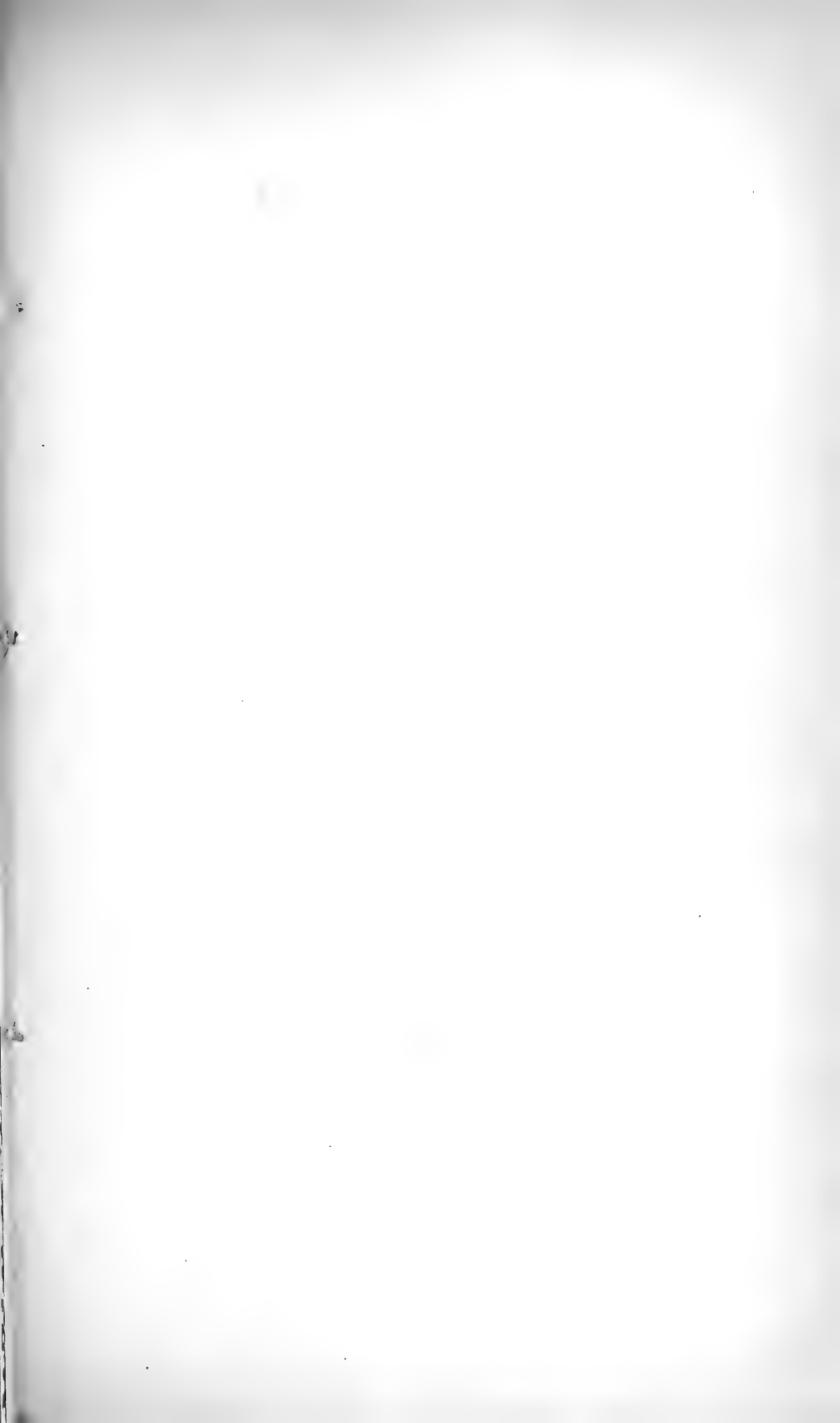
Plate I.

THE great Colorado River, emerging from the marvellous cañons of northern Arizona, bends southward to traverse a vast, inhospitable desert, parts of which, below the level of the sea, surpass the deserts of India, Arabia, and even the great Sahara in heat, aridity and desolation. The burning sun, set in a cloudless sky, beats down relentlessly on a dreary expanse of sand, gravel and clay, broken only by the seared walls of barren desert ranges. The picture is made more weird and the way fraught with greater danger by the mirage-breeding alkali beds that warn the experienced traveller of impending danger; but hundreds of venturesome explorers, pushing on until crazed with thirst, have been overtaken by despair and death.

These deserts receive little water: the rainfall is meagre, the streams from the surrounding mountains soon disappear in the hot sands, and the broad Colorado itself hurries on to the sea as if in a conduit, without imparting verdure to even its immediate banks save in a few favored spots. The vegetation is scanty and peculiar: the sandy gravel slopes are covered with the resinous *Larrea* or creosote bush, more or less mixed with cactuses, yuccas, daleas, ephedras and other desert forms, while the alkaline and saline clay soils are dotted here and there with greasewoods and fleshy saline plants.

Such is the home of the LeConte Thrasher. The environment is uncongenial to most diurnal forms of animal life, and the usually dominant element of competition is nearly absent in the struggle for existence—the struggle being one against hostile conditions, not against a multitude of competitors. Diurnal mammals are rare and restricted to a few species; birds are scarce, both as species and individuals, but reptiles are more plentiful, particularly lizards and rattlesnakes.

The area covered by these deserts is so large that different parts have received different names, as the Colorado, Mohave,





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LECONTE'S THRASHER (HARPORHYNCHUS LECONTEI)

Panamint, Death Valley, and Amargosa Deserts in California; the Detrital, Gila, and Yuma Deserts in Arizona; the Pahrump and Vegas Deserts in Nevada, and the Valley of the Virgin which reaches northward across southeastern Nevada and northwestern Arizona to the extreme southwestern corner of Utah.

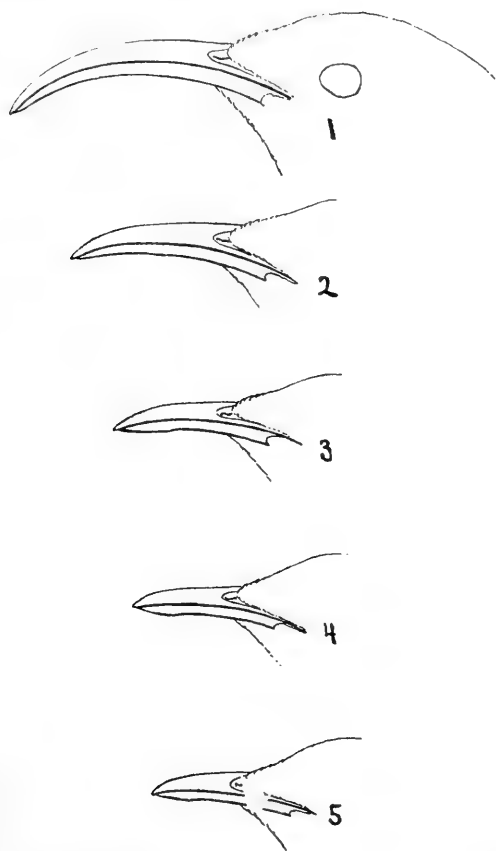
Of the birds that breed in the desert no species is abundant, though the Black-throated Sparrow (*Amphispiza bilineata*) is tolerably common and the Cactus Wren and Costa Hummingbird are frequently observed. A few others are met from time to time. The presence of two of these is most often revealed by their footprints on the sand. They are the Road-runner (*Geococcyx californianus*) and the LeConte Thrasher (*Harporhynchus lecontei*). The latter is by far the more abundant of the two and its pleasant song is often heard in the distance, though the bird is seldom seen.

During the Death Valley Expedition it was my good fortune to ride on horseback with my assistant, Mr. Vernon Bailey, a distance of about 1500 miles within the restricted area inhabited by the LeConte Thrasher, and to follow the northern boundary of its range from California across Nevada to Utah and Arizona. During this journey, covering the months of April, May and June, I first saw the bird on the Mohave Desert between Daggett and Pilot Knob, April 4; nearly every day afterward it or its footprints were seen, or its song heard. It was usually a shy bird, keeping at a distance, and eluding pursuit by running rapidly over the ground and hiding among the cactuses or desert brush. When running it commonly carried its tail elevated at an angle of about 45°, as mentioned by Mr. Stephens. If a Thrasher was seen singing on a mesquite or creosote bush and an attempt was made to approach within gunshot, it would immediately drop to the ground and escape by running; and the chances were very much against seeing it again. This extreme wariness is hard to understand in view of the remoteness of the region from the haunts of man, for it is safe to say that throughout the area traversed no bird of this species was ever looked at over the barrel of a gun before the visit of the Death Valley Expedition. At the same time it is true that at certain points along the outskirts of its range (as in Owens Valley, California) the young are

sought as cage birds by both Indians and whites. Probably two broods are reared in a season — judging from the widely different dates at which evidences of breeding were found. On April 29, I shot a two-thirds grown young in Pahrump Valley, Nevada, after a long and tiresome chase — partly on horseback and partly on foot. It was among the creosote bushes (*Larrea*) at the lower edge of the yuccas on the east side of the valley. The parent and two young were seen. On May 1, I killed a full grown young in Vegas Valley, Nevada. A week later (May 7), Mr. Bailey found a fresh nest in an arborescent cactus (*Opuntia echinocarpa*) at the foot of the high mesa on the east side of Muddy Creek, near St. Joe, Nevada. The parent bird was seen to leave the nest, but the eggs had not yet been laid. I hid behind a creosote bush and waited until the bird returned, which she did by running silently over the ground and climbing up to the nest so cautiously that, though watching the nest all the time, I did not see her until she settled upon it. The next day, May 8, Mr. F. Stephens, another member of the expedition, found a nest containing 3 nearly fresh eggs between Owens Lake and Little Lake, Inyo Co., California. The nest was in a branching cactus about 2½ feet from the ground. He saw a brood of nearly grown young the same day, and also observed both nests and young in Salt Wells Valley, on the northern edge of the Mohave Desert. On May 28, Mr. Bailey found a deserted nest in an arborescent cactus in Indian Spring Valley, Nevada. A month later (June 27), I discovered a nest containing two half-grown young in Antelope Valley at the west end of the Mohave Desert, California. Like the others, it was in a branching cactus less than a meter above the ground. One of the two young was a little larger than the other. The smaller of the two is figured in the accompanying colored plate.¹ It is thus evident that the breeding season covers at least three months—Mr. Stephens makes it even longer. Whether this indicates that more than one brood is reared, or that the date of nesting is subject to much irregularity, or both, the facts at hand are not sufficient to

¹The adult shown on the same plate was killed by Dr. A. K. Fisher at Resting Spring on the edge of the Amargosa Desert, Feb. 7, 1891.

determine. But as a rule resident birds are less regular than migrants in the time of breeding, and in warm climates where the season is long the irregularity is likely to be greater than in cool climates where the season is short.



CHANGES IN THE FORM OF THE BILL WITH AGE IN *Harporhynchus lecontei*.

The nest is a compact and rather bulky structure composed mainly of small twigs and not covered above. Though sometimes in a mesquite or other thorny bush, it is placed by prefer-

ence among the spiny branches of the common 'cholla,' a small arborescent cactus (*Opuntia echinocarpa*), at a height rarely more than a meter above the ground. The covered woven nest of the Cactus Wren (*Heleodytes brunneicapillus*) is often found in the same cactus.

It is interesting from the evolutionary standpoint that the strongly curved bill of the LeConte Thrasher is a peculiarity of the adult; the young in the nest show no trace of it. This is well illustrated in the accompanying bill outlines, all of which are natural size. Figs. 4 and 5 are from the two young taken from the nest in the Mohave Desert June 27. Fig. 3, showing the earliest trace of the curvature, is from the two-thirds grown young killed in Pahrump Valley, Nevada, April 29. Fig. 2, showing the next step in the development of the curve, is from the young killed in Vegas Valley, Nevada, May 1; and Fig. 1 is the bill of an adult killed by Dr. A. K. Fisher at Resting Spring, California, February 7.

As stated by Dr. Fisher, the LeConte Thrasher is probably resident wherever found, since it was obtained in winter at the northern limit of its breeding range and old nests were seen at or near most places where the birds themselves were noted. Furthermore, the absence of records from Mexico, except within its breeding range in northwestern Sonora, only a short distance south of our border, is additional evidence that it does not migrate.

Geographic Distribution.—In its faunal relations the LeConte Thrasher belongs to the arid Lower Sonoran Zone, as do most of its congeners; but it does not inhabit the whole of this zone, being restricted to the part that extends westward from central Arizona to the east base of the Great Divide in California. It overlaps the Divide at two points, Walker Pass, where I found it on the west slope about four miles below the summit; and the upper San Joaquin Valley, where Mr. Nelson found it on the south side of Buena Vista Lake and thence west and northwest for 15 or 18 miles toward the Templo Mountains. The latter is an isolated colony. Mr. F. Stephens has traced it southward along the western edge of the Colorado desert, and has also found it near Cape Lobos, Sonora, about 125 miles south of the Arizona border—the only record for Mexico. On the east, Dr. E. A. Mearns has

obtained it at Desert Station, Casa Grande, and Picacho Butte in south-central Arizona, whence it is known to range northwestward along the base of the Plateau escarpment. Mr. Bailey and I found it on the west slope of the Beaverdam Mountains in extreme



AREA INHABITED BY LECONTE'S THRASHER (*Harporhynchus lecontei*).

southwestern Utah and northwestern Arizona, and followed it thence westerly across southern Nevada, where we saw it in the Valleys of the Virgin and Muddy, at the Bend of the Colorado, in Vegas, Pahrump, and Indian Spring Valleys, and throughout the Amargosa Desert. On the California side of the line it was found in Death Valley and its northwest arm (Mesquite Valley), and in Panamint and Owens Valleys. In the latter, both Mr. F. Stephens and Mr. E. W. Nelson recorded it as far north as Benton. The area it inhabits, except the small spot at the head of the San Joaquin Valley, is shown on the accompanying map. The San Joaquin area is omitted because the species is not positively known to breed there — though it probably does so.

Interesting articles on the habits of the LeConte Thrasher, by Dr. Mearns and Mr. Stephens, may be found in early volumes of 'The Auk' (Vol. I, 1884, pp. 253-258; *ibid.*, Vol. II, 1885, pp. 229-231; *ibid.*, Vol. III, 1886, pp. 299-307); and important technical matter, including the first description of the young, in a paper by Mr. William Brewster (*ibid.*, Vol. II, 1885, p. 197). A summary of the records made by the Death Valley Expedition was given by Dr. Fisher in 'North American Fauna,' No. 7 (May, 1893, pp. 128-130). Thirty-two specimens were brought back by this expedition—a considerably larger number than the total previously known in collections.

TWELFTH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE TWELFTH CONGRESS of the American Ornithologists' Union was held in New York City, Nov. 12-15, 1894. The business meeting took place on the evening of November 12 in the 'Board Room' of the American Museum of Natural History. The three days' open session, to which the public was invited, was held in the Library of the Museum.

BUSINESS SESSION.—The meeting was called to order by the President, Dr. Elliott Coues. Fifteen Active Members were present. The Secretary's report gave the membership of the Union at the opening of the present Congress as 616, constituted as follows: Active, 48; Honorary, 22; Corresponding, 71; Associate, 475;—the total increase for the year being 34.

During the year the Union lost forty-five members,—eight by death, thirteen by resignation and twenty-four were dropped for non-payment of dues. The members lost by death were Dr. Eduard Baldamus,¹ who died Oct. 30, 1893, in Wofenbüttel,

¹ For an obituary notice, see the present number of 'The Auk,' under 'Notes and News.'

Germany, aged 81; Dr. Leopold von Schrenck,¹ who died in St. Petersburg, Jan. 20, 1894, aged 68; and Dr. Alexander Theodor von Middendorff,² who died at Hellenorm, Liveland, Russia, Jan. 28, 1894, aged 79, all Corresponding Members. Also the following Associates: Rev. Samuel Lockwood, Ph. D.,³ who died at Freehold, N. J., Jan. 9, 1894, aged 75; Frank Bolles, LL. B.,⁴ who died in Cambridge, Mass., Jan. 10, 1894, aged 37; William Cushman Avery, M. D.,⁵ who died in Greenboro', Ala., March 11, 1894, aged 64; Pierre Louis Jouy,⁶ who died at Tucson, Arizona, March 22, 1894, aged 38; Prof. J. W. P. Jenks,⁷ who died in Providence, R. I., Sept. 27, 1894.

The Secretary also presented as a part of his report, the annexed table.

The report of the Treasurer showed the finances of the Union to be in good condition.

The officers elected were Dr. Elliott Coues, President; William Brewster and Dr. C. Hart Merriam, Vice-Presidents; John H. Sage, Secretary; William Dutcher, Treasurer. The vacancy in the Council occasioned by the election of Dr. Merriam as one of the Vice-Presidents was filled by the selection of Mr. Frank M. Chapman. One hundred and nine Associate Members were elected, but no additions were made to either the Active, Honorary, or Corresponding lists. The usual reports of Standing Committees were received.

The Amendments to the By-Laws proposed at the Eleventh Congress were considered; part were adopted and part rejected.⁸ A change in Rule XI was proposed and after explanation adopted.⁸

¹ For an obituary notice, see *Auk*, XI, 1894, p. 264.

² For an obituary notice, see *Ibid.*, p. 264.

³ For an obituary notice, see *Ibid.*, pp. 189-190.

⁴ For an obituary notice, see *Ibid.*, pp. 184-185.

⁵ For an obituary notice, see *Ibid.*, p. 263.

⁶ For an obituary notice, see *Ibid.*, pp. 262-263.

⁷ For an obituary notice, see the present number of 'The Auk' under 'Notes and News.'

⁸ See under the department of 'Notes and News' in the present number of 'The Auk.'

STATUS OF ACTIVE AND ASSOCIATE MEMBERSHIP BY
LOCALITIES.

	ACTIVE.	ASSOCIATE.	TOTAL.
Arizona		3	3
Arkansas		1	1
California	3	28	31
Colorado	1	11	12
Connecticut	2	22	24
District of Columbia	13	23	36
Florida		5	5
Georgia		2	2
Idaho	1		1
Illinois	1	19	20
Indiana		4	4
Iowa	1	9	10
Kansas		7	7
Kentucky		1	1
Louisiana		1	1
Massachusetts	6	66	72
Maine	1	10	11
Maryland		6	6
Michigan	1	12	13
Minnesota	1	11	12
Missouri	1	7	8
Montana		1	1
New York	11	100	111
Nebraska		1	1
New Hampshire		1	1
New Jersey		14	14
North Carolina		2	2
Ohio	1	8	9
Oregon		6	6
Pennsylvania	1	46	47
Rhode Island		6	6
South Carolina		1	1
Tennessee		2	2
Texas		4	4
Utah		1	1
Vermont		1	1
Virginia		3	3
Washington		3	3
West Virginia		3	3
Wisconsin	1	4	5
Wyoming		3	3
Canada	2	15	17
Cuba		1	1
England		1	1
	48	475	523

PUBLIC SESSION. *First Day.* — The meeting was called to order by the President, Dr. Elliott Coues. An address of welcome was made by Mr. Morris K. Jesup, President of the Board of Trustees of the Museum. After appropriate response by the Chair, the meeting at once proceeded to the consideration of scientific papers.

Mr. Frank M. Chapman gave as the first paper of the morning 'Notes on the Habits of the Bell-bird, the Pigmy Hummingbird, and other Tropical Birds.'

The second paper was by Mrs. Abby F. C. Bates, entitled 'A Swallow Roost at Waterville, Me.' In the absence of the author it was read by Dr. J. A. Allen. Remarks followed by Messrs. William Dutcher, Frank M. Chapman, John N. Clark and Otto Widmann, much information being brought out regarding other Swallow roosts.

The third paper was by Mr. Otto Widmann, on 'Baird's Sparrow.'

The fourth title was 'The Summer Range of Colorado Birds,' by Prof. W. W. Cooke. In the absence of the author it was read by Dr. Jonathan Dwight, Jr.

The fifth paper was 'Notes on the California Vulture (*Pseudogryphus californianus*),' by F. Stephens. This was read by the Secretary in the absence of the author.

The opening paper of the afternoon session was 'Remarks on the Avifauna of the Source of the Mississippi River,' by Dr. Elliott Coues. Next followed a paper on '*Helinaia swainsonii* in Missouri' by Otto Widmann. The third paper was by Mr. Wm. W. Price on 'The Nest and Eggs of the Olive Warbler (*Dendroica olivacea*).' In the absence of the author it was read by Mr. Frank M. Chapman.

'Robin's Winter Roost,' by Otto Widmann, was the fourth paper.

Mr. William Dutcher exhibited a Labrador Duck, believed to be the last specimen killed and possibly the best one extant.

Second Day. — The meeting was called to order by the President, Dr. Coues.

The first paper of the morning was by Mr. F. A. Lucas 'On the Tongues of Birds.' Remarks followed by Prof. W. B.

Barrows, Messrs. John N. Clark, George B. Sennett, Otto Widmann, the Chair, and the author.

The second paper, 'The Ornithology of Sable Island, Nova Scotia,' was by Dr. Jonathan Dwight, Jr. Remarks followed by Dr. Allen, Messrs. Sennett, Smith, Dutcher, and the author.

The third title was 'A Contribution to the Life History of *Porzana cinereiceps* Lawr., with Critical Notes on some of its Allies,' by Charles W. Richmond. In the absence of the author it was read in part by Dr. Allen.

The only paper of the afternoon session was by Mr. Frank M. Chapman entitled 'A Sketch of the Bird-life of the Lesser Antilles.' The members and visitors repaired to the Lecture Room of the Museum where lantern slides illustrating this paper were shown. Afterwards Mr. Wm. Dutcher exhibited lantern slides of common birds found in the vicinity of New York. Lantern slides of a few British birds, shown by Prof. A. S. Bickmore, concluded the afternoon.

Third Day. — The meeting was called to order by the President, Dr. Coues. Before proceeding to the reading of papers, resolutions were adopted extending the thanks of the Union to the Trustees of the American Museum of Natural History for a place of meeting and for other courtesies tendered to the Union; to the Council of the Scientific Alliance of New York for its cordial invitation to attend the meetings of the Societies forming the Alliance; and to the Linnæan Society of New York for generous hospitalities extended to the Union during its Twelfth Congress.

The first paper of the morning was by Mr. Otto Widmann on 'Smith's Longspur.' The second paper was by Geo. H. Mackay on 'The Terns of Muskeget Island.' In the absence of the author it was read by Mr. Wm. Dutcher. Remarks followed by Drs. Dwight and Allen, and Messrs. Sennett, Dutcher and Lucas.

The third title was 'Something New,' by Judge John N. Clark. 'The Nesting of Krider's Hawk in Minnesota,' by P. B. Peabody, was given in substance by Dr. Allen in the absence of the author. 'Certhia in Missouri,' by Otto Widmann, was read by title.

The afternoon was devoted to a paper by Mr. D. G. Elliot on 'Domestic Pigeons and Fowls, their Origin and Races, with

reference to the Theory of Natural Selection.' It was illustrated with lantern slides. Remarks followed by the Chair and by Dr. Allen.

At the conclusion of this paper the Union adjourned to meet in Washington, D. C., November 11, 1895.

The attendance at this Congress, together with the large number of new members elected, not exceeded by any year, was particularly gratifying. It shows the continued interest in ornithology in this country.

JNO. H. SAGE,
Secretary.

Portland, Conn., Nov. 30, 1894.

RECENT LITERATURE.

Elliot's Monograph of the Pittidæ.—Part IV of this superb monograph bears date September, 1894. The eleven plates illustrate the following species: *Eucichla boschi*, *Pitta granatina* (on the plate "*Pitta granatina-malaccensis*" by typographical error), *P. granatina borneensis*, *P. mefoorana*, *P. cæruleitorques*, *P. atricapilla*, *P. cyanea* (two plates, giving old and young), *P. brachyura*, *P. baudi* and *P. erythrogastra*. So little appears to be known of these birds in life that generally (*P. cyanea* and *P. brachyura* form exceptions) the text is limited to descriptions of the plumage and the discussion of points of nomenclature in cases where names have been misapplied. An interesting case of this sort is furnished by the *Pitta atricapilla* of Quoy and Gaimard, who described the bird in 1830 and figured it in 1833. Later Lesson claimed that the name was preoccupied, having been previously given by Cuvier to another species. The name, however, so far as Mr. Elliot can determine, was never published by Cuvier and was doubtless merely a MS. museum name. Quoy and Gaimard's bird was later renamed *novæ-guinæ*, under which name it has since been universally known. In restoring the name *atricapilla* to this species Mr. Elliot acts strictly in accordance with the rule of priority, and makes a defense of the stand he takes which is well worth quoting, since this is but one of a class of cases constantly arising to vex the systematist. He says: "The law of priority is very clear in regard to the treatment of such cases, but some naturalists object to have it enforced on the ground of expediency, and because it would be

apt to create confusion. Doubtless such would be the temporary result in this and all similar instances when errors are corrected which have been continued by writers who have simply followed each other without making independent investigations; but the confusion is originally caused by those who commit errors, not by him who corrects them. . . . It may be inconvenient for those who have become familiar with any special group to have their ideas of its nomenclature disturbed, by showing that errors have been committed and then knowingly continued; but that would be a most indefensible reason to advance why these should not be corrected. . . . Conservatism is an excellent principle when it serves as a bulwark against the commission of abuses, but is a most baleful principle when it is exerted against the correction of errors." Part V, not yet published, will conclude the work. — J. A. A.

Two Popular Bird Books.—That there has recently sprung up a great popular interest in outdoor studies of nature is abundantly evidenced by the frequent appearance of non-technical works, particularly of works relating to birds. It is furthermore a subject of congratulation that such works show a steady improvement, not only in literary execution, but in the knowledge of the subject displayed on the part of the writers of such books. Also that the demand for them renders it feasible for publishers not only to bring them out, but to give to them an attractive setting as regards typography and illustration. Mr. Keyser's 'In Bird Land,' and Mr. Parkhurst's 'The Birds' Calendar' are recent ventures in the line of popular bird books.

Mr. Keyser's book¹ relates especially to the birds found about Springfield, Ohio. It consists of eighteen chapters, originally published in various periodicals during the last two or three years. It has a more distinctly literary flavor than Mr. Keyser's former collection of papers,² and abounds in poetic quotations, chiefly from the writings of Emerson and Lowell. The following transcript of the titles indicates the general style of treatment: 'Wayside Rambles'; 'Bird Curios'; 'Winter Frolics'; 'February Outings'; 'Arrival of the Birds'; 'Winged Voyagers'; 'Plumage of Young Birds'; 'Nest-Hunting'; 'Midsummer Melodies'; 'Where Birds Roost'; 'The Wood-Pewee'; 'A Pair of Night-Hawks'; 'A Birds' Gala-Day'; 'Various Phases of Bird Life'; 'A Bird Anthology from Lowell,' etc. The writer is an earnest and true bird lover, who wanders in all weathers and at all seasons in search of bird friends. He tells pleasantly what he sees, often with realistic detail, and shows himself to be not only

¹ In Bird Land | By | Leander S. Keyser | . . . [= 9 lines of poetic quotations and monogram] | Chicago | A. C. McClurg and Company | 1894. 12mo., pp. 269.

² Bird-dom. 12mo., 1891. See Auk, IX, p. 63.

a competent observer, but quite capable of imparting to his readers the many bits of bird lore he gathers with so much zest from wood and field. The book properly closes with a good index.

Mr. Parkhurst's book¹ is much in the same vein, but rather more methodical in plan. Mr. Parkhurst's field is Central Park, New York City, and his book is "an informal diary of a year's observations" made chiefly "in that small section known as 'The Ramble' covering only about one-sixteenth of a square mile." The "observations," however, form really but a small part of the book, since they are made as it were the thread upon which he hangs an extensive array of general facts about bird life, such as would be most likely to interest the inexperienced but eager student of birds in their haunts. We find him rarely tripping in his general statements, while his observations on Central Park birds show him to be a careful field student, whose pleasantly told experiences most entice many of our city folk, who feel a longing for contact with living nature, to share his rambles. His book opens with a 'Prelude,' followed by chapters which bear simply the names of the months of the year, from January to December. It concludes with a 'Postlude' and an excellent index. The 'Postlude' gives a list of the 94 species met with, as a summary of his year's observations, which contain many facts of interest to ornithologists as well as to the lay reader. His style is attractive, and he has a way of 'putting things' that prevents his pages from becoming monotonous, as might easily prove the case with such a subject.

A feature of special interest to ornithologists is the illustrations, since they afford an indication of the possibilities of photography as a means of illustration in bird books. They are nicely executed 'process' plates, made from photographs of stuffed birds, with appropriate natural surroundings, the birds being from specimens in the 'Local Collection' of birds in the American Museum of Natural History; the pieces were designed and photographed by Mr. John Rowley, Jr., Chief of the Department of Taxidermy at the Museum. — J. A. A.

'The Birds About Us.'² — This is the latest of Dr. Abbott's charmingly written books on popular Natural History. In the present volume it has been the author's aim to treat briefly in systematic order of the more common birds of the United States — more especially of the Delaware Valley. The species are not treated under separate headings but we pass directly from one to another, ten to twenty being considered in each chapter. The characteristic habits of each bird are set forth in the

¹ The Birds' Calendar | By | H. E. Parkhurst | . . . [= 2 lines from Wordsworth] Illustrated | New York | Charles Scribner's Sons | 1894. 12mo., pp. viii + 351, with 24 full-page process plates.

² The Birds About Us. By Charles Conrad Abbott, M. D. Philadelphia; J. B. Lippincott Company, 1895. 12mo., pp. 288.

author's well known style, interspersed with sketches of nature and extensive quotations from Wilson, Audubon, Nuttall, and many other writers, which together make a book that cannot fail to prove most attractive to the reader who possesses any appreciation for nature, while the facts recorded are in the main scientifically accurate.

Dr. Abbott very justly calls to account the careless sportsman, the "loafers" and plume hunters, who are responsible for the scarcity of many of our birds which were formerly abundant, and "silly women" who wear birds in their hats also come in for their share of censure. It is the "professional ornithologist," however, against whom Dr. Abbott is especially and unjustly severe. He says of their work: "To realize what bird life is we must do a great deal more than merely collect the creatures and measure the thousandth of an inch of their hind toes." "There has been too much collecting by far that has yielded nothing worth the knowing. It is not justifiable to kill one hundred warblers in a day just to see if a particular one is among them. There is nothing to be gained in determining that there are possible hybrids, or, it may be, an overlooked good species in a given area. Let what we do not know go unknown until discovered by accident and let the birds live." Strange advice surely from any one who pretends to believe in scientific investigation! And if Dr. Abbott thinks that professional ornithologists are accustomed to slaughter all the birds to be found in a given area in order to determine what species occur there, he certainly has not a very close acquaintance with those whom he criticises. Professional ornithologists have just as much respect for bird life as has Dr. Abbott and do not sacrifice any more birds than are necessary for scientific study.

Our author further states that "the plea for collecting is worn threadbare"; and concerning the habits and anatomy of birds, "all needed information can be had from scores of books." "What we now want to know about birds does not call for a shot-gun. Our museums are overstocked and the amateur collector is a nuisance." Ornithologists will scarcely agree with the above, as there are many questions regarding bird anatomy, structure, and coloration of feathers, which have yet to be solved and upon which the books give us little or no information. And as to amateur collecting, beginners in the study must collect specimens to aid them in their work and to enable them to properly identify the birds that they see. Had Dr. Abbott used a gun a little more and been certain of the identity of the birds of which he wrote he would have been spared the publication of many remarkable statements which appeared in some of his earlier works, and which he himself seems now to admit as errors, as they do not appear in 'Birds About Us.' He still, however, insists on the breeding of the Solitary Sandpiper at Trenton, N. J., and says that "it is foolish for theoretical ornithologists to dispute such statements." In view, however, of the position he now takes regarding some of his other remarkable statements, we may be pardoned for differing from this opinion.

'Birds About Us' is illustrated by 24 half-tone plates, partly reproductions from Audubon and Wilson and partly from mounted groups in the collection of the Philadelphia Academy of Sciences — for which by the way the author makes no acknowledgment whatever. There are also a number of woodcuts, generally copied from Wilson, and for the most part so rough as to spoil the appearance of an otherwise handsome piece of typographical work. — W. S.

Chapman's List of the Birds of the Vicinity of New York City,¹ — Masquerading as a museum guide, a local list of such excellence has been laid before the public that its most obvious shortcomings are the result of an endeavor to please, at the same time, two classes of readers, the museum visitor and the ornithologist. As a consequence it leaves much to be desired by both; one has a dictionary of information thrust upon him instead of a primer, and the other growls at the superfluous illustrations and the references to alcoves and cases. The pamphlet consists of three parts, a brief introduction, an annotated list, and a short bibliography. The reviewer is placed at a great disadvantage for he is obliged to assume a dual *rôle*. As a visitor he finds the guide confusingly replete with scientific information. In the introduction the birds are nicely fitted into groups of "permanent residents," "summer visitants," etc., but there is no hint that the same species may equally well belong to several of these groups; and when he looks further into the list he finds "migrants," "fall migrants," and "spring migrants," — groups to which apparently no reference has been made. Any one of ordinary intelligence will discover that these terms are synonymous with "regular transient visitants," but in a guide nothing should be taken for granted.

From an ornithologist's standpoint the list is most acceptable, and acquires a particular interest from the fact that it is the first complete list of the birds of the vicinity of New York City that has appeared since that of Mr. Geo. N. Lawrence in 1866. It therefore deserves careful scrutiny and comparison with this list rather than with others of more limited scope. Mr. Lawrence's 327 species have been increased to 348 by Mr. Chapman. Introduced and extinct species are not numbered as part of the list, but incongruously appear in the same type used for it. Besides, such species as *Camptolaimus labradorius* and *Tympanuchus americanus* ought to have been treated alike. Aside from mere synonyms, Mr. Chapman omits without comment the following birds given by Mr. Lawrence, viz.: "*Turdus* [= *Hesperocichla*] *navius*," "*Puffinus*

¹ Visitor's Guide to the Local Collection of Birds in the American Museum of Natural History, New York City. With an Annotated List of the Birds known to occur within fifty miles of New York City. By Frank M. Chapman, Assistant Curator Department of Mammalogy and Ornithology. New York: Printed for the Museum. 1894. 8vo., pp. 1-100, with pll. iv and cuts in text.

Anglorum" [= *puffinus*], and "*Sterna Trudeaui*"; and excludes "*Procellaria pelagica*" and "*Sterna macroura* [= *paradisæa*]" because no specimens are found in the Lawrence collection and there are no recent records. There are no less than three valid records for *H. nævius* near New York City, and neither of the reasons just given seems sufficient to exclude a species once recorded, nor do they explain other omissions. It is inconsistent to exclude, for instance, *Tringa alpina* or *Æstrelata hæsitata* by the 50-mile limit rule and then admit *Chen cærulescens* and *Anas crecca*.

As a whole, however, the list is refreshingly accurate. The English name given to *Acanthis linaria rostrata* on page 57 should be Greater Red-poll, but there are no other slips of the pen worthy of notice.

A new and pleasing feature is found in the habitats given for each species, and they are defined with unusual care. Still, in numerous instances they are carelessly expressed. "Breeds from Pennsylvania northward," for instance, is not a habitat. Many of the birds of the Canadian avifauna are correctly stated to breed southward along the Alleghany Mountains, but the following species have been omitted, viz.: *Sphyrapicus varius*, *Contopus borealis*, *Empidonax flaviventris*, *Spinus pinus*, *Sciurus noveboracensis*, *Sylvania canadensis* and *Certhia familiaris americana*. Some of them have been recorded as far south as North Carolina, years ago.

Turning for a moment to the introduction we find classified groups of birds that are not happily chosen. The distinctions are artificial, rarity usurping largely the place of a scientific basis. For instance, the "irregular transient visitants" might readily fall into other groups and the awkward term used thus become superfluous. More than this, why the Sooty Tern and the Oyster-catcher are grouped apart from the White Ibis and the Black-necked Stilt is not obvious on any basis.

However, there is so much of value in this important contribution, that we can well close our eyes to its comparatively unimportant defects.—
J. D., JR.

Ridgway on New Birds from the Galapagos Islands.¹—In a preliminary paper of fourteen pages Mr. Ridgway has given us some of the results of his studies of the large collection of birds made at the Galapagos Islands by Dr. G. Baur and the late Mr. C. F. Adams in 1891. Says Mr. Ridgway: "Many of the specimens having been obtained on islands never before visited by a collector, it is to be expected that novelties would be found among the rich material which it has been my privilege to study. . . . Perhaps the most interesting result of Messrs. Baur and Adams' explora-

¹ Descriptions of Twenty-two New Species of Birds from the Galapagos Islands. By Robert Ridgway. Proc. U. S. Nat. Mus., XVII, 1894, pp. 357-370, No. 1007.

tions is the discovery of species which absolutely bridge the previously existing gap between the so-called genera *Geospiza* and *Cactornis*. . . . This matter will be fully discussed and illustrated in a much more detailed paper which will be published as soon as practicable." Of the twenty-two new species here described, three are referred to the genus *Nesomimus*, five to the genus *Certhidea*, seven to *Geospiza*, four to *Camarhynchus*, and three to *Pyrocephalus*. There are also remarks on "*Geospiza assimilis* (Gould?)" and *Pyrocephalus dubius* Gould, to which *P. minimus* Ridgw. is here referred.

Mr. Ridgway has also described¹ *Zosterops aldabrensis* from Aldabra Island, *Z. madagascariensis gloriosæ* from Gloriosa Island, *Cinnyris aldabrensis* from Aldabra Island, *C. abbotti* from Assumption Island, *Centropus insularis* from Aldabra and Assumption Islands, and *Caprimulgus aldabrensis* from Aldabra Island.—J. A. A.

Lucas on the Affinities of the Cœrebidæ.²—Mr. Lucas's paper is a collection of fragmentary though valuable notes, illustrated with figures of the palatal region, tongue, pterylosis, and intestines in quite a number of passerine birds, rather than a formal treatise. It opens with some suggestive observations concerning the difficulties that surround the investigator in attempting to elucidate the relationships of various puzzling genera among the Passeres. He says: "Representatives of the Mnioiltidæ, Meliphagidæ, Drepanidæ, Tanagridæ, and Fringillidæ, have been examined in the hope that the affinities of the Cœrebidæ might be made apparent; and I am compelled to confess that, on the whole, the result has been unsatisfactory, and that the examination of a considerable number of specimens has rather lessened my hopes that anatomical, and especially osteological, characters may be relied upon to show relationship among the passeres. Of course," he continues, "one trouble lies in the fact that the so-called families of passeres, at least very many of them, are not families at all, or not the equivalents of the families of other groups of vertebrates. It is my belief that any group of vertebrates to be of family rank should be capable of skeletal diagnosis, and this test applied to the passeres reduces them to a family or two, as has been done by Huxley and Fürbringer." While this may be true as regards the facts in the case, we cannot quite share Mr. Lucas's belief that among such a compact and numerous represented group as the higher Passeres it is essential to have an osteological basis for 'family' groups. A great deal depends upon the

¹ Descriptions of Some New Birds from Aldabra, Assumption, and Gloriosa Islands, collected by Dr. W. L. Abbott. By Robert Ridgway. *Ibid.*, pp. 371-373.

² Notes on the Anatomy and Affinities of the Cœrebidæ and other American Birds. By Frederick A. Lucas. Proc. U. S. Nat. Mus., XVII, 1894, pp. 299-312.

'laxness' or 'compactness' of structure of the group under consideration, since, as among mammals for example, differences that in one group (as in the Pinnipedia) are looked upon as merely specific, or at most subgeneric, would in other groups be considered of generic or of perhaps even higher importance. Hence among the Passeres we are hardly to look for, and much less to demand, as the basis for families such differences as we meet with among the lower orders of the class Aves.

Mr. Lucas's paper is an important contribution to the subject under discussion, which treats not only of the affinities of the Cœrebidæ, but also of such equivocal forms as the genera *Certhidea*, *Myadestes*, *Phœornis*, and *Phainopepla*.—J. A. A.

Rhoads's Reprint of Ord's North American Zoölogy.¹—Mr. Rhoads has done good service through his reprint of George Ord's North American Zoölogy, of which for many years not a copy appears to have been anywhere accessible, either in this country or abroad. Formerly a mutilated copy existed in the library of the Academy of Natural Sciences of Philadelphia, but later it disappeared. The perfect copy from which Mr. Rhoads's reprint is made was discovered by him in the private library of Dr. J. S. Cohen of Philadelphia, who kindly placed it at Mr. Rhoads's service.

The importance of Ord's 'Zoölogy' results from the fact that in this work a number of new North American animals were for the first time here named, principally mammals. Of the eight new names which Ord (in this work) appears to have given to birds, only four² prove tenable, and these were long since duly incorporated into the nomenclature of North American ornithology. Ord's list of bird names was compiled, as Mr. Rhoads duly states, chiefly from Turton's edition of Linnæus's 'Systema Naturæ,' published in 1807, with the addition of the species described by Alexander Wilson. Although purporting to relate to "North America," many European and a larger number of South American species are included. The list proper (pp. 315-319) consists of

¹ A Reprint | of the | North American Zoology, | by | George Ord. | Being an exact reproduction of the part originally compiled | by Mr. Ord for Johnson and Warner, and first | published by them in their | Second American Edition | of | Guthrie's Geography, | in | 1815. | — | Taken from Mr. Ord's private, annotated Copy. | To which is added an Appendix on the more important | scientific and historic Questions [sic] involved. | By | Samuel N. Rhoads. | — | Published by the Editor. | Haddonfield, New Jersey. | 1894.—8vo., pp. x (= introduction), 290-361 (= reprint), 1-90 (= appendix).

² *Phasianus columbianus* = *Pediocetes phasianellus columbianus* (Ord); *Sterna philadelphia* = *Larus philadelphia* (Ord); *Larus delawarensis* = *Larus delawarensis* Ord; *Anas columbianus* = *Olor columbianus* (Ord).

merely the common and technical names of the birds, but it is followed by "a succinct account of some of the most interesting birds of the United States, for which," says Mr. Ord, "we are chiefly indebted to Mr. Wilson's Work." This occupies pp. 320-357. Two of the new species (*Sterna philadelphia* and *Larus delawarensis*) are described in footnotes to the list; for descriptions of the others the reader is given a footnote reference to the "History of Lewis and Clark's Expedition."

Mr. Rhoads's annotations to the bird part of Ord's work occupy pp. 31-51 of his Appendix, and consist mainly of a statement of the equivalent current name of Ord's species, so far as they are certainly identifiable, with appropriate explanatory comment, particularly in the case of the North American species.

It is a great satisfaction to have a faithful transcript of this rare work placed within reach, although the interest that has centered about it is far greater than its importance, so far as its bird matter is concerned, would really warrant. It is somewhat different with the mammals, in which the chief importance of Ord's work, from a nomenclatural point of view, consists.

While we are very grateful to Mr. Rhoads for his reprint of Ord's 'Zoölogy,' we can hardly speak of the execution of his task as wholly above criticism. The ideal method of reproduction would have been of course by photography, so often resorted to in these days for the reproduction of letter-press. We trust that Mr. Rhoads has exercised the care in proof-reading the importance of the case required, but his own considerable array of typographical errors in the reprint, as well as in his own part of the work (see Errata, p. 51 of App.), leads us the more to regret that the text of Ord's work could not have been reproduced in facsimile; and especially when we note the large number of still uncorrected typographical errors (to say nothing of the idiosyncracies of punctuation) in his own text. In all probability, however, the errors, if any, in the reprint are not of material importance. — J. A. A.

Reichenow's Birds of German East Africa.¹—This work forms part two of Volume III of the great work now publishing in seven volumes entitled 'Deutsch-Ost-afrikas,' being the bird part of the volume devoted to the vertebrates of East Africa. It is in the form of a handbook or manual, treating of 728 species, giving a brief diagnosis of each, with generally a short account of their habits and distribution. Analyti-

¹ Die Vögel Deutsch-Ost-afrikas. | — | Von | Dr. Ant. Reichenow. |
[= 4 lines, titles, etc.] | — | Mit über 100 in den Text gedruckten, schwarzen
und farbigen Abbildungen | nach der Natur gezeichnet von | Anna Held. | —
| 1894. | Geographische Verlagshandlung Dietrich Reimer, Berlin. |
(Hofer & Vohsen.) Roy. 8vo., pp. 250 + 3 ll., 108 illust. in text, part
colored.

cal keys to the species and families facilitate identification. The work opens with a short historical introduction, giving an account of the ornithological exploration of the large area under consideration, with a bibliography of 81 titles of works relating to the ornithology of East Africa. This is followed by several pages devoted to the geographical and faunal relations of the region, and quite extended instructions as to methods of collecting and preparing specimens, and to the explanation of the terms used (illustrated with cuts) in the descriptions which follow. The illustrations are process-cuts, giving full length figures of generally one characteristic species for each family, with many additional figures of heads and other parts, many of them colored. The bibliographical references are mainly restricted to the original place of description of the species. Thus the work, while reduced to small compass, will serve as a very useful handbook to the birds of a still very imperfectly known region.—J. A. A.

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GENERAL NOTES.

'Gull Dick' again. — (See Auk, Vol. IX, p. 227, Vol. X, p. 76, and Vol. XI, p. 73.) Captain Edward Fogarty of the Brenton Reef Lightship, having kindly written me as usual regarding the movements of a certain American Herring Gull, called 'Dick,' I again take pleasure in communicating the same to the readers of 'The Auk.' On April 5, 1894, after partaking of a hearty breakfast, the bird flew around the lightship, and then took his departure, and was not again seen until about eleven o'clock on the morning of October 2, 1894, when he was observed flying around the lightship, thus making his *twenty-third season* here. It was noticed that his plumage presented a rather more ragged appearance than usual, his tail feathers being entirely wanting. The bird received his expected breakfast, and ate it with apparent relish. A companion Herring Gull was with him, but 'Dick' would not extend to him the invitation to partake also, and apparently did not desire his companionship. Some account of this bird having recently appeared in a Boston newspaper which contained statements which were unconsciously incorrect, I would say that 'Dick' has *never* permitted any one to fondle him, nor has he ever alighted *on* the lightship. — GEO. H. MACKAY, *Nantucket, Mass.*

Southern Capture of *Larus leucopterus*. — During the past winter some fishermen secured two Gulls, which I have preserved and which Mr. Frank M. Chapman identifies as follows: "No. 819, ♀, measures: wing, 15.25; tarsus, 2.16; exposed culmen, 1.64; depth of bill at angle, .56 in. I should pronounce it an example of *Larus leucopterus* in immature plumage."

"No. 847, ♂, measures: wing, 16.40; tarsus, 2.42; exposed culmen, 1.82; depth of bill at angle, .65. This specimen is slightly larger than average specimens of *L. leucopterus* and is thus intermediate between that species and *Larus glaucus*. It is, however, so much nearer the former than the latter that I should call this also *Larus leucopterus*." No. 819 was taken at Stamford, Conn., Feb. 16, 1894. No. 847 was shot at Rye, N. Y., March 3, 1894. — LOUIS H. PORTER, *Stamford, Conn.*

The Emperor Goose in British Columbia. — I wish to record the taking of the Emperor Goose (*Philacte canagica*) at Chemainis, Southern Vancouver Island, on the 20th of November, 1894. Is this not seven or eight hundred miles south of the prescribed limits of its southern range? The bird was shot with some Canada Geese and sold in the market here where I secured it.

I also wish to mention that I have just received a specimen of Harris's Sparrow (*Zonotrichia querula*), killed at Comox, B. C., by Mr. W. B. Anderson. This is the second example of this species found in British Columbia. — JOHN FANNIN, *Victoria, B. C.*

Branta canadensis. — Ponkapog Pond, Massachusetts, Dec. 5, 1893. A flock of Canada Geese (*Branta canadensis*), containing as near as could be estimated 2000 birds, passed to-day headed towards the south. They were separated into two lines or flocks, which were about one hundred and fifty feet apart. It was the largest body of these birds noted in this locality for forty years. On December 10, 1894, one hundred and twenty-three Canada Geese passed over towards the southwest; they were in broken flocks, and all talking in a vociferous manner. I am indebted to Mr. H. G. Nutter, of Boston, Mass., for the above.

The first flock of Canada Geese *Branta canadensis* this season were noted Oct. 17,— five birds.

From the 13th to the 20th of October, 1894, was the flight week for Black Ducks (*Anas obscura*), about 300 birds being noted passing south, the largest flock containing over fifty.

On October 15, 1894, thirty-two Cormorants (variety not known) in one flock were noted flying towards the south.—GEORGE H. MACKAY, *Nantucket, Mass.*

Cory's Least Bittern in Michigan.—A specimen of Cory's Least Bittern (*Ardetta neoxena*) was taken at Fairview Farm (Lat. 42° 13' N.) Jackson County, Michigan on August 8, 1894. The skin is now in my collection. The bird, a fine male, was brought to me by a boy who had gone out with my dog and gun in quest of Waders for me. He was near shore in a boat, and my dog 'Heth' was slowly beating among the reeds and cat-tails when this bird was flushed, rising in the ordinarily sluggish flight of the common Least Bittern, and was taken on the wing. Not knowing the strange garb of black and chestnut, I sent the skin to Prof. Walter B. Barrows at Michigan Agricultural College. He positively identified it as *Ardetta neoxena*. This is, with little doubt, the first and only record of the species for Michigan.—L. WHITNEY WATKINS, *Manchester, Mich.*

The Red Phalarope at Bridgeport, Conn.—Mr. J. C. A. Meeker has given me the skin of a male *Crymophilus fulvicularius* (Red Phalarope). The bird was found under some electric light wires on a bridge, May 20, 1894. Upon skinning it there was found a dark mark across the breast, showing the bird had killed itself by flying against the wires. As this is a very rare bird in this part of Connecticut, the record may be of interest.—J. B. CANFIELD, *Bridgeport, Conn.*

Numenius hudsonicus.—Nantucket, July 23, 1894. The first Hudsonian Curlew, or 'Jacks,' this season were seen to-day,— nine birds on Eel Point. They were again observed at the same place on July 29. There are fewer here this season than usual—in fact I have never known so small a number.—GEORGE H. MACKAY, *Nantucket, Mass.*

The 1894 Migration of *Charadrius dominicus* in Massachusetts. — The season of 1894 was unusually dry and warm, with entire absence of storms, moderate, pleasant weather prevailing throughout the entire migrating period, thus rendering it a matter of inclination, rather than necessity, that any American Golden Plovers (*Charadrius dominicus*) or Eskimo Curlews (*Numenius borealis*) should temporarily stop on the islands composing the group of which Nantucket is one. As a result but few Plovers did tarry, and no Eskimo Curlews. At Nantucket, August 18, 1894, the weather was clear with southwest winds; on the 19th nearly clear with a very light fog during a portion of the day, wind southwest. The first Golden Plovers were observed to-day passing over the eastern portion of the island, headed towards the south. Two flocks were seen, estimated to contain, respectively, fifty and thirty birds; none stopped.

There was an unusual large area of land burned over this season, more than I have ever known before, which should have proved particularly attractive to these birds as a resort. It was in consequence expected that many would stop which otherwise would have kept on. These hopes, however, were not realized. From the 19th to the 24th no birds were observed. During the night of the latter date, the wind having been westerly with some south in it at intervals, a few Plovers were heard passing over the town of Nantucket, but none stopped. Although out almost every day I have nothing to record until the 26th, when I saw four birds; wind southwest, calm, foggy outside the islands. As near as I can ascertain there are only about a dozen Plovers on the island and only four shot up to date.

August 29. Wind northeast to southeast, very light. A few Plovers passed over the town last night, and five were seen to-day. Also at sundown eight flocks were noted flying towards the west, the estimated numbers of which were seventy to twenty in a flock. None stopped on Nantucket. The weather was hazy; could not see off the shore.

September 3. The wind came from the northeast last evening about eight o'clock p. m.; at three o'clock in the morning it was blowing a strong breeze. I saw one flock of nine birds, and another of fifteen; about one hundred more were seen by other parties who were out. Only three birds were shot to-day, and seven on September 4.

Tuckernuck Island, September 5. About one hundred (estimated) Plovers landed last night; these are the first birds seen here this season. About twenty of them were shot up to September 10. Nantucket, September 6, I saw a flock of nine birds from which four were shot. September 7 was foggy early; three flocks of Plovers were seen towards the western part of the island; one contained nine birds, one seven, and one four, and a single bird. These, however, are not new birds; no new arrivals have been noted.

September 8, I drove all over the eastern burnt district. A gentle southeast breeze was blowing and the sky was overcast. Here I found several flocks of Plovers, one of twenty, from which I shot five, another of about forty from which I obtained ten.

September 9, drove over the same ground as yesterday and found a flock of six, from which I shot two; also saw a flock of about thirty; they were all the same birds seen yesterday.

September 11, I drove all over the eastern burnt district again, and saw the same old birds. I also saw some new arrivals, and there are now a hundred or more domiciled in this section, a good proportion of which are *young* birds, or 'Palebellies,' and which I think came on last night in a thick fog which prevailed in the late afternoon and early evening. The wind was strong northeast this morning. I shot eleven birds to-day, ten of which were *young* birds, the *first* noted or taken this season.

September 12, I again drove over the eastern ground; all the Plovers on the island being centered there, I obtained eight birds to-day, all young. Four or five flocks of Plovers were noted passing by the northern side of Nantucket about six o'clock p. m., flying towards the southwest.

September 13, I drove again over the eastern ground and saw the same birds, and obtained one. At sundown I saw the largest flock I have observed for years, about two hundred (estimated) birds. They had just come on and were flying about seventy yards high, headed towards the west. The latter half of the flock were much inclined to stop, but every time they lowered their flight to do so, the leading half would rise up and allure them on. I drove out early on the following morning, over the western ground, without finding them. I also made inquiry regarding them. They did not stop, the wind was southwest and west. I do not think any new birds landed on these islands between September 13 and October 2. On the latter date fifteen of the domiciled birds were shot, and on the first I shot another, a young bird, which was very fat.

As far as I know, and I have made constant inquiry, but eighty-seven Golden Plovers have been taken on these islands during the entire season up to October 2. No Eskimo Curlew, *Numenius borealis*, have been seen or taken. During the season I have made inquires of three of the largest game stalls in Faneuil Hall Market, Boston; the answer was always the same, none of them had received any Golden Plovers, and but a *single* Eskimo Curlew had been brought in. I have no direct information from Martha's Vineyard or Cape Cod, Mass. — GEO. H. MACKAY, *Nantucket, Mass.*

Unseasonable Nesting of the Ground Dove in Florida. — In a letter dated Tarpon Springs, Florida, Oct. 29, 1894, my correspondent Mr. W. S. Dickinson writes: "I find that the Ground Dove breeds in October, [collecting] in flocks from March until then. Last year I got two sets [of eggs] on the 19th of October, one on the 22d, all with small embryos; one set this year on the 15th [of October]."

This unsolicited testimony is of interest, not only confirming the previous record of the late breeding of the Ground Dove made by Mr. A. T. Wayne (Orn. & Oöl. 1887, p. 102), but seeming to prove that this conduct is not exceptional in southern Florida. That it is the rule in

that region would seem to be implied by Mr. Dickinson's statements, a condition of affairs strangely reversing the usual order of avian economy.

It is indeed a fair question whether this be not a case of *very early* instead of *very late*. Either way the case is a paradox.—SAMUEL N. RHOADS, *Acad. Nat. Sci., Philadelphia, Pa.*

The Passenger Pigeon in Aitkin County, Minn., with a recent Record for Northeastern Illinois.—Some facts lately furnished me by a Minnesota correspondent may be of interest in connection with the more recent movements of *Ectopistes migratorius*. Referring to the presence of the Wild Pigeon in his neighborhood the past spring, Mr. Eli La Mere, of Hickory, Aitkin County, Minnesota, writes me under date May 12, 1894, as follows: "Father saw a flock which was quite large; he says there were at least 500 of them in the flock. The boys see a pair occasionally in our sugar-bush and they seem quite tame. I think they will nest here this summer."

A subsequent letter received from him dated July 22 confirms in a measure the fact of its having bred there this spring, a single one being seen as late as the 20th of June.

The correspondent referred to in this instance is the son of a farmer-hunter at whose house the writer stopped for a number of days while visiting the State in the spring of 1893, and that the account herein given is truthful I have no reason to doubt.

Moreover the Pigeon was reported to me as being there during the time of my visit, a single individual being noticed by a timber 'cruiser,' who was perfectly familiar with the bird.

During late years the Passenger Pigeon has become extremely rare in Northeastern Illinois, at least so far as the neighborhood of Chicago is concerned. My latest record was made at Glen Ellyn on Sunday, Sept. 4, 1892. It was a young-of-the-year, very tame and unsuspecting. It was discovered in the company of some Jays and feeding about the piles of dirt recently made in excavating for the foundation of a house, well within the limits of the town, and was also observed to be picking the grain from some fresh horse-droppings, in which occupation it was harassed somewhat by the Jays. But the day, location and circumstances under which my observations were made precluded the possibility of the capture of the specimen.—BENJ. T. GAULT, *Glen Ellyn, Ill.*

The Turkey Buzzard in Plainfield, New Jersey.—A specimen of *Cathartes aura* was caught here on June 30, 1894. It is the first time the bird has been seen here. During the night of June 29 there was a heavy shower, and the bird was found sitting on a fence by the roadside the next morning, so wet that it could not fly and so was captured. I cannot find any one who has ever seen a specimen in this county.—STEPHEN A. KRAM, *Plainfield, N. J.*

Notes on the California Vulture.—It may interest members of the American Ornithologists' Union to learn that the California Vulture (*Pseudogryphus californianus*) is not likely to become extinct yet, as I recently saw a large flock of these rare birds. The circumstances were as follows: Oct. 10, 1894, while driving from Havilah southward, just as I was coming down into Walkers Basin, in the extreme southern end of the Sierra Nevada, I saw a California Vulture flying high in the air. As it was the first I had seen since March I got out my field glass and watched it. It appeared to settle toward the ground. A few minutes later another appeared and I saw it alight. As the road passed near where it alighted I kept on to opposite that point and getting out the glass again saw quite a number of Vultures about a carcass. A number of Ravens had flown away, but I could see no Turkey Vultures among those remaining. The bare necks of several appeared plain yellow at that distance.

They were about half a mile away. The ground was level and bare. The only cover was a wire fence, so it was nearly a hopeless case to attempt to stalk them, but the wind was blowing hard from the south and it seemed possible to walk up from the leeward and circle near enough for a shot, and so I camped and tried it. Before I got half way they began to rise and the last one left by the time I got within 300 yards. As I expected, the strong wind made them swing nearer me, but probably none came nearer than 150 yards. I expended two charges of buckshot in the futile hope that a stray buckshot might strike one.

As they rose singly or two or three together I had a good opportunity to count them. They were twenty-six in number! It was a sight I never before witnessed and do not expect to see again. Just think of it! Twenty-six California Vultures circling around above me, all in sight at once, as if they were but so many Turkey Vultures, and we had supposed the species was nearly extinct. Possibly it was a grand meeting of all the survivors, a family reunion; at any rate I had seen none for months and have seen none since.

I noticed but one immature bird. It rose last and perhaps others were in the thickest of the flock. I singled out two of the largest to fire at. They were not much larger than the average and there was no giant in the flock. Probably nine feet and six inches would be the spread of wings of the largest.

On walking up to the carcass I found it to be that of a young horse, not much eaten yet. In the hope that some of the birds might return I determined to wait until night in the vicinity (it was then 11 A.M.). Seeing the hopelessness of attempting to stalk them I tried another way to get them, and getting out half a dozen steel traps, set them around the carcass. It was an unfair method but I think few ornithologists would have hesitated on that account. It was useless, as no Vulture came in sight, although I waited until the approach of night necessitated driving on to some place where I could find water and feed for my horses, which

might be distant, as I did not know the country, this being my first trip through it.

The extreme drouth of the past season is destroying great numbers of cattle and horses in many parts of California and food for Vultures is therefore abundant. Bitter experience has increased the natural wariness of the species and now it is by a fortunate accident if the collector obtains a specimen. Unless an epidemic or some other disaster overtakes the species its extermination will not occur in our day.—F. STEPHENS, *Witch Creek, San Diego Co., Cal.*

Clark's Nutcracker in Eastern Missouri.—On the 15th of November last (1894) I had occasion to drop into the establishment of a prominent taxidermist, who handed me a bird to identify which proved a fine adult specimen of *Picicorvus columbianus*, Clark's Nutcracker, an extreme western species, never known to have been seen in this locality before. The specimen in question had been killed about four miles east of this city (Kansas City, Mo.) by a party while hunting in what is known as Big Blue bottom, formerly a heavily timbered district, though considerably thinned out now. The taxidermist was not positive as to the date of capture, but thought it was Oct. 28, or thereabout. He asked the gentleman who brought the specimen to him if any others like it were observed and he stated none others had been seen. Unfortunately he did not take the gentleman's name and address, so I had no opportunity of interviewing him personally. Prof. Dixon, the taxidermist, says he will mount this specimen, and probably send it to the State University at Columbia, Mo.

There was also brought into this same establishment a splendid specimen of the Acadian Owl (*Nyctala acadica*), killed by flying against a plate glass window on Broadway Avenue, this city, and picked up by a passer-by and brought in to be mounted. This is the second specimen of this diminutive species of the Owl family which had come into his hands from this immediate locality.—JOHN A. BRYANT, *1221 Olive St., Kansas City, Mo.*

Chats reared by Song Sparrows.—On June 8, 1894, while collecting about three miles north of Poughkeepsie, Dutchess Co., N. Y., I found a nest of the Chat (*Icteria virens*) containing a set of four eggs. They were packed away with some others I had collected and taken home, but on attempting to blow one I found that they were heavily incubated, the embryo being so large that it would have been impossible to remove it. In a small hedge near the house at which I was staying was a nest of the Song Sparrow (*Melospiza fasciata*) containing a set of four very pretty eggs, but I did not like to rob the bird, as it was quite tame, and I had watched the building of the nest with a good deal of interest; so I thought of a scheme by which I could obtain the set and still give Melos-

piza a brood to rear. I removed the eggs (which were perfectly fresh) and substituted those of *Icteria*, which had been without warmth for several hours; but, contrary to my expectations, they all hatched by the 13th, and the young birds were tenderly cared for by their foster mother until they left the nest about three weeks later. The young Chats grew so rapidly that they completely filled the nest in a short time, and it was a curious sight to see the mother feeding or endeavoring to cover with her wings her three charges, who were fully as large as she.

This experiment proves that *Melospiza fasciata* will rear a brood of totally different and much larger birds, whose eggs hatched a long time before her own would have. And also that *Icteria virens* will live on the same food as *Melospiza*, for we can hardly suppose *Melospiza* to have been intelligent enough to collect the same food for the young birds as their own mother would have done. To me it is an interesting subject and I intend to try other similar experiments next spring.—CURTIS C. YOUNG, *Brooklyn, N. Y.*

A Swallow Roost near Portland, Conn.—On the opposite side of the Connecticut River from Portland are what are locally known as the 'Little River' meadows. These meadows contain several hundred acres and through them flows Sebethe (Little) River which empties into the Connecticut. Along the banks of this 'little river' and its tributaries, water oats (*Zizania aquatica*) grow in abundance, giving food and shelter to the Rail, Marsh Wrens, and many other birds. These oats are the roosting place of thousands of Swallows, the birds spending the night clinging to the upright reeds, one above another. As a boy it was often my practice to fire a gun after dark in order to start the Swallows up and then witness their tribulation when trying again to find a suitable place for the night. This habit of disturbing the poor birds has not deserted me in later years.

The Swallows commence to congregate in these marshes early in August, and a small number may be found there the last week in October; the bulk, however, are seen from the middle of August until late in September. During the day they leave the meadows and only a few are seen in the vicinity, but at half past four in the afternoon they begin to appear from all directions, the flight ceasing about 6 P. M. My house is situated on high ground some two miles east of the marsh, and the flight of these birds over my premises, and toward this meadow, is so regular (from 4.30 to 6 o'clock) each afternoon, that a watch is hardly necessary to tell the time of day. Tree Swallows (*Tachycineta bicolor*) predominate at this roost, but many Barn Swallows (*Chelidon erythrogaster*) are seen, and a few Cliff and Bank Swallows (*Petrochelidon lunifrons* and *Clivicola riparia*). Occasionally a Martin (*Progne subis*) joins the multitude of other Swallows flying about the marsh.—JNO. H. SAGE, *Portland, Conn.*

Vireo philadelphicus in Cambridge, Mass.—On the 27th of September, 1894, a boy brought in a Philadelphia Vireo which he had just killed in the museum grounds. Looking through 'The Auk,' and the Bulletin of the Nuttall Ornithological Club, I find only three records for this bird in Massachusetts, viz.: Cambridge, Sept. 7, 1875 (B. N. O. C., I, 19), Magnolia, Sept. 18, 1879 (*id.*, V, 53), and Brookline, Sept. (*id.*, VI, 56). It seems likely that the vernal passage of this Vireo to its breeding places in northern New England is made to the westward of Massachusetts—perhaps up the Hudson River valley, where both the male and female have been taken in May, at Troy, N. Y. (B. N. O. C., V, 239).—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

The Prothonotary Warbler in Massachusetts.—Mr. J. W. Thompson picked up on the morning of Sept. 15, 1894, on the depot platform at Mattapan Station, N. Y., N. H., & H. R. R., a dead Prothonotary Warbler (*Protonotaria citrea*). The damaged bill and breast showed plainly that it met its death by striking against one of the mass of telegraph wires that were hanging directly over the spot where it was found.—M. ABBOTT FRAZAR, *Boston, Mass.*

The Winter Wren a Night Singer.—In the long list of birds that sing in the night I do not remember to have seen the name of the Winter Wren. That it sometimes sings on clear wintry days during its temporary sojourn in the vicinity of Philadelphia is probably well known to certain favored people. A bird of this species has for several years made the fastnesses of a thick hemlock hedge in my yard at Haddonfield, N. J., his winter home, and he sometimes favors me with a song in the early morning, even when the ground is covered with snow. Not content with this, he surprised me the other night, about ten o'clock, by one of his sweetest efforts. The song on this occasion was not so loud as that of more wakeful moments, but well-sustained for more than half the usual duration of the nuptial song, and then falling into a scarcely audible trill, as if the little dreamer had waked in the midst of his vision and, like more human sleepers, was reluctant to believe its unreality.—SAMUEL N. RHOADS, *Haddonfield, N. J.*

A Belated Mockingbird in Eastern Massachusetts.—On Nov. 25, 1894, I secured a male Mockingbird in good condition in a buckthorn hedge near my house. The weather was rough, with squalls of snow, but not cold. Previously, however, the thermometer had registered as low as 14°, with snow enough to make good sleighing.

The 'escaped cage bird' theory, which naturally occurs at once, does not apply here (unless braced up with a supplementary theory that the escape was remote enough to allow the bird to make himself over), the plumage and feet being in perfect condition.

There are quite a number of records for eastern Massachusetts, the latest appearing to be as follows: One reported by Torrey, Marshfield, Aug. 15, 1889 (O. & O., Sept., 1889); one by Miller, Provincetown, Sept. 11, 1890 (Auk, Jan., 1891); one by Mackay, Nantucket, Nov. 20, 1890 (Auk, Jan., 1891); one by Cory (young of the year), Hyannis, Aug. 30, 1891 (Auk, Oct., 1891). The first named is of special interest, being in the spotted plumage and accompanied by three or four others, a fair inference being that a brood had been hatched in the vicinity.

The breeding of the species farther west, near Springfield, has been a matter of several records, the latest, I think, being that of R. O. Morris (Auk, Jan., 1892), who says "a pair passed this, the fourth successive season, in West Springfield."

In view of the above, can we not abandon the cage bird idea for this section?—F. C. BROWNE, *Framingham, Mass.*

The Willow Thrush (*Turdus fuscescens salicicolus*) a Migrant in Northeastern Illinois.—I am indebted to Mr. Ridgway for the identification of two "very typical" specimens of this Thrush that were collected by the writer the past spring (1894), at Glen Ellyn, Ill., a male being secured on the 6th and a female on the 21st of May.

Since Mr. Coale's original record,¹ only one other specimen, taken by him at Ravenia, Ill., May 17, 1890, referred to in July, 1894, number of 'The Auk,' and now in the Field Columbian Museum of Chicago, has been taken to my knowledge in this State. It is of interest, therefore, to note that on the day of the last capture, May 21, at least two others were seen.

This fall I have found it to be a regular migrant here, specimens being taken Aug. 29 (the date of my 'first,' although a doubtful record, was made three days earlier), and again on Sept. 4, when one was also noticed. Others were here Sept. 1 (1) and Sept. 6 (2); the last one, a single bird, was recorded on the 8th of the month.

In view of the foregoing, supplemented with the general information furnished me by Dr. Merriam, some time ago, that the Agricultural Department at Washington has on file additional Mississippi Valley records of *salicicolus*, it would be well for the observers of Illinois in particular to keep a better lookout for this bird, as it will doubtless prove to be more plentiful with us than has been previously supposed.—BENJ. T. GAULT, *Glen Ellyn, Ill.*

Two Records from Keokuk, Iowa.—On the 16th of December, 1892, I shot a specimen of *Juncos hyemalis shufeldti* on the Illinois shore just opposite this city. It was with several other Juncos, all, as far as I could tell, of the common variety.

¹ Bull. Nutt. Orn. Club, 1883, p. 239.

On the 10th of November, 1894, a boy brought me a *Somateria spectabilis* that he had shot on the Mississippi. It was a male in brown plumage, but showing a few white and black feathers. The stomach contained nothing but fine quartz gravel. — WM. E. PRAEGER, *Keokuk, Iowa.*

Connecticut Notes.—Through the kindness of Mr. H. Hoyt I am enabled to report the capture here of a male specimen of the Sooty Tern (*Sterna fuliginosa*). The bird was knocked over with an oar, in September, 1879, and brought in to Mr. Hoyt. He preserved the skin and it is now in my collection.

During the summer and fall of 1894 the Yellow-bellied Flycatcher (*Empidonax flaviventris*) was quite common. I secured ten specimens, all males, during August and September.

Lincoln's Finch (*Melospiza lincolni*) has been observed in Stamford during the past year, and three specimens have been taken — one in the fall and two in the spring.

On Jan. 19, 1894, a farmer brought in a fine female Duck Hawk (*Falco peregrinus anatum*). The bird was shot while eating a pigeon taken from the barnyard.

During the spring of 1894 the writer took two sets of the eggs of the Rough-winged Swallow (*Stelgidopteryx serripennis*); one of six eggs on May 26, and one of five on June 9. — LEWIS H. PORTER, *Stamford, Conn.*

Bird Notes from Springfield, Massachusetts.—Last year, upon a narrow platform, under the cornice of a building six stories high in the center of the business portion of Springfield, a pair of Sparrow Hawks (*Falco sparverius*) built their nest and the female deposited therein a set of five eggs, which were successfully hatched. The young were then taken and removed to the roof of the building and placed in a box, and were followed there and cared for by the parents until they were fully grown. Any one going on to this roof and near the nest would be assailed by one of the old birds who would dart at the intruder from the spire of a neighboring church, where one of the parents was usually stationed. These facts seem remarkable when it is considered that the incubation and rearing were in the very heart of a busy city of fifty thousand people. Two of the young are still kept here in confinement.

Mr. E. H. Barney is devoting several acres of land near his home in the suburbs of Springfield to the cultivation of numerous kinds of trees and shrubs that long retain their seeds, hoping thereby to attract various kinds of birds, that he and others may study their habits. To this place, early in the autumn, a flock of about fifty Red-headed Woodpeckers (*Melanerpes erythrocephalus*) came and remained several days. Heretofore these birds have not been observed here, except occasionally singly or, more rarely, in pairs.

One of the greatest enemies to bird life in New England is to be found in the Italians, who during the last ten years have so numerously settled in the cities and larger towns. Throughout the whole year they roam over the country armed with cheap guns, shooting birds of all sizes, from the Kinglet up. Two police officers recently arrested two of these men who were in the outlying part of Springfield engaged in this illegal work. In their possession were found nearly fifty birds, the taking of which was unlawful. Among the kinds they had, I noted the Catbird, Robin, Rusty Grackle, White-throated and Song Sparrows, Olive-backed Thrush, Rose-breasted Grosbeak, Flicker and Downy Woodpecker.

September 1, a Least Bittern (*Botaurus exilis*) was taken here, and October 16, a Yellow Rail (*Porzana noveboracensis*). I have never known of the presence of the latter bird here before, and there is but one record of the capture of the former in this part of the Connecticut River valley. — ROBERT O. MORRIS, *Springfield, Mass.*

North American Bird Notes from Costa Rica.—*Tringa bairdi*.—Two specimens of Baird's Sandpiper were taken and a number of others seen June 8 on the Volcano of Irazú, above Tierra Blanca, at about 1500 meters altitude. The birds seemed to be at home and I have wondered whether it is possible they breed there. The genital organs indicated approaching activity.

Tachycineta thalassina.—While collecting at the mouth of the Matina River (Atlantic coast) in the latter part of March I found the Violet-green Swallow not uncommon in company with *T. albilinea*. Perfect friendship seemed to exist between the two species. *T. albilinea* was breeding commonly but in none of the specimens of *thalassina* secured did the ovaries indicate approaching activity. *T. thalassina* has also been taken on the Pacific side of Costa Rica at Bebedero. There is a single specimen from that locality in the collection of the Museo Nacional de Costa Rica.

I believe this brings the record several hundred miles southward for *T. thalassina*. — GEO. K. CHERRIE, *Field Columbian Museum, Chicago, Ill.*

Notes on the Summer Birds of Central Berkshire County, Mass.—The publication, in 1884, of Mr. W. Brewster's 'Notes on the Summer Birds of Berkshire County, Mass.' (Auk, Vol. I, pp. 5-16), established the Canadian character of the avifauna of northern Berkshire. The lists published by Mr. W. Faxon (Auk, Vol. VI, pp. 39, 99), present a very full account of the distribution of the birds on Graylock, and give in addition an account of the birds of the southern end of the county. Attention has not yet been called, I believe, to the very general distribution of certain northern birds throughout the central part of Berkshire County, particularly in the eastern half, so that the following notes, made in the summers of 1892 and 1893, may be of interest.

The character of the eastern half of the county differs in a marked degree from that of the western. The Taconic range, which forms the western boundary of the county, consists of a series of isolated peaks, separated by the Hoosick and the Housatonic Valleys from the high ground to the eastward. Here the surface is an almost unbroken plateau, falling gradually from an altitude of over 2000 feet, north of the Westfield River, to 1500 feet at the Connecticut boundary. Black spruce and balsam fir, which are absent in the Housatonic Valley and on the Taconic range, are characteristic trees of this plateau, and extend as far south as the town of Otis, about fifteen miles north of Connecticut.

The birds in the following list are either not reported in the published lists of Berkshire birds, or else were found in stations much further south than those hitherto noted. Unless otherwise specified the following observations were made between June 27 and July 16. Mr. W. Faxon has permitted me to use in the preparation of my list several of his manuscript notes.

1. *Anas obscura*. BLACK DUCK. — One pair seen in Stockbridge.
2. *Aix sponsa*. WOOD DUCK. — A female with young in Stockbridge.
3. *Ardea virescens*. GREEN HERON. — Not common.
4. *Rallus virginianus*. VIRGINIA RAIL. — One in Stockbridge.
5. *Porzana carolina*. CAROLINA RAIL. — One in Stockbridge, May 30, 1892.
6. *Fulica americana*. AMERICAN COOT. — A pair was seen by Mr. W. Faxon in Cheshire Reservoir, June 21, 1892.
7. *Totanus solitarius*. SOLITARY SANDPIPER. — Two seen in Becket, July 8, 1893.
8. *Colinus virginianus*. BOB-WHITE. — Not uncommon in Stockbridge in 1892; none found in 1893.
9. *Bonasa umbellus togata*. CANADIAN RUFFED GROUSE. — Found by Mr. Faxon on Graylock.
10. *Accipiter velox*. SHARP-SHINNED HAWK. — Two seen in June in North Adams by Mr. Faxon.
11. *Asio wilsonianus*. AMERICAN LONG-EARED OWL. — A specimen in the Pittsfield Athenæum, labelled "Pontoosuc Lake, April 30, 1879."
12. *Asio accipitrinus*. SHORT-EARED OWL. — A specimen in the Pittsfield Athenæum, labelled "Pittsfield, April 17, 1879."
13. *Megascops asio*. SCREECH OWL. — Young found in Stockbridge.
14. *Bubo virginianus*. GREAT HORNED OWL. — Nest with young found in Stockbridge, April 8, 1893.
15. *Coccyzus americanus*. YELLOW-BILLED CUCKOO. — One in Stockbridge.
16. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER. — One seen in Stockbridge, May 30, 1892.
17. *Contopus borealis*. OLIVE-SIDED FLYCATCHER. — A nest with young found in Hinsdale, June 30, 1893.
18. *Zonotrichia albicollis*. WHITE-THROATED SPARROW. — Not rare from Becket northward.

19. *Junco hyemalis*. SNOWBIRD. — Not rare on the Hoosac Plateau.
20. *Vireo flavifrons*. YELLOW-THROATED VIREO. — Three or four in Stockbridge.
21. *Dendroica coronata*. MYRTLE WARBLER. — One in Becket, two in Stockbridge, in white pine woods.
22. *Dendroica maculosa*. MAGNOLIA WARBLER. — Not rare among spruces from Becket northward.
23. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER. — A few in Stockbridge; not rare in spruce woods from Becket northward.
24. *Dendroica virgorsii*. PINE WARBLER. — Mr. Faxon shot a female in North Adams in the breeding season.
25. *Troglodytes hiemalis*. WINTER WREN. — One heard in Great Barrington, fourteen miles north of the Connecticut line; heard also in Becket and Washington.
26. *Cistothorus stellaris*. SHORT-BILLED MARSH WREN. — Locally common in Stockbridge.
27. *Regulus satrapa*. GOLDEN-CROWNED KINGLET. — Found in spruce woods in Becket, Washington, and northward. — FRANCIS H. ALLEN, *West Roxbury, Mass.*

Some Notes on Cape Breton Summer Birds.—Through the kindness of Mrs. Bolles I have before me a list of the birds observed in Cape Breton by the late Frank Bolles during the first two weeks of August, 1893. This enables me to make at least two additions to the list of summer birds of the Bras d'Or region as published in 'The Auk' (Vol. IV, p. 13, and Vol. VIII, p. 164) by Dr. Dwight and myself. These two species are *Loxia curvirostra minor*, which Mr. Bolles "met with in small numbers all through the region between Baddeck and Ingonish," and *Dendroica carulescens*, one individual of which he found near Baddeck.

As to the ten following species Mr. Bolles left no record of the precise locality where he observed them, and they may or may not have been in the Bras d'Or region:—

Larus argentatus smithsonianus. (In June 1890 I found numbers of these on the southwestern coast of the Island.)

Anas obscura.

Clangula hyemalis. (Doubtless migrants.)

Totanus solitarius.

Antrostomus vociferus. Mr. Bolles did not meet with this bird himself, but when he whistled the song, "the dwellers by sea or inland lake said, 'Oh yes, we have that bird. He sings at night.'"

Trochilus colubris. This is another bird which Mr. Bolles did not observe personally, but from the reports of the inhabitants he was positive of its occurrence.

Sayornis phœbe. "Pewees and small Flycatchers few and far between."

Poocætes gramineus.

Sylvania canadensis. A few in various parts of the island.

Gray-cheeked Thrush (*Turdus aliciae* or *T. a. bicknelli* ?) (Migrant?)

It may be well to note also the following species, not observed in the Bras d'Or region, but met with in other parts of the island:—

Cormorant (*Phalacrocorax carbo* ?). One at Ingonish.

Merganser serrator. Indian Brook.

Totanus melanoleucus. North shore. (Doubtless migrants.)

Philohela minor. Indian Brook.

Loxia leucoptera. One at Ingonish.

Dendroica blackburniæ. One near Indian Brook.

Sitta canadensis. One heard at Margaree Forks.

The matter in parentheses above is mine, the rest Mr. Bolles's. In some cases I have quoted from his recent book 'From Blomidon to Smoky.' Considering the location of Cape Breton and the known habitats of these birds, it seems reasonable to conclude that they had all bred on the island, except where otherwise noted.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

CORRESPONDENCE.

A Demand for English Names.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs:—For a considerable period my mind has been wrought up over what I conceive to be a sin of omission on the part of our well beloved and sincerely admired American mammalogists and ornithologists. As to the deeds or misdeeds of the latter, I have personally not so much practical concern; but inasmuch as the mammalogists have no publication of their own, it is necessary to reach them through 'The Auk,' or not at all.

My grievance is found in the frequency with which new species of mammals and birds are described and turned loose upon the reading world with Latin names only. Whether this is due to indifference to the wants of unscientific readers, to disbelief in the value of popular names, or to the limitations of our mother tongue, I am unable to state. But, whatever the cause, in behalf of the unscientific public, I protest that it is time for a radical reform on this point amongst our investigators.

As an illustration of the alarming increase of the no-name series of mammals, let us take Mr. Walter E. Bryant's admirable list of 'Recent Additions to the North American Land Mammal Fauna' (Zoe, III, p. 201) which enumerates all the new species that were described from 1884 to 1892. Out of 155 species and subspecies absolutely new, 85 were launched upon the English-speaking world with no English names whatever, and with no names understandable to any but really good Latin scholars. In other words, the 85 new species have, to about 999 persons out of every 1000, practically no names whatever! Now, when considerably over one-half of the new species of our highest vertebrates are given to us (I mean the 999) practically nameless, it surely is time to protest.

Of the 85 nameless species referred to, a somewhat hurried count reveals the following list of shortcomers: Merriam is responsible for 58, J. A. Allen 8,—and a very, very few it is, considering the great number of new species described by him—Mearns 5, True 4, Chapman 4, Miller 2, and Shufeldt, Bryant, Stephens and H. Allen, 1 each.

From the above showing we may fairly estimate the number of additional christenings that are necessary amongst the 150 more new species (according to Dr. Allen's figures) that have been added to our fauna since the publication of Mr. Bryant's list.

Now as to the equities in the case. The technologist may say: "But we are not describing new species for the benefit of the ignorant and unscientific public; and the professional zoölogists of the world will find our nomenclature quite sufficient." Let us see about that.

In the first place, it is the money and the friendly interest of the unscientific public that alone enables science to breathe the breath of life, to eat, drink and have a being; for as yet the unscientific are rather in the majority. It is the Tom Joneses and Bill Smiths whose bank accounts "pay the freight" for Professor This and Doctor That; and are not the Joneses and the Smiths entitled to some consideration in the matter of published information regarding our own fauna?

If I can read signs aright, the gap between our really scientific zoölogists (speaking generally) and the unscientific public, is growing wider and wider, day by day. The trouble is simply that *the former publish so very little that the latter can understand!* Zoölogical knowledge is increasing tremendously—amongst the scientific few; but amongst the people generally, I believe it is decreasing frightfully, in spite of our museums. All of which, as the newspapers say, is "important if true."

And furthermore; in the naming *and the measuring* of an animal, *why* should 120,000,000 English speaking people ever be ignored? Latin names are only a sort of necessary evil anyway. Many of them are so long and overwhelming that if a man does not want to be laughed at, or accused of wanting to "show off," he must choose his hearers with care before using them. Tell a newspaper managing editor that you have got a *Taxidea americana neglecta*, and the chances are ten to one that he will

think it is some new kind of a tape-worm, and advise you to go and see a doctor right away. But if you wish to talk about that particular animal, you must use that name or none; for it seems as if the author and finisher of that new subspecies forgot to say whether it was a California Badger, or simply a Neglected Badger. Evidently the latter would now be the most appropriate name for it.

I complain because in the matter of nomenclature the general public does not always get a show at the thing described. I complain also, incidentally, because nearly all our investigators have decided that in the matter of measurements they will do precisely as the French and German naturalists desire,—discard English inches and hundredths thereof, and follow the French metric system only. It is a case of the tail wagging the dog. It would be just as fair to the 120,000,000 of English readers,—not more than about 1200 of whom care one rap for the metric system,—to go full length, and write descriptions in a foreign language also; for with both names and measurements in foreign form, the description itself is often quite worthless so far as ordinary mortals are concerned.

Standing as I do, outside the charmed circle, yet somewhat in touch with the general public,—which most of our scientific investigators unhappily *are not*,—I have been moved to state how these things strike a private in the ranks. It seems to me it is the imperative duty of every author who has ever given us a new species of mammal or bird without a good, distinctive English name, to confess his sins, and make good every such deficiency without loss of time. I would like to see the next number of 'The Auk' contain a full list of what is now lacking in mammalian names. Of course, any one sufficiently interested, whether a Latin scholar or not, can take a Latin dictionary, find out what a strange Latin name means, and then select an English equivalent to suit himself. But that is clearly inadmissible. The author of the species is the only proper person to select and bestow upon it an English name. If a fair amount of thought and *originality* is given to the selection of a popular name, the chances are that it will be sharply distinctive, easy to remember, and, in a vast majority of cases, just as useful to English-speaking naturalists as any machine-made Latin name.

Very respectfully,

W. T. HORNADAY.

Buffalo, N. Y.,

Oct., 1894.

A Photograph of Audubon.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs:—The interesting communication in the October (1894) number of 'The Auk' on 'The Last Portrait of Audubon,' brings to mind a picture of the celebrated naturalist which has been in my possession many years. It is a small photograph and was taken apparently from the daguerreotype referred to by Dr. Shufeldt and Miss Audubon. The face is exactly like the one reproduced in the magazine.

I purchased the picture from the Messrs. Anthony, the publishers, about 1863, as near as I can remember. On the back of the card is the following:—

“PUBLISHED BY
E. & H. T. ANTHONY,
501 BROADWAY,
NEW YORK.
E. A. [monogram]
FROM
PHOTOGRAPHIC NEGATIVE
IN
BRADY'S
NATIONAL PORTRAIT GALLERY.”

A letter to E. & H. T. Anthony & Co., regarding this published portrait, brought the following reply under date Nov. 23, 1894: “We regret that we cannot trace the date of the photo., but all who were connected with that department have either left or died, and we have no means of finding the information you desire.”

Very respectfully,

JNO. H. SAGE.

Portland, Conn.,

Nov. 26, 1894.

NOTES AND NEWS.

PROF. J. W. P. JENKS, an Associate Member of the American Ornithologists' Union, died at Providence, R. I., September 26, 1894. Prof. Jenks was born at West Boylston, Mass., in 1819, and was graduated from Brown University in 1838. Immediately after his graduation he went to Georgia as a teacher, returning to Massachusetts in 1842, to become Principal of Pierce Academy at Middleboro. Prof. Jenks had the instincts of a naturalist and had ever been interested in natural history pursuits, but it was not until 1891 that he found opportunity to devote himself entirely to the study of nature. At that time he was called to Brown University to establish a museum of natural history, and to occupy the chair of agriculture. The remaining years of his life were closely identified with the museum which he founded. With characteristic energy he devoted all his time and no small share of his means to its development, and, almost single handed, brought within its walls by far the larger part of its collections.

Early in his life, acting under the advice of Prof. Jeffries Wyman, Prof. Jenks decided that his contributions to science could best be made in the shape of material for his associates to study, and few men have been more liberal or broad-minded in their earnest wish that their specimens should be placed where they would yield the best results. In this way he rendered important assistance to the late Professors Agassiz and Baird, the pages of whose works attest their indebtedness.

Prof. Jenks had all a naturalist's fine enthusiasm; his love for his calling never waned, and at the time of his death he was as ardent in his plans for the future as a student on the threshold of his career.

DR. EDUARD BALDAMUS, a Corresponding Member of the American Ornithologists' Union, died Oct. 30, 1893, in Wofenbüttel, Germany, at the age of 81 years and 6 months. This well-known ornithologist may be said to be one of the founders of German ornithology, having been an associate of Naumann, Brehm and Thienemann. Although from his earliest youth an ardent student of birds, he was by profession a teacher and clergyman. In 1849 he established the ornithological journal 'Naumannia,' which came to a close in 1858. This was apparently the earliest special journal devoted to ornithology, and was published as the organ of the German Ornithological Society, of which Dr. Baldamus was the founder and first secretary, this being likewise the first purely ornithological society ever organized. From 1860 to 1867 he was associated with Dr. Cabanis in the editorship of the 'Journal für Ornithologie.' In 1842 he began a series of ornithological explorations, which, during the next twenty-five years, extended from northern France and Italy to the islands of the North Sea, during which he formed his large oölogical collection, which has acquired world-wide fame. His writings have relation mainly to the life-histories

of European birds, and include the biological and oölogical portion of the supplement to 'Naumann's Vögel Deutschlands.' In 1876 he published an illustrated handbook of domestic fowls ('Illustrirte Handbuch der Federvieh-zucht'), and in 1882 appeared his 'Hausgeflügel.' His last work, 'Das Leben des Kuckucks,' was published only about a year before his death, in which work he gives the results of his many years' observations on the European Cuckoo. An extended history of the life and works of Dr. Baldamus is given in the September-October (1894) number of the 'Ornithologisches Jahrbuch,' by Dr. Rudolf Blasius, together with a list of his principal ornithological writings, numbering 160 titles.

MR. D. G. ELLIOT is engaged in the preparation of a work on 'North American Shore-Birds,' to be published by Mr. Francis P. Harper of New York. The work will include the Limicolæ, or the Plovers and Shore-birds of North America, with a full page illustration of each species, and a short account of its life history. It will also include keys to families, genera and species and a glossary of the terms used in description, being intended as a popular handbook of this group of birds, so full of interest to sportsmen and bird lovers.

FROM Mr. P. L. Sclater's address as Chairman of the British Ornithologists' Club, at the opening of the 'third session' of the Club, we extract the following interesting information respecting the forthcoming volumes of the 'British Museum Catalogue of Birds.' He says: "From the last Parliamentary Report of the British Museum we learn that Vol. XXIV of this important work will contain the Waders, by Dr. Sharpe; Vol. XXV the Gulls and Petrels, by Mr. H. Saunders and Mr. Salvin; Vol. XXVI the Divers, Pelicans, Cormorants, and Herons, by Dr. Sharpe; and Vol. XXVII the Geese, Ducks, and the remainder of the Class of Birds, by Count Salvadori. Thus, as these naturalists are all, I believe, busily engaged on the compilation of their respective tasks, we may look forward to the completion of this arduous undertaking within a definite period—say, two or three years from the present time." Dr. Sclater suggests that there be a final index volume, giving references not only to the generic names, but to all of the specific names referred to in the twenty-seven volumes of the work. He further suggests that an additional volume be prepared "in which all the names of species described since 1874 (when the Catalogue was commenced), and not already recorded in the different volumes," be enrolled, with references to each of them. We trust both of these excellent suggestions will be carried out.

WE HAVE before us two claimants for notice in the rôle of new natural history journals, one of which is 'The Iowa Ornithologist, devoted to Ornithology and Oölogy,' published for the Iowa Ornithological Association. It is a quarterly magazine, the first number, bearing date October, 1894, consisting of 26 pages of very creditable matter. The proof-reading,

however, appears to have been left to the printer, if we are to judge by the frequent misspelling of scientific names. The leading article, on the Finches and Warblers of Iowa, contains much valuable information. The magazine is edited and published by David L. Savage, Salem, Iowa.

The other claimant for attention is 'The Museum,' "a journal devoted exclusively to research in Natural Science," published by Walter F. Webb, Albion, N. Y. This is a monthly, and the first number, of 32 pages, is dated November, 1894. It is only in part ornithological, although nearly one-half of the present number is devoted to that subject. Some of the articles, however, are unsigned, and we fail to find a table of contents, although a blank page of the cover might well have been taken for this purpose. We welcome these new-comers and wish them a full measure of prosperity.

WE HAVE just received 'The Birds of Eastern Pennsylvania and New Jersey,' prepared by Mr. Witmer Stone "under the direction of the Delaware Ornithological Club," and published by the Club. This important contribution to local ornithology, coming too late for formal notice in the present number of 'The Auk,' will be reviewed in a later issue of this journal.

We are also just in receipt of Part III (Moa-Sheathbill) of Professor Newton's 'Dictionary of Birds,' a most welcome continuation of this important work.

AT THE Twelfth Congress of the A. O. U. the Committee on Nomenclature, having in charge the preparation of a new edition of the Check-List of North American Birds, reported that the manuscript was practically ready for the press. The Council thereupon authorized its immediate publication, under the joint supervision of this Committee and the Committee on Publications. The work will probably be ready for distribution toward the end of the present year.

OWING to the absence of a quorum of the Committee on Nomenclature at the last Congress of the Union, and to the impracticability of calling the Committee together immediately thereafter, the publication of its report for 1894 is necessarily deferred till the April number of 'The Auk.'

MR. GEORGE K. CHERRIE, of the Field Columbian Museum, has just sailed for the Island of San Domingo, West Indies, where he will make an extended exploration of the ornithology of the island. The expedition is under the direction of Mr. C. B. Cory, Curator of Ornithology of the Columbian Museum, in continuation of his work on West Indian ornithology, which he has heretofore prosecuted with so much success.

IT MAY be of interest to know that Mr. William McIlwraith, of Rockhampton, Queensland, Australia, with others of a similar taste, is taking preliminary steps toward founding an 'Ornithologists' Union' in that distant land. We wish the new society every success.

THE A. O. U. 'Committee on Protection of North American Birds' made its usual report at the Twelfth Congress. The Chairman, Mr. Frank M. Chapman, read as a part of his report a communication from Mr. William Dutcher regarding the protection secured for the colony of Terns on Great Gull Island, New York, during the breeding season of 1894. In 1886 from 3000 to 4000 Terns were living on this island. It was found to be a common practice for persons to visit the island, shoot the birds, and take their eggs for various purposes, principally, however, for eating. Subsequently it was ascertained that the Terns were decreasing in numbers from year to year, and the necessity for protection became apparent if this colony of beautiful and harmless birds was not to be entirely destroyed. This had been the result elsewhere on the coast of Long Island. Through coöperation with several scientific and other societies of New York, and the United States Light House Board, a Special Game Protector was appointed who had charge of the island from May 15 to September 15. During that period numerous parties were prevented from collecting eggs and shooting birds. As a result of his efforts the estimated increase of the colony was from 1000 to 1500 birds, or at least one-half in numbers. Mr. Dutcher considered the statement correct, as large flocks of Terns had been seen on Long Island Sound as far west as Flushing Bay during the past season, none having been observed there before for a number of years.

Mr. Chapman also stated that Messrs. Wm. Brewster and Geo. H. Mackay were instrumental in saving from destruction the Terns on Muskeget Island, Mass. The efforts of these gentlemen prevented the threatened repeal of protective laws already in force.

The Committee was continued and, Mr. Chapman declining the Chairmanship, Mr. Gurdon Trumbull was made Chairman.

THE ACTION on the Amendments to the By-Laws of the A. O. U., proposed at the Eleventh Congress and referred to the Twelfth Congress, resulted as follows: The first proposed addition was not adopted. That part of the second amendment relating to elimination was adopted, but that portion consisting of the addition of the words "and voting" was rejected. The first paragraph of Article IV, Section 5, as amended, reads as follows:—

"*Article IV, Section 5.* Elections to Active Membership shall be held in the following manner: The number of Active Members to be elected shall be first decided by a majority vote of the Active Members present at the Stated Meeting at which the election is to be held. At each ballot each member present may vote for nominees not exceeding the full number of vacancies to be filled, and the person receiving the highest number of votes shall be declared elected, provided that he receive the votes of at least three-fourths of the members present, and so on until all the vacancies are filled."

Rule XI of the By-Laws and Rules was amended to read as follows:—

“Rule XI. Nominations for membership must contain the full name, residence, official position if any, and date of nomination of the candidate, and must be signed by the member or members making the nomination. A suitable form of nomination shall be provided by the Secretary, and also printed lists of the names of candidates for Active Membership, to be voted for by the Australian ballot system.”

FROM THE recently issued ‘Report of the Ornithologist and Mammalogist’ of the U. S. Department of Agriculture for 1893, by Dr. C. Hart Merriam, we learn something of the character of the work of this important bureau for that year. Like so many of the Government publications, it is belated news. With this Report Dr. Merriam brings out his ‘Third Provisional Bio-geographic Map of North America,’ modified in some essential details from the second, published about a year and a half previously. In speaking of the field work of 1893 Dr. Merriam says: “During the present year the biological survey of the Rocky Mountain region has been carried from Utah and Idaho completely across the State of Wyoming, thus connecting the work of the previous years in the Great Basin with the western part of the Great Plains. A large part of Wyoming was found to be from 1,000 to 3,000 feet lower than represented on the latest maps, and consequently to have a warmer summer climate and to belong to a more southern life zone than previously supposed. Thus the Wind River and Bighorn basins and the plains east of the Bighorn Mountains fall within the Upper Sonoran Zone instead of the Transition. . . . A special effort was made to determine the position of the boundary between the Upper Sonoran and Transition Zones in the States of Nebraska, North and South Dakota, and Montana. Further south, field work was carried on in Kansas, Colorado, and New Mexico; and further west, in California, Nevada, and western Oregon.” Explorations were also continued on the tableland of Mexico.

The collection of data for the mapping of the distribution of species was also continued. While the methods of conducting this work are given in considerable detail, and its great economic importance is duly urged, we are given no definite information as to how far the work has been carried, or when the results will be made public.

In regard to the economic investigations respecting the habits of birds and mammals in their relation to agriculture, it is stated that the bulletin on the Crow, based on the examination of more than 900 stomachs of this bird, is about ready for publication, and that a similar bulletin relating to the Crow Blackbird is well under way. The report concludes with a short paper on the ‘Food Habits of the Kingbird or Bee Martin,’ by Mr. Walter B. Barrows, in which it is shown that very few Kingbirds catch honey bees, and that 90 per cent. of the bees thus caught are drones. On the other hand the Kingbird destroys large numbers of the so-called robber flies, which are very destructive enemies of the honey bee.



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PRAIRIE HEN (*TYMPANUCHUS AMERICANUS*).
RED PHASE.

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NO. 2.

A REMARKABLE PLUMAGE OF THE PRAIRIE HEN (*TYMPANUCHUS AMERICANUS*).

BY WILLIAM BREWSTER.

Plate II.

THE Prairie Hen figured in this number of 'The Auk' is one of four specimens known to me which possess the same remarkable coloring to a greater or less degree. Of these specimens one (the bird which furnished the subject for the plate) is preserved in the American Museum of Natural History of New York, two are in the Green Smith collection of the Museum of Comparative Zoölogy at Cambridge, and the fourth is in my own collection.

Three of these birds show but little variation with respect to the depth and extent of the reddish brown or chestnut coloring. In the specimen represented by the plate, as well as in both of the Green Smith birds, the upper parts are strongly suffused with reddish brown, while most of the lower parts are clear, plain, reddish or rusty chestnut, the usual blackish, transverse bars being nearly or quite wanting save on the sides. My bird, of which a detailed description has already appeared (Bull. N. O. C.,

Vol. VII, Jan. 1882, p. 59), is much less richly colored than the others, especially on the lower parts where the dark markings are but little obscured by chestnut save on the breast and the middle of the abdomen. This specimen, however, has one peculiarity not shared by any of the others; viz., a band or collar of broad, elongated, stiffened feathers which extend continuously around the neck in front crossing the lower portion of the jugulum about in a line with the neck tufts and forming a conspicuous ruff which is mainly black mixed with reddish chestnut.

All four of these singularly colored Grouse are males. As all of them were obtained in the markets, nothing positive is known as to the localities where they were killed. This is unfortunate for definite knowledge on this point is almost essential to any satisfactory explanation of their peculiarities. It seems probable, however, that they represent merely a color phase of *Tympanuchus americanus* (with which all but the bird last mentioned agree perfectly in every respect excepting color); or, in other words, that the Prairie Hen is subject to a form of what is known as erythrisms. In any case the rufous plumage must be either of very rare or very local occurrence, for since obtaining my bird I have examined several thousand Prairie Hens in the Boston markets without finding a second specimen.

THE FULMARS OF SOUTHERN CALIFORNIA.¹

BY A. W. ANTHONY.

SOME time about the last of September the first of the Fulmars make their appearance off the coast of southern California, the exact date being somewhat uncertain and due in a measure to the food supply, and quite possibly also to the weather.

The first arrivals are met with well off shore, with the flocks of Shearwaters, *Puffinus gavia*, *creatopus* and *griseus*, from ten to thirty miles at sea.

¹ An author's edition of 125 copies of this paper was issued March 16, 1895.—ED.

The first birds are usually, I think, in the dark phase of plumage. At any rate my records for the past four seasons show that birds in this plumage are the first to arrive, and the latest spring record,—April 12, San Martin Island, Lower California,—was that of a dark bird. My late spring observations, however, are too scanty to be at all satisfactory, and I should expect to find a few birds at least well off shore as late as April 20.

Ten miles west of Point Loma, at the entrance of San Diego Bay, is an extensive fishing bank extending parallel with the coast for a distance of several miles. This bank is resorted to during fair weather, from October 1 to March 1, by the San Diego fishermen who obtain large quantities of rock cod there for the markets of southern California. The fishing is all done in from seventy-five to one hundred fathoms of water. I think there is nowhere less than fifty fathoms. There are often large schools of small fish on the surface, which attract large numbers of sea birds, including the Fulmars, and it is along this bank that Fulmars are to be found if anywhere near shore. They are hardly what one would call gregarious, although several are often seen in company flying along in a loose, straggling flock. More often they are seen in flocks of *Puffinus gavia*, one or two in a flock of fifty Shearwaters.

Unlike the Shearwaters, however, they seldom pass a craft without turning aside to at least make a circuit about it before flying on. If the vessel is a fishing sloop sounding on the banks, the chances are in favor of the Shearwaters being forgotten and allowed to disappear in the distance while the Fulmar settles lightly down on the water within a few yards of the fisherman. The next Fulmar that passes will, after having made the regulation circuit, join the first until within a few minutes a flock of six or eight of these most graceful and handsome Petrels have collected, dancing about on the waves as light and buoyant as corks. As the lines are hauled up after a successful sound, the long string of often twenty to thirty golden-red fish are seen through the limpid water while still several fathoms in depth, and great excitement prevails. Any Fulmars that have grown uneasy and have started out on the periodical circuit of

the craft immediately alight a few yards to the windward. Those that are on the water and have drifted away hasten to the spot with wings outspread and feet pattering along on the water.

It is more than likely that in hauling up the net one or more fish become detached from the hooks; such fish, if loosened after having been raised twenty fathoms, are sure to rise to the surface a few feet to the windward of the boat. The pressure of the water being suddenly removed, the internal pressure becomes so great that the fish is greatly distended and rises helpless to the surface.

With a hoarse croak and wings outspread the nearest Fulmar pounces upon the unfortunate cod, keeping all others at bay with threatening beak. A few hasty snaps at the eyes or air bladder protruding from the mouth convinces him that codfish are tough, and the first floater, if a large one, is abandoned for the moment, for the second, should there be more than one, or for a snap at the bait on the hooks.

Their excitement by this time has attracted the attention of several Western and American Herring Gulls which hover screaming over the sloop, too shy to attempt to touch the fish while it is so near. Another ocean wanderer meantime has arrived; a Short-tailed Albatross, sweeping along, has noticed the commotion among his lesser brethren, and with a groaning note settles down by the floating fish, keeping all trespassers away by a loud clattering of mandibles; though not infrequently a Fulmar will dispute possession for some time with an Albatross before leaving a fish he has torn open, and I think a Fulmar will usually rout a Western Gull entirely.

In attacking a fish under the above conditions the eyes and air bladder are first eaten, after which the abdomen is torn open, if possible, and the entire contents of the skin torn out piecemeal. I have, however, seen birds seated on the water by the side of fish from which they had eaten the eyes, but were unable to tear open the tough skin.

The bait on fish hooks left hanging over the sides of the boat is often taken within a few feet of the fisherman, and birds are not infrequently hooked, much to the disgust of both the fisherman and the bird. Their confidence in mankind is at all times very

great. I have several times seen them killed by Portuguese fishermen who had but to drop a small piece of fish overboard and hit the bird with a club when it swam up to get it.

I was one day becalmed in a small schooner several miles off shore when several Fulmars settled near us after the usual sweep about our vessel. I had a fresh bonito on deck which I began to cut up and toss over to them. The fish was too heavy to float, sinking quite readily, and no attention was paid to a piece that had sunken over eighteen inches, and even those that had reached that depth were not always secured.

In diving they used both feet and wings, the latter only half open, the primaries seeming to be used very little, if any, but kept drawn back with the secondaries. Once under the water they make good headway, seizing the fish, which is swallowed immediately upon reaching the surface.

By lying flat upon the rail of the schooner I could just reach the water with my finger tips when the waves favored me, but even at this disadvantage it was only a few moments till I had captured several Fulmars by coaxing them up with bits of fish and grabbing them when the roll of the vessel placed me near enough. When thrown upon deck they made no attempt to fly, but with outstretched wings hurried to the rail, over which they could just reach, and emptied the contents of their stomachs into the sea, a performance they attempted to repeat whenever they were disturbed. Their actions were so like those of sea-sick landmen that it was extremely laughable. The popular belief among sailors is that they are really sea-sick, but of course the action is prompted by anything but nausea. It is more likely that the stomach contents are given up, as the Tern disgorges when pursued by a Jaeger, as a ransom.

When tossed overboard it was only a few minutes until the same birds were back again, as full of confidence as before, and one, to the foot of which I tied a piece of twine a yard long, followed the schooner nearly all day, often disappearing a mile or more ahead and returning again.

In catching Fulmars with my bare hands I found that it was quite safe to let go of them as soon as convenient, for they are provided with an unusually sharp bill, and are singularly willing to use it.

My brother once found a Pacific Fulmar in San Diego Bay, the only record, by the way, that I have of their entering the harbor. As he had no gun he gave chase in his skiff and captured it without injury. He said that at first it was rather wild but after flying a few times it gained confidence and only attempted to escape by swimming, when it was easily overtaken and caught. It was in no way injured or diseased so far as I could determine by dissection.

Although mention has been made of their following fishing sloops, fish form a very small part of their diet while on this coast. In fact it is the exception. I have never found small fish in the stomachs of those I have taken, nor have I seen them catch fish for themselves, though I have no doubt regarding their ability to do so should they fall in with a school of small herring or anchovies, and from their associating with the flocks of Shearwaters I infer that they derive a part of their food from such schools of small fry when they are common. There is, however, a large jelly fish (*Medusa*!) that is usually abundant along this coast during the time of the Fulmars' sojourn, and these are never disregarded by the ever hungry birds. I have often seen a Fulmar sitting on the water by the side of a jelly fish, part of which it had eaten, so filled that it would scarcely move out of the way of the boat. Specimens shot while these *Medusæ* are common I have always found with the stomach filled with these alone, and half a pint of the slimy mass will often run from their mouths when lifted from the water by their feet.

I think the Fulmars enjoy a monopoly of this diet, for I have never seen other species eating it, nor will Gulls, nor any of the sea birds that I have observed, pay any attention to a Fulmar that is eating a jelly fish though they all claim their share if the food is of a kind that they care for.

The abundance of the Fulmars off this coast would seem to have some relation to the abundance of the *Medusæ*, since the winter of 1893-94 was noted for the almost if not entire absence of Fulmars as well as jelly fish until some time in late February or March when both jelly fish and Fulmars appeared in small numbers.

I have occasionally seen Fulmars busily engaged in picking small crustacea (?) from the kelp, but as a rule they prefer to

obtain their food in open water where they are much oftener seen than along the immense beds of kelp (*Macrocystis pyrifera*) and 'bull kelp' (*Nereocystis lutea*) that fringe the shores for miles along the southern coast. These kelp beds, however, acting as barriers to drifting *Medusæ*, often entangle a quantity of them, and for the time being Fulmars are common near shore. They will also follow the Shearwaters which at times drive schools of small fish into the kelp beds. In diving for fish in competition with Shearwaters they are badly handicapped; their plumage being much less compact makes it not only more difficult for them to get under the water but they cannot dive so far nor swim so fast below the surface as can the Shearwaters.

In flight the Fulmars much more closely resemble the Shearwaters than the Albatross, though they have the habit common to all of these families of sailing along over the water at an angle of about 45° with the tip of the lower wing but just above the waves. The wing beats are rapid, about as in *Puffinus*, and there is at a distance little to distinguish the Fulmars in the dark phase from *Puffinus griseus*, except the shorter, less pointed wings and heavier body of *Fulmarus*.

In rising from the water the Fulmars, Shearwaters and both species of Albatross found with us (*Diomedea albatrus* and *D. nigriceps*) spread the wings and run along the water for a distance to gain sufficient momentum to lift them clear of the waves. The Fulmars will almost invariably, according to my observations, rise toward an approaching boat, while both *Puffinus* and *Diomedea* always fly from anything disturbing them and rise preferably against the wind.

Before discussing the relative abundance of the races, I think best, in order to have names for all of them, to describe a race which I believe to be heretofore unrecognized and as well entitled to separation as is *minor* of the Atlantic. For this race I propose the name of

Fulmarus glacialis columba, subsp. nov. PIGEON FULMAR.

Subsp. char. — Differing from *glupischa* in much smaller size, equalling *minor*, from which it differs in differently colored bill and in the dark phase being much darker.

Type (light phase), No. 4914, Coll. A. W. A. Off San Diego, California, Feb. 21, 1894. General plumage white. Mantle pearly gray, rather darker than light phase of *glupischa* in my collection. Tertiaries white with brownish gray clouding.

Dark Phase. Type No. 5596, Coll. A. W. A. Off San Diego, California, Oct. 16, 1894. Uniform deep sooty plumbeous. Bill yellow. Iris brown.

The proposed race differs from *minor* exactly as does *glupischa* from *glacialis*. The plumage and color of the bill are practically as in *glupischa*, from which it differs, as above stated, in smaller size, as will be shown in the following tables.

Unfortunately I have mislaid the measurements of a part of my series, which is now inaccessible, but the results as given in the tables below would not be materially changed by the addition of measurements of the series I have examined.

I have but a single skin of *glacialis* to use in comparison. This is an adult in light plumage from Melville Bay. As compared with my skins of *glupischa* taken off this coast the mantle is a rather darker gray. This, however, is doubtless but an individual variation. The bill is noticeably smaller than in Pacific specimens I have seen, the nasal tubes being fully 4 mm. shorter than in Pacific Fulmars of otherwise the same general measurements. As I can find no mention by various writers of this apparent difference in the size of the bills I am forced to believe that there is considerable variation, though the measurements of *glupischa* before me are reasonably constant.

A specimen of *rodgersii* (No. 4913, Coll. A. W. A., Feb. 17, 1894, off San Diego, California) has the primaries slaty, the inner web with a sharply defined white wedge reaching to within 45 mm. of the end of the first primary and leaving a dark shaft line 5 mm. wide. The dusky on the tips of the primaries gradually becomes less and disappears at the ninth. The slaty shaft line becomes also narrower and disappears on the sixth.

In a younger specimen shot the same day the wedge is very poorly defined and much less purely white (grayish). The mantle is much more continuously gray and the tail from above dusky gray. In the adult the tail is pure white with a dusky terminal bar of 12-15 mm.; central rectrices with but a slight clouding of dusky at the end.

In the light phase the three races, *glupischa*, *rodgersii* and *columba*, seem to be nearly equally abundant. The dark birds, which form, I think, about 65 per cent of the whole, swell the ranks of *glupischa* and *columba* considerably. If *rodgersii* has a dark phase it is indistinguishable from that of *glupischa*.

Fulmarus glacialis glupischa (White Phase).

No.	Locality.	Date.	Sex and Age.	Total Length.	Wing.	Tail.	Chord of Culmen.	Nasal Tubes. ¹	Tarsus.
9290 ⁸²	Bering Island,	Feb. 7, '83	♂ ad.	471	320	117	36		52
92909 ²	Copper Island,	July 14, '83	♀ ad.	458	328	122	36		51
5871	Off San Diego, Cal.,	Feb. 21, '94	♂ ad.		321	140	40	14	50
5872	" " " "	Feb. 21, '94	♂ ad.		322	145	39	14.5	53

Dark Phase.

8913 ⁸²	Copper Island,	June 8, '82	♀ ad.	425	312	120	35		
92910 ²	Bering Island,	May 4, '83			330	132	36		50
92911 ²	Copper Island,	July 5, '83	♂ ad.	480	333	131	37		51

F. glacialis rodgersii.

4912	Off San Diego, Cal.,	Feb. 21, '94	? ad.		312.5	138.5	40	14	50
4913	" " " "	Feb. 21, '94	♂ ad.		332.5	143	39	12	50

F. glacialis (White Phase).

4810	Melville Bay,	July 17, '91	♀ ad.		324	128	34	10	46
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F. glacialis columba.

4509	Off San Diego, Cal.,	Oct. 12, '93	♀ ad.		293	124	33	15	45	White
4914	" " " "	Feb. 21, '94	♀ ad.		283	125	36	15	46	" "
5595	" " " "	Oct. 16, '94	♀ ad.		280	137	36	14	48	Dark
	" " " "	Oct. 16, '94	♀ ad.		305	140	38	13.5	48.5	" "
5596	" " " "	Oct. 16, '94	♀ ad.		296	131	34.5	12	43	" "
	" " " "	Oct. 16, '94	♀		305	138	38	14	47	" "

¹ The measurements of nasal tubes are from the base of the culmen to the border of the concave outline of the tubes or the shortest measurements taken along the culmen.

² Catalogue U. S. Nat. Museum, the other numbers being those from my own collection.

Dr. Stejneger says of the two phases of *glupischa* on the Commander Islands (Bull. 29, U. S. Nat. Mus.): "The young birds of the white forms have the head and greater part of the lower surface suffused with light gray, yet they can never be mistaken for the dark ones, and I doubt very much if any intergradation *between the fully matured adults* of the two forms or phases can be proven. I have observed thousands and tens of thousands of the dark forms breeding, not finding a single one perceptibly lighter, although a small colony of the white form was breeding in the neighborhood but separate from the dark ones, nor were any of the light phase perceptibly darker than usual, and in no case were white and dark birds paired together."

There are periods when nearly all of the Fulmars found off this coast are of the same phase, but at times, when both light and dark birds are found, they are much more apt to separate than to flock together. If a flock of six or eight are seen, and I have seldom seen more than that together, they are usually all of one phase. The young of the light birds are easily distinguished at a distance, the plumage being much lighter than the dark plumage of *glupischa* or *columba*, but the young of the dark phase are in no way distinguishable from the adults by their plumage. A fully adult *columba* in the dark plumage, taken Oct. 16, shows a mottled condition caused by the lighter tips of the old feathers scattered through the fresh plumage. Several of my specimens have parts of the nasal plate loose and in a condition to be easily removed, suggesting that possibly these plates are to some extent deciduous. The material is not sufficient, however, to make it safe to venture an opinion. From the series of birds in the light phase I am of the opinion that three years at least must elapse before they reach the perfect adult plumage. The young of the first year are easily distinguished even at a distance, but those which I take to be two years old are not so easily separated. The mantle, however, is slightly darker, and the wedge on the inner webs of the primaries is grayish instead of pure white as in the adult, and its outline is not so sharply defined. The tertials are grayish-white in the young birds of two years and pure white in the adults. Dr. Stejneger (Bull. 29, U. S. Nat. Mus.) gives the color of the bill of a winter specimen of *glupischa*, taken off Bering Island, as yellow

with tinges of greenish and orange-brownish. The specimens which I have taken off San Diëgo have all had more purely yellow bills than the plate given by Dr. Stejneger. Dark lines follow the separations of the lamellæ and a dusky spot in front of the nasal tubes reaches at times to the base of the unguis. At the angle of the lower mandible is usually (always?) an orange spot, its outlines blended with the yellowish of the rest of the bill.

The claim of *F. glacialoides* to a place in the fauna of North America rests, I think, solely upon the type said to have been taken off the Columbia River. If the specimen came from there, as reported, the bird must be regarded as a very rare or accidental visitor to our coast, for none of the later observers have met with the species.

DESCRIPTION OF A NEW *PIPILO* FROM SOUTHERN AND LOWER CALIFORNIA.

BY A. W. ANTHONY.

A SERIES of brown Towhees collected the past year between San Diëgo and San Fernando, Lower California, differs so considerably from skins in my collection from the northern part of the habitat of *Pipilo fuscus crissalis*, that in order to ascertain the proper status of the southern bird, I have brought together a series representing nearly every considerable part of the habitat of the subspecies, reaching from Mendocino County, California, to Point San Carlos, Lower California, or from about latitude 40° to about 29° 30'. The number of skins examined is about 200, and the results obtained were more interesting than at first anticipated. Vigors's type of *P. f. crissalis* was obtained at Monterey. Unfortunately I am unable to secure a series from that exact locality, but Mr. R. C. McGregor has kindly sent me some skins from there that are in all respects indistinguishable from a fine series from Marin County, collected for me by Messrs. J. and

J. W. Mailliard. These I have regarded as typical *crissalis* in my comparisons. They may be characterized as follows:—

No. 5672, Coll. A. W. A. Size large; a rusty wash pervading the entire lower parts; above dull burnt umber, the feathers edged with gray; pileum rather dull chestnut, not in striking contrast with the rest of the upper parts; upper tail-coverts with rusty tips; malar and submalar region buffy clay color.

Specimens from Mendocino County are but little different; the rusty tints are to some extent replaced by gray, but the measurements remain the same. A series from Butte and Calaveras Counties, which Mr. L. Belding has very kindly collected for me, are decidedly less rusty than typical *crissalis*, the pileum being scarcely different from the back. It is not improbable, however, that breeding birds would show more rufescent crowns, as the color beneath the surface is more rusty in the winter birds I have examined. The measurements are practically the same as those of specimens from Marin County. A single skin in my collection (No. 3737), from Kern County, is different from anything I have examined, being much paler than even those from the desert regions of Lower California. This specimen was taken on the south fork of the Kern River, where many plants characteristic of the Mojave Desert find their way through Walker's Pass, bringing with them at least one representative of the desert avifauna, *Harporhynchus lecontei*. If the single skin in my possession is a fair representative of the Towhee of that region, they would seem to grade toward *mesoleucus* at this point. The specimen differs from typical *crissalis* in being much paler—below ashy gray, belly nearly white, abdomen only with rufus, lower coverts slightly paler than *crissalis*; above almost hair brown, pileum in contrast, between mars and mummy brown; malar and submalar region ashy gray. Size about the same as in typical *crissalis*, but larger than specimens from Los Angeles, San Bernardino, and San Diego Counties.

The birds of Southern California, including a few I have examined from the Colorado Desert, are much smaller than more northern specimens, as well as darker, lacking the buffy wash,

except on the abdomen and flanks. This difference is further increased along the peninsula to the south and is, I think, sufficiently well marked to warrant the separation of the southern bird as a subspecies, which I propose to call *Pipilo fuscus senicula* (from the Mexican name for the bird, *Viecito*—a little old woman).

Pipilo fuscus senicula, subsp. nov.

Subsp. char.—Differing from *crissalis* in smaller size, much less rusty on lower parts, upper parts darker and lower more grayish. *Type*, No. 4785, ♂, Coll. A. W. A., San Fernando, Lower Calif., Jan. 10, 1894.

Above clear grayish sepia; pileum indistinctly vandyke brown; below smoky grayish with rusty wash on flanks and buffy on lower abdomen; lower tail-coverts chestnut; throat tawny clay color, about as in *crissalis*; malar region grayish brown. Wing, 87 mm.; tail, 111; culmen, 13.5; height of bill, 9; tarsus, 26.

Habitat, Southern California, and Lower California as far south as 29° at least.

A June specimen (No. 5371) from the same locality differs from the above only in a somewhat more chestnut pileum and slightly paler lower parts. From *albigula* the present race is distinguished at a glance by its much darker lower parts, more pronounced throat patch (very pale buffy in the St. Lucas bird), chestnut lower tail-coverts, etc. It is quite plain, however, that the characters upon which *senicula* is based are intermediate between *albigula* and *crissalis*, and it is to be regretted that there are no specimens available from the country between San Fernando and Cape St. Lucas. A large series from Southern California prove the birds of that region to be practically the same as regards color as those from San Fernando. The measurements are, however, not quite the same though the most of my skins are nearly or quite as small as those from the peninsula. In the following tables of measurements the relative proportions of both *crissalis* and *senicula* are given from typical specimens from each locality. In obtaining a series of skins for comparison I have been greatly assisted by Messrs. L. Belding, W. E. Bryant, R. C. McGregor, J. and J. W. Mailliard and F. Stephens, to all of whom I take this opportunity of expressing my indebtedness.

MEASUREMENTS OF *Pipilo fuscus crissalis*.

	Mm. Wing.	Mm. Tail.	Mm. Culmen.	Mm. Height of Bill.	Mm. Tarsus.
Aver. of 13 males from Central Cal.,	99.5	127.5	14.5	8.2	28.3
Max. " 13 " " " " "	107	136	16	9	30.5
Min. " 13 " " " " "	94	119	12	8	27
Aver. " 14 females " " " "	92.6	120.3	13.68	8.5	24.7
Max. " 14 " " " " "	99	129	15	9.5	30
Min. " 14 " " " " "	83	110	13	8	27
1 female, Kern County, California,	92	121	14.8	9.5	29

MEASUREMENTS OF *Pipilo fuscus senicula*.

	Mm. Wing.	Mm. Tail.	Mm. Culmen.	Mm. Height of Bill.	Mm. Tarsus.
Aver. of 9 males from Southern Cal.,	90.6	115.7	13.7	8.7	27
Max. " 9 " " " " "	93	119	14.5	9	28
Min. " 9 " " " " "	89	111	13	8	26.5
Aver. " 6 females " " " "	85.33	110.87	13	8.3	25
Max. " 6 " " " " "	89	115	14	8.8	26
Min. " 6 " " " " "	82	106	12	8	24.5
Aver. " 11 males " Lower " "	87	113	13.08	8.08	26
Max. " 11 " " " " "	94	120	14	9	27.5
Min. " 11 " " " " "	83	105	13	8	25
Aver. " 4 females " " " "	84.5	107.25	13.75	8.5	26
Max. " 4 " " " " "	87	113	14	9	26.5
Min. " 4 " " " " "	83	105	13	8	25.5

SWAINSON'S WARBLER. AN INHABITANT OF THE
SWAMPY WOODS OF SOUTHEAST-
ERN MISSOURI.

BY O. WIDMANN.

WHEN we look at a map of the State of Missouri we see that its southern boundary is the parallel of 36° 30', except at its eastern corner, where we find a curious appendix in the shape of a rhomb, which reaches southward thirty-four miles or half a

degree of latitude, with its southern line resting upon the 36th parallel. This annex is sometimes called the peninsula of Missouri; it contains approximately one thousand square miles and constitutes, therefore, only a small (the sixty-eighth) part of the State; but, though territorially so small, considered from the standpoint of the naturalist it is a very important and valuable addition.

In establishing the boundary line between Missouri and Arkansas it was at first intended to run it all along the parallel of $36^{\circ} 30'$ to the Mississippi River, but the early settlers of the peninsula strongly opposed the political separation from Missouri on the very good reason that they were entirely cut off from the State of Arkansas by impassable swamps while a few ridges with wagon roads connected them with Missouri. For eight months of the year about one-half of the peninsula is under water and the dry land is cut up into a number of islands of all sizes, separated by a network of sloughs and cross-sloughs. The main sloughs run north and south and carry not only the precipitation of the region, but they are also fed by the highwaters of the Mississippi in the east, the Francis in the west, and the Little River in the centre. With the exception of a few narrow ridges, called prairies, running north and south between these rivers, the whole territory is still covered with the original forest, and the comparatively small clearings and deadenings, made for farming purposes on the higher levels of the islands, have not yet changed the woodland character of the region. Even the rivers and sloughs are not free from trees, except in the so-called openings or lakes. Leaving only a narrow channel, there are scattered through the water magnificent cypresses, picturesque tupelos, clusters of waterelms (*Planera*), elbowwood covered with buckvine, flanked by acres upon acres of flags, which in turn are bordered by wide belts of smartweed, patches of *Nelumbium*, *Nymphaea*, and other aquatic plants. Adjoining the slough, the true home of the cypress and tupelo, is the land of the sweet gum, a tree of formidable size, often over a hundred feet high, with sour gum, hackberry, sycamore, gigantic willows, swamp chestnut oak (cow oak), ash, soft maple, sassafras, mulberry, boxelder, holly, and, as undergrowth, waterbeechness (*Carpinus*), dogwood, redbud,

and a variety of small trees and shrubs, as well as climbers, among which we notice with delight the beautiful crossvine and wistaria.

It was on May 12, 1894, when I entered these woods at the southwest corner of the peninsula, crossing the St. Francis and ascending Indian Slough in a skiff about two miles. After walking one mile across an island, I came upon a cross-slough about one hundred yards wide. It had to be waded. It was one o'clock and very warm. I had quite a load to carry and thought it would be best to rest a little. I had just laid down my burden and was in the act of wiping the perspiration from the forehead, when a voice, the voice of a Redbird, rang out, clear and distinctly, "*Hard work, work, work, work, work, hard work!*" I still wondered how he knew it was hard work to carry such an outfit on an ornithological reconnaissance, when over the slough a large bird darted, apparently a Pileated Woodpecker or Good God, as the people call it there; but did it not show an extraordinary amount of white, almost as much as a Redhead? Could it be the long sought for Ivorybill? I concluded not to go on, as intended, but to stay in the vicinity and to keep a sharp look-out; possibly I might get another and better chance for identification. I waited.

In the course of the afternoon I saw nearly the whole feathered population of the neighborhood, watched their doings and listened to their songs. Among other things I had again opportunity to witness a singular act of the Yellow-billed Cuckoo, which I had repeatedly noticed the preceding few days. The female at this particular period of her life and love seems to care little for other food than that which her courteous and attentive mate provides for her. She keeps quietly sitting in all her loveliness, as if lost in pleasant reverie, patiently awaiting his return. In the exuberance of his affection instead of taking a seat at her side, as other birds would do, he gracefully alights on her shoulders, slightly spreads his wings as if in embrace, bends forward over her head and puts into her open bill the tender willow-fly, an Ephemera of larger size.

It was not Sunday, but all birds seemed to wear their best dresses. I observed a male Red-belly, who was not only red-bellied, but really red-throated, red-chinned and red-cheeked.

A Kentucky Warbler had the triangular black patch from behind the eye down the sides of the neck continued in a half-circle so as to almost meet its fellow on the breast.

A Canada Flycatching Warbler wore a real substantial black collar, not merely the series of spots they usually have on the breast.

At one time I heard a great commotion among birds a little way off and on investigation I noticed a snake (*Coluber lindheimeri*) go up the trunk of a chestnut oak. The bark of this tree is pretty scaly and the snake could not so easily find a hold; she had to try to the right and to the left to find a point which would support her, but nevertheless she managed to go up at the rate of one foot a minute. A Downy Woodpecker, a Flicker, and a pair of Summer Tanagers were greatly agitated by her presence; and she was now twenty feet up the tree, when suddenly the angry *killikanik* of the Sparrow Hawk came nearer and nearer, and turning around I saw an old Redshoulder, chased by a male Sparrow Hawk, come down the slough at a lively rate. The Redshoulder, not seeing me, alighted within twenty yards, but the Sparrow Hawk passed by and disappeared. Turning to my snakeship, she also had disappeared and could not be seen again, high or low. It was now four o'clock and I was just going to give up waiting for the return of the Ivorybill phantom, when all at once a novel song came from a papaw thicket about a hundred yards up the slough. Its novelty struck me at once with the hope, nay, with the certainty, that it meant a prize. It opened à la *Seiurus motacilla* and ended à la *S. noveboracensis*. It was no *Oporornis*, no *Geothlypis*, no this, no that—in short, it could be nothing else but *Helinaia*, though the surroundings did not exactly fit the canebrake dweller of the sunny South. *Helinaia* here in this dark, deep wood, where the cypress and the sweet gum join their lofty branches, where under a canopy of hornbeam, ash and dogwood, and a thick undergrowth of papaw, hazel, spicebush (*Lindera*) and Hercules club (*Aralia spinosa*) interwoven with bamboo vine (*Smilax*) and muscadine, the ground is covered with a veil of perpetual gloom.

It took me considerable time to locate and to get a good look at the originator of the strange song, but at last I found him,

comfortably seated on a dry limb of a dogwood some fourteen feet above ground. He had doubtlessly been sitting there ever since I first heard him and took no pains at concealment. I had him now in good light, fixed my Lemaitre upon him, and had an excellent view of him. There he was in life size just as Brewster painted him for us some nine years ago. Every few seconds he would lay back his head until the bill pointed vertically up, and with ease, but earnestness, render his famous little song. Evidently some sort of inspiration was upon him, and I wondered how many times he would say his lesson. I timed him again and again, seven and eight times a minute was his rate all the time. When approached too close he would fly to another small tree a few rods off and sing again.

He kept singing and I kept looking for his nest, until the sun cast long and deep shadows through the lonely forest. He had said his lesson about a thousand times now, but I had to console myself that if he had a nest it must be on the ground or somewhere. On the following day when I passed the place at 7 A. M. he was singing again, but this time I did not stop but crossed the slough and penetrated deeper into the dark recesses of an almost unsettled region. After walking half a mile I came upon another slough called Seneca Slough, a broad sheet of water entirely covered with aquatic plants, mostly smartweed, and beautifully ornamented with giant cypresses and senile tupelos, whose decapitated hollow trunks, resembling chimneys, serve Swifts for roosts and probably for nests.

In the willows at the bank a Philadelphia Vireo sang its modest song, but never got farther than the first three syllables. On the dry arm of a mighty cypress perched a beauty: a Swallow-tailed Kite! She had come to preen her feathers on this lofty perch. Her dark brown eye wandered for a moment over the environs but her scanning did not reveal my presence. I think she came directly from her nest, since a violent shaking of her body preceded all farther operations of her morning toilet, which took her just ten minutes. Another vigorous shaking of her body and off she went to whence she came.

I marched four miles from there that day and the now well-known notes of the Swainson's Warbler reached my ears four

times, coming from thickets like the first, but farther away from sloughs, though not from water, since these woods are full of pools of all sizes and depths.

The soil of the St. Francis basin is a light sand, several feet in depth, resting on a clayey subsoil. It is a peculiarity of the trees of this region, especially the sweet gum (*Liquidambar styraciflua*) to rot at the point where sand and clay touch. In this condition the tree is easily blown over, and in its fall the roots take up the surface soil, causing an excavation a few feet deep and several yards wide, a convenient receptacle for the water, a miniature pond with impermeable bottom. Such pools are scattered in countless numbers throughout the woods on the higher levels, while all depressions are naturally of a very swampy character.

In such woods the Water Thrush is not confined to the water courses as in other parts of Missouri, but is found in every part of the wood; so are the Prothonotary, the Parula, the Cerulean, and apparently also the Swainson Warblers. It is here that the Ovenbird, the Pipilo, the Blue-winged Yellow Warbler and the Catbird are restricted to the oases of high ground, while the Hooded and Kentucky Warblers, the Maryland Yellowthroat, and especially the White-eyed Vireo, are at home and abundant on high as well as on low ground, the two last named even in the slough itself.

From a week's tramp through the region I came to regard the Swainson Warbler as a regular, though not common, denizen of the swampy woods of Dunklin County, Missouri.

BIRD MIGRATION AT GRINNELL, IOWA.

BY LYND'S JONES.

I. SPRING MIGRATION.

EVER since the inauguration of systematic study of bird migration by Prof. W. W. Cooke in 1884, it has been my purpose to collect sufficient data to determine the sequence of arrival of the various migratory birds at Grinnell, Iowa, where

my studies of the subject began and continued up to the summer of 1890. With my removal to Ohio in the fall of 1890, and consequent cessation of further study at Grinnell, the purpose to put into permanent and accessible form the results of that work has grown and finally taken definite shape in the present paper.

No one can realize more than I the insufficiency of the data collected for a final decision upon the points treated. But the conclusions logically reached from a study of these notes may furnish an impetus for further work in the same line.

From one to eight or even ten hours were spent in the field nearly every day from January until July, and from August until December. An early morning and a late afternoon hour were found to be the most fruitful. Very often this morning and evening work was supplemented by a midday hour, always with note-book and field-glass for ready use, and a gun for emergencies.

My work was chiefly confined to a region nine miles in diameter near Grinnell, Iowa, latitude $41^{\circ} 44'$. The center of this region lay at my home in a small natural grove three miles northwest from Grinnell, on the line between Poweshiek and Jasper counties.

This grove is of about one hundred acres extent, and is noted in all that region as a place where more species and individuals of birds can be found than anywhere in miles around. It covers five rather high hills which slope to the north and west, and is abruptly terminated on the north by a small stream which flows at the foot of these hills. It is bounded on the south by cultivated fields. The width is about one-half the length, the greater axis running east and west.

The grove abounds in sheltered nooks and tangled undergrowth, but has no swamp nor pool of still water. Oak, hickory, and black-walnut trees are the most numerous, with a fair supply of lindens, poplars, elms, hackberries, wild cherry, cottonwood, locusts and willows. Hawthorn, prickly ash, wild crabapple, wild plum and the black haw abound in thickets; while the hazel bush is the prevailing underbrush. Wild berry bushes are abundant. Wild grape, 'bitter sweet,' and Virginia creeper

vines are everywhere. Natural groves occur at intervals of four or five miles in the country at large.

This part of Iowa is in the rolling prairie region, the stream beds lying about seventy-five feet below the hilltops. The general direction of the principal streams is southward. Originally small ponds were to be found in the bottomlands, and a few on the upland divides; but these have disappeared in the vicinity of Grinnell, leaving no natural bodies of water. Within the limits of Grinnell there are three or four small ponds which are visited by large numbers of water-fowl and shore-birds every year. The flooded streams in spring also attract many.

Every farm has its orchards and shade trees, very few being without either osage orange or willow hedges both as street boundaries and inland field boundaries. Each has its pasture lot, hay lot, and cultivated fields. A few small patches of virgin soil still remain. 'Sloughs,' or bogs, are small and thickly overgrown with sedges and rushes. The once numerous and extensive 'cat-tail' bogs are nearly gone.

The percentages of all sorts of surfaces are as follows: Under actual cultivation, 35 per cent; pasture land, 20 per cent; hay land, 10 per cent; timber, including orchards, hedges and shade trees, 20 per cent; neglected fields, 5 per cent; bog land, 5 per cent; virgin soil, 5 per cent. With the addition of a small lake or large river with accompanying swamps, no better field could be desired for a study of the inland birds.

Grinnell lies upon a narrow water-shed in the central part of the State, which is the highest surface on its parallel in the State east of Des Moines. The direction of this watershed is nearly north and south. The only apparent effect of such an elevated position is the somewhat later arrival of most species than at stations less elevated on the same parallel. It will be seen, however, that some species common in the less elevated localities are not so at Grinnell, elevation being the only physical feature not common to both. To the southward there is nothing to interfere with the continuous flight of the migrating host of birds.

It thus appears that the region is a very favorable one for many groups of birds, but less so for others. The scarcity of

timbered tracts of large extent is rather a boon than a detriment, because the woodland fauna is much more restricted and condensed than would otherwise be the case. Every copse of trees is swarming with the Warblers and Kinglets in their season. The broad fields are teeming with Sparrows, Larks and Bobolinks. Here is the paradise of the White-rumped Shrike among the osage orange hedges. Every farm has its colony of Bronzed Grackles. Cowbirds are so familiar that they cease to be interesting! Woodpeckers, Flycatchers and Wrens abound; and Swallows and Swifts and Nighthawks are constantly skimming the fields. The Whip-poor-will and the Thrushes find congenial retreats in the deeper woods; while the Robin and Bluebird are everywhere. At favorable times during the migrations, the air is alive with Ducks, Geese and Cranes passing northward in immense flocks; the Sandpipers being not less numerous for a brief period. Grebes, Rails and Herons are often seen; while flocks of Gulls, Comorants, and Pelicans, and even Swallow-tailed Kites, are sometimes noted; but they are not to be depended upon as regular migrants. Horned Larks, Grouse, Hawks, and Owls are permanent residents; as well as the Crow, Blue Jay, Chickadee, White-bellied Nuthatch, and some of the Woodpeckers.

In the accompanying charts, many species belonging to the bird fauna have been omitted because they would be of no value in the scheme. Of one hundred and seventy species recorded as strictly migratory at Grinnell, only one hundred and ten appear on the charts. The first year's work — 1885 — is also omitted because it has already been published in Prof. W. W. Cooke's 'Report on Bird Migration in the Mississippi Valley.'

In these charts an attempt has been made to indicate not only the dates of arrival and departure, so far as they come within the limits of the chart, but the time of arrival or departure, or both, of the bulk of each species. This is indicated by the heavier portion of the lines opposite the name of each species, the lighter portion indicating simply its presence. Some species are common on the first day of arrival; others are not so for days or weeks, while some never become common.

	SPRING MIGRATION				AT GRINNELL, IOWA			
	1886	1887	1888	1889	1890			
	FEB. MAR. APR.	FEB. MAR. APR.	FEB. MAR. APR.	FEB. MAR. APR.	FEB. MAR. APR.	FEB.	MAR.	APR.
<i>Lanius borealis</i>								
<i>Ampelis cedrorum</i>								
<i>Calcarius pictus</i>								
<i>Spizella monticola</i>								
<i>Junco hyemalis</i>								
<i>Zonotrichia macroura</i>								1-5-19
<i>Cathartes americana</i>								1-5-4
<i>Anas boschas</i>								
<i>Branta canadensis</i>								
<i>Sialia sialis</i>								
<i>Meryula migratoria</i>								
<i>Quiscalus p. mexicus</i>								
<i>Spizocoryphus carolinus</i>								
<i>Setophaga magna</i>								
<i>Agelaius phoeniceus</i>								
<i>Anas carolinensis</i>								
<i>Fulvix vociferus</i>								
<i>Melospiza aery</i>								
<i>Lanius excubitorides</i>								
<i>Pipilo erythrophthalmus</i>								
<i>Sayornis phoebe</i>								
<i>Colaptes auratus</i>								
<i>Ammodramus s. ssp. nova</i>								
<i>Falco sparverius</i>								
<i>Accipiter cooperi</i>								
<i>Circus hudsonicus</i>								
<i>Calcarius lapponicus</i>								
<i>Circus mexicanus</i>								
<i>Passerella iliaca</i>								
<i>Phoenicurus minor</i>								

SPRING MIGRATION AT GRINNELL, IOWA.					
	1886	1887	1888	1889	1890
	MAR. APR. MAY	MAR. APR. MAY	MAR. APR. MAY	MAR. APR. MAY	MAR. APR. MAY
<i>Melospiza fasciata</i>					
<i>Spizella pusilla</i>					
<i>Corpodacus purpureus</i>					
<i>Troglodytes hyemalis</i>					
<i>Spirus pinus</i>					
<i>Ceryle alcyon</i>					
<i>Tringae sibilis</i>					
<i>Regulus calendula</i>					
" "					
<i>Satrappe</i>					
<i>Spizella socialis</i>					
<i>Botramia longicauda</i>					
<i>Melospiza palustris</i>					
<i>Pooecetes gramineus</i>					
<i>Zonotrichia albicollis</i>					
<i>Ammodramus heslowii</i>					
<i>Troglodytes oedon</i>					
<i>Chondestes grammacus</i>					
<i>Dendroica coronata</i>					
<i>Harporhynchus rufus</i>					
<i>Hyphantornis vociferus</i>					
<i>Tachycineta bicolor</i>					
<i>Chaetura pelagica</i>					
<i>Ammodramus passerinus</i>					
<i>Polyptila caerulea</i>					
<i>Parochelidon lunifrons</i>					
<i>Dendroica palmarum</i>					
<i>Fulica americana</i>					
<i>Chauledon erythrogaster</i>					
<i>Campocolaptes americanus</i>					
<i>Actitis macularia</i>					

	SPRING MIGRATION AT GRINNELL, IOWA.				
	1886	1887	1888	1889	1890
	APR. MAY JUNE	APR. MAY JUNE	APR. MAY JUNE	APR. MAY JUNE	APR. MAY JUNE
<i>Tringa varia</i>					
<i>Tyrannus tyrannus</i>					
<i>Sturnus americanus</i>					
<i>Melospiza lincolni</i>					
<i>Spiza americana</i>					
<i>Turdus muscivorus</i>					
<i>Cathartes occidentalis</i>					
<i>Habia urocyana</i>					
<i>Penelope aestiva</i>					
<i>Icterus galbula</i>					
<i>Cathartes carolinensis</i>					
<i>Melanerpes formicivorus</i>					
<i>Piranga erythrogastra</i>					
<i>Turdus fusciceps</i>					
<i>Icterus spurius</i>					
<i>Vireo olivaceus</i>					
<i>Helminthophila pyrula</i>					
" <i>virgata</i>					
" <i>pergrina</i>					
<i>Setophaga ruticilla</i>					
<i>Contopus virens</i>					
<i>Empidonax minimus</i>					
<i>Ceryle alcyon</i>					
<i>Ardea herodias</i>					
" <i>maculosa</i>					
" <i>virens</i>					
<i>Ardea virescens</i>					
<i>Zonotrichia leucophrys</i>					
<i>Cistiophorus palustris</i>					

	SPRING MIGRATION AT GRINNELL, IOWA.					
	1886	1887	1888	1889	1890	
	APR.	MAY.	JUNE.	APR.	MAY.	JUNE.
<i>Vireo flaviventris</i>						
" <i>gilvus</i>						
<i>Turdus n. swainsonii</i>						
<i>Passerina cyanea</i>						
<i>Cistothorus stellaris</i>						
<i>Sayurus motacilla</i>						
<i>Myiarchus cinerascens</i>						
<i>Vireo bellii</i>						
<i>Dendroica tigrina</i>						
<i>Sylvania pusilla</i>						
<i>Dendroica blackburniae</i>						
<i>Coccyzus erythrophthalmus</i>						
" <i>americanus</i>						
<i>Dendroica striata</i>						
<i>Chondestes virginianus</i>						
<i>Trachilpes colubris</i>						
<i>Tringa nana</i>						
<i>Porzana carolina</i>						
<i>Empidonax acadicus</i>						
" <i>traillii</i>						
<i>Hylocichla ustulata</i>						
<i>Sturnella magna</i>						

When the line representing a species begins on the line separating two years, it indicates that the species was present all winter; and the end of such a line on a line separating two years, indicates that the species remains all summer. In a few cases a species not a summer resident remained longer than the last month indicated on the chart; its final departure is recorded in figures in the last space for the year, opposite its name.

The species are arranged on the chart in the order of their average arrival for the five years. If a species, as the Flicker in 1890, has been present all winter in very limited numbers in especially favored localities, account is taken only of the first migrating individuals, the dotted line indicating the presence of the few winter birds. When apparent irregularity is evidently due to the scarcity of the species, as in the case of Sparrow Hawk, its position is determined by the three earlier and more regular dates of arrival.

Bird movements are profoundly influenced by the weather. With the charts illustrating the bird movements before us, and a parallel running account of the weather, we shall be enabled to see the force of this influence.

During the five years from 1886 to 1890 inclusive, January opened very cold with more or less snow, and continued cold, with a few warm days, closing with below zero weather every year except 1890. This year a thaw began on the 27th of the month and ended February 7, after taking away ten inches of snow.

With the one exception of 1890, February also opened cold and snowy. In 1886 there was a warm period beginning on the 6th and closing on the 18th, followed by six cold days with north-west winds. The month closed very warm. In 1887 there was no warm period of any consequence during the whole of the month. But in 1888, after two weeks of continuous cold weather, there were three moderately warm days centering on the 13th, and another short period of warmth from the 22d to 24th, the month closing cold. In 1889 there was a slight thaw on the 21st, and another on the 28th, but the ground was bare during the last half of the month, with no severe weather. The remarkable warm period of 1890, ending February 7, has already been

mentioned. Besides another short warm period centering on the 14th, the month was cold.

Turning to the charts, no movement of any sort is seen until February, January not appearing on the charts for that reason. In February, 1886, there is a movement of three species northward about the 18th, at the close of the first extensive warm period. In 1887 no movement occurred, the month being cold throughout; 1888 shows a very decided movement of four species, about the 22d, during a warm period; 1889 shows two movements during its two warm periods; and 1890 two, the first one caused by the late January thaw, the other by the only other warm period.

In the same manner March movements may be correlated with March weather. In 1886 there were two decided movements, the first occupying the middle of the month, the other the 25th or thereabouts. The early part of the month was warm, followed on the 17th by a cold period, with a few days, centering on the 25th, of warm weather, closing cold. In 1887 the first movement of the year occurred on the first of the month, closely followed by a second movement, ending with a slight third movement. The first and second movements occurred during the same warm period, ending on the 12th; the last movement during the early part of a warm period late in the month. The early part of March was cold in 1888, and no movement occurred until the 15th, during a warm period of six days. Late in the month another warm period and another movement occurred. March opened warm in 1889, then became cold, and warm again on the 22d to the end of the month. At these times movements occurred. In 1890 there is the remarkable phenomenon of a whole month without any movement whatever after the first seven birds had arrived. But the last half of February and the first half of March were unusually and persistently cold. When the warm period did come, on March 15, the birds flocked in!

April is a variable month, without definite weather limits. From March, on the one hand, it receives warm or cold periods as the case may be, and on the other hand it merges into distinctively May weather. The birds properly belonging to it are

among the more hardy of the later arrivals, and are therefore not so greatly influenced by the comparatively moderate changes of weather. Hence, even during what must be called cold periods, many species move northward. During long warm periods there is no massing of species such as appears in March or May. But really severe weather is, of course, followed on the first warm days afterward by large numbers of belated birds moving northward.

Thus, in 1886, April weather was very mild until the 23d, when a cold period closed the month. The chart shows a very scattered movement without definite 'wave' boundaries. Even after the cold period had begun, several species were moving. April in 1887 shows a well marked 'wave' during the second week while the weather was warm. Then a rather scattered movement occurs during a cold period beginning on the 13th and ending on the 23d. The closing warm period extended into May, causing a great bird wave of thirty-six arrivals within eight days. April in 1888 shows greater irregularity. The month was a cold one, with the earlier and later days warmer. The earlier warmth had been felt in March and so lost its effect for April. The birds pushed forward in spite of the inclement weather, arriving in small and scattering groups. But with the later favoring warmth the host arrived, smaller than the preceding year, yet a respectable company of twenty-four. April's one warm wave in 1889, from the 14th to 21st, scarcely made a perceptible impression on the scattering migrants. The dates are scattering. In 1890 there were no marked changes of temperature. The weather was generally favorable to bird movements. The only well marked movement occurred about the 6th; other dates are very scattering.

To May belongs the one great movement of the year. April usurped a part of this in 1888, encroaching slightly in 1887. The weather varied considerably in the five years. May in 1886 opened warm, with a cold period from the 14th to 17th, the last two days being cold. May in 1887 opened with the first day warm, followed by five cold days, these followed by high temperature until the 17th, when three more cold days intervened. The month closed cold and wet. In 1888 the

6th and 7th were warm, and the 21st to the end of the month, the remaining time being cold. In 1889 the first half of May was warm, with the 15th, 20th and 29th cold. In 1890 only one cold period occurred,—about the 8th. Thus, in 1886, 1889 and 1890, when either the latter part of April was cold, or else there were no marked changes of temperature during late April and early May, the May movement occurred during the second week. While in 1887 and 1888 the very decided warm wave of late April caused a much earlier movement.

May has another movement which occurs during the second or third week. By that time the weather has become sufficiently settled so that bird movements are hardly affected by the changes which occur.

June is the month of final reckoning. No species arrive, but tardy ones leave for more northern nesting grounds. The weather is always warm and balmy.

This hasty survey of the weather with the migration movements, shows us that the more decided changes of temperature greatly influence bird movements; but the less decided changes do not greatly influence some species. This leads us to the consideration of such species as are not dependent upon the weather to any considerable extent. These arrive upon nearly the same date year after year. They are as follows:—

- March 19 (two days). Towhee, Cooper's Hawk, Cowbird, White-rumped Shrike.
- March 28 (two days). Field Sparrow, Purple Finch.
- April 5 (two days). Purple Martin, Ruby-crowned Kinglet, Chipping Sparrow, Belted Kingfisher.
- April 28 (two days). Oven-bird, Dickcissel, Kingbird, Palm Warbler, Wood Thrush.
- May 3 (two days). Chestnut-sided Warbler, Yellow Warbler, Rose-breasted Grosbeak, Red-eyed Vireo, Catbird, Orchard Oriole, Baltimore Oriole.
- May 19 (two days). Traill's Flycatcher, Black Tern.

In addition to these groups, which migrate at certain fixed times, and of course in company in a certain sense, there are similar groups which are more irregular with regard to fixed dates, but which move in company no less regularly. To these

no definite dates can be given. The first of these groups is made up of the Bluebird, Canada Goose, and Mallard. They form the first bird 'wave' of the season, sometimes accompanied by the next group which forms the second wave. The Robin, Bronzed and Rusty Grackles, Killdeer and Marsh Blackbird form the second group.

The first may be called the February group, the second the early March group. Following these is the group of March 19th already given, and another belonging to late March composed of Fox, Song, and Harris's Sparrows, and Phœbe.

April's first group has been given above (April 5). Three species, Swamp and Grass Sparrows and Bartram's Plover, belong to the middle of the month. The late April group belongs to the class of regulars.

The May movements become so condensed that a difference of a very few days in arrivals throw them into different groups, or out of all of them. Thus an early May group consisting of Redstart, Least Flycatcher and Nashville and Tennessee Warblers differs from the May 3 group. There is an earlier middle of May group and a later middle group besides the regular one of the 19th. The species belonging to the first of these are Warbling and Yellow-throated Vireos, and Indigo Bunting; those belonging to the later are Bell's Vireo, Crested Flycatcher and Yellow-billed and Black-billed Cuckoos.

Each year has a certain number of 'bird waves' that are well marked as such. The years 1886, 1888 and 1890 each had seven, and 1887 and 1889 six. But the time of their occurrence varies from year to year. The second wave of 1890 occurred fully two weeks earlier than the first one of 1887, and no later than the first of any other year. Fluctuations are due to the weather.

The number of species composing a wave also varies at different times during a season. The first wave rarely exceeds three species, while the late April or early May wave often reaches thirty moving species.

These waves are not necessarily formed by either of the foregoing groups, though they may sometimes be so formed; but they may consist of either or both combined with species too irregular

to be assigned to any group. Hence, a given species may be found in either one of two or more waves in successive years. The species which always migrate in company, but at irregular times in successive years, are more likely to be found in the same relative wave each year than any others. Phœbe came with the third wave each year except one. Meadowlark, assigned to no group, came with the first wave once, the second twice, and the third once.

The term "bird wave" has been freely used. What is a bird wave? In his excellent 'Report on Bird Migration in the Mississippi Valley,' on page 26, Prof. W. W. Cooke thus defines it:—

"(1) A 'bird wave' may be considered to consist of a very large number of individuals of one or many species, which suddenly invade a certain area. . . .

"(2) Certain species known to be migrating in company on a given day may be considered to constitute a 'wave.'"

Hence, a 'bird wave' consists of not only the species *arriving* at a certain time, but also all which are found to be increasing or decreasing in numbers, or departing northward. All of these movements are represented on the charts. There are other movements of scarcely less importance in the migrations which cannot be so represented. Such are the movements of individual birds of resident, winter visitor, transient and summer resident species, without any apparent increase or decrease of the numbers in a given locality. It is evident that such belong to the 'bird wave,' even though the charts take no account of them. Hence, a bird wave is often, if not always, much larger than can be shown by any graphical representation. This unrepresented movement has been of great service in determining the bird waves of apparently small extent. In the larger movements its value is less evident, but it has a no less active part.

Taking all sorts of movements together, there are two periods of maximum bird activity during the migrations. The first one occurs during the middle of March, when the first really spring warmth sweeps over the country. The second occurs during the first half of May. This one is finely shown on the charts. During this period there is a massing of species which is almost bewil-

dering. The species which arrive during this time are among the most common of the bird fauna, and are represented by large numbers of individuals.

It is interesting to note the average number of moving species for each month during the five years. Of those which first arrived there were four in February, seventeen in March, thirty in April, forty-one in May, and none in June. Of those which arrived the previous month and became common, or those which decreased in numbers but did not finally depart until the following month or later, there were none in February, five in March, five in April, four in May, and none in June. Of those which departed to more northern breeding grounds, there were none in February, two in March, ten in April, eighteen in May, and two in June.

Adding these three sets together, the total number of moving species by months is for February four, March twenty-four, April forty-five, May sixty-three, June two. Of the whole average movement there is for February 2.8 per cent, March 17.3 per cent, April 33.4 per cent, May 45 per cent, June 1.5 per cent. Deducting from April the late April arrivals of 1887 and 1888 which properly belong to May, and adding them to May, there is left for April 27.6 per cent, and for May 50.8 per cent. Half of the whole spring movement occurs in May! These percentages are based only upon species. If individuals were taken into account the percentage for May would be much higher. When we remember that nearly all of the species which arrive in May have come before the beginning of the third week, some conception can be formed of the magnitude of the 'early May wave.'

March, April, and May are the months of bird migration. February cannot be wholly counted out, but June records might almost be considered accidental. March species are larger, stronger and hardier, April species transitional, and May species smaller, weaker and more delicate, but more numerous.

The irregularity in the arrival of individuals of the same species is one of the first notable things about the migrations. Males and females do not travel together. My notes upon the movements of the sexes, and upon the arrivals of old and young males are pretty full, covering fully five years. Notes on the

movements of young females, as distinguished from old females, are too few to be of value.

From these notes it appears that the length of time between the arrival of the first males and first females differs at different times during the season, weather playing an important part. It is longer early and shorter late. Speaking generally, the first females arrived a little later than did the bulk of the males. In March this is from a week to three weeks; in April a little over a week, and in May about five days. There is a gradation from the longer period into the shorter, of course. It is generally believed that young birds migrate later than old ones. I have no general notes bearing upon the subject; but a great deal of careful study, in this line, was given to certain species, the young males of which were more readily distinguished from the old males and females. Prominent among these were Rose-breasted Grosbeak, Scarlet Tanager, Ruby-crowned Kinglet, Wilson's Warbler and the Orioles. In the case of these species, the old males arrived first, followed in about four days by the young males; the females arriving a little later still. All of these belong to the later arrivals.

I am not prepared to say that the young males of other species migrate at relatively the same time. The few notes which I have bearing upon the subject would seem to indicate that they do, at least among the smaller birds which arrive in late March, April and May. That subject will bear much more investigation.

There were two notable exceptions to this sequence of arrival of old males, young males, and females. One was in May, 1889, when the last great wave was checked by the cold weather of late April. The other in March, 1890, when a month intervened between the second and third waves. At these times not only most of the summer residents, but also many of the transient species arrived mated. Not all individuals, but very many of them. We would expect mating to begin as soon as the females appeared among the host, wherever it might be upon the northward journey, just as it does under normal conditions. In these two instances the weather northward must have been such that the males could not move forward; but southward, favorable to the movement of the females already begun. This state of

weather continued long enough would bring the later migrants up with the earlier ones, and bring about the state of affairs above mentioned.

There are recorded in my notes several instances of birds arriving mated. But these are isolated cases of individual pairs. They do not affect the main question. All exceptions must be considered rare, when the whole bird population is taken into account.

Most birds arrive singing. The first intimation we have of approaching spring is the true song of the Prairie Horned Lark, the 'booming' of the Prairie Chickens and the weird voices of the Owls. The warm days of January are their first signals for heralding spring. Some birds are not singing when they appear. A notable example is Dickcissel. When my studies of the migrations began, I did not know the first individuals of this bird which came in the spring. It was not until Mr. Otto Widmann, now of Old Orchard, Mo., then Superintendent of Migration in the Mississippi Valley, told me that the actions of the first arrivals were very different from what I was accustomed to later in the season, and that the queer chirping note really belonged to Dickcissel, that I realized that a bird could arrive silent. Henslow's Sparrow is another silent arrival, beginning its song only when the females arrive. I have many times failed to hear song notes from several of the transient Warblers during their entire stay. There are many other examples.

Nothing has been said about the night migrations. Not a little attention has been given to that phase of the subject, but my notes are not of a character to warrant any discussion of it at this time. More study of the night migrations here in Ohio will enable me to make far more than is now possible of those taken in Iowa, just as the years of study of the diurnal migrations in Ohio have thrown light upon Iowa notes. Conditions are different here at Oberlin, with the lake so near northward. Without the comparisons which this region affords, and the broadening of the field of view which it gives, the subject seemed almost unworthy of consideration at such length. I hope sometime to draw a number of interesting comparisons between the movements at Grinnell, Iowa, and at Oberlin, Ohio.

It must be distinctly understood that all of the foregoing facts, as well as those which are to follow on 'Fall Migration,' are local, relating only to the vicinity of Grinnell, Iowa. Everything given has been taken from notes which were made in the field, weather excepted. The effect of weather could have been more clearly shown from weather records extending over the whole Mississippi Valley; but these were not accessible.

BIRDS OF SAN FERNANDO, LOWER CALIFORNIA.

BY A. W. ANTHONY.

THE region embraced within the limits of the present paper has for its center the old abandoned copper mines of San Fernando, one league south of the ex-mission of the same name which is situated about twenty-five miles from the Pacific coast of the peninsula, in about latitude $29^{\circ} 30'$. It has an approximate altitude of fifteen hundred feet above sea level and is the center of one of the most barren of the Lower Californian deserts. At the old San Fernando mission is found a little marshy ground and a few pools of salty, alkaline water that is so disgusting that even mules from more favored lands to the north refuse to drink it until forced to do so by continued thirst. There is enough, however, to nourish a very respectable growth of mesquite, cat-claw and palo verde which extends down the narrow valley for a mile or more below the old ruins of the mission. The mining camp is separated from this, the only water and verdure for forty-five miles, by a low rocky range of hills about three miles in extent. The mines are on the edge of a somewhat open country, which extends to the coast at San Carlos in a series of mesas and level valleys. At the mines, and in two of the arroyos between that point and the coast, wells had been dug and a limited quantity of water obtained at about eight feet in depth. The only natural surface water other than that at the mission was a small tank

formed in a natural cavity in the rock in a deep cañon about ten miles south of the mines. The natives of El Rosario, forty-five miles northwest of the San Fernando mission, told me that this region was visited by a copious rainfall about one year in five, the other four being often without any rain whatever, a statement that was borne out by the general appearance of the country, which supports hardly any vegetation but the most hardy of desert species.

A short distance below El Rosario, the traveller en route to San Fernando meets with the first candle-wood tree (*Fouquieria columnaris*); these become rapidly more common until they form 'forests,' covering the entire country with a growth dense enough to be called well timbered were the 'trees' anything more than poles. The cirio, as the Spanish call the candlewood, seldom branches unless the top is broken or otherwise injured, and the mature plant resembles nothing so much as a gigantic inverted parsnip, often fifty or seventy-five feet in height, with a bunch of yellowish blossoms at the extreme top. The trunk has a reticulated framework for an inch or two in depth and then a soft watery pith takes the place of wood. This seems to be appreciated by the Woodpeckers, for I seldom found a dead tree that did not show the marks of either *Dryobates* or *Colaptes*, nor were the live cirios exempt. Almost exactly coëxtensive with the cirio, and dividing with it the honor of a forest tree, was the cardoon or giant cactus (*Cereus pringlei*), the largest of all the cacti. This was not so abundant as the cirio, but much more conspicuous owing to its larger trunks. Fine specimens on the San Carlos mesa, near San Fernando, measured not less than seventy feet in height, with from six to twelve branches, each from twenty-four to thirty-six inches in diameter. The smaller cacti were abundant, often forming thickets impassable without the aid of a brush knife. On the hills near the mines were a few elephant trees (*Veatchia discolor*), and in a valley ten or twelve miles south, they formed one of the chief features of the landscape. This botanical curiosity starts out in life with the apparent intention of becoming a large, well-formed tree, but after attaining a height of four to eight feet, and realizing what a desolate country it is destined to live in, it seems to have become

despondent and devoted all its spare time to thickening its trunk and branches until they become enormous in proportion to the height of the tree, and very badly contorted. Although I have seen the tree nearly or quite every month in the calendar, I have never seen it in leaf or flower. Along the dry arroyos about the mine were a few stunted mesquites, cat-claw and a species of *Prunus*, and a scattered growth of grease wood (*Larrea*) was to be found in most of the open country.

The notes upon which the present paper is based were taken during two or three short trips through the country in 1887-88, a week spent in the region in January, 1894, and from April 26 to June 25, 1894, during which time I was located at the copper mines near the San Fernando mission. At the time of my visit, the country was undergoing one of its dry spells, no rain having fallen for the past three years.

With the exception of the immediate neighborhood of the mission, birds were very scarce and remarkable for their shyness. A few migrants lingered about camp after my arrival April 26, but soon left. As I was constantly riding about between the coast and the mine, it is not likely that very many of the summer residents escaped notice. The list is, however, somewhat remarkable for what it does not contain. Had I been able to spend more of my time in the mesquite growth about the mission, the number of species observed would have been much greater, but unfortunately nearly all of my observations were confined to the dry mesas and barren arroyos farther south where the birds were necessarily very rare.

1. *Anas cyanoptera*. CINNAMON TEAL.—A small flock was started from a mud hole at the mission on April 26. It is very probable that many species of Ducks would be found about the small pools during the winter months.

2. *Ægialitis vocifera*. KILDEER.—At the mission a few of these Plovers were seen on several occasions but never at any other locality. One or two made a practice of visiting the mines every night during April and May, arriving at about 8.30 P.M. and making several circuits of the camp before leaving.

3. *Callipepla californica vallicola*. VALLEY PARTRIDGE.—Very common near the water about the San Fernando mission and a few seen throughout the country. At camp there were two flocks of not less than twenty each that regularly visited the corral to pick up the grain

scattered by the mules. They arrived soon after daybreak each morning, from opposite directions, and after an hour or so departed, lingering about the hillsides on their respective sides of the arroyo until about four o'clock in the afternoon, when another visit was paid the corral and an hour or more devoted to getting supper, after which they departed, all going in the direction from which they came, as fast as their sturdy little legs could carry them, seldom flying even for a few feet unless alarmed. I never knew just how far these birds went to roost or why they left the immediate vicinity of camp, but that they travelled some distance I discovered one evening when returning to camp. I was rather more than a mile from the corral when I saw a flock of Partridges coming toward me from direction of camp, running along the dry arroyo. They were some distance from me and evidently unaware of my presence, and by remaining quietly in the shelter of a large cardoon I had the pleasure of seeing the entire flock file swiftly by, keeping up a series of low conversational notes as they hurried on up the gulch. The last two were shot and all doubts regarding the identity of the flock set at rest when their crops were found filled with barley. I think that nearly all of the Partridges within a radius of two miles of the mine were drawn to that spot by the scattered grain, and were represented in the two flocks daily seen.

4. *Zenaidura macroura*. MOURNING DOVE.—One or two visited the corral occasionally. They were rather more common about the mission but nowhere abundant.

5. *Melopelia leucoptera*. WHITE-WINGED DOVE.—In 1887 I found this species not uncommon about the mission and in the neighborhood of the water holes in June, and its peculiar notes were often heard from the giant cactus and cirios between that point and the gulf. It was not at all common, however, in 1894, only one or two being heard at camp and less than half a dozen seen about the water holes at the mission.

6. *Cathartes aura*. TURKEY VULTURE.—Very abundant everywhere.

In 1887 I found the bones of a recently killed California Vulture (*Pseudogryphus californianus*) at a water hole about twenty miles north of San Fernando, in a country exactly similar to that about the mines, but after questioning a number of the natives, I concluded that its occurrence there must have been very unusual and that this point was probably the limit of its range.

7. *Elanus leucurus*. WHITE-TAILED KITE.—A single bird, which dashed past me, June 12, on the San Carlos mesa, fifteen miles south of the mines, is the only record I have for the species south of Cape Colnett.

8. *Parabuteo unicinctus harrisi*. HARRIS'S HAWK.—In 1887 and 1888, Harris's Hawk was not uncommon between El Rosario and San Carlos, and several were seen about San Fernando. They were uncommon, however, in 1894, only two, or perhaps one pair, were seen about camp and as many more at the mission. A few were nesting in cirios between the mine and the beach. A good many nests of this species and of *Buteo*

were seen in the candle-woods that had sent out branches, and occasionally one was seen in a cardoon, but not often.

9. *Buteo borealis calurus*. WESTERN RED-TAIL.—About as common as the preceding species.

10. *Aquila chrysaetos*. GOLDEN EAGLE.—Only a single bird was seen, at the water tank south of the mine.

11. *Falco peregrinus anatum*. DUCK HAWK.—In 1887 I found a pair nesting in a cliff near the coast, below San Fernando, and upon visiting the spot in January, 1894, a pair flew from the same ledge. None were seen in the interior.

12. *Falco sparverius deserticolus*. DESERT SPARROW HAWK.—I refer the San Fernando Sparrow Hawk to this race with some hesitancy, no specimens from that region being in my collection. I have taken true *deserticolus* from as far south as Ensenada. Sparrow Hawks were not common in the San Fernando region, only a few being seen about the mission and on one or two occasions at the mines.

13. *Strix pratincola*. AMERICAN BARN OWL.—In 1887 I found a pair of Barn Owls perched on a timber in one of the old wells in the lower San Fernando valley. I think none were seen elsewhere in that locality, nor were any seen during the past season. This species was not uncommon on the upper part of the Rosario water-shed, fifty miles north of San Fernando. They were nesting in the adobe banks along the arroyos and were frequently seen and heard.

14. *Bubo virginianus subarcticus*. WESTERN HORNED OWL.—Rare in the region here embraced. One seen between the mine and the coast, in June, and one or two heard, complete my record.

15. *Speotyto cunicularia hypogæa*. BURROWING OWL.—A few in the more open valleys between the mines and the coast. I closely questioned the Indians of the San Fernando and El Rosario valleys regarding small Owls that might be found living in the holes in the cardoons, hoping to hear of *Megascops* or *Glaucidium*, as everything seemed favorable to their presence, but none of them had seen any small Owls, nor could I find any indications of them.

16. *Geococcyx californianus*. ROADRUNNER.—Quite common about the mines, and much more so near the water holes near the mission.

17. *Dryobates scalaris lucasanus*. ST. LUCAS WOODPECKER.—Abundant about the cardoon and cirio trees but very shy. Young were seen in families of four or five, June 10-20. This species was also not uncommon along the coast and lower foothills as far as San Telmo at least, living in the thickets of pitahaya cactus (*Cereus gummosus*) and nesting in the dry flower stalks of the mescal agave which grows with the cactus. San Fernando and San Telmo skins are indistinguishable from those from Cape St. Lucas.

18. *Melanerpes uropygialis*. GILA WOODPECKER.—The range of this species along the Pacific slope is exactly coextensive with that of *Cereus pringlei*, becoming common with that cactus a short distance below

Rosario and seldom if ever being seen at any distance from the shelter of its mighty branches. At the mission, where the cardoons were very large and abundant, to within a short distance of the mesquite thickets, this Woodpecker delighted in making frequent forays into the lesser growth, spending hours in hammering on the mesquite trunks and hunting through their branches, always beating a precipitate retreat to the cactus on the hillsides above at the first sign of danger. My skins from this region show the San Fernando bird to be rather smaller than those from Arizona, with the white markings of the wings and upper parts somewhat restricted. It may seem desirable to separate them as a subspecies, but with the series at present available, I do not consider it advisable.

19. *Colaptes chrysoides*. GILDED FLICKER.—The northwestern range of this species is almost, if not quite, the same as that of the preceding species, which it resembles in habits. The present species shows a greater preference for the cirio than does *Melanerpes*, though it seems equally fond of the cardoons. My series from San Fernando proves it to be quite different from a small series from Arizona, kindly loaned me by Mr. F. Stephens. The ground color of the upper parts is much darker in the Lower California bird, averaging about bistre brown, while the Arizona skins are broccoli brown; the black markings are also more intense and below especially more abundant in the peninsula specimens; the yellow of the wings and tail is deeper and the measurements less than in the Arizona skins. I have unfortunately no skins from the Cape region, whence Malherbe obtained his type of *chrysoides*, and until such skins are examined it would be unsafe to separate either the Arizona or San Fernando birds.

20. *Phalænotilus nuttalli*. NUTTALL'S POORWILL.—Of the three specimens before me, collected the past season, two are rather intermediate between *californicus* and *nitidus*, although one was collected as far north as Burro Cañon, north of Ensenada. The third, No. 5266, collected at San Fernando May 4, if not true *nitidus*, is not far from that form. Unfortunately none of my skins of that race from New Mexico are accessible at the present writing, and I cannot give them a direct comparison.

Poorwills were not uncommon in all of the desert regions visited the past season. They are probably resident through most of this country, as I have heard them in December and January. During the summer they were heard nearly every evening at San Fernando and doubtless were nesting, but no nests were found.

21. *Chordeiles acutipennis texensis*. TEXAS NIGHTHAWK.—About the mesquite brush and water holes at the San Fernando mission during migration.

22. *Cyseloides niger*. BLACK SWIFT.—A small flock was seen near San Carlos in May, 1887.

23. *Aëronautes melanoleucus*. WHITE-THROATED SWIFT.—A common resident in all of the deserts about San Fernando; especially common

during the nesting season at the mission, where it nests in all of the high cliffs, and possibly in the giant cactus, though I have no evidence of their so doing.

24. *Calypte costæ*. COSTA'S HUMMINGBIRD.—Very common about San Fernando during the summer. I thought I saw *C. anna* on one or two occasions at the mission, but was not sure.

25. *Myiarchus cinerascens*. ASH-THROATED FLYCATCHER.—Very common everywhere about San Fernando; less so near the coast. One was taken January 8, and a few others seen, so that it is probably a winter resident. About the mines they nest in the abandoned Woodpecker holes in the cardoon and cirio trees, and in the dry blossom stalks of the mescal (*Agave shawii*).

26. *Sayornis saya*. SAY'S PHŒBE.—Not uncommon about the water near the mission, and rather common in the dry arroyos until toward the end of the migration. A few were nesting about the mines, one nest being found twenty-five feet below the surface of the ground in one of the shafts.

27. *Sayornis nigrescens*. BLACK PHŒBE.—Only seen about the mission where it was not uncommon.

28. *Empidonax cineritius*. St. LUCAS FLYCATCHER.—One or two were taken near the mine in May and several were found about the mission in the thick mesquite growth. They sought the shelter of the most dense thickets, seldom venturing into the open, and only making their presence known by an occasional low, plaintive call. They were doubtless nesting, but owing to the difficulty of penetrating the dense, thorny tangle no nests were found.

29. *Otocoris alpestris pallida*. SONORAN HORNED LARK.—Quite common in the open country south of San Fernando, and not infrequently seen at the mines.

30. *Corvus corax sinuatus*. AMERICAN RAVEN.—Very common throughout the region.

31. *Sturnella magna neglecta*. WESTERN MEADOWLARK.—Not uncommon during winter at the mission, but very rare, if present, in summer.

32. *Icterus parisorum*. SCOTT'S ORIOLE.—Very common, a few being found in winter. Their nests were frequently seen buried in the short twigs that cover the trunks of the cirio and well protected by the sharp thorns. They are very fond of the ripe fruit of most of the cacti, especially *Cereus gummosus*.

33. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD.—A few were probably nesting at the mission, as they were seen until the last of June. Occasionally seen about the corral at the mine.

34. *Carpodacus mexicanus frontalis*. HOUSE FINCH.—A few were found in all of the region traversed, but it was common only about the water holes.

35. *Ammodramus sandwichensis alaudinus*. WESTERN SAVANNA SPARROW.—A few were seen about the corral in January.

36. *Zonotrichia leucophrys intermedia*. INTERMEDIATE SPARROW. — Not uncommon as a winter resident along the arroyo below the mission. One was taken at the mine as late as April 29.

37. *Amphispiza bilineata*. BLACK-THROATED SPARROW. — Very common in the interior and not uncommon on the coast. *A. belli* takes the place, to a large extent, of *bilineata* on the coast, crowding it further inland to the north until at San Quintin I very seldom saw it within ten miles of the beach. In 1887 a nest of *bilineata* was found north of San Fernando which contained four eggs, two of which were fresh and normal. The others, though perfect to all appearances, contained nothing but a small yelk.

38. *Amphispiza belli*. BELL'S SPARROW. — Not seen over four or five miles from the beach in the latitude of San Fernando and not very common.

39. *Melospiza fasciata heermanni*. HEERMANN'S SONG SPARROW. — Common about the mission. In Mr. W. E. Bryant's 'Catalogue of the Birds of Lower California' (Proc. Cal. Acad. Sci., Vol. II) he says, under head of *M. f. samuelis*: "I found them quite common in the large fresh-water swamp at El Rosario and Song Sparrows that I suppose were this form were seen at San Fernando." In a series of Song Sparrows representing nearly all of the country between San Diego and San Fernando I can find nothing that approaches *samuelis*, and though I have no specimens from El Rosario I feel sure that Mr. Bryant must have made a mistake in referring the bird to that race, all of my skins being easily referable to *heermanni*. In the San Fernando *Melospiza* I had expected to find some indication of intergradation with *rivularis*, but in the small series from the mission none show any approach to the characteristics of that race. It is possible that on the eastern side of the peninsula it will be found to intergrade with *fallax*, which extends for an unknown distance down the western side of the Gulf, but in the light of the material at my command I would expect to find *rivularis* a distinct local species.

40. *Pipilo fuscus senicula*.¹ LOWER CALIFORNIAN TOWHEE. — Rare about the mine but more common in the mesquite at the mission.

41. *Habia melanocephala*. BLACK-HEADED GROSBEAK. — Seen only as a migrant and but once or twice.

42. *Calamospiza bicolor*. LARK BUNTING. — A flock seen along the coast between El Rosario and San Fernando in April, 1887.

43. *Progne subis hesperia*. WESTERN MARTIN. — Not uncommon at the mission and an occasional pair was seen in other localities, nesting in Woodpecker holes in the giant cactus.

44. *Petrochelidon lunifrons*. CLIFF SWALLOW. — Common during migration, and occasionally seen as long as I was at San Fernando, but no nesting colonies were found.

¹ See *antea*, p. III.

45. *Tachycineta thalassina*. VIOLET-GREEN SWALLOW.—During early May this species was frequently seen at camp. At the mission it was nesting in the cardoons in May and June.

46. *Phainopepla nitens*. PHAINOPEPLA.—Very common about the mine in January, and but little less so on my return in April, but they soon became rare about camp and quite abundant at the mission. About camp their food consisted of the fruit of a mistletoe which was abundant on the cat-claw.

47. *Lanius ludovicianus gambeli*. CALIFORNIA SHRIKE.—Seen occasionally throughout the region but only common at the mission.

48. *Vireo gilvus*. WARBLING VIREO.—Seen only as a migrant. Rare.

49. *Vireo pusillus*. LEAST VIREO.—A few were met with in the mesquites about camp until about May 15, after which I think none were seen or heard. At the mission they were quite common and evidently nesting in the mesquite thickets.

50. *Helminthophila celata lutescens*. LUTESCENT WARBLER.—A few were seen at camp in late April and the first week in May.

51. *Dendroica auduboni*. AUDUBON'S WARBLER.—Everywhere common in winter but nearly or quite all had departed by the time I returned to camp, April 26.

52. *Dendroica townsendi*. TOWNSEND'S WARBLER.—A female which I shot at camp, May 7, is my only record.

53. *Dendroica occidentalis*. HERMIT WARBLER.—At the mission I shot a female May 16—the only one seen.

54. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—A few were heard in a growth of tules about one of the water holes at the mission.

55. *Sylvania pusilla*. WILSON'S WARBLER.—During the spring migration a few were seen in the mesquites about camp.

56. *Oroscoptes montanus*. SAGE THRASHER.—The Sage Thrasher winters in comparative abundance in most of this region and was seen in many places between the mines and the coast in January. All were gone, however, upon my return in April.

57. *Harporhynchus cinereus mearnsi*. MEARNS'S THRASHER.—Quite common about San Quintin and in suitable places as far south as I have collected. (For a fuller account of this subspecies, see Auk, XII, p. 53.)

58. *Harporhynchus redivivus*. CALIFORNIAN THRASHER.—The capture of a specimen at the San Fernando mission somewhat extends the known range of the species. Mr. Bryant in his 'Catalogue of Birds of Lower California' records it from El Rosario upon my authority. At this point it is not uncommon, the extensive brushy valley above the freshwater marshes furnishing surroundings exactly suited to its habits. At San Fernando I found it in small numbers confined to the thickets of mesquite near the water. It was very shy and but a single specimen was secured.

59. *Heleodytes brunneicapillus bryanti*. BRYANT'S CACTUS WREN.—Not uncommon throughout the region but everywhere noticeable for its

extreme shyness. The normal note of the Cactus Wren is quite harsh and unmusical, consisting of a series of notes rapidly uttered in a monotone, but at the mine I once heard one give voice to a song exactly intermediate between the normal, discordant notes of this species and the incomparable song of the Cañon Wren. The full, rich cadence and clear tones of *Catherpes* was very pronounced but not more so than the characteristic *gou-gou-gou* and deeper tones of *Heleodytes*. I was not near enough to secure the bird and before I could get within range it flew further up the mountain where it several times repeated the song that first attracted me. In the description of this race (Auk, July, 1894), the San Fernando Cactus Wrens were referred to *affinis*. The specimens upon which I based my opinion were all winter birds, with the dark markings somewhat obscured by the light, unworn tips of the new plumage. A series of breeding birds prove the San Fernando race to be *bryanti*, though perhaps hardly typical.

60. *Salpinctes obsoletus*. ROCK WREN. — Not uncommon in winter, but rare after my arrival in April.

61. *Catherpes mexicanus punctulatus*. DOTTED CAÑON WREN. — A pair was seen near the coast in June, 1887. One or two were noted near the mission.

62. *Thryothorus bewickii spilurus*. VIGORS'S WREN. — Quite common about the mine as well as at the mission. Several families of young were met with May 15-20.

63. *Psaltriparus minimus californicus*. CALIFORNIAN BUSH-TIT. — Not uncommon about the mesquite thickets in the mission valley; not met with elsewhere.

64. *Auriparus flaviceps*. VERDIN. — Quite common in all of the country south of San Quintín, especially in the mesquite growth. A good many of their nests were found about San Fernando, usually in cat-claw but occasionally in a chola. They are very restless, flying from one bush to another; often seen searching for insects about the blossoms of the cardoons. At such times their actions are very similar to those of the Titmice of the genus *Parus*, hanging head or back downward like a veritable Chickadee, and uttering its clear call note at frequent intervals. Several broods are probably raised, as I found young in the nest from April 24 to the time of my leaving, the last of June.

65. *Polioptila californica*. BLACK-TAILED GNATCATCHER. — Very common about the mine, nesting and probably resident.

ON THE STATUS OF BISCHOFF'S SONG SPARROW
(*MELOSPIZA INSIGNIS* BAIRD).

BY CHARLES W. RICHMOND.

SOME time ago Major Chas. E. Bendire, Honorary Curator Department of Oölogy in the United States National Museum, received some eggs of the Aleutian Song Sparrow from Mr. C. Littlejohn of Redwood City, Calif., collected at Sannak Island, Alaska, in the summer of 1894. These eggs proved, upon comparison, to be so much larger than others in the National Museum collection that Mr. Littlejohn was requested to send specimens of the bird for identification, which he very kindly did. At about the same time Mr. B. J. Bretherton of Lincoln, Oregon, sent on two specimens of *Melospiza*, with a small lot of other birds, all from Kadiak Island, which he very generously presented to the National Museum. Upon learning that the Kadiak specimens were not *Melospiza cinerea*, Mr. Bretherton sent a third example for examination, for which I have to thank him. Mr. Littlejohn, at my request, forwarded a series of twenty-seven specimens of *M. cinerea*, all from Sannak Island, for comparison with the large series in the National Museum collection, for which courtesy my thanks are due him. A series of over eighty specimens is now at hand, and amply sufficient, I think, to illustrate the validity of *Melospiza insignis* Baird. Of these specimens, eleven are *insignis*, from Kadiak, and the remainder are *cinerea*, mainly from Unalaska and Sannak Islands. A glance at the Kadiak birds without recourse to measurements will suffice to distinguish them from true *cinerea* from Unalaska, in fact they may readily be identified without direct comparison with the latter, which points strongly in favor of the recognition of *insignis* as a valid race. Its position, as may be inferred from its habitat, is between *rufina* and *cinerea*.

Melospiza insignis, or Bischoff's Song Sparrow, was described by Professor Baird in 1869, from six specimens collected by Ferd. Bischoff at Kadiak Island during that and the preceding year. At that time the *Fringilla cinerea* of Gmelin from Unalaska

was known only from the very vague description of that author, who followed Latham and Pennant. In 1870 the National Museum received two specimens from Dr. J. F. Brandt, who collected them many years before. These specimens, Nos. 60,161 and 60,162, are labeled "Ins. St. Paul, Aug. 5, 1843," and "Ins. Kodiak, 1844," respectively. The specimen collected at "Ins. St. Paul" (doubtless the small village of St. Paul on Kadiak, as the bird is not known to occur on the Pribilof Islands) is *insignis*, but the other, labeled "Ins. Kodiak," is *cinerea*. This latter specimen has no doubt been a stumbling block to those who have worked over these birds in the past, the very few genuine Kadiak examples then in the collection being neutralized by this specimen of *cinerea*. I suspect it to be from Unalaska, or some island on which *M. cinerea* occurs, but erroneously labeled "Kodiak." At the present time I have been able to examine only eleven specimens from Kadiak, but these are all typical of Bischoff's Song Sparrow.

Since 1870 many specimens of *Melospiza cinerea* have been received by the National Museum, collected chiefly by the naturalists attached to the various government vessels sent to Alaska. These specimens are principally from Unalaska, with a few specimens from Adak, Atka and the Shumagins, as above stated, and Mr. Littlejohn has recently obtained a large series from Sannak. This additional material from Unalaska led to the adoption of the name *Melospiza cinerea* (Gmel.) for the Aleutian Song Sparrow, and Baird's *Melospiza insignis* was relegated to the synonymy of that species. This change was made in 1881 by Mr. Ridgway,¹ but Dr. Finsch² had previously recognized both forms in his paper on the ornithology of Northwest America. In 1882 Dr. Bean³ gave a valuable table of measurements of these Song Sparrows, and more recently Turner⁴ and Nelson have written on the species; the latter author, after describing the fall

¹ Proc. U. S. N. M., III, 1880, p. 3.

² Abhandl. Nat. Ver. Brem., III, 1872, p. 41.

³ Proc. U. S. N. M., V, 1882, p. 154.

⁴ Contr. Nat. Hist. Alaska, 1886, p. 174.

plumage of the adult, observes that "Kadiak birds average slightly darker than those from Unalaska and the Aleutian chain."¹

Having given this brief history of the case, it now remains to describe *Melospiza insignis*, and point out the features in which it differs from *M. cinerea*.

Melospiza insignis Baird.

Description.—(U. S. Nat. Mus. No. 135,093, ♂ ad., Kadiak Island, Alaska, June 6, 1894, B. J. Bretherton.) Upper parts, including upper tail-coverts, slaty gray, the feathers of the interscapular region and scapulars with darker, brownish centres and blackish shaft marks; cervix and rump uniform in color, without markings; top of head darker on sides, with a faint brownish tinge, the feathers with blackish shaft marks. Tail above grayish brown, lighter on outer webs, with a chestnut wash at the base of the outer feathers. Throat, lores, malar stripe, and along median under parts grayish white, passing into dusky slate gray on the sides, cheeks, and sides of neck, with a brownish wash on flanks; sub-malar streak brownish gray, the feathers with darker centres, a faint, narrow rictal patch of the same color, and a faint postocular streak of brown. Throat faintly flecked with small dusky spots. Breast with a distinct band of dusky feathers, each feather edged laterally with dull white, with ill-defined brownish centres; sides streaked with dusky, the streaked feathers with brown along shafts. Under tail-coverts grayish brown, as on flanks, with darker median streaks, each feather edged with dull white. Wing grayish brown, like tail; tertials with lighter, umber edgings on outer webs; greater wing-coverts cinnamon on outer webs, with light gray terminal edgings; edge of wing at carpal joint, white. Wing, 3.18; tail, 3.12; bill from nostril, .44; depth of bill at base, .29; culmen, .55; tarsus, 1.03 inches.

Melospiza insignis differs from *cinerea* in its somewhat smaller size, shorter and more slender bill, in having less strongly marked spots on the interscapular region and breast, and in the gray, rather than brown, color of these spots. It is also without the distinct russet spots on the sides of the neck, at the termination of the sub-malar streak. In the spring specimens of *insignis* there is no lateral crown stripe of russet, but the great majority of specimens of *cinerea* before me show it very plainly. In fresh fall plumage the specimens of *insignis* have a dull lateral head

¹ Rep. Nat. Hist. Alaska, 1887, p. 194.

stripe of Prout's brown, with narrow black shaft streaks; *cinerea* in corresponding plumage has these stripes more distinct, and of a burnt umber color. Kadiak birds have less white below than most specimens of *cinerea*, and the whole plumage is a shade darker. The specimens of *cinerea* from the various localities represented are quite uniform in coloration, but the size varies slightly, those from Sannak leaning somewhat toward *insignis* in the slender shape of the bill, although the measurements slightly exceed those of the Unalaska individuals. In this connection it may be mentioned that two examples from Cook's Inlet on the mainland (Nos. 81,380 and 131,730) approach *insignis* much closer, both in color and size, than individuals of *rufina* from Sitka, and it may be found necessary, upon the examination of more material from this region, to either merge these birds into *insignis*, or separate them from *rufina* under a new title. Finsch's Alexandrovsk specimen is probably similar to these mainland birds. Measurements of the two specimens mentioned will be found following those of *M. insignis* in the following summary.

Measurements of Melospiza cinerea (Gmel.).

Average of twelve adult males from Unalaska: wing, 3.29; tail, 3.27; tarsus, 1.11; bill from nostril, .47 inches.

Average of ten adult females from Unalaska: wing, 3.20; tail, 3.17; tarsus, 1.09; bill from nostril, .46 inches.

Average of twelve adult males from Sannak: wing, 3.33; tail, 3.25; tarsus, 1.13; bill from nostril, .48 inches.

Average of ten adult females from Sannak: wing, 3.11; tail, 3.03; tarsus, 1.09; bill from nostril, .47 inches.

Measurements of Melospiza insignis Baird.

Average of four adult males from Kadiak: wing, 3.23; tail, 3.19; tarsus, 1.04; bill from nostril, .47 inches.

Average of three adult females from Kadiak: wing, 3.04; tail, 2.94; tarsus, 1.05; bill from nostril, .46 inches.

Average of four adults (sex unknown) from Kadiak: wing, 3.13; tail, 3.12; tarsus, 1.05; bill from nostril, .43 inches.

Smallest Unalaska example of *M. cinerea*, adult ♂: wing, 3.21; tail, 3.16; tarsus, 1.11; bill from nostril, .45; depth of bill at base, .31 inches.

Smallest Kadiak example of *M. insignis*, adult ♂: wing 3.18; tail, 3.12; tarsus, 1.03; bill from nostril, .44; depth of bill at base, .29 inches.

Measurements of Melospiza f. "rufina" from Cook's Inlet, Alaska.

No. 81,380, ♀ adult: wing, 2.97; tail, 2.80; tarsus, .97; bill from nostril, .43 inches.

No. 131,730, ♂ adult: wing, 3.12; tail, 2.90; tarsus, 1.05; bill from nostril, .43 inches.

Turning now to the eggs of these birds, it appears that previous to the receipt of the Sannak Island specimens, the eggs in the National Museum collection were those of *insignis*, and so, when the Littlejohn specimens were compared with them the difference in size at once became apparent. Major Bendire has very kindly placed at my disposal the following measurements and descriptions of the eggs of both species.

Eggs of Melospiza cinerea.

"No. 27,124. Four eggs taken May 26, 1894, measure 1.02 X .70; 1.01 X .71; .97 X .71; .96 X .71 inches. From Chase Littlejohn, Sannak Island.

"No. 27,416. Four eggs taken May 20, 1894, measure 1.00 X .69; .98 X .70; .97 X .69; .97 X .69 inches. Same collector and locality. Ralph Collection.

"No. 27,417. Four eggs taken May 26, 1894, measure .95 X .67; .96 X .66; .90 X .66; .91 X .65 inches. Same collector and locality. Ralph Collection.

"Average about .96 X .68 inches.

"*Description*.—Eggs elliptical ovate in shape, the shell compact and smooth, without lustre. Ground color from a bright light green to a pale grayish-green, mostly heavily blotched and spotted, especially about the larger end, with ferruginous and lavender, in some specimens heavy enough to almost hide the ground color."

Eggs of Melospiza insignis.

"No. 19,076. A set of three eggs taken June 10, 1880, by Dr. T. H. Bean at St. Paul, Kadiak, Alaska, measure .89 X .65; .87 X .65; .88 X .66 inches.

"No. 19,070. An incomplete set of two eggs taken by Mr. W. J. Fisher, in July, 1883, on Kadiak Island, Alaska, measure .87 X .65; .89 X .67 inches.

"No. 19,074. A set of three eggs from the same collector and place, measure .91 X .68; .94 X .68; .94 X .66 inches.

"No. 26,214. A set of five eggs from Kadiak Island, taken by Mr. B. J. Bretherton (from the collection of the Dept. Agriculture), measure .90 X .67; .90 X .67; .87 X .67; .86 X .66; .84 X .66 inches.

"Average about .89 X .66 inches.

"*Description*.—These eggs vary from ovate to short ovate in shape. They are considerably smaller than those of *M. cinerea*, but are similarly marked, and resemble them otherwise except in size."

In the synonymy which follows, I have placed three references to *Emberiza unalaschensis* under *M. cinerea*, for the following reasons: our specimens collected by Brandt are both labeled "*Emberiza unalashkensis*," presumably by Brandt himself. Dr. Finsch,¹ in an explanation of the unpublished plates of Brandt's 'Descriptiones et Icones Animalium Rossicorum Novorum,' writes "Tab. II, f. 4, *Emberiza unalashkensis* ist *Melospiza cinerea*, Gmel. — Unalashka." It appears that Brandt referred to *Melospiza cinerea* under this name, instead of to *Passerella iliaca unalaschensis* (Gmel.). The reference to Brandt's posthumous paper, edited by Schalow² doubtless also belongs here.

Melospiza insignis Baird.

Melospiza insignis BAIRD, Trans. Chicago Acad. I, 1869, p. 319, pl. 29, fig. 2. [Kadiak.] — DALL & BANN., Trans. Chicago Acad. I, 1869, p. 285. — ? FINSCH, Abhandl. Nat. Ver. Brem. III, 1872, p. 44. [Alexandrovsk.] — HENSH. Bull. N. O. C. IV, 1879, p. 159 (part).

Zonotrichia (Melospiza) insignis GRAY, Hand-List Bds. II, 1870, p. 94, no. 7392.

Melospiza melodia var. *insignis* COUES, Key N. A. Bds. 1872, p. 140. — BAIRD, BREW. & RIDGW. Hist. N. A. Bds. II, 1874, p. 30, pl. 27, fig. 8 (part).

Melospiza melodia h. *insignis* COUES, Bds. N. W. 1874, p. 139 (part).

Melospiza cinerea RIDGW. Proc. U. S. N. M. III, 1880, pp. 3, 180 (part). — COUES, Check-List, 1882, p. 54 (part). — BEAN, Proc. U. S. N. M. V. 1882, pp. 154, 172 (part). — NELSON, Cruise 'Corwin,' 1883, p. 72 (part). — COUES, Key N. A. Bds. 2nd ed. 1884, p. 372 (part). — A. O. U. Check-List, 1886, p. 281 (part). — TURNER, Contr. N. H. Alaska, 1886, pp. 174, 194 (part). — NELSON, Rept. N. H. Alaska, 1887, p. 193 (part). — RIDGW. Man. N. A. Bds. 1887, p. 432 (part). — SHARPE, Cat. Bds. B. M. XII, 1888, p. 707 (part). — RIDGW. Proc. U. S. N. M. XVI, 1893, p. 664.

Melospiza cinerea (Gmelin).

Cinereous Finch LATH. Syn. Bds. II, pt. I, 1783, p. 274. [Unalaska.] — PENN. Arct. Zool. II, 1785, p. 378.

Fringilla cinerea GMEL. Syst. Nat. I, 1788, p. 922. — LATH. Ind. Orn. I, 1790, p. 445.

¹ Abhandl. Nat. Ver. Bremen, III, 1872, p. 20.

² Journ. f. Orn., 1891, p. 256.

Zonotrichia cinerea GRAY, Gen. Bds. II, 1849, p. 373. — BONAP. Consp. Gen. Av. I, 1850, p. 478.

Melospiza insignis DALL, Proc. Cal. Acad. Sci. V, 1873, p. 27. [Unalaska; Shumagins.] *Ibid.*, 1874, p. 274. [Kyska.] — HENSH. Bull. N. O. C. IV, 1879, p. 159 (part).

Melospiza melodia var. *insignis* BAIRD, BREW. & RIDGW. Hist. N. A. Bds. II, 1874, p. 30 (part).

Melospiza melodia h. *insignis* COUES, Bds. N. W. 1874, p. 139 (part).

Melospiza cinerea FINSCH, Abhandl. Nat. Ver. Brem. III, 1872, pp. 20, 41. [Unalaska.] — RIDGW. Proc. U. S. N. M. III, 1880, pp. 3, 180 (part). — COUES, Check-List, 1882, p. 54 (part). — BEAN, Proc. U. S. N. M. V, 1882, pp. 154, 172 (part). — NELSON, Cruisè 'Corwin,' 1883, p. 72 (part). — COUES, Key N. A. Bds. 2nd ed., 1884, p. 372 (part). — TURNER, Auk, II, 1885, p. 157. [Nearer Islands.] — A. O. U. Check-List, 1886, p. 281 (part). — TURNER, Contr. N. H. Alaska, 1886, pp. 174, 194 (part). — NELSON, Rept. N. H. Alaska, 1887, p. 193 (part). — RIDGW., Man. N. A. Bds., 1887, p. 432 (part). — SHARPE, Cat. Bds. B. M. XII, 1888, p. 707 (part).

Emberiza unalaschcensis BRANDT, Descr. Anim. Ross. pl. II, fig. 4. — FINSCH, Abhandl. Nat. Ver. Brem. III, 1872, p. 20. — SCHALOW, J. f. O. 1891, p. 256. [Unalaska.]

THE SUMMER RANGE OF COLORADO BIRDS.

BY W. W. COOKE.

NO OTHER State in the Union has so great a variety of birds as Colorado. This arises from its location at the meeting place of eastern and western forms. The continental divide passes through the middle of the State, and while the plains of the southeast offer a fit habitation for most of the Mississippi Valley birds, the western slopes are visited by most of the Pacific coast species. Many southern birds reach Colorado during the heat of summer and most of the northern birds can be found on her mountains in winter. Such a combination of location and topography results in a widely varied bird fauna. There has not been much study made of Colorado ornithology, but up to date the State list includes 347 species. The general character of the fauna is western as shown by the fact that

there are only 60 eastern birds found here, meaning by eastern, those that are generally distributed in the East and extend only to the Rocky Mountains; while there are 90 species of western birds found here that do not occur to the eastward, in addition to 22 species that are peculiar to the Rocky Mountains, and 13 species that reach Colorado from the southwest. The remainder of our State's quota is made up of 16 species from the north, 17 from the south, 2 from the southeast, and 127 species that are of general distribution throughout the United States.

It is not, however, of Colorado bird-life as a whole that it is intended to speak, but of the summer birds. It is at this time of year that the mountainous character of the surface exerts the greatest influence on bird life. This can be shown most easily by a comparison with the prairie States to the eastward. The State list of Kansas numbers 335 species, of which 175 are known to breed in the State. Illinois, from about an equal number of species, shows 205 breeders. This large proportion of nesting species is due to the great extent of Illinois north and south. The same result is reached in Colorado through the effect of the mountains. Out of 347 species known to the State, 236 have been already ascertained to breed within her limits, and it is probable that almost one-half of the remainder will some day be added to the list of breeders. In broad terms it can be stated, that few birds occur in the State at any season of the year that are not also found there in summer. And why should it not be so. In a prairie State, the great bulk of the winter and early spring birds pass on northward to find a cool climate suitable to their nature and inclination. What these birds obtain by a northward journey of a thousand miles, their western cousins in Colorado duplicate by a trip of less than one-twentieth the distance. The everlasting snows lie on about one hundred peaks of the Colorado mountains, and in their vicinity the hardest birds can find congenial summer homes. The converse is also true; each of the widely varied portions of the State, at any and all seasons of the year, is inhabited by a goodly variety of birds. There is a climate for each bird and a bird for each climate. One would expect to find bird-life in May

among the blooming peach trees of the Colorado Valley, but at the same time there would be found almost as great a variety of birds, and nearly as many individuals, along the edges of the snow banks high up in the mountain sides. When in July we climbed Long's Peak (over 14,000 feet high, almost the highest in the State), having to wade through snow for twenty-five hundred feet of the way, we found a Brown Leucosticte (*L. australis*) on top waiting to receive us. The snow was covered with bird tracks, showing that our host was not the only inhabitant of the peak. What could be found there for a seed-eating bird to live on is a mystery, for the nearest vegetation was two thousand feet below, and another thousand to the nearest trees. Half an hour later we were caught in a terrific hail storm, and we sighed for the wings of our little friend to bear us to the sunlit fields we could occasionally catch glimpses of below us.

There yet remains an immense amount of work to be done to ascertain the limits of the range of the different species during the breeding season. Each kind seems to be a law unto itself, and it is not safe to judge from one species what will be the breeding range of even closely allied species. The common Raven is found from the foothills to the tops of the highest peaks, while the White-necked Raven, so similar as to be scarcely distinguishable unless in hand, never climbs even to the base of the main range. The Rocky Mountain Bluebird nests indiscriminately from the plains to the uppermost edge of timber, while the western form of the common Bluebird never goes above the lower parks. The Brown Creeper remains throughout the year high up on the mountain sides near the upper limit of timber, while the Cañon Wren remains continuously five thousand feet lower in the rocky cañons that are the source of its name. The Red-shafted Flicker deserts the mountains in the winter and becomes a common bird of the plains, but with the return of spring it ascends the peaks and sometimes nests even above timber line. The barren wastes near the tops of the tallest peaks are inhabited in summer by birds of widely different characters. The Brown Leucosticte, already mentioned, the Brown Lark (*Anthus ludovicianus*) and the White-tailed Ptarmigan (*Lagopus leucurus*) nest in close proximity two thousand feet

above the nearest trees. But how different the winter range of these three species. The Ptarmigan remains as high up as it can get food, being slowly forced downward by the autumnal gales, but finding a precarious living through the winter on the spruce buds along the upper edge of the timber, 11,000 feet above the sea. The Sparrow is found from timber line to the lower part of the foothills; while the Lark deserts the mountains and even the whole State to seek warmer quarters in the south.

The surface of Colorado can be divided into several distinct areas. In the eastern part is a wide stretch of plain from 4000 to 5000 feet elevation above the sea; then come ranges of foothills, 5000 to 7000 feet high. The 'parks' are broad areas of rolling prairie at an elevation of 7000 to 9000 feet, lying between the main ranges of mountains. Around them are the mountain sides clothed with timber to about 11,000 feet, while higher up are the treeless summits. Thus we have in Colorado, the plains, the foothills, the parks, the timbered mountain sides and the barren summits. Each of these during summer has its own peculiar bird-life. The number of individual birds on the plains is much greater than elsewhere. But bird-life in Colorado at best is not nearly so numerous as in the Mississippi Valley at the same latitude. There is a greater variety of birds among the foothills, but not so many individuals as on the plains. The great bulk of these plains birds is made up of a few species. The most common are the Western Meadowlark, the Mourning Dove, Red-winged Blackbird, Say's Phœbe, Bullock's Oriole, Killdeer, American Goldfinch, Shore Lark, Western Lark Finch, Lark Bunting, Eave Swallow, Rocky Mountain Bluebird, and Black-headed Grosbeak.

These all extend up on the foothills and have added to them many species of timber birds, such as the Rock Wren, Magpie, Long-crested Jay, and Lewis's Woodpecker. Most of the birds of the plains occur also in the parks, but their numbers are greatly decreased. These parks seem especially adapted to support bird-life, but there are probably not one-fourth as many individuals per square mile as on the plains near the foothills. The most common birds of the plains become rare in the parks, noticeably the Western Meadowlark, Mourning Dove, Say's Phœbe and

the Lark Bunting. The higher you climb on the mountain sides, the stiller the woods become. A great many different species occur, but their numbers are so small that the woods are almost as silent as the White Mountains of New England.

The following statistics will show the distribution of Colorado birds during the breeding season:—

BREEDING RANGE.

From the plains to 5000 feet,	29 species.
“ “ “ “ 6000 “	12 “
“ “ “ “ 7000 “	17 “
“ “ “ “ 8000 “	26 “
“ “ “ “ 9000 “	7 “
“ “ “ “ 10000 “	16 “
“ “ “ “ 11000 “	18 “
“ 5000 feet “ 6000 “	2 “
“ “ “ “ 7000 “	4 “
“ “ “ “ 8000 “	13 “
“ “ “ “ 9000 “	8 “
“ “ “ “ 10000 “	5 “
“ “ “ “ 11000 “	7 “
“ 6000 “ “ 7000 “	17 “
“ “ “ “ 8000 “	5 “
“ “ “ “ 9000 “	2 “
“ “ “ “ 10000 “	2 “
“ “ “ “ 11000 “	4 “
“ 7000 “ “ 10000 “	6 “
“ “ “ “ 11000 “	6 “
“ 8000 “ “ 8500 “	5 “
“ “ “ “ 10000 “	5 “
“ “ “ “ 11000 “	4 “
“ 9000 “ “ 9500 “	3 “
“ “ “ “ 11000 “	1 “
“ 10000 “ “ 10500 “	1 “
“ “ “ “ 11000 “	4 “
“ 11000 “ “ 11500 “	3 “
“ 12000 “ upward	4 “

This table can be combined into the following statements:—

Total breeders in the State,	236 species.
Breeding only on the Plains,	29 “
Breeding above 5000 feet and upward,	207 “

Breeding above 6000 feet and upward,	193 species.
“ “ 7000 “ “ “	155 “
“ “ 8000 “ “ “	106 “
“ “ 9000 “ “ “	86 “
“ “ 10000 “ “ “	51 “
“ “ 11000 “ “ “	40 “

That do not breed below 5000 feet,	101 species.
“ “ “ “ “ 6000 “	72 “
“ “ “ “ “ 7000 “	42 “
“ “ “ “ “ 8000 “	30 “
“ “ “ “ “ 9000 “	16 “
“ “ “ “ “ 10000 “	11 “
“ “ “ “ “ 11000 “	7 “
“ “ “ “ “ 12000 “	4 “

Breeding at 5000 feet,	164 species.
“ “ 6000 “	165 “
“ “ 7000 “	163 “
“ “ 8000 “	139 “
“ “ 9000 “	94 “
“ “ 10000 “	79 “
“ “ 11000 “	47 “

As before remarked, the birds of Colorado, especially as to their breeding range, have been but little studied, and any eastern ornithologist who wishes to combine collecting and investigation with recreation and a new supply of health can find no better field for his summer outing than the parks and peaks of the Rocky Mountains of Colorado.

ADDITIONAL CHARACTERS OF THE MACROPTERYGIDÆ.

BY FREDERIC A. LUCAS.

IN 'The Auk' for January, 1889, I proposed the family *Dendrochelidonidæ* for the reception of the Tree Swifts of Malaysia, establishing it upon well-marked characters found in the cranium and shoulder-girdle. Unfortunately I was not then aware that

the name *Dendrochelidon* was preoccupied, but since the proper generic name of the Tree Swifts is *Macropteryx*, the family name should be *Macropterygidæ*. By the courtesy of Dr. Sclater I have been able to examine an alcoholic specimen of *Macropteryx coronata*, and can now add three important differential characters to those already given. These are as follows:—

	<i>Micropodidæ.</i>	<i>Macropterygidæ.</i>
Hypotarsus	simply grooved	with one tendinal foramen.
Shoulder-muscles	strictly Cypseline	Passerine.
Deep plantars	strictly Cypseline	characteristic.

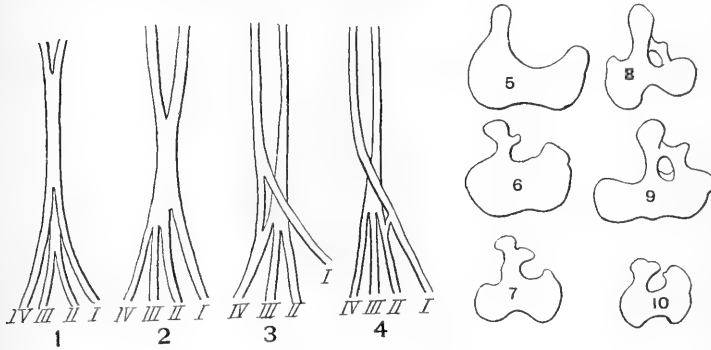
The accompanying figures bring out these points more clearly than any descriptions and show some other points of interest as well. The plantars of *Macropteryx* differ from those of the other Swifts in being almost free from one another, curiously enough very nearly resembling those of *Apteryx*. The extent of their anastomosis resembles that of the Trochilidæ, but in *Macropteryx* the *flexor longus hallucis* is connected with that branch of the *flexor perforans digitorum* which runs to the fourth digit, while in the Hummingbirds it is connected with the branch to the second digit, much as in the Falconidæ. The modifications of the hypotarsus among the Swifts show that the farther a species departs from the typical Cypseline form the more sharply are the tendons differentiated from each other. Thus while all the plantar tendons of *Micropus* play in a common groove, in *Cypseloides* and *Chatura* they are separated by little ridges of bone, and finally, in *Macropteryx* the *flexor perforans digitorum* is honored with a special foramen, just as among the Hummingbirds.

The subject of tendinal individuality and tarsal perforations is extremely interesting, and some day I hope to publish some of the results I am slowly gathering in. These seem to indicate that for morphological characters we must look to the upper end of the tarsus, the distal extremity being particularly subject to physiological adaptations.

The tongue and alimentary canal of all Swifts examined agree with one another in their general characters, and the tongue is very much as it is found among the Swallows, or even in such a

form as *Procnias*, this organ being very susceptible to modifications dependant on food or mode of feeding.

In my previous paper I said that the differences between the Macropterygidæ and the other Swifts were as great as those between the Crows and Swallows; in this I am prepared to go farther and to say that they are greater than those existing between any two families of Passeres with which I am acquainted.



EXPLANATION OF FIGURES.

Deep plantar tendons of 1, *Tachornis gracilis*; 2, *Chætura pelagica*; 3, *Macropteryx coronata*; 4, *Florisuga mellivora*.
Proximal end of left tarsus of 5, *Micropus apus*; 6, *Chætura pelagica*; 7, *Cypseloides niger*; 8, *Campylopterus hemileucurus*; 9, *Macropteryx coronata*; 10, *Tachornis gracilis*.

NOTES ON CERTAIN FLYCATCHERS OF THE GENUS *EMPIDONAX*.

BY WILLIAM BREWSTER.

GREEN-CRESTED FLYCATCHER. *Empidonax virescens* (VIEILL.).

The name *Empidonax acadicus* has been so long established and so generally used that despite its obvious inappropriateness it is indeed a pity that it must be discarded. But there is apparently no alternative, as can be shown in a few words. The

Muscicapa acadica of Gmelin (Syst. Nat., I, 1788, p. 947) was based on the "Lesser-Crested Flycatcher" of Pennant (Arctic Zoology, II, 1785, p. 386, n. 268) and the former author's diagnosis is an almost literal translation into Latin of the latter's description which is as follows:—

"268. LESSER-CRESTED. FL. With a small backward crest: head, neck, and back, of a dirty light cinereous green: breast and belly whitish, tinged with yellow: wings and tail dusky; coverts crossed with two bars of white; secondaries edged with white: legs black. PLACE. Inhabits *Nova Scotia*.—Capt. *Davies*."

This characterization is obviously too vague and general to be determinable. It fits *E. traillii* quite as well as *E. acadicus*, and it can be applied without much violence to autumnal specimens of *E. minimus*. Of course doubts on this score have been long since acknowledged and expressed; nor would they alone at this late day justify any serious question of the established application of the name *acadica*—an application which has become fixed and current by a certain process of exclusion and by long usage—were it not that we now know definitely what was only half suspected by the ornithologists of the past generation, viz., that the so-called "Acadian Flycatcher" is not a bird of "Acadia" at all. On the contrary, its normal range along the Atlantic seaboard does not extend to the northward of Long Island, although there are, of course, two or three records of its chance occurrence in southern New England. This being the case it would seem to be no longer possible to maintain that this southern *Empidonax* could have been the original *Muscicapa acadica*, for both Pennant and Gmelin name only Nova Scotia as the habitat of their bird, and the mention by the former of the person—Captain Davies,—from whom apparently he received his specimen, gives his statement as to its origin a certain definiteness which allays any suspicion that a mistake may have been made on this point.

These considerations would seem to make it imperative to select another name for the bird which has been so long called *Empidonax acadicus*. The earliest name available is apparently *Platyrrhynchos virescens* Vieillot (Nouv. Dict. d'Hist. Nat., XXVII, 1818, 22) based on Wilson and hence unmistakably referable

to this species. Wilson's name, *Muscicapa querula* (Am. Orn., II, 1810, p. 77, pl. 13, f. 3), is, of course, still earlier, but it is preoccupied by *Muscicapa querula* [= *Contopus virens*] Vieillot (Ois. Am. Sept., I, 1807, p. 68, pl. 39). Dr. Coues has said (Birds N. W., 1874, p. 250) that "if *acadica* be set aside as indefinite or inapplicable" it will be necessary to take, "if belonging here," *Muscicapa subviridis* Bartram, but this is a mere "*nomen nudum*."

Should these conclusions be granted and *Empidonax acadicus* of recent American writers become *Empidonax virescens* (Vieill.), it would also seem advisable to change the name Acadian Flycatcher to Green-crested Flycatcher, for the bird was generally known to the earlier American ornithologists as the Small Green-crested Flycatcher.

TRAILL'S FLYCATCHER. *Empidonax traillii* (AUD.).

The breeding range attributed to this Flycatcher has puzzled ornithologists not a little, — and with good reason, for east of the Alleghany Mountains the bird appears to be practically confined to the Canadian fauna, whereas in the Mississippi Valley it breeds at least as far south as southern Illinois; in the one case associating (in a faunal sense) with such northern birds as Swainson's Thrushes, Winter Wrens, Canada Jays and Three-toed Woodpeckers, in the other with such southern forms as Carolina Wrens, Tufted and Carolina Titmice, Cardinal and Blue Grosbeaks and Bachman's Sparrow. I have long suspected, however, that the Traill's Flycatcher of Ohio, Indiana and southern Illinois is not the same bird as that which breeds in northern New England, and a recent examination of the material in the collection of the United States National Museum and Department of Agriculture has confirmed this impression which, it may be added, is now shared by Mr. Ridgway, Dr. Merriam and Capt. Bendire, who have also given the matter careful attention.

I did not at first suppose that the question affected more than the identification of certain of the Mississippi Valley specimens, but it proves to have a broader significance, as will be presently shown. The type locality of *Muscicapa traillii* Aud. was the

“prairie lands of the Arkansas river” (Orn. Biog., Vol. I, 1831, p. 236). Fortunately three of Audubon’s specimens, given by him many years ago to Professor Baird and labeled by Mr. Ridgway as the types of *E. traillii*, are preserved in the National Museum. They are numbered respectively 960, 1865 and 2039. The first two are old birds, the last is a young bird in the first plumage. Although they bear no records of locality Mr. Ridgway thinks that there is practically no doubt that they were collected by Audubon himself on the Arkansas River. In any case they may be regarded as authentic representatives of Audubon’s species and since they agree closely in every respect with a number of summer specimens from Ohio and southern Illinois, it seems fair to assume that the Flycatcher which breeds throughout the central portions of the Mississippi Valley is the true *E. traillii*. On comparing it with a large series of *E. pusillus* from west of the Plains, I fail to find any differences by which the two may be separated. It is true that *p. pusillus* is subject to a good deal of what appears to be local variation and that some of its representatives from west of the Plains are larger and grayer than any of the Mississippi Valley skins, but others are positively indistinguishable from the latter. Considered as a whole the series of breeding birds which I have examined from the United States at large, west of the Alleghanies and south of the 42nd parallel, may be regarded, without much violence, as belonging to one and the same form.

The name which this form should bear is a matter of some uncertainty for although *Platyrhynchus pusillus* Swainson antedates *Muscicapa traillii* Audubon by several years it is not determinable by Swainson’s original description (Syn. Mex. Birds, Phil. Mag., I, 1827, p. 366). In the Fauna Boreali-Americana (Part second, 1831, pp. 144-146) this author describes and figures under the name “*Tyrannula pusilla* (Swainson)” a Flycatcher taken at “Carlton House, lat. 53° N., May, 1827,” which he says is smaller than the *T. querula* of Wilson [= *Empidonax virescens* (Vieillot)] “particularly in the bill, which is rather broader towards the middle, although formed on the same model,” and in respect to the wings which “are much shorter” measuring “only 2 inches” in length. He

also says "before we had investigated the natural affinities of the Flycatchers, we described this bird as possibly belonging to the genus *Platyrhynchus*. . . A fine specimen in our collection from the shores of Mexico agrees with that brought home by the Expedition." The Mexican specimen here referred to must have been the type of *Platyrhynchus pusillus*, and the specimen "brought home by the Expedition" the bird killed at Carlton House in 1827. If Swainson's statement that the two were practically identical can be trusted it becomes more than ever doubtful if the name *pusilla* has been correctly applied, for, as Baird has hinted (*Birds N. A.*, 1858, p. 195), and Coues definitely suggested (*Birds N. W.*, 1874, p. 252—under synonymy of *E. pusillus*), there are some reasons for believing that the description and figure given in the *Fauna Boreali-Americana* may have related to *E. minimus*. At all events they cannot be referred with any degree of confidence to either *E. traillii* or the so-called *E. pusillus*. It is said, however, that some of Swainson's types are still preserved at Cambridge, England. If the type of his *Platyrhynchus pusillus* is among them it should be re-examined with especial reference to the question here involved. But until this has been done by some one who is familiar with the nice distinctions which must be relied on to determine our North American *Empidonax* it seems to me that we are justified in ignoring the name *pusillus* and adopting—or rather retaining—that of *traillii* for the Flycatcher which we have just been considering.

Empidonax traillii alnorum, new subspecies. ALDER FLY-CATCHER.*

Subspec. char.—Differing from *E. traillii* (i. e., *E. "pusillus"* of Baird and subsequent authors) in having the coloring of the upper parts richer and more olivaceous, the wing bands yellower and hence more conspicuous, the bill decidedly smaller and the legs rather shorter. Type No. 1367, collection W. B., ♂ ad., Upton, Maine, June 3, 1872.

There is of course nothing new about this separation or the characters on which it is based. Indeed, all of the latter—as

well as certain others which I have been unable to verify and for this reason have omitted—were pointed out by Baird, in 1858 (*Birds N. A.*, 1858, pp. 194, 195) and they have been restated more or less fully by innumerable subsequent writers. It is simply a case of renaming a bird which was accurately distinguished nearly forty years ago and has since passed current as a valid form but to which the name of the very bird from which it was intended to separate it has been inadvertently applied.

Baird apparently did not have the Audubonian specimens before him when he made the comparison of *traillii* and *pusillus* above referred to. At least he does not allude to them in the text nor are they included in his tabular lists. The series of what he considered to be true *traillii* comprised nine examples, of which one came from New Hampshire, seven from Carlisle, Pennsylvania, and one from Mexico. The Carlisle birds were all taken in May and were unquestionably migrants on their way to northern New England or New York. Hence it is evident that his impressions of *traillii* were based on material which did not really represent that bird.

I must confess to a certain sense of relief that, as has been just shown, the responsibility for the above separation rests mainly on shoulders other and broader than mine; for while I honestly believe it to be based on intrinsically sound characters, the differences between the two birds in question are, after all, so slight and so difficult of verification without the aid of large series of specimens for comparison that the identification of individual specimens by descriptions alone is an almost hopeless task. This, however, is by no means a novel condition among *Empidonaces*, for this puzzling group includes several forms which are positively known to be distinct species, but which in the dried skins cannot always be distinguished with either ease or certainty.

The respective breeding ranges of *E. traillii* and *E. t. alhorum* cannot be mapped at present with entire precision, but I have had no hesitation in referring to the former all the breeding specimens that I have examined from the Mississippi Valley south of the 42nd parallel of latitude, and from North America at large west of the Plains, including skins from Fort Resolution on Great Slave

Lake, Fort Simpson on the Mackenzie River, Nulato on the upper Yukon, and British Columbia.

E. t. alnorum breeds in the Maritime Provinces, New England and New York, the northern part of the Lower Peninsula of Michigan (I have several typical specimens from Oden which is situated about twenty miles south of the Straits of Mackinac), and doubtless at many other points in the region lying immediately about the Great Lakes, but just how far to the westward it extends and whether or not its breeding range in the Mississippi Valley reaches sufficiently far southward to impinge on or closely approach that of true *traillii*, I am wholly ignorant.



SEVENTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF
NORTH AMERICAN BIRDS.

SINCE the publication of the Sixth Supplement to the A. O. U. Check-List the Committee on Classification and Nomenclature of North American Birds has held two sessions, having in hand the preparation of a new edition of the Check-List, as well as current questions relating to species and subspecies, and to changes in nomenclature proposed since the preparation of its last report (*cf.* Auk, XI, 1894, pp. 46-51). The sessions of the Committee were held in Washington, Jan. 15-18, 1894, and Feb. 12, 13, 1895, all the members of the Committee being present. In view of the proposed early publication of the second edition of the Check-List, all questions known to the Committee were considered, including nearly all of those originating in the present (April) number of 'The Auk.' Some of the latter still await final action.

The numbers at the left of the scientific names facilitate collation with the Check-List. The interpolated species and subspecies are numbered in accordance with the provision made therefor in the Code of Nomenclature (p. 14, last paragraph).

Committee { ELLIOTT COUES, *Chairman*.
J. A. ALLEN.
WILLIAM BREWSTER.
C. HART MERRIAM.
ROBERT RIDGWAY.

I. ADDITIONS.

[388.1.] **Cuculus canorus telephonus** (HEINE).

Kamtschatkan Cuckoo.

Cuculus telephonus HEINE, Journ. f. Orn. 1863, 352.

Cuculus canorus telephonus STEJN. Bull. 29, U. S. Nat. Mus. 1885,
224.

[B—, C—, R—, C—.]

HAB. An Asiatic species, occurring accidentally at the Pribilof Islands. (Cf. PALMER, Auk, XI, Oct. 1894, 325.)

[390.1.] **Ceryle torquata** (LINN.).

Ringed Kingfisher.

Alcedo torquata LINN. Syst. Nat. 1766, I, 180.

Ceryle torquata BOIE, Isis, 1828, 316.

[B—, C—, R—, C—.]

HAB. Mexico and southward to southern South America. Casual on the Lower Rio Grande, Texas. (Cf. STONE, Auk, XI, April, 1894, 177.)

441.1. **Basilinna leucotis** (VIEILL.).

White-eared Hummingbird.

Trochilus leucotis VIEILL. Ency. Méth. II, 559.

Basilinna leucotis BOIE, Isis, 1831, 546.

[B—, C—, R—, C—.]

HAB. Mexico and Guatemala, north to Chiricahua Mountains, Arizona. (Cf. FISHER, Auk, XI, Oct. 1894, 325.)

480.1. **Aphelocoma cyanotis** RIDGW.**Blue-eared Jay.***Aphelocoma cyanotis* RIDGW. Man. N. Am. Bds. 1887, 357.

[B—, C—, R—, C—.]

HAB. Northern Mexico, ranging northward into western Texas. (Cf. FISHER, Auk, XI, Oct. 1894, 327.)

591 c. **Pipilo fuscus senicula** ANTHONY.**Anthony's Towhee.***Pipilo fuscus senicula* ANTHONY, Auk, XII, April, 1895.

[B 396, in part, C 206 b, in part, R 240 b, in part, C 308, in part.]

HAB. Southern California, and Lower California, south to Lat. 29°.

632 b. **Vireo huttoni obscurus** ANTHONY.**Dusky Vireo.***Vireo huttoni obscurus* ANTHONY, Zoe, I, Dec. 1890, 307.

[B—, C—, R—, C—.]

HAB. Pacific coast, from Oregon to southern British Columbia, south in winter to California.

682.1. **Geothlypis poliocephala ralphi** RIDGW.**Rio Grande Yellow-throat.***Geothlypis poliocephala ralphi* RIDGW. Proc. U. S. Nat. Mus., 1893, 692.

[B—, C—, R—, C—.]

HAB. Lower Rio Grande Valley.

709 a. **Harporhynchus cinereus mearnsi** ANTHONY.**Mearns's Thrasher.***Harporhynchus cinereus mearnsi* ANTHONY, Auk, XII, Jan. 1895, 53.

[B—, C—, R—, C—.]

HAB. Northern Lower California.

713 a. **Heleodytes brunneicapillus bryanti** ANTHONY.**Bryant's Cactus Wren.***Heleodytes brunneicapillus bryanti* ANTHONY, Auk, July, 1894, 212.

[B 262, in part, C 43, in part, R 56, in part, C 63, in part.]

HAB. Northern Lower California, north into southern California.

719.1. **Thryothorus leucophrys** ANTHONY.**San Clemente Wren.***Thryothorus leucophrys* ANTHONY, Auk, XII, Jan. 1895, 52.

[B—, C—, R—, C—.]

HAB. San Clemente Island, California.

767. **Sialia mexicana occidentalis** (TOWNS.).**Western Bluebird.***Sialia occidentalis* TOWNS. Journ. Acad. Nat. Sci. Phila. VII, 1837, 188.*Sialia mexicana occidentalis* RIDGW. Auk, XI, April, 1894, 151, 154.

[B 159, in part, C 17, in part, R 23, in part, C 28, in part.]

HAB. Pacific Coast, from British Columbia to southern California, east to western Nevada, and casually, during migrations, to New Mexico.

767 a. **Sialia mexicana bairdi** RIDGW.**Chestnut-backed Bluebird.***Sialia mexicana bairdi* RIDGW. Auk, XI, April, 1894, 151, 157.

[B 159, in part, C 17, in part, R 23, in part, C 28, in part.]

HAB. Rocky Mountain district, south to northern Mexico.

767 b. **Sialia mexicana anabelæ** ANTHONY.**San Pedro Bluebird.***Sialia mexicana anabelæ* ANTHONY, Proc. Cal. Acad. Sci., 2d Ser. II, Oct. 1889, 79: (Cf. RIDGW. Auk, XI, 1894, 151, 159.)

[B—, C—, R—, C—.]

HAB. San Pedro Martir Mountains, Lower California.

II. CHANGES OF NOMENCLATURE.

GENUS **Engyptila** SUNDEVALL (p. 180). This becomes

GENUS **Leptotila** SWAINS.

Leptotila SWAINS. Class. Bds. II, 1837, 349. Type, "*P. rufaxilla*.
Nat. Lib. V. pl. 24" [*i. e.*, *Peristera jamaicensis*, Nat. Lib.
IX, 207, pl. 24 (named on plate "*Peristera rufaxilla*")].

Leptotila Swains. has thirty-five years' priority over *Engyptila* Sundevall. The former name has been generally discarded as being preoccupied by *Leptoptilos* Vieillot, 1831, on the presumption that Swainson intended to write *Leptoptila*; but there being no satisfactory evidence that this was the case, *Leptotila* is accepted as a tenable name.

No. 318. **Engyptila albifrons** (Bonap.). This becomes

Leptotila fulviventris brachytera (SALVAD.).

Leptotila brachytera SALVAD., Cat. Bds. Brit. Mus. XXI, 1893,
545.

Leptotila fulviventris brachytera A. O. U. Comm. Nomen. MS.

Professor Salvadori (*l. c.*, p. 545, footnote) has found that the type of *L. albifrons* Bonap. in the Paris Museum "is undoubtedly a specimen of *L. jamaicensis*." The earliest specific name for No. 318 of the Check-List appears therefore to be *brachytera* Salvad. 1893 (*ex* GRAY, 1856, *nomen nudum*), while *brachytera* appears referable as a subspecies to *L. fulviventris* LAWR. (Ann. New York Acad. Sci. II, 1882, 287).

No. 421. **Chordeiles texensis** LAWR. This becomes

Chordeiles acutipennis texensis (LAWR.).

Chordeiles acutipennis, var. *texensis* BAIRD, BREW. & RIDGW.
Hist. N. Am. Bds. II, 1874, 406. (*Cf.* HARTERT, Cat.
Bds. Brit. Mus. XVI, 1892, 616.)

GENUS **Picicorvus** BONAP. This becomes a subgenus of
Nucifraga. *Cf.* RIDGW. Auk, XI, April, 1894, 179.

GENUS *Nucifraga* BRISSON.

Nucifraga BRISSON, Orn. II, 1760, 58. Type, *N. caryocatactes*.

Hence No. 491, *Picicorvus columbianus* (WILS.) becomes

***Nucifraga columbiana* (WILS.).**

Nucifraga columbiana AUD. Orn. Biog. IV, 1834, 459.

726 a. *Certhia familiaris mexicana* (GLOGER). This becomes

***Certhia familiaris alticola* MILLER.**

Certhia familiaris alticola MILLER, Auk, XII, April, 1895.

III. ELIMINATIONS.

289 c. *Colinus virginianus cubanensis* (GOULD). Found to be extralimital. Cf. RIDGWAY, Auk, XI, Oct. 1894, 324.

767. *Sialia mexicana* SWAINS. Found to be extralimital. Cf. RIDGWAY, Auk, XI, April, 1894, 151-154.

IV. FORMS CONSIDERED AS NOT ENTITLED TO RECOGNITION.

Oceanodroma townsendi RIDGW. Proc. U. S. Nat. Mus. 1893, 687.

Since the description of this species the type has been compared by Mr. Osbert Salvin with the type of *Thalassidroma melania* Bonap., in the Paris Museum, and found not to be different.

Vireo huttoni insularis RHOADS, Auk, X, July, 1893, 239.

Considered as not separable from *V. h. obscurus* ANTHONY.

V. PROPOSED CHANGES OF NOMENCLATURE REJECTED.

[253.] *Totanus nebularius* (GUNN.) vs. *T. littorea* LINN. Cf. REICHENOW, J. f. O. 1889, 188. The Committee, on carefully reviewing the question, finds no reason for changing its former decision in the matter.

Bonasa umbellus fusca (ORD) COUES vs. *B. u. sabini* (DOUGL.).
Cf. COUES, Lewis and Clark's Exped. ed. 1893, III, 872.

It is held that the proposed change is not in accordance with
Canons XLIII and XLIV of the A. O. U. Code.

VI. ACTION DEFERRED.

Icterus gularis yucatanensis BERLEPSCH. Cf. Auk, XI, Jan.
1894, 51. Final action was again postponed.

RECENT LITERATURE.

Newton's 'Dictionary of Birds.' Part III.¹—Part III² of this admirable work includes, besides the minor articles to be expected in such a connection, others of considerable length and unusual importance, as naturally follows from their authoritative authorship. Among such may be especially mentioned *Moa* (concluded from Part II) and *Odontornithes*, by Mr. Lydekker; *Monstrosities, Muscular System, Nervous System*, and *Pterylosis*, by Dr. Gadow; *Moor-hen, Moult, Nidification, Nightjar, Owl, Parrot, Partridge*, etc., by Professor Newton. Everywhere throughout the work Professor Newton has enriched his pages with much curious historic and philological information of great interest to every intelligent reader. His views regarding nomenclature, the status and relationship of groups, and kindred general questions, are conservative and based on full knowledge of what has been said by previous authorities. He is strenuously opposed to the admission of either genera or species based on slight differences, with a tendency perhaps to underrate the fine distinctions commonly made by the writers of the 'new school.' Dr. Gadow

¹ A | Dictionary of Birds | By | Alfred Newton | Assisted by | Hans Gadow
| With Contributions from | Richard Lydekker, B. A., F. R. S., Charles S.
Roy, M. A., F. R. S. | and | Robert W. Shufeldt, M. D. (late United States
Army) | Part III (Moa-Sheathbill) | London | Adam and Charles Black |
1894. 8vo., pp. 577-832.

² For notices of Parts I and II, see *antea*, Vol. X, pp. 357-360, and Vol. XI,
pp. 56-60.

and Mr. Lydekker display also a masterly command of their subjects. In short, the work thoroughly maintains the high standard of Parts I and II.

In concluding the present notice it may be not out of place to transcribe a few remarks on special points of interest to readers of 'The Auk.' Thus Dr. Gadow, in his article 'Muscular System' makes the following comment: "The taxonomic value of muscles is theoretically great, but very limited when put to practical test. Most of them cannot be understood unless the whole group to which they belong be examined, and the study of their correlations is a very complicated problem. To pick out a few of the most variable muscles of the leg, and to arrange birds in accordance with their mere presence or absence, without regard to intermediate stages, is an easy but scarcely serious mode of investigation, and there is no wonder that systems built on such simple notions broke down. There is no reason why a dozen different kinds of birds should not have lost the same muscle at different times and independently of each other, and that other kinds may not lose it in future if its function be no longer required or can be fulfilled by some other combination. . . It is certain that similar muscular combinations in two or more birds do not necessarily mean relationship, while on the contrary similar requirements are often met in similar ways. . . ."—J. A. A.

Stone's Birds of Eastern Pennsylvania and New Jersey.¹—Mr. Stone, with the assistance of his fellow-members of the Delaware Valley Ornithological Club, has presented us with a faunal list which, except in unimportant details, may well stand as a model for works of this nature.

Chapter I, on 'The Geographical Distribution of Birds,' opens with remarks on the 'General Laws of Geographical Distribution,' and is followed by a detailed consideration of the 'Faunal Areas of Eastern Pennsylvania and New Jersey— their Physical Features and Characteristic Birds,' the value of which is much enhanced by a colored map.

Chapter II, on 'Bird Migration,' treats of the subject from both a general and local standpoint and should be read by every one interested in the study of this branch of ornithology. This chapter concludes with a nominal list of the 'Birds found within Ten Miles of Philadelphia,' some 260 in number, grouped under the following, in the main, well-chosen headings: I. Resident Birds. II. Species which are of rare or irregular occurrence in winter, but common summer residents.

¹The | Birds of Eastern Pennsylvania | and | New Jersey | With Introductory Chapters on | Geographical Distribution and Migration | Prepared under the direction of the | Delaware Valley Ornithological Club | By | Witmer Stone | Conservator Ornithological Section Academy of Natural Sciences of Philadelphia | — | Philadelphia | Delaware Valley Ornithological Club | 1894.—8vo., pp. vii 185, frontispiece and two maps.

III. Common Summer Residents. IV. Summer Residents which are rare or local (many are common as transients). V. Winter Visitants of regular occurrence. VI. Winter Visitants of irregular occurrence or rare. VII. Species which occur occasionally in winter, but are mainly transients. VIII. Common Transients. IX. Rare or irregular Transients. X. Rare Stragglers.

Part II, an 'Annotated List of the Birds of Eastern Pennsylvania and New Jersey,' occupies pp. 35-152 and includes 352 species, or, subtracting 3 species¹ now extinct in the region under consideration and 3 hybrids,² we have a total of 346 species known from the district. To this may be added *Anas crecca*, recorded by Dr. C. C. Abbott (Geology of New Jersey), which, it is true, may have been omitted intentionally, though other records from the same doubtful source are given a place.

The annotations under each species consist of a brief and somewhat too general statement of its 'Breeding Range' and 'Winter Distribution,' given in separate paragraphs—an admirable plan—and remarks on the bird's manner of occurrence, which show that Mr. Stone has his subject well in hand and knows what to say and what to leave unsaid.

The total of 346 species tells us that few additional birds are to be expected from this district and the most promising fields for future workers lie in more clearly determining the faunal affinities of the mountainous parts of Eastern Pennsylvania, and especially the standing of the sea-birds of the Jersey coast, about which comparatively little is known. Records of *Procellaria pelagica* and *Phalacrocorax carbo* require confirmation, and it is probable additional observation will show that some birds, e. g., *Microfalama himantopus* and *Ereunetes occidentalis*, are not so rare as Mr. Stone believes.

The bibliography, which concludes this excellent list, is proof that Mr. Stone is thoroughly familiar with the literature relating to the birds of Pennsylvania and New Jersey. Indeed, few records of importance seem to have escaped him. He does not, however, mention Mr. Lawrence's record of the European Woodcock from Shrewsbury, N. J. (Catalogue of Birds, 1866, p. 279); and in Mr. Thurber's 'List of Birds of Morris County, New Jersey' (True Democratic Banner, 1887) he will find additional records of such rare birds as *Elanoides forficatus*, *Accipiter atricapillus*, *Scotiaptex cinerea*, *Ampelis garrulus*, etc., and other notes of interest.

The work is well and tastefully printed, typographical errors are rare, and we congratulate Mr. Stone and his associates on having performed their task in a manner which demands the highest commendation.—
F. M. C.

¹ *Camptolaimus labradorius*, *Tympanuchus cupido*, and *Conurus carolinensis*.

² *Colaptes auratus* + *C. cafer*, *Helminthophila leucobronchialis*, and *H. lawrencei*.

A Flying Trip to the Tropics.¹—In this pleasantly written journal the author gives us an account of a trip which occupied fifty-four days. Leaving New York June 11, 1892, with his wife and brother, he visited the Island of Curaçao, journeyed by boat up the Magdalena in Colombia as far as Yeguas, travelled by train to Honda, and thence proceeded over the mountainous Bogota road as far as Guadas, returning over the same route.

We cannot expect that so hurried a reconnaissance should yield much that was new from a naturalist's point of view, but the author proves conclusively that in comparatively few weeks we can visit lands which seem permanently beyond our horizon and make the acquaintance in life of at least the more characteristic forms of tropical bird-life. Indeed, to the naturalist the peculiar value of the book lies in the fact that the writer had no time to make a special study of anything. He found an abundance of material on every side, and his daily record of commonplace sights and incidents evidently forms a well-balanced picture of town, roadside, and riverside bird-life.

From Curaçao he records 23 of the 39 species of birds known from the island, while his list of Colombian birds includes 91 species or perhaps one-sixth of those which inhabit the region passed through. In view of the limited time available for field-work he may feel proud of the 210 bird-skins which figure among the material results of his trip.

Few books of travel are more adequately or handsomely illustrated. The numerous maps, half-tone cuts, and drawings of animals admirably supplement the text. Naturalists will welcome the colored plates by Keulemans, and black and whites by Keulemans and the late Gustav Mützel; while the extended bibliographical appendix will be of value to future workers in the same field.—F. M. C.

Shufeldt on the Osteology of Cranes and Rails.²—After reviewing the recent classifications of the Paludicolæ, Dr. Shufeldt presents a synoptic table of the osteological characters of *Porzana carolina*, which are said to agree in the main with those of the genera *Crex* and *Rallus*, and also with those of the Coots (*Fulica*) and the Gallinules. In another table is given a comparative synopsis of the osteological characters of *Rallus longirostris*, *Aramus giganteus*, and *Grus americana*, from which

¹ A Flying Trip to the Tropics. A Record of an Ornithological Visit to the United States of Colombia, South America, and to the Island of Curaçao, West Indies, in the year 1892. By Wirt Robinson, Second Lieutenant, Fourth U. S. Artillery. Cambridge: Printed at the Riverside Press, 1895. Sq. 8vo., pp. i-x, 1-194, 108 illustrations.

² On the Osteology of Certain Cranes, Rails, and their Allies, with Remarks upon their Affinities. By R. W. Shufeldt, M. D. Journ. Anat. and Phys., Vol. XXIX, 1894, pp. 21-34.

he concludes that "the Courlans possess a greater number of graine characters than they do ralline ones." The Paludicolæ are divided into two superfamilies, the Gruioidea, and the Rallioidea, the first including the Cranes and Courlans, each as distinct families, and the other the Rails, Gallinules and Coots.—J. A. A.

Grundtvig on the Birds of Shiocton, Wisconsin.—Mr. Grundtvig's paper was originally published in Danish in 1888, and has recently been translated into English and republished.¹ It is a copiously annotated list of 183 species, the result of systematic daily observations carried on by the author "from October, 1881, to October, 1883," within the limits of a very small area Outagamie County, Wisconsin. The introductory pages (pp. 73-94) describe the author's method of work, the general character and extent of the region treated and the distribution of the birds therein, and also notes the influence of the spring weather upon the arrival of the migratory birds in both 1882 and 1883. During the period mentioned the author appears to have given a large part of his time to the study in the field of his immediate vicinity, and the results of such detailed work, here presented, possess unusual value and interest. Thanks are due Mr. Faxon and to the Wisconsin Academy for rendering Mr. Grundtvig's paper accessible to English readers.—J. A. A.

Bourns and Worcester on the Birds of the Philippine Islands.²—The authors of the present paper "had the honor of forming two of the 'party of five collectors from the United States' which constituted the Steere Expedition to the Philippines" in 1887-88, when thirteen of the larger islands of the group were visited in company with Dr. Steere. "Being convinced," say these authors, "that much remained to be done, both in the discovery of new species and in the working out of the exact distribution of species already known, we were extremely anxious to return and continue the work. This we were enabled to do in the summer of 1890 through the liberality of Mr. Louis F. Menage, a public spirited citizen of Minneapolis, Minnesota, and a member of the Minne-

¹On the Birds of Shiocton in Bovina, Outagamie County, Wisconsin, 1881-83. By F. L. Grundtvig. Trans. Wisconsin Acad. Sciences, Arts, and Letters, Vol. X, 1894, pp. 73-158, with map. Translated by Charles E. Faxon, from the Videnskabelige Meddelelser fra den naturhistoriske Forening i Kjøbenhavn for Aaret 1887, pp. 305-396 (1888). Translation "Issued July, 1894."

²Preliminary Notes on the Birds and Mammals collected by the Menage Scientific Expedition to the Philippine Islands. By Frank S. Bourns and Dean C. Worcester. Minnesota Acad. Nat. Sciences, Occasional Papers, Vol. I, No. 1, Dec., 1894. 4to., pp. 64.

sota Academy of Natural Sciences. The entire expense of the expedition was borne by Mr. Menage, and its results were donated to the Academy of Sciences." In the present brochure we have the first fruits of this praiseworthy enterprise, sustained by Mr. Menage. "During the stay of two years and five months in the Philippines" seventeen of the islands were visited. Reference is made to the "careful series of measurements of more than four thousand" specimens of birds, which will appear in their final report, taken for the purpose of showing "the relative amount of individual variation in the representatives of those genera which display a strong tendency to develop local species as compared with other genera which show no such tendency."

In the present preliminary paper 36 species of birds are described as new, and new localities are given for 226 species previously recorded from these islands. Important notes are given on some 40 species previously described from the Philippines, supplementing the previous more or less incomplete descriptions, or treating of questions of nomenclature, including remarks on the *Dicaeum trigonostigma* group as represented in these islands. The final report on the results of this important expedition will be awaited with interest. — J. A. A.

Merriam's Laws of Temperature Control of the Distribution of Land Animals and Plants.¹ — In his recent Vice-Presidential address before the National Geographic Society of Washington, Dr. Merriam has given the results of his long-continued investigations of the influence of temperature in controlling the distribution of animals and plants over the earth's surface. Investigations made by botanists tend to show that plants require a certain amount of heat — the amount varying of course with the species — to reach a given stage of development, as leafing, flowering, the maturation of seed, etc. This quantity is computed on the basis of the average temperature of each day which reaches the minimum required for the functional activity of the particular species in question. As Dr. Merriam states it, "the substance of this theory is that the same stage of vegetation is attained in any year when the sum of the mean daily temperatures reaches the same value, which value or total is essentially the same for the plant in all localities." Reasoning from this, Dr. Merriam observes: "If it is true that the same stage of vegetation is attained in different years when the sum of the mean daily temperatures reaches the same value, it is obvious that the *physiological constant of a species must be the total quantity of heat or sum of positive temperature required by that species to complete its cycle of development and reproduction.*" He has

¹ Laws of Temperature Control of the Geographical Distribution of Terrestrial Animals and Plants. Annual Address by Vice-President Dr. C. Hart Merriam. Nat. Geog. Mag., Vol. VI, 1894, pp. 229-238, pll. xii-xiv.

accordingly attacked not only the subject of the "species constant" but that of the "zone constant." "In conformity with the usage of botanists," he continues, "a minimum temperature of 6° C. (43° F.) has been assumed as marking the inception of the period of physiological activity in plants and of reproductive activity in animals. The effective temperatures or degrees of normal mean daily heat in excess of this minimum have been added together for each station, beginning when the normal mean daily temperature rises higher than 6° C. in spring and continuing until it falls to the same point at the end of the season. The sums thus obtained have been platted on a large scale map of the United States, and isotherms have been run which are found to conform in a most gratifying manner to the northern boundaries of the several life zones." The available data, though not so full as desirable, appear "to justify the belief that animals and plants are restricted in northward distribution by the total quantity of heat during the season of growth and reproduction."

The southern limit of distribution of species, however, must evidently be determined by some other cause, as, probably, a degree of heat greater than they are able to sustain. "The difficulty," as Dr. Merriam observes, "is in ascertaining the *length of the period* whose mean temperature acts as a barrier." This for the present he has "arbitrarily" assumed to be the "six hottest consecutive weeks of summer"; and on plating the mean normal of this period it is found to agree so closely "with the southern boundary of the Boreal region" "as to justify the belief that animals and plants are restricted in southward distribution by the mean temperature of a brief period covering the hottest part of the year."

Three maps accompany the paper, giving (1) the 'Distribution of the total quantity of Heat during Season of Growth and Reproductive Activity'; (2) 'Mean Temperature of Hottest Six consecutive weeks of the Year'; (3) 'Life Zones of the United States.' The boundaries limiting the temperature areas and the life zones are so nearly coincident that they are practically identical! The temperature observation stations are shown on the first two maps, and from their remote positions along some of the boundaries platted it is evident that these lines are to some extent tentative and hypothetical; yet it is not probable that they will be found far from their correct position when fuller data are secured.

Dr. Merriam's paper is not only a step in the right direction but a most important contribution to the subject in hand. The premises are in the main sound, but it is evident that no one temperature limit will fit all species as a point of departure for computing the species constant, reproductive activity, in many animals at least, beginning at a temperature far below 6° C., the "inception of reproductive activity" being often determined by a combination of circumstances having little to do with a definite temperature of 6° C., however different the case may be with plants.—J. A. A.

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GENERAL NOTES.

Brünnich's Murre in Oneida County, N. Y.—The first week of December last, a specimen of Brünnich's Murre (*Uria lomvia*) was caught alive, a few miles south of this place, by a school girl, on the road between Lime Kiln Creek and Black River Canal. The bird was kept in confinement for a couple of days, when it died. It was offered meat, but refused to eat. As near as I can ascertain the bird was captured December 5, 1894.

Late in December I obtained possession of another specimen of this same species. This one was captured alive by a farmer, about December 15, a few miles south of where the other was caught. It lived but two days in confinement. The stomachs of both birds were empty. Mr. Egbert Bagg informs me that a specimen of this same Murre was caught alive at Utica, December 24. This is the first record of *Uria lomvia* from Oneida County.—WILLIAM S. JOHNSON, *Boonville, N. Y.*

Brünnich's Murre (*Uria lomvia*) in Connecticut.—I have a specimen of this species which was shot at Rocky Hill, Conn., Nov. 18, 1893. The man who shot it said it was very tame and that it permitted a very near approach. On dissection it was found to be in very lean condition. This is the first occurrence of this bird in this locality so far as I can learn.—WILLARD E. TREAT, *East Hartford, Conn.*

The Pacific Kittiwake at San Diego, California.—About the first of February I noticed a small immature Gull among a flock of *Larus delawarensis* near one of the San Diego wharves, that was evidently different from its associates. One other Gull in the flock seemed to be similar, but as it was an adult its distinctive marks were less noticeable, and owing to the proximity to the wharves and shipping I was unable to shoot either. A week later I saw what I have reason to think was the same Gull; at the same wharf, and identified it as an immature *Rissa tridactyla pollicaris*. The same bird was several times seen feeding about the garbage scow in company with Glaucous-winged, Western, American Herring, Ring-billed, and Heermann's Gulls, and was at all times noticeably fearless, so much so that on two occasions I nearly secured it with a stone. No opportunity for shooting it was offered until Feb. 26, when it was seen alone at some distance from its usual haunt. A few pieces of meat thrown from the door of a boat-house soon brought a swarm of common Gulls, and with them the stranger, which was easily secured. This extends the known range of the species considerably south of all published records.

In this same connection I would mention the probable occurrence in San Diego Bay of *Larus vegæ* the past winter, a Gull being several times seen about the wharves that I think was that species, but as it could not be secured the record is open to question.—A. W. ANTHONY, *San Diego, Calif.*

Terns of Muskeget Island. — A Correction. — In my article on the Terns of Muskeget, published in 'The Auk' for January (p. 35, 17 lines from top) for "On May 19, 1893," read, On June 19, 1893. The first eggs observed in 1893 were 35, on May 26; on the 28th, 130 were noted. — GEORGE H. MACKAY, *Nantucket, Mass.*

Breeding Habits of Terns. — I am glad to be able to corroborate two statements in the January number of 'The Auk' in the article entitled 'Terns of Muskeget Island.' It is generally accepted, I believe, that two Terns sometimes lay their complement of eggs in the same nest, although, so far as I know, it has never been proved. I have several sets of eggs of *Sterna hirundo* and *S. paradisæa* that may add a little to the evidence in favor of this belief. They were collected by myself June 28, 1891, on Egg Rock, Popham, Maine, where these two species were nesting alone. First, four eggs taken from same nest. Two eggs are long, narrow and were nearly fresh. The other two are much like Sandpiper's eggs in shape and the incubation was far advanced. Second, five eggs taken from one nest. Three are long, narrow, similar in coloration and were *much* incubated. The other two are similar to each other in every respect, but they are larger than the others, noticeably different in coloration, similar to a Sandpiper's egg in shape, and were fresh. I think that part of these eggs were laid by *S. hirundo* and the rest by *S. paradisæa*. Third, six eggs taken at one time from the same nest. These were all fresh and differ mainly in coloration. There are three eggs of each bird apparently. Those of one bird are as similar to one another as a Tern's eggs ever are, but clearly different from those of the other bird. I believe that Terns very rarely lay more than three eggs.

On page 46 of the same article is given a description of a Tern's nest consisting of a hollow lined with small stones. I have seen several, perhaps five or six, nests of this kind. In every case the stones formed the only lining to the nest and were evidently collected by the birds as any other material might have been for the same purpose. — AUBREY B. CALL, *Townshend, Vt.*

Diomedea exulans on the Columbia in 1813. — In preparing for publication the MS. Journals of Alexander Henry, Junior — a fur trader, who lived for some years at Astoria, and who was drowned there — I find the following entry, under date of Feb. 13, 1813:

"We were visited by some natives who came to trade with us. Among other things they produced an Albatros they had just killed. The body and head were white, the tail and wings gray, the bill pale pink, and the legs pale blue. The bill was 7 inches long, formed somewhat like an Eagle's; the wings were very narrow, but measured from tip to tip seven feet ten inches." This description is somewhat equivocal, as the alar extent is rather that of *D. albatrus* than that of *D. exulans*; but Mr.

Henry may not have stretched the wings to their fullest extent; also, this discrepancy is more than offset by a bill 7 inches long, and especially by the blue color of the feet. I think this may be safely accepted as an authentic record of the occurrence of *D. exulans* at the mouth of the Columbia River. I may add that Mr. Henry is a very well-known person in the annals of the famous old North West Company, to whose credibility no shadow of suspicion has ever attached.—ELLIOTT COUES, *Washington, D. C.*

The Black-capped Petrel (*Estrelata hasitata*) in **Ulster County, New York, in January.**—A partly mounted specimen of this species was shown to me on February 4 of this year by Mr. Arthur Barker, taxidermist, of 16 North William Street, New York City. He remarked that he had killed it two days before in order to mount it. Later on I received from Prof. Henry L. Griffis of the State Normal School at New Paltz, Ulster County, New York, an interesting account of its capture there by Mr. August Vradenburgh, on January 26, 1895. It was found by the roadside in the snow and was easily taken by hand, appearing to be in an exhausted condition; yet it lived seven days in captivity before being killed, having been sent, alive, to Prof. John I. Hover, of Brooklyn, N. Y., in whose collection the mounted bird now is.—L. S. FOSTER, *New York City.*

The European Widgeon (*Anas penelope*) in **Indiana.**—Although this Duck is not an infrequent straggler to North America, it has usually been recorded from localities on the Atlantic and Pacific coasts, and rarely in the interior, two instances being on record for Illinois and one for Wisconsin. The specimen in question was taken on the Kankakee River, at English Lake, Ind., on April 13, 1893, by Mr. Landon Hoyt of Chicago, Ill., and is now in his possession. When shot it was in company with a flock of Baldpates (*Anas americana*).—RUTHVEN DEANE, *Chicago, Ill.*

Baird's Sandpiper on Long Island Sound, N. Y.—Dr. E. H. Eames and I shot two Baird's Sandpipers (*Tringa bairdii*) Sept. 29, 1894, at Seaside Park, on Long Island Sound. There were ten or more in the flock, also a few Semipalmated Sandpipers. They were very unsuspecting and the whole flock might have been taken. Mr. J. B. Canfield, also of this city, secured a fine male a few days later.—H. H. TAYLOR, *Bridgeport, Conn.*

The Golden Eagle in New Jersey.—The publication of Mr. Stone's excellent list of 'The Birds of Eastern Pennsylvania and New Jersey' reminds me of an unrecorded adult *Aquila chrysaetos* taken at Vineland, New Jersey, February 19, 1868, and now in my collection. It was sent to me in the flesh by a relative living in Vineland. My notebook says the bird was killed with a club, having gorged itself with portions of a deer recently shot.—JNO. H. SAGE, *Portland, Conn.*

The White Gyrfalcon in New England.—Not long since Mr. George A. Boardman wrote me that he had heard of the capture, in eastern Maine, of a very light-colored Gyrfalcon. Upon my expressing a lively interest in the matter he very kindly put me in correspondence with Mr. John Clayton of Lincoln, Maine, who mounted the specimen and from whom I have just purchased it. Although too dark colored to be typical of that form it is, nevertheless, an unmistakable example of *Falco islandus* Brünn. It is a young bird and, judging by the measurements, a male, although the sex was not determined by dissection. It was shot in South Winn (just south of Lincoln) about October 8 (Mr. Clayton received it on the 9th and in such fresh condition that he does not think it could have been dead more than twenty-four hours), 1893, by a young man named Wyman who found it perched on a telegraph pole.

This capture is of considerable importance, for the White Gyrfalcon does not appear to have been before taken in New England if, indeed, it has occurred anywhere within the United States. It has been reported more than once, but in every case, apparently, either on insufficient evidence or mistaken identification. The repeated changes or interchanges of names in the Gyrfalcon group have also led to much confusion. A recent instance of this is the mention by Mr. Chapman (Birds of Vicinity of New York City, 1894, p. 41) under "*F. islandus* Brünn." of the Long Island, (New York) specimen originally recorded by Mr. Lawrence (Ann. Lyc. Nat. Hist. New York, VIII, 1866, p. 280) and since referred to by Mr. Ridgway (Hist. N. Am. Birds, III, 1874, p. 114) and by Mr. Dutcher (Auk, X, 1893, p. 274) as *F. islandicus*.¹ Mr. Chapman now writes me that he has never seen this specimen and "had not the slightest intention of changing its original identification," but that he was misled "into giving *F. islandus* as the equivalent of *F. islandicus*." It may be well, therefore, to improve this and every convenient opportunity to reiterate the fact that, under the arrangement first proposed by Dr. Stejneger (Auk, II, 1885, pp. 187, 188) and afterwards adopted in the A. O. U. Check-List, the bird which, prior to 1885, was so generally called *F. candicans* now stands as *F. islandus*, while that formerly known (among American writers at least) as *F. islandicus* has become *F. rusticolus*.—WILLIAM BREWSTER, Cambridge, Mass.

The American Barn Owl Breeding at Washington, D. C., in Winter.—One or more pairs of American Barn Owls (*Strix pratincola*) have been known to breed for a number of years in one of the towers of the Smithsonian Institution, and eggs of this species taken here in June, 1861, and June 1, 1865, are now in the United States National Museum collection.

¹ Since writing the above I have examined this Long Island bird, which is now in the collection of the Brooklyn Historical Society. It proves to be a perfectly typical example of *Falco rusticolus gyrfalco* in nearly mature plumage.

On Dec. 8, 1893, a young bird which had but recently left its nest (a good deal of down still showing through its plumage) was caught by one of the watchmen and turned over to the Ornithological collection, where I saw it while still in the flesh. This specimen was probably hatched some time in October, and I considered this a rather remarkable, late breeding record at the time. On Feb. 27, 1895, another specimen of about the same age was picked up in a bush in the Smithsonian grounds, in which it became entangled, and this was certainly not over two months old and must have been hatched in the latter part of December, 1894, if not early in January, 1895, certainly a most unusual time of the year for this Owl to breed in this latitude. — CHAS. E. BENDIRE, *Washington, D. C.*

The Great Gray and Hawk Owls in St. Lawrence County, N. Y.— While at Ogdensburg, St. Lawrence Co., N. Y., recently, I examined a local collection of mounted birds and study skins owned by Mr. H. M. Davidson. In it I found three Great Gray Owls (*Scotiaptex cinerea*), all of which had been shot in the county within a period of five years. I also found four American Hawk Owls (*Surnia ulula caparoch*) which had been secured within the past few years in a large swamp in the township of Hammond, which is in the same county.

On the 19th of December, 1894, while at Carthage, which is at the western border of Jefferson County, New York State, I saw a Grackle— species not determined, as the bird flew on my approach. The day was bright and clear, with the temperature but little above 20°. A farmer near me remarked that he “guessed that bird had made a mistake and thought spring had come.” — WILLIAM DUTCHER, *New York City*.

An Albino Ruby-crowned Kinglet.— On February 4 I shot, near this place, a nearly perfect albino Ruby-crowned Kinglet (*Regulus calendula*). The bird was a female and the only one I have seen here for some time. The body is pure creamy white, with a wash of lemon yellow on the rump; head grayish brown, with numerous flecks of white. The edges of the tail and wing feathers are edged with yellowish white, giving a frosty appearance to the closed wing and tail and hiding largely the otherwise dusky feathers. — A. W. ANTHONY, *San Diego, Cal.*

Clark's Nutcracker.— In my note on Clark's Nutcracker in 'The Auk' for January, 1895 (p. 82), the heading reads 'Clark's Nutcracker in Eastern Missouri.' This is a geographical error and should read *Western Missouri*, as Kansas City is divided by the Missouri-Kansas State line and is situated in the western border of Jackson County.

Mr. Goss, in his 'Birds of Kansas,' speaks of this species as being an accidental visitant to Kansas and mentions only one specimen as secured in that State, and of which a part of the skin was sent to him for identification. This bird was killed August 13, near the south line of Marshall

County, which is located in the northern part of Kansas, about one hundred miles west and thirty miles north of this city; while the specimen mentioned by Mr. Mitchell in the October Auk, 1894 (XI, p. 327), killed at Earl, Crittenden County, Arkansas, April 1, 1891, and sent to Memphis, Tenn., for identification, was taken about two hundred and fifty miles east, and three hundred miles south of this point. The one noticeable fact in regard to the capture of these three specimens is the different seasons in which the birds were taken, the Crittenden County, Arkansas, bird having been captured in spring (April 1, 1891), the Marshall County, Kansas, bird in summer (Aug. 13, 1888), and the Jackson County, Missouri, bird in autumn (Oct. 28, 1894). Mr. Kellogg notes in 'The Auk' for July, 1894 (XI, p. 260), that Mr. Menke of Finney County, Kansas, records, "Three birds were seen Oct. 10, 1891," in the far southwestern portion of that State, but no specimens were secured. — JOHN A. BRYANT, *Kansas City, Mo.*

The Cowbird Wintering in New Hampshire. — I shot a male Cowbird (*Molothrus ater*) Jan. 18, 1895, on one of the principal streets of the town. It was in company with a flock of Sparrows feeding in front of a grain store. The bird had been seen at odd times throughout the winter, usually in company with the Sparrows. It was in good plumage and condition, and did not seem to mind the cold weather. It would probably have remained all winter, for the snow had covered the ground for nearly two months and the mercury had touched 20° below zero several times. — F. B. SPAULDING, *Lancaster, N. H.*

The Goldfinch (*Carduelis carduelis*) near Boston, Mass. — In Brookline, Massachusetts, in May, 1892, I noted a bird of this species feeding in a pine tree in company with a few American Goldfinches. It seemed perfectly at home and therefore I take it was not an escaped cage bird, — rather one of the Goldfinches or their offspring that were imported to this country not long ago. — REGINALD HEBER HOWE, JR., *Boston, Mass.*

Second Occurrence of Harris's Sparrow (*Zonotrichia querula*) in British Columbia. — Mr. Allan C. Brooks writes me that on January 9, 1895, he shot two Harris's Sparrows and saw a third at Chilliwack, British Columbia. According to Mr. Rhoads the only previous instance of the occurrence of this species "on the Pacific side of the Rocky Mountains" is that of a specimen taken by Mr. Maynard near Victoria early in April, 1891 (Rhoads, Proc. Acad. Nat. Sci. Phila., 1893, p. 49). — WILLIAM BREWSTER, *Cambridge, Mass.*

A Set of Unspotted Eggs of the Chipping Sparrow. — Nests of the Chipping Sparrow (*Spizella socialis*) are frequently found containing one or two of the eggs without spots, but never until the past summer have I found or heard of a set in which *all* the eggs were devoid of

markings. The set in question was found at Milford Mills, Chester County, Pa., on May 17, 1894, at which time the nest contained two eggs. Being obliged to leave the locality on the following day, I had Mr. Frank Powell forward me the nest and eggs as soon as the set was complete. On close inspection there is seen a faint suggestion of a few small spots on the larger end of one of the eggs, but this is not noticeable on casual examination. The eggs are somewhat shorter than the ordinary type, but the transverse diameter is greater, thus giving them more of a rounded appearance. Their color, aside from the absence of spots, is normal. There was nothing unusual about the nest, it being composed of dried grass and lined with horse hair. It was built in the forks of a limb of an apple tree in an orchard. — WILLARD L. MARIS, *Newtown, Pa.*

Junco hyemalis shufeldti in Lower California. — In looking over a small series of Juncos taken the past spring between Tia Juana and San Fernando, Lower California, I was somewhat surprised to find one specimen that was easily referable to *shufeldti*. Upon turning to my notebook I find that the bird in question was taken on March 29, in the Carriso Valley, about six miles east of Tia Juana and two or three miles south of the United States boundary line. It was a fine male and the only Junco noted in several days' collecting at that point. With the exception of *J. h. townsendi* which, so far as my observations go, is confined to the immediate region of San Pedro Martir, all of the other Juncos that I have examined from the northern part of the peninsula have proven to be typical *J. h. thurberi*. In January, 1894, I secured a single specimen of this race in a willow thicket at El Rosario, the most southern point that I have met with the genus. I found *thurberi* common in the Burro Cañon, a short distance north of Ensenada, in late April, and they may have been nesting though I have no positive evidence of their so doing, so near the sea level.

If it is more than probable that Mr. Bryant's Guadalupe Island record of *J. oregonus* (Catalogue Birds of Lower California), refers to *thurberi*, that race not having been described at the time the list was published. — A. W. ANTHONY, *San Diego, Cal.*

Mortality among White-bellied Swallows in Florida. — During the almost unprecedented cold snap which prevailed throughout Florida in the first half of February, an exceedingly large number of White-bellied Swallows succumbed to the severity of the weather. These were either directly killed by the sudden fall in temperature or were overcome by the scarcity of insect food occasioned by the protracted cold. While I have no information as to the condition of affairs in other parts of the State, it seems reasonable to suppose that what was observed in this section obtained elsewhere.

On February 13, while driving along the stage route between Lake Worth and Biscayne Bay, numerous dead birds were noticed. At New

River, on the afternoon of the same day, when the cold was not especially severe, although it had been so the previous night, many Swallows while on the wing were seen to fall lifeless into the river. I learn that at Lemon City for several days the boys amused themselves by dropping their hats over benumbed or exhausted Swallows on the docks. On the morning of February 15, seven dead birds were taken from under the seat of a catboat where they had evidently sought shelter during the previous afternoon and had perished in the night. The same day I noticed many dead Swallows in the water and on the shores of Biscayne Bay adjacent to this place. At Coconut Grove, about ten miles further south, many birds were killed, over sixty dead Swallows being found one morning on the roof of a piazza. Persons who visited the ocean shore, which is a favorite resort for these birds, reported the beach as thickly strewn with dead Swallows. At the house of refuge, located on the coast opposite this place, over one hundred and fifty dead birds were counted one day.

An examination of the alimentary tracts of some of the birds showed an entire absence of food; and to this cause, rather than the direct influence of the cold, I am inclined to attribute the exceedingly great mortality which ensued.—HUGH M. SMITH, *Lemon City, Dade Co., Florida.*

The Rough-winged Swallow (*Stelgidopteryx serripennis*) and Tree Swallows (*Tachycineta bicolor*) Wintering in South Carolina.—I shot a male Rough-winged Swallow on the morning of December 22, 1894, which had been in the neighborhood for over a month, and which had roosted in a barn since November. I also shot two Tree Swallows on January 4, 1895. The weather was intensely cold between these dates, the thermometer registering as low as 8° above zero. It is not unusual to see hundreds of Tree Swallows on mild days in January and February, but it is certainly surprising to find them braving a temperature of 8° to 10° above zero. The Tree Swallows had their throats stuffed with myrtle berries, which they subsist upon in the fall and winter months.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

A Ground Nest of the Black-throated Green Warbler.—This Warbler is notoriously variable in its choice of a nesting site. The usual situation, of course, is the horizontal branch of a pine, hemlock or spruce, but I have seen nests built at or near the tops of tall specimens of these evergreens, in deciduous trees, such as birches and elms, and in barberry bushes in open pastures. It appears, however, that there is an even wider range of possibilities, for Mr. Clarence H. Watrous has just sent me a nest which he found—at Chester, Connecticut, June 18, 1894—*on the ground* “among a large clump of ferns in a very low and damp place under a heavy growth of hemlocks.” There is nothing peculiar about the composition or construction of this nest save that it

is unusually bulky and loosely woven at the bottom, showing plainly—were such evidence needed—that it must have originally rested on a broader and more stable foundation than the fork or branch of a tree or shrub. Its identification is placed beyond all question by the fact that it is accompanied by the skin of its little architect and owner who was shot while sitting on her four eggs. These, it may be added, are perfectly typical eggs of *D. virens*.—WILLIAM BREWSTER, *Cambridge, Mass.*

***Dendroica palmarum* in New Jersey.**—Learning from Mr. Witmer Stone's 'Birds of Eastern Pennsylvania and New Jersey' that this western race of the Palm Warbler has not been recorded from the region covered by that work I desire to record my capture of an adult female *Dendroica palmarum* at Red Bank, Monmouth County, New Jersey, September 28, 1889. Several others were observed at close range and the comparative absence of yellow remarked.—HARRY C. OBERHOLSER, *Washington, D. C.*

Breeding of the Blue-gray Gnatcatcher in Minnesota.—Until the summer of 1892 this bird was a rare visitor in Minnesota and was not supposed to breed here at all. In the month of April, 1892, several pairs were observed near St. Paul for the first time. In June a nest was found by a local collector and brought to me for identification. The parent being taken with the nest it was easily identified. This find set me to searching for their nests the next season, and I was rewarded with a fine set of five eggs which were taken with the nest and parent in June. That was the only nest observed in 1893. The past summer the birds were much commoner than ever before, and four nests were found, three with eggs. The first nest was taken May 27, and contained four fresh eggs. The second set was taken on June 2, with five slightly incubated eggs. The third, also taken on June 2, contained four fresh eggs. The fourth nest, taken on June 18, contained four young, just hatched, and one addled egg. This is, I believe, the first record of the Gnatcatcher breeding north of 43° N. lat., St. Paul being in lat. 45° N. All the nests, with one exception, were taken in West St. Paul, in Dakota County. They were all placed on horizontal branches of the burr oak and the height varied from twelve to twenty-four feet.—WALTON MITCHELL, *St. Paul, Minn.*

The Systematic Name of the Mexican Creeper.—The specific or subspecific name *mexicana* has long been in use for the *Certhia* inhabiting the mountains of Guatemala, Mexico, and southern Arizona. The original reference to the name I have had no opportunity to verify, but it is credited to Gloger (*Handbuch*, 1834, 381) and Reichenbach (*Handb. Spez. Orn.*, 266). The former is cited in the American Ornithologists' Union Check-List and by Mr. Sharpe in Volume VIII of the 'Catalogue

of Birds in the British Museum,' the latter by Messrs. Salvin and Godman in the 'Biologia Centrali-Americana.' In either case the name is antedated by *Certhia mexicana* Gmelin, Syst. Nat., I, 1788, 480. Gmelin's bird, "C. rubra, guttore viridi, remigum apice cærulescenti," is the *Certhia rubra mexicana* of Brisson (Aves, III, 651), a species not easily identifiable, but certainly not a *Certhia* (perhaps one of the red species of *Myzomela*). As no other name has been proposed for the Mexican Creeper, the bird (No. 726a of the A. O. U. Check-List) may stand as *Certhia familiaris alticola*.—GERRIT S. MILLER, JR., *Washington, D. C.*

A New Family of Birds.—In revising the North American Finches and Tanagers Mr. Ridgway has found it necessary to establish a new family for the reception of the members of the genus *Procnias*. This distinction is certainly warranted by the cranial characters of the genus, the skull, among other things, being notable from the shape of the palatines and total absence of transpalatine processes. The head and skull of *Procnias*, it may be remembered, suggest those of a Swallow, but the resemblance is purely superficial, the skull structurally resembling that of a Tanager more than it does that of a Swallow.—F. A. LUCAS, *Washington, D. C.*

The Tongues of Birds.—Herr Schenkling-Prévôt contributes an interesting article on the tongues of birds to the November number of the 'Zoologische Garten,' although some of his statements must not be too implicitly trusted. Such, for example, are the remarks that the tongue of the Woodpecker is not used as a spear, but as a "lime twig" to which insects are stuck by the viscous saliva, and that it is an organ of incomparable pliancy, feeling about in all directions.

Now, as a matter of fact, the structure of the Woodpecker's tongue is such as to render it, for its length and slenderness, extremely rigid, and while the Flicker undoubtedly draws ants out of ant-hills by means of the sticky mucous with which the tongue is plentifully besmeared, yet there can be no doubt that the barbed tip serves, like a delicate eel spear, to coax larvæ out of their hiding places in trees. Herr Prévôt is probably not acquainted with our Sapsucker or he would have called attention to the peculiar modification by which the tongue is rendered an admirable swab for collecting syrup.

The tongues of granivorous birds are said to be often arrow-shaped, or awl-shaped, a term which certainly does not apply to any of our North American Finches, in which the tongue is rather thick and fleshy, and slightly bifid or brushy at the tip, being so constructed as to play an important part in husking seeds.

Herr Prévôt decidedly overestimates the probable taxonomic value of the tongue, for no other organ seems to be so subject to variation; no two species of North American Sparrows that have come under my observation have the tongues exactly alike, while two such near neigh-

bors as *Melospiza fasciata* and *M. georgiana* have tongues quite different from one another. No one would suppose from their tongues that *Picus* and *Sphyrapicus* were members of the same family, while such diverse forms as *Micropus*, *Hirundo* and *Procnias* would, from a 'glossological' point of view, stand shoulder to shoulder. On the other hand, so great may be the amount of individual variation, that three distinct species could be made from the four examples of the Cape May Warbler which have passed through my hands.

Resemblances between tongues indicate more or less similarity in food or mode of procuring it rather than any real affinity between their owners; but while the tongue is apparently of slight taxonomic value it is extremely interesting as showing the remarkable number of modifications which an organ may exhibit and its great susceptibility to physiological adaptation.—F. A. LUCAS, *Washington, D. C.*

Bird Fatality along Nebraska Railroads.—There is a certain bird fatality along railroad lines which is commonly charged to the telegraph wires. Doubtless they are the chief executioners, but not the dark destroyer of all the dead birds along our railroads. In Nebraska more fatality, as I believe, is to be charged to the moving train than to the wires. It is one of the larger States (exceeding in size all New England by 11,000 square miles), and though treeless, save in the cañons and along river courses, it is quite diversified. Still there are large areas of prairie that seem entirely level and unbroken. Here there are no trees, bushes or stones to offer shelter to winter birds. The prairie grasses are very short and give but little protection, and large numbers of misguided birds seek shelter in the lee of the steel rails of railroad tracks.

These are almost wholly Horned Larks. As one walks along the track at night they fly up in considerable numbers from their dangerous shelter, especially in severe weather. The Larks are attracted thither as much by the food and the grain dribbled along the way by passing trains as by the protection which the treacherous rails offer. Crouching at night in the shelter of the rails, and stupefied by the noise and light of approaching trains they rise too late, are struck by the flying train, and thrown dead to either side of the track. I have seen them lying thus in scattered bunches of ten or a dozen. Railroad men say it is the work of the train, and such I believe it to be.

It is the habit of these Larks to fly low, just skimming the surface of the ground, and it is highly improbable that they came to an untimely end by striking the telegraph wires.—EDWIN H. BARBOUR, *Lincoln, Nebr.*

Florida Notes.—Shortly after the late 'freeze' in Florida (on Feb. 9 the temperature was 28° F. at 7 A. M. at New River) large numbers of White-bellied Swallows were seen flying about and a few days later numbers of them were found dead. I saw at least a dozen floating in the

river. One bird fluttered down near us and died in a few minutes. I opened several and found them all very much emaciated, and the stomachs in nearly all cases were empty.

On Lake Worth I counted fourteen flocks of the Surf Scoter (*Oidemia perspicillata*) each containing from nine to twenty-three birds. Two Old Squaws were also seen at the Canaveral Club, near Titusville, during the December freeze. Thousands of small fish were killed in the Banana River, and several Lesser Scaup Ducks were found dead, evidently choked to death by fishes which they had attempted to swallow.

The weather remained rather cold for several days and Mallards and Northern Black Ducks were not uncommon, and Surf Scoters were abundant flying south along the coast in flocks. Robins have been unusually abundant in Florida all winter. Paroquets (*Conurus carolinensis*) are not uncommon in the cyprus swamps at the head of Cyprus Creek; several flocks were seen about my camp at south branch of Middle River, and I killed six out of one flock. The Indians tell me that Paroquets are not uncommon to the north and east of Lake Okeechobee. — CHARLES B. CORY, *In camp on South Branch of New River, Dade Co., Fla.*

Notes on the Winter Birds of Cape Cod, Massachusetts. — At a meeting of the Nuttall Club during the winter of 1892, Mr. O. Bangs reported the presence on Cape Cod of two birds which, so far as I know, have not hitherto been recorded as regular winter residents of any portion of New England. In a short visit to the Cape, last December, I found not only the birds reported by Mr. Bangs, but also two other species which are, I believe, unrecorded as winter residents of New England. The birds noted were the following.

Rallus virginianus. VIRGINIA RAIL. — One seen in Barnstable, Dec. 31, 1894. Mr. Bangs reported this bird as fairly numerous in December, 1892.

Circus hudsonius. MARSH HAWK. — Two were seen between Sandwich and Barnstable, Dec. 31, 1894.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEGGED HAWK. — A female of this species in the black phase was given me by Mr. J. F. Carleton of Sandwich. The bird was shot in Barnstable, Dec. 18, 1894.

Ammodramus sandwichensis savanna. SAVANNA SPARROW. — Dec. 28, 1894, I found a Savanna Sparrow in a small tidal marsh in Sandwich. The next day, and again on the 30th, I found two, always in the same spot.

Spizella pusilla. FIELD SPARROW. — I saw a flock of eight Field Sparrows on the edge of the West Barnstable marshes, Dec. 31, 1894. Mr. Bangs reported them in Dec. 1892.

The only published records I am aware of for the wintering in New England of any of the birds mentioned above (except of course of the

Rough-legged Hawk) are the two following for the Field Sparrow, — Auk, IV, p. 259 and X, p. 205. Four Field Sparrows were seen by Mr. Treat near Hartford, Conn., in January, 1886, and one in January, 1887. The second record is for Massachusetts; a bird was seen by Mr. Torrey at Wellesley, Dec. 19, 1892, and again Jan. 8, 1893.

Cape Cod is, of course, exceptionally well fitted to shelter these birds in winter, as snow rarely lingers there for more than a few days and because there are extensive marshes which are always opened by the tide. It is probable, however, that similar conditions exist in Rhode Island and in Connecticut, so that it would be worth while for observers in those States to investigate the marshes there, unless indeed some, or all, of the above-mentioned birds are already known to winter along the Sound. — RALPH HOFFMANN, *Belmont, Mass.*

Notes from Southern New Jersey.—*Phalaropus lobatus*. NORTHERN PHALAROPE. — Two specimens of this rare visitant to the New Jersey coast were secured on Peck's Beach, Cape May Co., on the 23rd of May, 1894, and are now in my collection. The above and the one taken by Mr. L. F. Bowers, the day previous (22nd) at the same place, proved to be females. It is said to be extremely rare in this section. The great storm which swept the coast from the 19th to the 22nd of this month, no doubt compelled the birds to seek shelter upon this island.

Ammodramus henslowii. HENSLOW'S SPARROW. — While engaged in collecting a few shore birds on the 22nd of May, 1894, upon Peck's Beach, I ran across a nest of this Sparrow. It was placed at the brink of a small sand dune, the top of which was about six feet above the level of the beach. The nest was sunken flush with the sand and directly against the roots of a solitary bunch of grass. The bird did not leave the nest until I had approached within three feet and almost touched her breast with my finger, when she flew to the edge of a thicket of bayberry and holly bushes some distance away, and, while protesting vigorously, did not come near or call up her mate. The nest, of bleached sedge grass with a lining of fine grass stems, contained four partly incubated eggs of a very light greenish to grayish white, thickly speckled and spotted with chestnut and hazel, with a very little vandyke brown here and there. The markings were confluent at the larger end in two and at the smaller end of the remaining two eggs. One egg also shows many olive gray shell markings. They measure $.71 \times .63$, $.70 \times .62$, $.70 \times .62$, $.70 \times .62$, and are short ovate to oval.—FRANK L. BURNS, *Berwyn, Chester Co., Pa.*

Some Notes from Pennsylvania.—The summer of 1894 I spent in Pike County, Pennsylvania, in the Delaware Valley. Through June my friend, H. L. Beadel, was with me, and together we explored the woods around Dingman's Ferry, our headquarters. On June 14 we made our first important find, the nest and eggs of the Canadian Warbler (*Sylvania canadensis*). The deeply cupped nest was under a tangle of laurel roots,

on the steep bank of a brook in heavy woods. It was built of pine needles, slightly roofed over by leaves, and contained four eggs of the typical Warbler coloration. The identification was made certain by collecting the female which was lurking near by in the laurels. The ravine where the nest was found is not over 150 feet above the level of the Delaware, which at this point is about 950 feet, making a total elevation of 1100 feet above sea-level.

On June 21 we penetrated further into the woods, and in a thicket of small white pines found the nest and four eggs of the Nashville Warbler (*Helminthophila ruficapilla*) at an elevation of about 1175 feet. This nest was under the root of a small pine; deeply cupped and loosely lined with pine needles. I soon collected the female which we had flushed from the nest.

The notes heard from this bird when first flushed were a crackling like the breaking of small twigs. After that, the only note was a staccato *chillip*. The same day I collected two males and one female, adult, Blackburnian Warblers (*Dendroica blackburniæ*). They evidently breed in that part of Pike County, for we found them in one particular patch of the woods all through the summer. Despite our searching, we found no nests of this species.

On June 25, in nearly the same area in which I had found the other Warblers, I heard a Warbler's song that was strange to me. I followed it up and shot its author, a fine specimen of Black-and-Yellow Warbler (*Dendroica maculosa*), male adult; a bird that heretofore I had known only as a migrant in Pike County. The genital organs were fully developed and he was carrying food, so I have no doubt there was a nest not far distant.

We found Parula Warblers breeding abundantly in these woods, and on the pine ridges found Pine Warblers (*Dendroica vigosii*).

On June 26 I saw a Mockingbird (*Mimus polyglottos*), a rare but regular visitor after the nesting season; and on August 17 I took a female Hooded Warbler (*Sylvania mitrata*), which I have reason to believe nests rarely but regularly in the Delaware Valley.—HERBERT WHEATON CONGDON, *West New Brighton, N. Y.*

Some Uncommon and Rare Birds of Erie County, Ohio.—During the last fifteen years of ornithological collecting the following species have but once in each case fallen into my hands although almost weekly, sometimes daily, excursions have been made. They are now preserved in my collection of mounted birds.

Accipiter atricapillus. AMERICAN GOSHAWK.—A young male was shot Oct. 15, 1889, while Quail hunting. It is the second specimen that has been taken in this immediate vicinity. The other, an adult, is in the collection of Dr. Benschoter of this place.

Coccothraustes vespertinus. EVENING GROSBEAR.—A female, seen in the evergreens around my father's house for several days, was shot

Jan. 30, 1890. There was about one foot of snow on the ground at the time.

Nyctala acadica. SAW-WHET OWL.—A male was taken Nov. 9, 1890. While the Screech Owl is very common this species is extremely rare in this locality.

Falco peregrinus anatum. DUCK HAWK.—A male was shot May 29, 1893, while it was sitting on a piece of drift wood on the beach of Lake Erie.

Strix pratricola. AMERICAN BARN OWL.—An adult female in beautiful plumage was shot on the shore of Lake Erie by two men who had been Duck hunting. It is the only one that I have ever seen here and old sportsmen of whom I have inquired say the same. Dr. Wheaton says ('Birds of Ohio, 1882'): "Rare Visitor." "Not over half a dozen individuals recorded."

Sylvania mitrata. HOODED WARBLER.—A male was taken April 23, 1894, in some underbrush that borders an old railroad near this place.

Ionornis martinica. PURPLE GALLINULE.—A male was picked up dead by some boys Sept. 2, 1894, under a telegraph line that runs along the Lake shore. It had flown against the wires and killed itself. So far as I can ascertain, this is the only specimen recorded as taken in Ohio in the fall. Several have been taken in the spring.—CARL TUTTLE, *Berlin Heights, Ohio*.

Notes from the Upper Peninsula of Michigan.—*Accipiter atricapillus*. GOSHAWK.—A fine specimen was taken October 18, 1893, while in the act of eating an adult Ruffed Grouse (*Bonasa umbellus*) it had just stricken down. Another was seen on March 27, 1894, chasing a flock of tame Pigeons, which only escaped by rising high in the air.

Nyctala acadica. SAW-WHET OWL.—A young bird came into my hands this summer and is still retained in captivity, having become an interesting pet.

Trochilus colubris. RUBY-THROATED HUMMINGBIRD.—Upon dissection,¹ the gullet of a female taken August 19, 1894, while hovering over a patch of wild flowers, was found to contain from twelve to fourteen small spiders, while broken remains of others were found in the stomach proper. Its gullet was also filled with nectar.

Xanthocephalus xanthocephalus. YELLOW-HEADED BLACKBIRD.—On October 14, 1894, two males were secured and four other individuals seen. On the 15th two were seen; on the 16th, two; on the 17th, one; a female was taken on the 18th. This is the second instance I know of this species being taken in Michigan, the first being on May 17, 1890, when a male in high plumage was secured by E. E. Brewster at Iron Mountain.

¹ Examination made by Prof. F. E. L. Beal, Div. Orn. and Mam., Dept. of Agr., Washington, D. C.

***Sturnella magna neglecta*.** WESTERN MEADOWLARK.—On May 10, 1894, I secured a female Meadowlark which, though it appeared to be the western form, I at first called *S. magna* (?), knowing the Western Meadowlark had never been taken in the State. Before it was secured the notes and flight suggested the Western, and on examination the coloration answered to the description given by Dr. Hatch in his very valuable work on Minnesota birds. To obtain the correct determination I sent the specimen to Dr. C. Hart Merriam who identified it as *S. m. neglecta*, and adds that it is of special interest as being the first authentic record of its occurrence in Michigan.

***Junco hyemalis*.** SLATE-COLORED JUNCO.—On November 21, 1894, a solitary individual was observed. This I consider a very late date.

***Pipilo erythrophthalmus*.** TOWHEE.—One seen May 16, and one male taken May 20, 1894. Very rare here.

***Geothlypis agilis*.** CONNECTICUT WARBLER.—One fully feathered young female secured Aug. 5, 1894, one very young bird August 10, and on August 12, a fully feathered young male. Over fifty seen on the morning of August 29, at Green's Creek, a few miles south of Palmer. The taking of the fledgling August 10 proves that this species breeds here.

***Geothlypis philadelphia*.** MOURNING WARBLER.—An adult pair in high plumage was seen July 15, 1894; on the 16th a female secured, which undoubtedly had a nest in the near vicinity. On August 5 one young male was taken; last seen August 12, 1894.

***Harporhynchus rufus*.** BROWN THRASHER.—Rare in 1893, but common in 1894.—OSCAR B. WARREN, *Palmer, Marquette Co., Mich.*

CORRESPONDENCE.

“A Demand for English Names.”

TO THE EDITORS OF ‘THE AUK’:—

Dear Sirs,—I have been much interested in an article by Mr. W. T. Hornaday, in the January number of ‘The Auk,’ entitled ‘A Demand for English Names,’ and feel called upon to reply to some of the points which he has raised, because I believe myself to belong to a class, or at least to be authorized to speak for a class, in whose interest he assumes to write; *viz.*, the “unscientific public.” To the agricultural portion of this public I can fairly claim to belong, being a practical farmer myself, and a member of the ‘grange.’ For a number of years I have been

engaged in a modest way in the popularization of science, both with the pen and in familiar talks to my 'granger' neighbors, and think I can pretty correctly gauge the intelligence of this class of people, and speak from personal knowledge with regard to the way in which scientific names are received by them. I believe Mr. Hornaday would receive some light on this subject if he should hear, as I have often heard, a group of Iowa farmers discussing the damage done to their fruit trees by the *Tortricidæ*, speaking of each species by its correct scientific name. If he will consult the columns of any modern agricultural paper, and compare it with a copy of the same paper, or any similar one, published fifty years ago, or if he will attend a Farmers' Institute and hear the discussions (by the farmers themselves, not the lecturers) on the correct proportion of *carbonaceous* and *nitrogenous* elements that go to make up a proper feed for stock, or the ratio of *nitrates* and *phosphates* for a certain special fertilizer, he may perhaps discover that scientific terms have few terrors for the modern farmer, at least. What he says about the modern editor I am inclined to think is correct.

Among other things, Mr. Hornaday makes the following remarkable statement: "If I can read signs aright, the gap between our really scientific zoölogists (speaking generally) and the unscientific public is growing wider and wider, day by day." I am glad of the first clause, which is a saving one, for I am convinced that he does not read the signs aright. I am fully persuaded that at no time in the world's history has the gap been so narrow as it is to-day; and it is narrowing all the time. If it were otherwise, it would indeed be a discouraging outlook, when we consider the long and illustrious line of popular scientists, from Agassiz down to those of the present day, who have written and talked to the American people on scientific subjects. If all this not only counts for nothing, but is actually a negative quantity, it is high time the scientists stopped their popular publications, and allowed themselves and the public to resume their former relations, which, according to Mr. Hornaday, must have been closer than the present ones. But, thank Heaven, this is unnecessary. The "Tom Joneses" and "Bill Smiths" who "pay the freight" do not need that any one, on their account, should demand "milk for babes" instead of "meat for strong men." They do not hold themselves on so low a plane of intelligence that they cannot understand ordinary scientific names and terms.

Assuming for the moment that any new discovery in the Animal Kingdom is christened with a vulgar name as well as the scientific one, how is the general public to get at the former any more easily than the latter? In any case the description must accompany the name, and any person who can understand that would have little difficulty with the scientific name. The points of excellence of the last are that it is given by one man, and is immediately published in all parts of the civilized world, and will never be changed (at least recent ones will not), and it applies to one animal, and to one only. Not so with a vulgar name. This

may be given by Tom, Dick or Harry, and is not published beyond a limited district. Now, in spite of the fact that the scientist may have already named an animal, the aforesaid T., D., and H. will exercise their inborn right to name any creature that brings itself conspicuously to their notice, and this is the normal way for an animal to gain a vulgar name—the way by which thousands have already gained them,—some of them more than one—as Mr. Gurdon Trumbull has so well shown. This is to be regretted, but it is not a remedy to have a scientist add still another.

The assumption that a vulgar name is necessarily more simple than the scientific one is wholly fallacious. Let us take as an illustration some of our flowering plants. Here we have such names as Geranium, Fuchia, Dahlia, and Verbena, which can be placed in contrast with “Butter and Eggs,” “Bouncing Bets,” “Love lies Bleeding,” and a host of other monstrosities. Among practical working farmers, I have heard *Poa pratensis* used as a shorter and better name than “Kentucky Blue-grass.”

There is one other point on which I would like to say a word. I cannot see the propriety of speaking of scientific names as Latin names. It seems to me they are no more Latin than are such words as *conduit*, *aqueduct*, *locomotive*, *benevolent*, and a thousand other common words of the English language. They are supposed to be of the Latin form, in their terminations, at least, but in other parts they often present combinations of letters, the very sight of which would make Cicero turn in his grave.

Right here is one point on which I think I can agree with Mr. Hornaday, and that is in demanding that names shall be made shorter and not contain a lot of letters which cannot be sounded in pronouncing them. It is unfortunate that scientists have been too fond of indulging in *sesquipedalia verba*, which have been the greatest cause of complaint. It seems to me that the difficulty of which Mr. Hornaday complains could be easily obviated by allowing all scientific names to be pronounced exactly as if they were English words, without any regard to the rules of Latin pronunciation, and permitting other nations to follow a similar law.

F. E. L. BEAL.

Washington, D. C.

TO THE EDITORS OF ‘THE AUK’:—

Dear Sirs,—As one of the sinners named by Mr. Hornaday in the January ‘Auk’ I ask for a little space. I am in entire sympathy with Mr. Hornaday in his grievance of the omission of vernacular names of new species, but really should not have been included in his list of culprits, as a reference to my original description would have shown. Reference to the original descriptions in many others of the cases mentioned shows the charge to be well founded, however. The last

paragraph of the Code of Nomenclature of the A. O. U. should be read to the 'shortcomers' so often that to obtain relief they would remedy their omissions.

Canon II of the Code should be amended by striking out the last clause and inserting "and a species shall not be considered named until provided with both a scientific and a vernacular name." This would give us instant relief, as rather than see their names replaced by some others as describer, the real describers would do their duty to save their rightful honors. If it were not for the above clause we could get even with the describers by furnishing the vernacular name ourselves and tacking our name to the vernacular name, and so steal half of the coveted honor.

Yours respectfully,

F. STEPHENS.

Witch Creek, Cal.,
Feb. 1895.

Cold Storage as an Aid to the Bird Collector.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs,—It is possible that some of the readers of 'The Auk' may sometime find themselves in the very unsatisfactory position that I found myself last September, when I returned from a successful day's collecting trip only to confront an emergency requiring prompt attention, which of course meant the loss of the birds.

Hastily saving two or three of the more important ones, the remainder were packed, just as they were brought in from the field, in a box and placed in the freezing room of a local cold storage concern. A week later I visited the place with the intention of taking them out, but upon examination I found them in perfect condition, and there and then decided to make an experiment, and accordingly left the lot for an indefinite period. Every ornithologist and collector appreciates the fact that sometimes an opportunity occurs to secure a fine series of some bird,—an opportunity that may not occur again for many years,—and it is irretrievably lost because pressure of business stands like a wall between him and the time necessary for the proper preservation of the skins. Being confronted with this situation last fall, and after the favorable start made by the first dozen of birds put in, I determined to solve, if possible, the problem; so during the latter part of September and the first part of October I secured a nice series of the birds sought, together with a scattering lot of Sparrows, Woodpeckers, Canada Jays, etc., birds ranging in size from a Brown Creeper to a Flicker, some 98 in all. Carefully replacing the cotton in their throats, each bird was slipped into a cone

of heavy paper: half a dozen of these cones formed a large package. These, from day to day as fast as accumulated, were placed in a covered wooden box reserved for the purpose in the freezer. About three months later, on the second of January, 1895, the birds were taken out and found to be in excellent condition. The weather outside was about zero, and it kept them frozen, else only a few at a time could have been taken out; and to get them in shape for skinning it was only necessary to place the number one desired to prepare in any warm room, and they soon relaxed without sweating or even dampening a feather. In talking with the foreman of the freezing plant last fall he thought they might 'sweat' enough to wet and spoil the feathers, but the result proved the reverse, for the long freeze had a drying effect, especially at the throat, where the cotton had absorbed all moisture and the skin in some of the smaller specimens was almost rigid. The legs also of some of the smaller ones were beginning to dry, but the toes were not too stiff to place in position. It was necessary to be careful in skinning about shot holes, for wherever the natural moisture had been drained away the skin had a tendency to dry down upon the flesh below; but after preparing the first specimen all these difficulties were discovered and easily overcome in the others.

It occurred to me that many of the members of the A. O. U. and others in the larger eastern cities where cold storage freezers are in operation, might often save specimens which from pressure of business are often left to spoil, in spite of 'good intentions' when they are shot. With good collecting grounds on the coast a few hours' ride away, unexpected wind-falls of good species might be properly packed, so that tail and wing feathers are not crumpled, and shipped by express direct to the freezer; then, the following winter, when time hangs leisurely, they can be taken out and prepared with much better results, for each skin can be given all the attention it requires.

FRANK S. DAGGETT.

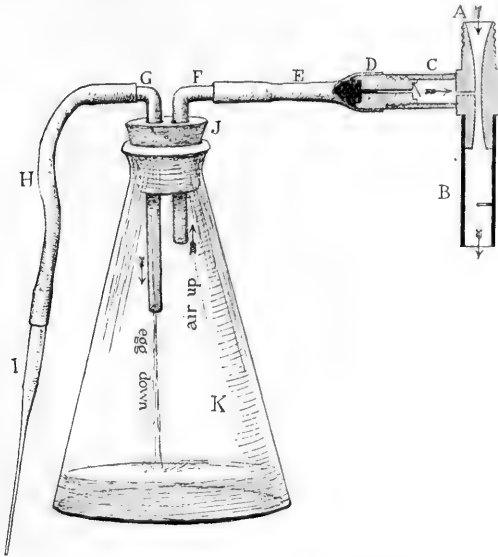
Duluth, Minn.

Apparatus for Preparing Birds' Eggs.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs,—Never having seen any description of the apparatus used by me during the past season for preparing eggs for the cabinet, I am persuaded that a brief article concerning it will not be without interest to oologists. The accompanying cut will explain its mode of operation.

In operating on fresh eggs of size of common hen or less, use a drill not larger than .04 in. diameter; with small eggs .02 in. drill answers the purpose. Insert the point of tube *I* in the egg after turning on the water, and the contents of the egg pass rapidly over into the flask, provided the tube be not of too small calibre. In practice it is well to have a number of these tubes of different diameters.



Make connection between aspirator and water main at A. Provide means for carrying away waste water.

The water in passing through aspirator rarifies the air in K.

A, B, D, Chapman aspirator.

E, H, Pieces of rubber tubing.

G, F, Pieces of bent glass tubing.

J, Rubber stopper, doubly perforated.

K, Conical filtering flask capable of withstanding atmospheric pressure.

I, Glass tube drawn to small calibre at one end.

The tubing used to make tube *I* should have very thin walls, that the internal diameter of the attenuated point may be relatively large. It would appear that there is great danger of collapse if the suction tube nearly fills the aperture in the shell of the egg, but with fresh eggs I have never known it to occur. With eggs in an advanced state of incubation, however, care must be taken to allow air to enter freely around the tube.

I have found little difficulty in removing fully formed embryos from eggs as large as the Robin's, using an .08 in. drill and a suction tube of

.06 in. external diameter. The embryo was allowed to decay as suggested by Capt. Bendire, when, after about a week, it could nearly all be drawn through the tube. A few pieces of bone, the largest being the tip of the upper mandible, were withdrawn with the forceps. The shells are readily washed clean after removing the contents by submerging in water and allowing the pump to act until the wash water comes out clear from the shell. In case of eggs which are injured by water this plan will of course not answer.

The filtering flask used should be of *strong glass*, as otherwise the atmospheric pressure outside might cause its collapse, which may be nearly as disastrous as an explosion.

The rubber tubing should be of the kind known as pressure tubing.

All joints should be made tight to prevent the leakage of air and consequent lowering of the efficiency of the aspirator.

The different parts of this apparatus may be obtained from any dealer in chemical supplies, the most expensive item — the Chapman aspirator — costing about a dollar and a half.

When the water tap is provided with a screw thread, as is sometimes the case, the aspirator may be obtained with a connection suitable for attaching directly to the tap, which does away with considerable trouble in attaching to a water main. A water pressure of twenty-five pounds is found to work well. Probably a higher pressure would give still better results.

E. E. BREWSTER.

Iron Mountain, Mich.,

Dec. 3, 1894.

NOTES AND NEWS.

MR. GEORGE N. LAWRENCE, one of the Founders and an Honorary Member of the American Ornithologists' Union, and for some years a member of its Council, died Jan. 17, 1895, at his residence in New York City, in the eighty-ninth year of his age. Mr. Lawrence was especially known as an authority on the birds of tropical America, to which his attention was chiefly given during the long period of his scientific activity. As a writer on North American birds he will be mainly remembered for his association with Baird and Cassin in the authorship of the famous 'IXth Volume' of the Reports of Explorations and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean, published

in 1858, to which Mr. Lawrence contributed the parts relating to several orders of the Water Birds; and for his well known 'Catalogue of Birds observed on New York, Long and Staten Islands, and the adjacent parts of New Jersey,' published in 1866. He was an intimate friend and scientific associate of the late Professor Baird, and also of Audubon. During the later years of his life the infirmities incident to age greatly lessened his activity in scientific research, but in no way diminished his interest in the science to which he had devoted so many years of his life, his ornithological publications covering a period of fifty years. His high standing as a specialist in his chosen field is well attested by the honorary memberships conferred upon him by many of the leading scientific societies and academies of not only his own country but of Europe. His amiability of character endeared him to a wide circle of friends, so that in his death his scientific associates mourn the loss of a personal friend as well as an esteemed fellow-worker.

In order that proper respect may be shown by the Members of the A. O. U. as a body to the memory of deceased members, the following resolution was adopted at the Tenth Congress of the Union:—

Resolved: That on the decease of any Active Member of the Union, the President shall appoint a Committee of One to prepare a suitable memorial of the life and work of the deceased, to be read at the first Stated Meeting of the Union, and to be published in 'The Auk' as an expression of the sense of the Union."

Mr. Lawrence is the first deceased member coming within the scope of this resolution since its adoption, and, in accordance with its provisions, the President, Dr. Coues, has appointed Mr. D. G. Elliot as the memorialist of Mr. Lawrence — a selection singularly fitting, inasmuch as to no member of the Union is the life and work of the late Mr. Lawrence better known than to his long intimate associate Mr. Elliot. The eulogy will be read at the next Annual Meeting of the Union and published in 'The Auk' for January, 1896.

DR. FREDERICK H. HOADLEY of New Haven, an Associate Member of the American Ornithologists' Union, died at Palm Beach, Florida, February 26, 1895, aged 45 years. While only an amateur in ornithology he was a great lover of birds and contributed many field notes to the record books of his ornithological friends.

He spent much time in the Adirondacks, but his most important ornithological observations were made on the west coast of Greenland and in Smith Sound, which region he visited in 1882 in the capacity of Surgeon-Naturalist to the first Greely Relief Expedition. His collection was presented to the United States National Museum.

Dr. Hoadley was a graduate of Yale and a man of more than ordinary ability. His death will be mourned by a large circle of friends.

THE Annual Meeting of the Delaware Valley Ornithological Club was held at the Academy of Natural Sciences, Philadelphia, on January 3, 1895. During the past year sixteen meetings were held, with an average attendance of seventeen, showing an increased interest in the work of the club. Among the more interesting communications during the year were 'Summer Birds of the Pocono Mountain,' Witmer Stone and Wm. A. Shryock; 'Breeding Habits of the Snow Bunting,' Dr. Wm. E. Hughes; 'Some Bird Experiences in the South,' Wm. J. Serrill; 'Bird-life on Vancouver Island,' G. S. Morris; 'Birds of Pike County, Pa.,' S. N. Rhoads; 'The Effects of Poke-berries on Birds,' Dr. W. E. Rotzell; 'Summer Birds of Elk County, Pa.,' Wm. L. Baily; and 'Ducking on the Susquehanna Flats,' I. N. DeHaven. In December the Club issued its work on the 'Birds of Eastern Pennsylvania and New Jersey' (see *antea*, p. 170) prepared by Mr. Witmer Stone. It is the intention to publish supplements to this volume every few years, and the author will be glad to receive corrections or additions from any one who may be able to furnish them.

The officers elected to serve for the ensuing year are President, Dr. William E. Hughes; Secretary, Charles J. Rhoads; Treasurer, William L. Baily.

'THE NIDIOLOGIST,' formerly published at Alameda, Cal., will hereafter be issued at No. 150 Fifth Avenue, New York City, Mr. H. R. Taylor, the editor and publisher, having permanently removed to the above address. We trust the new environment will prove congenial, and that the success that has hitherto attended 'The Nidiologist' will be augmented by the new change of base.

MRS. OLIVE THORNE MILLER, whose charming bird-studies have done so much to popularize ornithology, adds to the good work accomplished by her pen by giving series of talks on the habits of our commoner birds. The large attendance at her last course, delivered at the Hotel Waldorf, New York City, is evidence of the success of her undertaking.

MACMILLAN AND Co., of this city, announce, as nearly ready for publication, a novel departure in bird books for field use, under the title 'Bird-craft,' by Mrs. Mabel Osgood Wright, author of 'The Friendship of Nature' (see *Auk*, XI, p. 314). The text will give non-technical descriptions and biographies of about 200 species of the Song, Game, and Water Birds of the Eastern and Middle States, with keys especially intended for the easy identification of birds in life. It will contain a number of introductory chapters of a general character, and be illustrated with colored plates by a new process.

CORRECTION. In the January number of 'The Auk' (Vol. XII, pp. 87-89), the article entitled 'Notes on the Summer Birds of Central Berkshire County, Mass.,' was inadvertently attributed to Mr. Francis H. Allen. It was contributed by Mr. Ralph Hoffmann, to whom it should be credited.





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NYCTIBIUS JAMAICENSIS (GMEL.).

THE AUK:

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NO. 3.

NOTES ON BIRDS OBSERVED IN TRINIDAD.

BY WILLIAM BREWSTER AND FRANK M. CHAPMAN.

Plate III.

OUR knowledge of tropical birds is so largely derived from the journals of travellers and naturalists, whose arduous explorations in the less accessible parts of the tropics have been attended by hardship and exposure, that most of us are discouraged from even attempting to visit the fascinating regions they describe. The brilliantly colored Trogons, Toucans, Jacamars and Hummingbirds which figure so conspicuously in cases of tropical birds, thus seem to us to be more or less unreal inhabitants of lands forever beyond the bounds of our experience. The truth is, however, that we may be comfortably and safely established in a tropical forest in less time than it frequently takes to reach the nearest European port.

The Island of Trinidad belongs politically to the British West Indies, but faunally it is a small bit of the South American continent which has been detached in recent geological times. Its bird-life therefore is very similar to that of the Venezuelan mainland and is quite unlike the comparatively meagre, insular avifauna of the true West Indian islands to the northward. A visit to Trinidad is thus practically a visit to South America. But it

is not alone the richness of the fauna which leads us to recommend Trinidad as an exceptionally favorable field for the naturalist with limited time at his command. Its additional advantages are : accessibility, a healthy, in fact during the dry season, from December to May, perfect climate ; the safety and material comforts which one is sure of finding in a British colony ; and a Naturalists' Field Club whose members, as we know from pleasant experiences, will cordially receive brother naturalists. It is evident then that a trip to the tropics, far from being an undertaking involving much time and risk of life, may be an excursion from which one may return in two or three months richer both physically and mentally.

From New York to Port-of-Spain, by the direct line of steamers, is a voyage of nine days, or occasionally a steamer of the Windward Island line continues from Barbadoes, the usual terminus, to Trinidad. The latter is by far the more enjoyable sail and, taking only six days longer, gives one an opportunity to land at a dozen or more islands *en route*.

Port-of-Spain possesses fair hotels and stores which will compare favorably with those of our larger cities. Black Vultures swarm in the streets, and many birds, notably the Qu'est-ce-qu'il-dit (*Pitangus sulphuratus*) and Ani (*Crotophaga ani*), are common in the Botanic Gardens and neighboring savannas. Indeed the ornithologist will find much to interest him in the immediate vicinity of the city, but he should lose no time in hastening to the virgin forests, or 'high woods,' as they are locally known, where birds may be studied under absolutely natural conditions. The government rest-house on the Moruga Road, kept by Corporal and Mrs. Stoute, was Mr. Chapman's headquarters during March and April, 1893, and from every point of view leaves nothing to be desired. In fact, we doubt if there exists a place elsewhere in the tropics where for a small compensation a naturalist may find so thoroughly comfortable a home, with the best of food and attention, at the border of a primæval forest.

We, however, were even more fortunate, for in accepting the invitation of Mr. Albert B. Carr to visit him at his cacao estate in the Caparo district we found not only a delightful home in a

region where birds were abundant, but had also the companionship and assistance of Mr. Carr and his brother, both born naturalists and skilled woodsmen, with a thorough knowledge of the country. Every ornithologist knows what this means. Without the guidance of our hosts we should have seen less in three months than we did in three weeks. Through their unceasing efforts every hour of the day, and almost every hour of the night also, brought some interesting incident. The birds and mammals of the region were passed in review for our benefit, and at the conclusion of our stay there were but few species which had not answered to the roll-call of gun, dog, and trap.

Mr. Carr's home is near the point of a narrow wedge of cacao estates which penetrates the forests from Chaguanas on the western side of the island. The limits of the cacao and shading immortal trees, among which his picturesque, thatched house is situated, are sharply defined by the dark walls of the virgin forest, distant only a few hundred yards. In the morning, from its apparently fathomless depths, came the deep-voiced roaring of monkeys (*Mycetes*). Toucans, perching on the topmost branches of the higher trees, croaked defiance at some answering rival half a mile away. The united voices of cooing Doves (*Engyptila*) formed a soft monotone to which the ear frequently became insensible. The sweet, weird trilling of Tinamous arose from the bordering undergrowth. In the trees about our house were noisy Qu'est-ce-qu'il-dits; shrike-like Vireos (*Cyclorhis flavipectus*) whistled vigorously; active bands of Tanagers (*Ramphocelus* and *Tanagra*) flitted restlessly about uttering their weak, squeaky notes. Five or six species of Hummingbirds were generally numerous about the blossoming bois immortels, while overhead were flocks containing four species of Swifts (*Chatura*) whose twitterings reminded us of other and very different scenes. In the cool, darkened forest Jacamars were piping, Trogons cooing, Motmots hooted softly, and the mournful whistle of a Pygmy Owl (*Glaucidium*) told of his partially diurnal habits. The species mentioned were all more or less common. Their voices formed an ever present accompaniment for all other bird-music — a background to the picture of bird-life which we do not intend to attempt describing.

Our stay at Caparo was crowded with events, but the time was too short for us to make many observations sufficiently novel to warrant publication in the pages of a scientific journal, and in this connection we propose to speak of but three species, to the published accounts of whose life-histories, thanks to Mr. Carr's assistance, we think we can make some additions. They are the Bell-bird or Campañoero (*Chasmorhynchus variegatus*), a Humming-bird locally called 'Brin-blanc' (*Phaëthornis guyi*), and a large Goatsucker (*Nyctibius jamaicensis*).

To what extent the other three species of the genus deserve the reputation sometimes given them we cannot say, but the voice of *Chasmorhynchus variegatus* would undoubtedly prove a disappointment to those who expect a Bell-bird to be a Bell-bird in more than name. But while its notes bear no resemblance to the "deep tolling of a bell" they proved none the less singular, and we class them among the most remarkable we have ever heard.

To hear a Campañoero is one thing, to see it quite another. The birds haunt the tree-tops in the virgin forest, where, concealed by the canopy of foliage and intervening parasitic plants and creepers, they can be found even by practiced hunters only under favorable conditions. Mr. Carr had prepared us for the failure which attended our first Campañoero hunt. Nevertheless, we actually heard a Bell-bird calling,—sufficient encouragement, if we had needed any, to continue the search. Our persistency, however, was not tested. The following day Mr. Brewster and Mr. Carr discovered a Campañoero within a mile of the house and had an exceptional opportunity to study it. After following the sound of the bird's voice for a quarter of a mile, they finally saw it perched on a bare twig at the top of a tree about seventy-five feet from the ground. After watching it there for about fifteen minutes, during which time it uttered its several calls, it was disturbed by two Toucans alighting near it and sought a perch in a strong, clear light about twenty feet from the ground and not over twenty yards from the observers. This, according to Mr. Carr, was an unusual proceeding. It remained in this position for about fifteen minutes, repeating all its notes. The following day we all visited the place and the Bell-bird kept the tryst, appearing on the high perch it had occupied the preceding day.

The records of these two occasions were read aloud and endorsed by each member of the party. From them we present the following description of the Campañoero's calls. The bird has three distinct notes, the first *bok*, the second *tui*, the third *tang*. The *bok* is by far the loudest and for this reason is the one most frequently heard, and is doubtless the call alluded to by previous writers.¹ It can be heard in the flat forest at a distance of about 600 yards. Waterton, it may be remembered, says the "toll" of *Chasmorhynchus niveus* may be heard at a "distance of three miles." The *bok* is sometimes uttered with much regularity about every ten seconds; at other times longer or shorter intervals may elapse. At a distance of four or five hundred yards it resembles the stroke of an axe on hard, resonant wood. One would now imagine that the bird was within seventy-five yards, so deceptive is the nature of this note. As one approaches, the call does not seem to increase in volume and one is apt to imagine that the bird is retreating slowly from tree to tree. This impression, however, is dispelled when one comes within one hundred yards of the bird, for the sound then becomes much louder until, as one gets directly beneath the caller, its volume is simply tremendous. It now has a slightly rolling quality—*br-r-r-ock*—and is so abrupt and explosive in character that it is nearly as startling as the unexpected report of a gun. At each utterance of this note the bird opens his bill to its widest extent and throws his head forward and downward with a violent, convulsive jerk as if he were in a passion and striking viciously at some rival. This motion is so violent that the bird evidently has some difficulty in maintaining his footing during its delivery as well as in recovering his balance afterward.

The second note, *tui*, is much softer and is delivered from six to eleven times in such rapid succession that the notes form an unbroken series. Despite this, each *tui* is closely followed by a metallic *ting* which sounds exactly like an echo and appears to be of about the same duration and nearly as loud as the note it supplements. The *tui* notes are given so quickly that at first it did not seem possible for the bird to produce another note between

¹ Cf. Taylor, *Ibis*, 1864, p. 88.

them, and it was only after repeated observations we became convinced that the *ting* was an integral part of the *tui* call. While uttering these notes the bird sits rather erect and perfectly motionless save for a slight tremulous movement of the throat and tail which accompanies the delivery of each *tui*.

The third note, *tang*, is also repeated a number of times—eighteen to thirty-three—in quick succession. It sounds much louder than the *tui* and the intervals between the notes, though short, are well marked. Sometimes the bird began slowly and gradually increased the rapidity of its utterance, at others there were regular intervals between the notes. The *tang* may be likened to the sound produced by striking a piece of bar iron a sharp blow with a hammer. It is accompanied or followed by a distinctly metallic but not clear, ringing vibration. At a distance of one hundred yards the *tang* sounds like a slow strumming on the C natural string of a banjo, as Mr. Carr actually demonstrated. It can be heard at a greater distance than the *tui* but not so far as the *bok* and at two hundred yards would attract the attention of only a practiced ear.

While ‘tanging’ the bird sits rather erect, the head well up, the wings drooping beneath the closed tail. At each utterance the tail vibrates slightly, there is a marked swelling of the black throat, and the mouth is opened to its widest extent, the lower mandible being worked with some apparent effort while the upper mandible and rest of the head are held perfectly motionless.

Although probably an extremely local and not very active species the bird was alert and watchful. Its movements were quick, the head being often turned from side to side, or the wings were twitched nervously, and at more or less regular intervals it would turn squarely on its perch and face in the opposite direction. The fleshy appendages on the Bell-bird’s throat resemble bits of leather shoe-string. They hang loosely in the freshly killed specimen and are then so conspicuous that we were surprised to find they could not at any time be distinguished on the living birds.

The greenish plumage of the female Bell-bird renders it so difficult of observation that even Mr. Carr was not familiar with it. It was therefore a rare bit of good fortune for us that a

female of this forest-living species so far departed from its normal habit as to leave the woods and perch on the topmost branch of a bois immortel which shaded the palm-thatch beneath which we prepared specimens — an offered sacrifice we were not slow to accept.

The observations¹ of Mr. Chapman on the song-habit of the 'Rachette' Hummingbird (*Pygmornis longuemareus*) were confirmed by our discovery of a locality to which the birds evidently came to sing, and Mr. Carr directed us to two resorts regularly frequented by *Phaëthornis guyi* for the same purpose. Both were in the forest where the trees were rather small and slender and plentifully undergrown with roseau palms. One locality was not far from the house. We visited or passed it many times always hearing from one to six birds singing within an area one hundred feet square. Each bird seemed to have its own particular perch which we would find occupied day after day. The song of this species is louder and has more character than that of *Pygmornis*. It is an unmusical *yep-yep-yep* uttered very rapidly, and, when the bird is undisturbed, continued for several minutes without break or pause. They sit erect but in an easy attitude with the points of the wings drooping below the tail. With every *yep* the long bill is thrown nearly straight up and the mouth slightly opened while the red lower mandible shows conspicuously and the body is twitched convulsively. Each note is accompanied by one or two vertical vibrations of the tail. Rarely, and apparently when under the influence of some excitement, the vibrations are increased in length, force and rapidity until a maximum of motion is attained. Then there is a second's pause, the tail-feathers are spread to the fullest extent and pointed forward over the back until the tips of the long central feathers nearly touch the back of the head. The effect, as may be imagined, is most striking, the birds suggesting diminutive Turkey-cocks.

More or less frequently a rival would approach, buzzing loudly, when the calling bird darted recklessly at the trespasser, and the two birds dashed wildly through the forest, one apparently in

¹ Bull. Am. Mus. Nat. Hist., VI, 1894, p. 55.

pursuit of the other, squeaking loudly and uttering an explosive *tock, tock*. This sound can be closely imitated by pressing the tongue against the roof of the mouth and withdrawing it forcibly. Generally the perching bird returned within a minute and resumed its interrupted song.

It therefore appears that *Pygmornis longuemareus* and *Phaëthornis guyi* — and probably also other species of these genera — have regular resorts which they visit for the purpose of singing and that they evidently sing at no other time. The significance of this habit — unique so far as we know — we cannot satisfactorily explain. All the specimens killed at these singing haunts were males. Whether the females are present we cannot say.

There are few natives of Trinidad who do not know, by name at least, the animal locally termed 'Poor-me-one.' This name is given to a small Ant-eater (*Cyclothurus didactylus*) which is popularly supposed to utter the notes serving as the origin of the words. Mr. Carr, however, as quoted by Mr. Chapman¹, definitely proved that Poor-me-one was a species of Goatsucker by shooting the bird in the act of calling, but failing to preserve the specimen, its specific identity could not be determined.

Only a person who has heard Poor-me-one calling from the moonlit forest can understand how ardently one longs to identify the caller. Our curiosity was frequently aroused by the hooting of some to us unknown species of Owl, or even the cry of some night-bird whose identity was an entire mystery, but the cry of Poor-me-one is possessed of a human quality which appeals to one as strongly as the voice of a fellow-being. Its tone is so sweet and tender, so expressive of hopeless sorrow, that even the negroes are impressed by it, as its native name, Poor-me-one, meaning "Poor me all alone," clearly shows. To identify Poor-me-one, therefore, became one of our chief objects.

This strange bird calls only on moonlit nights from February to June. The calendar told us the moon would be full March 20, and as the slender crescent grew larger we listened anxiously for the notes of *Nyctibius*. But we neither saw nor heard sign of it until the evening of the 16th when, as we were strolling home-

¹ Bull. Am. Mus. Nat. Hist., VI, 1894, p. 59.

ward from the forest, we saw a large bird, which we at first supposed was an Owl, sitting on the top of a stub about thirty feet in height. We had no difficulty in identifying this bird as a *Nyctibius* and congratulated ourselves on the knowledge that it was probably resident so near our house. For the four succeeding evenings doubtless the same bird appeared about half an hour after sunset and on set wings sailed slowly and majestically from a point of the forest distant some two hundred yards, until directly above the stub upon which we had first seen him. After descending in a broad spiral, which ended a few feet below his perch, he pitched sharply upward, closing his wings as he secured a footing. His position was upright and he seemed a continuation of the stub, against which his tail was pressed. He invariably faced the west but kept his head turning from side to side after the manner of Flycatchers. At short, irregular intervals—usually two or three times a minute—he launched out after insects, flying in a perfectly straight, slightly ascending line with firm and vigorous, yet easy wing-beats, his tail wide-spread. At the moment he reached his prey he often turned abruptly to secure it, then wheeled suddenly, and returned to the stub by a long, slow, graceful glide and lit as before described. With few exceptions his sallies were made toward the west, evidently because of the background afforded by the after glow, and he often flew thirty or forty yards before reaching his object.

Interesting as it was to observe a Goatsucker in the rôle of a hawk-like Flycatcher, the certainty of our identification made us earnestly wish to hear the bird call, when the identity of Poor-me-one and *Nyctibius* could be instantly settled. But each night the bird returned to the forest in silence.

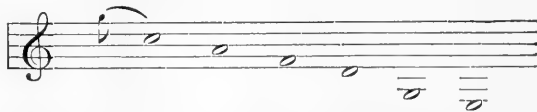
March 20 the moon was full and shortly after eight o'clock, to our great delight, we heard Poor-me-one calling from the forest. We at once started in the direction of the sound. Crossing a belt of cacao, leaping some of the drains, stumbling into others, wading knee-deep through the dew-drenched grass, breathless and perspiring, we came at length to the edge of a low, swampy woods whence issued the strange cry. The bird now became silent. We listened anxiously for several minutes and were greeted only by the *cook-er-ree-coo* and startling scream of an Owl (*Megascops brasi-*

liensis). Finally, after consultation, Mr. Carr whistled an imitation of the cry of Poor-me-one. Almost instantly an answer came from the woods and soon a large Goatsucker, which we at once recognized as the species we had seen on the stub, came sailing directly over us. He circled twice, uttered a low call, and alighted on the topmost twig of a bois immortel distant twenty yards. A moment later, puffing out his throat, he uttered the Poor-me-one call. We suppressed our exultation with difficulty.

After calling a dozen or more times the bird returned to the woods, but several times returned in response to our imitation of its notes. Usually he perched on the topmost, slender twigs of a bois immortel, the last situation one would expect a Goatsucker to select.

The locality was not far from the stub upon which we had originally discovered *Nyctibius*, and we had little doubt that the individual seen there was the one we had heard calling. Indeed, one hour later this bird, which we easily recognized by a peculiarity in its call, came to the vicinity of the stub in response to Mr. Carr's whistle. Here he was joined by his mate, both birds perching in the topmost branches of the forest trees.

The song of Poor-me-one consists of eight notes, which Mr. Carr, in an article¹ on this species, writes:—



At a distance of half a mile only three of these may be heard, and all are not audible until one is quite near the singer. The inexpressibly sad, human quality of Poor-me-one's call affects every one who hears it. Waterton, we have no doubt, refers to this bird when he compares the voice of "the largest Goatsucker in Demarara" to "the last wailing of Niobe for her poor children, before she was turned into stone," and, in describing the call, writes: "Suppose yourself in hopeless sorrow, begin with a high, loud note, and pronounce 'ha, ha, ha, ha, ha, ha, ha,' each note lower and lower, till the last is scarcely heard, pausing a moment or two twixt every note. . . ."

¹ Journal Trinidad Field Naturalists' Club, II, Dec. 1894, p. 137.

Goss,¹ on the contrary, in his excellent account of the habits of this species, describes its call as a "loud and hoarse *ho-hoo*," and adds: "Sometimes the same syllables are heard, in a much lower tone, as if proceeding from the depth of the throat." The account of so careful an observer is not to be questioned, and it is quite probable that the notes of the Jamaican bird differ markedly from those of the birds which inhabit Trinidad.

It seems little short of murder to kill one of these birds. Certainly to shoot a calling bird was out of the question. Our single specimen was shot as he sailed by one evening near the stub where our first observations were made. He was wing-tipped and before sacrificing him to the cause of science we secured the photograph from which the illustration (Pl. III) accompanying this article was drawn.



LIST OF BIRDS OBSERVED IN THE VICINITY OF
FORT KEOGH, MONTANA, FROM JULY, 1888,
TO SEPTEMBER, 1892.

BY CAPT. PLATTE M. THORNE, U. S. A.

FORT KEOGH, on the right bank of the Yellowstone, has an altitude of 2365 feet. The river bottom has an average width of two miles, and has in parts a small and obscurely defined second bench. River sand is reached at an average depth of six feet in the higher parts. Tongue River empties into the Yellowstone two miles to the north. Both rivers are rapid, and the only still water is an irregular, reedy pond fed by springs and about three-fourths of a mile long. This pond goes dry in summer some years and remains so during the winter. The growth of cottonwood along both rivers is in places heavy, some trees showing great age. Wild rose bushes grow luxuriantly on the moister

¹Birds of Jamaica, p. 42.

parts near the rivers, and there are some small willows. The left bank of the river is high bluff, back of which is elevated rolling prairie. Outside the river valley the country is all prairie or 'Bad Lands.'

No species is included in the following list that I have not seen, and nearly all, except very large birds, are in my collection.

1. *Colymbus nigricollis californicus*.—Rare. Two June 3, 1889; one May 14, 1892.

Larus sp.?—A few large and a few small Gulls; one seen each year, but I have never been able to kill any.

2. *Merganser americanus*.—Saw one at a taxidermist's in Miles City, Montana, who said it was killed here late in October, 1889.

3. *Merganser serrator*.—Rare. One female, April 27, 1889.

4. *Lophodytes cucullatus*.—Not common. From June 14 to July 17, 1889, about twenty were seen daily. At the latter date the pond they frequented became dry.

5. *Anas boschas*.—Common in spring and fall; a few seen occasionally during summer.

6. *Anas strepera*.—Not common. Transient.

7. *Anas americana*.—Not common. Transient.

8. *Anas carolinensis*.—Common. Must breed to some extent, as a few remain all summer.

9. *Anas discors*.—Common. Transient.

10. *Spatula clypeata*.—Common. A few remain all summer.

11. *Dafila acuta*.—Common. Transient.

12. *Aythya americana*.—Not common. A few single birds and pairs. Transient.

13. *Aythya affinis*.—Rare. Two, March, 1889; no others.

14. *Glaucionetta clangula americana*.—Rare. Flock of ten seen April 17, 1889. No others observed.

15. *Charitonetta albeola*.—Rare. A few in fall; not seen in spring.

16. *Erismatura rubida*.—Rare. A flock of about forty observed April 21, 1889. No others seen. Two of the males killed were in almost perfect breeding plumage.¹ The movements of this Duck seem very erratic. During the five and a half years I was stationed at Fort Lyon, Colorado, I saw them but twice, viz., a flock of about fifty in March, 1883, and a flock of twenty-five in March, 1886. In southwestern Texas, in the fall, I often found them abundant on one day and none at all the next.

17. *Chen rossii*.—Rare. One female killed April 25, 1892. It was alone and much emaciated.

¹ Many Ducks called 'transient' would probably be found to breed here, if there were suitable nesting places.

18. *Branta canadensis*.—Common in large flocks in spring and fall, am not certain they were all this species, but all that I killed were. Old inhabitants say they formerly nested to some extent in trees.

19. *Ardea herodias*.—Common in spring and fall and some remain in summer that I think breed.

20. *Rallus virginianus*.—Rare. One male killed August 10, 1888. This is the only one I am certain of as Soras are found where this was taken.

21. *Porzana carolina*.—Common. Breeds. Took a young one July 8, 1889. The down was mostly replaced by feathers but hairy filaments remained.

22. *Fulica americana*.—Common. Breeds.

23. *Phalaropus lobatus*.—Rare. Four were seen June 18, 1889. Two of those killed were females with ova smaller than No. 12 shot. This would seem a late date for this bird to be found here.

24. *Phalaropus tricolor*.—Tolerably common in May and June. A description of three at play as seen by me was published in 'The Auk,' Vol. VI, p. 336.

25. *Recurvirostra americana*.—Rare. A few in spring.

26. *Gallinago delicata*.—Rare. Am satisfied I saw this bird in the spring of 1889, but I did not take any specimens.

27. *Tringa bairdii*.—Rare. A few in spring.

28. *Tringa minutilla*.—Common in spring. A few in fall.

29. *Ereunetes pusillus*.—Common in spring. A few in fall.

30. *Totanus melanoleucus*.—Common in spring. A few in fall.

31. *Totanus flavipes*.—Common in spring and fall. A few remain so late that I think they breed.

32. *Totanus solitarius*.—Rather rare. A few may breed.

33. *Symphemia semipalmata inornata*.—Rather rare in spring. About twelve seen in all.

34. *Bartramia longicauda*.—Common. Seen in flocks in this valley in spring. Breeds quite commonly on the elevated prairie.

35. *Actitis macularia*.—Rare. Three seen in all.

36. *Numenius longirostris*.—Common. In flocks in spring. Breeds on elevated prairie.

37. *Ægialitis vocifera*.—Abundant in spring. Flocks seen containing hundreds. Not common in fall. If it breeds it must be very sparingly.

38. *Ægialitis montana*.—Rather rare. A few scattering birds in spring and summer.

39. *Pediocætes phasianellus campestris*.—Common. Have had no opportunity to compare them with other Sharp-tails. They seem to frequent the vicinity of trees and bushes more than the Dakota birds. During the last three years they have almost entirely ceased coming into the river bottoms in cold weather and instead seek shelter among the pines on the divides. I have found them abundant in December on the high divide between Powder and Tongue Rivers. The great number that used to be killed in the river bottoms in winter may have driven

them to seek other shelter. Their food in winter seems to consist chiefly of the berries of the wild rose.

40. *Centrocercus urophasianus*.—Common. Different coveys were found mixed when the young were two-thirds grown. In April, 1891, I watched two pairs for some time at a short distance from me. The males had their air-sacks inflated and feathers ruffled, showing more white than would seem possible, and looking very large. They spread their tails, dragged their wings and strutted very much as a domestic Turkey Gobbler does. Their peculiar tail gave the performance a ridiculous appearance. Capt. Bendire, U. S. A., writes me that he once observed similar actions.

41. *Zenaida macroura*.—Common. Have known two broods to be hatched in one nest during the season.

42. *Cathartes aura*.—Rare. Twelve seen in June, 1889.

43. *Circus hudsonius*.—Common. Breeds.

44. *Buteo swainsoni*.—Rare. Have seen only two that I am certain of.

45. *Aquila chrysaetos*.—Rare. One, apparently two years old, seen in December, 1889. Two young were taken in the Bad Lands in 1889. One of these was kept in a cage at the Fort for about a year.

46. *Falco richardsonii*.—Rare. Two taken in the fall of 1889.

47. *Falco sparverius*.—Common. Breeds. I have never been in a country where Hawks are as scarce as they are here.

48. *Asio wilsonianus*.—Rare. Three seen.

49. *Asio accipitrinus*.—Rare. Two seen.

50. *Megascops asio*?—Rare. Three seen. None taken.

51. *Bubo virginianus subarcticus*.—Common. Some breed.

52. *Nyctea nyctea*.—Usually rare. In the winter of 1889-90 eighteen were seen or reliably reported. They seemed to come in advance of the intense cold that set in December 31, 1889, and lasted twenty-four days. The last was seen February 4, 1890. The Cheyenne Indians say none had been seen since "The-bad-cow-year" (winter of 1886-87). They call it "Wo-com-mis-ta" (Owl white). I also saw one in the winter of 1890-91 and heard of four more. All I examined were fat. None attempted to alight on trees.

53. *Speotyto cunicularia hypogæa*.—Common, but scarcer than usual at other localities when they are found. There are large old prairie dog towns but very few prairie dogs.

54. *Coccyzus erythrophthalmus*.—Rare. One female taken June 27, 1889. The largest ova were of the size of BB shot. One male taken July 24, 1889.

55. *Ceryle alcyon*.—Common. Not seen on this part of the Yellowstone, owing probably to the color of the water, but found on upper Tongue River and Lame Deer Creek.

56. *Dryobates villosus leucomelas*?—Rare.

57. *Dryobates pubescens*.—Rather common. About as many in winter as in summer. Think it breeds.

58. *Melanerpes erythrocephalus*.—Common. Breeds.

59. *Colaptes cafer*.—Common. Breeds. Sent twenty-five skins to Dr. J. A. Allen, American Museum of Natural History, New York City. He writes me of them: "The series as a whole is one of special interest, the specimens all coming from localities within the range of the interbreeding of *C. auratus* and *C. cafer*. There is not a specimen in the whole series that is strictly *C. cafer*, though several approach true *cafer* very strongly. The greater part are much more *cafer* than *auratus*. In a few the characters of the two species are about equally represented. In one or two the *auratus* characters prevail. No two specimens are quite alike, while the combination of characters is often peculiar and very interesting."

60. *Chordeiles virginianus henryi*.—Common. Breeds.

61. *Tyrannus tyrannus*.—Common. Breeds. Not as numerous as *T. verticalis*.

62. *Tyrannus verticalis*.—Abundant. Breeds. For six successive summers a pair repaired and used a nest in a tree close to my quarters.

63. *Sayornis saya*.—Common. Breeds. Nests under eaves of buildings about the Fort and under sandstone rocks in the Bad Lands.

64. *Contopus richardsonii*.—Common. Breeds.

65. *Empidonax pusillus*.—One specimen, June 8.

66. *Empidonax minimus*.—Not common. Taken as late as May 31.

67. *Empidonax hammondi*.—Two specimens,—an adult July 17, and a young bird June 8.

68. *Otocoris alpestris arenicola*.—Abundant. Must breed here, but I have never found a nest. They are present in varying numbers the entire year. In the fall of 1889 I sent one hundred and eighteen skins of birds taken every month in the year to the American Museum of Natural History, New York. They were examined by Mr. Jonathan Dwight, Jr. and pronounced to be "all *arenicola*."

69. *Pica pica hudsonica*.—Common. Breeds. Some seen throughout the year.

70. *Corvus corax sinuatus*.—Not common.

71. *Corvus americanus*.—Not common. A small flock sometimes seen at the Fort garbage dump. More common at Tongue River Agency, Lama Deer, Montana. About as many in winter as in summer.

72. *Molothrus ater*.—Abundant. Breeds. Nests on the ground seem to be preferred as the receptacle of its eggs.

73. *Xanthocephalus xanthocephalus*.—Abundant in suitable localities. Breeds. As to the males flocking by themselves in the breeding season, I can only say that on June 18, 1889, I saw a flock of about seventy-five some half a mile from their nesting place and could not see a female among them.

74. *Agelaius phœniceus*.—Common. Breeds. Have found their nests within a foot from those of the Yellow-headed Blackbird. No signs of quarrelling between the two kinds.

75. *Sturnella magna neglecta*.—Abundant; breeds. Common by the middle of April and many stay until near the last of October.

76. *Icterus bullocki*.—Common. Breeds.
77. *Scolecophagus cyanocephalus*.—Abundant in spring and fall. Do not think they breed.
78. *Quiscalus quiscula æneus*.—Abundant. Breeds. This is the worst foe to the eggs and young of other birds to be found here. Have often seen them rifling nests. They appear never to eat the eggs at the nest but thrust their bills into the eggs and fly off with them. A Wren or a Summer Yellow-bird can repel a single one. Have seen as many as twenty combine to rob an Oriole's nest.
79. *Coccothraustes vespertinus*.—Rare. Saw three at Tongue River Agency, Lame Deer, Montana, April 26, 1891. One female had ova just visible without a glass.
80. *Loxia curvirostra minor*.—Rare. Not found at Fort Keogh. Took six and saw six others at Lame Deer, Montana, in May, 1891. The condition of the ova showed that it was not near the breeding period. Lame Deer has quite a high altitude and the hills are covered with pine trees.
81. *Leucosticte tephrocotis*.—Abundant in winter. Arrive by November 6 or 7 and remain here in varying numbers until the last of March. They are fond of oats and the mule corral is their favorite place. When it is cold and stormy they gather into the Post by thousands. If a warm day comes, especially if the ground is bare, few are to be seen, and where they go at these times I do not know, as I never find them about the country. They are often seen sheltering themselves in the old nests of Cliff Swallows. They are exceedingly restless birds.
82. *Leucosticte tephrocotis littoralis*.—Common in winter. Found in flocks with the last in about the proportion of one in twenty. They are among the first birds to arrive and the last to depart. Mr. Robert Ridgway wrote me March 6, 1889, that Fort Custer, Montana, was the most eastern point from which they had been previously reported.
83. *Acanthis linaria*.—Abundant during the winter of 1888-89, arriving November 7 and remaining until the middle of February. A few small flocks were seen other winters. I took a pretty large number thinking I might find *A. h. exilipes* among them, but although there is a good deal of variation in the size, markings and plumage of my specimens, I do not think I have taken it.
84. *Spinus tristis*.—Common. Breeds.
85. *Plectrophenax nivalis*.—Abundant during the winter of 1889-90. None seen other winters. Arrived November 14. Most abundant the middle of February. Last seen March 17. An old teamster told me he had seen them here before but could not tell what year.
86. *Rhynchophanes mccownii*.—Usually not common. A few small flocks are seen in spring, and some few birds remain in summer which I think breed here. At Stoneville, Montana, on the Little Missouri River, from September 4 to September 11, 1889, immense flocks were seen daily.
87. *Poocætes gramineus confinis*.—Common. Breeds.
88. *Ammodramus sandwichensis alaudinus*.—Common. Breeds. Is rare in the latter part of May and during June. Common in July. First

juveniles taken July 23. Some specimens examined by Mr. William Brewster he reports as "perhaps approaching *A. sandwichensis*."

89. *Chondestes grammacus strigatus*.—Common. Breeds.

90. *Zonotrichia querula*.—Not common. Seen only in the fall of 1889 (September 22 to October 13). All I took were juveniles.

91. *Zonotrichia leucophrys*.—Not common. Mostly seen in spring, a few in fall.

92. *Zonotrichia leucophrys intermedia*.—Tolerably common in spring and fall.

93. *Spizella monticola ochracea*.—Usually abundant during the colder months. The winter of 1889–90 was an exception, as none were seen in December, January and February. The dates of their arrivals and departures vary fully a month in different years.

94. *Spizella socialis arizonæ*.—Common. Breeds. Found also in the pine region at Lame Deer, Montana. Mr. Brewster says my Colorado specimens are "not typical"; these appear to be the same as the Colorado specimens.

95. *Spizella pallida*.—Common. Breeds. They seem to disappear about May 22 and are not seen again until the middle of July, when juveniles are taken. The year 1888 was an exception to this, adults being seen throughout May, June and July.

96. *Spizella breweri*.—Common. Breeds. Nests with eggs found by June 16.

97. *Junco hyemalis*.—Not common. Breeds. At Lame Deer, Montana, more common; found there in May, June and July.

98. *Melospiza fasciata*.—Rare. One female taken April 17, 1889.

99. *Melospiza lincolni*.—Rare. One male May 6; one female May 10, 1889. No others recognized.

100. *Pipilo maculatus arcticus*.—Common. Breeds.

101. *Habia melanocephala*.—Tolerably common. Breeds.

102. *Passerina amœna*. Rare. Five seen, none taken.

103. *Calamospiza melanocorys*.—Abundant. Breeds.

104. *Petrochelidon lunifrons*.—Abundant. Breeds. Large colonies formerly built under cliffs in the Bad Lands, as is shown by the remains of their old nests. All now nest about buildings.

105. *Chelidon erythrogaster*.—Common. Breeds.

106. *Tachycineta bicolor*.—Tolerably common. Some pairs nest in the Post.

107. *Clivicola riparia*.—I have not taken it but there is evidence that a large colony of what I believe to be this bird formerly nested in a bluff on the left bank of the river. This bluff was in range with the targets on the rifle range, which was probably the reason it was abandoned.

108. *Ampelis garrulus*.—Abundant at times in winter. Seem erratic in their movements and to vary greatly in numbers in different years. I have examined the stomachs of a good many and their food while here seems to consist almost entirely of berries of the wild rose. They open

the berries on logs and rocks and eat the inner part only. Have seen hundreds at a time at the berries and all very garrulous.

109. *Lanius borealis*.—Rare. A few seen singly during the coldest weather.

110. *Lanius ludovicianus excubitorides*.—Rare. Three seen in the summer and fall of 1892. No others.

111. *Vireo olivaceus*.—Rare. Three in spring.

112. *Vireo gilvus*.—Not common. Breeds. Have taken juveniles by July 24. Differs somewhat from my Colorado specimens identified by Mr. Brewster.

113. *Helminthophila celata*.—Common in April and May.

114. *Dendroica æstiva*.—Common. Breeds.

115. *Dendroica coronata*.—Tolerably common in spring.

116. *Dendroica striata*.—Common in May. Males observed to arrive first.

117. *Seiurus aurocapillus*.—Rare. One male in worn plumage, moulting, taken July 23, 1888.

118. *Seiurus noveboracensis notabilis*.—Rare. One juvenile taken Sept. 12, 1889. Identified by, and now in collection of Mr. William Brewster.

119. *Geothlypis trichas occidentalis*.—Rare. Four in spring.

120. *Icteria virens longicauda*.—Not common. Breeds.

121. *Sylvania pusilla*.—Rare. One male May 19, 1889.

122. *Setophaga ruticilla*.—Common. Breeds. Young taken by July 24.

123. *Anthus pensilvanicus*.—Rare. Four taken on Little Missouri at Stoneville, Montana, September, 1889.

124. *Oroscoptes montanus*.—Rare. Two on Tongue River, seventy-five miles from mouth, August, 1890. One taken was a juvenile.

125. *Galeoscoptes carolinensis*.—Common. Breeds.

126. *Harporhynchus rufus*.—Abundant. More numerous than I have seen it elsewhere.

127. *Salpinctes obsoletus*.—Common. Breeds. Found only in the Bad Lands.

128. *Thryothorus ludovicianus*.—Rare. Two in May on the divide between Powder and Tongue Rivers. One in May and two in August at Lame Deer, Montana.

129. *Troglodytes ædon aztecus*.—Common. Breeds. Took, among others, a pair and two of their young.

130. *Sitta carolinensis aculeata*.—Rare. Saw six and took two at Lame Deer, Montana, July 11, 1892. One taken is thought to be a juvenile.

131. *Parus atricapillus septentrionalis*.—Tolerably common. Breeds in the pines at Lame Deer, Montana. Seen at the Post in winter.

132. *Regulus calendula*.—Rare. One male, September, 1889.

133. *Myadestes townsendii*.—Rare. Six were seen at Lame Deer, Montana, July 9, and one juvenile August, 1892.

134. *Turdus aliciaæ*.—Rare. One female, May, 1889.

135. *Turdus ustulatus swainsonii*.— Abundant in spring, rarely seen in fall.

136. *Merula migratoria propinqua*.— Common. Breeds. Have found them common also among the pines during the breeding season, fifty miles from a house.

137. *Sialia arctica*.— Common. Breeds among the pines on the divides; rarely seen elsewhere.

AN HOUR WITH BAIRD'S AND LECONTE'S SPARROWS NEAR ST. LOUIS, MISSOURI.

BY O. WIDMANN.

RICHFIELD, St. Charles County, Missouri, is a station on the Keokuk and Northwestern R. R., forty miles northwest of St. Louis. I do not know who gave the name to the station, but presume that it was an ornithologist, since the vicinity is an exceedingly rich field for the study of birds. Oct. 13, 1894, I identified fifty-five species and added fifteen more the next day. In these two days I had gone over only a part of the ground, mainly the wooded portion, adjacent to Cuivre River and Horse Shoe Lake. The marsh had not been explored. To do this I returned on the 18th, or rather, I was on the marsh before daylight, watched the Meadowlarks, the Cedarbirds, the Robins, the Blackbirds and Ducks leave their roosting places in the marsh; and it was here at the border of Mud Lake that I found the Baird's Sparrow, two individuals, in company with other Sparrows, mainly *Ammodramus* and *Melospiza*.

Not being a 'shootist,' I cannot lay the bird before you. I have to beg you to accompany me into the field to the scene of the encounter. Mud Lake is one of a series of marsh lakes, all of which are more or less connected by sloughs and are the common receptacle of the precipitation in the surrounding country. In times of highwater in the Mississippi River the whole system is filled by backwater, pouring in through the Cuivre River and overflowing the marshes, which are on that account not cultivated, except the highest levels, forming islands in the ocean of

grasses and weeds which grow in profusion. Parts are used for pasturing, and the whole landscape is richly dotted with trees, singly and in groups, mostly pin oaks, and honey locusts, with clusters of persimmons, which, shooting up as thickly as weeds, are a peculiar feature of the landscape.

It is seven A. M., and the point of observation is a clump of locusts at the southeast border of the lake, so as to have the sunlight in the back. It is well to be in the shade; the October sun is pretty warm, even at this early hour. We had 80° F. yesterday and to-day promises to be still warmer.

Mud Lake, as the name implies, is not more than knee-deep, but last month's rain caused a rise of six inches, and the water now covers about 200 acres. It is entirely overgrown with spatter dock in the deeper places, with smartweed in shallower water, and all around its edge for a varying width. Encircling the regular expanse of water is a fringe of low willows and elbow wood, mostly dead and crumbling, killed by fire some years ago. In back of the willow fringe begins the endless ocean of marsh grasses, mainly *Spartina cynosuroides*, growing on damper ground as high as six feet; in drier situations it is lower, and in some is entirely overgrown with boneset and a few other weeds, mostly of the family Compositæ.

A second circle of tree-growth, back of the willow circle, is composed principally of honey locusts, which are at this moment very conspicuous objects all over the landscape through the golden yellow of all their leaves. The pin oaks are still green, with only the tops and outer tips of branches turning crimson, affording quite an ornament to the monotony of the marsh, which has at present a sombre yellow cast over the higher grasses while the predominance of *Eupatorium* covers the lower grasses with a hoary mantle. The smartweed region is still green but with a strong admixture of yellow and brown shades. The shriveling spatter docks form a sadly withering, shapeless mass of gray and brown tints, though partly trampled down by cattle and thus exposing large patches of open water. The lake is on club grounds, but in hot weather duck shooting is at a discount, and in days like this, when no hunter appears on the scene, we and the birds have the ground all to ourselves.

The air is filled with bird voices; the Blackbirds are seen and heard in all directions. What would the marsh be without its Blackbirds? A dreary ocean of monotony! With them all is life, ever-changing life; a constant coming and going, a uniting and separating, now here, now there, down on the ground, high in the air and even on the lake itself; and withal a kaleidoscopic frolic, produced by only a small variety of individual sounds, perhaps not more in number than the letters of our alphabet, but through their endless and ever-varying juxtaposition, creating a medley of indescribable and unique grandeur.

Just back of us in the persimmon patch there is as busy an army of feeding birds as can be found; they are on the ground, almost covering it. Every now and then, without apparent cause, all go up in a body — and what a cloud they make! They are all Red-winged Blackbirds, old and young, but those in spotted garb outnumber the redshouldered black as ten to one. The persimmon fruit is now ripe and ready to drop. The whirl of the hundreds of wings is heard only for a moment; after a beautifully executed turn the cloud settles on the now leafless trees on which some fruit is still hanging.

Probably the whole manœuvring is carried out only for the purpose to shake the fruit from the trees; the last has hardly settled in the trees when the first already begin to descend, and soon all feed eagerly on the sweet and succulent persimmons lying on the ground.

At once there is another rustle of wings and all go up into the trees. A young Redtail approaches and settles right in their midst. Not a single one of the Blackies leaves the trees; the only precaution they take is that they gain a position above him. They are evidently not a bit afraid of him. His eyes are fixed upon the ground beneath, but he does not find there what he is looking for. The Redwings have monopolized the persimmon grounds to the exclusion of fur-bearing lovers of the tidbit.

From dozens of happy throats comes the pleasing song of the Meadowlark; they seem to take now the leading part in the concert, which the Robin had a little earlier in the morning. Into the tree above us a party of Goldfinches drops for a minute. They rest, but only their wings rest; the tongues do not rest, and though

there are only a dozen birds overhead, one could think there were several scores of them, every one saying something pleasant.

Now a great big bird lazily wings its short way across the spatter docks and alights about two hundred yards away in the smartweeds. It is a Bittern, and for fully three minutes the cautious bird never moves a muscle; with long, out-stretched neck, and with bill pointed skyward, it stands immovably erect until it stoops down into the weeds and disappears. This seems to be the signal for his comrade to join him, and following in the same track through the air, he alights at the same spot.

All the while, since we are here, the border of the lake, the oozy region of the willows and elbow wood, has neither been deserted nor neglected. When we came we found a number of Savanna Sparrows, all dark-spotted birds with rich yellow suffusion about the head. There are several Swamp Sparrows scattered along the edge of the water, and we are treated to a few fine recitations by the Song Sparrows behind the curtain. A Lincoln Sparrow slips stealthily through the debris at our feet and a Snipe, the beauty of whose plumage can never be appreciated after death, nimbly runs away a few yards, sits deliberately down on the oozy ground and for a moment seems to consider the possibilities of escape. Having the example fresh in mind, we also play the Bittern and soon have the satisfaction to see our beautiful Longbill resume its wonted occupation until, frightened by the sudden appearance of a Coot in the smartweeds near by, it jumps into the air and with a nasal sound of leave darts into space unknown.

What is this, sitting in the willows in front of us? We see its back only, but this black-streaked head above a peculiarly yellow neck looks very suspicious. Have we not been looking out for such a distinctly marked bird for a long time? Should it be Baird's Sparrow? What else could it be? Look at the fawn-colored rump, the plain unmarked area reaching high up; indeed, the spotted area of the upper part being more like a saddle, hardly more than an inch in width, all the rest of the upper part being a brownish-yellow of such a peculiar warm tint, that it has no equal. The tail is blackish and slender. Now, how obliging! It hops to another twig and presents its underparts in all their

characteristic beauty: a pure white with a collar of real black adorning the breast in the form of a V; only a few spots on the sides, thus leaving the area above and below the collar a pure white, upon which the pink feet appear in sharp contrast. The bill also is pink and there is only a light streak of brown from the bill down. The dark eye protrudes directly from the yellow face without the least orbital mark, but behind the cheek there is a small wedge-shaped spot of warm brown pointing from the eye. The black crown streaks are seen now in all their characteristic marking.

When the bird thought the sitting had lasted long enough to afford me a good likeness, it disappeared, not to be seen again, but following the water's edge a second one came into view, flying up into a willow. The post-auricular spot, in the other faintly indicated, was here well pronounced and large, but the breast-band had less continuity, especially the median spots were smaller.

Sitting on the branch, its upright carriage and general contour reminded me of *Zonotrichia leucophrys*, the difference in size being hardly appreciable. When a general stampede of the frightened Fringillidæ occurred, this bird joined the rest, alighting repeatedly in willows until lost to sight. While still on the lookout for other members of the noble Baird family, I wondered whether a bird so peculiar in color and marking may vary at different seasons so much that it could be described in books with introductions like "with a general resemblance to Savanna."

But the field is not the place for studying book-descriptions, and the constant changes which go on before our eyes soon absorb our entire attention. The Grackles, all pure and simple *æneus* as far as we can see, are paying an interesting and interested visit to the top-shaped receptacles of the spatter docks, from which the nuts have fallen, thus affording splendid lurking places for different forms of lower animal life. It is a pleasing picture to see the glossy, graceful birds alight on such a curious perch and bending down peep into every nut-hole.

A flutter of dark steel-blue wings set off against a reddish-gray body and a party of Rusty Blackbirds alights in the button-bush near by. They came to rest, and soft, melodious notes escape their throats, as if dreaming of times gone by and places far

remote. One has spied something in the weeds below and, hanging Oriole-fashion from the lowest branch, dips down its head and body for a moment and emerges with a big dragon-fly, which it soon-dispatches wings and all.

A fine old Marsh Hawk, in blue mantle and reddish apron, who has been overhauling the marsh with untiring wing ever since sunrise, pays a flying visit to the lake, but the birds do not mind him much; all seem to be on friendly terms with him. Six Mallards which had been lying still amidst the sheltering plants go up with tokens of surprise and swinging around are heading for Horse Shoe Lake, two drakes in front, the females closely in pursuit. A solitary Purple Finch alights in the tree over our head, gives half a dozen calls, a few strains of music, and proceeds. The Savannas which we found along the lake on our arrival have long since disappeared among the grasses of the marsh, but the Swamp Sparrows are getting quite familiar. They are well dressed for this time of the year, bright chestnut and blue-gray colors in conspicuous places, but the bright red cap which they donned before departure in the spring must have been left behind somewhere in the neighborhood of their nests.

From the direction the Mallards took comes the report of a heavy gun, and the Mallards come flying back in haste, but there are only five of them.

In the locust over our head a most startling outcry is now heard, almost like a chicken in great distress. It is a Shrike, which therewith calls the attention of its mate to the hidden foe beneath, saying, no doubt, "Be on your guard, there is one of those monstrous gum-boots who carry thunder and lightning into our tranquil habitation, and shed the blood of the innocent wherever they go." *Kri kri* comes from the neighboring tree, meaning clearly: "I see him, I keep an eye on him; better let us go"; and off they go.

Turning away from the lake we follow the slough, a narrow ditch inclosed by a wide border of flags, several feet high, deep green below, but cinnamon on the tips. This is the home of the Marsh Wrens, and one, with a conspicuous superciliary, almost white and sharply contrasting against the plain dark pileum comes up into a bush and sings its simple tune, keeping

time with the tail, which goes rhythmically up and down. Several more of the Longbills come into sight but only one of the little Shortbills has the courage to show its streaked head above the sheltering flags.

Since we advanced through the high marsh-grass, many small birds have jumped out, not exactly from under our feet, but within two or three yards, and after a short, nervous flight, in which they alternately spread and fold the pointed tail-feathers, sink down and out of sight among the wavy yellow blades. Although the flight is short, a quick and practised eye can catch the yellow hue of neck and head and, together with its diminutive size, we know him well,—it is our friend the Leconte Sparrow. But presently we shall be treated to a novel sight. Five of the beautiful creatures adorn the leafless branches of a little hawthorn tree, eight feet in height and raising its head only a few feet above the tips of the surrounding grasses. A sixth one comes up to take a seat; it is now their time to take an airing and a sunning, the only hour of the day when they remain thus exposed to view for any length of time. We pass a few more of these isolated thorn-trees, standing in line like sentinels along the slough, as if to keep the flags from marching upon the domain of the grasses. Each one has at this hour a small contingent of Lecontes, who after paying a visit to the watery region of the flags return to dry and preen upon the branches. But our hour is over.

NOTES AND EXTRACTS FROM A LETTER OF EDWARD HARRIS.

BY GEORGE SPENCER MORRIS.¹

INCIDENTS connected with the lives of the great naturalists of a past generation must always be of interest to those who seek to follow in their footsteps in after years.

¹ Read before the Delaware Ornithological Club.

It is with much pleasure that I have from time to time observed in the pages of 'The Auk' brief anecdotes, extracts from letters, prints of old portraits, etc., which furnish us with additional information concerning the lives of Audubon and other noted ornithologists who have died.

The name of Edward Harris is one which deserves to be more widely known in ornithological circles than it is. Harris's Sparrow, Harris's Woodpecker, etc., bring it before us in the Check-List, but there are comparatively few who know aught of the man for whom these species were named.

It is perhaps true that Mr. Harris should not be ranked as a great naturalist, but it cannot be denied that he played a very important part in the advancement of scientific knowledge in the past generation by the encouragement and practical assistance which he frequently rendered to his fellow workers, and especially to Mr. Audubon.

Between these two men there was a bond of strongest friendship. In the writings of Audubon we find frequent references to Mr. Harris; and the great naturalist rarely mentions his name without coupling it with some expression of affection or admiration.

They were companions on several of Mr. Audubon's important ornithological expeditions, notably that of the year 1843 into the far northwest by way of the Missouri River with the Yellowstone region as a point of final destination.

During the journey Mr. Harris wrote long letters, as opportunity occurred, to his brother-in-law, Dr. John J. Spencer of Moorestown, N. J.

Dr. Spencer was a great-uncle of the writer. Through the kindness of his daughter, Mrs. Samuel Stokes, I came into temporary possession of one of these letters. It is written in an almost minute but very firm hand; it is yellow with age, and in some places is hardly legible. It is simply a diary of each day's doings extending over a period of almost two weeks. The letter is long and much of it is not of sufficient ornithological importance to warrant its complete publication in these pages. There are, however, certain paragraphs which I think cannot fail to interest the readers of 'The Auk,'—as for instance the description of the discovery of Harris's Sparrow, and the impressions received

on first hearing the song of the Western Meadowlark. The letter gains an added charm through its frequent references to Mr. Audubon and Mr. Bell—the latter being one of the party.

I have quoted verbatim such passages as I thought might be of special interest to ornithologists, and have briefly summarized the remaining portions so that a fair idea of the whole may be gained.

The letter opens as follows :—

“Missouri River

May 19th 1843.

“My dear Doctor—

“I wrote you a few hasty lines yesterday by Mr. Laidlaw—the Company’s superintendent at Fort Pierre, who was on his way to St. Louis with four Mackinaw boats loaded with buffalo hides. I now commence a letter to be sent by the trapper from Fort Pierre which we hope to reach in six or eight days. Since I wrote from Indipendence the most important event that has occurred has been my discovering a new Finch—a larger bird than the white-crowned sparrow which it very much resembles in the general markings of the body—but the head & throat are black with an ash-colored patch on each side of the head. On looking at my diary I see I wrote to you from Bellevue—when I must have mentioned this new bird, but we feared that it might have proved the male of Townsend’s Finch, with which it agrees in measurements exactly—a female only has been procured of that bird (Townsend’s) but very fortunately only three days ago I succeeded in shooting a female which corresponds exactly in markings with the male excepting that the tints are rather lighter & the black not quite so widely diffused.

“Bell has also found a Vireo which is undoubtedly new. The rare birds which we have shot are the Clay-colored bunting—(F. Pallida), Yellow-headed trupial (Icterus Xanthocephalus), Lincolns’ Finch—Chestnut-Collared Lark Bunting—(Emberiza Ornata),—Lark Bunting—(E. Grammaca).

“Our opportunities for shooting now that we have left that part of the river where wood could be found ready cut for sale, are not at all equal to our expectations; instead of stopping two hours before sunset to cut for the next day, as we had been

led to believe would be the case, we stop wherever we can find good wood and never less than twice a day, more frequently three times, and then only from thirty minutes to an hour at a time, and frequently in a bottom that has been overflowed and all the game driven out of it; the walking too so bad that it is scarcely worth wetting our feet for the poor chance before us. It is only when we are detained by a high wind or an accident to the boat that we can get a regular hunt.

"We have procured very few quadrupeds, a red squirrel that is rather rare and a black squirrel that may be new are the only ones. Mr. Audubon shot a wild turkey a few days ago,—the only one we have procured, and that would have been lost had it not been for 'Brag.' The bird was only wing broke and soon ran out of sight and hid in a thicket, but 'Brag' made a beautiful point at it and I shot it with number 10 shot; it was a female; it made us a good dinner and a fine skin.

"Our last accident,—the burning out of two plates in one of our boilers, which I mentioned in yesterday's letter,—detained us three days, we only got off this morning.

"In a few days more we shall almost entirely lose the timber, a few straggling trees on the bluffs of the prairies will be all we shall see and we must depend principally on the drift wood we find on the sand bars which is of very inferior quality. We now use green ash whenever we can get it; when it is not to be had dead cottonwood is the best we can procure.

"Elks are abundant here and have been for the past week — & hares also, but we have seen neither, the elks and deer are driven before us by the noise of the steamboat, & where the shores are wooded we never see them. The hares are in the high prairies which we have seldom time to get to when we stop. Only one deer has been killed since we started.

"20th. It rains this morning and our prospect for the day is rather dull. Our mode of life is rather tiresome to us who are impatient for something to do, and you may see by the tremor of my hand that it is difficult to write while the boat is in motion," etc.

Mr. Harris here dwells somewhat upon the monotony of their daily life, enlivened only by the occasional sight of game along

the shore. He speaks also at some length of the Indians to be found in the neighboring regions. Mr. Harris was apparently no great admirer of the Red Man and refers with a slight touch of sarcasm to Mr. Catlin, who in his enthusiastic admiration of the Indian had spoken of him as "Nature's Nobleman."

The letter, continued on the 21st inst., tells of the first appearance of buffalo and gives interesting descriptions of their habits and movements. From this time on they were comparatively abundant. The letter then continues:

"Another rare bird — Say's Flycatcher has been added to our list, also *Pipilo Arcticus*, — the new Towhee Bunting, which you will find figured in Mr. Audubon's small work. For the last few days we have seen immense quantities of the nests of the cliff swallow in the lime stone rocks which compose the base of the high prairie hills, and where they jut upon the river are perpendicular cliffs, but there are no birds to be seen and we fear they have all been killed by a severe gale we had on the 14th when the thermometer fell from 76° to 43°. Since that gale we have seen very few swallows of any kind."

Under date the 22d Mr. Harris tells of the increasing difficulty in securing wood for the engine. Buffalo are spoken of as becoming more abundant, while a war party of Indians was seen on the east bank of the river. Then comes the following short paragraph which is of interest to ornithologists as being the first mention of the Western Meadowlark. "We have seen today the Arkansaw Flycatcher and a Meadow Lark which must prove to be a new one, its note is so entirely different from ours, though as far as we have been able to observe it the markings and habits are very similar."

Mr. Harris then discourses at some length upon the habits of the buffalo, and especially upon the wanton destruction of them by Indians and Whites. Upon the 24th the letter continues as follows: "The wind blew hard this morning, and it was evident the boat could not be got off for some hours. Bell and I went ashore. We procured some excellent birds — Red-shafted Woodpecker, — Say's Flycatcher, — Arkansaw Flycatcher, — Lark Finch & several of the new Meadow Larks. I still insist upon its being new, although it is so much like our own birds that we cannot

from the books establish any specific difference, — though I have no doubt when we can place a number of them alongside of the common one there will be something to distinguish them. It is impossible that the same bird in different parts of the country can have notes so decidedly different as to strike all of us as new notes. But as we cannot set these notes down on paper and as no bird has yet received its specific character from its note alone we must wait patiently for some stronger development before it can be published. We saw the Lazuli Finch, a very rare bird, for the first time. It is worthy of remark that all the rare birds we have found have a range much farther east than has been heretofore assigned to them. Some of them have not been found before on this side of the mountains. This gives us great hopes of doing more than we expected in the bird line — as for the quadrupeds the chance of securing them while ascending the river does not equal Mr. Audubon's expectations. We hope to make it up when we reach the Yellow Stone and on our way down the river."

The remaining notes for the 24th inst. describe the movements of the neighboring herds of buffalo and tell of the habits and characteristics of the Townsend's hare, Mr. Harris and Mr. Bell having observed one of these animals while on shore. The 25th was a cold and rainy day, the time being spent almost entirely in the cabin of the steamboat. The journal for the 26th is given over mostly to a description of the geological formations of the county together with interesting remarks on the habits and characteristics of the black-tailed deer, prairie dog, etc. At five P. M. they left the boat for the purpose of going across an isthmus which separated two bends in the river, their plan being to meet the steamer on the farther bend the following day. After tramping some distance and having killed a fine buck black-tail, they camped for the night and had a supper of venison.

The 27th and 28th are descriptive chiefly of the Indians, who seemed to be none too friendly in their demonstrations, having several times fired at the boat. A short stop was made at a place called Fort George. They here met a Mr. Cutting, the brother of a gentlemen with whom Mr. Harris had previously travelled in Europe.

Under date the 29th he writes: "Major Hamilton and Mr. Audubon walked down to the Fort after breakfast and I followed in about an hour. I very fortunately took my cane gun with me and shot by the way two Black-headed Grosbeaks, a bird which has not before been found this side of the table lands of the Rocky Mountains, which is the case with a number of the birds we have found. Mr. Audubon,—Bell,—Squires and I walked two or three miles across the prairie in the afternoon to a village of prairie dogs which Bell had discovered in the morning." Mr. Harris then speaks entertainingly of the movements of the interesting little animals and refers to the great difficulty in shooting them.

On the 31st they reached Fort Pierre, a point on the river which they had long been striving to gain. No further points of ornithological interest are referred to in the letter. The plant life of the region is, however, described at considerable length for the benefit of Dr. Spencer, to whom the letter was addressed, he being a botanist of some note. The letter was left at Fort Pierre to be taken down the river by the next trappers who were going in the direction of civilization. The last entry is made on June 1, just before the boat starts on up the river towards the Yellowstone, that being the final destination of the party.

BIRD MIGRATION AT GRINNELL, IOWA.

BY LYND S JONES.

II.

FALL MIGRATION.

THE fall migrations differ from those of spring in certain particulars. It is not so simple a matter to study the southward movement of the birds, but rather one requiring a great deal of time, unlimited patience, and a speaking acquaintance with the

birds in all sorts of dress. For almost all birds are in their plainest attire on their journey southward. Then birds are wary and timid, instead of bold and fearless. No songs announce their arrival. All is quiet.

The majority of records in spring are of arriving birds. In the fall they are of departing birds. No records are more difficult to make accurately than those of the departing birds. A great deal of time was spent in the field in the fall, but the records are always fewer than those of spring.

We have seen that the weather greatly affects the spring movements of the birds, severe and adverse winds combining with inclement weather to retard the northward movement. In the fall the weather has an opposite effect. Late in the fall this is more apparent and of much more significance than early.

The charts for the fall migrations are made on the same general plan as those for the spring migration, with the addition of a weather record at the top, represented by a sinuous line. The downward curves indicate the occurrence of a falling temperature and cold northerly winds. A rise in the line indicates a rise in temperature and southerly winds.

A study of the charts makes the relation of the bird movements to the weather clear. Each dip of the line representing the weather is accompanied by a corresponding activity among the birds. There is either an influx of more northern species or an efflux of summer residents, or both combined. Usually it is of both combined. Frequently the movement follows the unfavorable weather; sometimes it slightly precedes it. Warm days and south winds retard the southward movement instead of accelerating it, as in the spring.

August is marked by almost uniformly warm weather, there being no marked changes from warm to cold. Yet some birds move south even in August. These are the Yellow-breasted Chat and Yellow Warbler, with a possible migrant or two from the north. The movement is not well marked.

Our first evident movement occurs early in September, when the first breath of winter is felt. Then there is not only a marked efflux of summer residents, but an influx of northern species. It will be noticed that the birds moving at this time are those which

came latest in spring, for the most part. A glance at the accompanying charts and at those of the spring migration, will reveal the fact that the last great movement of the spring of 1886 and 1889 occurred later than that of other years, and that the first movement in the fall migration for these two years is correspondingly late.

A second movement occurs about the middle of September, followed by a rather scattered movement until late in the month or early in October, when another definite movement occurs. A middle of October movement is apparent, but it is not so well marked as the others, either earlier or later. There is really but one movement in November, but it is often much scattered, and may occur either early or late, according to weather conditions. This movement is marked by a diminution in the number of the resident birds, as well as of some of the winter residents.

These later movements seem to bear no relation to the spring movement whatever, but are largely influenced by the weather. The last movement is manifestly due to weather conditions, the movement being retarded by warm weather, and occurring only when the next storm sweeps in from the north.

We have seen that certain of the spring migrants may be grouped together as regular migrants at a certain time each year, being always or nearly always found moving together, at a certain time, relative or absolute. No such grouping is possible in the fall migrations. Each species seems to suit its own convenience in the matter of its southward journey, having no regard for any company but its own kind.

In the spring, the last movement of the season was by far the largest in the number of species moving at one time, while the first movement was of very few species. The fall movement is just the reverse, but with a very much less tendency toward any massing of species at any time. The whole movement is far more scattering and irregular as regards definite dates of movement.

It can hardly be said that there are any definite dates of greater activity of movement, as we have seen to be true in spring. In general there might be said to be more birds moving in early September than at any other time. Early October is

also well filled with moving birds. But these periods of activity cannot be compared to the March and May activity. They are weak and scattering. The migrants from the north are so few, compared with the spring migrants, that they make a poor showing among the summer residents.

September is the month of greatest activity in the fall migration, nearly half of the records of any year occurring in that month. The remaining records are about equally divided between October and November, with a scattering few in both August and December, which may be regarded as unusual, if not accidental. While the bulk of moving individuals is to be found in September, that month's movements are in no way comparable to the great May movement. It is not condensed, but scattered over the entire month, as it was not in May.

With the exception of a few species, and of the more common migrants from the north, the birds do not move in such masses in fall as in spring. They seem to grow gradually less in numbers, until the last one journeys southward. There is a marked exception to this in November, when the first driving snow-storm sweeps in from the north, bringing the Ducks and Geese in clouds, accompanied by circling flocks of Cranes and Pelicans. It is well worth frosted ears and cold feet to watch the huge flocks and droves scurrying before the storm blasts, seeking a shelter behind some woods in which to gain a hurried rest. Often the night air is resonant with the notes of the birds which are journeying to their southern winter homes. Sometimes they seem to become confused by the bright lights of the city, and fly about overhead for some minutes before moving on. Such occurrences are always during a dark night, or in thick weather. I have noted the water birds in such situations more often than any other birds.

The last individuals of any species noted in the fall migrations have been young of the year. After the bulk of the species has departed, it has been almost impossible to find old males, or even old females; while any males at all are very scarce. Hence, I conclude that the order of departure in fall is much the same as that in spring—the old males leading, followed by the young males and old females, the rear being brought up by the young females.

FALL MIGRATION AT GRINNELL, IOWA.												
	1886			1887			1888			1889		
	Sept	Oct	Nov.	Sept	Oct	Nov.	Sept	Oct	Nov.	Sept	Oct	Nov.
Weather.	-----											
<i>Antrastomus vociferus</i>	-----											
<i>Chondestes grammacus</i>	-----											
<i>Accipiter cooperi</i>	-----											
<i>Circus hudsonicus</i>	-----											
<i>Bartramia longicauda</i>	-----											
<i>Falco sparverius</i>	-----											
<i>Ammodramus henslowii</i>	-----											
<i>Sayornis phoebe</i>	-----											
<i>Ammodramus passerinus</i>	-----											
<i>Epile erythrophthalmus</i>	-----											
<i>Spizella socialis</i>	-----											
<i>Spizella pusilla</i>	-----											
<i>Colaptes auratus</i>	-----											
<i>Regulus calendula</i>	-----											
<i>Regulus satrapa</i>	-----											
<i>Zonotrichia albicollis</i>	-----											
<i>Dendroica palmarum</i>	-----											
<i>Lanius borealis</i>	-----											
<i>Cistothorus stellaris</i>	-----											
<i>Calcarius pictus</i>	-----											
<i>Agelaius vociferus</i>	-----											
<i>Spirus pinus</i>	-----											
<i>Melospiza palustris</i>	-----											
<i>Spizella monticola</i>	-----											
<i>Passerella iliaca</i>	-----											
<i>Dendroica coronata</i>	-----											
<i>Molothrus ater</i>	-----											
<i>Sialia sialis</i>	-----											
<i>Quiscalus g. annuus</i>	-----											
<i>Zonotrichia querula</i>	-----											
<i>Melospiza fasciata</i>	-----											
<i>Cathartes aura</i>	-----											
<i>Anas carolinensis</i>	-----											
<i>Anas mexicana</i>	-----											
<i>Anas boschas</i>	-----											
<i>Scolophaeus carolinus</i>	-----											
<i>Philohela minor</i>	-----											
<i>Sturnella magna</i>	-----											
<i>Merula migratoria</i>	-----											
<i>Agelaius phoeniceus</i>	-----											
<i>Bernicla canadensis</i>	-----											
<i>Buteo borealis</i>	-----											
<i>Zenaidura macroura</i>	-----											
<i>Corvus americanus</i>	-----											
<i>Tympanuchus americanus</i>	-----											
<i>Cyanocitta cristata</i>	-----											
<i>Haliaeetus leucocephalus</i>	-----											

Some species seem to be changed in habits in the fall migration, as the Myrtle Warbler and Harris's Sparrow. In the spring we find them in the woods and brush-lands, but in the fall they are largely confined to the fields and hedges separating bare fields. In the spring the Myrtle Warbler bears the other Warblers company, but in fall he seems to prefer the company of the Sparrows, always being found in company with the Chipping Sparrow. The Harris's Sparrow is found in the near vicinity of houses or barns in spring, but is never seen there in fall, preferring the hedge-rows.

Some birds are more numerous in fall than in spring, and some regularly found in spring are just as regularly not seen at all in fall. I think that it has never been true that a species has been found in the fall which has not been noted in spring.

A further reference to the charts will reveal the fact that when the spring movement is hurried and the stay short, the fall migration will be more leisurely and protracted. This applies to some species of birds which do not nest here, but pass further north, but it is not true of all such.

We thus see that the two movements differ in two very important particulars: the one is noisy and full of life, the other quiet and unobtrusive. The one is in gala-day attire, the other in the somberest dress.

III.

BIRD MIGRATION AT OBERLIN, OHIO, FOR 1894.

Probably no better opportunity will ever be afforded for a direct comparison of the migrations in Iowa and Ohio than the present one, so I will briefly discuss the migration of 1894 as a type of what we may find at Oberlin.

The village of Oberlin lies twelve miles south of Lake Erie, and about midway between two rivers twelve miles apart, which flow northward into the lake. Except the immediate river banks, which are bluff, the region is flat and was originally swampy with a heavy growth of timber. At present nothing but the fragments

of swamps remain in the scattered timber patches, or along streams near the lake. The timbered tracts consist of tall trees skirted by a little fringe of brush, or second growth sprouts, lacking the true brush lands of Iowa. The trees composing the woods do not materially differ from those of Iowa except in being much taller and more slender, without low branches as a rule.

While the region is an excellent one for the nesting of many species, it is not adapted to migration routes of many other species, they following the river courses in preference to crossing the flat higher lands. Scarcely any water birds are seen away from the rivers, which are not easily accessible in early spring.

The accompanying charts differ from those already explained only in covering both spring and fall migrations for one year instead of a single migration for several years. Hence, the line or lines following the name of any species represents the whole time during which the species was present during the year, unless it is a resident or winter visitor.

These charts give an excellent idea of the waves of movement during the year. Not until March is any movement perceptible. Then the season opens with the arrival or increase of four species, followed in a few days by five more, these followed a little later by four more, making a triple wave of thirteen species. This wave accompanies the first warm wave of March.

Omitting three species which were probably overlooked, and therefore belong to the first wave, the next wave occurred about the first of April, when five species arrived and one departed. Then nearly three weeks passed without any perceptible movement, due to continued damp and chilly weather and northerly winds.

A warm wave about the 20th of April caused the movement of twenty-seven species, seventeen of which were arrivals and four departures. Then followed the great May movement — somewhat more scattered than we have seen in Iowa, but none the less marked — of forty species, all but three of which were arrivals.

The last movement occurred wholly in May, and was more scattering than the one preceding it. With the exception of one species, it was composed of departing migrants.

The spring migration thus closely corresponds to the same migration in Iowa, but with no movement in February and none in June. Yet it must be admitted that movements do often occur in February. There are fewer well defined waves, and more scattering records, except early in March and early in May.

Making allowance for the slight differences in the bird fauna of the two places, the birds forming these waves are of about the same species as those forming the corresponding waves in Iowa. The presence of the Song Sparrow, Robin, and Bronzed Grackle all winter, and the absence of Ducks and Geese in the migrations, would make a change in the individuals composing the first wave, in any case.

There is a tendency towards earlier movements at Oberlin than at Grinnell, especially early in the season, the difference not being so apparent later. The first wave is often later, however, followed more closely by the second wave.

With the small amount of material at hand it is not possible to determine if there are any such groups as were found in the Grinnell migrations. Notes taken during three years seem to indicate that there are, but composed of somewhat different species.

Here, as in Iowa, the most of the birds arrive in May, a little more than one-half of the whole movement occurring in that favored month. April is also well filled. March suffers from the lack of water birds. May absorbs the June movements.

Were it possible to make the round of the whole country, it is probable that the percentages for the different months would closely correspond to those for Iowa. The nearness of Lake Erie, and the presence of rivers both east and west, have combined to make some important records wanting.

The nearest routes of maximum migration across the State lie a considerable distance westward, where there is a much less expanse of water for the birds to cross to the Canada shore. Hence, ours is a relatively small migration. It does not compare with the Iowa migrations in point of the number of moving individuals. Scarcely any birds can be called at all abundant at Oberlin. Many are common.

I have noticed that the migrants at Oberlin remain rather longer than the same species did at Grinnell, and that more of

them sing during their stay. There does not seem to be the rush and hurry among the migrating birds at Oberlin that was so evident at Grinnell. I have wondered if the nearness of the lake may not in part account for this more leisurely journey and happier mood. It is certainly true that not a few of the species which do not nest at Grinnell are found nesting on the lake shore. Such close proximity to the summer home might well cause greater ease of mind, and thus result in the changed conditions which we have seen. It may be, however, that the birds are only resting longer in order to be more fully prepared for their long flight across the lake. As I write, the Blackburnian, Black-throated Green, Chestnut-sided, Black-poll, and Bay-breasted Warblers are singing. I never heard them at Grinnell. Not one of the transient Thrushes ever condescended to sing for me at Grinnell. Only the Hermit Thrush refuses to do so here.

Lack of opportunity to study the bird life of the lake shore carefully makes it impossible to speak intelligently, at this time, of the direct influence of the lake upon the migrating host. That it is considerable is made evident by the secondary effects already noted. There can be no question that it acts as a barrier to the further movement of some of the birds, causing them to nest on its south shore. This is made evident by the immense numbers of nests to be found, at the proper season, within a very restricted area in the brush, trees, and swamps skirting the shore. In a few hours I have found more than a hundred nests containing either eggs or young, within a space of a few acres. I probably discovered not more than one in ten of the nests actually in the area.

Turning now to the fall migration, we note at once that there is a marked tendency for the earlier spring arrivals to remain later in the fall, and for the later spring arrivals to return south earlier. But there is no such definite order of departure as is apparent in the spring. Irregularity is the rule. This is especially true of the transient visitors. The species which migrate earlier in the fall are more irregular than those which migrate later.

The order of departure of the different species does not materially differ from that at Grinnell. The late August wave

BIRD MIGRATION AT OBERLIN, OHIO.							
Weather.	Mar.	Apr.	May	June	July	Aug.	Sept. Oct. Nov.
<i>Dendroica castanea.</i>							
<i>Turdus mustelinus.</i>							
<i>Dendroica pennsylvanica.</i>							
<i>Mniotilta varia.</i>							
<i>Icterus galbula.</i>							
<i>Vireo gilvus.</i>							
<i>Dendroica maculosa.</i>							
<i>Dendroica palmarum.</i>							
<i>Spinus pinus.</i>							
<i>Piranga erythromelas.</i>							
<i>Myiarchus crinitus.</i>							
<i>Tyrannus tyrannus.</i>							
<i>Dendroica caerulescens.</i>							
<i>Helminthophila pinus.</i>							
<i>Geothlypis trichas.</i>							
<i>Helminthophila peregrina.</i>							
" <i>rusicapilla.</i>							
<i>Turdus fuscescens.</i>							
<i>Aniostomus vociferus.</i>							
<i>Chondestes virginianus.</i>							
<i>Passerina cyanea.</i>							
<i>Sciurus aurocapillus.</i>							
<i>Dendroica blackburniae.</i>							
<i>Setophaga ruticilla.</i>							
<i>Vireo olivaceus.</i>							
<i>Vireo flavifrons.</i>							
<i>Zonotrichia leucophrys.</i>							
<i>Ammodramus s. passerinus.</i>							
<i>Turdus u. swainsonii.</i>							
<i>Empidonax minimus.</i>							
<i>Contopus virens.</i>							
<i>Coccyus erythrophthalmus.</i>							
<i>Habia ludoviciana.</i>							
<i>Dendroica caerulescens.</i>							
<i>Coccyus americanus.</i>							
<i>Trochilus colubris.</i>							
<i>Ammodramus henslowii.</i>							
<i>Icteria virens.</i>							

BIRD MIGRATION AT OBERLIN, OHIO.	
Weather.	Mar. Apr. May June July Aug. Sept. Oct. Nov.
<i>Melospiza fasciata.</i>	
<i>Sialia sialis.</i>	
<i>Merula migratoria.</i>	
<i>Quiscalus g. cinereus.</i>	
<i>Scotocophagus carolinus.</i>	
<i>Agelaius phoeniceus.</i>	
<i>Sturnella magna.</i>	
<i>Colaptes auratus.</i>	
<i>Spizella monticola.</i>	
<i>Junco hyemalis.</i>	
<i>Pipilo erythrophthalmus.</i>	
<i>Passerella iliaca.</i>	
<i>Molothrus ater.</i>	
<i>Zenaidura macroura.</i>	
<i>Sayornis phoebe.</i>	
<i>Lanius l. excubitorides.</i>	
<i>Zonotrichia albicollis.</i>	
<i>Spizella pusilla.</i>	
<i>Poocetes gramineus.</i>	
<i>Troglodytes aedon.</i>	
<i>Philoela minor.</i>	
<i>Spizella socialis.</i>	
<i>Bartramia longicauda.</i>	
<i>Regulus calendula.</i>	
<i>Regulus satrapa.</i>	
<i>Melanerpes erythrocephalus.</i>	
<i>Turdus a. pallasi.</i>	
<i>Progne. subis.</i>	
<i>Chactura psalgebra.</i>	
<i>Dendroica coronata.</i>	
<i>Dolichonyx oryzivorus.</i>	
<i>Seiurus motacilla.</i>	
<i>Harporhynchus rufus.</i>	
<i>Petrochelidon lunifrons.</i>	
<i>Chelidon erythrogaster.</i>	
<i>Dendroica aestiva.</i>	
<i>Catocoptes carolinensis.</i>	
<i>Actitis macularia.</i>	

is rather larger, being composed of five departures and one arrival, with a decrease in numbers of five species. An early September wave, consisting of five arrivals, six departures, and a decrease of six species, is well marked from a late September wave which consists of five arrivals, sixteen departures, and eight decreasing species. There are also two waves in October: an early one including six arrivals, thirteen departures, three increasing and six decreasing species; and a late one consisting of one arrival, eight departures, and four decreasing species. The early November wave is composed largely of decreasing species, all but two of which depart late in the month. The early wave is composed of twelve species, and the late one of thirteen.

It thus appears that September is the favorite month for the fall migrations, preference being given to the latter part of the month. In point of the number of moving species, there is very little difference between September and October; but moving individuals are far more numerous in September than in October. Eleven species were moving in August, forty-six in September, forty-one in October, and twenty-five in November. Thus November stands in much the same relation to September that March does to May, April corresponding to October. The relations of the movements by months may be more clearly seen in the following table. By species common to any two months is meant those found moving in both months.

Species common to March and November	12
“ “ “ “ “ October	5
“ “ “ April “ November	5
“ “ “ “ “ October	15
“ “ “ “ “ September	12
“ “ “ “ “ August	3
“ “ “ May “ November	2
“ “ “ “ “ October	9
“ “ “ “ “ September	29
“ “ “ “ “ August	2

It is a little singular that species which do not arrive from the south until May or April should be among the last to go south in fall. Yet there are sixteen such. Three of the species

which arrived in April departed in August. These irregular species seriously complicate the migrations. They refuse to be worked into any table of the movements of the birds.

I cannot forbear glancing hastily at the 1895 migrations, because they present some interesting characters. Great things were expected of them, and greater things have occurred.

As early as late January the Robins were becoming numerous and Grackles were seen. But then the long delayed winter came in earnest, and tarried until March. It was followed by damp and chilly weather, spring not arriving until April. The Robins and Song Sparrows braved the cold, but the Grackles left. Not until March 18 did we see the first arrivals, and the Bluebird was not among them. One was seen on March 23, one on the 29th, three on April 5th, and one—the last one—on May 1st.

All of the earlier arrivals have been less common than usual, while some have not appeared at all. The later arrivals are on time, but all others have been late. There have been no well-marked waves of migration.

There could be no better illustration of the effect of the weather upon the migrations than this season has afforded.

In drawing comparisons between the Grinnell and Oberlin migrations, nothing has been more strongly impressed upon my mind than the influence of local contour of country upon the migrating birds. That station which lies away from even small water courses, whose trend is north and south, is less favored by the birds. Species which are tardy at Oberlin may almost always be found at the rivers. I am convinced that the differences between the two places can be largely attributed to the difference in location of the two places, with reference to water courses, allowing for the proximity of the lake only a little.

With more time and increased facilities for travelling to the rivers and lake, there cannot fail to result a more complete record of the bird fauna of the region, and a closer correspondence to the Grinnell migrations.

A REMARKABLE FLIGHT OF PINE GROSBEAKS
(*PINICOLA ENUCLEATOR*).

BY WILLIAM BREWSTER.

TOWARD the end of November, 1892, Pine Grosbeaks appeared in eastern Massachusetts for the first time in three years. My earliest date is November 21, when I heard a bird in Concord, Mass. Soon after a flock was met with in Ipswich, and by the first week in December the birds had been reported in large numbers from Belmont, Wellesley Hills, Fitchburg and other towns.

On the 21st of December, twenty-seven Grosbeaks, the first I had seen in Cambridge, visited a red cedar behind our house, and spent half an hour feeding on the abundant berries, but with the exception of these birds I saw no more in the city until the second week in January. Reports kept coming in, however, of their appearance in unusual numbers in the surrounding towns, and of their great increase in number during the first weeks in January. Flocks of over a hundred birds were seen in Wellesley Hills and in Arlington.

On January 9 I met with a flock of about forty-five in some spruces not far from the centre of the city, and near the same place I found, next day, a flock of fully one hundred and twenty-five. The owner of the grounds said that the birds were first seen there on the morning of the 8th; that during this and the following day they devoted themselves to some white ash trees immediately about his house; and that by the afternoon of the 9th they had stripped these trees of their fruit.

When I first saw them they were assembling in a large white ash which overhangs the street. This tree was loaded with fruit, and with snow clinging to the fruit-clusters and to every twig. In a few minutes it also supported more than a hundred Grosbeaks who distributed themselves quite evenly over every part from the drooping lower, to the upright upper, branches and began shelling out and swallowing the seeds, the rejected wings of which, floating down in showers, soon gave the surface of the

snow beneath the tree a light brownish tinge. The snow clinging to the twigs and branches was also quickly dislodged by the movements of the active, heavy birds and for the first few minutes it was incessantly flashing out in puffs like steam from a dozen different points at once. The finer particles, sifting slowly down, filled the still air and enveloped the entire tree in a veil-like mist of incredible delicacy and beauty, tinted, where the sunbeams pierced it, with rose, salmon, and orange, elsewhere of a soft dead white,—truly a fitting drapery for this winter picture,—the hardy Grosbeaks at their morning meal. They worked in silence when undisturbed and so very busily that at the end of the first hour they had actually eaten or shaken off nearly half the entire crop of seeds. Some men at work near by afterwards told me that this tree was wholly denuded of fruit by three o'clock that afternoon when the birds descended to the ground and attacked the fallen seeds, finishing them before sunset.

The next day (January 11) the city was fairly in possession of the Grosbeaks. The sound of their piping was constantly in my ears whenever I stepped out of doors, and I rarely looked out of the window for a moment without seeing a flock sweeping past in long, undulating curves. Mr. Hoffmann writes under this date: "In the afternoon there was a flock of over sixty-five birds in the college yard, feeding in the snow under the ash trees. The birds on the plank walks hardly moved to let the men pass, and one actually lit on my hat as I stood beneath the large ash tree. Numbers were feeding outside the yard between the car-tracks, and on the sidewalks. Many people were watching them."

Fully a mile from the college, but very near the trees which the birds had stripped on the previous day, stand two large ash trees in which, shortly after eight o'clock, I found over two hundred Grosbeaks feeding. Both trees were thickly hung with seeds at this hour, but the birds had thinned the clusters on the upper branches and were fast working downward. At half-past three that afternoon, when I visited the place again with Mr. Faxon, not a seed remained on either tree. The snow beneath was completely covered with fallen seeds as with a light brown carpet, and the Grosbeaks were all there eating them. By dividing the flocks into halves and counting quickly, we got a very close

approximation to the total number which we made two hundred and twenty-five. There were perhaps twenty-five to forty more scattered about on neighboring spruces and the roofs of houses.

A part of the flock was distributed over the sidewalks for a distance of several rods, feeding on the fallen seeds. As we advanced slowly the Grosbeaks flew between or alighted on the wires of the low fence within arm's reach. One even attempted to perch on my companion's shoulder, but he moved at the critical moment and it glanced to one side. Over the fence where most of the flock was feeding, the snow was so light and feathery that the birds sank into it deeply and wallowed rather than hopped from place to place. They appeared to enjoy this, and often fluttered their wings in such a way as to scatter the snow above and around them as bathing birds scatter drops of water. Many flying down from the trees above struck the snow with such force as to plump in quite up to their necks, when they stood thus for half a minute or more.

During the same day a flock of fully three hundred Grosbeaks were reported from the Botanic Gardens, equally distant from each of the two flocks described above; if the birds were as numerous in other parts of the city, Cambridge must have harbored several thousands.

The next morning the great flock at the two ash trees had decreased to a hundred birds, who were all on the ground finishing the fallen seeds. They began leaving the place in small parties while I was watching them, and at four o'clock that afternoon only about twenty-five remained.

On the 13th, I spent most of the forenoon in the cedar-grown pastures which encircle the suburbs of Cambridge. I heard a few Grosbeaks piping but could not find them. On examining the cedar trees, I could not discover one that had more than a few scattered berries. A report from Wellesley Hills, under date of January 14, showed a similar departure of the Grosbeaks from that region, and a like explanation,—the stripped condition of the food-bearing trees.

During their invasion of Cambridge the Grosbeaks seem to have concentrated their attacks on the white ash trees, and to have taken these successively, although the smaller flocks foraged

more or less widely and generally among all the trees of this species in Cambridge.

The celerity with which the Grosbeaks stripped a large ash, laden with crowded clusters of the brownish, pendent fruit, was surprising, even when due allowance is made for the great number of birds. They distributed themselves pretty evenly over the entire tree, although, as already stated, they usually attacked the upper branches first. Each bird worked busily and silently and, when the fruit was abundant, moved about but little, merely bending forward and downward for a seed, and after this had been sheared of its wings and eaten, reaching for another in the same manner without changing its foothold. I have watched over a hundred birds thus engaged for a minute or more without hearing a sound save the light crackling rustle of the seeds as they were rolled in the powerful bills.

Next to the ash trees, the Grosbeaks preferred the Norway spruces, the terminal buds of which they appeared to relish greatly. The snow under every spruce of any size in the area which the birds invaded was thickly strewn with fragments of these buds. Mr. Walter Deane, who made a microscopic examination of these small fragments, and also of the branches of the trees themselves, found that the birds ate only the nucleus, a soft, greenish mass of tissue, scarcely larger than the head of an ordinary pin, and lying at the base of the terminal or axillary buds. This nucleus may be that of a future branch, cone, or staminate blossom. The bird bites or breaks off the bud about midway between its extremity and base, and picks out the nucleus, leaving its protecting outer scales on the trees. The fragments found under the trees consist of the terminal halves of these buds, either intact, or broken into their component scales.¹ The fruit of the white ash is split along the middle of the flat sides from the base well towards the extremity and sometimes into two halves.

The Grosbeaks, as I have already said, sometimes fed without making a sound except the cracking or crunching of their food, but usually a low murmuring or whimpering whistle, audible

¹Mr. Deane has published some notes on this subject in the *Botanical Gazette* (Vol. XVIII, No. 4, April, 1893, pp. 143, 144).

only a few rods away, ran through the flocks at frequent intervals. When a number of birds took flight suddenly and simultaneously this sound was often given by most if not all of them at once. It resembles the whistling of the wings of a flock of Carolina Doves and also, if the air be still and the birds very near at hand, the rolling flight note of the Snow Bunting. The loud *peer* of the Grosbeaks is not unlike another call of the Snow Bunting when it is heard distinctly, but at a distance it may be easily mistaken for the cry of a Blue Jay. It seems to serve both as an alarm note and to call the scattered members of a flock together, and it is sometimes used during flight, but the usual flight call consists of two, or sometimes three notes, given quickly in a descending series like those of the Greater Yellowlegs (*Totanus melanoleucus*)—which they slightly resemble in tone as well as form. This call may be written “tē-t’yēh, tē-tē-t’yēh,” or “tē-t’yēh-tē.” A fourth call defies rendering by letters, but may be fairly described as a loud rich chuckle or chuckling whistle of from two to four syllables. This I usually heard from a single bird perched on the top of a tree near some tempting supply of food to which, as it seemed, he was trying to attract the attention of distant comrades. It was not often used. Some birds which I noosed made, when first caught, a rather loud, continuous, squealing or squawking outcry very like that of a Robin in the clutches of a Hawk. A sixth vocal sound, which completes the list, was a low, harsh, grating cry, uttered only, I believe, when two birds were quarreling.

The Grosbeaks often fell out over some choice morsel of food and indulged in a brief, harmless squabble threatening each other with open bills and half-spread wings, and occasionally giving or receiving a feeble peck or two. In the main, however, they were unmistakably gentle and amiable in disposition, placid if not phlegmatic in temperament, social and affectionate in their relations to their own kind, and in their attitude towards man almost wholly free from fear or even suspicion.

Nevertheless they were subject to frequent and sudden panics. The crack of a whip, the barking of a dog, the slamming of a door, or even so slight a sound as the click of a camera shutter, frequently caused them to scatter, and dash off in the wildest

confusion. Sometimes these alarms had no obvious cause. The larger the flocks the oftener they occurred. The great flock at the two ash trees started, on an average, once a minute. Loud, continuous sounds did not seem to excite them, and they were quite as indifferent as the House Sparrows feeding with them, to the near passage of horse cars, sleighs, and the other traffic of the busy street.

A flock of about a dozen Grosbeaks fed for a day or two in a flowering apple (*P. parkmanni*) growing in our garden. This tree is only five or six feet high. Its apples, which are scarcely larger than large currants, cling to the twigs all winter and had never been previously eaten by any birds except Waxwings (*Ampelis cedrorum*). There had been an unusually large crop in 1892, and the branches of the little tree were literally crowded with the tiny fruit. The Grosbeaks did not eat the pulp, except perhaps incidentally, in small quantities, but crushing the apples they squeezed out the large seeds, of which each fruit usually contains two, and swallowed these. The pulp was dropped, or when, as was frequently the case, it adhered to the bill, shaken off, or removed by rubbing the bill against a twig. As a rule the apple was bitten off a little below the stem so that its basal portion with the long stem remained attached to the tree.

House-sparrows, who had never before molested the apples, gathered when the Grosbeaks began their raid and watched them. By the end of the first day I saw several Sparrows crushing the fruit between their mandibles exactly in the manner of the Grosbeaks, but I think they ate the pulp as well as the seeds. They afterward finished what the Grosbeaks had left.

I snared several of the Grosbeaks which frequented this tree, using two joints of a light fly rod and a running noose of twine. It was not always an easy task, for the wind blew the noose about, and the birds seldom remained perfectly still for more than a second or two at a time, although they showed not the slightest suspicion or nervousness, allowing the coarse brown twine to rub against their bills and the end of the pole to strike their crowns without, at the most, doing more than to push the noose aside, or to bend their heads to avoid the pole. I actually caught one without alarming the rest of the flock, but usually the

screams and flutterings of my victim started his companions at once. They would return, however, as soon as I walked away, and sometimes while I was still engaged in freeing the captive bird from the noose. One Grosbeak which escaped from my hands after being snared would not again permit me to get the noose near him, and even, I thought, tried to warn his companions of their danger; nor was he wholly unsuccessful, for his alert behavior and loud cries often caused them to stop feeding and more than once when he took wing they all followed him.

The remarkable numbers and tameness of the Grosbeaks which visited Cambridge led me to suspect that they formed part of a much larger body of birds which had come an unusual distance and spread over an exceptionally wide territory. Hoping to get light on these points I sent circulars throughout New England, to the Middle States, as far west as Illinois and Wisconsin, and as far north as Canada, asking for information as to the local presence or absence of the Grosbeaks during the winter of 1892-93, their numbers, and the approximate dates of their arrival, departure and greatest abundance, the proportion of adult males to females and young, and their food. Through the kindness with which these circulars were answered I am now able to trace with some degree of apparent accuracy the route followed by the majority of the birds and the total area covered by their flight.

Before doing this, however, it may be well to consider briefly the biographical matter furnished by my correspondents. This relates chiefly to food and the ratio of bright males to dull-plumaged birds. The tables given below summarize the evidence on these two points. It will be seen on examining Table I that the chief food of the Grosbeaks consisted of the seeds of the white ash (*Fraxinus americana*), and of the apple, the fruit of the apple and of the American and European mountain ash (*Pirus americana* and *Pirus aucuparia*) and of the buds of the sugar maple (*Acer saccharinum*), and Norway spruce (*Abies excelsa*). The birds apparently attacked the fruit and buds of other plants only when the supply of their favorite food was exhausted.

That the birds ate the seeds of the apple is clearly shown, and it seems probable that they ate the pulp as well. One corre-

spondent (M. Hardy), however, is sure that in Maine they ate the pulp only incidentally in their efforts to get the seeds.

With regard to the order of preference which the Grosbeaks followed when more than one kind of suitable food was within reach, it may be mentioned that eighteen specimens examined at Andover, Mass., between Nov. 30 and Mar. 11, show that up to the second week in January the birds ate ash-seeds almost exclusively. Between that time and the beginning of March, they fed chiefly on rotten apples, and during March mainly on maple buds. A report from Arlington gives ash-seeds as their principal food till January 15, rotten apples during February, and maple buds in March.

That the movements of the Grosbeaks were governed by the abundance or absence of food was clearly shown by the behavior of a flock of about thirty-six birds which appeared at West Medford about the 1st of December and soon stripped an English hawthorn of its fruit. The owner of the place then put out hemp seed to which the birds came regularly, collecting in the neighboring pastures, and flying in a body to the feeding ground. The hemp was placed on the top of a kennel surrounded by twenty dogs, whose noise, however, did not seem to disturb the Grosbeaks in the least. They fed four times a day — at morning, noon, four P. M., and sundown. One day when the hemp had not been put out for them, the birds ate all the seeds of a Roxbury waxwork vine (*Celastrus scandens*). By February 16, their number had diminished to eighteen, but these came regularly, and grew exceedingly tame. On March 12, the date of the last report, they had increased again to twenty-eight.

With regard to the relative number of bright males to dull plumaged birds, the evidence shows very clearly that as the flight pressed southwards the number of bright males steadily diminished until at Woods Hole, the southernmost station for Massachusetts, flocks of a hundred members each often did not contain a single red bird. This change in the normal ratio seems to have been due chiefly if not wholly to the fact (attested by many different observers) that as the flocks passed slowly through the more thickly settled districts the conspicuous and attractive red birds were nearly all picked off by country gunners and taxidermists.

Thus at Andover, Mass., twelve red males were killed ; in Framingham two were taken early in December, and much shooting was reported later in the month. Similar reports came from many other stations.



MAP I. DISTRIBUTION OF THE PINE GROSBEAK, WINTER OF 1892-93.

It remains to discuss the route taken by the Grosbeaks during this remarkable flight, and to define the area which they are known to have covered. The lack of observers north of New

England leaves their starting point and the route by which they reached Nova Scotia and the coast of Maine a matter of conjecture, but after they had passed the Maritime Provinces, their progress through Maine to southern New England may be easily traced.

Map No. 1 shows with two exceptions all the stations from which Grosbeaks were reported in unusual numbers. These exceptions are Locust Grove, in northwestern New York, and Halifax in Nova Scotia. At the former station they were seen from the end of November up to the end of January. In Halifax they were very numerous about November 28. They were also reported from Godbout, Quebec, and from Toronto and vicinity, but in no unusual numbers. A few were seen at Ottawa, but none at Montreal. On the Saskatchewan River they were found in only their usual numbers.

These facts indicate that there was no marked flight in the St. Lawrence Valley, and that the flocks which invaded New England came from Labrador or Newfoundland across or around the Gulf of St. Lawrence to New Brunswick and Nova Scotia.

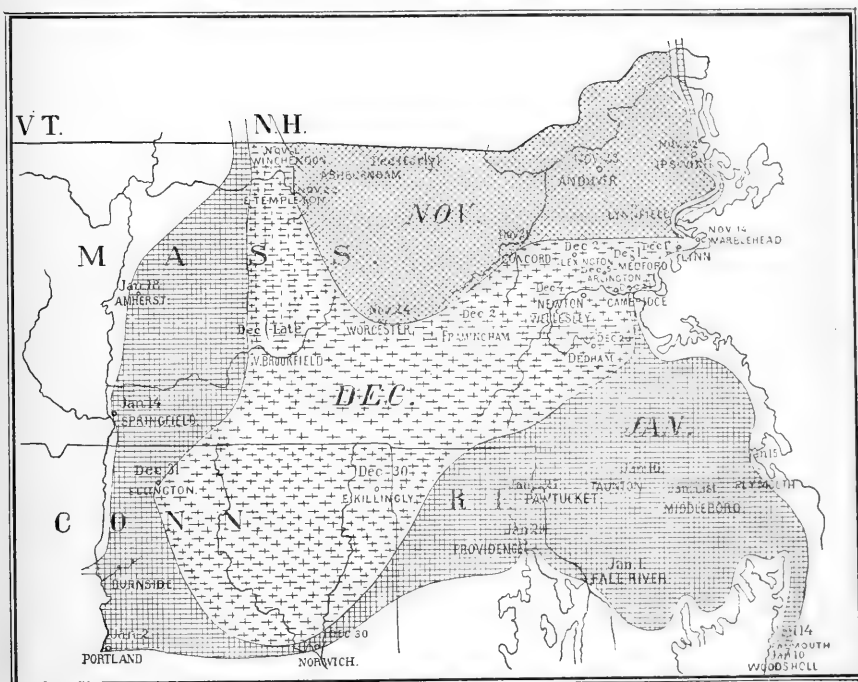
From eastern Maine, where they were seen in flocks of from ten to forty birds each, they entered northeastern Massachusetts, the first flocks having been noted there about the third week in November. In Massachusetts the horde seems to have divided, one party entering Connecticut, and pushing its vanguard as far as Stamford¹; the other invading Rhode Island and southern Massachusetts as far as Woods Hole, where they were numerous as late as February 7.

A reference to Map No. 1 shows also a number of stations to the westward of the area supposed to have been covered by the principal flight. With the exception of Locust Grove, these stations were all either in Berkshire County, Mass., or just over the New England line in New York. It is possible of course to consider the birds which visited them as belonging to the great flight, but inasmuch as Grosbeaks appear much more frequently in Berkshire County and northern New York than in eastern

¹ Mr. J. T. Delafield reported one bird about Dec. 1, at New Rochelle on Long Island Sound, New York.

Massachusetts, and as several of the extralimital records— notably for New York—relate to dates in November or early December, it seems better to treat them as representing independent movements, such as were noted during the same winter in northern Maine and New Hampshire.

Map No. 2 shows the gradual and fairly regular southward advance of the greater part of the flock across southern New England, from the end of November through December and January. That the birds pushed no further southward is evidence that they found food enough to supply them until their return, which, though difficult to trace, apparently occurred in



MAP II. DISTRIBUTION OF THE PINE GROSBEEK, WINTER OF 1892-93.

the early part of March. Several observers in eastern Massachusetts, who were in the field throughout the winter, and kept regular observations, reported a falling off in February, and a marked increase in March. The latest records were Fitchburg, April 2, and Arlington April 4.

TABLE I.

Food of the Pine Grosbeak.

Seeds of	{	1. <i>White Ash</i> .—Nova Scotia (1); Massachusetts (9); Connecticut (1); New York (1). = 12
		2. <i>Apple</i> .—Maine (1); New Hampshire (1); Massachusetts (4). = 6
		3. <i>Crab Apple</i> .—Maine (3); Massachusetts (2) [<i>P. parkmanii</i> (1)]. = 5
		4-6. <i>Norway Spruce, White Pine, Weeds</i> .—Massachusetts (3). = 3
		7. <i>Grasses</i> .—Massachusetts (2). = 2
		8-11. <i>Ailanthus, Roxbury Waxwork, Pitch Pine</i> (J. H. Bowles, Punkapog), <i>Black Ash</i> (O. Durfee, Fall River).
Buds of	{	1. <i>Rock Maple</i> .—Maine (2); New Hampshire (1); Massachusetts (9); Connecticut (1); New York (1). = 14
		2. <i>Norway Spruce</i> .—Massachusetts (6); Connecticut (1). = 7
		3. <i>White Pine</i> .—Maine (1); Massachusetts (1); Connecticut (1). = 3
		4. <i>White Ash</i> .—(N. B. Hale, Worcester), (J. H. Bowles, Punkapog). = 2
		5. <i>Larch</i> .—Massachusetts (2). = 2
		6-10. <i>White Maple, Sycamore</i> (H. A. P. Smith, Digby, Nova Scotia), <i>Red Cedar, Honeysuckle</i> (F. H. Kennard, Brookline, Massachusetts), <i>Walnut</i> (J. H. Bowles, Punkapog, Massachusetts). = 1
Soft fruit of	{	1. <i>Apple</i> .—Massachusetts (8); Connecticut (1); New York (1). = 10
		2. <i>Mt. Ash</i> .—New Brunswick (1); Maine (3); Massachusetts (2). = 6
		3, 4. <i>Black Alder, Honeysuckle</i> . = 2
		5-10. <i>Bush Honeysuckle</i> (Diervilla), <i>High Bush Cranberry, Privet, Cedar, English Hawthorn, Sumac</i> . = 1

TABLE II.

Proportion of Red Males.

1. Canada (Inland)	= 1 to 6½ gray birds
2. Northern New England and Maritime Provinces	= 1 to 10 " "
3. Massachusetts (western and northern sections)	= 1 to 10 " "
4. Massachusetts (eastern and central sections)	= 1 to 30 " "
5. Massachusetts (southern section)	= 1 to 100 " "
6. Rhode Island	= 1 to 150 " "

DESCRIPTION OF A NEW HERON (*ARDEA VIRES-
CENS ANTHONYI*) FROM THE ARID REGION
OF THE INTERIOR OF
NORTH AMERICA.

BY EDGAR A. MEARNS, M. D.

ON comparing a series of Green Herons, in breeding plumage, from the New and Salton Rivers, streams of the Colorado Desert crossing the Mexican boundary line, collected by the writer, in April and May, 1894,¹ with specimens in similar condition from other regions, the Colorado Valley form is found to constitute as valid a race of the *Ardea virescens* as any of those hitherto separated. It is proposed, therefore, to describe it as a new subspecies, and to name it *Ardea virescens anthonyi*, in honor of Mr. A. W. Anthony, of San Diego, California, who, during recent years, has contributed so much to our knowledge of the avifauna of the West, especially the region of the Pacific coast.

***Ardea virescens anthonyi*, new subspecies.**

Subspecific characters.—Similar to *Ardea (Butorides) virescens* of the eastern United States, but slightly larger, and paler throughout, with the light markings of the wings, neck and throat much less restricted, and whiter.

Type.—No. 135,576, Smithsonian Museum (original No. 10,529), ♂ ad. Taken at Seven Wells, Salton River, on the Colorado Desert, Lower California, near monument No. 213, Mexican boundary line, April 12, 1894, by Dr. Edgar A. Mearns. Length, 485; alar expanse, 740; wing, 207; tail, 79; culmen, measured from frontal feathers, 59; tarsus, 55; middle toe and claw, 58 mm.

Geographic distribution.—This is a bird of the arid regions of the interior. There are specimens in the Smithsonian collection from Yreka and Sacramento, California, from the Valley of Mexico, and from Santa Eugenia, Tehuantepec. It breeds on the Verde River, in Central Arizona, and was found by us on the streams of the Mexican boundary line, from the San Bernardino River (monument No. 77), to the Coast Range of California, in which region it was also breeding.

¹ Eighteen specimens were collected by the writer, in Central Arizona; and fourteen were collected by him and his assistant, Mr. Frank X. Holzner, on the recent re-survey of the Mexican boundary.

This Heron bears no close resemblance to either of the four insular forms (*saturatus*, *frazari*, *bahamensis*, and *brunnescens*) hitherto described; but, as would be pre-supposed, is most closely related to the continental species, *Ardea virescens*, from which it differs in being larger. It is, in fact, the largest of the forms mentioned. Pallor is its distinguishing characteristic. The usually black sagittate spots of the neck are brownish, and fewer in number. The sides of the neck are purplish chestnut and rufous instead of glaucous bay. The green of the wings is yellowish bottle green, the tail blackish bottle green, and the scapulars glaucous gray. The under surface of the body and under side of wings are much paler and less slaty than in *virescens*. The pale or whitish edging of the wing-coverts, and on the edge of the wing, are much broader and whiter. The whitish of the under side of the head and neck extends continuously from the bill to the end of the pectoral plumes, and is less invaded by the dark coloring of the sides of the neck.

From *frazari*¹ and *saturatus*² it differs in its larger size, and much paler coloration, with much less restriction of the pale or whitish markings. The metallic colors of the upper surface are wholly different.

From *bahamensis*³ it is readily distinguished by its much greater size and different coloring, though the Bahama bird is, perhaps, even paler; and from *brunnescens*⁴ it may be instantly recognized by the presence of white on the throat and neck, which is wanting in *brunnescens*, in which the whole neck and throat are rufous brown, with a tinge of orange brown on the chin.

The dimensions of this subspecies and of *virescens* (*verus*) are shown in the appended table of measurements, taken in millimeters from fresh specimens, measured in the field by the writer.

¹ *Ardea virescens frazari* Brewster, Auk, V, p. 83, 1888. "Habitat. Near La Paz, Lower California."

² Described by Mr. Ridgway from Swan Island, West Indies.

³ *Ardea bahamensis* Brewster, Auk, V, p. 83, 1888. "Habitat. Bahamas (Rum Cay, Watling's Island, Abaco)."

⁴ *Ardea brunnescens*. "Gundl. Mss." LEMB. Aves Cuba, p. 84, 1850. "Habitat. Cuba."

AVERAGE MEASUREMENTS OF *Ardea virescens anthonyi*.

Number of Specimens, Sex, and Age.	Locality.	Length.		Alar Expanse.		Wing.		Tail.		Culmen from Feathers.		Tarsus.		Middle Toe and Claw.	
		mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.
6 Adult males.	Salton and New Rivers, Colorado Desert.	498	746	207	78	62	56	58							
1 Adult male.	San Pedro River, Mexican boundary line.	505	760	210	85	60	55	58							
9 Adult males.	Verde River, central Arizona.	497	730	203	77	60	54	59							
4 Adult females.	Salton and New Rivers, Colorado Desert.	488	735	203	79	61	54	55							
4 Adult females.	Verde River, central Arizona.	490	735	200	76	61	54	58							
16 Adult males.	Southwestern border of the United States.	498	738	205	77	61	54	58							
8 Adult females.	" " " "	489	735	202	78	61	54	56							

Ardea virescens.

1 Adult male.	Fort Snelling, Minnesota.	480	705	197	75	64	54	56							
5 (Adult?) females.	Highlands of the Hudson River, New York.	451	679	183	76	58	51	—							

HAWK FLIGHTS IN CONNECTICUT.¹

BY C. C. TROWBRIDGE, COLUMBIA COLLEGE.

DOUBTLESS many naturalists and collectors have observed large flights of different species of birds, from time to time, along the eastern coast of the United States, and they have probably noted also that certain birds were sometimes common and even abundant in flights, while at all other periods they were very rarely seen in that part of the country, where they had suddenly become so plentiful.

Although the reasons for the appearance of unusual numbers of birds, in some localities, at one time, have not always been understood, causes of the occasional abundance of some of the

¹ Read before the New York Academy of Sciences, May 13, 1895.

water birds have been, for a long time, considered known. Such is the case of the flights of the Golden Plover (*Charadrius dominicus*) and the Eskimo Curlew (*Numenius borealis*), species which are sometimes very common, during their southward journey, on the capes and islands of our eastern coast. The blowing in shore of the birds, in their line of flight, by easterly winds when, in August, they are migrating south far out at sea, has been generally accepted as the cause of the sudden appearance of numbers of these two species of the Limicolæ, every few years, flying over the island of Nantucket, Cape Cod, and other such out-lying portions of our country as are washed by the Atlantic Ocean.

Land birds have also occasionally appeared in flights in great numbers, and it has been my pleasure to have devoted some time to observing the unusual gatherings and flights of the Falconidæ.

Some years ago, my attention was called to certain peculiar actions manifested by the Hawks, during their migrations through the New England States, and more particularly to great flights of these birds, which often occurred in southern Connecticut in the months of September and October, when most of these Raptores pass that State on their way to the South in quest of warmth and sunshine and a hunting ground, where food is more easily procured, than in the bleak north, during the winter season.

In the course of a number of years, while collecting ornithological specimens in the vicinity of New Haven, Connecticut, I observed that on certain days early in the fall, almost annually, immense flocks of hawks appeared migrating southward, and I also noticed that several of the hawks, which were very abundant during these flights, were of a species rarely found in Connecticut at other times of the year.

The hawks sometimes appeared in such great numbers, and so suddenly and so irregularly, that I felt sure that there must have been some underlying causes which influenced the fall migration of these birds, and thus were gathered together into flocks a family of birds, the species of which even, under usual conditions, are seldom observed otherwise than alone or in pairs.

I therefore determined to investigate the question and to search for possible causes, which might have affected the migra-

tions and produced these flights, and with the material from the observations which I made, I hoped to partly—if not wholly—solve the question concerning the causes of the flocking of hawks in Connecticut during the autumn migrations.

Always during the last few days of August, and even later, before the brisk fall winds commenced to blow, a few stragglers of the Accipiters and Buteos would be seen soaring southward in Connecticut, some drifting with the wind far above in the clouds, while others were sailing low down over the fields.

But in the middle of September, when the stronger winds blew from the northwest and north, and the temperature lowered, the number of hawks which were passing greatly increased. Sometimes, however, when there was little or no wind, and the day was warm and dull, or if the prevailing winds had been southerly for several days, very few hawks were observed. But suddenly, when a fair breeze had sprung up from the northwest, the sky above the land near the sea-coast became almost clouded with hawks of various species, active and restless, circling and soaring about.

Flights in which there were many hundreds of birds I have seen many times, and I have on certain occasions counted several hundred hawks soaring together in one flock, looking like an immense swarm of gigantic insects. Often on a day after a flight, the wind having turned again to the south, many species of hawks were found in the woods and about ledges of cliffs, some perching on old trees, others lazily feeding, while a few were seen soaring about in a sluggish manner, showing the presence of an unusual number of hawks, although few of them appeared to be migrating.

On the wooded hills near Long Island Sound, during a flight, the hawks were found flying through the trees, but as they passed on and flew towards any very populated district, they arose high above in the clouds, so that most of these birds must have passed unseen except by those observers who were on the lookout for them.

On several occasions, before I had had the pleasure of being actually in the midst of a hawk flight, I had observed large flocks of hawks circling very high in the sky, and Dr. C. Hart Merriam,

in his 'Birds of Connecticut,' mentions a congregation of hawks as follows: "On the 25th of September, 1875, I saw near New Haven, a flock of twenty-six Red-tailed Hawks, soaring high and sailing slowly southward. The day was clear and cool, and there was little wind."

The first very large flight of hawks which I ever witnessed occurred on the 18th of September, 1886, and on that day there was also a great flight of Red-headed Woodpeckers (*Melanerpes erythrocephalus*) and Flickers (*Colaptes auratus*).

I started from New Haven early in the morning and arrived upon the field of observation before sunrise. The hawks appeared at about seven o'clock, and the flight continued during the rest of the morning. All the Raptores passed westward along the coast-line of Connecticut. At one moment they flew high above the fields, and at the next low over the crests of the hills, some nearly grazing the open ground, while others darted through the tree tops of the more wooded portions of the high lands. Several species of hawks were very abundant, especially the Sharp-shinned (*Accipiter velox*), in the young plumage. On the 16th of September of the following year (1887), there occurred another great flight of hawks, and I was again fortunate enough to witness it. There was little wind at first, and the hawks did not appear until nine o'clock in the morning, when a few Sharp-shinned Hawks were observed. But later on in the day, the wind increased in force. Thousands of hawks of different species flew past New Haven, and Broad-winged Hawks (*Buteo latissimus*), both adults and young, appeared soaring in immense clusters. In one great flock alone there must have been three hundred hawks, the greater part of which were undoubtedly *Buteo latissimus*, although with field glasses I distinguished several species in the flock. I also observed several Bald Eagles (*Haliaeetus leucocephalus*) in various plumages, circling high. The flight continued from nine o'clock in the morning until darkness set in in the evening. The day was cool and fine and the wind blew very briskly from the north. On the next day there was a flight for a short time early in the morning, but the direction of the wind changed and the flight ceased soon after.

One week later, on the 24th of September, after a number of days of southerly winds, there occurred a flight which lasted from

six o'clock in the morning until noon. I was informed by several collectors, who were out shooting at the time, that three flocks of Broad-winged Hawks passed over them, and that they were able to secure a number of the birds. I examined several and found that the adult specimens were moulting about the head.

No very large flight of hawks occurred in the fall of 1888, but in 1889 on the 28th of September there was another great flight, but, unfortunately, I did not see it, for on that day I was in Hartford, Connecticut, where no flight occurred. Although I have been in the northern part of the State of Connecticut repeatedly in the autumn, I have never seen more than a few hawks at one time in that section, and those were generally flying southward, on a day when the wind blew from the north.

Mr. Willard G. Van Name of New Haven has informed me that the flight which took place on September 28 was made up of almost all the species of hawks which are migrants in New England, and many other different land birds, and also that the hawks all flew in a westerly direction over the city of New Haven.

On the days on which the above flights occurred, the conditions of the weather were quite the same. In each case it was clear and cool, with a strong northwest wind.

On the 18th of September, 1890, when a large flight of hawks occurred, the day was warm and partly cloudy, but there was a light breeze from the northwest, and there had been southerly winds for a long period previous, which seemed to show that the south winds had temporarily checked the migration of the hawks. During this flight, the hawks flew higher than usual, but I observed two immense flocks of Broad-winged Hawks (*Buteo latissimus*), and I saw several of them shot down, together with Sparrow Hawks (*Falco sparverius*), Sharp-shinned Hawks (*Accipiter velox*), and Cooper's Hawks (*Accipiter cooperi*), all of which were plentiful.

In the fall of 1891, I was very anxious to obtain a number of specimens of different species of the Falconidæ, and I went out from New Haven repeatedly with hopes of finding a flight in progress, but I could only find the hawks flying on three days, the 8th, 9th, and 14th of September. The first two days I secured but a few, but on the 14th I killed over twenty, the greater part

LIST OF 'HAWK FLIGHTS' WHICH HAVE OCCURRED IN SOUTHERN CONNECTICUT DURING THE YEARS 1885-1894.

Date.	Weather.	Wind.	Veloc. of the Wind.	Remarks.
Sept. 23, '85	Wet and cloudy	N.	Moderately strong ¹	Moderate flight; <i>Falco sparverius</i> common.
Sept. 18, '86	Clear and cool	N. W.	Very strong	A great flight of small hawks and various other land birds.
Sept. 22, '86	Clear	N. W.	Light	<i>Buteo latissimus</i> abundant.
Sept. 16, '87	Clear and cool	N. W.	Very strong	A great flight all day.
Sept. 17, '87	"	N.	Light	" also <i>Accipiter velox</i> .
Sept. 24, '87	"	N. W. to N.	Strong	<i>Buteo latissimus</i> , abundant early in the morning.
Oct. 19, '87	"	N.	Light	No large flight, but almost all the migrant hawks observed.
Sept. 16, '88	Clear and cool	N.	Light	<i>Accipiter velox</i> abundant.
Sept. 22, '88	Clear and cool	N. W.	Mod. strong	Moderate flight.
Sept. 22, '89	"	N. W.	"	"
Sept. 28, '89	"	N. W.	Strong	Very large flight.
Oct. 15, '89	Cool	N. E.	Light	Moderate flight; <i>Accipiter velox</i> plentiful as usual.
Sept. 18, '90	Fair and warm	N. W.	Light	Forty hawks killed; <i>Buteo latissimus</i> abundant.
Sept. 21, '90	Fair	N. W.	Mod. strong	Moderate flight.
Sept. 23, '90	"	N. W.	"	<i>Pandion haliaëtus carolinensis</i> abundant.
Sept. 24, '90	"	N. W.	"	Small flight.
Sept. 8, '91	"	S. W.	Light	Small flight of <i>Accipiter velox</i> .
Sept. 9, '91	"	W.	Mod. strong	Hawks increasing in numbers.
Sept. 14, '91	Clear and cool	N. W.	Strong	A large flight; killed over twenty hawks.
Oct. 21, '92	Clear	N. W.	Strong	Small flight. Comparatively few passed this year.
Sept. 20, '93	Clear and warm	N. W.	Mod. strong	Large flight; <i>B. latissimus</i> abundant; <i>Falco columbarius</i> killed.
Sept. 21, '93	Clear and cool	N. N. W.	Very strong	Great flights of adult <i>Buteo latissimus</i> .
_____ '94	(No flight)			No large flights occurred this year.

¹ In the above list a 'strong' wind indicates a velocity of from 25 to 40 miles per hour, a 'moderately strong' wind from 10 to 25 miles per hour, and a 'light' wind from 5 to 10 miles per hour.

of which were Sharp-shinned (*Accipiter velox*). On this day I saw no less than twelve Bald Eagles (*Haliaeetus leucocephalus*) in various plumages flying over New Haven, soaring slowly towards the southwest.

Again, during the autumn of 1893, I made careful observations, but found few hawks passing until the 20th of September, when quite a flight occurred. This time I obtained two Broad-winged Hawks, a Sparrow Hawk, and a Pigeon Hawk (*Falco columbarius*), and although I could have shot many young Sharp-shinned Hawks, which were very abundant, I refrained from doing so. Early on the following day, the 21st, there appeared a flock of about twenty-five Broad-winged Hawks circling low over the city of New Haven. I hastened out with my gun and soon stood in a position favorable for observation, where I saw hundreds of them, and secured eight beautiful adults with the greatest ease. I even took a selection of plumage, as the birds passed a few yards overhead, battling against the strong wind which blew from the northwest, as they flew along the coast.

Last year (1894), I was unable to take observations, but I have made inquiries, and have been told that no large flight occurred.

The following is a list of the Falconidæ found in Connecticut and the frequency of the appearance of the various species in the autumn 'flights' in the southern part of the State.

Circus hudsonius. MARSH HAWK.—Common summer resident. Breeds, abundant in 'flights.'

Accipiter velox. SHARP-SHINNED HAWK.—Summer resident. Breeds sparingly late in May. Exceedingly abundant in September.

Accipiter cooperi. COOPER'S HAWK.—Occasionally seen in winter. A common breeder, and fairly abundant in 'flights.'

Accipiter atricapillus. AMERICAN GOSHAWK.—Rare migrant late in the fall.

Buteo borealis. RED-TAILED HAWK.—Common resident. Seldom breeds near the sea coast. Small flocks are often seen about October 1.

Buteo lineatus. RED-SHOULDERED HAWK.—Resident. Breeds abundantly, but is never common in 'flights.'

Buteo latissimus. BROAD-WINGED HAWK.—Summer resident, but breeds sparingly. Very regularly abundant in 'flights' from the middle to the last of September. Thousands pass nearly every fall. This species is common in northern New England, and parts of Canada during the summer.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEGGED HAWK. Not very rare in the cold season on the low marsh lands.

Haliaeetus leucocephalus. BALD EAGLE.— Resident. A few pairs breed within the State. Common in September in 'flights.'

Falco peregrinus anatum. DUCK HAWK.— Rare resident. On May 9, 1888, a nest with three fresh eggs was found on a cliff, twelve miles from New Haven, Conn. Occasionally shot in the fall.

Falco columbarius. PIGEON HAWK.— Resident, but rare at all times, except in September. No record of its nesting within the State has yet been established.

Falco sparverius. AMERICAN SPARROW HAWK.— Resident; but does not breed very abundantly. Very common in 'flights,' when two, three, or four are generally found migrating together.

Pandion haliaëtus carolinensis. OSPREY.— Common summer resident. Very abundant during September.

In the spring for a number of years, I used to be constantly in the field in southern Connecticut, and yet I have never noticed any gathering of hawks, nor have I ever found them at all numerous at any time during that season. And those which were seen during the spring were, for the most part, birds which were nesting in that locality.

As is well known, hawks are not usually gregarious in their habits, and yet at various times they have appeared in immense flocks, and have been found to be migrating together in vast numbers, as in the flights which have been observed along the Connecticut coast, on certain days in the fall.

Taking into consideration the conditions which existed during the time of all the hawk flights, such as the strong northerly winds and the cool and clear state of the weather, and also keeping in mind the outline of the southern portion of the New England coast, the correct solution of the origin of these flights can perhaps be obtained by finding causes in these conditions.

It is my belief that the manner in which the flights of hawks occurred was as follows. All the southern border of Connecticut is washed by Long Island Sound, and the entire shore lies nearly in an east and west direction. When the migrating hawks flew southward with the strong northerly winds, and arrived at the Sound, rather than fly over the water, they would turn westward and proceed along the coast until they arrived at the State of New York, where they would continue southward, through New Jersey

and Pennsylvania. Thus, during their flight, they were crowded together along the entire southern border of Connecticut, as will be seen by an inspection of Map I.

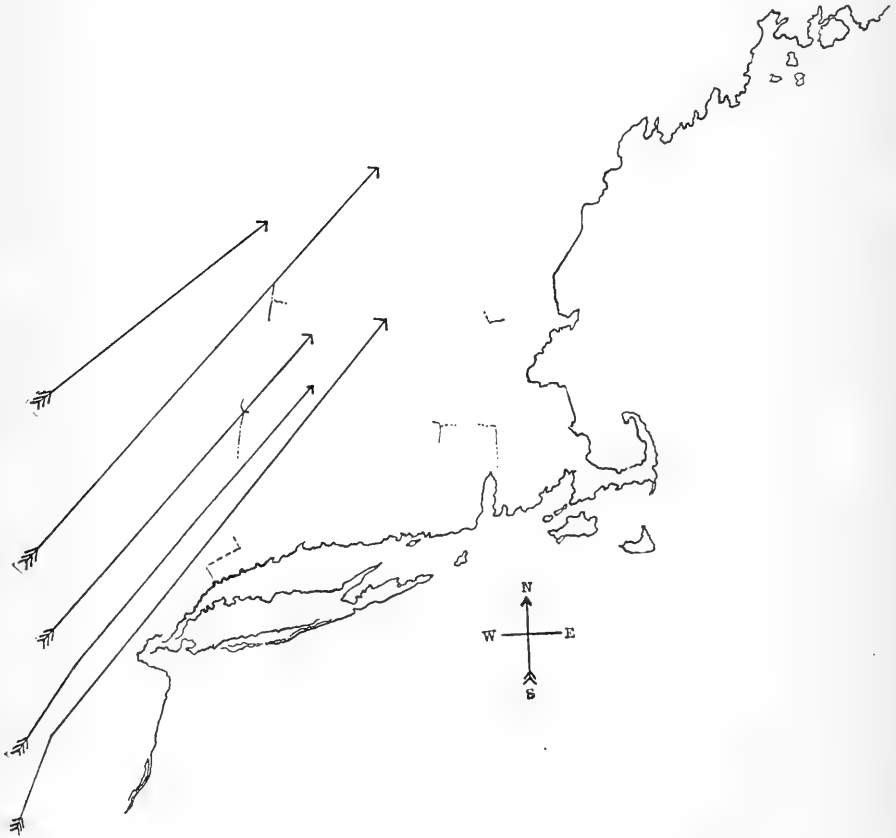


MAP I. COAST-LINE OF THE NEW ENGLAND STATES.—The arrows indicate the general direction of flight taken by Hawks during the autumn migrations, when the winds are N. W.; showing how the Hawks congregate at the coast-line.

The hawks seemed to invariably wait before flying south, until a wind blew which would favor them in their migrations. And I have noticed that the greatest flights have occurred when the wind

had suddenly changed to a northerly direction, after a period of prevailing southerly breezes, showing that the adverse winds had held back the hawks and delayed their southward journey.

An examination of the weather maps of the U. S. Weather Bureau has showed that on the days when the greatest flights occurred, the wind was northerly throughout New England, and also that previous to these flights the wind had generally been southerly for several days.



MAP II. COAST-LINE OF THE NEW ENGLAND STATES.—The arrows indicate the general direction of flight taken by the Hawks in the spring, when the winds are S. W.; and show why the migrating Hawks do not pass through the southern New England States at that season in any numbers.

The hawks migrating from eastern Canada and all the New England States are those which find their course turned by the southern coast line of Massachusetts, Rhode Island, and Connecticut, and although many hawks may fly over the water to Long Island, yet I am quite confident, from all my observations, that the great majority of them do not attempt it, but that they pass westward along the coast through Connecticut, whenever they fly from the north with a strong free wind, and find themselves at Long Island Sound.

The above theory, accounting for these hawk flights, applies equally to flights of other land birds which occur occasionally, and the abundance of various species, on the southern border of the three above-named New England States, in the fall of the year, for often there occurs during the autumn months a large flight of land birds, which is always greatest near the coast.

Perhaps the peculiarities of the 'flights' of birds in various parts of the world could be traced to causes similar to those which seem to affect the migration of birds in New England; for the position and direction of coast lines, and even mountain ranges, and the direction of the wind, are certainly very important factors in the migration of wild fowl. Thus it seems as if in the case of the flights in southern New England, that the east and west direction of the coast line, and the wind, both have their effect in influencing the migration of the hawks and other land birds.

There have always been flights of some size of the diurnal Raptores during the fall of every year, except when the prevailing winds have been east. In that case the greater portion of the migrating hawks seem to have been blown and to have flown to the westward. And as a southwest line of flight from most of the New England States does not cross Connecticut, most of the hawks must have gone south without passing over that State.

Somewhat similar conditions must have existed during the spring migrations; when a southwest wind prevailed, and the hawks were flying northward, they took advantage of it, and, in general, sailed northeastwardly, and so have not passed over the southern New England States in any great numbers, for these States did not lie in the line of their flight, which accounts for the observed scarcity of these migrating Raptores in the spring.

The above theories relating to the causes of flights of hawks and of other land birds also, seem to be absolutely substantiated by all data which I have been able to procure, and although I found that the evidences were always in favor of the foregoing explanation of the flight of hawks in Connecticut, I wished to make observations over a number of years, in consequence of which I am able to present a complete list of the flights which have occurred at intervals during the last decade,—1885 to 1895.

NOTES ON THE ANCIENT MURRELET (*SYNTHLIBORAMPHUS ANTIQUUS*), BY CHASE
LITTLEJOHN. WITH ANNOTATIONS.

BY MAJOR CHARLES BENDIRE.

AMONG our North American Waterbirds, there are few whose general habits, etc., are less known to ornithologists than the Murrelets representing the genera *Synthliboramphus* and *Brachyramphus* Brandt; and in fact we know scarcely anything about the majority of the species belonging to them.

The best known of these is the Ancient Murrelet, also sometimes called Black-throated Guillemot and *Starik* (Old Man) by the Russians. Its geographical range extends along both the coasts and islands of the North Pacific from Japan and the Kurils, north to Kamchatka, Asia and across the Alaska Peninsula, south to Puget Sound, Washington, and perhaps still farther in this direction in winter.

Mr. Chase Littlejohn of Redwood City, California, who spent the spring and summer of 1894 on different islands of the Alaska Peninsula, engaged in making natural history collections, has kindly furnished me with the following notes on this still little known species, which I deem of sufficient interest and importance to publish at once, particularly as it may draw the attention of collectors to some of the other species found along the coasts of the Pacific Ocean, which are still less known and whose general habits are probably very similar.

All of our Murrelets spend the greater part of the year, as far as known, on the ocean, and mostly out of sight of land, only

visiting the coasts of the mainland and the numerous islands for the purpose of reproduction.

Mr. Littlejohn says: "We were about 180 miles east by south from Unga (a small island south of Sand Point on the Alaska Peninsula, in about latitude 55° , longitude 160°), when this hardy bird was first seen. They were usually in twos and threes and scattered among large flocks of Crested Auklets (*Simorhynchus cristatellus*). One would think at first that they were amusing themselves by flying a short distance ahead of the ship, dropping into the water and swimming in, so as to be near the bow as the vessel passed, thus diving beneath the hull and coming up again just under the stern. After they had dropped astern a few hundred feet, they took wing and repeated this manœuvre with unvarying precision throughout the entire day. By close watching I found that it was not for pleasure they did this, but that they were feeding on small invertebrates, such as are found on ships' bottoms. At such times they are very unwary and can be easily taken with a dip net alongside of the vessel, as can also the Crested Auklet, the latter on the wing, while flying in circles about the vessel. From the time the first were seen until land was sighted there were always some about, but as we neared the land or got on soundings, they became more plentiful and did not follow the ship any farther, owing most likely to food becoming more abundant.¹

¹ "In order to make this statement a little clearer I will try to explain it according to my theory on this subject. During the severe and stormy weather found here during winter and early spring, most of these birds do not remain near land, but probably go far out to sea. I believe this to be the case from having seen them in such localities both in the fall and spring, where the weather is influenced by the Japanese current; here also in the warmer water food would be more readily found. They remain about here until the severe weather is over and then gradually make their way towards land, following probably the main food supply. All the birds I caught were very poor in flesh and being the laggards of the flock, had remained too long behind, until after food had become too scarce to supply them where a short time before there was sufficient. Numerous invertebrates always gather about a vessel's bottom and the birds finding them more abundant there than elsewhere, follow in order to feed upon them, and upon reaching shoaler water they apparently come up once more with their main food supply and therefore give up the chase."

“By June 2 their nesting grounds were reached, but no birds were to be found, and to one unacquainted with their habits there was no sign of their having yet arrived. Nevertheless we land, pitch our tent, and wait until the close of that long twilight which is only found in the far north, and just as it merges into night we see a bat-like form flit by, and presently from somewhere in the gloom comes an abrupt and startling *kroo-kroo-coo*, which is at once answered with a like call, or with a nerve-destroying *kwéé-ké-ké-ké* in a very high, shrill key, the call-note of Leach's Petrel (*Oceanodroma leucorhoa*). Presently we hear a whir of wings in different directions, then more voices, pitched in various keys, and before we are scarcely aware of it, both heaven and earth seem to vibrate with rumbling noises and whir of wings.

“As we step out of our tent perfectly astonished at this sudden change, and move to the foot of a small knoll near by, listening to this violent outburst of noises, a muffled sound comes right from under our feet. We stoop and discover a small burrow in the earth and from it come the cooing love-notes of a Petrel, *k-r-r-r*, *k-r-r-r*, and this is its home. Just from a somewhat larger burrow, only a few feet to our right, comes another sound, and moving cautiously in this direction we listen to the love-note of Cassin's Auklet, which reminds one of the sounds produced by a squeaky buck-saw, while passing through a hard knot, somewhat like *kwéé-kew*, *kwéé-kew*, which fortunately lasts only for three or four hours each night. These noises, coming as they do from hundreds of Auklets and thousands of Petrels, become almost distracting and banish sleep most effectually, for the first few nights on the island.

“These, then, are some of our Murrelet's neighbors, but where is he? We listen in vain for some note of his, but hear none. As we walk on a little distance among the tall grass of last year's growth, we notice a small dark object flapping about, and after a short chase we manage to capture it and discover our ‘Old Man,’ but fail to locate his nest, one of the main objects of our long and tedious voyage, and we did not succeed in finding one containing eggs until the 11th of June. This was principally because they had not commenced to lay sooner, and partly, also, because

we did not then look in the places—under rank matted grass—which are mostly preferred by this Murrelet for nesting sites.

“We remained on this desolate, wind-swept island from May 29 until June 12. Our days were spent in hunting, preparing skins and eggs, but time passed slowly. At first we looked forward to night in order to renew our acquaintance with our feathered neighbors, but after losing about a week’s sleep, owing to their squeaking, I at least felt like choking the whole lot; and as if not satisfied with the constant babble of their neighbors, the Murrelets took especial delight in alighting at the foot of our A-shaped tent, toenailing it up to the ridge pole, resting there a moment, and then sliding down on the other side. This exercise seemed to amuse them, and it certainly did us, until the novelty wore off, as it was not conducive to a restful sleep, and finally, tiring of this, and finding but few Murrelets’ eggs, we broke camp and started for the mainland, and did not return to the island again until June 23.

“In a short time after the first birds arrive on their breeding grounds, and before one has time to realize it, the entire surface of certain favorite islands is literally alive with Murrelets and Auklets, in the proportion of about two of the latter to one of the former, as well as of both Leach’s and Fork-tailed Petrels (*Oceanodroma furcata*), the first greatly outnumbering the last. When one walks about at this time, the Murrelets and Auklets become frightened, running, flopping, and flying about in such numbers, that one has to be careful where he steps, lest they be crushed under foot. If it is windy, and it usually is, they are on the wing at once as soon as disturbed, and are quickly out of sight, but when a calm prevails they have to flop to the side of a steep bank where they can jump off, and thereby gain sufficient headway to keep on the wing, and then in their frantic efforts to be off, they become bewildered and are just as apt to fly in one’s face, or against the cliffs, as anywhere; although they usually strike with great force when fairly started, I have never seen one killed or even stunned. They no sooner touch the earth, than they are flopping off again at a great rate.

“It is a difficult matter to calculate the numbers that visit this small island annually, but they certainly number several thousand and if left unmolested by man the island would soon become too

small to accommodate their natural increase, but such is by no means the case. The native Aleuts know, almost to a day, when the first ones will arrive, and are there to meet them, invading the island armed with stout clubs, and every bird, Auklet or Murrelet, that is overtaken is promptly clubbed to death and thrown into a sack carried for this purpose. At each of these raids hundreds of these birds are killed, and as they are made frequently and throughout the entire season, it is astonishing that any remain. But this is not all; as soon as day dawns, the entire crew sets out to make a systematic search for eggs, which are well flavored and good eating, each one striving to get more than his mates; and as it makes no difference to a native whether they are fresh or on the point of hatching, everything goes. Fortunately it is impossible to find all the nests, or kill all the birds, so enough remain to stock the island again another season.

“By no means every island in this vicinity is occupied by Murrelets. Within 400 yards of the one of which I write is another of about the same size and topography, but strange to say, no Murrelets are found on it, although there are two or three small colonies of Auklets, the remainder of the island being given over to Leach's Petrels. Again on two other small islands, also near together, each containing about a couple of acres, and in every way alike, one is given over entirely to Auklets, while on the other the Murrelets have almost complete control. These facts cause me to believe that the birds always return to the island on which they have been reared.

“On June 23 our party returned to the island on which we first landed, and found to our great satisfaction that the Murrelets' eggs were more plentiful than on our former visit, and a few of them were taken. We also soon discovered that they were not especially particular in the selection of a nesting site. An abandoned burrow of Cassin's Auklet, a dark crevice in cliffs, under large broken rocks which had fallen from the latter, or under large tussocks of rank grass, with which the higher portion of the island was covered, would answer equally well. Under these almost solid bunches (the grass remaining from several previous years), the Murrelets would force their way, leaving only a slight hole in the mass, which usually was very hard to detect. After once gaining

an entrance into this matted vegetation and working their way in for two or three feet, a shallow cavity, about five inches in diameter and two or three inches deep, was scratched out and this was nicely lined with blades of dry grass of last year's growth, carried in from the outside, making a very neat and snug home, in which the two beautiful eggs, comprising a set, were deposited. Some of their nests were found fully two hundred yards from the water. In the other situations mentioned little and often no nest is made, and the eggs are deposited on the bare rocks, in the soft sand, or on the wet, muddy soil. I even took several sets on the bare ice at the bottom of some Auklets' burrows, the ground being still frozen, immediately beneath the grass and moss on July 3, when I left the island.

"The setting bird will sometimes leave the nest when danger threatens, but it will frequently allow itself to be taken from the eggs, and when brought to light it will screech, scratch, and bite with vigor. When released they cannot fly unless thrown into the air, and will then often fall back to earth. One evening, just at dusk, I was crouched in the grass waiting for a shot at a Peale's Falcon (*Falco peregrinus pealei*), who made regular trips to the island to prey on the Auklets and Murrelets, when I heard a very low but rather shrill whistle. Turning my attention to the spot from which it seemed to come, I listened; presently I heard it again, but was still unable to locate the bird, which I afterward found to be a Murrelet. Subsequent observations proved that this was a call-note uttered just about the time the setting bird expected the return of its mate, and was evidently uttered to attract his or her attention, for as far as my observations went, they, like the Auklets, exchange places nightly, and while one attends to the home cares, the other is usually a number of miles out at sea on the feeding grounds. This call-note is the only one I could attribute to this species while on land, and so ventriloquial are their powers, that in only two instances did I succeed in locating the nest from the sound. While out at sea, the Ancient Murrelet utters a peculiar piping whistle, entirely different from the one uttered while on the nest.

"What their food consists of at this time of the year I am unable to say, for when they returned to the land it was so far

digested that it was impossible for me to determine, and I did not have an opportunity to kill a specimen while feeding. But let it be what it may, it certainly gives the flesh quite an agreeable flavor, next, in my opinion, to that of a Cassin's Auklet, which is the tablebird *par excellence* among the sea fowl of the North Pacific. The egg, also, is excellent eating and is hardly surpassed in flavor by that of the domestic hen. Two eggs are laid to a set, the second is deposited after an interval of two or three days, and frequently three or four days elapse before incubation begins. Occasionally two birds will occupy the same nest; at least I have found three and four eggs in one, and I have also found one in the nest of a Red-breasted Merganser (*Merganser serrator*). During the day, while the breeding season is on, a very few birds may be seen near land, but off shore they will be met with in small flocks of from six to eight, and occasionally a flock of one hundred or more can be seen.

"I left the rookery on July 3, and was therefore unable to determine the period of incubation, or the time the young remain in the nest, but in former years off the coast of some of the Kuril Islands, I have seen numbers of old birds accompanied by half grown young, still unable to fly, about the middle of September, sometimes four or five hundred miles from land, thus proving that they must leave their breeding grounds when still very small. At that age, the young, like the old, are great divers, and no matter how long the parent remained below, or how far she dived, the young would always break water at the same time and in the same place, just at the old bird's tail. During the winter they scatter and can be found in small numbers most anywhere about or between the islands, and at this time they also associate with the Crested and Least Auklets (*Simorhynchus cristatellus* and *S. pusillus*), and the Marbled Murrelet (*Brachyramphus marmoratus*).

"Great numbers of these birds are taken by Peale's Falcon, who seems to be one of their principal enemies next to man. As I have already stated, the Murrelets are mainly found at some distance from land during the day, and here too, this Falcon pursues them, watching for a chance to seize any Murrelet he succeeds in driving from the water. After having secured its prey, the Falcon

circles about for a short time and then partakes of its meal. To do this he hovers, remaining almost stationary for several minutes at the time; in the mean time the prey is raised well up to the beak with both feet, and promptly devoured. When the Murrelets return to the land at nightfall, the Falcon is there also to meet them, and soon again secures his nightly repast."

The eggs of the Ancient Murrelets are quite large considering the size of the bird, while their odd and peculiar coloration gives them a rather unique appearance, and I am unable to point out those of any other North American species which they resemble at all closely, and on account of the remoteness of their principal breeding-grounds, they still remain quite rare in oölogical collections. In shape they vary from elliptical ovate to elongate and cylindrical ovate, the elongated ovates predominating. Their shell is fine-grained, moderately strong, although rather thin, and it shows little or no gloss. They are rather difficult to describe accurately, their ground color being variable and of subtle tints not readily expressed on paper, ranging from a bluish milky-white through the different shades of cream color, vinaceous, olive and salmon buffs to a rich vinaceous cinnamon and ecru-drab color. They are generally moderately well flecked, blotched, or spotted with small irregular shaped markings of different shades of brown, fawn and isabella color, mixed with more subdued shades of ecru-drab, lavender, and lilac-gray. The markings are distributed over the entire surface, and are usually heaviest about the larger end of the egg, but never so profuse as to hide the ground color. In an occasional specimen, they show a tendency to run into irregular and mostly longitudinal lines or tracings; in others these markings are more bold, coarse, and fewer in numbers, and a single specimen before me shows comparatively few and rather faint markings.

On the whole the egg of the Ancient Murrelet is a rather characteristic one, and not readily mistaken for anything else. The first specimens to find their way into the Oölogical Collection of the U. S. National Museum were obtained by Dr. W. H. Dall of the U. S. Coast Survey, at the Chica Islets in Akutan Pass, near Unalaska Island, Alaska, on June 2, 1872. In his interesting notes on the Avi-fauna of the Aleutian Islands, from Unalaska Eastward, published in the Proceedings of the California Academy

of Sciences on Feb. 8, 1873, the Doctor briefly refers to the breeding habits of this then little known species, and the eggs taken by him there were subsequently described in the 'Water-birds of North America,' by Baird, Brewer and Ridgway (Vol. II, 1884, p. 505).

The average measurement of 45 eggs of this species, now before me, is 2.41 by 1.52 inches, the largest specimen measuring 2.51 by 1.57 inches, the smallest 2.27 by 1.39 inches.

DESCRIPTION OF TWO NEW SPECIES OF BIRDS FROM SAN DOMINGO.

BY CHARLES B. CORY.

Among the birds brought from San Domingo by Mr. George K. Cherrie are two interesting novelties which I have named as follows:—

Hyetornis fieldi, sp. nov.

Type, F. Mus.—Field Columbian Museum, Chicago, Ill. *Male* ex Maniel, San Domingo, April 5, 1895. Geo. K. Cherrie, collector.

Sp. Char.—*Male*: Upper parts, including upper tail-coverts, slaty, showing a faint trace of olive in some lights; a dusky stripe in front of the eye; throat, breast, and upper belly chestnut brown, belly tawny becoming pale on the crissum; primaries deep chestnut brown shading to olive at the tips; under wing coverts tawny; shafts of quills (except the first) strongly tinged with rufous brown; under surface of primaries and secondaries rufous shading to slaty olive at tips; tail-feathers (except two central ones) bluish black tipped with white and shading to pale olive at the base; two central tail-feathers pale olive becoming brownish at tips; bill dark showing a tinge of dull yellow at middle of lower mandible; legs and feet black.

Length, 16.75; wing, 6.50; tail, 10.50; bill, 1.30; tarsus, 1.50 inches.

I have named this fine species in honor of Mr. Marshall Field, the founder of the Field Columbian Museum of Chicago.

Elainea cherriei, sp. nov.

Type, F. Mus. — Field Columbian Museum, Chicago, Ill. *Male* ex Calare, San Domingo, January 31, 1895. Collected by George K. Cherrie.

Sp. Char. — *Male*: Base of crown feathers white, similar to *E. fallax* of Jamaica, which it approaches somewhat in size and coloration. Upper parts greenish olive; tail-feathers dark brown showing edging of pale olive at base; the quills are brown and (except the first) are narrowly edged with pale olive; secondaries edged with greenish yellow on outer webs; the tertiaries are edged with dull white; under surface of wing pale brown, the feathers showing pale yellowish white edging on inner webs; throat gray becoming olive on the breast and shading into pale yellow on the belly, sides, and under tail-coverts; tail brown, the feathers narrowly edged with olive green; wing-coverts tipped with whitish forming two well marked bands; upper mandible dark brown; under mandible horn color, dark at tip; feet black.

Length, 5.10; wing, 2.80; tail, 2.75; tarsus, .75; bill, .30 inches.

I have named this species in compliment to Mr. George K. Cherrie, its discoverer.

Among the species taken by Mr. Cherrie there are several which are especially interesting, such as the previously unique *Myiadestes montanus* Cory, several examples of which were procured, and a specimen of *Colinus cubanensis*, being the first record for San Domingo.

Mr. Cherrie collected nearly two thousand birds. Those which are of especial interest are: —

<i>Hyetornis fieldi nobis.</i>	<i>Conurus chloropterus (Souancé).</i>
<i>Elainea cherriei nobis.</i>	<i>Pitangus gabbii Lazzr.</i>
<i>Colinus cubanensis (Gould).</i>	<i>Temnotrogon roseigaster (Vieill.)</i>
<i>Accipiter fringilloides Vig.</i>	<i>Corvus solitarius Würt.</i>
<i>Loximitris dominicensis Bryant.¹</i>	<i>Chaetura zonaris (Shaw).</i>
<i>Myiadestes montanus Cory.²</i>	<i>Euphonia musica (Gmel.).</i>
<i>Spindalis multicolor (Vieill.).</i>	<i>Calyptophilus frugivorus Cory.</i>

¹ Fine adult specimens.

² Previously known only from the unique type.

THE STATUS OF *HELEODYTES AFFINIS*.

BY A. W. ANTHONY.

IN a short paper on the *Heleodytes* of Southern and Lower California, published in 'The Auk' for July, 1894 (XI, pp. 210-214) I suggested the advisability of reducing the species *affinis* to the rank of a subspecies of *brunneicapillus*. Since the paper was published I have secured a further series of the Lower California birds, as well as a number of equally interesting specimens from along the border in southern San Diego County, California, all of which have strengthened my previously expressed conviction that the Cape St. Lucas bird was but a subspecies of the northern *brunneicapillus*, connected through the northern half of the peninsula by *bryanti*.

Winter birds from San Fernando have the dark markings of the lower parts somewhat hidden by the light tips of the fresh unworn feathers and were mentioned in my paper on the *Heleodytes* (l. c.) as being rather nearer *affinis* than *bryanti*. However, a series of spring and summer birds taken at a later date prove the Cactus Wrens of that region to be much nearer *bryanti*. How much farther south that race extends I am, as yet, unable to say, but the characteristics of my southern skins all point toward an intergradation with *affinis* at a point at no great distance south of San Fernando. Therefore the St. Lucas Cactus Wren should stand as *Heleodytes brunneicapillus affinis*.

The Cactus Wrens collected by Dr. E. A. Mearns between the Colorado River and Campo, along the Mexican boundary, are practically indistinguishable from birds from Arizona, New Mexico and Texas but are easily separated from those taken along the coast of San Diego County, by the spotting of the lower parts, which is always linear in the inland form and more ovate or rounded in coast specimens. The tail feathers of the eastern specimens are seldom barred beyond the lateral feathers, but usually more or less barred throughout in those from west of the Cuyamaca Mountains. Should the type of Lafresnaye's *brunneicapillus* prove to have been obtained in California it will probably be necessary to recognize the eastern bird as a separate race, as suggested in my notes on the species (l. c.).

RECENT LITERATURE.

Birdcraft.¹—Readers of Mrs. Wright's 'Friendship of Nature' will heartily welcome her as a contributor to ornithological literature. We have been so surfeited with local lists and stereotyped annotations, that the originality with which she treats her subject is refreshing. Untrammelled by traditions, and with a style having no taint of clinging technicalities, she has modelled her volume after her own idea, with results no one can fail to applaud. Introductory chapters on 'The Spring Song,' 'The Building of the Nest,' and 'The Birds of Autumn and Winter,' picture in a charming manner the principal events of the bird year. Insensible indeed must he be who can read these chapters without being affected by the enthusiasm which pervades them. With the touch of a genuine bird-lover, a touch which reminds us of Michelet, she describes the return of the feathered host from its winter quarters, the home-coming of the familiar garden dwellers, their nest building, the appearance of the young, and finally their retreat with their parents as the season wanes. How earnestly we wish these chapters could be placed in the hands of every boy for whom 'ornithology' means a collection of empty egg-shells! What a new point of view they would give him! Birds are not enemies to be robbed, persecuted, or killed, but friends whose acquaintance may prove an endless source of pleasure.

After some suggestions on 'How to Name the Birds,' which are practical and to the point, we have a 'Synopsis of Bird Families,' and on page 57 reach the 'Bird Biographies.' The succeeding 223 pages are devoted to the biographical treatment of 200 species of birds of the Northeastern States.

The plan adopted is admirable for its clearness, separate paragraphs being devoted to 'Length,' 'Male and Female' (or either alone), 'Song,' 'Season,' 'Breeds' (= breeding range) 'Nest,' 'Eggs and Range.' This is followed by a sketch of the bird's characteristic haunts and habits, and here Mrs. Wright is at her best. Combining rare literary skill with a keen appreciation of a bird's distinctive traits, she has given us pen pictures of her feathered favorites which will stand for all time.

It would indeed be a graceless task to criticise in detail so pleasing a volume. Mrs. Wright's observations have been largely confined to her garden, and that wider experience would in some cases cause her to alter

¹ Birdcraft | a Field Book of two hundred Song | Game, and Water Birds | By | Mabel Osgood Wright | Author of "The Friendship of Nature" | With Full-page plates containing 128 Birds in their natural colors, and other Illustrations | New York | Macmillan and Co. | and London | 1895 | All rights reserved. Svo. pp. xvi + 317, Coll'd pl. x, Uncoll'd v. Cloth, \$3.00, net.

her views and quote or compile with more discrimination, we feel sure she would readily admit.

The illustrations have been "adapted and grouped from Audubon's 'Birds of America,' Dr. Warren's 'Birds of Pennsylvania,' DeKay's 'Ornithology of the State of New York,' and . . . Fisher's 'Hawks and Owls of the United States.'" We wish we could say that they are worthy the text. The colored plates show that the process by which they were reproduced is not available for the purposes of ornithological illustration. The half-tone black and whites are excellent when they are from good originals, as for example, Fisher's 'Hawks and Owls'; others are from DeKay and there seems to us no excuse for using these effigies at this late day. We all know, however, that publishers rarely look at this matter from the author's standpoint, and we can wish Mrs. Wright's book no better fortune than that in the future editions it is sure to reach, it may have illustrations in keeping with the exceptionally high character of the text — F. M. C.

Chapman's 'Handbook of Birds of Eastern North America.'¹ — Falling on a time of growing popular interest in our native birds, this volume which, in its fullest sense, justifies the title of 'Handbook,' is marked for a career of extended usefulness.

The region covered by the work — North America east, say, of the meridian of the Mississippi River — although not co-terminous with any natural faunal tract, forms, nevertheless, a convenient and sufficiently definite geographical field. The more formal treatises on North American ornithology, which cover the region by inclusion, were not designed to slip into easy use outside of a specially interested class. Therefore, the considerable company of interested but not-too-devoted bird-lovers is to be especially congratulated on the appearance of this work.

"I have not addressed an imaginary audience, nor have I given my prospective readers what, theoretically, I thought they ought to have, but what personal experience with students of birds has led me to believe

¹ Handbook of Birds | of Eastern North America | with Keys to the Species | and Descriptions of their Plumages, Nests, and Eggs | their Distribution and Migrations | and a Brief Account of their Haunts and Habits | with Introductory Chapters on the | Study of Ornithology, How to Identify Birds | and How to Collect and Preserve Birds | their Nests, and Eggs | By Frank M. Chapman | Assistant Curator of the Department of Mammalogy and Ornithology | in the American Museum of Natural History, New York City; | Member of the American Ornithologists' Union, etc. | With Full-page Plates in Colors and Black and White | and Upward of One Hundred and Fifty Cuts | in the Text | New York | D. Appleton and Company | 1895. 12mo. pp. xiv + 421. 20 full-page pls.; 115 figs. in text. Library edition, cloth, \$3.00; pocket edition, flexible morocco, \$3.50.

would meet their wants." So writes Mr. Chapman in his preface. Those whose experience has likewise placed them in touch with both the technical and popular sides of bird study, will agree that this purpose has been most happily achieved. The conveniently sub-divided chapters of the introduction, brief as they are, abound in helpful suggestions to the student. Those who take an æsthetic delight only in bird life may here learn how best to study birds out of doors, those of more mechanic turn, how to form collections and prosecute the study along approved scientific lines. An interesting feature in this connection is a series of chronological lists showing the migrating and nesting times of birds in the vicinity of New York City.

The more systematic part of the work begins with a key to orders and families, which proceeds by simple definitions and appropriate illustrations in the text. This, while admirably suited to its immediate purpose, will incidentally convey to the uninitiated something of the meaning of classification in general, and of the fundamental lines of division which underlie the commonly accepted distinctions of 'tribes' and 'kinds.' The spacious keys beyond are models of their kind, and evidence a great amount of painstaking and conscientious care. Nor has their usefulness been limited by designing them for spring males alone; females and immature birds are included.

The aim of the author to employ throughout the simplest English possible to the special subject has been agreeably realized. The descriptions, for their purpose, lose nothing of definiteness from the ruling absence of technical terms. Much has been done to render less shadowy the mazy region of female and immature plumages, where many a beginner, having put his hand eagerly to the plow, has turned back.

No attempt has been made to meet the problem of nestling plumages, but this scarcely explains why noteworthy markings on certain migrating autumn birds are left unnoticed. We may instance the white-bordered inner secondaries of the White-breasted Swallow, the peculiar rusty-backed state of the Wood Pewee, the buffy spotting in the scapular and coverts regions seen in the *Hyalocichla*.

Following the descriptions, range and characters of nest and eggs are set forth as fully as brief, general statements will permit. The breeding ranges and the winter habitats are specially indicated, as far as known,—a commendable feature. While it may seem ungracious to ask for more where so much is given, we think that in the matter of breeding range, not quite enough allowance has been made in the case of some species for their southward extension along the Alleghanies. The student who reads of the Magnolia and Black-throated Blue Warblers, that their general breeding range extends from, say, northern New England, southward, along the *crests* of the Alleghanies, would scarcely be prepared to find both species common summer birds along valleys and lower slopes in the Catskills or in the plateau region of Pennsylvania. With the Canadian Warbler the case is similar, and the Black-poll and Yellow-rumped

Warblers have been recorded as summer birds at points far south of "Northern New England." The ascertained breeding range of the Yellow-bellied Flycatcher should also have been allowed to include the Catskills, if not a more southern point.

An important feature, of both local and general interest, is the dates of arrivals and departures of migrants at Washington, at Sing Sing, and at Cambridge, contributed respectively by Mr. C. W. Richmond, Dr. A. K. Fisher, and Mr. William Brewster. Similar records for the water birds on Long Island have been supplied by Mr. William Dutcher. A further illustration of the modern principle of co-operation is seen in the biographies, many of which have been contributed by well-known writers on birds, whose names are signed to their contributions. By far the greater number of these sketches have, however, been written by Mr. Chapman himself. They are in all cases brief, and aim to present the bird in life with especial reference to haunts, notes and habits—such facts connected with a bird's individuality as would be likely to be of assistance to the observer in the field.

The illustrations are numerous and excellent, consisting of full-page engraved half-tones, and pen and ink drawings in the text, prepared expressly for their present use. A color chart for reference in connection with the descriptions is a useful adjunct.

The book as a whole presents us with the scientific and popular in singularly harmonious union. Mr. Chapman has produced a noteworthy contribution, both to general and to educational ornithology. His volume takes rank among the authoritative works on North American birds.—E. P. B.

Minot's Land-Birds and Game-Birds of New England. Second Edition.¹—Mr. Brewster, in his editorial preface, gives a fair and appreciative estimate of the value of Mr. Minot's well-known manual, from which we quote: "The 'Land-Birds and Game-Birds of New England' is, in many respects, a remarkable and interesting book. Written by a youth of seventeen, with, as I am assured, almost no outside help of either a literary or a scientific kind, it found favor at once, and for nearly twenty years has been ranked among the authorities on the subject of which it treats. It has evidently owed this popularity partly to the large amount of original matter which it contains, partly to the pleasant style in which it is written, and in no small degree, apparently, to the

¹The | Land-Birds and Game-Birds | of | New England | with Descriptions of the Birds, their Nests | and Eggs, their Habits and Notes | With Illustrations | By | H. D. Minot | Second Edition | Edited by William Brewster | [Motto=4 lines and publishers' monogram] Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1895. Svo. pp. xxiv + 492, frontispiece, 1 pl., and 22 ill. in text. Cloth, \$3.50.

attractive personality of Mr. Minot himself. Most of the biographies relate to his own experience or impressions, and in the main they are exceedingly well done, for, in addition to the essentials of good composition : . . they are not wanting in touches of a somewhat quaint humor and of unmistakably sincere and elevated sentiment. The author had a clear head, a true heart, and a well defined purpose, combined with an amount of literary taste and ability very rare in one so young. He was deeply in earnest, full of warm yet reverent love of nature, wholly unconscious of, or indifferent to, certain conventional methods of investigation and expression, yet in the main careful in observation, temperate of statement, and singularly logical and dispassionate in argument."

As Mr. Brewster further states, Mr. Minot's book "was not, when it first appeared, either a comprehensive or an exhaustive treatise, and to attempt to make it so now, when the sum of knowledge of New England ornithology is at least four-fold what it was in 1877, would tend to obscure, if not to destroy, the original character of the book, besides swelling its bulk to far beyond the limits of desirability." With a proper appreciation of his editorial functions in a case like the present, Mr. Brewster left the original text practically intact, his own additions being made in footnotes distinguished by his initials. The notes and additions given by Mr. Minot in an Appendix have been interpolated in the body of the work as footnotes to the matter to which they relate; a few transpositions of words and sentences have been made, in accordance with marginal notes in Mr. Minot's personal copy of the work, and there have been slight emendations of punctuation. The principal changes beyond this have been to modernize the technical names by substituting those of the A. O. U. Check-List for those originally used, where they were different.

Mr. Brewster's own notes relate mainly to the distribution of the species, and are uniformly supplied for all of the species treated, and are independent of the original text rather than a revision of Mr. Minot's often very inadequate treatment of this part of the subject. This, of course, gives us an annotated list of the Land-Birds and Game-Birds of New England, so far as the latter were covered in the original work, giving their manner of occurrence, so far as at present known, throughout New England. As no higher authority could have been selected for the task, these annotations not only greatly increase the value of the book, but give in a condensed form a summary of the present knowledge of the distribution, migration seasons, and breeding ranges of New England birds, from the Thrushes to the Grallæ, plus two species—the Snipe and the Woodcock—of the latter. Corrections of the comparatively few misstatements in the text are also made in footnotes. Section G of the Appendix, forming pages 466-480, is also by Mr. Brewster, and treats chiefly of species added to the New England list since the publication of the first edition of the work—some 28 in number. This important supplemental matter gives a detailed biography of Bicknell's Thrush; a page is given to the Palm

and Yellow Palm Warblers; another to the Redpolls, and still another to the incursion of Evening Grosbeaks in 1890. The puzzling group of Gyrfalcons is also treated at some length, diagnoses being given of the four forms occurring in New England, with notes on their distribution and a reassignment of the New England records, based on a personal examination by Mr. Brewster of nearly all the extant specimens.

An excellent portrait of the author forms an appropriate frontispiece to the present edition, which also contains a short biographical notice of this remarkable man, who met his death in a railroad accident in Pennsylvania, November 14, 1890. (*Cf.* Auk, VIII, 1891, p. 121).—J. A. A.

Degen on the Evolution of the Bird's Wing.¹—Mr. Degen finds his text in a feather of the wing which he terms "carpal covert" and ranks with the major cubital series. It is situated at the carpal joint, its exact position varying in different groups, and is apparently not associated with a remex. A vestigial or plumaceous feather is generally found lying beneath it. The late Mr. Wray called attention to these feathers and considered the former to be a median covert while the vestigial feather he classed as the major covert of the first metacarpal remex,—errors which Mr. Degen corrects. Mr. Degen regards this condition as analogous to aquitocubitalism and predicts that a reduced cubital remex may still be found. Assuming that among archornithic birds all the digits bore remiges he reasons that a subsequent fusion of the metacarpals has resulted in a crowding and consequent decrease in number and readjustment in position of the digital remiges and finds here an explanation of both aquitocubitalism and the vestigial carpal remex.

The paper is a noteworthy contribution to pterylography and should especially appeal to those who seek to find in this branch of ornithology something more than an aid to classification.—F. M. C.

Bulletins 4 and 5 of the Wilson Ornithological Chapter.—Bulletin No. 4² contains the reports of some thirty observers, living in as many different localities, on the manner of occurrence and times of migration of about forty-five species of Warblers. The notes are largely from stations in the upper Mississippi Valley and New England, though one contributor writes from California and another from Texas. *Dendroica kirtlandi* is recorded from Winnebago County, Illinois, May 25, 1894, and there are other records of special interest, while the report as a whole

¹ On Some of the Main Features in the Evolution of the Bird's Wing. By Edward Degen. Bull. Brit. Orn. Club, II, 1894, pp. 33, pl. I, and 6 figs. in text.

² Bulletin No. 4, Wilson Ornithological Chapter of the Agassiz Association. Record of the work for 1893 and 1894 on the Mniotiltidæ. By Lynd Jones, Chairman of the Committee. Oberlin, Ohio, January 15, 1895. 12mo. pp. 22.

will prove of value to students of the migration and distribution of these interesting birds.

Bulletin No. 5¹ is an admirable paper on the nesting habits of the American Crow, based on notes from observers representing twenty-eight States and two Provinces.

In the preliminary remarks and reports upon the character, habits, and food of Crows, the author states that he "fully believes the benefits derived from their destruction of injurious insects, rodents, etc., and their work as scavengers, largely offsets the damage done by them, if it does not over-balance it." Under 'nidification' we have paragraphs devoted to the situation, position, height, construction, composition, and measurements of the nest, while a succeeding section treats with equal detail of the eggs. The matter is well selected and the author's remarks upon the causes which influence the position and construction of the nest, the number and size of the eggs, etc., are worthy the attention of all students of philosophic ornithology.

These two papers evince in a most satisfactory manner the results which may be obtained by well directed, coöperative effort.—F. M. C.

Clark on the Pterylography of North American Goatsuckers and Owls.²
—Mr. Clark's paper is a welcome contribution to a much neglected subject. Of the Caprimulgi the genera treated are *Phalacroptilus*, *Antrostomus*, *Nyctidromus*, and *Chordeiles*. The pterylosis of each is described in detail, figured and compared. While found to be the same in plan in all, the genera all differ from each other in more or less important details. Among the Striges the pterylosis of only *Asio accipitrinus* is figured in full, with that of the head of *Megascops asio*, Nitzsch having already figured the pterylosis of most of the other genera, and Dr. Shufeldt that of *Speotyto*. The leading points of the subject are, however, reviewed, and comparisons made between the different genera, and also with the Caprimulgi. In these comparisons perhaps rather too much stress is laid upon unimportant details, which in some cases may be merely coincidences of no particular suggestiveness rather than features entitled to serious taxonomic consideration. Such perhaps is the relative length of the primaries, and the number and relative length of the rectrices, features variable in otherwise closely related genera in a large number of families.

Mr. Clark concludes from his study of the pterylography of these groups "that the Caprimulgi are related to Striges, and not very distantly

¹ Bulletin No. 5, *Ibid.*, The American Crow (*Corvus americanus*). With Special Reference to its Nest and Eggs. By Frank L. Burns, Oberlin, Ohio, March 15, 1895. 12mo. pp. 41.

² The Pterylography of certain American Goatsuckers and Owls. By Herbert Lyman Clark. Proc. U. S. Nat. Mus., Vol. XVII, pp. 551-572. June, 1895.

either—probably a branch from the early part of the Strigine stem.” The weight of authority, he admits, is directly opposed to this view; and he considerably adds, that “if the other characters are all against” his conclusions based on “a comparative study of the pterylography of the two groups as represented in North America,” they should be set aside. Mr. Clark is doing careful work in a useful field, but he hardly appears to realize that it is rather early to generalize on broad questions when, as in these two groups, and particularly in the Caprimulgi, so small a portion of the field has been covered by his investigations. It is well to have a good collection of facts before entering too freely into the field of speculation.—J. A. A.

Verrill on Antarctic Birds.¹—This valuable paper is based upon the notes and collections of Mr. George Comer who, while on sealing voyages, visited South Georgia from October 9, 1885, to February 11, 1886; Kerguelen Island from November 24, 1887, to February 5, 1888; and Gough Island from August 22, 1888, to January 23, 1889. This long period gave Mr. Comer unequalled opportunities for observation and his notes on the breeding season are beyond comparison more detailed as to dates than any we have previously had from this region. Twenty species belonging to the following families are treated: Anatidæ, one; Rallidæ, one; Chionidæ, one; Diomedeidæ, four; Procellariidæ, four; Pelecanoididæ, one; Stercorariidæ, one; Laridæ, three; Sphenicidæ, four. Almost all of these are represented by skins and eggs. One, *Porphyrornis comeri*, a flightless Gallinule, common on Gough Island, has been made the type of a new genus by Dr. J. A. Allen², while *Thalassogeron eximius*, an Albatross allied to *T. chlororhynchus* and *T. culminatus*, is here described as new and figured.

Mr. Comer reports two kinds of small sparrow-like birds from Gough Island and a third kind from Kerguelen Island, but unfortunately did not procure specimens of these, doubtless, undescribed species.

The paper, which concludes with extracts from Mr. Comer's journals, is a most important addition to our scanty knowledge of Antarctic birds.—F. M. C.

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¹ Notes on Birds and Eggs from the Islands of Gough, Kerguelen, and South Georgia. With two plates. By G. E. Verrill. Trans. Conn. Acad. IX, 2, Mch. 1895, pp. 430-478.

² Bull. Am. Mus. Nat. Hist., IV, 1892, p. 57.

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GENERAL NOTES. .

Brünnich's Murre near Johnstown, New York.—I recently examined a specimen of Brünnich's Murre (*Uria lomvia*), that was taken about thirty miles north of this place. The bird seemed somewhat exhausted, and was captured alive.—DONALD FRASER, *Johnstown, N. Y.*

Gavia alba on Long Island, N. Y.—In the summer of 1893, Mr. John C. Knoess, taxidermist, of Riverhead, Long Island, called my attention to a "rare gull" which he had received and mounted January 5, 1893, for John Goldsworth of Sayville, Suffolk County, Long Island. From the

description furnished I concluded it must be an adult Ivory Gull. To satisfy myself as to the identity of the bird I visited Mr. Goldsworth and saw the specimen, which proved to be an adult *Gavia alba*. Mr. Goldsworth informed me that he shot the bird while he was rigged out for ducks in an ice hole on Great South Bay, near Sayville.—WILLIAM DUTCHER, *New York City*.

Probable Occurrence of *Creagrus furcata* off San Diego, California.—On April 12, 1895, I left the harbor of San Diego for the Coronado Islands, eighteen miles south, with the intention of spending several days among the sea birds. Just outside the harbor three Gulls were seen that I could not identify, owing partly to the distance. While their general appearance was quite different from that of any species with which I am familiar, they would doubtless have been assigned to the long list of unrecognized, had not an incident occurred on our return trip that furnished food for reflection for several days. On the morning of the 14th the wind was blowing very strong and the sea running so high that it was decided to return to San Diego. When about half way from the islands to Point Loma, a Gull passed the sloop at a distance of about two hundred yards, giving me an excellent opportunity for *seeing*, but with the heavy sea that was running, no chance at all for *securing* what I think was the same species that I saw two days before, and am reasonably sure was *Creagrus furcata*.

The black head and pale mantle were very plainly to be seen, but unfortunately I could not be sure that the tail was forked.

Of course, without having secured the bird, the record is open to considerable question, but I am confident that sooner or later, some one more fortunate will secure the species within our borders and replace the name on our list.—A. W. ANTHONY, *San Diego, Calif.*

History of a Wandering Albatross.—The Museum of Brown University possesses a specimen of the Wandering Albatross or 'Goney' (*Diomedea exulans*) to which is attached the following interesting label:

"December 8th, 1847. Ship Euphrates, Edwards, New Bedford, 16 months out, 2300 bbls. of oil, 150 of it sperm. I have not seen a whale for 4 months. Lat. 43° 00' South. Long. 148° 40' West. Thick foggy with rain."

On the opposite side it reads:

"This was taken from the neck of a Goney, on the coast of Chili, by Hiram Luther, Dec. 20th, 1847. In Lat. 45° 50' South. Long. 78° 27' West. Taken out of a small bottle tied round the bird's neck."

The shortest distance between Captain Edwards's position, about 800 miles east of New Zealand, and Captain Luther's position off the coast of Chili in the vicinity of Juan Fernandez, is about 3400 miles. The bird, therefore, covered at least this distance in the twelve days which intervened between its release and capture. It is not probable, however,

that it flew directly from one point to the other, but in coursing to and fro while searching for food it doubtless added hundreds of miles to its journey. Accompanying the original label is a clipping from 'The Fraternal Union,' Vol. I, No. 2, Bristol, R. I., Dec. 16, 1875, by W. J. Miller, in which it is stated:

"Captain Luther was master of the whaling barque Cachelot of Mattapoiset, Mass., and subsequently on the same voyage fell in with Capt. Edwards, and showed him the paper. Captain Edwards at once recognized it, and confirmed the date and other circumstances as stated."

We do not often have so authentic a record of the powers of flight and extended range of individuals of this well-named bird. For permission to publish it I am indebted to Prof. H. C. Bumpus, Assist. Director of the Brown University Museum.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Another European Widgeon (*Anas penelope*) in Indiana.—Since recording the specimen taken in 1893, in the April number of 'The Auk' (Vol. XII, p. 179), I have secured another taken in the same State. This one, a young male, was killed on the Kankakee River marshes, near English Lake, Indiana, on the 7th of April, 1895. It was shot from a small flock of Baldpates by Mr. J. F. Barrell, who, at the time, was shooting about half a mile from me in the same marsh. He kindly presented me with the bird which I now have in my collection. This specimen makes the fifth recorded for the interior.—RUTHVEN DEANE, *Chicago, Ill.*

Record of a Third Specimen of the European Widgeon (*Anas penelope*) in Indiana.—I have recently examined a fine adult male of this Duck, at the office of the 'American Field' in Chicago. It was killed in the spring of 1881, or 1882, on the marshes of the English Lake Shooting and Fishing Club, at English Lake, by the late Samuel H. Turrill.

I am indebted to Dr. Nicholas Rowe, editor of above paper, for this interesting information. It is a little strange that our foreign visitors to this State should all have been captured in one locality, at English Lake, at different periods.

This specimen makes the sixth record for the interior.—RUTHVEN DEANE, *Chicago, Ill.*

The Old Squaw (*Clangula hyemalis*) in Colorado.—While this Duck occurs regularly in greater or less numbers on Lake Michigan in winter, and is occasionally found on the larger rivers and lakes of the adjacent States, I can find no record of its occurrence west of the Mississippi River. I am indebted to my friend, Mr. John B. Sibley, of Denver, Colorado, for information regarding the capture of a pair, male and female, which he shot on McKay Lake, sixteen miles north of Denver, on November 13, 1892.

Mr. Sibley, who is an ardent sportsman, and shoots large numbers of ducks every fall in this same location, writes that he has never seen but this one pair of Old Squaws, though he has heard of two single birds killed at different times in the State. The pair in question, Mr. Sibley had mounted, and they are now in possession of a friend in Denver.—RUTHVEN DEANE, *Chicago, Ill.*

The Old Squaw (*Clangula hyemalis*) on the Coast of South Carolina.—The winter of 1894-95 was remarkable for its severity. The thermometer in December was 8° above zero, and in February 15° above zero. Several flocks of Old Squaws were daily seen near the ocean, and among them many adult males. They were very wild, and it was very difficult to get a shot at them, even at long range. On February 26, I was fortunate enough to shoot an adult female. This was the only one taken. I can find but one record of this duck being taken in the State, viz.: Smythe, *Auk*, Vol. V, 1888, p. 203.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

***Aythya marila* or *A. m. nearctica*?**—In separating the American Scaup Duck as a subspecies from its European cousin Dr. Stejneger (*Orn. Expl. Kamtsch.*, 1885) gives as the characteristic difference between the two forms the coloring of the primaries from the fourth quill, which have “a distinct white area on the inner web” in *A. marila*, and “a grayish—but not white—area on the inner web” in *A. m. nearctica*. *A. marila* has not, I believe, been as yet recorded from this country.

Early in December last Mr. A. H. Verrill called my attention to the extensive white spaces on the primaries of a male Scaup Duck, which had been sent him by Mr. E. M. Cooper of Stony Creek, Conn., whom we had asked to forward us ducks in the flesh, and suggested that it might be the European bird. We determined to investigate the subject, and requested Mr. Cooper to send us male Scaup Ducks noticeably white on the primaries. The following small series was selected by Mr. Cooper in accordance with our wishes, all having been killed at Stony Creek on or about the dates given with the specimens, and most of them having been shot by Mr. Cooper himself.

In the following descriptions of this bird I have merely attempted to point out the main differences between them, giving particular attention to the coloring of the light spaces on the primaries.

No. 1330, Coll. L. B. Bishop, Dec. 15, 1894. Interscapulars brown spotted with white, with a few black feathers spotted with white intermixed. Feathers of chest whitish barred with brown and tipped with white, a few black feathers interspersed; flanks white heavily vermiculated with black, mixed with many entirely brown feathers; abdomen posteriorly hair brown with most of the feathers tipped with white. Rump, tail-coverts and tail brown with many black feathers interspersed, under tail-coverts tipped with white. Pale space on inner web of primaries becoming distinctly white only on the inner edge of the basal por-

tion of all except the outer and inner two; distinctly white space on the outer web of the six inner primaries.

No. 1329, Coll. L. B. Bishop, Dec. 14, 1894. Like last, except brown barring in feathers of chest indistinct, and few brown feathers in interscapular region. Rump, tail-coverts and tail black, with only a few brown feathers on rump and under tail-coverts. Distinct white space only on edge of inner web of fifth, sixth, seventh and eighth primaries, and on outer web of inner five.

No. 1348, Coll. L. B. Bishop, Jan. 3, 1895. Like last, except black of head and neck extending farther on chest, the posterior feathers of which are tipped with white; no brown on chest. Tail brown tipped with whitish. White on inner web fairly distinct in fifth, sixth, seventh and eighth primaries, as an edging on fourth and ninth, and on outer web of inner six.

No. 1349, Coll. L. B. Bishop, Jan. 4, 1895. Like last, except black of head and neck extending almost on third of body, with a few feathers vermiculated with white, but none brown, in interscapular region, and a few tipped with white on the chest. Rump, tail-coverts and tail black, a few feathers on under tail-coverts barred with white. Abdomen posteriorly white vermiculated with black. Fifth, sixth, seventh and eighth primaries distinctly white on inner web, the white appearing also toward base of third and fourth, and as an edging on ninth and tenth; inner four white on outer web.

No. 1350, Coll. L. B. Bishop, Jan. 4, 1895. Like last, except flanks only faintly vermiculated with black, with a few brown feathers posteriorly. Inner web of second, third, ninth and tenth primaries edged with white, and with fairly distinct white space on fourth, fifth, sixth, seventh and eighth; inner seven with white on outer web.

No. 1328, Coll. L. B. Bishop, Dec. 12, 1894. Like last, except black of head and neck extending farther posteriorly; no white tips to feathers of chest, and only one brown feather on left flank; black vermiculation of flanks more distinct. No white-tipped feathers on under tail-coverts. White distinct on inner web of all the primaries but narrow on ninth and tenth, and on outer web of inner six.

No. 1354, Coll. L. B. Bishop, Jan. 11, 1895. Like last, except faint edging of white on posterior feathers of chest; flank pure white faintly vermiculated with black. Inner web of all the primaries with large space of pure white extending on six inner quills well toward tip of feather, the white mixed with a little gray on ninth and tenth feathers; outer webs distinctly white on six inner quills.

In comparing these specimens it will be noticed that they vary greatly in the coloring of the inner webs of the primaries, Nos. 1330 and 1329 coming fairly under the head of *A. m. nearectica*, Nos. 1348, 1349, and 1350 being intermediate, and Nos. 1328 and 1354 typical examples of the old world form *A. marila*. If, however, all except Nos. 1328 and 1350 are left out of consideration on account of their obviously immature plumage the

latter two still remain as American birds with white areas on the inner web of the six inner quills.

Having procured this series I asked Mr. Cooper to select birds which have particularly dark primaries. During February the ice at Stony Creek made it impossible to obtain any of this species, but early in March Nos. 1369 and 1370 were received from Mr. Cooper, No. 1373 having been taken by another sportsman.

No. 1369, Coll. L. B. Bishop, March 1, 1895. Like No. 1354, except no white on inner web of any of the quills; interscapulars not as white as in No. 1354.

No. 1370, Coll. L. B. Bishop, March 1, 1895. Like No. 1354, except no white on inner web of any of the quills.

No. 1373, Coll. L. B. Bishop, March 7, 1895. Like No. 1354, except only a narrow edging of white on inner web of six inner quills.

Nos. 1369 and 1370 appear to be typical examples of *A. m. nearctica*, as Nos. 1328 and 1354 were of *A. marila*; consequently we have from the same locality typical examples of both the European and American subspecies, with a number of intermediate forms. The number of adult birds in this series is probably insufficient to decide whether the European variety occurs in Long Island Sound as a winter resident, the American appearing mainly as a migrant, or if the subspecies *A. m. nearctica* is untenable; but in either case *A. m. marila* must be admitted to the list of American birds. — LOUIS B. BISHOP, M. D., *New Haven, Conn.*

An Apparently Undescribed Plumage of *Oidemia perspicillata*. — An adult female Surf Scoter, which I collected at Guilford, Conn., in the fall of 1893, seems to merit description as differing noticeably from the characteristics of the adult female as given by standard authors.

No. 956, Coll. L. B. Bishop, Oct. 13, 1893. Upper parts generally dark brownish black, becoming almost pure black on the top of head, nape, tertiaries, tip and part of outer web of primaries, outer web of secondaries, upper tail-coverts and tail. Below sooty brown, becoming somewhat lighter on the neck; most of the chest-feathers tipped with grayish white. Chin and upper part of thorax dirty white tipped with brown; well-defined white spots in both loreal and auricular regions, with many of the feathers tipped with brown; many white feathers mixed with the brownish black of the nape; side of head between loreal and auricular white spots almost as dark as back. Bill black with black elevation of knob at base well indicated, tip of nails of both mandibles pale flesh; tarsi and toes dull orange rufous, nails and 'palmations black; irides dark brown.

I have arranged in parallel columns, the description of the different parts of the adult female as given by Dr. Coues in his 'Key to North American Birds,' in 1884, and Mr. Ridgway in his 'Manual of North American Birds,' in 1887, with the corresponding parts of my specimen.

It will be noticed that my bird differs chiefly in having a rather darker plumage, white feathers on the nape, and a loreal and mental white patch. The white on the chin I believe to be simply an individual peculiarity, but the other differences are possibly characteristic of the fully adult female.

	COUES.	RIDGWAY.	MY SPECIMEN.
Pileum and nape.	Sooty brown.	Dusky.	Almost black.
Lores.	Patch of whitish.	Indistinct whitish patch.	Patch of whitish.
Auriculars.	Patch of whitish.	No patch of whitish except in young.	Patch of whitish.
Nape.	No white.	No white.	Many white feathers.
Side of head.	Much whitish.	Grayish brown.	Almost as dark as back.
Upper parts.	Sooty brown.	Dusky, feathers sometimes with paler tips.	Dark brownish black; tertiaries, tip and part of outer web of primaries, outer web of secondaries, upper tail-coverts and tail almost as black as in adult male.
Lower parts.	Silvery gray.	Grayish brown, paler on belly.	Sooty brown.
Chest.		Tipped with dull whitish.	Tipped with dull whitish.
Chin.	?	Grayish-brown.	Patch of white tipped with brown.

Another adult female in my collection (No. 1338) taken at Stony Creek, Conn., Dec. 18, 1894, differs from this bird only in the following respects. Many feathers approaching hair brown and tipped with whitish on back, rump, upper tail-coverts and tail; lower parts a mixture of sooty brown and broccoli brown, the latter predominating, the feathers tipped with whitish especially on the chest. Nuchal white feathering much more extended and distinct; white of chin replaced by hair brown; space between loreal and auricular white patches only slightly darker than rest of neck. The brown feathers, particularly on the tail and upper parts, are much worn, while the blackish feathers are fresh and unabraded, leading me to think that the black feathers were replacing the brown.

While in Cambridge in the fall of 1893, Mr. William Brewster kindly showed me his series of this species, among which were several females with the white feathering on the nape quite distinct, and Mr. George H.

Mackay informed me that he had frequently seen this nuchal white patch well developed in the female. I trust that Mr. Gurdon Trumbull will soon conclude his scholarly article on 'Our Scoters,' with a description of this species in all stages of plumage.—LOUIS B. BISHOP, M. D., *New Haven, Conn.*

The Masked Duck (*Nomonyx dominicus*) in the Lower Rio Grande Valley, Texas.—There is a female specimen of the Masked Duck in the United States Department of Agriculture collection, which was killed by William Lloyd five miles north of Brownsville, Texas, on July 22, 1891. In his field notes the collector states that several others were seen at the same place, and a local hunter killed a male in the vicinity. He also feels quite positive that ducks seen in a fresh water pond near Matamoras, Mexico, on Sept. 8, were of the same species. The occurrence of this tropical duck in southern Texas is probably more than casual, and a careful search among the numerous bayous would undoubtedly bring to light more specimens.—A. K. FISHER, *Washington, D. C.*

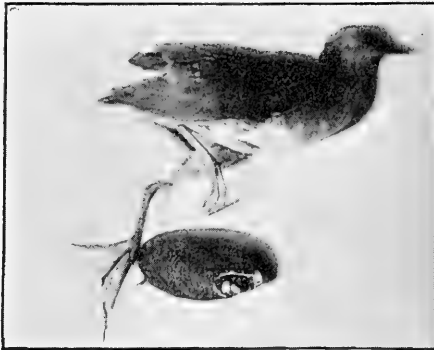
Lincoln Salt Lake and the Occurrence of *Strepsilas interpres*.—Local ornithologists are considerably interested in the occurrence of the Turnstone (*Strepsilas interpres*) in this State. Three were shot at Lincoln Salt Lake on the 25th of May of this year. These were secured by Mr. W. D. Hunter of the Department of Taxidermy, and were placed by him in the State Museum. This is the first authentically reported occurrence of this bird in Nebraska. So far as we can learn it is not reported for any of our neighboring States.

It may be of interest to note that within the last three years the basin of Salt Creek has been artificially dammed, and the water set back so as to form a saline lake about two miles long and one mile wide. Here during the springtime are found great numbers of Gulls, Terns, Ducks, Geese, Waders and Water-birds of all sorts. The Lincoln Gun Club has bought the privileges of this lake, otherwise there would be a continual fusilade kept up against the flocks of birds which hover there. There are but few lakes or marshy places in semi-arid regions to entice Water-birds, and any one could, by indiscriminate shooting, destroy large numbers of them.

Possibly the salt water of this artificial lake provided food and familiar conditions for these birds which tempted them to linger here in their flight.—ERWIN H. BARBOUR, *University of Nebraska, Lincoln, Nebr.*

A Sora caught by a Mussel.—When hunting in the marshes in this vicinity, September 3, 1894, Mr. Joseph D. Clarke noticed a Sora (*Porzana carolina*) hopping along and trying hard to fly. His dog finally captured the bird. It had a "freshwater clam" attached to one toe, being firmly caught by the bivalve. The poor bird in its efforts to release itself had

broken the bone of the toe and nearly severed it from the foot. Mr. Clarke kindly presented me with his rare 'find,' and a photograph, from



which the accompanying cut was made, was taken at once. The mussel was 2.92 inches long and 1.61 wide.—JNO. H. SAGE, *Portland, Conn.*

An Addition to the Birds of Colorado.—Whilst collecting on June 10, 1895, in the eastern foothills of the Wet Mountains, Pueblo Co., Colo., at an altitude of 6,000 feet, I had the good fortune to shoot a Scaled Partridge (*Callipepla squamata*). On mentioning this fact to Prof. W. W. Cooke of Fort Collins, Colo., he informs me that it has not previously been recorded from the State. It is therefore with some pleasure that I am able to add these handsome birds to the list, making the grand total of 348 species recorded from the State.—WILLOUGHBY P. LOWE, *Pueblo, Colo.*

Additional Records of the Passenger Pigeon in Illinois and Indiana.

—The occurrence of the Wild Pigeon (*Ectopistes migratorius*) in this section of the country, and in fact throughout the west generally, is becoming rarer every year and such observations and data as come to our notice should be of sufficient interest to record.

I have, in the past few months, made inquiry of a great many sportsmen who are constantly in the field and in widely distributed localities, regarding any observations on the Wild Pigeon, and but few of them have seen a specimen in the past eight or ten years. N. W. Judy & Co. of St. Louis, Mo., dealers in poultry and the largest receivers of game in that section, wrote me as follows: "We have had no Wild Pigeons for two seasons; the last we received were from Siloam Springs, Arkansas. We have lost all track of them and our netters are lying idle."

I have made frequent inquiry among the principal game dealers in Chicago and cannot learn of a single specimen that has been received in our markets in several years. I am indebted to the following gentlemen

for notes and observations regarding this species, which cover a period of eight years. I have various other records of the occurrence of the Pigeon in Illinois and Indiana but do not consider them sufficiently authentic to record, as to the casual observer this species and the Carolina Dove are often confounded.

A fine male Pigeon was killed by my brother, Mr. Chas. E. Deane, April 18, 1877, while shooting Snipe on the meadows near English Lake, Ind. The bird was alone and flew directly over him. I have the specimen now in my collection.

In September, 1888, while Teal shooting on Yellow River, Stark Co., Ind., I saw a Pigeon fly up the river and alight a short distance off. I secured the bird which proved to be a young female.

On Sept. 17, 1887, Mr. John F. Hazen and his daughter Grace, of Cincinnati, Ohio, while boating on the Kankakee River, near English Lake, Ind., observed a small flock of Pigeons feeding in a little oak grove bordering the river. They reported the birds as quite tame and succeeded in shooting eight specimens.

Mr. Frank M. Woodruff, Assistant Curator, Chicago Academy of Sciences, informs me that on Dec. 10, 1890, he received four Passenger Pigeons in the flesh, from Waukegan, Ill., at which locality they were said to have been shot. Three of the birds were males and one was a female. One pair he disposed of, the other two I have recently seen in his collection. In the fall of 1891 Mr. Woodruff also shot a pair at Lake Forest, Ill., which he mounted and placed in the collection of the Cook County Normal School, Englewood, Ill.

In the spring of 1893, Mr. C. B. Brown, of Chicago, Ill., collected a nest of the Wild Pigeon containing two eggs at English Lake, Ind., and secured both parent birds. Mr. Brown describes the nest as being placed on the horizontal branch of a burr oak about ten feet from the trunk and from forty to fifty feet above the ground. He did not preserve the birds but the eggs are still in his collection. The locality where this nest was found was a short distance from where the Hazens found their birds six years before.

Mr. John F. Ferry informs me that three Pigeons were seen near the Desplaines River in Lake Co., Ill., in September, 1893. One of these was shot by Mr. F. C. Farwell.

In an article which appeared in the Chicago 'Tribune,' Nov. 25, 1894, entitled 'Last of his Race,' Mr. E. B. Clark gives his experience in observing a fine male Wild Pigeon in Lincoln Park, Chicago, Ill., in April, 1893. I quote from the article: "He was perched on the limb of a soft maple and was facing the rising sun. I have never seen in any cabinet a more perfect specimen. The tree upon which he was resting was at the southeast corner of the park. There were no trees between him and the lake to break from his breast the fullness of the glory of the rising sun. The Pigeon allowed me to approach within twenty yards of his resting place and I watched him through a powerful glass that permitted

as minute an examination as if he were in my hand. I was more than astonished to find here close to the pavements of a great city the representative of a race which always loved the wild woods and which I thought had passed away from Illinois forever."

Mr. R. W. Stafford of Chicago, Ill., who has shot hundreds of Pigeons in former years within the present city limits of Chicago, informs me that in the latter part of September, 1894, while shooting at Marengo, Ill., he saw a flock of six flying swiftly over and apparently alight in a small grove some distance off.

The above records will show that while in this section of country large flocks of Passenger Pigeons are a thing of the past, yet they are still occasionally observed in small detachments or single birds. — RUTHVEN DEANE, *Chicago, Ill.*

Ospreys at Bristol, R. I. — All along the shores of Mount Hope Bay on the promontory of Bristol, Rhode Island, the Osprey breeds in comparatively large numbers. Although the surrounding country is geologically the same in character yet only few nests are to be found elsewhere. The island of Rhode Island itself, I believe, has a few nests on its shores and near Wickford and along the Providence River a half dozen or so scattered pairs breed.

But there is in Bristol proper each summer, a colony, if so it can be called, consisting of fifteen pairs. Seven of the nests are in dead buttonwood trees (*Platanus occidentalis*) and the remaining eight are built on a kind of structure erected by the farmers for their convenience; namely, a stout pole, averaging twenty-five feet in height, on the top of which an old cart wheel has been placed. In some instances a crossbar forming a perch is nailed just below or on the upper side of the wheel.

After a new pole has been raised, which is generally in the autumn, the coming spring sees it taken by a pair of Hawks. The farmers claim that the birds arrive regularly on the tenth of April, that is at the departure of the Gulls northward. They immediately commence repairing the damage done to their home during the past winter. At this time they can be seen flying about with long streamers of eel-grass trailing from their talons. From yearly additions the nests reach enormous dimensions and between the spokes of the wheels and among the heavy sticks that form the base, English Sparrows (*Passer domesticus*) build. About the first week in May the females lay three eggs (very rarely four) and by the last of the month or in the first week in June the fluffy bodies of the young can be seen above the edge of the nest. By the middle of August they are able to care for themselves.

In one of the pole nests in the summer of 1890 the birds had, either in repairing it or in some other way, brought a bulb or seed of a weed to the nest where, cultivated by the decayed fish, it grew to the height of two or three feet. They paid no attention to it and in the course of a few weeks it withered and died.

The Osprey obtains the greater part of its living in Bristol from the fish seines that run out from the shores in every feasible place, and the Hawks are to be seen at all hours of the day sitting on the poles that support the nets, now and then driving in, or rather dropping down, to obtain some denizen that it contains. In the noonday numbers of Hawks gather over the bay and fields and, mounting high in the air, circle round and round, uttering a combination of piercing, musical cries, which the farmers insist upon calling a song. This song, if so it can be called, begins with three notes in the same key, then two in a higher, and then the completing note in the same key with the first three. If the cry of any Hawk can be spoken of as a song, these six musical notes of the Osprey are certainly as near to it as any.

The Ospreys in Bristol have been so carefully watched,—as the belief among the farmers is that they protect their poultry from other marauding Hawks,—that they have become very tame and only when the eggs are nearly hatched or when the young are in the nest do they pay any heed to a passer by. Their dislike for dogs is apparently stronger than for men, yet I have never seen them strike either.

In the last week of October or the first in November they leave for the south and are replaced by the Gulls. The colonies in New Jersey and on Plum Island are of course much larger but almost every year new pole nests are added to the colony in Bristol and the future may see a much larger community.—REGINALD HEBER HOWE, JR., *Boston, Mass.*

The Great Gray Owl in Oneida County, New York.—A handsome specimen of the Great Gray Owl (*Scotiaptex cinerea*) was shot at White Lake, Oneida County, during a cold snap the first part of last February. It is a rare bird in this locality, its occurrence being recorded about once every ten years.—WILLIAM S. JOHNSON, *Boonville, N. Y.*

January Occurrence of the 'Sapsucker' in Brookline, Mass.—On Feb. 6, 1895, one of the coldest days of the year, with the wind blowing at about forty miles an hour, I sighted a small Woodpecker on the lee side of an apple tree on my father's place in Brookline, Mass. As he seemed a little too large for a Downy Woodpecker, I investigated and found him to be an immature male Sapsucker (*Sphyrapicus varius*). He was clinging to the trunk of the tree and seemed, upon my approach, to be quite sluggish. I even went so far as to attempt to catch him in my hand, when he suddenly proved that he was not sluggish at all, and flew up into the top of the tree to peck at a frozen apple. So I went back to the house and having procured my gun, gathered him in. He proved to be in fine, fat condition and not crippled in any way. I afterwards found that some nephews of mine had seen him several times on apple trees in the vicinity, but not knowing of the rarity of this occurrence in the month of January, they said nothing to me about it.

I had, on several occasions, during the early part of the winter, noted apparently fresh borings on a Larch tree (*Larix europæa*) on our place, and had heretofore been unable to account for them. I know of no other instance of this bird's wintering in Massachusetts except that Mr. William Brewster writes me he killed one in January some years ago.—F. H. KENNARD, *Brookline, Mass.*

Breeding of Traill's Flycatcher in Eastern Massachusetts.—On June 18, 1895, I took a set of four eggs of Traill's Flycatcher in Lynnfield, a small town twelve miles north of Boston. On various occasions earlier in the month I had seen Traill's Flycatchers in a bushy meadow and the actions of individual birds led me to believe that one and perhaps two pairs of this species were intending to breed.

On June 16 I searched for a nest and soon found one with three eggs. The following morning there were four eggs. On neither occasion was a bird seen at the nest but on the morning of the 17th one of the Traill's Flycatchers flew about in the neighboring bushes and complained. On the afternoon of June 18 I went to the nest in company with Messrs. E. H. Forbush and C. E. Bailey. As on previous occasions, the bird was not on the nest. Mr. Bailey ensconced himself in the bushes and after an hour's wait shot one of the Flycatchers. The bird came near the nest and drove away a Maryland Yellow-throat, and then after an interval appeared again and lit on the nest and looked at the eggs. A moment later Mr. Bailey shot her. This bird is now in the collection of Mr. Wm. Brewster.

The nest is a typical Traill's, being constructed of fine grasses and neatly lined. The body of the nest is a quite compact and well-made structure but there is a lot of loose odds and ends in the shape of long, grasses stringing down from the outside of the nest.

The eggs, four in number, and very slightly incubated, are white with reddish spots (nearly flesh-colored), these being principally at the larger end and forming a slight ring. The nest was three and a half feet from the ground and in a small wild rose-bush. The locality is a bushy meadow, the growth being principally alder, young maple, white cedar and wild rose-bushes.—J. A. FARLEY, *Newton, Mass.*

The Western Meadowlark at Racine, Wisc., etc.—In the April number of 'The Auk' (Vol. XII, p. 192) I find a communication from an observer in northern Michigan, if I remember rightly, recording the appearance there of the Western Meadowlark—*Sturnella magna neglecta* (Aud.).

It was with much interest that I heard this bird was at Racine, Wisc., where its note sounded strange enough, although I had long been familiar with it in California. Dr. Hoy, so well known in the Northwest, some years ago reported "this variety as occurring occasionally, near Racine."

In this connection I should like to make mention of one of our eastern Meadowlarks (*Sturnella magna*) which I saw last spring in Connecticut,

soaring in the air and singing like an English Skylark. I failed to identify him until he dropped down a little distance away and became the unmistakable, every-day performer of our fields.

In relating the circumstance to a gentleman whose knowledge of our home birds is only exceeded by his modesty, he told me that he once heard a Robin (*Merula migratoria*) imitating perfectly the cry of the Whip-poor-will. I could reconcile the statement with personal experience when only last month I listened to a Robin whose pipe had evidently been attuned to the wild cry of the Nightjar or perhaps to the strains of more than one bird of song, for it was very unlike his own clear, excellent music. The ways of birds are sometimes quite as unusual as their voices. It was but yesterday that I saw a Crow Blackbird hovering over a pond after the manner of a Kingfisher. He did everything but dive into the water and plainly enough was in search of something to eat.—
G. S. MEAD, *Hingham, Mass.*

Strange Habits of the Rusty and Crow Blackbirds.—Since the unparalleled cold of the past winter throughout the Southern States, we have heard and read of many instances of the great destruction among our smaller birds; and the unusual scarcity of a number of our common spring migrants, both in the east and west, only demonstrates too clearly the larger numbers which must have perished in their winter home. The most remarkable instance of which I have learned, evidently brought about by the deep snows cutting off the food supply of some species, is the preying of the Rusty and Crow Blackbirds on other species for food.

I am very much indebted to my friend Mr. Jesse N. Cummings of Anahuac, Texas, for the following interesting letter on this subject. Anahuac is in Chambers Co., at the head of Trinity Bay, and north of Galveston. "March 24, 1895. In the first place snow exceeding the depth of two or three inches was never known before in this section of the country, until this storm which commenced the 14th of February and lasted for about thirty hours, covering the ground to a depth of twenty inches on a level and remaining at about that depth for three or four days before it commenced to thaw, and then it was three or four days more before the snow had entirely disappeared. I have on my place an artesian well which has a temperature of about 70° and a flow of 60,000 gallons per twenty-four hours. This kept a large piece of ground on the bay shore free from snow and was the only place in the country where a Jack Snipe (*Gallinago delicata*) could warm his toes or get anything to eat. I did not notice the first Snipe that came in, as it was the second day after the snow-storm that my attention was directed to them, and when I went down to see them I should say that there were at least two hundred birds on a space not over one hundred feet square. It did not take me long to get my gun and kill about forty in a short space of time, as you could hardly drive them away,

and as fast as they were flushed would shortly return. I could have shot them every day for a week had I cared to. At this small open piece of ground, the Rusty and Crow Blackbirds had collected, but I did not see them kill many Snipe the first day or two, but the third and fourth days they just went for them. I should say that I saw them actually kill ten or twelve Snipe on the ground where the snow had melted, but there were thirty or forty dead ones that I saw in other places. The Rusty Blackbirds were the principle aggressors, and it was astonishing to see how quickly they could attack and lay out a Snipe or Robin. Both species were killed while on the ground and the Blackbirds would only eat the head, or as near as I could see, the brain, while the body was left untouched.

"Up around my house they attacked the Robins and I have no idea how many they did kill, but you could see them lying around everywhere on the snow, and it was the same way all up and down the bay shore. I presume they killed other species of birds but I did not notice any. I cannot account for this sudden change in the Blackbirds' habits except from lack of any other kind of food and they made the best of what was at hand."

If any of the other readers of 'The Auk' have heard of any rapacious traits in the character of our Blackbirds, I hope they will give us the benefit of their experience.—RUTHVEN DEANE, *Chicago, Ill.*

Notes on the Breeding of the American Crossbill in Hamilton County, New York.—I have spent much of my time, during the last three summers, at Camp Killoquah, Forked Lake, Hamilton Co., New York, and have been much interested in watching the habits of some Crossbills that spend most of their time about the camp.

There are several camps on this preserve, which belong to the Hamilton Park Club, but Killoquah seems to be the only one that the Crossbills (*Loxia curvirostra minor*) consider thoroughly congenial, and here they replace most acceptably their distant connections, the English Sparrows.

In both 1892 and 1893 I had arrived at Camp too late even to pretend to hunt for their nests, but last year (1894) as soon as I had arrived there, in the last week in July, I immediately inquired for my friends, and was much disgusted to learn that they had built a nest, in under the roof of the tank that supplies the Camp with water, and that on June 5 this nest had been torn down, before any eggs had been laid, as it was clogging the automatic dial, which registers the amount of water in the tank, and as the birds were fouling the water.

Mr. W. Harrison Eisenbrey, the owner of the Camp, as well as the guides who knew the birds well, were present when the nest was torn down, and showed me exactly where it had been placed inside the roof, and on a shelf just above the indicator. The nest, too, was shown me, in a very dilapidated condition; but it was sufficiently well preserved to tell just how it must have looked.

It had been built with a few twigs as a foundation, and a thick layer of bark, stripped from the cedars and hemlocks which grow about there in profusion, and the whole structure, which was very bulky, was topped off and thoroughly lined with plant down. It looked not unlike a large edition of a Phœbe's or Wood Pewee's nest, and was one of the best built and most comfortable nests I ever saw.

The birds, of which there were several pairs, were still about Camp, but no other nests could be found. They were very tame, and extremely fond of salt, and could often be found paddling about in the drippings under the cold storage house, or perched on a yellow birch beside it. Often they might be seen walking sedately about on the banks around the Camp, and the males with their beautiful, clear and almost metallic notes spent much of their time singing from the tops of some of the neighboring pines, a song that once heard can never be forgotten.

Mr. Geo. W. Smith, one of the guides at Camp, informs me that during the latter part of May, 1890, as he and another guide were going through some low spruce brush near Brandreth Lake, Hamilton County, they found a Crossbill's nest placed at the height of about five feet against the stem of a low spruce tree. The nest contained four or five young, which immediately fluttered off in different directions upon his putting his hand into it. This nest he tells me was similar in construction to the one above cited, except that it was not quite so bulky.—F. H. KENNARD, *Brookline, Mass.*

Peculiar Nest of a Chipping Sparrow.—Regarding the use of unusual materials in the construction of nests, the following note may be of interest. A nest of *Spizella socialis* was found in Boylston, Mass., June 9, 1890, built entirely of hog's bristles. It was very white and neatly made but being placed in the underpinning of a cider mill in an exposed place, where it was quickly discovered by children, it was abandoned before any eggs were laid.—HELEN A. BALL, *Worcester, Mass.*

Harris's Sparrow in British Columbia.—Mr. Brewster states in the last number of 'The Auk' that the second occurrence of Harris's Sparrow (*Zonotrichia harrisi*) in British Columbia is reported by Mr. Brooks from Chilliwack, B. C. The second occurrence of Harris's Sparrow is reported by me in the January number of 'The Auk' taken by Mr. W. B. Anderson at Comox, B. C., on the 20th of November, 1894. (See Auk, January, p. 76, 1895.) On the first of December I received two more specimens of this bird from the same careful observer who reported having seen others. It is very likely Harris's Sparrow is going to make a home in British Columbia. I am certain Mr. Brewster had not seen my notice when he made the statement but this correction is due Mr. Anderson.—J. FANNIN, *Victoria, B. C.*

The Lark Bunting in South Carolina.—One afternoon in the early part of April I noticed a very plump looking Sparrow while I was walk-

ing down a road which had a very thick hedge on one side. This bird was in the top of a bush when I noticed it and it bore a strong resemblance to the Grass Finch (*Poocates gramineus*), only it was larger. I fired at it with a small collecting pistol and slightly wounded it. Day after day I visited the spot hoping to see the bird again. Eight days afterwards, April 19, early one morning I saw the same bird within a few yards of the place where I had wounded it. It was perched on a low bush and upon seeing me flew down into a field where a lot of White-throated Sparrows were feeding. This time I secured it. Upon examination I was completely puzzled for it was a new bird to me. I had in mind the Lark Bunting (*Calamospiza melanocorys*), and specimens of this bird, kindly sent me by Messrs. Brewster and Chapman, confirmed my suspicions. The bird is an adult female and evidently wintered, as it was moulting about the throat. It seems strange that this bird was taken within 200 yards of the place where I shot the Missouri Skylark, and Little Brown Crane, recorded in recent numbers of 'The Auk.' — ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Summer Redbird at Saybrook, Conn. — I have recently added another unexpected acquisition to my list of things new in a fine male specimen of the Summer Redbird (*Piranga rubra*) which I secured here in Old Saybrook on the 27th of April last (1895). It seemed to be perfectly contented, as if ignorant that it had wandered off, and whistled as cheerily in the cold rain storm then prevailing as if it was still under sunny skies. This is the first of its species that I have ever seen here. — J. N. CLARK, *Saybrook, Conn.*

Prothonotary Warbler near New York City. — In the early morning of June 2 last, near Yonkers, New York, I had the great pleasure of seeing a Prothonotary Warbler (*Protonotaria citrea*) and listening to its song. The exact locality was rather more than a mile east of the Hudson River, and half that distance beyond Van Cortlandt Park at the northern limit of New York City. In the woods at this point a shallow pond, or pool, spreads itself among a scattered grouping of trees and bushes. This was clearly the attraction which kept the bird about the spot, enabling me to watch it at leisure. It was not at all shy, and much of the time was so near to me that, though my field-glass was not dispensed with, there was no need of it for purpose of identification. The exquisite bird kept constantly over the water, frequently coming into conspicuous view on open horizontal branches and sometimes clinging momentarily against a tree-trunk. Its usual motions were leisurely, the movements of the head sometimes quite Vireonine.

The song, which was repeated at short intervals, though not at all remarkable, was very distinctive, and not fairly to be compared with any other known to me. Listening to it, it seemed as if an unpractised ear might perhaps have associated it with the Golden-crowned Thrush, not-

withstanding its weaker emphasis, with the five to eight notes pitched all on the same key. The call-note was not heard.

This would appear to be the first known occurrence of this bird in the State outside of Long Island, where the capture of two has been recorded by Mr. Dutcher (*Auk*, V, 1888, p. 182; X, 1893, p. 236).—EUGENE P. BICKNELL, *New York City*.

Occurrence of *Helinaia swainsoni* in the Dismal Swamp, Virginia.—During the early part of June, 1895, the writer made a short trip to the Dismal Swamp, and, as far as practicable, explored the region bordering Lake Drummond. Various forms of animal and plant life occurring in the locality demonstrate conclusively that the northern extension of the Austroriparian region includes this swamp area. The cane (*Arundinaria*) grows commonly through the swamp as well as along the lake shore, and often forms extensive, almost impenetrable masses. On the morning of June 2, near the edge of one of these canebrakes, the writer had the pleasure of seeing a Swainson's Warbler which, although rather wary, alighted within a few feet of him, but immediately flew off and was not seen again. On the following day an adult male was secured near an old boggy road, a couple of miles from where the first one was seen, and on June 5, still another was observed. The last, like the first, alighted near by, and, after looking at the collector for a few moments, disappeared in the thicket. From the number seen it is probable that the species is a common summer resident.—A. K. FISHER, *Department of Agriculture, Washington, D. C.*

Helminthophila leucobronchialis in Maryland.—An adult male specimen of this Warbler was shot at Beltville, Md., not far from Washington, D. C., on the first of May, this year, by Mr. A. H. Thayer, who brought it to the National Museum for identification. The bird was secured in exchange for the National Museum collection (Museum register No. 150,120). It is a very typical one, absolutely without any trace of yellow on the breast or abdomen, but with rather more black on the post-ocular streak than is shown in the plate accompanying the description of the type, and considerably more than in the specimen shot by Mr. Wm. Palmer near Washington, May 8, 1885 (No. 105,684). Some of the feathers of the cheeks are black, a feature not shown in the type, nor in the above-mentioned example collected by Mr. Palmer. The back is clear ashy gray, with the faintest possible tinge of yellow in the interscapular region. The crown and wing bands are bright yellow, as in the type.—CHAS. W. RICHMOND, *Washington, D. C.*

Nesting of *Helminthophila leucobronchialis* in Connecticut.—My collector, Mr. Samuel Robinson, found here June 24, 1894, a nest of this puzzling Warbler containing four eggs, but did not disturb it. The next day I visited the spot and started the female from the nest a number of

times. Her mate was *H. chrysoptera* in normal plumage. He flew to the female occasionally and was quite tame. At this time, when swinging in an apple-tree near by, the drawling note peculiar to this species was so faint as to require close attention to hear it. My first idea was to leave the eggs and have them hatch, then watch the young and so try to settle the perplexing question about these birds, but the nest was so close to a cattle-path in the swamp that it was liable to be destroyed by the animals when passing to and fro after water, they having already nearly stepped in it. I finally waited until the 23d of the month and took the nest and eggs and secured both birds. After the female was shot, and the male was unable to find her, his song changed and was as loud and sharp as in early spring. The nest was on the ground among thick alder bushes on the edge of a swampy thicket. It was composed externally of dry leaves and a few pieces of coarse grass, and lined with delicate strips of grape-vine bark. The eggs are white, finely and sparsely speckled with reddish brown, the dots being more conspicuous about the larger end, forming in one egg a noticeable ring. This female *leucobronchialis* is nearly as bright in color as the males. The chin, breast and abdomen are marked with yellow, the breast strongly so. Wing-bars yellowish white. I have now found Brewster's Warbler here for nine successive years, the specimen referred to above being the only female. The large series in my collection shows many variations. — JNO. H. SAGE, *Portland, Conn.*

Nesting of *Mimus polyglottos* in Eastern Massachusetts.—On June 3, 1895, while walking along a narrow country road in Groton, Massachusetts, my attention was suddenly attracted by the strange sight of a Mockingbird flying across an adjoining field. It alighted on a fence post near by, and, as I turned back to make sure that I had seen aright, my surprise was increased by the appearance of a second one. The two birds flew off together with such an evident air of being mates that I immediately began to look for a nest. The road was bordered on each side by a broad stretch of grassy fields, divided by rail fences: an eighth of a mile away it crossed a much travelled highway, strung along which a dozen houses could be seen; while at about the same distance in the opposite direction was the beginning of a large tract of deciduous woods. Besides these woods, there was hardly a tree anywhere near, save a few small apple-trees by one of the houses and one or two more—stunted, chance-sown seedlings—growing by the roadside. To one of the latter, a few steps away, I directed my search. In a moment I discovered a clumsily built nest a dozen feet from the ground, amid the thick foliage of a branch that overhung the road. I climbed the tree and, though I found the nest empty, I was rewarded by a scolding visit from the birds. When I came again on June 13 they gave me a still more unfriendly greeting though they were so wary that I obtained only the male to accompany the nest and four half-incubated eggs which I secured.

This locality, which is in the northern part of Middlesex County, hardly six miles south of the New Hampshire boundary, is the most northern point in New England where the Mockingbird has yet been known to breed, and the only one in Massachusetts, east of Springfield, where its nest actually has been taken. The only other recorded evidence I can find of the breeding of the species in eastern Massachusetts is based on two families of well-grown young, found, one at Arlington (Auk, I, 192), the other at Marshfield (O. & O. XIV, 144). In each of these cases the birds were not discovered until August 15, although it seems probable that they had been bred in the neighborhood.—CHARLES F. BATCHELDER, *Cambridge, Mass.*

More Wyoming Mockingbirds.—In 'The Auk' for July 1894 (XI, p. 258) will be found a short account of the capture of three Mockingbirds (*Mimus polyglottos*) along Crow Creek about two miles east of Cheyenne. The first capture was made on May 10, the second on the 11th and the third on the 23d. I did not anticipate at the time that I would ever have a similar experience here, for I had collected birds at this point during the previous twelve years and had never found a Mocker before. On May 19, 1895, I found two Mockingbirds along Crow Creek six miles west of Cheyenne. Not having a gun along I had to content myself with watching the birds and in listening to the song of the one with the larger wing patches. These two birds were comparatively tame for I approached to within thirty yards, at which distance they scarcely noticed me.

To-day, May 26, I visited the locality two miles east of town where I made the capture in 1894. I was again fortunate for I flushed a female Mockingbird (*Mimus polyglottos*) from the same cottonwood copse in which I killed No. 3 on May 23, last year. After a half hour's stern chase I bagged my bird not a hundred yards from the point where the other bird fell.

I hardly know what conclusion to draw from the presence of these birds in Wyoming. Dr. Mortimer Jesurun wrote me that he captured one specimen at Douglas, one hundred and fifty miles north of Cheyenne, last year. It is more than probable that considerable numbers of Mockingbirds, both during the present spring and in 1894, visited Wyoming and probably raised broods here.—FRANK BOND, *Cheyenne, Wyo.*

Absence of the Bluebird at Meadville, Pa.—For the first time in my recollection *Sialia sialis* is noticeable for its absence, in the vicinity of Meadville, Crawford Co., Pa., for this time of the year. In referring to my note book, I find that I have observed them in this locality, every month in the year, with the exception of the month of December, in more or less numbers, they being very common during the spring, summer, and fall months. But their soft warbling notes are not to be heard this spring among those of many other happy songsters. The first that I observed

them this spring was on April 6, when I saw four, and again on April 16, when I saw two. Since then I have visited some of their most favorite haunts a number of times but have failed to note a single one. They were very common last year, lingering with us until late in November. I am inclined to believe that the exceptionally cold winter has been very hard on them, in depriving them of their food supply.

Early on the morning of March 24, 1895, a large 'bird wave,' composed of Geese, Swans, and Ducks got lost, or became bewildered by the electric lights (a dense fog prevailing in this valley at the time) and flew about the city for a couple of hours before they could get their correct bearings. There must have been thousands of them judging from the noise they made.

Of late years this is getting to be a common occurrence during their spring migrations. I have in my collection a fine specimen of the Long-tailed Duck, which I found dead on the door-step one morning, after one of these flights, it probably having flown against the house.—H. C. KIRKPATRICK, *Meadville, Pa.*

Nantucket Notes.—Nantucket, Mass., August 26, 1894. I shot to-day a Wilson's Snipe (*Gallinago delicata*) which was feeding among a flock of Peeps on the shore of Hummock Pond. A short time after I shot a Stilt Sandpiper (*Micropalama himantopus*) from this same flock of Peeps. I saw in addition another specimen which had been taken in the same locality two days before.

November 6, 1894, I shot two female Mallards (*Anas boschas*); they were in company with some Black Ducks (*Anas obscura*), but seemed to feel out of place, keeping a little apart.

November 1. Twenty-five Broadbills (*Aythya marila nearctica*) seen at the Long Pond to-day. November 8, I saw a flock of *Somateria dresseri*, seven females, later three males, in Nantucket Sound. In a letter received from Mr. Vinal N. Edwards, dated Woods Hole, Mass., Jan. 16, 1895, he informs me, that from the 1st to the 5th of November, 1894, the wind had been strong S. W. to W.; the week previous it was N. E. to S. E., cloudy and rainy. On Nov. 5, 1894, the first American Eiders (*Somateria dresseri*) of the season were noted by him, — a flock of thirty-seven. By the 27th about one thousand had collected, but the gunners drove them away, and the weather being so moderate they remained in the Sound to feed. On Jan. 15, 1895, there were about one thousand in the Hole but they only remained about two hours.

Nantucket, April 10, 1895. Mr. Charles E. Snow informs me that he saw to-day on the Ram Pasture a Bartramian Sandpiper (*Bartramia longicauda*) and drove within twenty yards of the bird. This is the earliest spring record I have ever heard of in this vicinity.—GEORGE H. MACKAY, *Nantucket, Mass.*

Notes on Some Connecticut Birds.—*Uria lomvia*.—A few of these northern birds entered the Connecticut River in December, 1894. Two

were killed at Essex on the 11th of that month and sent to me. At Portland, three were seen Dec. 14, and five on the 22d—specimens being taken at each date which are in my collection. I have never seen Brünnich's Murre in this immediate vicinity before.

Porzana noveboracensis.—Three specimens of this rarely seen Rail were shot here during September and October, 1894.

Ceophlœus pileatus.—Mr. Gurdon Trumbull tells me that a Pileated Woodpecker was seen at Granby, Conn., during the early part of the winter of 1894-95. It was followed a mile or more and fully identified but was not captured. This bird was in practically the same locality where one was killed Nov. 1, 1890 (Auk, X, 1893, 371).

Vireo philadelphicus.—A female was taken here September 17, 1894, by Mr. Samuel Robinson and is in my cabinet. It was found among some large willows on an island in the Connecticut River, and shot within a few feet of the spot where he killed a specimen September 21, 1893 (Auk, XI, 1894, 181).—JNO. H. SAGE, *Portland, Conn.*

Bird Notes from St. Albans, Vermont.—The Brünnich's Murre (*Uria lomvia*), so far as my knowledge goes was first found here in December, 1892, at which time specimens were easily procured and added to the cabinet. They came in large numbers to St. Albans Bay, an arm of Lake Champlain, some three miles from town, during the winter of 1892, returning in the winter of 1893, when a specimen was shot on the 13th of December. In January, 1894, another specimen was shot in Richford, an inland town bordering on the Canada line. In the past December they came by thousands, the lake seeming, in places, fairly swarming with them. One sportsman shot 200, and each gunner brought more or less of them to town, many of which were taken alive. Those who have shot them say they are so tame one can almost catch them in their hands. They are in poor condition, apparently starving, and very many have been frozen into the ice and chopped out by fishermen.

The Florida Gallinule is also supposed to be of rare occurrence in Vermont, but for the past twenty years it has been common about Lake Champlain, breeding here also, as it is a regular autumn experience to come upon them with their young.

The Great-crested Flycatcher (*Myiarchus crinitus*) is also supposed to be of rare occurrence, the only record being from C. S. Paine of Randolph. I can echo Dr. Merriam's words, "that now it is certainly a really common bird," not only in Connecticut but in northern Vermont as well. Not only has nearly every piece of woods its 'Great-crest,' but I see it beside the roads, occasionally, in my drives.

Wilson's Stormy Petrel (*Oceanites oceanicus*) has also been taken here, and, what is still more surprising, an elegant Meadowlark was given me the 6th of January last. It had been about the doors of a neighbor's house hunting for food and resting at night in willow trees that overhung the piazza; its fearless confidence in humanity meeting the

usual fate. Two weeks later a Saw-whet Owl was sent to me, a bird that asked only the hospitality of a night's lodging when the weather was inclement, and was dispatched with true American promptness. I considered the Meadowlark's presence at that time of year unprecedented in this locality, when the mercury often reminded us that we are near neighbors to the North Pole. Was it ever known to winter so far north before?

Is the Solitary Sandpiper (*Totanus solitarius*) known to swim under water? A friend of mine wounded one last summer when it fell from an overhanging rock to a little corner on the lake beach. He jumped down after it thinking it could not possibly get away, when it quickly went under water, a little ribbon of bubbles marking its way far out into the lake. In surprise he waited its reappearance, when it turned and came his way again, landing not far away when (poor bird) it was easily captured. The Spotted Sandpiper was sure to resort to the same tactics when pursued by a Hawk. I am delighted to say it made good its escape, coming up at a distance and putting its pursuer quite off the track. — NELLY HART WOODWORTH, *St. Albans, Vt.*

Some Rare Birds of Recent Occurrence near Buffalo, N. Y.—*Uria lomvia*. BRÜNNICH'S MURRE.—Four stragglers of this species were seen here last fall; two of which were captured. One was shot near Irving on or about December 1, 1894, by 'Jake' Koch, a sportsman of local fame, who had it mounted and placed in the rooms of the Acacia Club in this city. The second was shot in Buffalo harbor by a gunner named Snyder who says that it is one of three that were flying past him at the time. This latter is now in my collection. Both were young birds which probably strayed from the coast via the St. Lawrence River and Lake Ontario.

McIlwraith recorded in his 'Birds of Ontario' (p. 38) the capture of nearly fifty of these birds in various parts of the Province late in the fall of 1893, and it would be interesting to know if there were any considerable numbers of stragglers last fall. A short time ago Mr. J. L. Davidson of Lockport informed me that a correspondent of his shot four strange looking Ducks in Jefferson County which possibly were of this species. And recently 'Forest and Stream' was asked to identify a bird shot in the interior of New York State that from the description was evidently a Murre.

Larus marinus. GREAT BLACK-BACKED GULL.—An uncommon winter resident here though probably of regular occurrence. I have a specimen in immature plumage shot on Lake Erie in January, 1894. This winter I saw four adults on February 19 (1895), two on February 20, and one on the 22d. I tried hard to shoot one but was not successful as they were very shy. The Gulls — of which *L. argentatus smithsonianus* is the most common — usually rest quietly on the ice in the morning but appear in numbers in the afternoons to feed upon 'lizards' (*Necturus maculatus*) and bait (minnows) cast away by the fishermen.

Larus glaucus. GLAUCOUS GULL.—One shot on Niagara River, January 29, 1895, which I saw at a taxidermist's shop two days later.

Sterna tschegrava. CASPIAN TERN.—A young male which came into my possession Feb. 20, 1895, was shot on Lake Erie near Stony Point (just outside the city limits) late in the fall of 1893 by a gunner named Joseph Kotz.

Phalacrocorax dilophus. DOUBLE-CRESTED CORMORANT.—Although this bird has been taken here before, I met with it last fall for the first time in eight years' experience. Five were shot here, three of which I examined. Two were taken October 11, 1894, and the last was shot from the shore at Stony Point, November 3, 1894.

Pelecanus erythrorhynchos. AMERICAN WHITE PELICAN.—One of these large birds, now only casual in the East, was shot on Niagara River near the International Bridge, October 5, 1894, by 'Jake' Koch. It was seen by fishermen and others at the foot of Michigan Street to come in from Lake Erie and fly diagonally over the city toward the river, where it was shot later in the day.

Crymophilus fulicarius. RED PHALAROPE.—I shot a female which I found wading in a wet pasture in South Buffalo, September 26, 1894. I thought at the time it was the first for Erie County but have since obtained another from Mr. Herman Grieb, taxidermist, which is one of two which he shot on separate occasions near Rattlesnake Island, Niagara River, in October, 1892. Have also seen another, taken here, in the collection of Mr. Edw. Reinecke.

Macrorhamphus scolopaceus. LONG-BILLED DOWITCHER.—I am indebted to Mr. Grieb for a specimen shot from a flock of *M. griseus* on Strawberry Island, Niagara River, in October, 1892.

Micropalama himantopus. STILT SANDPIPER.—Two of these Sandpipers were shot by me on September 16, 1893. They were feeding in company with some Yellow-legs (*Totanus flavipes*) in the bottom of the artificial lake in South Park, which was then being excavated.

Accipiter atricapillus. AMERICAN GOSHAWK.—On the 11th of March this year (1895) I was waiting with my camera to get a snap at a Great Horned Owl as she returned to her nest. When finally the Owl came it was followed by a Hawk which circled several times over my head just above the tree tops and which I am certain was a Goshawk. My companion had the gun in another part of the woods so I could not shoot it except with the camera. I succeeded, however, in getting it in the same picture with the Owl.

Melanerpes carolinus. RED-BELLIED WOODPECKER.—I saw one at the taxidermist's that was shot at North Collins, Erie Co., in October, 1894.

Sturnella magna. MEADOWLARK.—A beautiful albino was shot at Crittenden, this county, on October 4, 1894, and was mounted by Mr. Grieb, taxidermist. The usual brown of the upper parts was of a pale buff color with the pattern of the feather markings indistinctly discernable, while the yellow on the breast was as pure as in an ordinary Lark.

Ammodramus savannarum passerinus. GRASSHOPPER SPARROW.—

This little Sparrow is a rare summer resident in Western New York. I have been on the lookout for it for six or seven years but without finding it until last spring. On May 2, 1894, I was riding my wheel just outside the city when my ear caught the peculiar note of this species. I stopped to investigate and soon flushed a Grasshopper Sparrow. I returned to the spot next day and secured a specimen and saw five or six others. Later in the season, on and about the first of June, I searched on several occasions for the nest of two pairs which frequented the same field, north of the city. And still later in June I saw one of these Sparrows near Abbott's Corners, and another near North Boston.

Thryothorus ludovicianus. CAROLINA WREN.—On the 5th of November, 1894, I was passing through a patch of fallen timber in the woods near Stony Point and stopped to watch some Chickadees. When I started on I was startled by a loud chattering such as I had never heard before. It was fully ten minutes before I caught sight of the author of it, and had the pleasure of adding a Carolina Wren to my collection. I have not seen any record of its capture in Western New York previous to this. It was taken just after a severe gale from the southwest.—JAMES SAVAGE, *Buffalo, N. Y.*

Two Unique Nesting-sites in and about Camp Buildings in Hamilton County, New York.—On July 29, 1894, while visiting at Camp Killoquah Forked Lake, Hamilton County, New York, I saw some very suspicious looking straws sticking out from a niche between the logs and behind the framing of a window in the side of the main building of the camp. Upon investigation they proved to be a part of a Junco's nest, which contained four fresh eggs. In the crevice between the two logs just above, there was also an old nest, which had evidently been used for some previous brood. These nests were rather remarkable on account of their close proximity to the door of the camp, through which every one there was wont to go, and beside which, in the course of a day, a good deal of work was done. I learned from the guides that this pair of Juncos had been around there all the spring, and they were still often to be seen picking up crumbs about the kitchen and dining room. The nest was made of cedar bark and grasses, and lined with long deep hairs, which the birds had picked up in the vicinity.

On August 3, 1894, I found a Chimney Swift's nest placed just under the ridge pole of an old log barn and against the side of one of the logs of which it was constructed. Such a position was new to me as I had always thought they built either in chimneys or in hollow trees, and it was additionally interesting from the fact that it was within a foot of an enormous hornet's nest. The five young birds which were nearly fledged were clinging to the bark of the logs in the immediate vicinity and seemed to get on much better with the hornets than I did.—F. H. KENNARD, *Brookline, Mass.*

NOTES AND NEWS.

MR. EDWARD HARGITT, a Corresponding Member of the American Ornithologists' Union, died at his home in Edinburgh, March 19, 1895, in the sixtieth year of his age. Mr. Hargitt was an artist of eminent standing, as well as an ornithologist, having been made in 1887 a member of the Royal Institute. His interest in birds was general, and he had at one time acquired a large collection of the birds of Northern Europe and Asia, but lack of accommodation for its storage led him later to disperse it, the greater part going to the British Museum. He selected, however, the Woodpeckers as his special field of study, and will be long known as an authority on this group through his admirable monograph forming Vol. XVIII of the 'Catalogue of the Birds in the British Museum.' From 'The Ibis' we learn that he "worked continuously at a series of paintings to form a monographical gallery of the Picidæ, illustrating every type in British and foreign museums, and giving colored portraits of every variation in plumage." He was never strong, we learn from the same authority, "having for years been an uncomplaining martyr to asthma." He is spoken of as "a very quiet, unobtrusive man, generous almost to a fault," and "chivalrous in the highest sense of word."

MR. JOHN S. CAIRNS, an Associate Member of the American Ornithologists' Union, was killed June 10, 1895, by the accidental discharge of his gun while on a collecting trip with a party of friends to Black Mountain, North Carolina. Mr. Cairns was a prominent and popular citizen of Weaverville, N. C., where he was buried with Masonic honors. Although Mr. Cairns had published little, his untimely and sad death is a distinct loss to ornithology, his researches in the vicinity of Asheville, North Carolina, having given him an intimate knowledge of the birds of that region. Fortunately some of his notes, generously sent to ornithologists with whom he was in correspondence, may yet see the light. A letter to the editors of 'The Auk' from a prominent ornithologist speaks of him as a thoroughly trustworthy observer, and "one of the most generous men that ever lived." He was interested in other departments of natural history, especially in mammals. He was a son of Captain John Cairns of Weaverville.

THE HON. FRANKLIN FAIRBANKS, of St. Johnsbury, Vermont, an Associate Member of the American Ornithologists' Union, died in that city on April 24, 1895, at the age of 67 years. He was the youngest of four sons of the late Governor Erastus Fairbanks of Vermont. At the time of his death he was President of the well-known Fairbanks Scales Com-

pany, and was prominent in railroad, banking and other business enterprises, and conspicuously active in educational and philanthropic works. His intelligent interest in natural history was especially manifested through his gift, in 1891, to his native city of the Fairbanks Museum of Natural History. He had been an Associate Member of the A. O. U. since 1885, but his relation to ornithology was mainly that of a promoter of the science.

MR. GEORGE H. RAGSDALE, of Gainesville, Cooke Co., Texas, an Associate Member of the American Ornithologists' Union, died at his home in Gainesville, March 25, 1895. Mr. Ragsdale has been a frequent contributor for the last ten years to 'The Auk' and other natural history journals of interesting field notes respecting the ornithology of Cooke County, Texas, with which he was especially familiar, and did much to popularize natural history through his contributions to the local newspapers, with one of which, 'The Hesperian,' he was editorially associated.

THE REV. A. H. GESNER, of Sing Sing, N. Y., an Associate Member of the American Ornithologists' Union, died at his home in that city, April 30, 1895. Mr. Gesner was a well-known clergyman of the Episcopal Church, and for many years had taken an intelligent interest in ornithology, making frequent excursions afield to study the ways of his bird friends, but he has left few published records of his observations.

AS THESE pages go to press the sad announcement reaches us of the death of Professor Thomas H. Huxley, an Honorary Member of the American Ornithologists' Union, who died on the afternoon of June 29, at the age of 70 years. A notice of his life and works, and particularly his important contributions to ornithology, is necessarily deferred to a later issue of this journal.

WE HAVE just received from the publisher, David Douglas (10 Castle Street, Edinburgh), a copy of the long hoped for English translation of Herr Gätke's 'Die Vogelwarte Helgoland,' published in 1891 (see Auk, VIII, 1891, p. 299). The translation bears the title 'Heligoland as an Ornithological Observatory: The Result of Fifty Years' Experience,' and is made by Mr. Rudolph Rosenstock. The preface to the English edition is by Mr. John A. Harvie-Brown, who is, as he expresses it, "in a measure, godfather to this edition of Mr. Gätke's Observations on the avifauna of Heligoland." A further notice of this important work will be given in a later number of this journal.

THE NUTTALL ORNITHOLOGICAL CLUB of Cambridge, Mass., is about to publish as No. 2 of its 'Memoirs,' a monograph of the Ipswich Sparrow by Jonathan Dwight, Jr., M.D. The memoir will treat the subject exhaustively, being based on the existing literature of the subject, supplemented by the author's extensive field experience of the bird's habits as observed on our own coasts, and by his researches at Sable Island in 1894, where he had an opportunity of studying its breeding habits and obtained its nests, eggs, and young in first plumage. The paper also includes a pretty full account of Sable Island, its history, fauna, flora, etc., and a very complete bibliography of the Ipswich Sparrow. It will be illustrated with a colored plate, showing the adult breeding male and the young in first plumage.

A PROSPECTUS from the publishers, Charles H. Sergel Company (358 Dearborn St., Chicago), announces the early publication of 'The Proceedings of the World's Congress of Ornithology,' containing the papers read at the World's Congress Auxiliary on Ornithology, held at the Memorial Art Palace of the World's Columbian Exposition, Chicago, Oct. 18-21, 1893 (see *Auk*, X, p. 386, and XI, p. 89). It will form a single octavo volume, prepared under the editorship of Mrs. E. Irene Rood, and the edition will be limited to 600 numbered and registered copies. Subscription price, \$5.00 net. From the partial list of contents given in the prospectus it is evident that the work will contain many papers of permanent value, and from contributors of eminent standing.

It is announced that a General Index to the 18 volumes of 'The Ibis,' published from 1877 to 1894, is in course of preparation, together with a Subject Index to the whole work since its commencement in 1859. In order to provide funds for the large outlay involved, an appeal has been made to the members of the B. O. U. for subscriptions to the work, which of course will be of immense convenience to ornithologists the world over. Orders for copies may be sent to F. D. Godman, Esq., 10 Chandos Street, Cavendish Square, London, W. The subscription price is 21 shillings per copy.

READERS of 'The Auk' will be interested to learn that the second volume of Major Bendire's standard work 'Life Histories of North American Birds' will probably be issued during the coming autumn. Of the text it is unnecessary to speak, but we are glad to be able to state that the plates will be of the same high character as those which distinguished the first volume.

DURING the present session of the Connecticut legislature, a bill was introduced providing for the payment, by the State, of a bounty for killing Hawks and Owls. Active opposition to the bill was made by an official of the A. O. U., and several others. Facts were presented to the Committee on Agriculture, to whom the bill was referred, showing that Hawks and Owls, as a class, are beneficial to the farmer. An adverse report was made by the Committee and the obnoxious bill defeated when it came up for action in the House.

MR. GEORGE K. CHERRIE of the Field Columbian Museum, whose departure for San Domingo to make ornithological collections was noticed in the January 'Auk,' has returned after an absence of five months. In spite of the hardships occasioned by an unusually wet season and the inhospitality of the degraded negroes of the interior, Mr. Cherrie was eminently successful and his collection of 2,000 birds and extended field notes will form the basis of valuable papers by Mr. Chas. B. Cory and himself on the avi-fauna of this comparatively little known island.

'THE NIDIOLOGIST' for May announces that Dr. R. W. Shufeldt has joined forces with Mr. H. R. Taylor in the editorial management of this enterprising journal, an arrangement which will undoubtedly add to its increasing popularity.

SOMETHING quite new in the line of bird exhibits has recently been placed before the public in the Agassiz Museum of Comparative Zoölogy at Cambridge, Mass., in the W. E. D. Scott Collection of mounted birds, first opened for inspection June 18 of the present year. The exhibit consists at present of fifty-six cases, containing about 250 specimens, the beginning of a collection which it is hoped will some day surpass in interest, instructiveness, and artistic effect anything the world has yet seen in the way of a museum exhibition of birds. Each case is devoted to a single species, the cases varying in size with the species it is designed to illustrate. The purpose of the work is not only to show birds in life-like and natural attitudes and surroundings, but to illustrate special facts in ornithology, as variations due to sex, age and reason, dichromatism, geographical variation, protective coloration, etc. This is a plan Mr. Scott has long had in mind, and with his well-known skill and taste as a taxidermist, his intelligence and training as a naturalist, and his wide-field experience we may well anticipate the production of a collection of mounted birds far in advance of any hitherto attempted. The expense of the undertaking, which will of course be large, we understand is defrayed by friends of the museum, and we trust that there will be no lack of funds for such a meritorious work.





ÆSTRELATA FISHERI RIDGW.

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NO. 4.

ON FISHER'S PETREL (*ÆSTRELATA FISHERI*).

BY ROBERT RIDGWAY.

Plate IV.

NOTWITHSTANDING more attention has been paid during recent years to the collecting of specimens of the Procellariidæ, no additional information has yet been acquired concerning *Æstrelata fisheri*, described more than twelve years ago from a single specimen obtained in the harbor of Kadiak Island on June 11, 1882, by Mr. Wm. J. Fisher, at that time U. S. Tidal Observer at that station.

With the view to bringing this rare and little known bird prominently to the attention of ornithological collectors, as well as to make its identification more easy, this article and the accompanying colored plate are herewith presented.

Æstrelata fisheri Ridgway. FISHER'S PETREL.

Specific characters.—Inner webs of primaries abruptly white for at least the inner half; top of head white, spotted with dusky gray; back uniform bluish gray; inner web of two outer rectrices vermiculated with white and ash gray; under parts largely smoky brown. Wing about 10 inches.

Adult (?) male, type of the species, No. 89431, U. S. Nat. Mus., Kadiak Island, Alaska, June, 11, 1882; William J. Fisher.—Head, neck, and lower parts pure white, but this unvaried only on sides of forehead, lores, malar region, chin, throat, chest and under tail-coverts; feathers of middle of forehead (longitudinally) and fore part of crown, marked with a central spot of slate-color, the feathers of the hinder part of crown and occiput similarly marked but the spots becoming gradually more transverse posteriorly, and, at the same time, the lighter borders of the feathers more grayish; a blackish spot immediately before and beneath the eye; sides of breast washed with grayish, and belly and flanks overlaid by a nearly uniform wash of deep smoky gray, all the feathers being pure snow-white immediately beneath the surface; many of the feathers of the sides barred with plumbeous gray; anterior under wing-coverts dark sooty gray or slate-color, the coverts along the outer margin of the under side of the wing mainly of the same color; rest of wing-lining, with inner webs of primaries, uniform pure white, the quills having merely a narrow, but abruptly defined, dusky stripe next the shaft, the white portion being margined for a short distance along the terminal portion with grayish; axillars mainly plumbeous, or barred with the same. Hind neck, back, scapulars, rump, and upper tail-coverts plumbeous, darkest on the lower part of the rump, the feathers with distinct dusky shaft-streaks, except on the hind neck. Tail white with very irregular zigzag bars of plumbeous gray, the innermost rectrices mainly gray (the middle pair, however, are wanting). Lesser wing-coverts dark slate (many shades darker than the back); greater coverts, secondaries, and tertials plumbeous gray, more silvery toward edge of wing, very distinctly edged with pure white; three outer primaries and primary coverts slate black, the inner quills gradually more grayish, and narrowly bordered with white. Bill wholly deep black; tarsi, most of basal phalanx of inner toe, and basal portion of webs, light brownish (flesh-color in life?), rest of feet dusky. Wing, 10.15 inches; tail, 4.00, slightly graduated; culmen, 1.00; depth of bill at base, .40, width at base, .40; tarsus, 1.35; middle toe, 1.40.

Fisher's Petrel appears to be very distinct from any other known species, its nearest relatives, apparently, being Peale's Petrel, *Æ. gularis* (PEALE),¹ and De Filippi's Petrel, *Æ. defilip-*

¹*Procellaria gularis* PEALE, Zool. U. S. Expl. Exp. 1848, 299 (Antarctic Ocean; U. S. Nat. Mus.).

Æstrelata gularis BREWSTER, Bull. Nutt. Orn. Club, IV, 1881, 94 (part).—BAIRD, BREWER, & RIDGWAY, Water B. N. Am. II, 1884, 397 (part).

Æstrelata gularis RIDGWAY, Man. N. Am. B. 1887, 67.

Æstrelata mollis (nec *Procellaria mollis* GOULD) COUES, Proc. Ac. Nat. Sci. Philad. 1866, 150, 151 (part).

piana GIGLIOLI and SALVADORI.¹ The former agrees with *Æ. fisheri* only in the pattern of coloration of the inner web of the primaries, being otherwise very distinct in plumage and having the bill much stouter, the tarsi and toes decidedly shorter, and the wing also shorter. *Æ. defilippiana*, although bearing a slight superficial resemblance in general coloration, is even more distinct, as the following comparative diagnoses, drawn up from the type of *Æ. fisheri* and two examples of *Æ. defilippiana*, one in the American Museum of Natural History, New York City, the other in the collection of Canon Tristram, will show:—

COMPARATIVE CHARACTERS OF *Æstreclata fisheri* AND *Æ. defilippiana*.

Æ. fisheri.—Lower parts chiefly smoky grayish brown on the surface, this color nearly uniform on belly and flanks; greater wing-coverts, secondaries and tertials silvery gray, broadly edged with pure white, the lesser coverts uniform dusky in strong contrast; rectrices (except middle pair) white, transversely vermiculated on both webs with ash gray; top of head white, spotted with dusky; feet, including webs, dusky, except basal portion of inner web and toe. Wing, 10.15; tail, 4.00 (graduated for .90 of an inch); culmen, 1.00; tarsus, 1.35; middle toe with claw, 1.70.

Æ. defilippiana.—Lower parts entirely pure white, except on sides of breast, which are ash gray, like the nape. Outer surface of wings uniform dusky; rectrices uniform ash gray, except two outer pairs, which have inner webs white (the second finely sprinkled with gray towards end), the outer webs finely mottled gray; feet, including webs, pale-colored (fleshy in life), except outer side of outer toe, which is dusky. Wing, 8.70–9.00; tail, 3.80–4.25 (graduated for .90–1.00 inch); culmen, 1.04–1.10; tarsus, 1.07–1.20; middle toe with claw, 1.37–1.40.

The two species are, in fact, very distinct. *Æ. defilippiana* is decidedly less in general size, although the bill is absolutely larger than in *Æ. fisheri*. The lower parts are entirely white,

¹ *Æstreclata defilippiana* GIGLIOLI & SALVADORI, Ibis, V, ii. s. Jan. 1869, 63 (off coast of Peru, lat. 18° 4' S., long. 79° 35' W.); Atti Soc. Ital. Nat. XI, 1869, 453.—GIGLIOLI, Fauna Vertebr. nell' Oceano, 1870, 43.—RIDGWAY, Man. N. Am. B. 1887, 68.

Æstreclata defilippiana SALVIN, Rowley's Orn. Misc. I, pt. iv, May, 1876, 255, pl. 33.—RIDGWAY, Proc. U. S. Nat. Mus. VI, 1886, 657, 658, in text; VIII, 1885, 17, 18.

except on the sides of the breast, where there is an encroachment of the pure ash gray of the nape. The top of the head is quite uniform gray, except anteriorly, where the feathers are bordered with white, producing a distinct squamation. The wings are entirely concolor on their outer surface, and the inner web of the outer tail-feather is wholly pure white.

The synonymy of *Æ. fisheri* is as follows :—

Æstreclata fisheri RIDGWAY, Proc. U. S. Nat. Mus. V, June 26, 1883, 656 (Kadiak, Alaska; U. S. Nat. Mus.); VIII, 1885, 17, 18 (comparison with *Æ. defilippiana*).—BAIRD, BREWER, & RIDGWAY, Water B. N. Am. II, 1884, 396.—COUES, Key, 2d ed. 1884, 780.

Æstreclata fisheri AMERICAN ORNITHOLOGISTS' UNION, Check-List, 1886, No. 100.—RIDGWAY, Man. N. Am. B. 1887, 68.

?? *Fregatta grallaria* (nec *Procellaria grallaria* VIEILLOT) NELSON, Cruise Corwin in 1881 (1883), 113 (Aleutian Islands southward).

GÄTKE'S HELIGOLAND.¹

BY ELLIOTT COUES.

There is no Heligoland but Heligoland, and Gätke is its prophet. The name means "holy land," and this island in the North Sea is a sort of Mecca to which all good birds must make their pilgrimage or perish in the attempt. Heligoland may more literally be called the magnetic pole of the bird-world, so irresistibly does it seem to attract birds to deviate from ordinary Zugstrassen (flight-lines)—either in isolated wanderings from Asia, Africa or America, or in vast mass-migrations that overshadow the land like clouds crossing the skies. Heligoland is the most peculiarly favored, longest

¹ Heligoland | as an | Ornithological Observatory | the Result of Fifty Years' Experience | by Heinrich Gätke | [etc., 5 lines] | translated by | Rudolph Rosenstock, M. A. Oxon. | [Vignette and motto] | Edinburgh: David Douglas, 10 Castle Street | 1895 | 1 vol., roy. 8vo. pp. xii, 599, 2 portraits of author and various figs. in text.

established and successfully operated ornithological observatory in the world. Gätke's figure is unique in our annals; not one of us can remember a time when he has not stood alone for all we know of the subject to which his life has been devoted, like a veritable Pharos, throwing a steady light upon the dense darkness of our ignorance. The veteran is now in his eighty-third year; he has kept ceaseless watch for half a century; and this volume gives the ripe fruit of his long vigilance, without a sign of failing powers, with the enthusiasm of youth unabated, with scrupulous fidelity to facts, and with scientific precision of statement. It is one of the most original, most remarkable, and most valuable books ever written about birds. I am sure no reader of 'The Auk' can fail to be interested, if I succeed in reflecting upon these pages anything like an adequate representation of Gätke's results.

About one-fourth of the work is devoted to a treatise upon migration in general, as viewed from the Heligoland standpoint, and this is followed by one chapter on color-changes without moult, or what I have called aptosochromatism. The main body of the work is occupied with the systematic consideration of the 397 or 398 species which occur or have occurred on this island, the whole record being given in minute detail. I will revert to the first-mentioned matters in the sequel, when we shall find that some of Gätke's results are nothing short of astounding. But first, let us proceed to some analysis of this extraordinary local list.

To appreciate the situation, we must know that Heligoland is a little island in the German Ocean, due east of the mouth of the Humber in England. It is a mere islet, in fact—a sea-girt red rock of triangular shape, with a flat top and steep sides, practically inaccessible except at one end, where there is a low sand-spit and a broken escarpment; the total length is 5,700 feet, or little over a mile. The rock is bare except for the green turf—so bare that the "throstle bushes," or contrivances made of brush and network to catch thrushes, are among the conspicuous features of the surface. There is a little town, whose buildings are mainly at one corner of the island, and a lighthouse. Such is the scene of Gätke's lifelong labors, to which billions of birds fly regularly; and among them his watchful eye has found astrays from every quarter of the globe.

The first thing that strikes us, on ciphering out the extraordinary list, is the preponderance of land-birds over water-birds which visit the sea-girt rock. The figures are 248 of the former to 150 of the latter, or almost precisely as 3 : 2—that is to say, three-fifths of the population are land-birds, and two-fifths are waders and swimmers. Such a proportion, for such a place, is altogether exceptional; we should expect only a fair sprinkling of land-birds in an avifauna mainly represented by aquatic species.

Another curious thing is, that Heligoland is the home of hardly any birds. The natives cut no figure whatever in the society of this very select spot—no more than New York's 'Four Hundred' do in the real life of that metropolis. Thus Gätke says (p. 577) : "Of the nearly 400 species of birds comprised in the avifauna of Heligoland only three species regularly, year after year, have made their breeding home upon this island rock, these being the Guillemots,¹ a few pairs of the Razorbill, and about twenty pairs of Sparrows; but these have been joined within the last few years by a few pairs of Starlings and House Martins." Nevertheless, there are a few others which have been known to breed occasionally, or which formerly did so and do not now. Considering these, I make out the following list :—

1. *Sturnus vulgaris*. Properly a migrant, in profusion, with migrations peculiar in several respects; but a few pairs have bred, as above said.
2. *Hypolaïs icterina*. Migrant, formerly common, now rare; a pair bred, summer of 1876.
3. *Saxicola œnanthe*. Properly a migrant, common; but has (probably) bred occasionally.
4. *Motacilla alba*. Migrant, but mainly a summer bird which breeds occasionally or tries to do so.
5. *Motacilla rayi*. Migrant, early and regular, not common; known to have bred twice.
6. *Anthus arboreus*. Migrant, May and August, September, common; nested once, but the eggs were destroyed.

¹ *Uria troile* and *U. ringvia*. In Gätke's list these count as two species, Nos. 384 and 385. His total numeration is ostensibly 396; to which add No. 248a, *Otis tarda*, given in preface but not numbered, and No. 254a, *Platalea leucorodia*, interpolated in the list, making in all 398—or 397 without counting *U. ringvia*.

7. *Alauda arvensis*. Almost resident; only common in migration; breeds occasionally.
8. *Fringilla cœlebs*. Migrant, chiefly April and September, October; breeds now and then.
9. *Acanthis rufescens*. Occasional. A pair bred in 1872.
10. *Passer domesticus*. The only land-bird which is a resident and regular breeder.
11. *Chelidon urbana*. Common, chiefly in migration; a small colony breeding.
12. *Hæmatopus ostralegus*. Common; chiefly in migration, but seen at any season; has bred occasionally.
13. *Larus argentatus*. Commonest Gull at any season; formerly bred, when protected—up to about 80 years ago.
14. *Uria troile* (and *ringvia*). Regular breeder; now about 2,000 birds, formerly more; protected by law to July 25.
15. *Alca torda*. A few, regularly breeding with the Murres.
16. *Fratercula arctica*. A few, usually seen among the Murres; formerly bred.

This finishes the few species ever known to be native to Heligoland; and most of these are only fortuitous in this relation, their real character being that of migrants, thus requiring to be reconsidered in another connection.¹

Proceeding now to further analysis of the list, we at once encounter a difficulty; for Gätke's birds are often non-conformists, which do not fit well in the several categories we are accustomed to. When we speak of summer visitants, we generally mean breeders, which few of Gätke's are. Many of his winter visitants are genuine migrants of that season. Various other vagaries, or what seem so to us, develop as we scan the record. I will venture, however, upon a second list which shall include species that are neither breeders, nor regular spring and fall migrants only, nor yet belong to the astonishing array of mere astrays. It would be a short one, were it not for Sea-ducks and Sea-gulls:—

¹Herr Gätke is an ornithologist of the old school which includes such honored names as those of Blasius and Naumann in Germany, and too well founded in the faith of bygone days to yield to innovations in classification and nomenclature upon which some of us boys plume ourselves. In the above list, and others to follow, I use in the main the modern names which his translator, Rosenstock, supplies in footnotes, unless I know some other name which seems to suit our code better. The present occasion is not one of canonical scrupulosity in terminology—it is simply ornithological.

1. *Haliaeetus albicilla*. Irregular winter visitant; mostly young birds; one adult taken Feb. 3, 1875; another one seen.
2. *Pandion haliaëtus*. Regular summer visitant, chiefly April to Sept., but no breeding record.
3. *Buteo buteo*. Common at any season, except in June and July.
4. *Archibuteo lagopus*. Resident, *i. e.*, may occur at any season — not that any one individual necessarily stays the year around; common in migration; casual in winter; not a breeder.
5. *Troglodytes parvulus* (*Anorthura troglodytes*). Resident, except in summer; no breeding record.
6. *Anthus rupestris* (*obscurus*). Common all the year, except in summer.
7. *Emberiza citrinella*. Resident in varying numbers; no breeding record; common in migration.
8. *Plectrophenax nivalis*. Chiefly and most properly winter visitant, but some as early as Aug. and Sept.; later abundant; 3 specimens in full dress.
9. *Acanthis cannabina*. Chiefly migrant, but winters; common during most of the year — Aug. to Apr.
10. *Acanthis flavirostris* (*montium*). Chiefly migrant, but common Oct. to Apr.
11. *Acanthis linaria*. (Mealy Redpoll of the European writers.) Irregular winter visitant, sometimes in innumerable multitudes in the fall; always rare in spring.
12. *Chloris chloris*. Great numbers migrating through winter of 1884-5; some seen till end of May.
13. *Gallinago gallinago*. Common, and only absent in June and July; great flights sometimes in winter.
14. *Tringa maritima*. Mainly and properly winter visitant; some in Aug., Sept., and in spring.
15. *Calidris arenaria*. Mainly winter visitant; common from end of July; only stragglers in May.
16. *Cygnus musicus*. Flights of 10, 20 or more migrating every winter.
17. *Bernicla brenta*. Flights every winter, like those of the Swans.
18. *Mareca penelope*. Fairly frequent in winter.
19. *Tadorna cornuta*. Rare; mostly young birds in Aug., Sept.; some old ones in winter.
20. *Oidemia nigra*. Myriads in winter on the sea.
21. *Oidemia fusca*. Myriads in winter on the sea.
22. *Aythya marila*. Very common, especially in severe winters.
23. *Aythya cristata*. Rare, in severe winters.
24. *Aythya ferina*. Rare, in severe winters.
25. *Glaucionetta clangula*. Common, especially in severe winters; mostly females and young males.
26. *Clangula hyemalis*. Common, especially in severe winters; earliest Duck to arrive.

27. *Somateria mollissima*. Common in autumn and winter, irrespective of the weather.
28. *Mergus merganser*. Common in severe winters, rare in mild ones.
29. *Mergus serrator*. Very common in severe winters.
30. *Mergellus albellus*. Rare, in winter—hardly more than a straggler.
31. *Phalacrocorax carbo*. Rare and irregular, in winter; only one ever taken in full dress.
32. *Phalacrocorax graculus*. Like the last, but rarer.
33. *Sula bassana*. Occasional at any season, except Jan. and Feb. of hard winters; but no breeding record.
34. *Rissa tridactyla*. Commonest Gull, from Oct. to Feb.; much killed for food and ornament.
35. *Larus glaucus*. Frequent, in late fall and winter; never seen in full dress.
36. *Larus leucopterus*. Rare in winter—hardly to be seen every winter.
37. *Larus marinus*. Common, in autumn and winter, but extremely rare in full dress.
38. *Larus fuscus*. Not common; chiefly young birds in Sept.
39. *Larus canus*. Common in winter.
40. *Larus ridibundus*. Rare, especially old birds; young ones in sporadic flocks.
41. *Larus minutus*. Common in migration, from Sept. onward, but many also winter. Only twice taken in full dress (once Nov. 15, 1861).
42. *Fulmarus glacialis*. Irregular, mostly isolated cases; sometimes common in Nov. and Dec.
43. *Procellaria pelagica*. Taken almost every winter, but hardly regular; 8 or 10 in Nov., Dec. 1879.
44. *Urinator immer*, better known as *Colymbus torquatus*. Common in late fall and winter; rarely seen in full dress.
45. *Urinator arcticus*. Frequent in winter; only one specimen ever taken in full dress.
46. *Urinator lumme*. Commonest Diver in winter; immense flights occasionally.
47. *Cephus grylle*. Common, in Aug., fall, and winter; rarely seen in full dress.
48. *Alle alle*. Common late in autumn and in winter.
49. *Colymbus griseigena*. Frequent in fall, rare in winter, no bird in full dress seen for 20 years.
50. *Colymbus auritus* (*cornutus* Auct.). Common in fall and winter.

This list of 50 species includes a few "irregulars," and a few others which are "resident" after a fashion; for the rest it is the list of regular winterers of Heligoland. In this category, the land-list is only about one-fifth; and if we except roving flocks of some of these species, the numbers of individuals bear no calcu-

lable proportion to those of the water-birds. Of the latter, the main body is composed of marine Anatidæ and Laridæ. The implication of "severe" winters is, when the Baltic and other waters, which would ordinarily have their quota of sea-birds, are frozen up to an extent which drives hordes of such birds elsewhere.

Elimination of the foregoing $16 + 50 = 66$ species leaves us the main bulk of the Heligoland list to be considered under the two categories of (1) regular migrants and (2) accidental visitants. Singular as it may seem, the latter are largely in excess of the former. Though it be quite true that a hard and fast line cannot be drawn in every case between these two categories, yet it is easy to separate them in most instances. The number of species which seem to have no business in Heligoland, or which ought to have business there but seldom attend to it, is the phenomenal result of Gätke's career as an ornithological detective. I find that a round 200 birds — one-half of the entire ornithis, and one or two more for good measure — have been found in Heligoland in violation of law and order. If this shocks our conventional ideas of propriety, there is still worse to be said, and we will let the veteran say it at once. He is speaking of meteorological conditions which had yielded him a batch of rarities, and continues (p. 331): "I myself feel convinced that such material as comes under our observation forms only a small fraction of what is really abroad under these conditions; indeed I have frequently expressed myself as ready to exchange the whole of my collection, wonderful as it is, for all the birds which have occurred here without having been seen or killed, if that were possible; the only reservation which I would make in this exchange being the splendid example of *Larus rossii*, of which I am the fortunate owner." To feel the full force of these words, we must remember that his collection is the result of 50 years' work, and represents *almost* every capture ever made on the island. We will proceed with the list, which I will annotate in the briefest possible terms, according to Gätke's indications; and it will be convenient to set in double column with it the corresponding list of the regular migrants, similarly annotated, for comparison of related species as far as possible. I follow the same sequence in which Gätke treats the species: —

MIGRANTS.

1. *Falco gyrfalco*. Every fall, Oct. and Nov.; 6 or 8 specimens in all.

2. *Falco peregrinus*. Spring and fall, regular, not common.

3. *Falco subbuteo*. Spring and fall, regular, common.

4. *Falco æsalon*. Spring and fall, regular, commonest Hawk.

5. *Falco tinnunculus*. Spring and fall, regular, common; casual at other seasons.

6. *Pernis apivorus*. Regularly; very common in May, and in Aug. and Sept.

7. *Accipiter nisus*. Common, chiefly Aug. to Nov.

8. *Circus æruginosus*. } Rare or

9. *Circus cyaneus*. } casual—

10. *Circus cineraceus*. } hardly

more than stragglers.

STRAGGLERS.

1. *Falco candicans*. Specimen Oct., 1843; seen, Sept. 19, 1843, and in two or three other cases.

2. *Falco sacer*. One specimen, 1839 or 1840.

3. *Falco feldeggi*. One specimen, summer of 1840.

4. *Falco eleonoræ*. One seen, May 26, 1879.

5. *Falco cenchris*. Three cases; two specimens, one in summer of 1839 or 1840.

6. *Falco vespertinus*. Six cases, five specimens, 1840 to 1887, mostly May and June.

7. *Aquila chrysaëtos*. Four cases in 40 years; one taken Nov. 18, 1867.

8. *Aquila pomarina*. Two cases; one taken in 1838.

9. *Circætos gallicus*. Two cases; one taken in 1835.

10. *Accipiter palumbarius*. Four or five cases in 50 years; two taken, one of them Mar. 8, 1880.

11. *Milvus ictinus*. Once or twice a year; 3 specimens in 50 years.

12. *Milvus ater*. One specimen, many years ago.

13. *Circus swainsoni*. One visitation of seven individuals (?); one specimen, Aug. 12, 1858.

14. *Strix flammea*. Casual; 10 or 11 individuals in Oct. 1876.

15. *Syrnium aluco*. One specimen.

16. *Athene noctua*. One specimen, many years ago.

17. *Nyctala tengmalmi*. About 30 cases in 50 years.

18. *Megascops giu*. One specimen, May 16, 1862.

MIGRANTS.

11. *Asio otus*. Spring and fall, not rare.

12. *Asio accipitrinus*. Spring and fall; the commonest Owl by far.

13. *Corvus corone*. Rare and exceptional, among countless flocks of *C. cornix*.

14. *Corvus cornix*.
15. *Corvus frugilegus*.
16. *Corvus monedula*. } In profusion in migration; astonishing flights, many thousands a day in spring and fall.

17. *Garrulus glandarius*. Millions sometimes in fall; some years none.

18. *Lanius excubitor*. Rare and isolated cases, in spring and fall.

19. *Lanius "borealis Vieill."* (*major* Pall.) More frequent than the last, under same circumstances.

20. *Muscicapa atricapilla*. Commonest Flycatcher, especially in fall.

21. *Muscicapa grisola*. Common, especially in May, June and July; no breeding record.

22. *Muscicapa parva*. Formerly common, in fall; rare 1875 to 1880; none seen since.

STRAGGLERS.

19. *Nyctea nyctea*. One specimen, fall of 1839 or 1840; probably one other seen.

20. *Surnia ulula*. One specimen, in the '30's; two seen afterward.

21. *Corvus corax*. One specimen, fall of 1841; two seen afterward.

22. *Pica pica*. Two cases; one specimen, Nov. 11, 1876.

23. *Nucifraga caryocatactes*. Three specimens, Aug. 1844, Oct. 17, 1853, and one later.

24. *Perisoreus infaustus*. Once seen, Apr. 14, 1849.

25. *Pyrrhocorax alpinus*. One specimen, long ago; one seen, Sept. 14, 1868, and two afterward.

26. *Pyrrhocorax graculus*. Two cases, May 1871 or '72, and Mar. 28, 1877.

27. *Lanius meridionalis* (Temm.). One specimen thus identified.

28. *Lanius minor*. Isolated cases of late years, formerly less rare, in spring.

29. *Lanius rufus*. Five specimens in 40 years, May and June.

30. *Lanius collaris*. Isolated cases of late years, formerly less rare, Apr. and May.

31. *Lanius isabellinus*. One specimen, Oct. 25, 1854.

32. *Muscicapa collaris*. One specimen, June 3, 1860.

33. *Ampelis garrulus*. Sporadic; small flights in Sept. 1847 and Jan. 1850; most years none.

MIGRANTS.

23. *Pastor roseus*. About 40 cases in 50 years, chiefly in June.
24. *Turdus viscivorus*. Rare, but regular; perhaps 20 a year could be taken.
25. *Turdus musicus*. Commonest Thrush; 100 to 1,000 taken some days.
26. *Turdus iliacus*. Common; fall migration extends into winter.
27. *Turdus pilaris*. Common.
28. *Merula merula*. Very common; migrates early in spring, late in fall.
29. *Merula torquata*. Common; migrates late in spring, early in fall.
30. *Daulias lusciniæ*. [Regular, Apr. and May; rarely if ever seen in fall; song never heard.
31. *Cyanecula suecica*. Common; sometimes 30 to 60 specimens a day, in May.
32. *Cyanecula leucocyanea*. Rare; 8 or 10 shot in 50 years; a flight in Apr. 1877.

STRAGGLERS.

34. *Oriolus galbula*. One specimen in 50 years.
35. *Turdus varius* (Pall.). Shot 13 times, 1827 to 1884, chiefly in Oct.; seen 6 or 8 other times.
36. *Turdus dauma*. One specimen, about 1836.
37. *Turdus obscurus* Gm. (*pallens* Pall.). One seen, not taken, June 3, 1881.
38. *Turdus swainsoni*. One specimen, Oct. 2, 1869.
39. *Turdus pallasii* (Cab.). One specimen, Oct. 1836
40. *Turdus fuscescens*. One specimen, about 1833.
41. *Turdus fuscatus* (Pall.). One specimen, Oct. 10, 1880.
42. *Turdus ruficollis* (Pall.). One specimen, Oct. 1836.
43. *Turdus atrigularis* (Temm.). One seen near the Island in May.
44. *Merula migratoria*. One specimen, Oct. 14, 1894.
45. *Monticola saxatilis*. Three specimens, May 9, 1851, May 17, 1860, Nov. 12, 1874; a few others seen.
46. *Monticola cyanus*. One specimen, about 1830-32.
47. *Galeoscoptes carolinensis*. One specimen, Oct. 28, 1840.
48. *Harporhynchus rufus*. One specimen, fall of 1836.
49. *Pycnonotus xanthopygus*. One specimen, May, 1837
50. *Daulias philomela*. One specimen, caught at light-house, night of May 4-5.
51. *Aëdon familiaris*. One specimen, in the 30's; two other supposed cases.
52. *Cyanecula wolffi*. One specimen, Mar. 30, 1848; 3 other cases.

MIGRANTS.

33. *Erithacus rubecula*. Very common in early spring and late fall migrations; sometimes winters.

34. *Ruticilla phœnicurus*. Very common in late spring and early fall migration.

35. *Ruticilla tithys*. Common in early spring and late fall migration, sometimes to Dec.

36. *Sylvia cinerea*. Common, Apr., May, and Aug., Sept.

37. *Sylvia curruca*. Regular, not common, Apr., May, and Sept., Oct.

38. *Sylvia hortensis*. Common, Apr., May, and Aug., Sept.

39. *Sylvia atricapilla*. Regular, not common, Apr., May, and Oct., Nov., even Dec.

40. *Sylvia nisoria*. Rare, and hardly regular; chiefly in May.

41. *Phylloscopus sibilatrix*. Rare, hardly regular, in May, July, and Aug.

42. *Phylloscopus trochilus*. Commonest Warbler, especially in May, and Aug., Sept.

43. *Phylloscopus rufus*. Next commonest Warbler; earliest spring and latest fall migrant of the genus.

STRAGGLERS.

53. *Ruticilla mesoleuca*. One specimen, June 12, 1864.

54. *Ruticilla moussieri*. One specimen, summer of 1842.

55. *Sylvia orphea*. One specimen, July 8, 1876; two other cases reported many years ago.

56. *Sylvia melanocephala* (Gm.). One specimen, many years ago.

57. *Melizophilus undatus*. One specimen, no date; also one seen, May 31, 1851.

58. *Phylloscopus bonellii*. Two specimens, Oct. 8, 1861, and Oct. 9, 1874.

59. *Phylloscopus tristis* (Blyth). One specimen, Oct. 1846; a few others seen.

60. *Luscinola fuscata* (Blyth). One specimen, Oct. 24, 1876.

61. *Phylloscopus superciliosus*. Over 80 seen and 32 or 33 taken from 1846 to 1886, all but two in the fall.

62. *Phylloscopus proregulus*. Specimen taken Oct. 6, 1845; one seen Oct. 29, 1875.

63. *Phylloscopus coronatus*. One specimen, Oct. 4, 1843.

64. *Phylloscopus borealis*. Specimen taken, Oct. 6, 1854; one seen, June 1, 1859.

65. *Phylloscopus viridanus*. Three specimens, Sept. 25, 1878, May 30, 1879, June 3, 1880.

66. *Phylloscopus nitidus*. One specimen, Oct. 11, 1867.

67. *Hypolais polyglotta*. One specimen, May 23, 1846.

MIGRANTS.

44. *Acrocephalus streperus*. Formerly almost regular, now rare, little more than a straggler.
45. *Acrocephalus palustris*. Rare, but regular; formerly less rare; very early fall migration.
46. *Acrocephalus phragmitis*. Common, Mar. to May, and Aug. to Oct.
47. *Acrocephalus aquaticus*. Rare, hardly every year; common in 1855 and 1856.
48. *Locustella naevia*. Rare, and irregular; oftenest in May and Aug.
49. *Regulus cristatus*. Common, some years in profusion, Mar., Apr. and Sept.—Nov.
50. *Regulus ignicapillus*. Regular, not common; earlier in spring, later in fall than the last.
51. *Accentor modularis*. Regular, common.
52. *Pratincola rubetra*. Common, regular migrant, in May, and Aug., Sept., perhaps in summer.
53. *Pratincola rubicola*. Less common but regular migrant, from end of Feb., and again in the fall.

STRAGGLERS.

68. *Hypolais olivetorum*. One specimen, in 1860.
69. *Hypolais pallida*. One specimen, Sept. 20, 1883.
70. *Hypolais caligata*. One specimen, Sept. 28, 1851.
71. *Acrocephalus turdoides*. One specimen, about 50 years ago.
72. *Acrocephalus agricola*. One specimen, June 12, 1864.
73. *Locustella certhiola*. One specimen taken at light-house, Aug. 12 of 1858 or an earlier year.
74. *Locustella fluviatilis*. One seen May 9, 1854.
75. *Dendroica virens*. One specimen, Nov. 19, 1858.
76. *Accentor alpinus*. Three specimens, May 1852, May 1870, and Oct. 1862; others seen.
77. *Cinclus melanogaster*. Five specimens.
78. *Cinclus pallasi*. Seen, 1847 and later.
79. *Saxicola albicollis (aurita* Temm.). Two specimens, Oct. 26, 1851, May 12, 1860.
80. *Saxicola stapazina*. One specimen, about 1840.
81. *Saxicola deserti*. Three specimens, Oct. 4, 1856, Oct. 26, 1857, June 23, 1880.
82. *Saxicola capistrata (morio* Ehr.). Two specimens, May 9, 1867, June 6, 1882.
83. *Saxicola leucura*. One seen Aug. 11, 1880.

MIGRANTS.

54. *Motacilla lugubris* (*yarrelli*). Earliest migrant, in Feb. and Mar.; seldom seen in the fall.

55. *Motacilla flava*. Regular, and common, especially in the fall.

56. *Motacilla melanocephala*. Regular, and probably common.

57. *Anthus pratensis*. Common, chiefly migrant, Feb. to May, and Aug. to Nov.; a few may winter.

58. *Anthus cervinus*. Rare, irregular, chiefly noticed in Sept., especially of 1884.

59. *Anthus campestris*. Rare, irregular, in May and Aug.

60. *Anthus richardi*. Common, especially in Sept. and Oct. of certain years.

61. *Alauda arborea*. Irregularly common, chiefly in Feb., Mar., and Oct., Nov.

62. *Calandrella brachydactyla*. Rare, hardly more than a straggler; about 60 cases in 50 years, in May, June, and Sept. to Nov. inclusive.

63. *Otocoris alpestris*. In steadily increasing profusion since 1847.

64. *Emberiza miliaria*. Irregular, usually rare, in Mar. and Nov.; common Nov. 1883.

65. *Emberiza hortulana*. Commonest Bunting, in May, and in Aug., Sept.

66. *Emberiza schœniclus*. Usually rare; common in fall of 1884.

STRAGGLERS.

84. *Motacilla melanope* (*sulphurea*). About once in 5 years, in first half of Mar.

85. *Motacilla citreola*. Five cases in 40 years, all in early fall plumage.

86. *Anthus aquaticus*. Two cases; one taken.

87. *Anthus pensilvanicus*. Two specimens, Nov. 6, 1851, and May 17, 1858.

88. *Calandrella pispoletta*. One specimen, May 26, 1879.

89. *Melanocorypha calandra*. One specimen, early in June of 1839 or 1840.

90. *Melanocorypha sibirica*. Two specimens, Aug. 2, 1861, June 2, 1886.

91. *Melanocorypha yeltoniensis*. Two specimens, Apr. 27, 1874, July 27, 1892.

92. *Galerita cristata*. Scarcely one every three or four years.

93. *Emberiza aureola*. Three specimens, Sept. 18, 1852, Nov. 5, 1864, July 8, 1870.

94. *Emberiza cirrus*. Two specimens, Apr. 27, 1862, Mar. 31, 1883.

95. *Emberiza cinerea*. One identified, not taken, June, 1877.

96. *Emberiza cæsia*. Formerly, nearly every May or June; only one seen in past 20 years.

MIGRANTS.

STRAGGLERS.

67. *Fringilla montifringilla*. Common, chiefly in Apr. and Sept., Oct.
68. *Carduelis carduelis*. In Apr., May and Oct., seldom 3 to 5 a day.
69. *Spinus spinus*. Irregular, sometimes in profusion in fall, usually rare in spring.
70. *Coccothraustes coccothraustes*. Not common, and only in
97. *Emberiza cia*. Two specimens, one about 50 years ago, one Mar. 8, 1882.
98. *Emberiza leucocephala*. One specimen, Apr. 16, 1881.
99. *Emberiza pusilla*. Some 25 or 30 specimens since 1845, especially in 1879; all in the fall.
100. *Emberiza rustica*. Some 16 cases since 1839 or 1840, mostly in the fall.
101. *Emberiza pyrrhuloides*. One taken and others seen, Apr. 24, 1879.
102. *Emberiza melanocephala*. Some 15 cases since 1845, all in May or June but one in Aug.
103. *Emberiza luteola*. Two specimens, June 20, 1860, and in Sept. of a later year.
104. *Calcarius lapponicus*. Casual, chiefly in Sept. and Oct.; one taken in full plumage. (Perhaps better in the migrant list.)
105. *Dolichonyx oryzivorus*. Two specimens, each in summer, dates not given.
106. *Montifringilla nivalis*. One specimen, Mar. 30, 1849; another seen late in fall.
107. *Acanthis hornemanni*. One specimen, Oct. 24, 1879.
108. *Acanthis exilipes*. Occasional, with *L. linaria*; common in fall of 1847; one specimen, since then, Dec. 1, 1891.
109. *Spinus citrinella*. One specimen, many years ago; one seen Mar. 19, 1849.
110. *Serinus serinus*. Specimens July 14, 1860, June 8, 1879, 5 gray young seen June 28, 1879, and one adult seen July 11, 1879; may have bred that year.
111. *Serinus pusillus*. One seen May 7, 1886.

MIGRANTS.

spring and fall; many in Apr. 1881.

71. *Passer montanus*. Common, and likely to become a breeder.

72. *Pyrrhula pyrrhula*. Irregular, usually rare; common in fall of 1847.

73. *Parus major*. Formerly in profusion, Feb., Mar. and especially Sept. to Dec.; later less common most years, sometimes none.

74. *Parus ater*. Irregular; like the last, but less common; only some 15 specimens for last 25 years.

75. *Parus cœruleus*. Regular, not rare; later in spring and earlier in fall than *P. major*.

76. *Acredula caudata*. Sporadic, sometimes common, especially in fall, as of 1847 and 1878.

77. *Cuculus canorus*. Regular, but rare, and peculiar in times of migration.

78. *Iynx torquilla*. Common, during regular migration.

79. *Certhia familiaris*. Not common, and chiefly in the fall migration.

80. *Cypselus apus*. Common.

STRAGGLERS.

112. *Pyrrhula europæa*. One case.

113. *Pinicola enucleator*. Two specimens, many years ago.

114. *Carpodacus roseus*. One specimen. (See Blasius, Nachträge, p. 195.)

115. *Carpodacus erythrinus*. Four specimens from 1851 to 1884; other cases noted.

116. *Loxia pityopsittacus*. One specimen, many years ago.

117. *Loxia curvirostra*. Formerly frequent, but hardly ever seen since certain poplar trees were destroyed.

118. *Loxia bifasciata*. Occasional, with the preceding; frequent in fall of 1889.

119. *Parus palustris*. One specimen, many years ago.

120. *Parus borealis*. One specimen, Nov. 10, 1881.

121. *Parus kamtschatkensis*. One seen Nov. 1, 1876.

122. *Parus cristatus*. Once taken, twice seen.

123. *Panurus biarmicus*. One taken 50 years ago, one Nov. 8, 1847, one Apr. 5, 1849; seen on a few other occasions.

124. *Alcedo ispida*. Once or twice a year, usually; some years none.

125. *Merops apiaster*. One specimen, many years ago.

126. *Coracias garrulus*. Three specimens first about 50 years ago, last May 25, 1881.

127. *Dryobates major*. Isolated cases, not every year.

128. *Dryobates leuconotus*. One specimen, Sept. 21, 1879.

129. *Gecinus viridis*. Once seen.

130. *Cypselus melba*. One specimen; two other cases.

MIGRANTS.

81. *Hirundo rustica*. Common, sometimes hundreds of thousands, in Apr., May, Sept., Oct., into Nov.

82. *Cotile riparia*. Common, sometimes many thousands with *H. rustica*.

83. *Caprimulgus europæus*. Regular, not common, May, June, and Aug.

84. *Upupa epops*. Almost regular, but rare, some years none.

85. *Coturnix coturnix*. Very rare as a rule; common in Aug. 1878.

86. *Columba palumbus*. Regular, not common, Mar., Apr., and Sept., Oct., Nov.

87. *Columba œnas*. Rare, but usually a few each spring.

88. *Turtur turtur*. Common, May and June; especially so in 1885.

89. *Ciconia alba*. Rare, two or three individuals each spring.

90. *Ardea cinerea*. Rare, chiefly young, in fall.

STRAGGLERS.

131. *Hirundo savignyi* (*cahirica* Licht.). Once seen, May 20 and 21, 1881.

132. *Hirundo rufula*. One specimen, May 31, 1855.

133. *Caprimulgus ægyptius*. One specimen, Aug. 1876.

134. *Syrnhaptes paradoxus*. Common during the great irruption of 1863, also in 1872, again in 1876, greatest irruption of all in 1888, Apr. to July inclusive.

135. *Perdix perdix*. Occasionally reported, but only one specimen, July 17, 1889.

136. *Columba livia*. Taken at irregular intervals, about once in ten years.

137. *Turtur risorius*. One specimen, many years ago.

138. *Otis tarda*. One specimen, Apr. 18, 1895. (See Gätke's Preface.)

139. *Otis tetrax*. Two specimens, about 50 years ago; a third June 27, 1882.

140. *Cursorius gallicus*. One specimen in 1835 or 1836.

141. *Grus grus*. Once seen, Apr. 1867.

142. *Anthropoides virgo*. One specimen, May, 1837.

143. *Ciconia nigra*. Thrice seen; never taken.

144. *Platalea leucorodia*. (No data.)

145. *Ardea purpurea*. One specimen, June 9, 1847.

146. *Botaurus stellaris*. One or two specimens in 60 years.

147. *Ardetta minuta*. One specimen, before 1847.

MIGRANTS.

91. *Numenius arquata*. Myriads in regular migration from Feb. on, and from July on; some vast E. to W. flights in Dec. and Jan.

92. *Numenius phæopus*. In profusion in regular migration, later in spring and earlier in fall than *N. arquata*.

93. *Limosa lapponica (rufa)*. Rare, hardly more than a straggler, seldom seen in spring.

94. *Charadrius pluvialis*. Very common, especially in fall migration, Aug. to Nov.

95. *Charadrius squatarola*. Common in migration.

96. *Vanellus vanellus*. Common in migration.

97. *Eudromias morinellus*. Common, less so than formerly, chiefly May, and Aug., Sept.

98. *Ægialitis hiaticula*. Common, Mar. and Apr., returning from end of June on.

99. *Ægialitis cantiana*. Rare, hardly regular, but more than a mere straggler.

100. *Scolopax rusticola*. Common; some phenomenal flights; over 1,100 killed Oct. 21, 1823.

101. *Gallinago major*. Rare in spring, hardly common in fall.

102. *Gallinago gallinula*. Common, late in spring and early in fall.

103. *Totanus calidris*. Common in migration, in Apr. and again from end of June on.

104. *Totanus canescens (glottis)*. Regular, but only common in the all.

105. *Totanus ochropus*. Regular, but only common in fall; in spring from end of Mar. through Apr.

STRAGGLERS.

148. *Plegadis autumnalis*. One specimen, summer of 1824.

149. *Numenius tenuirostris*. One specimen, about 1839.

150. *Limosa belgica (melanura)*. Three specimens in all Gütke's experience.

151. *Charadrius fulvus*. Three specimens, June 25, 1857, June 18, 1860, July 11, 1867.

152. *Charadrius dominicus*. One specimen, Dec. 20, 1847.

153. *Ædicnemus scolopax*. Six specimens in 50 years, Apr., May.

154. *Ægialitis asiatica (caspiæ)*. Two specimens, Nov. 16, 1850, May 19, 1859.

155. *Ægialitis minor*. Two specimens in 50 years, one of them June 1866.

156. *Totanus fuscus*. About 12 specimens in 50 years; only perfect male June 11, 1847.

157. *Totanus stagnatilis*. One specimen, May 7, 1862.

MIGRANTS.

106 *Totanus glareola*. Regular, but very rare in fall; in spring, middle of Apr. to end of May.

107. *Actitis hypoleucos*. Commonest Sandpiper. (Periods not given.)

108. *Tringa canutus*. Regular, rather rare in spring, numerous in Aug. Sept.

109. *Tringa alpina* (including "*schinzi*"). Commonest of its genus, especially in Aug., Sept.; some winter.

110. *Tringa minuta*. Very rare in spring (one May specimen in 50 years); common in Aug., Sept.

111. *Tringa temmincki*. Like the last, but rather oftener in spring, less often in fall.

112. *Arenaria interpres*. Mainly migrant, common in Aug., Sept.; occasional in winter.

113. *Pavonella pugnax*. Only regular in fall, young birds; adults straggling in summer.

114. *Crymophilus fulcarius*. Not common, but young shot on the sea every fall.

115. *Rallus aquaticus*. Regular, but rare, early in spring and late in fall.

116. *Crex crex*. Common, Apr., May, and Aug., Sept.

117. *Porzana maruetta*. Rare; the few cases, chiefly in May and Aug.

STRAGGLERS.

158. *Actitis macularia*. One specimen, about 1837, in May; one seen May 1847.

159. *Himantopus candidus*. One specimen, about 50 years ago; one seen, June 25, 1879.

160. *Recurvirostra avocetta*. A few cases; last specimen in June 1871.

161. *Tringa subarquata*. One perfect specimen; a few young birds every autumn. (Perhaps rather belonging to the migrant list.)

162. *Limicola pygmæa*. One specimen, May 29, 1855.

163. *Tryngites subruficollis*. One specimen, May 9, 1847.

164. *Phalaropus lobatus*. Four specimens; first Nov. 1837, second May 15, 1870.

165. *Porzana parva* (*pusilla* Licht.). One specimen, Apr. 22, 1854.

166. *Porzana bailloni* (*pygmæa* Naum.). Two specimens, both May, the second one May 28, 1890.

167. *Gallinula chloropus*. Ten specimens in 50 years.

168. *Fulica atra*. Six or eight specimens in 50 years.

MIGRANTS.

118. *Anser cinereus*. Regular migrant each season.

119. *Anser segetum*. Commonest Goose.

120. *Anas boschas*. Not common in migration; emaciated birds occasional in winter.

121. *Querquedula crecca*. Common in both migrations.

STRAGGLERS.

169. *Cygnus olor*. One specimen many years ago, another Feb. 21, 1881.

170. *Cygnus bewicki*. One specimen, Mar. 17, 1875.

171. *Anser brachyrhynchus*. Two specimens, Mar. 30, 1880, a third in Oct. 1880.

172. *Anser albifrons*. One specimen about 40 years ago, another about 1888.

173. *Anser minutus*. One fall specimen, about 50 years ago.

174. *Chen hyperboreus*. None taken, but several cases, in winter and May.

175. *Bernicla leucopsis*. Two specimens in 50 years.

176. *Dafila acuta*. Five or six cases in 50 years.

177. *Chaulelasmus streperus*. One specimen, many years ago.

178. *Querquedula circia*. Three specimens in 50 years.

179. *Spatula clypeata*. One specimen, many years ago.

180. *Oidemia perspicillata*. One specimen, Oct. 9, 1855.

181. *Nyroca nyroca*. One specimen about 50 years ago.

182. *Somateria spectabilis*. One specimen, Jan. 11, 1879.

183. *Eniconetta stelleri*. Three young specimens, winter of 1844-45; a fourth Feb. 11, 1855.

184. *Larus affinis*. One specimen Aug. 20, 1870.

185. *Larus ichthyætus*. One case before Gätke's time, and probably one other.

186. *Larus philadelphia*. One specimen, "winter of 1845," qu. 1844-45, or 1845-46?

187. *Xema sabinei*. Two young specimens, Oct. 25, 1847, Oct. 28, 1883; another seen Nov. 10, 1883.

MIGRANTS.

122. *Sterna cantiaca*. Commonest Tern, Apr. to end of summer (no breeders).

123. *Sterna paradisæa* (*macrura*). Common, last half of May, again in Aug.

124. *Sterna hirundo*. Common Apr. to end of summer (no breeders).

125. *Gelochelidon nilotica*. Chiefly May to July, rare, over the land, not fishing at sea.

126. *Hydrochelidon nigra*. Rare or irregular, in migration, sometimes common in fall.

127. *Stercorarius pomatorinus*. Very rare in spring, young frequent or numerous in Oct. Nov.

128. *Stercorarius parasiticus*. Commonest Jaeger in migrations, less so now than formerly.

129. *Stercorarius longicaudus* (*buffoni* Boie). Hardly more than a straggler, but seen almost every fall; two adults taken in summer.

130. *Puffinus anglorum*. Formerly common; has totally disappeared within 25 years.

131. *Colymbus minor*. Frequent; periods not given.

STRAGGLERS.

188. *Rhodostethia rosea*. One specimen, Feb. 5, 1858.

189. *Gavia alba*. One adult identified, Jan. 20, 1850.

190. *Sterna dougalli*. Two specimens in 50 years, old summer birds.

191. *Sterna minuta*. None seen for past 10 years.

192. *Sterna tschegrava* (*caspia* Pall.) Exceptional; only one specimen ever taken, June 22, 1880.

193. *Megalestris skua*. Several cases; only specimen Nov. 6, 1880.

194. *Puffinus major*. Probably two cases; one specimen.

195. *Puffinus fuliginosus* (given as "*griseus* Gm."). One specimen, Oct. 25, 1888.

196. *Cymochorea leucorhoa*. Several cases; 3 specimens in Dec. 1850, 4 in Nov. 1888.

197. *Uria lomvia*. One specimen, many years ago.

198. *Cephus mandti*? One specimen, probably of this species.

199. *Colymbus cristatus*. Casual in winter; two cases in spring.

200. *Colymbus nigricollis*. One specimen, date not given.

Taking the four preceding lists as they stand, we have the following summary:—

Stragglers, for the most part entirely beyond their normal range.	200
Migrants, more or less regular, mainly in spring and fall.	131
Winterers, in some cases appearing at other seasons.	50
Breeders, but in most cases not regularly so.	16
	<hr/>
Total	397

This exhibit is simply phenomenal. In the first place the total is enormous, for such an apparently ineleagible and even forbidding spot in comparison with almost any fairly favored locality of such restricted extent, say in Germany, Great Britain, or the United States, where a list of 300 species would be a pretty large one. In the next place, and especially, the relative proportions of stragglers, migrants, winterers, and breeders are far and away from what is known of any other locality. There is no question of the approximate accuracy of the lists, whatever be the requisite rectification of Gätke's determinations in a very few cases, or any little readjustment of the figures for the four categories I have made out. No doubt Herr Gätke has been imposed upon in certain cases which he admitted upon hear-say evidence, and perhaps neither J. A. Harvie-Brown nor W. E. Clarke has compared Rosenstock's translation with the original German. But no such changes as these points may involve can affect the result materially. We have therefore to seek some explanation of the anomalous Heligolandish ornithology.

The most obvious factor in the case is of course Herr Gätke himself and the very unusual length of time which he has devoted to an extremely close scrutiny of the avifauna of a little bare island where birds cannot easily escape observation. We have thus a remarkable man, working under exceptionally favorable circumstances. Moreover, the record goes back of him — to 1827 at least — and in the general result we have the coöperation and contributions of several expert gunners, fowling and taxidermists, to say nothing of a generation or two of boys with their peashooters. We should therefore expect a large total, and a large proportion of rarities. But after making all due allowances to eliminate the "personal equation," the main features of the case appear to be intrinsic, attributable to Heligoland itself, in its

physiography, its environment, and especially its geographical position with reference to flight-lines. It may be called a Mecca, metaphorically, and with scarcely a figure of speech a magnetic pole, so powerfully does it seem to attract birds. No wonder that Herr Gütke speaks with enthusiasm of "Heligoland whose superior rank in the domain of bird-life is uncontested by the proudest empire," and of what he calls the "honorary citizenship" he has had the pleasure of conferring upon so many feathered representatives of Asia, Africa, and North America.

The slight annotations of the foregoing lists to which I am almost necessarily restricted in an article like the present give but a hint of the wealth of detail which Gütke's work embodies. Those who would pursue the subject beyond this wholly inadequate outline must of course read the book itself—say rather, study it carefully. But it is somewhat expensive, very special, and unlikely to be widely known in this country beyond ornithological centers; and I have not yet touched upon some matters it includes, which will be for many readers of 'The Auk' still more surprising than anything that has preceded thus far in the present sketch. For such an enormous and apparently fortuitous concourse of birds upon a single rock in the sea excites our curiosity to know how they get there; and this of course raises the whole question of migration-flight.

Gütke probably knows more about the ways of birds in the air than any other person now living, possibly than any person who has ever lived; consequently, he is modest in expressing his views, and simple in stating his facts. He makes none of the hasty generalizations and valiant asseverations to which the conceit of youthful ignorance is prone, and never dogmatizes—though no one else could be so easily forgiven ex cathedra. The most conspicuous result of his insistence upon the facts in the case is rank iconoclasm. He smashes our idols right and left; he leaves us at the mercy of our fables, helpless for lack of gods to supplicate, for he sets up none of his own in their places. He pushes explanation to the inexplicable; flight remains for him an "insoluble problem," and migration, a "wondrous mystery." Gütke knows too much about these things for our peace of mind, especially if we have ever plumed ourselves on our opinions to

the superfluous extent of strenuously insisting upon them in print. He files a general caveat we shall do well to heed. Isepipteses and magnetic meridians, coast-lines and river-channels, food-supply and sex-impulses, hunger and love, homing instincts and inherited or acquired memory, thermometer, barometer and hygrometer, may all be factors in the problem, good as far as they function; but none of them, and not all such together, can satisfy the whole equation. The subject has engaged the attention of many able writers; but the very excellence of Gütke's contribution to the scientific aspects of the case certifies that he has not said the last word, for it is sure to stimulate further research and excite renewed discussion. He devotes a chapter to each one of the following subjects: The course of migration generally in Heligoland; direction of the migration flight; altitude of the migration flight; velocity of the migration flight; meteorological conditions which influence migration; order of migration according to sex and age; exceptional migration phenomena; what guides birds during their migrations; and finally, the cause of the migratory movement. To go into any particulars here would be to slight others equally interesting and often equally surprising; but some points may be merely mentioned. Instead of north and south movements in all cases, there are some east and west, at right angles with meridians, independent of coast-lines. Instead of the thousands of migrants we may see, or the hundreds of thousands we may estimate, we are told of the millions and billions—such incalculable myriads flying past a single rock that all the destruction human agency could effect in all time would be inappreciable. Some of the distances, altitudes, and velocities of which migrating birds are proved to be capable would be incredible were they not so well attested; and such capacities for flight are shown in some instances of birds we are not accustomed to consider very good fliers. Meteorological conditions influence migration more profoundly than we commonly suppose; the alternation of day and night has some unsuspected effects. Birds are really better weather-prophets than our official 'forecasters' always show themselves to be, if not quite as good as the Roman haruspices supposed avian augury was. Birds in the water can in some

cases alter their specific gravity to an extent which Gätke witnesses without pretending to explain; but it would seem that they can do the same in the air, and that some of their modes of flight, notably their sailing, are absolutely in defiance of much that has been alleged and believed. Instead of answering the question, "What guides birds during their migrations?" Gätke says (p. 142):—

"Having thus examined the various attempts made to explain the wonderful faculty possessed by migrants of discovering the right path of their migrations, and shown how insufficient most of them are when confronted with actual facts, observed directly in nature, in the course of more than fifty years' investigations and at a spot so favored as Heligoland, I cannot say that I feel encouraged to add further to the number of such attempts by others of my own."

And for another modest disclaimer, which can be commended to any who show symptoms of omniscience in the pleasing paths of ornithology (p. 148):—

"Both in regard to this question as to the immediate departure of birds on their migrations, as well as in reference to that propounded in the previous chapter [just cited], we are confronted with a riddle which has hitherto defied every attempt at a solution, and which indeed we may hardly expect will ever be likely to receive a final explanation. Long and profound study has been devoted to this subject in many quarters, and has resulted in the enunciation of several very ingenious and plausible hypotheses. None of these, however, will stand their ground when the actual facts, which the life of birds in nature presents in such abundance, are marshalled against them. . . . In treating of the various momenta of the migratory flight, we have striven as much as possible to place before the reader only such facts as are beyond question or criticism, but no attempt has been made to furnish a solution of the wide problems which they involve. In thus abstaining from setting forth new theories, I have been guided by the conviction, rendered firmer with increasing knowledge of the phenomena, that what at present has been ascertained in reference to the migration of birds furnishes us with no clue by the aid of which we are enabled to penetrate the depths of this wondrous mystery."

This conclusion concerning "the way of the eagle in the air" is identical with that ascribed to the old Hebrew ornithologist, who had a great reputation for sagacity; in spite of his comprehensive connubialities; and may be aspired to by some of the present gentile generation.

Yet one other chapter of Gätke's remarkable book should not be passed without remark in the present review. This is in a different field of research, as it treats of changes in the coloration of plumage without the loss or gain of any feathers. To this phenomenon, for which I lately coined the word *aptosochromatism*, Schlegel called particular attention in 1852, and the novelty of his views excited much attention. The subject is better known now, but is far from being exhausted, and Gätke's contribution to its elucidation is extremely valuable. The two main factors in the case, namely, variation in pigmentation and alteration in texture and shape with wear and tear, are understood; but the processes are more complicated than would appear at first sight, and there are several ways in which the observed changes may be brought about, in different species, in the same bird at different seasons, in different feathers of the same bird, and finally, in different parts of the same feather. Some of the modes in which fresh pigment may be deposited in and spread through a feather, and then be modified or withdrawn, are curious; and not less so are the ways in which an optical effect is produced by a sort of exuviation in the feather itself, aside from any such simple process as the wearing away of a tip or an edge — in other words, it is a vital rather than merely mechanical matter, which is probably much more concerned than we are fully aware in freshening coloration. *Aptosochromatism* would not seem to be a subject of special difficulty, or one requiring particular training for its successful study. It is simply a matter of precise and patient examination of a large amount of material, and offers an inviting field of research, in which some bright young ornithologist might win enviable laurels.

NEW RACES OF *COLAPTES* AND *PASSERELLA*
FROM THE PACIFIC COAST.

BY A. W. ANTHONY.

It is with considerable hesitation that I venture to name a race of *Colaptes* from so near the type locality of *chrysoides*, but I can make no other satisfactory disposition of the birds from the region of San Fernando, and have separated them from the Flickers of Cape St. Lucas and Arizona to be known as:—

Colaptes chrysoides brunnescens, subsp. nov. BROWN
FLICKER.

Subsp. char.—Differing from *C. chrysoides* in darker upper parts and slightly smaller size.

Type No. 5356, ♂, Coll. A. W. A., San Fernando, Lower California, May 27, 1894.—Above brown, of a shade approximating bistre, barred with numerous black bars; pileum cinnamon brown; upper tail-coverts white with large rounded spots of black; below grayish white with numerous round and cordate black spots; throat dark ash gray; mustache bright scarlet; quills and inner surface of wings chrome yellow; lower surface of tail wax-yellow, terminal third black.

All of the specimens that I have examined from Arizona and Cape St. Lucas have the tips of the primaries more or less marked with white, which marking is nearly always lacking in my skins from the northern part of the peninsula, only one specimen—a female—showing a very little white on that part of the primaries. The character may not be of any value, as it is probably somewhat individual, but it is sufficiently noticeable in the series before me to be worthy of mention.

It would be quite natural to expect specimens of *Colaptes* from the northern half of Lower California to be more or less intermediate between those of Arizona and Cape St. Lucas. They are, however, further removed from the type form from the Cape than are those from Arizona and northern Mexico, and in the series I have examined the Arizona skins are exactly intermediate in the color of the upper parts between a series from Cape St. Lucas and my skins from San Fernando.

Mr. F. Stephens recently called my attention to a series of Thick-billed Sparrows in his collection from the mountains of southern California that differed very considerably from specimens from the Sierra Nevada. The birds in question are principally from the San Jacinto Mts., where, later in the season, I found them in abundance inhabiting all suitable localities between the altitudes of 7000 and 9000 feet.

A series was secured but unfortunately they were all in very ragged, postbreeding plumage. So badly is the plumage worn that it is rather unsafe to venture an opinion as to its probable shades, and the measurements of the wings and tail can only be approximately obtained. However, with the specimens that Mr. Stephens has very kindly placed at my disposal I have ventured to separate the southern race, to be known in honor of its discoverer, to whom I am indebted for the privilege of describing it.

***Passerella iliaca stephensi*, subsp. nov.** STEPHENS'S SPARROW.

Subsp. char.—Differing from *P. i. megarhyncha* in larger size, the bill especially being much larger than in that race.

Type No. 6651, ♂, Coll. A. W. A., San Jacinto Mts., Calif., July 14, 1895.

The type of *megarhyncha* was taken by Xantus at Fort Tejon and was doubtless a winter bird from the Sierra Nevada, as the genus is not found about Fort Tejon, except as a winter visitant from the northern mountains.

One of Xantus's skins (No. 13,757, Coll. Nat. Mus.) is before me. This specimen is perhaps immature, but is practically the same as specimens from Alpine and Butte Counties, and very different from breeding birds from the San Jacinto and San Bernardino ranges.

The most striking characteristic of the new race is the large bill, which is always larger than that of the largest *megarhyncha*.

Only one of the southern specimens—an unusually small female from San Bernardino Mts.—is as small as the largest specimen of *megarhyncha* I have examined, and in this specimen the bill is as large or larger than the largest bill found in the *megarhyncha* series. The comparative measurements of the two races can be seen in the following tables. Unworn specimens would somewhat exceed in wing and tail the measurements given for the specimens from the San Jacinto Mts.

PASSERELLA ILIACA MEGALYNYCHIA.

No.	Collection.	Locality.	Sex.	Wing.	Tail.	Tarsus.	Culmen.	Depth of Bill.	Remarks.
13757	U. S. Nat. Mus.	Ft. Tejon, Cal.	♂	82	97	24		10	Topotype. Tip of bill gone.
5906	F. Stephens.	Butte Co., "	♂ ¹	83	96	24	11.5	10	
5969	"	Alpine Co., "	♂	76	86	23	11	9.5	
6657	A. W. Anthony.	Blue Canon, "	♂	83	94	24	12.5	10	
6658	"	"	♂	80	89	24.5	12.5	10.5	
6659	"	"	♂	86	96	25	11	10	

PASSERELLA ILIACA STEPHENSI.

6650	A. W. Anthony.	San Jacinto Mts., Cal.	♂	85	96	25	14	11	Badly worn postbreeding plumage.
6651	"	"	♂	83	89	24	13	11.5	Type. Badly worn postbreeding plumage.
6652	"	"	♂	83	92	24	14	11.5	Badly worn postbreeding plumage.
6653	"	"	♂	80	92	23	14	12	"
6654	"	"	♂	86	89	24	14	11.5	"
6655	"	"	♂	81	92	24.5	13	11.5	"
6656	"	"	♂	80	92	26	14	12	"
	"	"	♂	82	92	24	14.5	11	"
2833	F. Stephens.	S. Bernardino	♂	91	100	25	15	12	
2842	"	"	♂	79	88	23	12	10.5	
5746	"	"	♂	84	99	26	13	12.5	

¹ Immature.

THE BROWN CREEPER NESTING IN THE CYPRESS
SWAMP OF SOUTHEASTERN MISSOURI.

BY O. WIDMANN.

It was a few minutes after five in the morning of June 2, 1894, when I heard a shrill whistle of four distinct notes, *tsee, tsee, dill did*, something entirely new and not attributable to any bird of my knowledge. The whistle was repeated about a dozen times, at intervals of a few seconds, and it came from a distance of less than twenty yards, but the light of the young day had not yet mastered the gloom of the forest, and when the song ceased I had no idea to what family the songster might belong.

Of one thing I was positive: the notes did not belong to any of our regular breeders. This was enough to arouse my curiosity to the utmost, since I knew that spring migration was over in that region. The very latest of migrants had left it, and only summer sojourners were met with the last few days. A roving flock of Cedarbirds was the only species that had not yet settled down to domestic life. Indeed, fall migration had already begun, if it is allowed to regard the flocking of young Bronzed Grackles into a common roost as the first stage of it. The only hope to identify my bird was by waiting patiently until it would sing again. So I waited near the trees where I had heard the song.

The forest was full of bird song at this early hour and it resembled with its arched tupelos and pillar-like cypresses a huge cathedral; the floor a blinking sheet of water without any underbrush; the aisles resonant with the monotonies of Proto-notaria; the cornices tenanted by a choir of noisy Redeyes, Redstarts and Cerulean Warblers, with frequent *vecrees* of the Yellow-throated Vireo, and occasional outbursts by an exalted Baltimore or Orchard Oriole.

As time wore on, all birds of the forest had their turn in singing. Now and then the Parula and Sycamore Warblers laid in a few repetitions of their lofty cheerings and the Wood Thrush became loud in the praise of the pleasant coolness of the morning hours.

Overhead were frequent bickerings in the sphere of a pair of Wood Pewees, who were busily engaged in the construction of their nest. There were Acadian Flycatchers with startling exclamations and mysterious wing-whistlings, soliloquies of the Warbling Vireo, effusions by Indigos and Cardinals, innumerable *willitzkis* of the Maryland Yellow-throat, and from time to time a modest opinion by the weather-wise Cuckoo.

As the hours passed on and the sun's rays had destroyed all dimness in the forest, the Wood Thrush turned the leadership over to the Summer Tanager, and the pauses made by the earlier songsters grew longer and longer. Two pairs of Hooded Mergansers, who at first had been much incommoded by my presence and had repeatedly shown their anxiety by circling wildly and with notes of alarm through the treetops, were now visiting their nest-holes without fear. At this season the beauty of the male's dress and coiffure is entirely gone; both parents resemble each other so much that they are generally mistaken for female Wood Ducks, which are also very common breeders in these swamps. Both species breed sometimes together in small colonies and so near human habitations that their coming and going may easily be watched by the people. A lady residing at Byrd's Mill witnessed the act of removing the young from the nest, sixty feet above ground. The young were brought down, one by one, clinging to the back of the parent and holding fast with the bill. That they are clever climbers I can testify myself; I have seen them climb up the inside of a drygoods box, two feet high, holding fast to the planed boards with their sharp claws and stiff tail-feathers.

It was now ten o'clock and my patience was nearly gone. Every noise in the forest had been attentively listened to and every moving speck followed, but in vain. Silence began to become oppressive. I rapped woodpecker-fashion against a half-rotten stump. Almost as if by magic a pair of Pileated Woodpeckers appeared on the scene; a second rap brought them still nearer, evidently bent on the closest investigation.

At the same time the four shrill notes were heard in close proximity and turning in the direction a small bird was seen flitting past and alighting against the trunk of a tupelo a few

feet above the water and only a few yards from where I was half-hidden among fallen timber and stumps. It began to sing as soon as it had alighted and hopping up the side of the tree repeated the strange notes several times. There was no doubt possible, the bird was less than ten yards from me, in good light for half a minute as it went up the tree in its well-known fashion; it was *Certhia*, the Brown Creeper. My surprise was so much greater since I thought I had become acquainted with the song of that bird during a visit to this region in March, when I had heard it almost daily and on some days quite often.

Of course, I began at once to look about for the traditional detached bark, but there was so much of that article on the old dead cypresses that I had to give up the idea of hunting for its nest. I lingered for another hour, but my patience was exhausted and I left the home of the Missouri *Certhia* to its rightful owners, including mosquitos and moccasins, both of which seemed to become provoked by my persistent stay.

In May, 1895, I visited the same locality again. I did not meet with *Certhia* on the first day; but on the morning of the second, May 15, I had hardly entered the swamp, when I heard its song and a few moments after saw the bird, a Brown Creeper, alight against a dead cypress (*Taxodium distichum*) five feet above the water. The tree or stump was about fifty feet high and two feet in diameter. Its base was devoid of bark and on one side the bark had detached itself in a sheet, fifteen feet long and was hanging down like a streamer. Above, the bark was peeling off in shreds, and the whole stump was a picture of dilapidation and dissolution.

The bird hopped deliberately up to a place where the bark was loosened in such a way as to form a pocket, closed above and below and on one side, with an opening of one and one-half inches at its widest. There the bird halted just one second, peeped in, flitted to another tree, and gave a song.

This peeping into that pocket looked suspicious, and I thought I would like to peep in myself. But how to get there? It was fourteen feet above the water and climbing out of question. I had to get a ladder. That was no easy matter, but an hour later I came back with a boy, a small spoon, and a home-made ladder of barbarous weight.

Yes, there was the nest as I suspected; a bulky accumulation of shreds of cypress bark loosely thrown in below, but more and more compact toward the elliptical cavity, which was an inch deep and warmly lined with a felt-like material. Imbedded in, and partly covered with felt lay one egg of white color with fine red dots. I did not disturb the nest and quietly left the place.

At first I cherished visions of such a desirable thing as a full set, but recalling instances when rare opportunities were lost by too long waiting, I returned on the 17th, took the three eggs which the nest contained, sawed off the detached plate of bark, about 8-16 inches, liberated the nest from its imprisonment and my mind from the growing fear to lose it.

The nest had the peculiar structure, by which the nest of the species may always be known from other nests in similar situations, and which is minutely described by Mr. Brewster in Volume IV of the Nuttall Bulletin.

The locality where the nest was found is the Little River overflow, east of Cotton Plant, Dunklin Co., Mo., seven miles from the south line of the peninsula. The flora as well as the ornithology of this region is highly interesting. While the botanist finds that the Floridan and Texan floras meet in the sandy fields and swampy woods of the Peninsula of Missouri, the ornithologist who sees the Canada Goose and Black Vulture, the Brown Creeper and Swainson's Warbler on neighboring breeding grounds, is liable to have new surprises at every visit.

Though only a ridge of a few miles in width separates the Little River region from the St. Francis basin, both flora and ornithology differ somewhat, the latter mainly through absence from the Little River region of birds which habitually feed on dry ground. The stage of water in the St. Francis is dependent only on the precipitation in the region which it drains; it rises to a well defined height which it reaches every year and from which it slowly recedes in summer.

With the Little River it is different; bayous connect it with the Mississippi and a high stage in the latter pours its muddy waters through the bayous into the Little River, causing a rise of five or six feet above the ordinary yearly overflow. The occurrence of such great floods has been uncomfortably frequent of late; that

of 1893 came within one foot of the highest known to white settlers, that of 1882.

During these inundations the waters remain from one to two weeks, sufficiently long to drown a variety of plants and to kill others by covering them with a sticky coat of mud.

Such floods have been so much more effective destroyers of vegetation as they occurred late in spring, even in June, when submersion is more detrimental than in early spring.

At a certain time the Little River is, as its name says, only a small affair, but it keeps within its narrow bed only during the driest part of the year; in winter and all through spring into summer the width of its overflow is from two to six miles. The large area covered by this regular overflow is the territory most conducive to the growth of the cypress, tupelo (*Nyssa uniflora*), waterelm (*Planera aquatica*), *Acer rubrum drummondii*, *Polygonum densiflorum*, and *Zizania miliaria*, the southern wild rice. Among the shrubs we see the ornamental *Itea virginica*, growing on top of a water-soaked stump, and the interesting cork plant, *Leitneria floridana*, which often attains the size of a small tree.

The young growth is generally thin; so much more voluminous is the debris which covers the ground and which, together with the cypress-knees and stumps left by the lumberman, make progress either on foot or in dugout very difficult in places.

South of the Missouri State line the open river enlarges to such an extent that it is called Big Lake, a region much frequented by all kinds of water birds and a fruitful field for the market-hunter. The merchant at Hornersville told me that in the winter 1893-94 the number of ducks sent to market from the region of Big Lake amounted to 150,000, four-fifths of which were Mallards. One hunter held receipts for 8000 Mallards, killed and shipped by him alone.

It may be that the season was exceptionally good, in accordance with Nature's great powers of compensation. The same agency which destroyed the crops in summer caused the presence of unprecedented numbers of ducks in winter. Even Blue-winged Teals, which were not known to winter in this latitude, remained in small numbers.

All kinds of ducks occur at some time or the other, but the Mallard is the principal duck for winter shooting. Green-winged

Teals are only killed for the hunter's table. Gadwalls are plentiful but neglected, because not in demand on account of the fishy taste of their meat. Spoonbills and Ringnecks are not desirable. Pintails are taken in great numbers in the fall, but they pass rapidly through on their return in spring.

Trapping was the main occupation of the people formerly and is still followed to some extent, but duck shooting in fall and winter, and bullfrog-gigging in spring form now a considerable source of the income of the inhabitants of the region in which the revenues from agricultural pursuits are seriously curtailed by the floods.

The soil is sandy and the products are few. Cotton is the main staple. Corn is raised for home use only and peas for hay. Grasses and clover do not thrive and their almost total absence from the ground causes an emptiness which, to one not used to it, is somewhat painful.

An extra source of income, but one of short duration only, was found when the Egret-plume craze came into vogue, some seven years ago. The Egret, *Ardea egretta*, or White Crane as it is always called, used to be an abundant breeder in the peninsula, and several large 'crane-roosts' existed in the Little River and St. Francis region. One crane hunter told me that he cleared \$800 from the sale of his crane feathers, and there were many such fellows busy with the extermination of the 'White Crane,' which these men now consider complete, as far as southern Missouri and northern Arkansas are concerned. No plume-hunting of any consequence has been going on for the last four years, and it is therefore delightful to hear that at least one colony of Egrets has escaped the murderous gun and is being preserved on guarded ground. The owner of the ground is said to be satisfied with gathering those plumes which the birds cast off during the breeding season and which are found in salable condition on the ground below their roosts.

A COLLECTION OF BIRDS FROM MOUNT ORIZABA,
MEXICO.

BY ULYSSES O. COX.

It was my good fortune to be a member of Dr. J. T. Scovell's party which visited Mount Orizaba during the summer of 1891 for scientific purposes. One week was spent at the city of Orizaba, altitude 4,000 feet, and about the same time at San Andres, altitude 8,200 feet, and on the mountain itself. It rained nearly the entire time while in the city of Orizaba, so very little collecting was done, and, on account of the condition of the weather, but few birds were seen. The country around the city of Orizaba is very broken and the mountains, which are foothills of the volcano itself, are covered with timber. Ordinarily the city must be an excellent collecting ground for birds.

At San Andres the surrounding country is entirely of volcanic origin and for the most part is barren, but on the side of the peak the timber, chiefly pine, extends down to within a few miles of the city. Below the timber line birds were not numerous but when the timber line was reached they were quite abundant. The mountain above lower timber line is scarcely at all inhabited and rarely has the axe disturbed the peace of the stately pines. At an elevation of 14,000 feet the timber disappears and snow line is reached.

I wish to acknowledge my indebtedness to Dr. J. T. Scovell of Terre Haute, Indiana, by whose kindness I was permitted to make the collection; to Mr. Robert Ridgway of the U. S. National Museum, who has assisted in the identification of the specimens and who discovered and described the one new species; also to Prof. A. J. Woolman of Duluth, Minnesota, who assisted in the preparation of the skins.

The following species were either taken or observed, and in each case it is so stated:—

1. *Catharista atrata* (Bart.). BLACK VULTURE.—This bird was very common in the city of Orizaba where it was semi-domesticated. It was so tame that a person could walk within a few feet of it before it would fly,

and it was interesting to watch its actions around the piles of offal which the birds and dogs shared in common. These Vultures seemed to go in flocks of eight to ten.

2. *Syrnium nebulosum sartorii* *Ridgw.* MEXICAN BARRED OWL.—A Barred Owl was seen in the deep pine forests about half way up Peak Orizaba but I was not able to shoot it. It appeared very much like our common *S. nebulosum*.

3. *Dryobates stricklandi* (*Malk.*). STRICKLAND'S WOODPECKER.—A specimen of Strickland's Woodpecker was taken at an altitude of 11,000 feet, but unfortunately it was so mutilated that it was not preserved. Several others were seen. The species, of course, is doubtful.

*4. *Petasphora thalassina* (*Sw.*).—Two specimens were taken at 11,000 feet.

5. *Cœligena clemenciæ* *Less.* BLUE-THROATED HUMMINGBIRD.—Two specimens, a male and a female, were taken at an elevation of 11,000 feet on Peak Orizaba. It was noticed that this species kept up a continual chattering similar to that of a Sparrow.

6. *Selasphorus platycercus* (*Sw.*). BROAD-TAILED HUMMINGBIRD.—Two specimens were taken at 11,000 feet on Peak Orizaba. They were seen flying around flowers and were heard to chirp a few short, distinct notes.

7. *Basilinna leucotis* (*Vieill.*). WHITE-EARED HUMMINGBIRD.—One specimen was taken at an elevation of 11,000 feet on Peak Orizaba.

8. *Myiozetetes texensis* (*Gir.*). TEXAN FLYCATCHER.—One specimen was taken at an elevation of 9000 feet.

9. *Empidonax fulvipectus* *Lawr.*—This Flycatcher was taken at an elevation of 10,000 feet. Another was seen, but my observation would lead me to think that this species was not common.

10. *Aimophila supercilliosa* *Sw.*—This Sparrow was found very abundant from San Andres up the mountain to an elevation of 11,000 feet. It is a fine singer and rather tame. Four specimens were taken.

11. *Carpodacus mexicanus frontalis* (*Say*). HOUSE FINCH.—Very common about the houses in the town of San Andres.

12. *Chamæospiza torquata* (*DuBois*).—One specimen was taken of this shy but beautiful bird. The note was very pleasant and, while I saw but one, I judge it lives mainly in bushes.

13. *Euethesia pusilla* (*Sw.*).—One specimen was taken on a high bluff near the city of Orizaba. No others were seen.

14. *Junco cinereus* (*Sw.*). MEXICAN SNOWBIRD.—This rather common bird was taken at the foot of Mt. Orizaba, San Andres, also at an elevation of 11,000 feet.

15. *Pipilo fuscus* (*Sw.*). BROWN TOWHEE.—One specimen taken at the city of Orizaba and one taken at the lower timber line of the Peak.

16. *Pipilo orizabæ* *Cox.* ORIZABA TOWHEE.—(*Auk*, Vol. XI, 160, April 1894).

"Sp. Char.—Most like *P. maculatus* *Sw.*, but no black whatever on upper parts, which are plain grayish brown; white markings of scapu-

lars and wing feathers nearly obsolete, sides and flanks much paler in color, and size somewhat greater.

"*Adult male* (132,720, U. S. National Museum, Mount Orizaba, Mexico, alt. 11,000 feet; Ulysses O. Cox): Above uniform dull grayish brown, slightly tinged with olive, scarcely darker on the head; outermost scapulars with marginal elongated spots of white, and lowermost middle and greater wing-coverts with more roundish terminal spots of the same; no white markings on the remiges, but primaries edged with light brownish gray; tail (except middle feathers) very dark brown, the three outermost feathers with a large, abruptly defined white spot terminating the inner web, that on the lateral feather nearly one inch long. Chin, throat, and chest blackish brown, gradually lightening on the sides of the head and grading gradually into color of the crown, the throat spotted with white beneath the surface; sides, flanks, and under tail-coverts ochraceous buff, somewhat deeper anteriorly; median lower parts white, broadest and purest anteriorly next to blackish brown of the chest. Bill black; legs light brown, toes darker. Total length (skin), 8.30; wing, 3.35; tail, 3.85; exposed culmen, 0.60; tarsus, 1.17; middle toe, 0.78."

17. *Aphelocoma sieberii* (*Wagl.*). SIEBER'S JAY.—Two fine specimens were taken near San Andres at the beginning of the timber on Peak Orizaba. Others were seen.

18. *Corvus corax sinuatus?* (*Wagl.*). MEXICAN RAVEN.—One was seen and heard about midway between lower timber line and snow line on Peak Orizaba.

19. *Lanius ludovicianus excubitorides* *Sw.* WHITE-RUMPED SHRIKE.—One specimen was taken near the timber line at the foot of Peak Orizaba. No others were seen.

20. *Dendroica olivacea* (*Gir.*). OLIVE WARBLER.—Two specimens, a male and a female, were taken at an elevation of 11,000 feet. No others were seen.

21. *Ergaticus ruber* (*Sw.*). RED WARBLER.—One specimen was taken at an elevation of 11,000 feet. Several others were seen.

22. *Troglodytes brunneicollis* *Scl.* TAWNY-THROATED WREN.—Two specimens were taken at an elevation of 11,000 feet and a number of others were seen.

23. *Certhia familiaris alticola* *Mill.* MEXICAN CREEPER.—Two specimens taken at 11,000 feet.

24. *Sitta pigmæa* *Vig.* PYGMY NUTHATCH.—One specimen was taken at the city of Orizaba and two at snow line, 14,000 feet, on Peak Orizaba. They were quite abundant at the latter place.

25. *Sitta carolinensis mexicana* *Nels. and Palm.*—One specimen, taken at an elevation of 9000 feet. Not common.

26. *Parus meridionalis* *Scl.* MEXICAN CHICKADEE.—This can only be reported as doubtful for the specimen taken was so mutilated that it was not preserved.

27. *Regulus satrapa aztecus* Lawr. ?—Can only be reported as doubtful, since the specimen was not preserved. Others were seen.

28. *Sialia mexicana* Sw. MEXICAN BLUEBIRD.—One specimen, a young bird, was taken at the snow line, 14,000 feet. Several others were seen.

In addition to the above species a flock of Parrots was seen and their notes distinctly heard, above the deep pine forest about midway between upper and lower timber lines on the Peak.

AN HISTORIC LETTER.

BY JOHN H. SAGE.

MR. GEORGE W. CONCKLIN, of Portland, Conn., recently presented me with a letter which I think of historic interest enough to be published. It was written by Mr. John L. Gardiner of Gardiner's Island, N. Y., to Alexander Willson, and dated April 30, 1810. The date as given is erased in pencil and June 5 (also in pencil) written over it. The letter is superscribed: "Mr. Alexander Willson, Author of the American Ornithology, Philadelphia," but there is nothing to show that it was ever sent, being kept probably as a copy. In Wilson's account of the Fish Hawk he speaks of his "worthy friend Mr. Gardiner," and quotes practically from this letter in many instances. When writing of the Bald Eagle, Wilson refers to "Mr. John L. Gardiner, who resides on an island of three thousand acres, about three miles from the eastern point of Long Island, from which it is separated by Gardiner's Bay," words almost identical with those written in the letter before me. The gentleman who gave me the letter is well along in years and a relative of the Gardiner family. He tells me that the precious document had been in the possession of his father for many years previous to his death.

"Gardiner's Island April 30th 1810.

"Mr. Alexander Willson.

"I have received so much instruction & amusement from reading your first and second volume of Ornithology and as a real American am so well pleased with the execution of the work

particularly the 2d Vol. — as to the plates — that I cannot omit giving you the trouble of hearing how much pleasure you have given a plain farmer — in publishing your works, — which as to its execution of every kind has not been exceeded in America — A work of so much celebrity cannot fail of handing your name down to posterity with eclat. Before I had even seen the first volume I had become a subscriber and am particularly agreeably disappointed as to the manner of your description of the birds — their manners & customs. If it will not be deemed impertinent I will suggest to you how pleasing it will be to me & others that you add specimens of the eggs of the birds as far as you can & your manner of stringing them in plate 13th of 2d Volume is agreeable to the eye of your readers. Where you omit the eggs a plate or two in the 6th or 10th volumes of them arranged judiciously and fancifully will suit the taste of many. Explanations of them may easily be made by figures to refer to. Instead of small parts of dry limbs of trees sometimes perhaps you could place the birds on living trees or shrubs or bushes, which would have a tendency of making the birds themselves look more lively & natural — or at least my fancy suggests this on comparing your plates already executed with one another. Where the male & female can be placed near each other it seems more pleasing at least to the courting or married pair. The manners of some birds may prevent their being placed on trees, but where they can be so placed they look more natural & by fixing the artificial birds on real limbs or shrubs, they can at length be placed so as to have the most pleasing effect to ones view.

“I live on an Island of 3000 acres of land at the eastern extremity of Long Island from which I am separated by Gardiner’s Bay one league wide where I usually pass it. The common birds are not here interrupted by school boys & are plenty. Geese & Ducks of all kinds abound in my ponds and if you would take an excursion this way, shall be very happy to accommodate you in my house here & it is not impossible but you may find here or on the shores of Long Island some kind of waterfowl that are nondescripts. I am not sufficiently acquainted with birds to mention any that have not been described. My friend Dr. Samuel Latham Mitchell of Queens County on Long Island

is one of the greatest naturalists we have & I presume would be happy to give you any information he has. He informs me he has the pleasure of being acquainted with you.

“If ten volumes will not well contain our American Birds I hope you will add volumes enough to contain the whole. It is a work in which our national character is interested & I am anxious it should be a work of as much celebrity as any European publication.

“If you should acknowledge the receipt of this you will direct to me on this Island — Suffolk County, State of N. York.

“With much respect & esteem I am your friend

“JOHN L. GARDINER.

“FACTS AS TO THE FISH HAWK ON GARDINER'S ISLAND.

“1. They are regular in arriving on the 21 March & in leaving the place on 21 Sepr. heavy equinoctial storms only prevent a day or so.

“2. They repair their nests a few days before they leave them & being on high dry topped trees, they frequently have their nests blown away entirely during winter.

“3. They lay generally three eggs — hatch about 1 July.

“4. Are very fierce & bold while they have eggs or young & have been known to fix their claws in a negro's head, that was attempting to get to the nest — but was obliged to desist from the attempt on account of the flow of blood from the wound. Black-birds build their nests in the side of the nests of the Fish Hawks.

“5. As soon as they arrive they wage war on the Eagle & by numbers & perseverance drive him off. The Eagle in darting on the Hawk obliges him to quit his fish — which before it reaches the ground the Eagle seizes.

“6. Sometimes on fixing their claws in too large a fish — are taken under water before they can clear themselves.

“7. When the Fish Hawks are seen high in the air sailing around in circles it is a sign of a change in the weather very soon — generally of a thunder storm in two or three hours.

“8. Are never known to eat anything but fish — commonly eat the head first. Are frequently seen cutting strange gambols in

the air — with part of a fish in their claws with loud vociferations darting down perhaps 100 yards. They seem proud of their prey.

“9. Seldom take one from the ground when dropped.

“10. Are so voracious that I presume when they have young they devour in 300 nests — two or three fish a day of 2 or 3 lbs. each fish — 7 or 800 fish a day in July & August.

“11. They seem fond of the striped bass which they cross Gardiner’s Bay & Long Island to the Atlantic for. Are not known to refuse any other fish than the one commonly called Toad fish of the ponds.

“12. Are seen frequently crossing Gardiner’s Bay with a stick in their claws, but it is not known whether from an unsuccessful fishing voyage or for the want of such particular stick for their nests.

“Facts communicated by John L. Gardiner.”

NOTES ON THE BIRDS OF THE WACISSA AND AUCILLA RIVER REGIONS OF FLORIDA.

BY ARTHUR T. WAYNE.

FEBRUARY 9, 1894, I commenced to make observations on the avifauna of the Wacissa River and adjacent country. I selected the village of Waukeenah, in Jefferson County, as a base to work from, which is ten miles south of Monticello, the County seat, and about six miles from the head waters of the Wacissa River.

The country around Waukeenah is high and rolling, and the line of demarcation is so closely drawn, that upon leaving the hill country you pass immediately into the flat woods of the Wacissa. Within a mile of the flat woods the hills are so high that you can see over the forests of the Wacissa, as well as see the smoke from the famous Florida ‘volcano,’ which must be in Jefferson County, near the line of Wakulla County.

The country around Waukeenah is one vast clearing, which is all under cultivation. The Wacissa River presents a different

appearance, as there are no clearings whatever, but simply a wilderness. The length of the Wacissa is about twelve miles. It is very broad for four miles, when it becomes narrower — caused by a chain of islands, which extend some five miles parallel with the river. After the islands cease the river runs through large tracts of saw grass and rushes, and here there is no channel whatever. This spot is known as ‘Hell’s Half-Acre.’ About a mile lower down, the river runs all over the entire country, being one large expanse of water with innumerable little streams which run in every conceivable direction. This particular place is called the ‘Western Sloughs.’ The Wacissa empties into a canal which is five miles long, which was dug before the war with the view of deepening the river and making it navigable. This object, however, was never realized, as the river is very shallow being, on an average, three feet deep. The canal above described joins the Aucilla River and conveys the water into the Aucilla River, and thence into the Gulf of Mexico.

The Wacissa is simply made up of myriads of springs, which are all perfectly clear, as is also the river. The bed of the river is rock from which grows a species of water grass, which being always more or less covered by water, is green throughout the year. The forest of the Wacissa, on the east side, is well nigh impenetrable. This is not due wholly to the dense undergrowth, but to the nature of the soil, which is exceedingly boggy, and, to use the words of the residents, the ground would ‘bog a saddle blanket’!

The west side of the river is little better. While there is some high hammock land it is of small area and consequently harbors very few birds. Bird collecting is very laborious and unprofitable, as the country is simply a wilderness to prospect through.

The timber along the river is not very heavy, and the cypresses all appear to be stunted. The case is entirely different on the ‘Canal Hammock,’ near the Aucilla River, which is very heavily timbered with cypress, water oak, live oak — immense trees — black gum, sweet gum, magnolia, palmetto, etc.

The Wacissa is a ‘snail river’; millions can be seen on the bottom. In May the snails commence to lay their eggs, which they deposit on any available object out of the water, and so

thickly are they stuck on the cypress trees and grasses, that the base of the trees resemble one mass of pink beads.

They have two enemies to contend with, however, in the Everglade Kite (*Rostrhamus sociabilis*) and the Limpkin (*Aramus giganteus*), as they destroy thousands of these snails.

The following is a list of birds observed between February 9 and June 15, in the region above described, and about as far as twelve miles from the Gulf, on the Aucilla River. A star indicates that the species breeds.

- | | |
|--|---|
| 1. Podilymbus podiceps.* | 34. Bartramia longicauda. |
| 2. Urinator imber. | 35. Actitis macularia. |
| 3. Anhinga anhinga.* | 36. Ægialitis vocifera. |
| 4. Phalacrocorax dilophus floridanus.* | 37. Colinus virginianus floridanus.* |
| 5. Anas boschas. | 38. Meleagris gallopavo.* |
| 6. Anas obscura. | 39. Zenaidura macroura.* |
| 7. Anas americana. | 40. Columbigallina passerina terrestris.* |
| 8. Anas carolinensis. | 41. Cathartes aura.* |
| 9. Anas discors. | 42. Catharista atrata.* |
| 10. Dafila acuta. | 43. Elanoides forficatus.* |
| 11. Aix sponsa.* | 44. Ictinia mississippiensis.* |
| 12. Aythya affinis. | 45. Rostrhamus sociabilis. |
| 13. Guara alba.* | 46. Circus hudsonius. |
| 14. Tantalus loculator.* | 47. Accipiter velox. |
| 15. Botaurus lentiginosus. | 48. Accipiter cooperi.* |
| 16. Ardetta exilis.* | 49. Buteo borealis.* |
| 17. Ardea wardi.* | 50. Buteo lineatus.* |
| 18. Ardea egretta.* | 51. Buteo latissimus.* |
| 19. Ardea candidissima.* | 52. Haliaeetus leucocephalus.* |
| 20. Ardea cærulea.* | 53. Falco peregrinus anatum. |
| 21. Ardea virescens.* | 54. Falco sparverius.* |
| 22. Nycticorax nycticorax nãvius.* | 55. Pandion haliaëtus carolinensis.* |
| 23. Nycticorax violaceus.* | 56. Strix pratricula.* |
| 24. Grus mexicana.* | 57. Syrnium nebulosum alleni.* |
| 25. Aramus giganteus.* | 58. Megascops asio floridanus.* |
| 26. Rallus elegans.* | 59. Bubo virginianus.* |
| 27. Porzana carolina. | 60. Coccyzus americanus.* |
| 28. Ionomis martinica.* | 61. Ceryle alcyon. |
| 29. Gallinula galeata.* | 62. Campephilus principalis.* |
| 30. Fulica americana. | 63. Dryobates villosus audubonii.* |
| 31. Philohela minor. | 64. Dryobates pubescens.* |
| 32. Gallinago delicata. | |
| 33. Totanus solitarius. | |

65. *Dryobates borealis*.*
66. *Sphyrapicus varius*.
67. *Ceophloeus pileatus*.*
68. *Melanerpes erythrocephalus*.*
69. *Melanerpes carolinus*.*
70. *Colaptes auratus*.*
71. *Antrostomus carolinensis*.*
72. *Chordeiles virginianus chapmani*.*
73. *Chaetura pelagica*.*
74. *Trochilus colubris*.*
75. *Tyrannus tyrannus*.*
76. *Myiarchus crinitus*.*
77. *Sayornis phæbe*.
78. *Contopus virens*.*
79. *Empidonax acadicus*.*
80. *Cyanocitta cristata florincola*.*
81. *Corvus americanus (floridanus ?)*.*
82. *Corvus ossifragus*.*
83. *Dolichonyx oryzivorus*.
84. *Molothrus ater*.
85. *Agelaius phœniceus*.*
86. *Sturnella magna*.*
87. *Icterus spurius*.*
88. *Scolecophagus carolinus*.
89. *Quiscalus quiscula aglæus*.*
90. *Spinus tristis*.
91. *Poocætes gramineus*.
92. *Ammodramus sandwichensis savanna*.
93. *Ammodramus savannarum passerinus*.
94. *Ammodramus henslowii*.
95. *Ammodramus leconteii*.
96. *Zonotrichia albicollis*.
97. *Spizella socialis*.
98. *Spizella pusilla*.*
99. *Peucæa æstivalis*.*
100. *Peucæa æstivalis bachmanii*.
101. *Melospiza fasciata*.
102. *Melospiza georgiana*.
103. *Passerella iliaca*.
104. *Pipilo erythrophthalmus*.
105. *Pipilo erythrophthalmus alleni*.*
106. *Cardinalis cardinalis*.*
107. *Guiraca carulea*.*
108. *Passerina cyanea*.
109. *Piranga rubra*.*
110. *Progne subis*.*
111. *Chelidon erythrogaster*.
112. *Tachycineta bicolor*.
113. *Clivicola riparia*.
114. *Stelgidopteryx serripennis*.
115. *Ampelis cedrorum*.
116. *Lanius ludovicianus*.*
117. *Vireo olivaceus*.*
118. *Vireo flavifrons*.*
119. *Vireo solitarius*.
120. *Vireo noveboracensis*.*
121. *Mniotilta varia*.
122. *Protonotaria citrea*.*
123. *Helinaia swainsonii*.*
124. *Helminthophila bachmani*.
125. *Helminthophila celata*.
126. *Compsothlypis americana*.*
127. *Dendroica æstiva*.
128. *Dendroica coronata*.
129. *Dendroica striata*.
130. *Dendroica dominica*.*
131. *Dendroica virens*.
132. *Dendroica vigorsii*.*
133. *Dendroica palmarum*.
134. *Dendroica palmarum hypochrysea*.
135. *Dendroica discolor*.
136. *Seiurus aurocapillus*.
137. *Seiurus noveboracensis*.
138. *Geothlypis trichas*.*
139. *Sylvania mitrata*.*
140. *Setophaga ruticilla*.
141. *Anthus pensilvanicus*.
142. *Mimus polyglottos*.*
143. *Galeoscoptes carolinensis*.*
144. *Harporhynchus rufus*.*
145. *Thryothorus ludovicianus*.*
146. *Thryothorus bewickii*.
147. *Troglodytes ædon*.
148. *Troglodytes hiemalis*.
149. *Cistothorus stellaris*.
150. *Certhia familiaris americana*.

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|---|-------------------------------------|
| 151. <i>Sitta carolinensis atkinsi</i> .* | 157. <i>Polioptila cærulea</i> .* |
| 152. <i>Sitta pusilla</i> .* | 158. <i>Turdus mustelinus</i> .* |
| 153. <i>Parus bicolor</i> .* | 159. <i>Turdus aonalaschkæ pal-</i> |
| 154. <i>Parus carolinensis</i> .* | lasii. |
| 155. <i>Regulus satrapa</i> . | 160. <i>Merula migratoria</i> . |
| 156. <i>Regulus calendula</i> . | 161. <i>Sialia sialis</i> .* |

The following remarks upon certain species in the foregoing list will conclude this paper.

Aramus giganteus. LIMPKIN.—A common resident, which is locally known as the 'Nigger Boy,' from its cry. I secured six sets of eggs. They nest in saw grass and vines, also small bushes. The highest number of eggs found was seven. This record extends its range considerably.

Rostrhamus sociabilis. EVERGLADE KITE.—It was with much pleasure that I found the 'Snail Hawk' to be exceedingly common. The fishermen on the river told me of a curious hawk which they called the 'Snail Hawk,' when I arrived in February, but added that they had not seen one for a great many years. In the hope of seeing this strange bird, which I supposed must be the Everglade Kite, I prolonged my stay seven weeks. On May 9, an adult female was brought to me. The next day in less than ten minutes I shot four specimens within a mile from the head of the river. I secured about twenty examples and they were all in worn plumage, and also in moult, which makes me believe that the birds do not breed in this region, although Major Bendire, under date of June 23, writes me: "There must be a colony of them breeding within forty or fifty miles of the Wacissa River."

The birds are very tame and unsuspecting. They go in flocks of four to six and are very friendly with each other. Their food consists entirely of a large species of snail, which is to be had in myriads. They obtain the snails by flying over the water—exactly like a Gull—and by seizing them with one foot. They at once alight upon any convenient tree, bush, or drift, and by the bill alone pull the snail from the shell without the slightest injury to the shell whatever. Under their particular feeding spots the shells are piled up until they are from eight to twelve inches high. By dissection, in every case, the female was *brown*, while the male was *slate*. The iris is blood-red—a little blurred. The above record extends the range of this Kite about two hundred miles north, and to within eighteen miles of the Georgia line.

Buteo borealis. RED-TAILED HAWK.—Breeds abundantly in the hill country near Waukeenah, but not observed breeding on the Wacissa.

Buteo latissimus. BROAD-WINGED HAWK.—One of the commonest Hawks found breeding in the hill country and on the Wacissa.

Campephilus principalis. IVORY-BILLED WOODPECKER.—This magnificent bird was once very common in this region—a country especially adapted to its wants—where it was in a large measure secure, but it is

now rapidly becoming extinct on the Wacissa. Every one is shot by being systematically followed up. They are shot for food, and the people — the crackers — consider them “better than ducks”! The bill is also prized and many fall victims for that reason.

Helinaia swainsonii. SWAINSON'S WARBLER.—Breeds very abundantly on the Wacissa, but only sparingly in the hill country. The only nest found, which contained three very heavily spotted eggs, was taken May 7, in the hill country.

Helminthophila bachmani. BACHMAN'S WARBLER.—An extremely rare migrant in this region. I secured but eight specimens, of which five were females. All the males taken were shot while singing, which made me suspect they would breed in the hill country, as all the specimens I took on the Suwannee River, with one exception, were silent.

The mystery is where does Bachman's Warbler breed, for it must breed in some of the Southern States.

Thryothorus bewickii. BEWICK'S WREN.—A common winter and early spring resident. This is one of the commonest Wrens, being found along fenced roads. It sings like a Song Sparrow.

NOTE ON THE PAROQUET (*Conurus carolinensis*).—Formerly very common, but it has entirely disappeared from this region now. Mr. E. G. Kilpatrick, of Waukeenah, told me that he saw a flock of these birds alight in the trees in his yard four years ago, but they soon left.

In conclusion I wish to express my thanks to Mr. Edward G. Kilpatrick of Waukeenah, who assisted me in every possible way in securing specimens, and accompanied me through the Wacissa Wilderness.

DESCRIPTIONS OF THREE NEW BIRDS FROM THE ISLAND OF MARGARITA, VENEZUELA.

BY CHARLES W. RICHMOND.

DURING July of the present year Lieut. Wirt Robinson, U. S. A., visited the Island of Margarita on a short collecting trip, and obtained about two hundred specimens, representing all the land birds observed there, except *Polyborus* and the two common Vultures. These specimens were sent to the National Museum for identification, and in a preliminary examination of part of the collection the species here described appear to be new. They

are of course nearly related to birds of the mainland of Venezuela, which is distant from the island only about twenty miles. A detailed account of the birds of Margarita may be expected from Lieut. Robinson in the near future.

Amazilia aliciaë, new species.

Type, No. 151,067, U. S. N. M., ♂ adult, Margarita Island, July, 1895; Wirt Robinson; collector's No. 408.—Forehead, forepart of crown, lores, ear-coverts, cheeks, sides of neck, and under parts brilliant metallic green; nape, under wing-coverts, and axillaries less metallic green, and of a brassy hue; hind crown, wing-coverts (except primary coverts, which have hardly a shade of metallic color), and back metallic reddish bronze, most intense on the latter, and almost disappearing on rump; upper tail-coverts pale chestnut, some of the feathers centred with purplish blue, which is visible only upon disturbing the feathers; under tail-coverts uniform pale chestnut, without any metallic centres to the feathers, and without admixture of whitish feathers; thighs and crissum silky white; flanks with a tuft of downy white feathers, which are normally concealed; wings blackish, with slight bluish reflections; tail blue black; upper mandible black, lower mandible flesh color except at tip, where black. Wing, 2.07; tail (outer feather), 1.27; depth of fork, .18; culmen, .80 inches.

♀ adult, No. 151,068, U. S. N. M., Margarita Island, July, 1895; same collector (No. 483).—Similar to the male, but duller; fore crown and forehead much less brilliant, and not sharply separated from the bronzy shade of hind crown; abdomen mostly dull dusky gray. Wing, 2.04; outer tail feather, 1.24; depth of fork, .16; culmen, .81 inches.

Lieut. Robinson brought back eight specimens of this pretty bird, which is named in honor of Mrs. Robinson. It is closely allied to *Amazilia feliciaë* of the adjacent mainland but is evidently distinct. I have been unable at this time to compare the new species with males of *feliciaë*, but, fortunately, Lieut. Robinson stopped long enough at La Guayra to collect six females of the latter, which are of exceptional interest here, as they were collected at about the same time as those of the new form and are therefore in exactly the same state of plumage. Comparing females then, the new form differ from *feliciaë* in having the posterior part of the crown and back reddish bronze instead of green; in having the rump and upper tail-coverts practically without metallic color; the tail less brilliant, and steel black

instead of blue black; under tail-coverts uniform pale chestnut, without any metallic green or steel blue feathers; the bird is also larger than *A. feliciæ*. In the series of six females of the latter the under tail-coverts are mixed chestnut and metallic green or steel blue; with some occasional grayish feathers; the upper parts are brassy green in four of the specimens, in another there is a wash of bronze on the edges of the feathers of the back, while in the sixth the back and hind crown are quite as bronzy as in *A. aliciaæ*, but this color extends down on the rump and upper tail-coverts more than in the latter species. The bronzy color on this last specimen of *A. feliciæ* seems to be due to a stain, or rather to a mechanical change in the structure of the 'metallic' feathers. It is well known that hummers when shot frequently become soiled through the exudate from shot holes in the throat, and the nectar or exudate drying upon the feathers, even in a very diluted state, probably changes the color of the feathers with which it comes in contact. The metallic green crest of a *Pharomacrus* will turn a deep reddish bronze when moistened with water, and the original color is restored upon drying. It is some such accident, I think, which accounts for the bronzy specimen of *A. feliciæ* mentioned above.

The series of *A. aliciaæ* has been compared with *A. erythronota* and *A. tobaci*, in addition to *A. feliciæ*, and it is clearly more nearly related to the latter.

The sexes are easily separable in this species, and from its close affinity to the other three forms just mentioned, the same is doubtless the case with them. The glittering green cap of the male, sharply defined from the less brilliant remainder of the crown, is sufficient to separate the sexes without recourse to the other characters mentioned in the description.

Doleromya pallida, new species.

Type, No. 151,069, ♂ adult, Margarita Island, July, 1895; Wirt Robinson; collector's No. 432.—Similar to *D. fallax*, but much paler below, where pale buffy fulvous; metallic green of upper parts less brilliant and less brassy; size the same. Upper mandible and tip of lower, black; lower mandible flesh color. Wing, 2.41; tail (central feathers), 1.40; exposed culmen, .82 inches.

♀ adult, No. 151,070, U. S. N. M., Margarita Island, July, 1895, same collector (No. 409).—Does not differ from the male. Wing, 2.28; tail (central feathers), 1.34; exposed culmen, .85 inches.

Lieut. Robinson collected nineteen specimens of this species, which I have compared with three specimens of *D. fallax* belonging to the American Museum of Natural History and kindly forwarded to me by Dr. J. A. Allen. They are uniformly paler than the three examples of *D. fallax*, and all, without exception, have pale flesh colored lower mandibles, while those of *fallax* are apparently yellow when fresh, at any rate the American Museum specimens have the appearance of having had yellow lower mandibles in life. There does not appear to be any appreciable variation in the amount of white on the outer tail-feathers in *D. pallida*, and the area occupied by white on these feathers is the same in both species.

In both forms the feathers of the under parts are edged with buff, the less exposed part of the feathers being different shades of fulvous (light in *pallida*, and darker in *fallax*), consequently the more worn the plumage, the darker the birds appear. The majority of specimens of *D. pallida* are in somewhat worn plumage, while the three specimens of *D. fallax* are in quite fresh condition, hence the differences between the two species pointed out above will probably be greater when the two birds are compared in the same condition of plumage.

Cardinalis robinsoni, new species.

Type, No. 151,072, U. S. N. M., ♂ adult, Margarita Island, July, 1895; Wirt Robinson; collector's No. 460.—Similar to *C. phaniceus* but smaller, with considerably shorter crest. Apparently no difference in color. Wing, 3.26; tail, 3.29; tarsus, .96; culmen, .76; length of crest, 1.17 inches.

The female, of which two specimens are in the collection, differs in the same manner.

All of the five specimens obtained on Margarita are in worn plumage and somewhat bleached. The single female of *C. phaniceus* at hand is in fresh plumage, and the under parts are deep ochraceous buff, with the middle of the abdomen buff; the two specimens of *C. robinsoni* are pale creamy buff below, slightly

darker ochraceous on flanks and sides of body; this difference of color is due partly, at least, to the worn condition of plumage of the latter.

One of the females of *C. robinsoni* differs from the other, and from the female of *C. phœniceus*, in having the scarlet vermilion of the crest, under part of wing and tail replaced by ochraceous yellow; otherwise it is the same.

The measurements of our pair of *C. phœniceus* (from Lake Maracaibo) are: ♂, wing, 3.45; tail, 3.60; tarsus, .94; culmen, .73; length of crest, 1.63 inches. ♀, wing, 3.33; tail, 3.53; tarsus, .97; culmen, .71; length of crest, 1.43 inches.

The specimens of *C. robinsoni* measure: ♂, wing, 3.26; tail, 3.29; tarsus, .96; culmen, .76; length of crest, 1.17 inches. ♂, wing, 3.20; tail, 3.20; tarsus, .95; culmen, .69; crest, 1.13 inches. ♂, wing, 3.20; tail, 3.10; tarsus, .95; culmen, .70; crest, 1.18 inches. ♀, wing, 3.13; tail, 3.06; tarsus, .91; culmen, .69; crest, 1.11 inches. ♀, wing, 3.20; tail, 3.13; tarsus, .99; culmen, .73; crest, 1.25 inches.

DESCRIPTIONS OF TWO NEW SUBSPECIES OF CALIFORNIA BIRDS.

BY F. STEPHENS.

Callipepla gambeli deserticola, subsp. nov. DESERT PARTRIDGE.

Subspecific characters.—Similar to *C. gambeli* but lighter in color; back olive gray inclining toward ash gray; sides chestnut, sharply striped with white; belly dull white; flanks and lower tail-coverts lightly streaked with brown; occiput russet in the male, drab in the female. Types, No. 4969, ♀ ad., 15 January, 1890, Palm Springs, San Diego Co. (now in Riverside Co.), Cal., alt. 100 ft.; and No. 4938, ♀ ad., 1 January, 1890, Walters, Colorado Desert, Cal., 250 feet below sea level. Both in my collection.

Habitat.—Desert District, from the western end of the Colorado Desert and the middle of the Mojave Desert east through the Colorado Valley.

The Desert Partridge differs from the Gambel's Partridge much as the Valley Partridge does from the California Partridge, and from the same cause, the drier habitat.

Speotyto cunicularia obscura, subspec. nov. DUSKY BUR-
ROWING OWL.

Subspecific characters.—Smaller than *S. c. hypogæa*; facial disk sepia, mixed with grayish; top of head sepia, streaked with dull brownish white; entire plumage slightly tinged with rusty. Length (of type), 8.65 inches (220 mm.); extent, 21.65 (550); wing, 6.20 (158); tail, 3.10 (79); tarsus, 1.65 (42). Type, No. 151,022, U. S. National Museum (original No. 5874), ♀ ad., 29 May, 1894, Upper Lake, Lake Co., Cal., alt. 1,400 ft., F. Stephens, Col.

Habitat.—The valleys of the Pacific Coast District north of San Francisco Bay, perhaps excepting the lower valleys tributary to the Bay.

From the nature of the region Burrowing Owls are scarce all through it. The type is the only one I remember seeing. It is very dark about the head, especially about the face, which at first glance seems to be dirty, as if blood stained. The style of coloration is what might be expected in this region, being in the same direction as in *Bubo v. saturatus*, *Callipepla californica* and *Colaptes c. saturator*.

RECENT LITERATURE.

Sharpe and Wyatt's Monograph of the Swallows.¹—This excellent and most welcome monograph, begun in 1885, has recently been completed (the last parts bear date October, 1894), having been nine years in publication. It forms two quarto volumes, comprising 755 pages of text with 129 plates, of which 26 are maps showing the distribution of the various genera and species, the remaining 103 giving colored representations of the birds themselves.

The total number of species recognized is 109, distributed in 12 genera, and two subfamilies—Hirundininae, including 10 genera, and Psalidoprocninae, consisting of the two genera *Psalidoprocnæ* and *Stelgidopteryx*. Why the last-named genus should be thus separated from the genera placed in the Hirundininae is certainly not obvious, and no satisfactory reasons are offered in the Monograph.

Respecting the affinities and status of Swallows as a group, and particularly in their relation to Swifts, we may quote the following (p. xi): "When the 'rostral' system became somewhat exploded, they [the Swallows] were ruthlessly separated from their former companions [the Fissirostres], until now, in due course of re-action, they seem to be recognized as Passerine Birds of a somewhat Cypseline tendency, or perhaps, one might more truly say, the Swifts are Cypseline Birds with a Hirundinine tendency. For the nine years in which this book has been in publication, we entertained the hope that some competent anatomist would enact such a comparison of the characters of the two Families that we should have been able to summarize the results, and tell our readers exactly how the Swallows may be differentiated from the Swifts in every point of structure. In default of this much-needed exhaustive essay from our expert brethren, we venture to define the characters of the Hirundinidæ as follows:—

"A. Passerine Birds with nine primary quills.

"B. Spinal feather-tract bifurcated.

"C. A single moult in the year, executed, so far as we know from the migratory species, during their residence in the winter home.

"No Passerine Birds, we believe, present this triple combination of characters, but further information is, of course, desirable."

The conclusion reached is that Swallows are "Passerine Birds *without any very close allies.*"

¹ A Monograph | of the | Hirundinidæ | or | Family of Swallows. | By R. Bowdler Sharpe, LL.D., F. L. S., F. Z. S., Etc., | . . . [= 6 lines of additional titles] | and | Claude W. Wyatt, | Member of the British Ornithologists' Union. | — | Volume I [-II] | — | London: | Henry Sotheran & Co., | 37 Piccadilly, W. | 140 Strand, W. C. | 1885-1894. 2 Vols., 4to, Vol. I, pp. i-lxx + 1-356, pll. i-liv; Vol. II, pp. i-viii + 357-673, pll. lv-cxxix.

The subject of 'Geographical Distribution' occupies fifteen pages of the 'Introduction,' from which it appears that 5 genera are peculiar to the Old World, while 4 are peculiar to the New World. The geographic areas recognized are essentially those of Dr. Sharpe's paper 'On the Zoo-Geographical Areas of the World, illustrating the Distribution of Birds,' published in 1893 (Nat. Sci., III, pp. 100-108, — *cf.* Auk, XI, 1894, pp. 63-65). A 'Note on the Supposed Hibernation of Swallows' occupies pp. lxxix, lxxx of the 'Introduction,' from which we quote: "We will add, however, that we shall require further evidence of the hibernation of Swallows on the next occasion that a torpid specimen is produced from the mud or such-like place in winter. We shall want to see the moulted feathers of the bird in its place of retreat; for this little fact seems to have been unknown to the believers in the phenomenon, *that Swallows moult during the winter months*. Very few birds, we fancy, could support immersion in water, torpidity, and a complete moult of body-feathers, quills, and tail-feathers at the same time; and, for our own part, we do not believe in the hibernation of Swallows (we say nothing about 'Swifts,' which are Swallows still to the uninstructed), but prefer to think of them as wintering in a warmer climate than England, where insect food is procurable, and where they have a chance of surviving the trying process of their moult."

It seems strange to find so little on record in regard to the moult of Swallows. Judging from museum specimens—unfortunately *not* generally taken at the season when birds in general are in moult—there are some exceptions to the above-given rule, as I find an unquestionably adult male *Stelgidopteryx serripennis* (Am. Mus. No. 53251), taken at Fort Verde, Arizona, Sept. 20, 1886, by Dr. Mearns, symmetrically moulting the quills in both wings, and also the clothing plumage. The authors of the Monograph also cite Mr. Brewster's remarks on the moult of the young of the White-bellied Swallow (p. 158) which imply that the adults also moult before going south. Indeed, the authors of the Monograph say in the same connection: "In the Henshaw collection, however, are specimens which are commencing to moult on the 14th and the 27th of August, and an old female killed in the same month and at the same place (Sing-Sing, N. Y.) has almost completely donned its winter plumage, including the white-tipped secondaries; the longest primaries have not yet been shed."

That the adults as well as the young of both *Tachycineta bicolor* and *T. thalassina* undergo a complete moult of both clothing and flight feathers in the latter part of August and early part of September is abundantly shown by specimens of the former taken in northern New Jersey, and of the latter taken in Arizona and California, all of the adults in the collection taken at this season being in the midst of a general moult. Unfortunately there are no adult specimens of other North American species, taken at this season of the year, at hand at this writing for examination; but we should be much surprised if it turned

out that our other North American species, particularly the Barn and Cliff Swallows, should not also undergo a general moult about the end of August.

The principal literature of the family of Swallows is passed in review (pp. xxi-lxvii), the early French and English authors justly coming in for detailed notice; hence it seems all the more incongruous to find no notice of Linnæus earlier than 1766 (12th ed. Syst. Nat.)!

The plates, drawn by Mr. Wyatt and printed by Minturn Brothers, are well done. The text is very full and satisfactory, the biographies and the geographic distribution of the species, when known, being treated at length, a special and unusual feature being the numerous colored maps showing the ranges of the species. The North American species, owing perhaps to the fact that their habits and distribution are, as a rule, better known than those of most other species, are treated at unusual length, 11 pages being devoted to the Rough-winged Swallow, 20 to the Sand Martin, 22 to the White-bellied Swallow, and 24 each to the Cliff Swallow and the Barn Swallow. Great pains has been taken to work out the distribution of some of the species, as for example the White-bellied Swallow, the colored map (Pl. 35) showing, as nearly as could be ascertained, both its breeding and migratory ranges.

In regard to points of nomenclature we should not always be willing to subscribe to the practice here followed, as where *Progne purpurea* (Linn., 1766) is preferred to *P. subis* (Linn., 1758), and where *Petrochelidon swainsoni* Scl. (1858) is adopted in preference to *P. melanogaster* (Swain., 1827), because the latter does not chance to be 'appropriate.' But where there is so much that is worthy of commendation, it becomes ungracious to criticise what is not wholly to our taste.—J. A. A.

Ornithology in the Standard Dictionary.¹—The specialist determines the advance made in a knowledge of his chosen subject by reviewing the literature relating to it, but to learn what part of this has become

¹A | Standard Dictionary | of the | English Language | Upon Original Plans | Designed to Give, in Complete and Accurate Statement, in the Light of the Most | Recent Advances in Knowledge, and in the Readiest Form for Popular Use, | the Orthography, Pronunciation, Meaning, and Etymology of all the Words and the Meaning of Idiomatic Phrases in the Speech and Literature of the English- | Speaking Peoples | Prepared by | More than Two Hundred Specialists and Other Scholars | Under the Supervision of | Isaac K. Funk, D. D., Editor-in-Chief | Francis A. March, LL. D., L. H. D., Consulting Editor Daniel S. Gregory, D. D., Managing Editor | Associate Editors: | John Denison Champlin, M. A. Rossiter Johnson, Ph. D., LL. D. | Arthur E. Bostwick, Ph. D. | Complete in One Volume | New York | Funk & Wagnalls Company | London and Toronto | 1895 | Printed in the United States. Roy. 4to. pp. xx, 2318, numerous cuts in the text and both colored and uncolored full-page plates.

common knowledge by being rendered available to the reading world at large, he must turn to works of reference. The Century Dictionary was not comparable with anything that preceded it, but in the Standard Dictionary we have a volume which may fairly be contrasted with Webster, our previously generally accepted authority.

Making our comparison from a purely ornithological standpoint we turn at once to the noun "bird" with the following results: Webster gives simply the literal and accepted meaning of the word followed by a comment on its use in place of the more correct term "fowl." The Standard Dictionary gives both definitions with two additional unimportant ones and supplements these by a figure showing the topography of the external parts, of which forty-seven are designated, and a full-page plate illustrating twenty-two species in color. Further comparison confirms this surprising difference in treatment of ornithological terms. Especially is this true in the case of more technical words as for example: *Caligula*, *dromæognathus*, *schizopelmous*, *schizognathus*, *zygodactylous*, etc., all of which are illustrated. On the other hand we find the special ornithological meaning of such common words as "penciled" or "speckled" explained by cuts of a penciled feather and speckled egg. Zoögeography, a term unknown to Webster, is illustrated by a map giving the faunal provinces of the world. We regret, however, to see that the divisions of Sclater and Wallace are given rather than the more recent systems, which have been largely accepted by later students of this subject. Genera are, as a rule, omitted, but orders, suborders, families and subfamilies of birds are included with brief but satisfactory definitions, as for example: *Anatidæ*, "A family of natatorial birds with the edges of the bill lamellate or toothed, generally including ducks, geese, swans, and mergansers." *Oscines*, "a subclass of passerines, especially those with several pairs of muscles attached to the upper bronchial semi-rings, forming an apparatus for singing; including thrushes, sparrows, etc."

Species are given only under English names and the adjectival form of the family is frequently made to do duty as a definition. Thus the Albatross, Cormorant, and Flamingo are defined respectively as diomedoid, phalacrocoracoid, and phœnicopteroid birds. Aside from this rather objectionable method the matter under species is clear and full, descriptions of plumage and structure, range, popular synonyms and occasionally characteristic habits being given.

The work is lavishly illustrated, birds receiving their full share of the cuts, our American species being particularly well cared for in this respect. Thus, taking a letter at random, we find twenty-three species figured under S. These figures are evidently largely adapted from various sources and while often antiquated are for the greater part helpful.

The special nature of this review prevents us from calling attention to the numberless admirable features of this magnificent work, but we

console ourselves with the thought that its low price renders it accessible to every one. It is a remarkable literary achievement; fully worthy of the time in which it appears.—F. M. C.

Dwight on the Ipswich Sparrow.¹—Dr. Dwight's memoir doubtless constitutes the most complete biography which has ever been published of any North American bird. Beginning with its discovery by Mr. Maynard at Ipswich, Mass., in 1868, scarcely a fact in the recorded history of this coast-loving Sparrow is omitted, while the author's experience with it in its summer home enables him to present a monograph admirable for its completeness. From 1868 to 1885 the pages of our text-books, ornithological and natural history journals, show an increasing number of records of the occurrence of this species in late fall and winter on our coasts from New Brunswick to Delaware. The fact of its regular presence in numbers was then definitely established and, in the oft-quoted words of Mr. Dutcher, it was "relegated to the commonplace." In 1890 it was recorded by Dr. Rives from Virginia and by Mr. Worthington from Georgia, but until 1894 its summer home was a matter of speculation. Strong evidence was furnished, it is true, that the bird bred on Sable Island. It remained for Dr. Dwight, however, to finally settle the question by visiting the island from May 28 to June 14, 1894.

As a result of his visit he gives us chapters on the 'History of Sable Island,' 'Physical Aspect of Sable Island,' 'Climate,' 'Flora,' 'Mammals,' 'Birds,' and an extended bibliography.

Sable Island is twenty miles long with a maximum width of one mile. It is described as of probably glacial origin and consists of rolling sand-hills sometimes eighty feet in height resembling in almost every particular, save greater size, the stretches of sand dunes to be found along our Atlantic seaboard. In the hollows among the hills, however, "grasses grow luxuriantly in many places, and a large part is carpeted with the evergreen Crowberry (*Empetrum nigrum* L.) and Juniper (*Juniperus nana* Willd.) which are very characteristic productions."

Distant eighty-six miles from Nova Scotia, Sable Island is farther from the mainland than any continental island off the coast of eastern North America. Its fauna is, therefore, of peculiar interest. No indigenous mammals were found. Many species of both water and land birds occur as transients, but only ten species were nesting at the time of Dr. Dwight's visit. These he gives in the relative order of their abundance as follows: *Sterna paradisæa*, *Sterna hirundo*, *Ægialitis semipalmata*, *Ammodramus princeps*, *Tringa minutilla*, *Ægialitis meloda circumcincta*, *Sterna dougalli*, *Merganser serrator*, *Anas obscura*, and *Actitis macularia*.

¹ Memoirs of the Nuttall Ornithological Club. No. II. The Ipswich Sparrow (*Ammodramus princeps* Maynard) and its Summer Home. By Jonathan Dwight, Jr., M. D., with a colored plate. Cambridge, Mass. Published by the Club. August, 1895. 4to. pp. 56; Pl. I. \$1.50.

Three pages are devoted to the nine water birds included in this list among which are several species (*e. g.*, *Sterna dougalli*, *Tringa minutilla*, *Ægialitis semipalmata*, and *Æ. meloda circumcincta*) whose presence as breeders was not to be expected, and the succeeding twenty-two pages (pp. 20-42) are given to the biography of the Ipswich Sparrow, the only breeding land bird. Its synonymy, variations in plumage, size, distribution and migration, habits, song, nest and eggs, and food are here treated in detail. Six nests and five sets of eggs, three of four and two of five eggs, are described, showing that in its nidification the bird closely resembles its near ally the Savanna Sparrow.

The Ipswich Sparrow is a permanent resident on Sable Island, occurring in reduced numbers during the winter, and the most important part of Dr. Dwight's paper is his conclusion that Sable Island constitutes the bird's entire breeding range, and that it is there "a good example of an island species, probably related at one time to the Savanna Sparrow of the mainland by ties that cannot now be traced." The Ipswich Sparrow may thus claim the distinction of being the only bird of northeastern North America which illustrates the effects of isolation in an insular home.

Dr. Dwight's memoir is characterized by such thoroughness of research, both in the field and study, as to be practically above criticism. We may, however, add to the synonymy the following records which appear to have been overlooked: *Passerculus princeps* Roosevelt, 'Notes on some Birds of Oyster Bay, Long Island,' 8vo. leaflet, published by the author, March, 1879; Editor, Forest & Stream, XIV, 1880, p. 6 (notice of a paper read before the Linnæan Society by C. H. Eagle, "reviewing our present knowledge of the pallid sparrow (*Passerculus princeps*) and mentioning the capture of two specimens at Rockaway, L. I., January, 1880)."

'Birdcraft' is included in the bibliography on the basis of "Unimportant mention in a popular work," when, in fact, it gives the breeding ground of the Ipswich Sparrow as "Sable Island, Nova Scotia" and describes its song, nest, and eggs!—F. M. C.

Loomis on California Water Birds.¹—In pursuing his studies of the migration of birds, Mr. Loomis passed the morning of each day in a small boat at from one-third of a mile to ten miles off shore. He justly claims that the phenomena of migration may be more readily observed over the sea than on the land. Aside from other and more obvious reasons, he remarks that "migration over the ocean continues during the daytime to an extent not usually observed on land, resembling, perhaps, more the night migration of land birds." Thus while the birds which pass a given station might not be noted on shore, they do not escape the observer who can maintain a fairly thorough watch over an area enclosed by a circle six

¹ California Water Birds. No. 1.—Monterey and Vicinity from the middle of June to the end of August. By Leverett M. Loomis. Proc. Cal. Acad. Sci., Ser. 2, V, pp. 177-224, 1 map, June, 1895.

or eight miles in diameter. To the incomplete and misleading records of migration on land Mr. Loomis attributes what he considers to be the false statement that young birds migrate in advance of the adults. His own experience, as given in both this and other papers, would seemingly prove that in this country the contrary was true, and he says: "The mere occurrence of the young in a given locality before the presence of adults has been detected proves nothing beyond the bare fact that the young were observed there earlier than the adults. It does not prove that they left the region of their birth in advance of their parents, any more than the habitual absence in a locality of a species breeding to the northward and wintering to the southward of it, proves that the species does not migrate." Mr. Loomis thus agrees with most American students of migration on this much discussed question of leadership, but on the other hand we have Herr Gätke asserting positively from Heligoland: "1. That under normal conditions in the case of the three hundred and ninety-six species occurring here, with the exception of a single one, the autumn migration is initiated by the young birds, from about six to eight weeks after leaving their nests. 2. That the parents of these young individuals do not follow till one or two months later. . . ."

Beginning on June 16, Mr. Loomis gives a daily record of the movements of birds down the coast, showing the influence of general and local climatic conditions on the numbers of birds and direction of flight. This is followed by a summary and an annotated list of the forty-four species of which specimens were taken. *Brachyramphus hypoleucus* and *Stercorarius longicaudus* are here recorded for the first time from California. Mr. Loomis has selected a comparatively little known field in which to prosecute his studies, and we trust that this valuable and suggestive paper may be followed by many others from his pen. — F. M. C.

Ridgway's Ornithology of Illinois.¹—An extended review of the first volume of this work² sufficiently explains its object and character. The present volume is devoted to the game and water birds, and concludes the 'Descriptive Catalogue.' Some 139 species are included, which, added to the 216 given in the first volume, make the total for the State 355. The occurrence of the following species, however, lacks confirmation: *Lagopus lagopus*, *Ardea rufescens*, *Megalestris skua*, *Stercorarius pomarinus*, *Larus argentatus*, *Xema sabinii*, *Sterna maxima*, and *Urinator arcticus*. Mr. Ridgway's faith in *Ardea wuerdmanni* of the A. O. U.

¹ Natural History Survey of Illinois, | State Laboratory of Natural History, | S. A. Forbes, Director. | The | Ornithology | of Illinois | — | Part I, Descriptive Catalogue, | By Robert Ridgway. | Volume II. | Part 1. | — | Published by authority of the State Legislature. | — | Springfield, Ill. | H. W. Rokker, Printer and Binder. | 1895. Roy. 8vo. pp. 282; pl. xxii.

² Auk, VII, Jan. 1890, pp. 74-77.

'Hypothetical List' is shown by his inclusion of this bird on the basis of an individual "seen on several occasions," by himself near Mt. Carmel. Subtracting these, reduces the total to the neighborhood of 350, a number which, curiously enough, seems to represent the avifauna of those States whose birds have been most thoroughly studied, without regard to their inland or seaboard position.

Ornithologists are to be congratulated on the completion of this work.—When Part II (in which we have no doubt Professor Forbes will treat the subject economically as thoroughly as Mr. Ridgway has systematically) appears the inhabitants of Illinois may justly claim to be more enlightened ornithologically than the residents of any other State in the Union.—F. M. C.

The Food Habits of Woodpeckers.—Bulletin No. 7¹ of the Division of Ornithology and Mammalogy, U. S. Department of Agriculture, is devoted to the food habits of North American Woodpeckers. It consists of two papers, the first and principal one being by Prof. F. E. L. Beal, on the 'Food of Woodpeckers' (pp. 7-33), and the other (pp. 35-39 and pll. i-iii) by Mr. F. A. Lucas on the 'Tongues of Woodpeckers,' in their relation to the character of the food.

"The present paper," says Mr. Beal, "is merely a preliminary report, based on the examination of 679 stomachs of Woodpeckers, and representing only 7 species—all from the eastern United States. These species are the Downy Woodpecker (*Dryobates pubescens*), the Hairy Woodpecker (*D. villosus*), the Flicker or Golden-winged Woodpecker (*Colaptes auratus*), the Red-headed Woodpecker (*Melanerpes erythrocephalus*), the Red-bellied Woodpecker (*Melanerpes carolinus*), the Yellow-bellied Woodpecker (*Sphyrapicus varius*), and the Great Pileated Woodpecker (*Ceophlæus pileatus*). Examination of their stomachs shows that the percentage of animal food (consisting almost entirely of insects) is greatest in the Downy, and grades down through the Hairy, Flicker, Pileated, Redhead, and Yellow-bellied to the Red-bellied, which takes the smallest quantity of insects."

The Downy Woodpecker is considered to be the most beneficial, and the Hairy Woodpecker and the Flicker the next so, these three species being considered as among the least harmful of our common birds. The Yellow-bellied Woodpecker is the only species of the seven possessing really harmful qualities, which may, in certain localities, render it detrimental to fruit trees, through its fondness for sap and the inner

¹ Preliminary Report on the Food of Woodpeckers. By F. E. L. Beal, Assistant Ornithologist.—The Tongues of Woodpeckers. By F. A. Lucas, Curator, Department Comparative Anatomy, U. S. National Museum.—Bulletin No. 7, U. S. Department of Agriculture, Division of Ornithology and Mammalogy. Washington: Government Printing Office, 1895. 8vo, pp. 1-44, pll. i-iii, Frontispiece, and 4 cuts in the text.

bark of trees. Tabulated statements are given of the percentages of different kinds of food found in the stomachs of the species examined, and excellent uncolored illustrations are given of five of the seven species treated.

Mr. Lucas describes and figures the tongue as found in 11 species, representing all the genera of North American Woodpeckers, and reaches the conclusion that the evidence thus gathered "favors the view that modifications of the tongue are directly related to the character of the food and are not of value for classification." Granting that the facts are as stated, we are reluctant to agree with Mr. Lucas's conclusion, for on the same grounds we should have to rule out of the list of taxonomic characters any structural feature adaptatively modified to special modes of life; and these involve, in a more or less marked degree, every part of the organism. It would be very surprising if the form of the tongue should not vary markedly in accordance with the nature of the food and the manner of obtaining it. Mr. Lucas's descriptions and figures of Woodpeckers' tongues is a welcome and valuable contribution to the subject treated, which is, furthermore, one of great interest.—
J. A. A.

Barrows and Schwarz on the Food of the Common Crow.¹—This extended report on the food of the Crow (*Corvus americanus*), based on the examination of about 1,000 stomachs, from Crows killed throughout the year and over a very wide extent of country, shows with some degree of accuracy and detail the real nature of the food of this much maligned and commonly outlawed bird. Everybody has long known that Crows pull the farmer's sprouting corn, and will pilfer a little fruit, and destroy the eggs and young of poultry and wild birds. The good they do has not been so evident, although they have been generally credited with feeding to some extent on cutworms, grasshoppers, field-mice and reptiles. The present Bulletin shows statistically and in detail the proportionate amount of the animal and vegetable food consumed by the Crow and the principal elements of which it consists. The verdict on the whole is decidedly favorable to the Crow, his worst trait being his decided predilection for the eggs and young of our native birds. Of 616 Crows killed during April, May, June, and July, 50 had in their stomachs when killed the remains of wild birds or of their eggs. As many of these 50 Crows were nestlings, Professor Barrows concludes "that not more than 1 Crow in 20 ever becomes addicted to this sort of stealing"—a generalization for which we fail to see adequate basis in the data presented. We should rather say that not more than 1 Crow in 20 habitually partakes of the

¹ Bulletin No. 6 | U. S. Department of Agriculture | Division of Ornithology and Mammalogy | The Common Crow | of the | United States | — | By Walter B. Barrows and E. A. Schwarz | [Seal] | Washington | Government Printing Office | 1895. 8vo., pp. 96.

young or eggs of wild birds, during the four months named, as a part of its daily diet. For we do not believe, from what we have seen of Crows in life, that 86 per cent of the race are too virtuous to indulge in such dainties when the opportunity is available. Professor Barrows says: "The actual quantity of bird remains found in the stomachs is comparatively small. In very few cases did it form as much as half of the entire stomach contents, though in one or two stomachs it exceeded that proportion. The average for the 50 stomachs was about 18½ per cent; or only 1½ per cent for the 616 stomachs taken during the season. The average annual amount in the 909 stomachs was almost exactly 1 per cent." This is certainly a very considerate way of putting the case—for the Crow, since such food is available for only about one third of the year. But suppose that, as here assumed, only 1½ per cent of the food of millions of voracious Crows for four months of each year consists of the eggs and young of wild birds, who can calculate the immense destruction of bird life here admitted?

The Bulletin consists of four chapters, as follows: I. 'General Habits of the Crow,' under which is treated its geographic distribution, migration, and Crow roosts, the latter occupying about 16 pages, and giving a list of the principal known Crow roosts. II. 'Animal food of the Crow' (pp. 26-56), considered under various subheadings. III. 'Insect food of the Crow' (pp. 56-72). This includes a special report (pp. 57-68) on the character of the insect food found in Crows' stomachs by Mr. E. A. Schwarz, of the Division of Entomology, who renders the following verdict: "The facts on the whole overwhelmingly speak in favor of the Crow, and taken alone would be at variance with the prevalent opinion hitherto held and yet held regarding the economic status of the Crow as an insectivorous bird." IV. 'Vegetable food of the Crow' (pp. 72-85). Although other grains than corn are eaten by the Crow, and although fruits are eaten to a small extent, the only real damage done to crops is occasioned by the persistent habit of Crows everywhere of pulling the newly planted corn to get at the swollen kernel, which they devour with avidity. The damage thus caused is sometimes serious, but is easily guarded against, as shown in Chapter IV, 'Protection of Crops' (pp. 88-94), as by 'tarring' the corn before planting it, to render it distasteful, and by using various devices for frightening the Crows away. Another safeguard we have often known practiced with success is to scatter small quantities of corn about the field, which the Crows and other corn-loving birds will eat in preference to pulling up the growing sprouts.

Under the head of migration, Professor Barrows states that the fact that "Crows are regularly migratory has been generally overlooked, chiefly because in most localities in the United States where Crows breed they are represented in winter by at least a few individuals. . . . The great center of Crow population in the eastern part of this winter zone [lat. 35°-40°] is in the neighborhood of Chesapeake Bay and its

tributaries; a more western center is found near the junction of the Ohio and Mississippi Rivers, while large numbers winter farther west, along the Arkansas and lower Missouri." As Mr. Barrows implies, their winter distribution is largely governed by the food supply; an unharvested field of corn, as far north as Massachusetts, we have observed, is sure to become the winter feeding grounds for hundreds of Crows, however deep the snow or severe the weather.

The Bulletin as a whole is a most painstaking and laborious investigation, and goes far to settle satisfactorily the economic status of a bird unrelentingly persecuted for crimes that are to a large extent imaginary, or at least grossly magnified.—J. A. A.

Forbush on 'Birds as Protectors of Orchards.'—Another valuable contribution to economic ornithology is Mr. E. H. Forbush's paper on 'Birds as Protectors of Orchards,' recently published in the 'Bulletin of the Massachusetts Board of Agriculture.'¹ The paper relates largely to the destruction of the eggs of the canker-worm moth by winter birds, notably the Chickadee (*Parus atricapillus*), which also feeds in fall on the wingless females of the same destructive insect. An account is given of an attempt to protect an old and neglected orchard from insect ravages by getting winter birds to make it their haunt by suspending in it pieces of meat, bone, suet, etc. The experiment shows not only that birds can thus be attracted in numbers to a particular area, but that they prove wonderfully destructive to insect pests infesting fruit trees. Kinglets were found to have eaten largely of bark borers, while Woodpeckers appeared to confine themselves to the larvæ of borers, wood-ants, and other insects which bore into the wood of the tree. Notes are given on the beneficial work of summer birds in destroying caterpillars and other destructive insects infesting orchards. Winter birds are also shown to be great destroyers of the eggs of the canker-worm moth, and of scale insects. "No birds," it is said, "were seen to eat the eggs of the tent caterpillar, nor were any found in the stomach of any of the birds examined. It seems probable that these eggs are so protected by a hard covering that they are not eaten by most birds." While this may be true, the Blue Jay is evidently an exception, as we have found by examination of the stomachs of birds of this species taken in orchards in winter.² Mr. For-

¹ Massachusetts Crop Report for the month of July, 1895. Issued by Wm. R. Sessions, Secretary State Board of Agriculture. Series of 1895, Bulletin No. 3. Boston, 1895, 8vo, 32 pp. Birds as Protectors of Orchards, by E. H. Forbush, Ornithologist to the Board, pp. 20-32.

² Cf. Proc. Essex Inst., IV, 1864, p. 75. Also an article by the late Dr. T. M. Brewer on 'The Blue-Jay Family,' published in the Atlantic Monthly, April, 1870, p. 482, in which is given a detailed account of the usefulness of the Blue Jay in destroying the larvæ of the tent-caterpillar, on the authority of Dr. J. P. Kirtland.

bush's observations afford most conclusive proof of the protective influence of birds against orchard pests, and we trust the facts he here presents may be made widely known. — J. A. A.

Merriam on the Geographical Distribution of Animals and Plants in North America.—This paper¹ of 12 pages is “a review of the work undertaken and of the results accomplished by the Division of Ornithology and Mammalogy.” Reference is made to the economic value of a knowledge of the geographic distribution of species; the results of an experimental survey of the San Francisco Mountain region in Arizona are recounted, and of the subsequent biological survey of South-Central Idaho, the Death Valley region, Wyoming, Montana, the tablelands of Mexico, and elsewhere. The life zones of North America are recapitulated and illustrated with a map, and the “fundamental principles of animal and plant distribution” are succinctly stated, followed by a recapitulation of the work thus far accomplished respecting the general subject of geographic distribution. The paper is in the main a popular résumé of the author's previous reports and papers on the same subject, already noticed at length in previous numbers of this journal. — J. A. A.

Suchetet on Hybridity in Birds.²—Part 5, closing Mr. Suchetet's volume on hybridity among birds in a state of nature, is devoted to additions and corrections to the preceding parts, published respectively in 1890, 1891, 1892, and 1893. The present volume is largely made up of additional cases of alleged hybridity, either recently reported, or from earlier reports recently discovered by the author. As we have said in an earlier notice of this work (Auk, IX, 1892, pp. 382, 383), Mr. Suchetet has done good service by industriously bringing together in systematic order the substance of the extended and much scattered literature relating to this interesting subject, rather, however, as an amateur than as a trained investigator well equipped for his task. It is, however, a work of immense research, and will prove a valuable compendium of the subject. The work unfortunately is apparently without an index, or even a table of contents. He proposes to devote his second volume on hybridity to the classes of insects and fishes. — J. A. A.

¹ The Geographic Distribution of Animals and Plants in North America, by C. Hart Merriam, Chief of the Division of Ornithology and Mammalogy, U. S. Department of Agriculture. Reprinted from the Year-book of the U. S. Department of Agriculture for 1894, pp. 203-214. Washington, 1895.

² Les Oiseaux Hybrides | rencontrés a l'état sauvage | Par | André Suchetet | — | Cinquième Partie | Additions and Corrections | — | Lille | Imprimerie typographique et lithographique le Bigot Frères | 68, rue Nationale, et 25, Nicolas-Leblanc. | — | 1895. 8vo, pp. 473-873.

Chapman's 'Handbook of Birds of Eastern North America,' Second Edition.¹—It is interesting to note that a second edition of Chapman's 'Handbook of the Birds of Eastern North America' was quickly called for, showing not only that a good work is appreciated, but also evincing the strong popular interest in the study of our birds. The second edition is from the same electrotype plates as the first, from which it differs merely in the correction of a few typographical errors and the addition of an appendix of six pages giving a 'field-key' to about 100 of the more common species, based on their coloration, characteristic habits, notes, and haunts, with a view to their ready identification in the field.—J. A. A.

Stone on the Name Calliste.²—Mr. Stone finds that the generic name *Calliste* Boie, 1826, is preoccupied by *Callista* Poli, 1791, and that *Aglaia* Swains., 1827, the next name applied to the birds of this genus, had been previously used for both mollusks and hydrozoans. It appears, therefore that *Calospiza* G. R. Gray, 1840, is the earliest available name for this group of Tanagers.—F. M. C.

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¹ For a review of the work and a full transcript of the title see *antea*, pp. 282-284.

² The Priority of the names *Calliste*, *Aglaia*, and *Calospiza* and their use in Ornithology. By Witmer Stone. Proc. Acad. Nat. Sci. Phila., 1895, pp. 251, 252.

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GENERAL NOTES.

Brünnich's Murre in Michigan. — On the morning of December 13, 1894, a Brünnich's Murre (*Uria lomvia*), in dying condition, was picked up on the Flat River, a small stream near the city of Greenville, Michigan. It came into the hands of Mr. Percy Selous, a naturalist and taxidermist of that place, who subsequently sent it to me for inspection, and eventually presented the specimen, well mounted, to the State Agricultural College. Mr. Selous writes me that the bird, an immature male, was greatly emaciated, and was dead, though not really cold when he obtained it, probably not more than an hour or two after its capture. This, I believe, is the first actual record of the occurrence of this species in Michigan, and is of special interest as rendering more probable the several more or less reliable reports of capture of other members of the family within the State. — WALTER B. BARROWS, *Agricultural College, Mich.*

Oceanodroma socorroensis off San Diego, Calif. — During April and May of the current year a number of Socorro Petrels were seen off San Diego, and a small series was secured by the writer, thus adding the species to the avifauna of the United States. The species has heretofore been known only from the unique type taken at Socorro Island by Chas. H. Townsend. — A. W. ANTHONY, *San Diego, Cali.*

Nesting of the Red-breasted Merganser on Saddleback Ledge, Maine. — On June 21, 1894, I made a visit to Saddleback Ledge, a small, grassy island situated about six miles from Isle au Haut, for the purpose of col-

lecting a few sets of eggs of the Common Tern. While walking around the island, I flushed a female Red-breasted Merganser (*Merganser serrator*) from her nest, which contained ten eggs, and was composed of a quantity of dry grass very warmly lined with down and feathers. It was situated on the ground under a clump of umbelliferous plants (*Heracleum lanatum* Michx.), which grow very commonly on the islands of Penobscot Bay. The eggs are of a peculiar drab color and measure 2.65×1.76 , 2.66×1.72 , 2.49×1.70 , 2.60×1.76 , 2.50×1.76 , 2.60×1.77 , 2.54×1.74 , 2.60×1.80 , 2.68×1.75 , and 2.60×1.76 . — ORA W. KNIGHT, *Bangor, Maine*.

Breeding of *Somateria dresseri* near Isle au Haut, Maine. — On June 26, 1895, I found three nests with eggs of the American Eider on Spirit Ledge, a small island about five miles from Isle au Haut, Maine. The nests were placed on the ground in the midst of a clump of umbelliferous plants, which were growing near the center of the island, and contained two fresh eggs, and incubated sets of three and six eggs respectively. The two latter nests were found by flushing the females. Later in the day I found a fourth nest, containing four eggs, on Saddleback Ledge, about three miles distant from Spirit Ledge. This last nest was on the ground in plain sight, but the eggs were hidden by a thick covering of down. Incubation was advanced about four days. The eggs are a greenish drab color and measure 3.05×2.10 , 3.17×2.05 , 3.06×2.05 , and 3.16×2.05 inches.

The captain of the boat which conveyed me to the islands informed me that the fishermen considered the eggs a great delicacy, and collected them for cooking purposes. He also informed me that the 'Sea Ducks,' as he called them, used to nest in much greater numbers near Isle au Haut, but that the constant persecutions of the fishermen had lately caused the birds to nest on the ledges in greatly reduced numbers. — ORA W. KNIGHT, *Bangor, Maine*.

The Scaled Partridge (*Callipepla squamata*) in Colorado. — In 'The Auk' for July (XII, p. 298), Mr. Willoughby P. Lowe records the capture of a Scaled Partridge in the Wet Mountains, in south-central Colorado. His is undoubtedly the first record for the State and extends the range of the species about one hundred and fifty miles north of its recorded range in New Mexico. In the winter of 1892-93 I was shown a freshly killed bird of this species by a Denver taxidermist who told me that it was shot on the Platte River, a short distance east of the city. I could get no further information, and as the location was so far from the known habitat of the species I concluded that it was an escaped bird or had been introduced on some of the ranches along the river and so did not publish the record. I am still of the opinion that the species does not normally wander so far north, but I cannot learn of any Scaled Partridges being introduced into that State. — A. W. ANTHONY, *San Diego, Calif.*

The Passenger Pigeon in the Upper Mississippi Valley.—While collecting with Mr. Wallace Craig, Sept. 3, 1891, I shot a male Wild Pigeon (*Ectopistes migratorius*) in an oak grove in Chicago, near 75th Street, between Stony Island Avenue and Lake Michigan. It was feeding and flew up at our approach, alighting perhaps ten feet from the ground, where I shot it. It was not at all wild, and was a bird of the year. We saw two others in the same grove, but did not secure them.

April 8, 1894, Mr. Edw. J. Gekler saw a flock of about fifteen Wild Pigeons flying while in a woods near Liverpool, Indiana.

Mr. Kaempher, a taxidermist of this city, had a fine male Passenger Pigeon mounted on one of his shelves which was brought in on March 14, 1894. The gentleman who brought it said he shot it near Liverpool, Indiana, and saw quite a number of them at the time.

Mr. W. C. Stryker, of Berrien County, Mich., now a student in the Chicago College of Dental Surgery, told me that on May 27, 1894, he found a flock of perhaps twenty Wild Pigeons in a clover field on his farm near some burr oaks into which they flew when he frightened them. They remained on his place for some time and were not molested. His farm is but three or four miles from the Indiana line. He is very familiar with the Passenger Pigeon, having shot many several years ago when they were abundant.—JAMES O. DUNN, *Chicago, Ill.*

A Large Brood of Ospreys.—A pair of Ospreys (*Pandion haliaëtus carolinensis*) that build on one of the pole nests in Bristol, R. I. (see 'Auk,' Vol. XII, No. 3, p. 300), raised last spring (1895) a brood of seven young. On the 11th of June two of the nestlings, about the size of squabs, were picked up dead under the nest and on the twenty-sixth of the same month another young bird was also found dead at the foot of the pole. In the latter part of July the nest contained four almost fully fledged young. This is the largest brood of Ospreys I have ever heard of being raised in a season, and from all appearances the seven eggs must have been laid in seven or eight days.—REGINALD HEBER HOWE, JR., *Brookline, Mass.*

On the Correct Subspecific Names of the Texan and Mexican Screech Owls.—A recent careful examination of the subject has convinced me that, as Messrs. Sclater and Salvin have several times insisted, *Scops trichopsis* of Wagler is the bird afterward described by Cassin as *Scops mccallii* and subsequently by Lawrence as *S. enano*, and not the form from Arizona and parts of northern and central Mexico, to which the name has recently been applied by American ornithologists. Kaup's detailed description in the Transactions of the Zoölogical Society of London, Vol. IV, 1862, pp. 227-228, taken from Wagler's type, I think settles this question beyond a doubt. *Scops mccallii* CASSIN is therefore a synonym of *S. trichopsis* WAGLER, and No. 373 *b.* of the A. O. U. Check-List becomes MEGASCOPS ASIO TRICHOPSIS (WAGLER). No. 373 *f.*, not being Wagler's bird, must

have another name; and since I have been unable to find one already provided I propose to name it MEGASCOPS ASIO CINERACEUS, from its ashy coloring. This is the "*Megascops asio trichopsis*" of my Manual of North American Birds (p. 261), and also the [*Scops asio*] Subsp. ♂ *Scops trichopsis* of SHARPE, Cat. B. Brit. Mus. II, 1875, 119. ROBERT RIDGWAY, *Smithsonian Institution, Washington, D. C.*

The St. Lucas Flycatcher in California.—During the latter part of June, 1895, a few days were spent in collecting in the pine growth on Cuymaca Peak, San Diego County. Between the altitudes of 4000 feet and 6000 feet several *Empidonax cineritius* were taken and they were found to be rather common and the only species of the genus met with at that altitude. A few *E. pusillus* were found nesting at the base of the peak at an altitude of 3700 feet. In July *pusillus* was found along the base of San Jacinto Peak, Riverside County, and *E. hammondi* was taken as high as 9500 feet, where it was nesting. It is possible that *E. cineritius* may occur between the ranges of *pusillus* and *hammondi* on San Jacinto, as Flycatchers were seen that resembled that species but no specimens were secured.

The recorded range of the St. Lucas Flycatcher is hereby extended north of the Mexican boundary and the species added to the avifauna of California.—A. W. ANTHONY, *San Diego, Cal.*

Skylarks Nesting on Long Island.—At Flatbush, Long Island, July 28, 1895, after I had for a couple of hours been listening to the strains of the Skylark (*Alauda arvensis*) as they were poured from the sky, a resident of the neighborhood kindly guided me to the spot, in a field near by, where, about two weeks previously, he had found a Skylark's nest. The nest contained when he found it, he said, three half-fledged young ones and one egg. When the nest was pointed out to me the egg was still there, but the fledglings had departed.

The land on which we were standing was grassy and slightly 'rolling,' and the nest was situated about midway on the descent of one of the rolls. In the spring preceding, while the ground was soft, a horse and cart had been driven but once across the field, making a deep track, and in one of the horse's foot-prints, about three inches deep, the nest was made. To form and complete the nest, the bird had rounded away the angles of the foot-print and scantily lined it with dried rootlets and coarse grass.—THOMAS PROCTOR, *Brooklyn, N. Y.*

The American Crossbill.—The American Crossbill is usually quite common in this vicinity during the winter months, and a few birds remain until quite late in the spring. A flock of about thirty remained on the Maine State College campus from March 4 to June 19, 1895, and at any time they could be found feeding in the pine trees with which the college campus is covered. Birds shot from this flock at intervals showed

no indications of breeding upon dissection. June 19, the flock of Crossbills suddenly disappeared.

While at Jackman, Maine, from August 16-23, 1895, I found American Crossbills to be very common in that vicinity. They were usually in small flocks of five to seven individuals and were very evidently parents and young of the year. A number of times I observed the parents in the act of feeding the young.

What is very odd is the fact that I observed a number of the birds flying about in pairs. These were probably still nesting. Some of the Crossbills probably nest much later than is generally supposed.—ORA W. KNIGHT, *Bangor, Maine*.

Junco phænotus Wagler, not *J. cinereus* (Swainson).—*Fringilla cinerea* SWAINSON, 1827 (= *Junco cinereus* AUCTORUM) being preoccupied by *Fringilla cinerea* GMELIN, 1788 (= *Melospiza cinerea* AUCTORUM), it becomes necessary to change the names of the Mexican Junco and its subspecies, as follows:—

Junco phænotus WAGLER (Isis, 1831, 526).

Junco phænotus palliatus RIDGWAY (A. O. U. No. 570).

Junco phænotus dorsalis (HENRY) (A. O. U. No. 570 a).—ROBERT RIDGWAY, *Smithsonian Institution, Washington, D. C.*

Henslow's Sparrow in Indiana.—In July, 1894, while camping with Mr. Wallace Craig, we found this small Sparrow was common in a field of weeds near the southeast corner of Bass Lake in Starke County, Indiana. Two were secured, both males, which were singing while perched on the tallest weed tops. July 24, 1895, while camping on the Kankakee River, near Wilders, Indiana, we found this Sparrow was abundant in an extensive field of tall weeds. Mr. Craig shot at one and it fell wounded in the weeds where it was very hard to find for it tried to keep hidden in the grass. The weed on which he had been standing was one of the tallest in the neighborhood, although not over three feet high, and it had evidently been used by the bird a great deal, judging from the amount of excrement on the grass below it.

The Yellow-winged Sparrow was found in the same locality and was more numerous than the Henslow's, and, when perched on weedtops or fence posts, was tamer. They could easily be distinguished from the Henslow's by their notes. The following is from our notebook written by Mr. Craig while we were camping at Wilders: "Henslow's Sparrows seem to be quite numerous and found over a considerable area in the prairies. They sing frequently and may be heard in almost, if not quite, the hottest part of the day. The song is very simple, being a very rude attempt at producing music. It consists, so far as I have been able to determine, of two insect-like notes; it may be represented by the syllables *stitch lick*, uttered in quick succession, and once, when I had fired several shots without hitting anything, I thought the birds

said 'such luck,' 'such luck.' The notes, as has been said, are insect-like in character, especially the first one, which is very lisping, the last note having more volume. The notes are not loud, but may be heard at some distance, and are somewhat ventriloquistic, seeming to come from some general direction but not from any definite spot so that it is impossible to locate the birds easily by their notes.'

While camping at Bass Lake in 1894, we heard one of these birds at 11 P. M., the night being clear and moonlight.—JAMES O. DUNN, *Chicago, Ill.*

The Rough-winged Swallow (*Stelgidopteryx serripennis*) breeding in North Adams, Berkshire Co., Mass.—Several years ago I noticed a pair of birds that resembled Bank Swallows flying about a limestone cliff in North Adams. The nature of the place led me to suspect these birds were Rough-winged Swallows, but I was unable to pursue the subject further that summer. This year, on the 28th of June, I found two Swallows skimming over the surface of a small sheet of water near the above-mentioned cliff and quickly satisfied myself, with the aid of opera-glasses, that they were Rough-wings. It soon appeared that they were engaged in feeding their young, which were ensconced within a narrow, inaccessible crevice near the summit of the neighboring cliff, about fifty feet from its base. The old birds would pass entirely out of sight within the crevice; the young were invisible. But on the morning of July 2, when I again visited the place, four or five young birds nearly ready to fly were sitting in a row at the mouth of the crevice, while their parents, resting from their labors, basked in the warm morning sun or otherwise disported themselves after the fashion of their tribe. I shot the male, July 2; the young left the nest, July 3.

The Rough-winged Swallow has never before been known to breed in Massachusetts. Indeed, the only previous notice of its occurrence in the State relates to a single specimen killed in Easthampton by W. S. Clark in May, 1851, as recorded by H. L. Clark in 'The Birds of Amherst and Vicinity,' 1887, p. 49. A single specimen was captured in Suffield, Conn., June 6, 1874 (Bull. Nuttall Ornithol. Club, II, 1877, 21) and another in East Hartford, Conn., in June, 1885 (Bull. Amer. Mus. Nat. Hist., I, 1886, 267). It is known to breed in southwestern Connecticut near Bridgeport (B. N. O. C., IV, 1879, 119) and Stamford (Auk, XII, 1895, 86), near the eastern end of Long Island at Shelter Island (Auk, X, 1893, 369), and in the lower part of the Hudson River Valley as far north as West Point, N. Y. (B. N. O. C., III, 1876, 46). The North Adams locality is only about three miles from the southern boundary of Vermont.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

Turdus alicæ bicknelli and Otocoris alpestris praticola as Summer Residents of Berkshire County, Mass.—In 1889 (Auk, VI, 106) I recorded the capture of Bicknell's Thrush on the summit of Mt. Graylock in early

July, 1888, under circumstances which led me to believe that the bird bred there. This year I passed the night of June 29-30 on the top of Graylock and was again greeted, both in the evening and in the morning, by the beautiful song of this Thrush,—the song so admirably characterized by Mr. John Burroughs in 'Riverby,' pp. 47, 49. A hasty search for the nest in the midst of a drenching rain on the morning of the 30th proved unavailing; but the anxiety manifested by the bird when I invaded his domain confirmed my belief that this Thrush breeds on Graylock.

On the 27th of last June I was delighted to find a little flock of six or seven Prairie Horned Larks—probably members of one family—feeding in a ploughed field in North Adams, near the edge of Williamstown. One of them was in full song. This is the place where Mr. J. B. Grimes had told me that this bird breeds (see 'Auk,' IX, 1892, 202). The discovery of the nest of the Prairie Horned Lark near Pittsfield, Mass., by Mr. C. H. Buckingham in 1892 was announced in 'The Auk,' XI, 1894, 326.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

Notes from Western New York.—*Plegadis autumnalis*.—A Glossy Ibis was shot at Dunkirk, N. Y., late in April, 1894, by Mr. John W. Ware of that place. Mr. Ware tells me that the bird was wading in shallow water at the time and that he had no difficulty in approaching within gunshot as it was not very shy. The specimen, which I have examined, is in the rich, purplish red plumage of the adult.

Strix pratincola.—A male Barn Owl was shot just outside the city limits at Pine Hill on July 18, 1895. I saw it at the taxidermist's a few days later.

Icteria virens.—On June 17, 1895, I secured a male Yellow-breasted Chat in a bushy pasture at West Seneca. I first saw the bird two days before, when I spent some time looking for its nest. Also looked for the nest on the above date, but found none. This was the only bird I started. It is the second record for Erie County.—JAMES SAVAGE, *Buffalo, N. Y.*

Notes on Some Birds of Northeastern Illinois.—*Pectoral Sandpiper.*—I was somewhat surprised when my friend, Mr. Wallace Craig, brought in a specimen of this species on July 26, 1893, and reported them as common at 'Mud Lake.' This small lake is in the southern part of the city near 83rd Street and Stony Island Avenue. Part of the north shore is free from rushes and very muddy, and seemed to be a favorite feeding ground for Sandpipers. We visited the lake the next day and found this species was abundant and very tame, alighting on the mud-flat within a few feet of us. August 2, we found them in great numbers, easily securing nine, which was as many as we cared for. They would alight on the flat beach while we were wading within twenty feet. August 9, they were not nearly so tame, for pothunters had begun to mow them down.

On June 18, 1894, Mr. Craig observed this species at 'Mud Lake,' and they came within twenty feet of him, while he lay hidden in the grass watching them.

June 18, 1895 Mr. Craig observed them at 'Mud Lake' in some numbers. May 24, 1895, Mr. Craig found a good sized flock of Pectoral Sandpipers at Havana, Ill., on the Illinois River.

Least Sandpiper. — Saw a loose flock of about twenty-five Least Sandpipers (*Tringa minutilla*) July 3, 1893, and secured three at 'Mud Lake.' I saw many on July 26, 1893, and on other collecting trips made to 'Mud Lake' during that summer.

Semipalmated Sandpiper. — Shot three on July 27, 1893, and saw many others at 'Mud Lake.' August 2, 1893, I saw a great many Semipalmated Sandpipers (*Ereunetes pusillus*) which were very tame alighting within twenty feet of us. June 9, 1894, I found a flock of about fifty birds of this species not far from 'Mud Lake' on a large, soft, muddy tract, which also had many single birds of this species scattered over it. My companion killed five at one shot. Nelson in 'Birds of Northeastern Illinois,' says those he has shot in the summer were barren birds, but this has not been the case with those I have skinned.

Semipalmated Plover. — On July 27, 1893, I fired into a flock of Sandpipers and killed a Pectoral Sandpiper and a Semipalmated Plover (*Aegialitis semipalmata*) at 'Mud Lake.' I saw three of this species on August 2, 1893, at 'Mud Lake,' which were very tame.

Broad-winged and Sharp-shinned Hawks. — While collecting with Mr. Wallace Craig in the southern part of Chicago (83rd Street and Stony Island Avenue) on April 27, 1892, we observed a flight of Hawks which lasted all day. At one time in an opening of a small woods, called Hog Island, Mr. Craig counted fourteen in sight. Most of them appeared to be medium-sized Hawks, perhaps one fourth of them being small sized ones. Mr. Craig shot one of the latter and found it was a Sharp-shinned Hawk (*Accipiter velox*). I shot two of the larger ones and found them to be a male and female Broad-winged Hawk (*Buteo latissimus*). The stomach of the female contained two garter snakes, one about eight and one half inches long, and five Coleoptera, while that of the male contained three spiders and two Orthoptera.

There may have been other species of Hawks in the flight, but the Broad-winged and Sharp-shinned were the only ones we were able to identify, and I am positive that nearly, if not quite all, were of these two species.

They were rather tame, several alighting among the trees, but we were unable to secure more as we had no shells loaded with coarse shot. The Hawks were all flying nearly south, or perhaps southwest, which we were unable to account for, as the woods was full of birds migrating northward. The day was warm and pleasant with light thunder showers in the morning. The wind was strong and from the south.

Turkey Vulture. — While collecting birds with Mr. Gekler on May 30, 1895, we saw a pair of Turkey Vultures (*Cathartes aura*) soaring, about two miles east of Riverdale, Ill., and within the limits of Chicago. Once they came within long gun range and Mr. Gekler fired at them without

success. A farmer informed us that a dead horse was not far off, which had attracted them. Mr. Nelson notes them as a rare visitant in north-eastern Illinois.

Barn Owl.—Sept. 25, 1894, Mr. Edward J. Gekler of this city saw some small boys carrying a dead Owl along the street. He purchased it and kindly presented it to me for my collection. Mr. E. W. Nelson in 'Birds of Northeastern Illinois' says it is a very rare visitant and notes the capture of two.

American Magpie.—On the morning of Oct. 17, 1892, Mr. Wallace Craig observed a Magpie (*Pica pica hudsonica*) in a small grove not far from the World's Fair. It was rather shy and was followed from tree to tree by some Blue Jays and House Sparrows. It may have been an escaped cage-bird, although Kennicott mentions them as formerly occurring here.

Harris's Sparrow.—Oct. 6, 1894, I shot a Harris's Sparrow (*Zonotrichia querula*) about one half of a mile east of Riverdale, Ill., on the Illinois Central R. R. It was in a row of small willows with weeds growing in between, and seemed to be with a loose flock of White-crowned Sparrows. It was within the limits of Chicago, perhaps two hundred feet from the city line. I can find no record of its occurrence in north-eastern Illinois.

Prothonotary Warbler.—As I was crossing the bridge over the Little Calumet River, May 25, 1895, at Riverdale, Ill., my attention was attracted to some House Sparrows (*Passer domesticus*) on some piles in the river which were perhaps fifteen feet off, as I had just seen a male Sparrow drive away a small bright-colored bird, which I recognized readily as a Prothonotary Warbler (*Protonotaria citrea*). It alighted on a nearby post hanging on the side, but soon flew back to the post from which it had been driven and disappeared in a cavity in the post. It appeared in a moment and was set upon by the Sparrow, but this time it turned and put him to flight, chasing him under the bridge where I lost track of them. Nelson in 'Birds of Northeastern Illinois' says it is a rare summer resident.

This species is one of the most abundant summer residents along the Kankakee River at Wilders, Indiana, about sixty-four miles from Chicago.—JAMES O. DUNN, *Chicago, Ill.*

CORRESPONDENCE.

A Relative of Alexander Wilson.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs:—The only relatives of Alexander Wilson, the great American ornithologist, that ever emigrated from Scotland to the United States, to my knowledge, were the Duncans. Mrs. Duncan, who had lost her husband in Scotland, was a sister of Alexander Wilson, and William Duncan, her oldest son, accompanied Wilson across the ocean, while Mrs. Duncan and her next oldest son, Alexander Duncan, together with several smaller children, came on to this country a little later.

In one of Wilson's letters attached to his biography he says: "Two of the Purdies popped into my school as unexpected as they were welcome, with news from the Promised land." One of the "Purdies" was my father, and the other his brother. My father was a great friend of Wilson and the Duncans and more especially of Alexander Duncan, who was nearer his age. They were bare-footed boys together and their friendship remained unbroken until parted by death some time after reaching the ripe old age of four score years. I have known Alexander Duncan to walk ten miles on foot, after he was eighty years of age, to visit my father.

Alexander Duncan settled on a farm near South Lyon, Oakland County, Michigan, and had two sons, Robert and James, and several daughters, only two of whom are now living. One daughter lives at Ann Arbor, Mich., and James Duncan now occupies the old homestead near South Lyon, Mich. His father and mother are buried on the old farm, on a little patch of ground fenced off for that purpose, and there, under those little grassy mounds, lies all that is mortal of poor old Alexander Duncan and his wife.

James Duncan has been quite prosperous and has added to the old homestead until he now owns nearly eight hundred acres of good farming land, including a fine grove on the banks of Silver Lake. Here he has a tent, stove, and cooking utensils where he delights to entertain his friends on fishing excursions, picnics, etc. He is not much of an ornithologist, but loves his dogs and gun, and makes his annual trips to northern Michigan in pursuit of deer, his favorite game. In stature he is tall and erect, with piercing blue eyes, and light curly hair that hangs in ringlets nearly to his shoulders, and in movements, will, and determination, he seems greatly to resemble his noted relative Alexander Wilson.

Yours truly,

JAMES B. PURDY.

Plymouth, Michigan.

NOTES AND NEWS.

THE THIRTEENTH ANNUAL CONGRESS of the American Ornithologists' Union will be held in Washington, beginning on the evening of Monday, November 11, 1895, which session will be devoted to the election of officers and members and the transaction of the usual routine business. Tuesday and the following days will be given to public sessions for the reading and discussion of scientific papers. Members intending to present papers are requested to forward the titles of their papers to the Secretary, Mr. John H. Sage, Portland, Conn., prior to November 6, in order to facilitate the preparation of the program of papers to be read before the Congress.

PROF. L. L. DYCHE, who accompanied the ill-fated 'Miranda' expedition of 1894 as naturalist, has passed the entire summer of 1895 on the Greenland coast. Professor Dyche sailed from Gloucester, Mass., in May on a fishing schooner which landed him at Holsteinburg, West Greenland. He was picked up here July 15 by the members of the Peary Relief Expedition, on board the S. S. 'Kite,' and with them proceeded to Peary's headquarters in Whale Sound. News has just been received of the safe return of the expedition to St. John's, Newfoundland, Professor Dyche having, it is reported, been very successful in gathering large collections of mammals and birds.

MR. R. A. BRAY, writing in 'Nature,' records a remarkable flight of birds observed by him through a telescope directed toward the sun, at 3 P. M., on September 30, 1894, at Shere, Guilford, England. Every few seconds a bird would pass slowly across the sun, and there was no decrease in their numbers during the ten minutes of observation. The birds were flying in a southerly direction and were invisible to the naked eye, but must have been at least two or three miles away, as both birds and sun were in focus. This is a phase of migration which seems to have previously escaped attention and suggests the probability of a more extended diurnal movement than we at present know of.

IT IS encouraging to note not alone the increase in quantity but the improvement in quality of the ornithological literature which appears in our magazines. 'Our Animal Friends,' the monthly journal of the New York Society for the Prevention of Cruelty to Animals, is especially advanced in this respect, each number containing one or more original articles on birds generally accompanied by illustrations.

AT a recent sale in London an egg of the Great Auk from the collection of the Comte de Baracé, said to have been taken in Iceland about 1830, brought 165 guineas.



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ERRATA.

- Page 35 line 17, for May 19, read June 19.
 " 53 " 1 " MEARN'S read MEARN'S'S.
 " 82 " 10 " Eastern read Western.
 " 89 " 18 and 19, for FRANCIS H. ALLEN, *West Roxbury, Mass.*, read RALPH HOFFMANN, *Belmont, Mass.*
 Page 203, line 21 for larger read large.
 " 214 " 12 " Zenaida read Zenaidura.
 " 291 " 7 and 22, for furcata read furcatus.
 " 307 " 19 for boggy read bogie.
 " 308 " 2 " swinging read singing.
 " 358 " 8 from bottom, for pigmæa read pygmæa.

