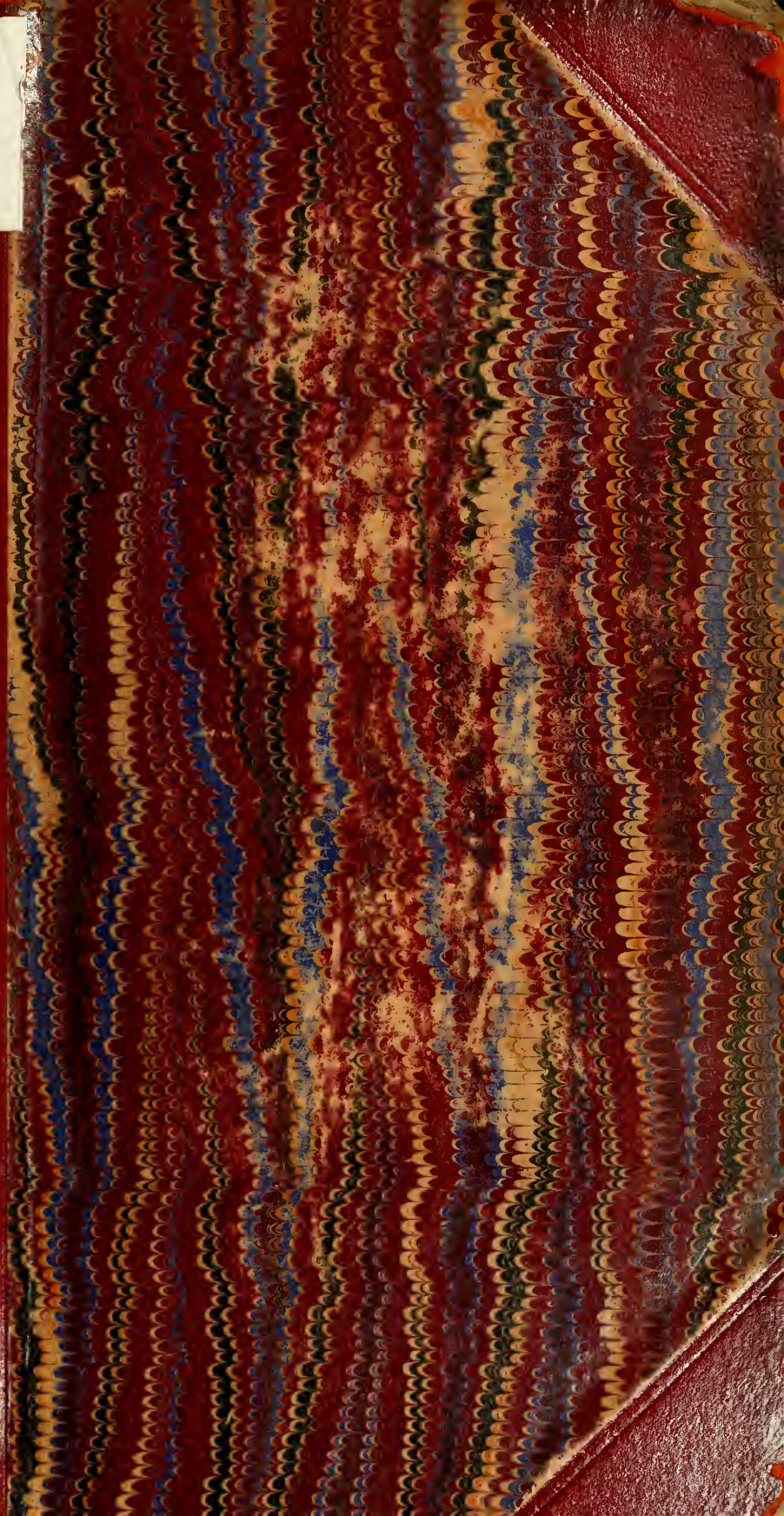


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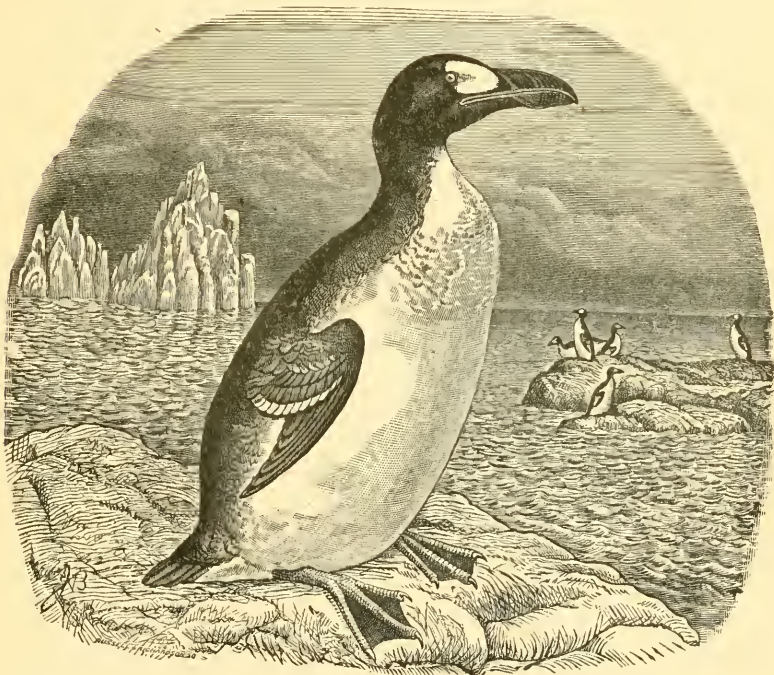
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PHILIPPI, DR. R. A., Santiago, Chili.	1884
RADDE, DR. GUSTAV FERDINAND, Tiflis, Russia.	1884
RAMSEY, E. P., Sydney, New South Wales.	1884
RINGER, FREDERIC, Nagasaki, Japan.	1888
ROTHSCHILD, HON. L. WALTER, Zoölogical Museum, Tring, England.	1898
SCHALOW, HERMAN, 15 Schleswiger Ufer, Berlin, N. W.	1884
SHIELLEY, Capt. G. E., 39 Edgerton Gardens, South Kensington, London, S. W., England.	1884
THEEL, DR. HJALMAR, University of Upsala, Upsala, Sweden.	1884
TRISTRAM, Rev. Canon H. B., The College, Durham, England.	1884
TSCHUSI ZU SCHMIDHOFFEN, VICTOR RITTER VON, Hallein, (Villa Tännenhof), Salzburg, Austria.	1884
WATERHOUSE, F. H., 3 Hanover Square, London, W.	1889
ZELEDON, DON JOSÉ C., San José, Costa Rica.	1884

MEMBERS.

ALLEN, FRANCIS H., 4 Park St., Boston, Mass.	1901
ALLISON, ANDREW, Lobdell, La.	1902

ATTWATER, H. P., Houston, Texas.....	1901
BAILEY, Mrs. VERNON, 1834 Kalorama Ave., Washington, D. C.....	1901
BAILEY, VERNON, 1834 Kalorama Ave., Washington, D. C.....	1901
BAILY, WILLIAM L., 421 Chestnut St., Philadelphia, Pa.....	1901
BARTSCH, PAUL, Smithsonian Inst., Washington, D. C.....	1902
BENT, ARTHUR C., Taunton, Mass.....	1902
BEYER, Prof. GEORGE E., Tulane Univ., New Orleans, La.....	1901
BOND, FRANK, 1412 15th St., N. W., Washington, D. C.....	1901
BRAISLIN, Dr. WILLIAM C., 217 St. James Place, Brooklyn, N. Y.....	1902
BROWN, HERBERT, Yuma, Arizona.....	1901
BRUNER, Prof. LAWRENCE, Univ. of Nebraska, Lincoln, Neb.....	1901
BRYAN, WILLIAM ALANSON, Bishop Museum, Honolulu, H. I.....	1901
BURNS, FRANK L., Berwyn, Pa.....	1901
BUTLER, AMOS W., 52 Downey Ave., Irvington, Indianapolis, Ind.....	1901
CHERRIE, GEORGE K., 27 Fairview Place, Brooklyn, N. Y.....	1901
CLARK, Prof. HUBERT LYMAN, Olivet College, Olivet, Mich.....	1902
DAGGETT, FRANK S., 255 Ramona St., Pasadena, Cal.....	1901
DEANE, WALTER, 29 Brewster St., Cambridge, Mass.....	1901
EVERMAN, Prof. BARTON W., U. S. Fish Comm., Washington, D. C.....	1901
FANNIN, JOHN, Provincial Museum, Victoria, B. C.....	1901
FISHER, WALTER KENRICK, Palo Alto, Cal.....	1901
FLEMING, JAMES H., 267 Rusholme Road, Toronto, Canada.....	1901
FUERTES, LOUIS AGASSIZ, 13 East Ave., Ithaca, N. Y.....	1901
GOLDMAN, EDWARD ALFONSO, Dept. of Agriculture, Washington, D. C.....	1902
HARDY, MANLY, Brewer, Maine.....	1901
HOFFMANN, RALPH, Belmont, Mass.....	1901
HOWELL, ARTHUR H., Dept. of Agriculture, Washington, D. C.....	1902
JEFFRIES, WM. AUGUSTUS, P. O. Box 2013, Boston, Mass.....	1901
JOB, Rev. HERBERT K., Kent, Conn.....	1901
JONES, LYNDS, College Museum, Oberlin, Ohio.....	1901
JORDAN, Prof. DAVID STARR, Stanford University, Cal.....	1901
JUDD, Dr. SYLVESTER D., Dept. of Agriculture, Washington, D. C.....	1901
KNOWLTON, F. H., U. S. Nat. Museum, Washington, D. C.....	1902
MACKAY, GEORGE H., 114 State St., Boston, Mass.....	1901
MAILLIARD, JOHN W., 307 Sansome St., San Francisco, Cal.....	1901
MAILLIARD, JOSEPH, San Geronimo, Cal.....	1901
MCGREGOR, RICHARD C., Philippine Museum, Manila, P. I.....	1901
MILLER, MRS. OLIVE THORNE, 827 De Kalb Ave., Brooklyn, N. Y.....	1901
MURDOCH, JOHN, 38 Whiting St., Roxbury, Mass.....	1901
NORTON, ARTHUR H., Westbrook, Maine.....	1902
OSGOOD, WILFRED HUDSON, Dept. of Agriculture, Washington, D. C.....	1901
PEARSON, T. GILBERT, Greensboro, N. C.....	1902
PENNOCK, CHARLES J., Kennett Square, Pa.....	1901
PREBLE, EDWARD A., Dept. of Agriculture, Washington, D. C.....	1901
PRICE, WILLIAM W., Alta, Cal.....	1901
RALPH, Dr. WILLIAM L., U. S. Nat. Museum, Washington, D. C.....	1901

RATHBUN, SAMUEL F., 217 14th Ave., No. Seattle, Wash. 1902
 RHOADS, SAMUEL N., Audubon, N. J. 1901
 RIVES, DR. WILLIAM C., 1723 I St., Washington, D. C. 1901
 ROBINSON, Capt. WIRT, U. S. A., Wingina, Va. 1901
 SETON, ERNEST THOMPSON, 80 W. 40th St., New York City. 1901
 SILLOWAY, PERLEY MILTON, Lewistown, Montana. 1902
 SORNBORGER, JEWELL D., Cambridge, Mass. 1901
 STEPHENS, FRANK, cor. University and Fillmore Aves., San Diego,
 Cala. 1901
 THAYER, ABBOTT H., Monadnock, N. H. 1901
 TODD, W. E. CLYDE, Carnegie Museum, Pittsburgh, Pa. 1901
 TORREY, BRADFORD, Wellesley Hills, Mass. 1901
 TOWNSEND, CHARLES H., N. Y. Aquarium, Battery Park, New York
 City. 1901
 TROTTER, DR. SPENCER, Swarthmore College, Swarthmore, Pa. 1901
 WHITMAN, Prof. CHARLES OTIS, Univ. of Chicago, Chicago, Ill. 1902
 WRIGHT, Mrs. MABEL OSGOOD, Fairfield, Conn. 1901

ASSOCIATES.

ABBOTT, CLINTON GILBERT, 153 W. 73rd St., New York City. 1898
 ADAM, Mrs. WILLIAM L., Pittsfield, Mass. 1900
 ADAMS, EMILY B., 167 Maple St., Springfield, Mass. 1900
 ADAMS, C. WALLACE, 947 Rhode Island Ave. N. W., Washington, D. C. 1901
 ADAMS, Mrs. EMMA S., 439 Elm St., Chicago, Ills. 1899
 AIKEN, CHARLES EDWARD HOWARD, Colorado Springs, Colo. 1898
 ALLEN, CLARENCE JONES, 180 Biddle St., Milwaukee, Wis. 1899
 ALLEN, GLOVER M., 68 Perkins Hall, Cambridge, Mass. 1896
 ALLEN, WALTER FOX, 62 Prospect St., Trenton, N. J. 1902
 AMES, J. H., 96 Bay St., Toronto, Can. 1895
 ANGELL, WALTER A., 354 Westminster St., Providence, R. I. 1901
 ARMSTRONG, EDWARD HENRY, 140 Wood St., Providence, R. I. 1897
 ARNOLD, EDWARD, 126 Van Buren St., Battle Creek, Mich. 1894
 ATKINSON, DR. DANIEL ARMSTRONG, 2417 Carson St., Pittsburgh, Pa. 1899
 BABSON, W. A., Upper House, Lawrenceville, N. J. 1901
 BACHMAN, J. W., D. D., Chattanooga, Tenn. 1901
 BACON, CARRINGTON C., Imboden, Arkansas. 1890
 BAGG, EGBERT, 424 Genesee St., Utica, N. Y. 1883
 BAILEY, CHARLES E., Manning Manse, No. Billerica, Mass. 1890
 BAIRD, Miss LUCY HUNTER, 1708 Locust St., Philadelphia, Pa. 1899
 BAIRD, ROBERT L., Denmark, Iowa. 1901
 BAKER ARTHUR BENONI, 1845 Lanier Ave., N. W. Washington, D. C. 1902
 BAKER, Miss CHRISTINE VIRGINIA, 8 West 57th St., New York City. 1899
 BAKER, Miss EMILIE H., 8 West 57th St., New York City. 1899
 BAKER, Mrs. HENRY B., 8 West 57th St., New York City. 1901

- BALL, CARLETON R., Dept. of Agriculture, Washington, D. C. 1902
 BALL, MISS HELEN AUGUSTA, 43 Laurel St., Worcester, Mass. 1893
 BANGS, EDWARD APPLETON, 501 Pemberton Bldg., Boston, Mass. 1884
 BARBER, CHARLES M., 407 No. Oregon St., El Paso, Texas. 1900
 BARBOUR, PROF. ERWIN H., Univ. of Neb., Lincoln, Nebraska. 1892
 BARBOUR, REV. ROBERT, 62 Walnut St., Montclair, N. J. 1902
 BARBOUR, MRS. WM. D., 235 Madison Ave., New York City. 1901
 BARNARD, JOB, 1306 Rhode Island Ave., Washington, D. C. 1886
 BARNES, HON. R. MAGOON, Lacon, Ill. 1889
 BARROLL, MISS NINA LIVINGSTON, 684 Salem Ave., Elizabeth, N. J. . 1899
 BATES, MRS. ABBY FRANCES CALDWELL, Waterville, Maine. 1894
 BAXTER, GEORGE STRONG, JR., 17 William St., New York City. 1894
 BEARD, DANIEL CARTER, 204 Amity St., Flushing, N. Y. 1887
 BECK, ROLLO HOWARD, Berryessa, Santa Clara Co., Cal. 1894
 BEEBE, CHARLES WILLIAM, N. Y. Zoölogical Park, 183rd St. and
 Southern Boulevard, New York City. 1897
 BEERS, HENRY W., 91 Denver Ave., Bridgeport, Conn. 1895
 BENNETTS, WM. J., 154 U. St. N. W., Washington, D. C. 1901
 BENSON, FREDERICK G., 845 Broad St., Newark, N. J. 1902
 BERGTOLD, DR. W. H., 1460 Clayton Ave., Denver, Colo. 1889
 BERIER, DE LAGNEL, Port Chester, N. Y. 1885
 BIDDLE, MISS EMILY WILLIAMS, 2201 Sansom St., Philadelphia, Pa. 1898
 BIGELOW, EDWARD F., Stamford, Conn. 1901
 BIGELOW, HENRY BRYANT, Cohasset, Mass. 1897
 BIGELOW, HOMER LANE, 511 Washington St., Boston, Mass. 1902
 BIGELOW, JOSEPH SMITH, JR., Cohasset, Mass. 1896
 BIGNELL, MRS. EFFIE, 135 College Ave., New Brunswick, N. J. 1899
 BLACKWELDER, ELIOT, Univ. of Chicago, Chicago, Ill. 1895
 BLAIN, ALEX. W., JR., 131 Elmwood Ave., Detroit, Mich. 1901
 BLAKE, FRANCIS G., 10 Park St., Brookline, Mass. 1901
 BLATCHLEY, W. S., State Geologist, Indianapolis, Ind. 1895
 BLOOMFIELD, MRS. C. C., 723 Main St. W., Jackson, Mich. 1901
 BLUNT, MISS ELIZA SINCLAIR, 99 Mt. Vernon St., Boston, Mass. . . . 1901
 BOHLMAN, HERMAN T., 46 Ninth St., N., Portland, Oregon. 1901
 BOND, HARRY L., Lakefield, Minn. 1890
 BOWDISH, B. S., 50 W. 98th St., New York City. 1891
 BOWDITCH, HAROLD, Jamaica Plain, Boston, Mass. 1900
 BOWLES, JOHN HOOPER, 401 So. G St., Tacoma, Wash. 1891
 BRACKEN, MRS. HENRY MARTYN, 1010 Fourth St., S. E., Minne-
 apolis, Minn. 1897
 BRADFORD, MRS. MARY F., 3804 St. Charles Ave., New Orleans, La. . 1897
 BRADFORD, MOSES B. L., 295 Beacon St., Boston, Mass. 1889
 BRADLEE, THOMAS STEVENSON, 107 Beacon St., Boston, Mass. 1902
 BRANDRETH, FRANKLIN, Ossining-on-Hudson, N. Y. 1889
 BRENNAN, CHARLES F., Mount Carmel, Ill. 1902
 BRENINGER, GEORGE FRANK, 560 N. 6th Ave., Phoenix, Arizona. . . 1898

BREWSTER, EDWARD EVERETT, Iron Mountain, Mich.....	1893
BRIDGE, MRS. LIDIAN E., 52 Wyman St., West Medford, Mass.....	1902
BROCK, HENRY HERBERT, M. D., 687 Congress St., Portland, Me....	1894
BROCKWAY, ARTHUR WILLIAM, Lyme, Conn.....	1898
BROOKS, ALLAN, COMOX, B. C.....	1902
BROOKS, REV. EARLE AMOS, Waverly, W. Va.....	1892
BROOKS, CLARENCE MORRISON, 105 West St., Keene, N. H.....	1900
BROWN, EDWARD J., Lemon City, Florida.....	1891
BROWN, HUBERT H., 70 Collier St., Toronto, Ontario.....	1889
BROWN, STEWARDSON, Germantown, Philadelphia, Pa.....	1895
BROWN, WILMOT W., JR., West Somerville, Mass.....	1892
BUCK, HENRY ROBINSON, P. O. Box 213, Hartford, Conn.....	1897
BULLEY, REGINALD H., Canton, Ohio.....	1889
BUMPUS, DR. HERMON C., Am. Mus. Natural History, New York City.....	1901
BURGESS, JOHN KINGSBURY, Dedham, Mass.....	1898
BURKE, WM. BARDWELL, 130 Spring St., Rochester, N. Y.....	1901
BURNETT, WILLIAM L., 128 N. Sherwood St., Fort Collins, Colo....	1895
BURTIS, HENRY MOTT, Babylon, N. Y.....	1897
BUSWELL, WALTER MARDIN, Charlestown, N. H.....	1897
BUXBAUM, MRS. CLARA E., St. Joseph, Mich.....	1895
CAMPBELL, HORATIO NELSON, JR., Providence, R. I.....	1899
CANFIELD, J. B., Bridgeport, Conn.....	1901
CARPENTER, REV. CHARLES KNAPP, Polo, Ill.....	1894
CARROLL, JAMES J., Waco, Texas.....	1898
CARY, MERRITT, Neligh, Neb.....	1898
CASE, CLIFFORD M., 89 William St., Hartford, Conn.....	1892
CASH, HARRY A., 54 Spring St., Pawtucket, R. I.....	1898
CHAMBERLAIN, CHAUNCY W., 36 Lincoln St., Boston, Mass.....	1885
CHAPIN, PROF. ANGIE CLARA, Wellesley College, Wellesley, Mass...1896	
CHASE, MRS. AGNES, 5515 Monroe Ave., Hyde Park, Chicago, Ill...1896	
CHILDS, JOHN LEWIS, Floral Park, N. Y.....	1900
CHRISTY, BAYARD H., 403 Frederick Ave., Sewickley, Pa.....	1901
CHUBB, SAMUEL H., Am. Mus. Nat. History, New York City.....	1894
CLARK, AUSTIN HOBART, 68 Perkins Hall, Cambridge, Mass.....	1899
CLARK, EDWARD B., 341 Oak St., Chicago, Ill.....	1900
CLARK, JOSIAH H., 238 Broadway, Paterson, N. J.....	1895
CLARKE, CHARLES K., M. D., Rockwood Hospital, Kingston, Ont...1902	
CLARKE, MISS HARRIET E., 9 Chestnut St., Worcester, Mass.....	1896
COALE, HENRY K., Highland Park, Ill.....	1883
COGGINS, HERBERT LEONARD, 5025 McKean Ave., Germantown, Philadelphia, Pa.....	1898
COLBURN, ALBERT E., Bond Building, Washington, D. C.....	1891
COLE, ROY NALL, Newnan, Ga.....	1902
COLVIN, WALTER S., Osawatomie, Kansas.....	1896
COMEAU, NAPOLEON A., Godbout, P. Q.....	1885
COMEY, ARTHUR C., 54 Concord Ave., Cambridge, Mass.....	1901

COMMONS, MRS. MARIE A., 2437 Park Ave., Minneapolis, Minn.....	1902
CONANT, MRS. MARTHA W., 331 W. 101st St., New York City.....	1901
CONGDON, JAMES W., 202 S. 9th St., La Crosse, Wis.....	1902
COOK, MISS LILIAN GILLETTE, 165 W. 82d St., New York City....	1899
COOLIDGE, PHILIP TRIPP, 17 Garfield St., Watertown, Mass.....	1902
COPE, ALBAN, Butler Hospital, Providence, R. I.....	1885
COPE, FRANCIS R., Jr., E. Washington Lane, Germantown, Phila., Pa.	1892
COPELAND, DR. ERNEST, 141 Wisconsin St., Milwaukee, Wis.....	1897
COPELAND, MANTON, Taunton, Mass.....	1900
COUES, DR. WILLIAM PEARCE, 90 Charles St., Boston, Mass.....	1888
COX, ULYSSES O., State Normal School, Mankato, Minn.....	1894
CRAM, R. J., 26 Hancock Ave., W., Detroit, Mich.....	1893
CRANDALL, C. W., Woodside, N. Y.....	1891
CROLIUS, MISS ANNE A., 815 Carnegie Hall, New York City.....	1897
CRONE, JOHN VALENTINE, 1319 8th Ave., Greeley, Colo.....	1902
CURRIE, JOHN D., 2006 Laurel Ave., Minneapolis, Minn.....	1902
CURRIE, ROLLA P., U. S. Nat. Mus., Washington, D. C.....	1895
CURRIER, EDMONDE SAMUEL, 909 Franklin St., Keokuk, Iowa.....	1894
DANIEL, JOHN W., Jr., 1794 Lanier Ave., Washington, D. C.....	1895
DART, LESLIE O., 1603 4th Ave., So. Minneapolis, Minn.....	1898
DAVENPORT, MRS. ELIZABETH BRAXTON, Brattleboro, Vt.....	1898
DAVIS, MISS MARY A., 44 W. 93rd St., New York City.....	1898
DAVIS, STEWART, Narragansett Pier, R. I.....	1899
DAVIS, WALTER R., Newton, Mass.....	1900
DAVISON, DONALD B., 204 Prospect Park, Davenport, Iowa.....	1901
DAWSON, REV. WILLIAM LEON, Station A, Columbus, O.....	1895
DAY, CHESTER SESSIONS, 280 Newbury St., Boston, Mass.....	1897
DAY, FRANK MILES, Phil. Ellena & Greene Sts., Germantown, Phila. Pa.....	1901
DEAN, R. H., U. S. Weather Bureau, Lexington, Ky.....	1893
DEANE, GEORGE CLEMENT, So Sparks St., Cambridge, Mass.....	1899
DEARBORN, NED, Field Columbian Museum, Chicago, Ill.....	1902
DE HAVEN, ISAAC NORRIS, Ardmore, Pa.,.....	1893
DERBY, RICHARD, 13 Holworthy Hall, Cambridge, Mass.....	1898
DEWEY, DR. CHARLES A., 53 So. Fitzhugh St., Rochester, N. Y.....	1900
DEWEY, MISS MARGARET, 168 Pearl St., Springfield, Mass.....	1892
DILLE, FREDERICK M., Care of Rural Delivery, Longmont, Colo....	1892
DIONNE, C. E., Laval Univ., Quebec, Can.....	1893
DIXON, FREDERICK J., Elm Ave., Hackensack, N. J.....	1891
DOBBIN, WILLIAM L., 7 Beverly St., Rochester, N. Y.....	1902
DODGE, CHARLES W., Univ. of Rochester, Rochester, N. Y.....	1900
DODGE, FRED CLINTON, 125 Milk St., Boston, Mass.....	1897
DOUBLEDAY, MRS. FRANK NELSON, 111 E. 16th St., New York City..	1897
DOUGHERTY, COL. WILLIAM E., Governor's Island, N. Y.....	1890
DRAPER, MISS DOROTHEA, 18 W. 8th St., New York City.....	1899
DROWNE, FREDERICK PEABODY, 20 Benefit St., Providence, R. I.....	1899

DUGMORE, ARTHUR RADCLYFFE, Newfoundland, N. J.....	1899
DULL, Mrs. A. P. L., 211 No. Front St., Harrisburg, Pa.....	1900
DURFEE, OWEN, Fall River, Mass.....	1887
DUTCHER, Dr. BASIL HICKS, U. S. A., War Dept., Washington, D. C.....	1886
DYCHE, Prof. L. L., Lawrence, Kansas.....	1886
DYKE, ARTHUR CURTIS, Bridgewater, Mass.....	1902
EASTMAN, HARRY D., Framingham, Mass.....	1891
EATON, ELON HOWARD, 209 Cutler Bldg., Rochester, N. Y.....	1895
EDDY, NEWELL A., 615 North Grant St., Bay City, Mich.....	1885
EDGAR, NEWBOLD, 28 E. 39th St., New York City.....	1891
EDSON, JOHN M., 2210 Victor St., Whatcom, Washington.....	1886
EICHE, AUGUST, 1133 O St., Lincoln, Neb.....	1902
EIFRIG, Rev. GUSTAVE, 232 N. Center St., Cumberland, Md.....	1901
ELROD, Prof. M. J., 205 S. 5th St., Missoula, Montana.....	1892
ELY, Mrs. THEODORE N., Bryn Mawr, Pa.....	1901
EMBODY, GEORGE CHARLES, 78 Seymour St., Auburn, N. Y.....	1898
EMERSON, GUY, 78 Powell St., Brookline, Mass.....	1902
EMERY, Mrs. ANNIE C., Ellsworth, Me.....	1897
EMLEN, ARTHUR COPE, Awbury, Germantown, Philadelphia, Pa....	1896
EMORY, Mrs. MARY DILLE, Morgantown, W. Va.....	1899
ERICSON, LAWRENCE, 155 Rogers Ave., Brooklyn, N. Y.....	1901
EVANS, CHARLES II., Townshend, Vt.....	1901
EVANS, ERNEST MERWYN, Awbury, Germantown, Philadelphia, Pa.....	1897
EVANS, WILLIAM B., Moorestown, N. J.....	1897
EVERETT, WILLIAM M., 200 W. 99th St., New York City.....	1902
EVERETT, CHRISTABEL M., 200 W. 99th St., New York City.....	1902
FARR, MARCUS S., 12 Maple St., Princeton, N. J.....	1900
FARWELL, Mrs. ELLEN DRUMMOND, Lake Forest, Ill.....	1896
FARWELL, Mrs. FRANCIS COOLEY, Lake Forest, Ill.....	1898
FAULKS, EMORY N., Madison, N. J.....	1902
FAY, Prof. CHAS. R., 1833 7th Ave., New York City.....	1901
FELGER, ALVA HOWARD, 2628 Clay St., Denver, Col.....	1898
FERNALD, ROBERT HEYWOOD, Washington Univ., St. Louis, Mo.....	1890
FERRY, JOHN FARWELL, Lake Forest, Ill.....	1894
FIELD, EDWARD BRONSON, 981 Asylum Ave., Hartford, Conn.....	1898
FIELD, EUGENE DWINELL, 200 Beacon St., Hartford, Conn.....	1899
FIELD, THERON R., Care of Nat'l Bk., Denver, Colo.....	1900
FISHER, Miss ELIZABETH WILSON, 1502 Pine St., Philadelphia, Pa....	1896
FISHER, WILLIAM H., 1320 Bolton St., Baltimore, Md.....	1895
FISHER, WILLIAM HUBBELL, Wiggins Block, Cincinnati, Ohio.....	1883
FLANAGAN, JOHN H., 392 Benefit St., Providence, R. I.....	1898
FLETCHER, Mrs. MARY E., Ludlow, Vermont.....	1898
FLINT, HARRY W., Yale National Bank, New Haven, Conn.....	1888
FOOTE, Miss F. HUBERTA, 90 Locust Hill Ave., Yonkers, New York City.....	1897
FORBUSH, EDWARD H., Wareham, Mass.....	1887

FORDYCE, GEO. L., 40 Lincoln Ave., Youngstown, Ohio.....	1901
FOSTER, FRANCIS APTHORP, 15 Oxford St., Cambridge, Mass.....	1893
FOWLER, FRÉDERICK HALL, Palo Alto, Calif.....	1892
FOWLER, HENRY W., Acad. Nat. Sci., Logan Square, Philadelphia, Pa.....	1898
FOX, DR. WILLIAM H., 1826 Jefferson Place, Washington, D. C.....	1883
FRASER, DONALD, Johnstown, N. Y.....	1902
FULLER, CHARLES ANTHONY, Sumner Road, Brookline, Mass.....	1894
GATH, JOHN, Torrington, Conn.....	1901
GAULT, BENJAMIN TRUE, Glen Ellyn, Ill.....	1902
GAUT, JAMES H., Dept. of Agriculture, Washington, D. C.....	1899
GERMANN, F. W., 214 S. Geneva St., Ithaca, N. Y.....	1901
GESNER, REV. ANTHON T., Shattuck School, Faribault, Minn.....	1899
GILLET, LOUIS BLISS, 247 E. 86th St., New York City.....	1895
GILMAN, PHILIP KINGSWORTH, Johns Hopkins Medical School, Balti- more, Md.....	1897
GLEASON, REV. HERBERT W., 31 Pinckney St., Boston, Mass.....	1894
GODDARD, F. N., 2 E. 35th St., New York City.....	1901
GOODALE, DR. JOSEPH LINCOLN, 397 Beacon St., Boston, Mass.....	1885
GOSS, MRS. ALETTA W., 5475 Ridgewood Court, Chicago, Ill.....	1902
GOULD, HENRY, 648 Dundas St., London, Ontario.....	1899
GOULD, JOSEPH E., 1020 10th St., Chattanooga, Tenn.....	1889
GRANGER, WALTER W., Am. Mus. Nat. Hist., New York City.....	1891
GRAY, RALPH W., 79 Marlborough St., Boston, Mass.....	1896
GREEN, MORRIS M., 706 E. Fayette St., Syracuse, N. Y.....	1886
GREENOUGH, HENRY V., Martha's Vineyard, Mass.....	1901
GRIFFING, MOSES BOWDITCH, Shelter Island Heights, N. Y.....	1897
GRIFFITHS, BARTRAM W., 4024 Green St., Philadelphia, Pa.....	1602
GRIMES, MARTIN V. B., East Templeton, Mass.....	1902
HALES, HENRY, Ridgewood, N. J.....	1890
HALL, MISS MINNA B., Brookline, Mass.....	1900
HAMFELDT, A., MORRIS, Ill.....	1892
HAMLIN, GEORGE L., 16 Division St., Danbury, Conn.....	1893
HANKINSON, THOMAS LEROY, Charleston, Ill.....	1897
HARRIMAN, MISS CORNELIA, 1 E. 55th St., New York City.....	1899
HARRIMAN, MISS MARY, 1 E. 55th St., New York City.....	1899
HARTLEY, GEO. INNESS, 159 Grove St., Montclair, N. J.....	1901
HARVEY, HERBERT A., 86 Boylston St., Bradford, Pa.....	1899
HARVEY, MISS RUTH SAWYER, Bond Hill, Ohio.....	1902
HASTINGS, DANIEL G., M. D., 272 Alexander St., Rochester, N. Y.....	1902
HATHAWAY, HENRY S., Box 498, Providence, R. I.....	1897
HAVEMEYER, H. O., JR., Mahwah, N. J.....	1893
HAY, WILLIAM PERRY, Howard Univ., Washington, D. C.....	1898
HAZARD, HON. R. G., Peace Dale, R. I.....	1885
HECOX, MISS LAURA J. F., Light House Keeper, Santa Cruz, Cala...	1897
HEDGES, CHARLES F., Miles City, Mont.....	1891
HEGNER, ROBERT W., 9333 Prospect Ave., Chicago, Ill.....	1901

HEIMSTREET, DR. T. B., 2217 15th St., Troy, N. Y.....	1888
HELME, ARTHUR H., Millers Place, Suffolk Co., N. Y.....	1888
HENDRICKSON, ISAAC S., Floral Park, N. Y.....	1902
HENDRICKSON, W. F., 130 12th St., Long Island City, N. Y.....	1885
HENNINGER, REV. WALTHER F., Tiffin, Ohio.....	1898
HIGBEE, HARRY G., Hyde Park, Mass.....	1900
HIGGINSON, ALEXANDER HENRY, So. Lincoln, Mass.....	1899
HILL, JAMES HAYNES, Box 485, New London, Conn.....	1897
HINDSHAW, HENRY HAVELOCK, Johns Hopkins Univ., Baltimore, Md.....	1897
HINE, Prof. JAMES STEWART, State Univ., Columbus, O.....	1899
HINE, MRS. JANE L., Sedan, Ind.....	1890
HINTON, Miss SUSAN McV., 41 W. 32d St., New York City.....	1900
HITCHCOCK, FRANK H., Dept. of Agriculture, Washington, D. C.....	1891
HODGE, Prof. CLIFTON FREMONT, Clark Univ., Worcester, Mass.....	1899
HOLDEN, EDWARD FREEMAN, 32 Lake Ave., Melrose, Mass.....	1896
HOLDEN, MRS. EMELINE T., 13 E. 79th St., New York City.....	1902
HOLLAND, DR. WILLIAM J., 5th and Bellefield Aves., Pittsburgh, Pa.....	1899
HOLLISTER, NED, Delavan, Wis.....	1894
HOLLISTER, WARREN D., Care of Cont. Oil Co., Albuquerque, N. M.....	1901
HOLMES, LA RUE KLINGLE, Pine Grove Ave., Summit, N. J.....	1902
HOOPES, JOSIAH, West Chester, Pa.....	1889
HORNADAY, W. T., N. Y. Zoölogical Park, New York City.....	1888
HORTON, MRS. FRANCES B., Brattleboro, Vt.....	1900
HOWARD, OZORA WILLIAM, Los Angeles, Cala.....	1808
HOWE, CARLTON D., Essex Junction, Vt.....	1901
HOWE, REGINALD HEBER, Jr., Longwood, Brookline, Mass.....	1895
HUBBARD, GEORGE W., 94 Byers St., Springfield, Mass.....	1900
HUBBARD, Miss MARGARET TUESDALE, Minneapolis, Minn.....	1899
HUBBARD, MRS. SARA A., 177 Woodruff Ave., Flatbush, N. Y.....	1891
HUGHES, DR. WILLIAM E., 3945 Chestnut St., Philadelphia, Pa.....	1891
HULL, WALTER B., Box 1234, Milwaukee, Wis.....	1889
HUNN, JOHN T. SHARPLESS, 1218 Prospect Ave., Plainfield, N. J.....	1895
HUNT, CHRESWELL J., 1306 N. 53rd St., West Philadelphia, Pa.....	1902
HUNTER, Miss SUSAN MORRISON, 51 Hunter Ave., Newport, R. I.....	1894
HUNTER, W. D., Box 174, Victoria, Texas.....	1899
HYDE, Miss HAZEL R., 45 Pine St., Waterbury, Conn.....	1902
INGALLS, CHARLES E., East Templeton, Mass.....	1885
INGERSOLL, ALBERT M., 818 5th St., San Diego, Cala.....	1885
IRVING, JOHN, 550 Park Av., New York City.....	1894
IRWIN, HARDIN, Havre, Montana.....	1901
ISHAM, C. B., 30 E. 63d St., New York City.....	1891
JACKSON, THOMAS H., 343 E. Biddle St., West Chester, Pa.....	1888
JACOBS, J. WARREN, Waynesburg, Pa.....	1889
JANNEY, NATHANIEL E., 112 Drexel Bldg., Philadelphia, Pa.....	1899
JENKINS, HUBERT OLIVER, Stanford University, Cala.....	1902

JESURUN, Dr. MORTIMER, Douglas, Wyoming.....	1890
JOHNSON, EVERETT EDWIN, East Hebron, Me.....	1896
JOHNSON, FRANK EDGAR, 747 Warburton Ave., Yonkers, N. Y.....	1888
JOHNSON, JAMES HOWARD, Bradford, N. H.....	1894
JOHNSON, WALTER ADAMS, 34 Union Sq., New York City.....	1898
JOHNSON, WILLIAM S., Boonville, N. Y.....	1893
JORDAN, A. H. B., Lowell, Wash.....	1888
JUDD, ELMER T., Cando, No. Dakota.....	1895
KEYS, JAMES EDWARD, 41 Oxford St. W., London, Ont.....	1899
KEIM, THOMAS DANIEL, 405 Radcliffe St., Bristol, Pa.....	1902
KELKER, WILLIAM A., Box 114, Harrisburg, Pa.....	1896
KELLOGG, Prof. VERNON L., Stanford University, Cala.....	1888
KENDALL, Dr. WILLIAM C., U. S. Fish Comm., Washington, D. C.....	1886
KENNARD, FREDERIC HEDGE, Brookline, Mass.....	1892
KEYSER, LEANDER S., D. D., 108 Third Ave., Canal Dover, Ohio....	1891
KING, GEORGE GORDON, 16 E. 84th St., New York City.....	1888
KING, LE ROY, 20 E. 84th St., New York City.....	1901
KIRKWOOD, FRANK C., 1811 Maryland Ave., Baltimore, Md.....	1892
KNETSCH, ROBERT, Nunda, Ill.....	1898
KNIGHT, ORA WILLIS, 84 Forest Ave., Bangor, Me.....	1893
KNOLHOFF, FERDINAND WILLIAM, 28 Winans St., East Orange, N. J.....	1897
KNOX, JOHN C., 14 State St., Auburn, N. Y.....	1897
KNOX, JOHN COWING, Jackson, Minn.....	1899
KOBBÉ, WILLIAM H., 125 High St., New Haven, Conn.....	1898
KOCH, Prof. AUGUST, Williamsport, Pa.....	1891
KOEBLE, H. J., 845 Broad St., Newark, N. J.....	1902
KOHN, GUSTAVE, 136 Carondelet St., New Orleans, La.....	1886
KOPMAN, HENRY HAZLITT, 5509 Hurst St., New Orleans, La.....	1899
KOUMLY, Rev. PIRMINÉ M., St. Benedict's College, Atchison, Kans..	1892
LACEY, HOWARD GEORGE, Kerrville, Texas.....	1899
LANO, ALBERT, Aitkin, Minn.....	1890
LANTZ, Prof. DAVID ERNEST, Agl. Exper. Station, Manhattan, Kans.	1885
LARABEE, AUSTIN P., Gardiner, Me.....	1902
LATIMER, Miss CAROLINE P., 63 Remsen St., Brooklyn, N. Y.....	1898
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Philadelphia, Pa.....	1902
LEE, Miss MARY, 241 W. Seymour St., Germantown, Pa.....	1898
LEUTLOFF, HERMAN C. A., 626 E. 135th St., New York City.....	1896
LEVERING, THOMAS HENRY, Richmond St., Washington, D. C.....	1898
LEVERSON, Dr. MONTAGUE R., 81 Lafayette Ave., Brooklyn, N. Y....	1901
LIBBY, ORIN GRANT, University, N. Dakota.....	1900
LLOYD, ANDREW JAMES, 310 Boylston St., Boston, Mass.....	1900
LONG, HORACE B., 14 Anna St., Worcester, Mass.....	1889
LOOMIS, JOHN A., Mereta, Texas.....	1887
LORD, Rev. WM. R., 9 Park St., Boston, Mass.....	1901
LORING, J. ALDEN, Owego, New York.....	1889
LOUCKS, WILLIAM E., 319 S. Washington St., Peoria, Ill.....	1902

LOWE, WILLOUGHBY P., Okehampton, Devon, England.....	1893
LUDLAM, CHRISTOPHER, Ocean City, Md.....	1900
MACDOUGALL, GEORGE R., 131 W. 73rd St., New York City.....	1890
MAHER, J. E., Windsor Locks, Conn.....	1902
MARTIN, MRS. MARIA ROSS, New Brunswick, N. J.....	1902
MADDOCK, MISS EMELINE, 2025 DeLancey Pl., Philadelphia, Pa.....	1897
MAITLAND, ROBERT L., 35 Nassau St., New York City.....	1889
MARSH, DANIEL J., Springfield, Mass.....	1894
MASTERMAN, ELMER ELLSWORTH, New London, Ohio.....	1895
MATHEWS, MISS CAROLINE, Waterville, Me.....	1898
MAYNARD, HENRY W., Biol. Survey, Washington, D. C.....	1901
MCCLINTOCK, NORMAN, Amberson Ave., Pittsburgh, Pa.....	1900
MCCOOK, PHILIP JAMES, 32 E. 45th St., New York City.....	1895
MCCORMICK, MISS ELIZA, 101 No. Front St., Harrisburg, Pa.....	1900
MC EWEN, DANIEL C., 160 Stirling Pl., Brooklyn, N. Y.....	1901
MCHATTON, DR. HENRY, Macon, Ga.....	1898
MCILHENNY, EDWARD AVERY, Avery's Island, La.....	1894
MCKECHNIE, FREDERICK BRIDGHAM, Ponkapog, Mass.....	1900
MCLAIN, ROBERT BAIRD, cor. Market & 12th Sts., Wheeling, W. Va.....	1893
McMILLAN, MRS. EDITH E., New London, Conn.....	1902
MCNULTY, HENRY A., Gen. Theol. Seminary, Chelsea Sq., N. Y. City.....	1900
MEARNs, LOUIS DI ZEREGA, Fort Snelling, Minn.....	1899
MEEKER, JESSE C. A., 746 E. Main St., Bridgeport, Conn.....	1899
MERRILL, HARRY, Bangor, Maine.....	1883
MILLER, FRANK M., 203 Hennen Bldg., New Orleans, La.....	1901
MILLER, GERRIT SMITH, Jr., U. S. Nat. Mus., Washington, D. C.....	1886
MILLER, MISS MARY MANN, 827 De Kalb Ave., Brooklyn, N. Y.....	1898
MILLER, WALDRON DE WITT, Plainfield, N. J.....	1896
MILLS, HARRY C., Unionville, Conn.....	1897
MILLS, Prof. WILLIAM C., State Univ., Columbus, O.....	1900
MITCHELL, MRS. MINA BAKER, Care of Plow Co., Chattanooga, Tenn.....	1898
MITCHELL, WALTON I., 534 Summit Ave., St. Paul, Minn.....	1893
MINEHAN, D., 459 Main St., Buffalo, N. Y.....	1901
MONTGOMERY, THOMAS H., Jr., Univ. Pennsylvania, Phila., Pa.....	1899
MOON, JOACHIM RICHARD, 934 Broadway, Camden, N. J.....	1898
MOORE, MISS E. PUTNAM, 70 W. 11th St., New York City.....	1901
MOORE, ROBERT THOMAS, Haddonfield, N. J.....	1898
MOORE, WILLIAM HENRY, Scotch Lake, New Brunswick.....	1900
MORCOM, G. FREAN, 512 Coronado St., Los Angeles, Cal.....	1886
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....	1887
MORRIS, ROBERT O., Springfield, Mass.....	1888
MORSE, GEORGE W., Ashley, Ind.....	1898
MORTON, DR. HOWARD McILVAIN, 316 Clifton Av., Minneapolis, Minn.....	1900
MUMMERY, EDWARD G., 24 E. Atwater St., Detroit, Mich.....	1902
MYERS, MISS LUCY F., "Brookside," Poughkeepsie, N. Y.....	1898
NASH, HERMAN W., Pueblo, Colorado.....	1892

NELSON, JAMES ALLEN, Biol. Hall, Univ. of Pa., W. Philadelphia, Pa.	1898
NEWMAN, STEPHEN M., D. D., 1818 M. St., N. W., Washington, D. C.	1898
NICHOLAS, ROSS, Portland, Oregon	1901
NICHOLS, JOHN TREADWELL, 42 W. 11th St., New York City	1901
NICHOLS, JOHN M., Portland, Me.	1890
NICHOLSON, RICHARD R., 1397 King St., Toronto, Ont.	1900
NIMS, LEE, Kelso, Wash.	1902
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa.	1886
NORTON, ARTHUR HENRY WHITELEY, San Antonio, Texas	1894
NOWELL, JOHN ROWLAND, Union College, Schenectady, N. Y.	1897
O'CONNOR, HALDEMAN, 25 No. Front St., Harrisburg, Pa.	1896
OGDEN, DR. HENRY VINING, 141 Wisconsin St., Milwaukee, Wis.	1897
OLCOTT, THEODORE F., New Dorp, N. Y.	1901
OLDYS, HENRY, Dept. of Agriculture, Washington, D. C.	1896
OLIVER, DANIEL LEET, Shields, Pa.	1902
OLIVER, HENRY KEMBLE, 2 Newbury St., Boston, Mass.	1900
O'NEIL, EDWARD, Sewickley, Allegheny Co., Pa.	1893
OSBURN, RAYMOND CARROLL, Columbia Univ., Dep't. Zoöl., New York City	1899
OSBURN, REV. WILLIAM, Belmont Ave., Station K, Cincinnati, O.	1890
OSGOOD, HENRY W., Pittsfield, N. H.	1901
OWEN, Miss JULIETTE AMELIA, 306 No. 9th St., St. Joseph, Mo.	1897
PAGE, Mrs. ALICE WILSON, Englewood, N. J.	1896
PAINÉ, AUGUSTUS G., JR., 311 W. 74th St., New York City	1886
PALMER, SAMUEL COPELAND, Swarthmore, Pa.	1899
PARDEE, DR. LUCIUS CROCKER, Highland Park, Ill.	1902
PARKER, WENDELL PHILLIPS, 28 Freeland St., Worcester, Mass.	1897
PATTEN, Mrs. JEANIE MAWRY, 2212 R St. N. W., Washington, D. C.	1900
PAULMIER, FREDERICK CLARK, State Museum, Albany, N. Y.	1902
PEABODY, WILLIAM RODMAN, 13 Kirkland St., Cambridge, Mass.	1890
PERRY, ELTON, D. D. S., 1032 Main St., Bridgeport, Conn.	1902
PETERSON, Prof. J. P., West Denmark, Polk Co., Wis.	1885
PHELPS, Mrs. ANNA BARDWELL, Box 36, Northfield, Mass.	1899
PHILLIPS, ALEXANDER H., Princeton, N. J.	1891
PIERCE, A. K., Renovo, Pa.	1891
PLIMPTON, Prof. GEORGE L., Tilton, N. H.	1900
POE, Miss MARGARETTA, 1500 Park Ave., Baltimore, Md.	1899
POMEROY, HARRY KIRKLAND, Kalamazoo, Mich.	1894
POOLE, ALFRED D., Wilmington, Delaware	1901
POPE, T. EDMUND B., 20 Hawthorne St., Providence, R. I.	1901
PORTER, LOUIS H., Stamford, Conn.	1893
PRAEGER, WILLIAM E., Keokuk, Iowa	1892
PROCTOR, Miss MARY A., Franklin Falls, N. H.	1900
PURDUM, DR. C. C., Pawtucket, R. I.	1901
PURDY, JAMES B., Plymouth, Mich.	1893
RANN, Mrs. MARY L., Manchester, Iowa	1893

RAWSON, CALVIN LUTHER, Box 33, Norwich, Conn.....	1885
READ, ALBERT M., 1322 12th St. N. W., Washington, D. C.....	1895
REAGH, DR. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass....	1896
REDFIELD, MISS ELISA WHITNEY, 107 No. 34th St., Philadelphia, Pa.....	1897
REDINGTON, ALFRED POETT, Santa Barbara, Cala.....	1890
REED, J. HARRIS, Aldan, Pa.....	1890
REED, HUGH DANIEL, Cornell Univ., Ithaca, N. Y.....	1900
REHN, JAMES A. G., Acad. of Nat. Sciences, Philadelphia, Pa.....	1901
RHOADS, CHARLES J., Bryn Mawr, Pa.....	1895
RICHARDS, MISS HARRIET E., 36 Longwood Ave., Brookline, Mass....	1900
RICHARDS, JOHN BION, Fall River, Mass.....	1888
RICHARDSON, JOHN KENDALL, Wellesley Hills, Mass.....	1896
RICKER, EVERETT WILDER, P. O. Box 5083, Boston, Mass.....	1894
RIDGWAY, JOHN L., Chevy Chase, Md.....	1890
RIKER, CLARENCE B., Maplewood, N. J.....	1885
RILEY, JOSEPH H., Falls Church, Va.....	1897
RITCHIE, SANFORD, Dover, Me.....	1900
ROBBINS, REGINALD C., 373 Washington St., Boston, Mass.....	1901
ROBINS, MRS. JULIA STOCKTON, 114 S. 21st St., Philadelphia, Pa.....	1895
ROBERTS, WILLIAM ELY, Swarthmore Col., Swarthmore, Pa.....	1902
ROBERTSON, HOWARD, Station A, Los Angeles, Cala.....	1901
RODDY, Prof. H. JUSTIN, State Normal School, Millersville, Pa.....	1891
ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.....	1896
ROOSEVELT, THEODORE, Jr., White House, Washington, D. C.....	1902
ROTZELL, Dr. W. E., Narberth, Pa.....	1893
ROWLAND, MRS. ALICE STORY, Public Library, Plainfield, N. J.....	1897
ROWLEY, JOHN, Jr., Am. Mus. Nat. Hist., New York City.....	1889
SAGE, HENRY M., care of H. S. Sage & Co., Albany, N. Y.....	1885
SAMPSON, WALTER BEHRNARD, 36 S. California St., Stockton, Cala.....	1897
SAMUEL, JOHN HUGHES, 58 Church St., Toronto, Can.....	1902
SAND, ISABELLA LOW, Ardsley-on-Hudson, N. Y.....	1902
SANDS, AUSTIN LEDYARD, Greenough Pl., Newport, R. I.....	1902
SANFORD, LEONARD C., M. D., 216 Crown St., New Haven, Conn....	1902
SARGENT, HARRY CLEVELAND, Chocorua, N. H.....	1900
SAVAGE, JAMES, 134 Abbott St., Buffalo, N. Y.....	1895
SAVAGE, WALTER GILES, Jasper City, Mo.....	1898
SCHMITT, DR. JOSEPH, Laval Univ., Quebec, Canada.....	1901
SCHOENEBECK, AUGUST JOHN, Kelley Brook, Wis.....	1898
SCHRAFFT, NELSON, Union Ave., Irvington, N. J.....	1901
SCHURR, Prof. THEODORE A., 164 Linden St., Pittsfield, Mass.....	1888
SCHWAB, Rev. LAWRENCE H., 549 W. 156th St., New York City.....	1892
SEALE, ALVIN, Bishop Mus., Honolulu, H. I.....	1900
SEISS, COVINGTON FEW, 1338 Spring Garden St., Philadelphia, Pa....	1898
SEVERSON, HENRY P., Winneconne, Wis.....	1902
SHATTUCK, EDWIN HAROLD, Granby, Conn.....	1898
SHATTUCK, GEORGE CHEEVER, 135 Marlboro St., Boston, Mass.....	1896

SILAW, HOLTON A., 610 8th Ave., Grand Forks, No. Dakota.....	1898
SHAW, LOUIS AGASSIZ, Chestnut Hill, Mass.....	1901
SHEPARD, MARSHALL, 134 W. 73d St., New York City.....	1899
SHERRILL, W. E., Haskell, Texas.....	1896
SHIELDS, GEORGE O., 23 W. 24th St., New York City.....	1897
SHOEMAKER, FRANK H., Omaha Nat'l Bk. Bldg., Omaha, Neb.....	1895
SHROBREE, GEORGE, Public Museum, Milwaukee, Wis.....	1899
SHRYOCK, WILLIAM A., 21 N. 7th St., Philadelphia, Pa.....	1893
SILLIMAN, HARPER, 562 5th Ave., New York City.....	1902
SMITH, CHARLES PIPER, 2106 Central Ave., Indianapolis, Ind.....	1898
SMITH, HORACE G., 2918 Lafayette St., Denver, Colo.....	1888
SMITH, DR. HUGH M., 1209 M St. N. W., Washington, D. C.....	1886
SMITH, LOUIS IRVIN, JR., 3908 Chestnut St., Philadelphia, Pa.....	1901
SMITH, MRS. J. EDWIN, 423 James St., Syracuse, N. Y.....	1901
SMITH, ROBERT WINDSOR, Kirkwood, Ga.....	1895
SMITH, THEODORE H., 22 Essex Ave., Orange, N. J.....	1896
SMYTH, Prof. ELLISON A., Jr., Polytechnic Inst., Blacksburg, Va.....	1892
SNODGRASS, ROBERT EVANS, Stanford Univ., Cala.....	1902
SOUTHER, WILL EDWIN, Beaver Dam, Wis.....	1895
SOUTHWICK, JAMES M., Mus. Nat. Hist., Providence, R. I.....	1896
SPAID, Prof. ARTHUR R., 1819 Delaware Ave., Wilmington, Del.....	1901
SPAULDING, FRED B., Lancaster, N. H.....	1894
SPINNEY, HERBERT L., Seguin Light Station, Popham Beach, Me.....	1900
STACK, FREDERICK WILLIAM, 824 Park Ave., Plainfield, N. J.....	1900
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....	1883
STEPHENSON, MRS. LOUISE MCGOWN, Helena, Ark.....	1894
STONE, DWIGHT D., Lansing, N. Y.....	1891
STRONG, DR. REUBEN M., Univ. Chicago, Chicago, Ill.....	1889
STURTEVANT, EDWARD, St. George School, Newport, R. I.....	1896
SURBER, SHERRARD McCLURE, Santa Rosa, N. M.....	1902
SURFACE, HARVEY ADAM, Dept. of Agr., Harrisburg, Pa.....	1897
SWAIN, JOHN MERTON, Augusta, Me.....	1899
SWALES, BRADSHAW HALL, 135 Warren Ave., E., Detroit, Mich.....	1902
SWARTH, HARRY S., 512 Coronado St., Los Angeles, Cala.....	1900
SWEET, DANA W., Route 2, Phillips, Me.....	1902
SWEZEY, GEORGE, 66 Jackson St., Newark, N. J.....	1901
TALLEY, Prof. THOMAS WASHINGTON, Tuskegee, Ala.....	1896
TAVERNIER, PERCY A., 6207 Greenwood Ave., Chicago, Ill.....	1902
TAYLOR, ALEXANDER O'DRISCOLL, 132 Bellevue Ave., Newport, R. I.....	1888
TEST, DR. FREDERICK CLEVELAND, 4401 Indiana Ave., Chicago, Ill.....	1892
THAYER, JOHN ELIOT, Lancaster, Mass.....	1898
THOMAS, Miss EMILY HINDS, "Hindsbury," Bryn Mawr, Pa.....	1901
THOMPSON, Miss CAROLINE B., Clapier St., Germantown, Philadelphia, Pa.....	1900
TOPPAN, GEORGE L., 18 E. 23d St., New York City.....	1886
TOWNSEND, DR. CHAS. WENDELL, 76 Marlborough St., Boston, Mass.....	1901

TOWNSEND, WILMOT, 3d Ave. and 75th St., Bay Ridge, N. Y.....	1894
TREAT, WILLARD E., Silver Lane, Conn.....	1885
TROTTER, WILLIAM HENRY, JR., 36 No. Front St., Philadelphia, Pa. .	1899
TUTTLE, DR. CARL, Berlin Heights, Ohio.....	1890
TWEEDY, EDGAR, 336 Main St., Danbury, Conn.....	1902
UNDERWOOD, WILLIAM LYMAN, Mass. Inst. Technology, Boston, Mass.	1900
VAIL, HERBERT K., Glen Cove, N. Y.....	1902
VAN CORTLANDT, MISS ANNE S., Croton-on-Hudson, N. Y.....	1885
VAN DENBURGH, DR. JOHN, 1626 Turk St., San Francisco, Cala.....	1893
VAN NAME, WILLARD GIBBS, 121 High St., New Haven, Conn.....	1900
VAN NORDEN, WARNER MONTAGNIE, Rye, New York.....	1899
VAN SANT, MISS ELIZABETH, 717 N. Y. Life Bldg., Omaha, Neb....	1896
VARICK, MRS. JOHN B., 283 Orange St., Manchester, N. H.....	1900
VETTER, CHARLES, D. D. S., 152 Second St., New York City.....	1898
WALES, EDWARD H., Hyde Park, N. Y.....	1896
WALKER, DR. R. L., 355 Main St., Carnegie, Pa.....	1888
WALTER, HERBERT E., 435 Belden Ave., Chicago, Ill.....	1901
WALTERS, FRANK, 7 W. 103d St., New York City.....	1902
WARREN, DR. B. H., Box 245, Westchester, Pa.....	1885
WARREN, EDWARD ROYAL, 20 W. Caramillo St., Colorado Springs, Colo.....	1902
WATSON, MISS SARAH R., Clapier St., Germantown, Phil., Pa.....	1900
WATERS, ROBINSON CATOR, 9 W. Baltimore St., Baltimore, Md....	1900
WEBSTER, MRS. MARY P., 1025 5th St., S. E., Minneapolis, Minn....	1900
WEIR, J. ALDEN, 11 E. 12th St., New York City.....	1899
WELLS, FRANK S., 916 Grant Ave., Plainfield, N. J.....	1902
WENTWORTH, IRVING H., Matehuala E. de S. L. P., Mexico.....	1900
WEST, JAMES A., Savoy, Ill.....	1896
WEST, LEWIS H., Roslyn, Nassau Co., N. Y.....	1887
WESTFELDT, GUSTAF R., P. O. Box 601, New Orleans, La.....	1902
WETHERILL, WM. H., 126 So. 30th St., Philadelphia, Pa.....	1901
WETMORE, MRS. HELEN H., 343 Lexington Ave., New York City....	1902
WHEELER, EDMUND JACOB, 95 Jefferson Ave., New London, Conn....	1898
WHEELER, JOHN B., East Templeton, Mass.....	1897
WHEELOCK, MRS. IRENE G., 1040 Hinman Ave., Evanston, Ill.....	1902
WHITCOMB, MRS. ANNABELL C., 721 Franklin St., Milwaukee, Wis....	1897
WHITE, FRANCIS BEACH, 6 Phillips Place, Cambridge, Mass.....	1891
WHITE, W. A., 158 Columbia Heights, Brooklyn, N. Y.....	1902
WICKERSHAM, CORNELIUS W., 5 Linden St., Cambridge, Mass.....	1902
WICKS, M. L., JR., Hellman Block, Los Angeles, Cala.....	1890
WILBUR, ADDISON P., 4 Gibson St., Canandaigua, N. Y.....	1895
WILCOX, T. FERDINAND, 115 W. 75th St., New York City.....	1895
WILDE, MARK L. C., 315 N. 5th St., Camden, N. J.....	1893
WILLARD, JNO. MELVILLE, 2221 Elm St., Oakland, Cal.....	1902
WILLIAMS, J. BICKERTON, 15 Wellington St. E., Toronto, Can.....	1889
WILLIAMS, RICHARD FERDINAND, P. O. Box 521, New York City....	1902

WILLIAMS, ROBERT STATHAM, Botanical Gardens, New York City . . .	1888
WILLIAMS, ROBERT WHITE, JR., Tallahassee, Fla	1900
WILLIAMS, W. J. B., Holland Patent, N. Y	1893
WILLIAMSON, E. B., Bluffton, Ind	1900
WILSON, JAMES FRANKLIN, Basin, Montana	1901
WILSON, SIDNEY S., 1021 Sylvania St., St. Joseph, Mo	1895
WINKENWERDER, HUGO AUGUST, High School, SheyboGAN, Wis . . .	1900
WOLCOTT, DR. ROBERT H., Univ. of Neb., Lincoln, Nebraska	1901
WOLFE, WILLIAM EDWARD, Wray, Colo	1900
WOOD, DR. HOWARD L., Groton, Conn	1901
WOOD, J. CLAIRE, 179 17th St., Detroit, Mich	1902
WOOD, NELSON R., Smithsonian Institution, Washington, D. C . . .	1895
WOODCOCK, ARTHUR ROY, Corvallis, Oregon	1901
WOODRUFF, EDWARD SEYMOUR, 14 E. 68th St., New York City	1899
WOODRUFF, LEWIS B., 14 E. 68th St., New York City	1886
WOODWARD, DR. LEMUEL F., 52 Pearl St., Worcester, Mass	1901
WOODWORTH, MRS. NELLY HART, 41 Bank St., St. Albans, Vt	1894
WORCESTER, Prof. DEAN C., U. S. Philippine Comm., Manila, P. I . .	1895
WORTHEN, CHARLES K., Warsaw, Ill	1891
WORTHINGTON, WILLIS W., Shelter Island Heights, Suffolk Co., N. Y .	1889
WRIGHT, FRANK S., 51 Genesee St., Auburn, N. Y	1894
WRIGHT, HORACE WINSLOW, Jefferson Highlands, N. H	1902
WRIGHT, MRS. JANE ATHERTON, 2 Main St., Greenfield, Mass	1902
WRIGHT, Miss NORA GIRALDA, 387 Plainfield St., Olneyville, R. I . .	1896
WRIGHT, SAM, Conshohocken, Pa	1895
YORKE, DR. F. HENRY, Foesland, Ill	1891

DECEASED MEMBERS

FELLOWS.

	<i>Date of Death</i>
BAIRD, SPENCER FULLERTON	Aug. 19, 1887
BENDIRE, CHARLES E	Feb. 4, 1897
COUES, ELLIOTT	Dec. 25, 1899
GOSS, N. S	March 10, 1891
HOLDER, JOSEPH B	Feb. 28, 1888
JEFFRIES, JOHN AMORY	March 26, 1892
McILWRAITH, THOMAS	Jan. 31, 1903
MERRILL, JAMES C	Oct. 27, 1902
SENNETT, GEORGE BURRITT	March 18, 1900
WHEATON, JOHN M	Jan. 28, 1887

HONORARY FELLOWS.

BURMEISTER, HERMANN.....	May 1, 1892
GÄTKE, HEINRICH.....	Jan. 1, 1897
GUNDLACH, JUAN.....	March 14, 1896
GURNEY, JOHN HENRY.....	April 20, 1890
HARTLAUB, GUSTAV.....	Nov. 20, 1900
HUXLEY, THOMAS II.....	June 29, 1895
KRAUS, FERDINAND.....	Sept. 15, 1890
LAWRENCE, GEORGE N.....	Jan. 17, 1895
MILNE-EDWARDS, ALPHONSE.....	April 21, 1900
PARKER, WILLIAM KITCHEN.....	July 3, 1890
PELZELN, AUGUST VON.....	Sept. 2, 1891
SALVIN, OSBERT.....	June 1, 1898
SCHLEGEL, HERMANN.....	Jan. 17, 1884
SEEBOHM, HENRY.....	Nov. 26, 1895
TACZANOWSKI, LADISLAS.....	Jan. 17, 1890

CORRESPONDING FELLOWS.

ALTUM, C. A.....	Jan. 1, 1900
ANDERSON, JOHN.....	Aug. 16, 1900
BALDAMUS, EDUARD.....	Oct. 30, 1893
BLAKISTON, THOMAS W.....	Oct. 15, 1891
BOGDANOW, MODEST N.....	March 4, 1888
COOPER, JAMES G.....	July 19, 1902
CORDEAUX, JOHN.....	Aug. 1, 1899
DAVID, ARMAND.....	Nov. 10, 1900
HAAST, JULIUS VON.....	Aug. 15, 1887
HARGITT, EDWARD.....	March 19, 1895
HOLUB, EMIL.....	Feb. 21, 1902
HOMEYER, E. F. VON.....	May 31, 1889
LAYARD, EDGAR LEOPOLD.....	Jan. 1, 1900
LYTTLETON, THOMAS, LORD LILFORD.....	June 17, 1896
MARSCHALL, A. F.....	Oct. 11, 1887
MALMGREN, ANDERS JOHAN.....	April 12, 1897
MIDDENDORFF, ALEXANDER THEODOR VON.....	Jan. 28, 1894
MOSJISOVICS, F. G. HERMANN AUGUST.....	Aug. 27, 1897
PREJEVALSKI, N. M.....	Oct. 20, 1887
PRENTISS, D. WEBSTER.....	Nov. 19, 1899
PRYER, HARRY JAMES STOVIN.....	Feb. 17, 1888
SCHRENCK, LEOPOLD VON.....	Jan. 20, 1894
SÉLEYS-LONGSCHAMPS, EDMOND DE.....	Dec. 11, 1900

SEVERTZOW, N.....	Feb. 8, 1885
STEVENSON, HENRY.....	Aug. 18, 1888
WHARTON, HENRY T.....	Sept. —, 1895

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
BARLOW, CHESTER.....	Nov. 6, 1902
BAUR, GEORGE.....	June 25, 1898
BECKHAM, CHARLES WICKLIFFE.....	June 8, 1888
BILL, CHARLES.....	April —, 1897
BIRTWELL, FRANCIS JOSEPH.....	June 29, 1901
BOARDMAN, GEORGE A.....	Jan. 11, 1901
BOLLES, FRANK.....	Jan. 10, 1894
BRACKETT, FOSTER H.....	Jan. 5, 1900
BREESE, WILLIAM L.....	Dec. 7, 1889
BROKAW, L. W.....	Sept. 3, 1897
BROWN, JOHN CLIFFORD.....	Jan. 16, 1901
BROWNE, FRANCIS CHARLES.....	Jan. 9, 1900
CAIRNS, JOHN S.....	June 10, 1895
CALL, AUBREY BRENDON.....	Nov. 20, 1901
CAMPBELL, ROBERT ARGYLL.....	April —, 1897
CARTER, EDWIN.....	——— 1900
CLARK, JOHN N.....	Jan. 14, 1903
COLBURN, W. W.....	Oct. 17, 1899
COLLETT, ALONSO M.....	Aug. 22, 1902
CORNING, ERASTUS, JR.....	April 9, 1893
COE, W. W.....	April 26, 1885
DAFFIN, WM. H.....	April 21, 1902
DAKIN, JOHN A.....	Feb. 21, 1900
DEXTER, NEWTON.....	July 27, 1901
ELLIOTT, S. LOWELL.....	Feb. 11, 1889
FAIRBANKS, FRANKLIN.....	April 24, 1895
FOWLER, J. L.....	July 11, 1899
GESNER, A. H.....	April 30, 1895
GOSS, BENJAMIN F.....	July 6, 1893
HATCH, JESSE MAURICE.....	May 1, 1898
HOADLEY, FREDERIC H.....	Feb. 26, 1895
HOWLAND, JOHN SNOWDON.....	Sept. 19, 1885
INGERSOLL, JOSEPH CARLETON.....	Oct. 2, 1898
JENKS, JOHN W. P.....	Sept. 27, 1894
JOUY, PIERRE LOUIS.....	March 22, 1894

KNIGHT, WILBUR CLINTON.....	July 8, 1903
KUMLIEN, LUDWIG.....	Dec. 4, 1902
KUMLIEN, THURE.....	Aug. 5, 1888
LAWRENCE, ROBERT HOE.....	April 27, 1897
LINDEN, CHARLES.....	Feb. 3, 1888
MABBETT, GIDEON.....	Aug. 15, 1900
MARBLE, CHARLES C.....	Sept. 25, 1900
MARCY, OLIVER.....	March 19, 1899
MARIS, WILLARD LORRAINE.....	Dec. 11, 1895
McKINLAY, JAMES.....	Nov. 1, 1899
MEAD, GEORGE S.....	June 19, 1901
MINOT, HENRY DAVIS.....	Nov. 13, 1890
MORRELL, CLARENCE HENRY.....	July 15, 1902
NICHOLS, HOWARD GARDNER.....	June 23, 1896
NORTHROP, JOHN I.....	June 26, 1891
PARK, AUSTIN F.....	Sept. 22, 1893
RAGSDALE, GEORGE H.....	March 25, 1895
READY, GEORGE H.....	March 20, 1903
RICHARDSON, JENNESS.....	June 24, 1893
SELOUS, PERCY SHERBORN.....	April 7, 1900
SLATER, JAMES H.....	Feb. —, 1895
SLEVIN, THOMAS EDWARDS.....	Dec. 23, 1902
SMALL, EDGAR A.....	April 24, 1884
SMITH, CLARENCE ALBERT.....	May 6, 1896
STOWE, W. H.....	March —, 1895
THORNE, PLATTE M.....	March 16, 1897
THURBER, E. C.....	Sept. 6, 1896
VENNOR, HENRY G.....	June 8, 1884
WATERS, EDWARD STANLEY.....	Dec. 26, 1902
WILLARD, SAMUEL WELLS.....	May 24, 1887
WOOD, WILLIAM.....	Aug. 9, 1885
YOUNG, CURTIS C.....	July 30, 1902

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THE A. O. U. CHECK-LIST—ITS HISTORY AND ITS FUTURE.¹

BY J. A. ALLEN.

AT THE first Congress of the American Ornithologists' Union, held in September, 1883, a committee was appointed on the 'Classification and Nomenclature of North American Birds.' This Committee was charged with the duty of preparing a Check-List of the birds found in North America north of Mexico. It was a task requiring much labor, and nearly three years passed before the results of its work were made public, in the form of a volume of 400 pages, entitled 'The Code of Nomenclature and Check-List of North American Birds, adopted by the American Ornithologists' Union, being the Report of the Committee of the Union on Classification and Nomenclature.' This work was published in 1886. Seven supplements to the Check-List were issued during the years 1889 to 1895. In 1895 a second edition of the Check-List, without the 'Code,' was issued, which embodied the changes and additions made in the supplements, and considerable modification of the matter relating to the geographical distribution of the species and subspecies. Since that date four additional supplements have been issued, the eleventh of the series having been published in July of the present year.

¹ Read at the Twentieth Congress of the American Ornithologists' Union, Washington, D. C., Nov. 19, 1902.

The present Congress being the twentieth anniversary of the appointment of the 'Committee on the Classification and Nomenclature of North American Birds,' this seems an opportune occasion to review briefly the history of its work, noting statistically the number of changes that have been made in the nomenclature of the Check-List, and the number of additions made to it; and also to attempt to forecast in the light of the past, its prospective modifications.

First as to the past, which may be considered under the two heads of (1) Additions, and (2) Changes in Nomenclature, noting in each case their nature and number.

I. ADDITIONS.

Subfamilies	3.
Genera	7.
Subgenera	3.
Species	54.
Subspecies	181.

II. CHANGES OF NOMENCLATURE.

Family names changed	1.
Generic names changed	26.
Subgenera raised to genera	18.
Total changes in generic names	44.
Subgeneric names changed	2.
Specific names changed	38.
Subspecific names changed	25.
Binomials changed to trinomials ¹	15.

The numerous additions to the Check-List denote the progress of our knowledge of North American ornithology during the last sixteen years, as regards the constituents of the North American avifauna, the increase representing a total addition of 235 species and subspecies and 7 genera. This is a net increase of 24.7 per cent, or nearly two percent a year.

¹ These relate mainly to forms found along our Mexican border which were originally entered as species, but have since been separated from the more southern type form as subspecies. While this effects a change in nomenclature, these changes neither add nor subtract any form from the Check-List.

The changes in nomenclature have been due to two causes: (1) the discovery of some older available name than the one originally adopted; (2) that the name originally adopted was preoccupied and therefore untenable. The number of changes in generic and subgeneric names, including three corrections of orthography, number less than 30 out of a total of 423,—340 generic names and 83 subgeneric names,—or about 7.3 percent.

The number of changes in specific and subspecific names is 63, or less than six-tenths of one percent.

But these changes, while relatively so few, necessitate a large number of modifications in the designations of species and subspecies; the change of a generic name, or the raising of a subgenus to a genus, affects all the species and subspecies of the genus thus involved. Also the change of a single specific name may entail a modification in the names of quite a number of subspecies.

The changes in generic names affect the names of 90 species and 25 subspecies, or a total of 115 names. These changes are additional to the 63 changes in specific and subspecific names. In other words about one in every ten of the specific and subspecific designations in the Check-List have been modified to some extent.

As already said, the first edition of the Check-List was published in 1886, and a second edition in 1895, since which date there have been issued four supplements. The history of the Check-List thus falls into two periods, the first of nine years, from 1886 to 1895, and the second of seven years, from 1895 to 1902. It may be of interest to compare statistically these two periods.

The first Check-List contained 768 species and 183 subspecies, or a total of 951 named forms; the second contained 802 species and 268 subspecies, or a total of 1070; the net gain in nine years having been 34 species and 85 subspecies.

In July, 1902, the Check-List and supplements contained 822 species and 364 subspecies, or a total of 1186 forms, the net gain in seven years having been 20 species and 96 subspecies. There was thus practically an equal increase in these two unequal periods, with a rather greater ratio of increase in the subspecies as compared with the species in the second period.

The total net gain for the whole seventeen years is, as tabulated above, 54 species and 181 subspecies. Of the 54 species added, it is noteworthy that 21, or nearly one-half, have come into the list merely as stragglers and form no essential part of the fauna. The number of such forms is now 93, or nearly eleven percent. Excluding these waifs and strays, which reach us in about equal numbers from the Old World and from tropical America, we have as proper components of the fauna 730 species and 362 subspecies.

Other changes of some interest, but of only slight importance, are the reduction of three species to subspecies, and the raising of two subspecies to specific rank; also the elimination of five species and two subspecies. Four species have been added to the Hypothetical List, and three removed from the Hypothetical List to the Check-List proper.

In comparing the two periods into which we have divided the history of the Check List, the second period of seven years shows far more changes in names than marked the first period of nine years. During the first period only 14 changes were made in generic names as against 34 in the second, these changes affecting only 14 species and three subspecies; while in the second period 76 species and 22 subspecies were thus affected. During the first period the names of 16 species and 5 subspecies were changed, in addition to the modifications due to the changes in generic names, as against 22 and 20, respectively, for the second period. Of the total of 178 changes that have been made in the names of species and subspecies, only 38 were made in the first period and 140 in the second. As the increase has been in a constantly accelerated ratio, this does not seem to present an encouraging outlook for the future.

What is the explanation of the accelerated increase, both in additions to the Check-List and in name-changes? In a word, the great increase in the number of workers during the last five or six years. When the Check-List was compiled and published, and for quite a number of years after, the number of prominent investigators who really had much hand in describing new forms or were meddling to any great extent with questions of nomenclature, could almost be numbered on the fingers of one hand. Five, or at most seven, would include all properly to be included in this

category. Taking the same standard of activity as a basis, we can now count at least three times this number, some of the most active of whom had hardly appeared above the ornithological horizon as late even as the publication of the second edition of the Check-List. Some of the new contingent are especially diligent in the search for new forms, others in bibliographical research, and still others in both lines of activity. Field work has been pushed with unprecedented energy, and along well planned lines, resulting in the thorough exploration of much previously little known territory, and the accumulation of large series of specimens from many before unrepresented localities. It is this, in the main, healthy and praiseworthy activity that is slowly revolutionizing our Check-List of North American birds. When the first edition was issued, doubtless many consoled themselves with the hope that we had at last reached a stable nomenclature, and that our troubles with names and new forms were practically over. Even the authors of the Check-List, it is safe to say, little dreamed of the developments the short period of sixteen years has brought forth.

What, it may be asked, is the outlook for the future? Are we not nearly at the end of these changes and additions? While the future is a 'sealed book,' in North American ornithology as in other affairs, 'coming events cast their shadows before,' and it is not difficult to forecast the general drift of ornithological events for the next few years.

Doubtless a few more waifs and strays from foreign lands will be added to the list of species, — a feature not very disturbing nor very important, — but probably very few, if any, *bona fide* species remain to be discovered within our Check-List limits. As field work is carried on with more thoroughness into the still many neglected areas, and it becomes possible to compare the birds of such areas with proper material from other regions, there will doubtless be some surprises through the discovery of local forms which have thus far been overlooked. But the numerical increase from this source will depend largely upon the fineness of our ornithological net, and the trouble will be to keep out of the Check-List forms undeserving of recognition.

There is hope of soon reaching the end of the overturning of

familiar names, if the present activity in bibliographical research continues at its present pace. That there will be an end is certain and the more intense the temporary inconvenience thus occasioned the sooner will stability be attained.

There is one element of disturbance that is imminent, and should be early met, and which is unfortunately the result of a little misguided conservatism, or lack of foresight, on the part of the original Check-List Committee. This is the long list of subgenera which, to conform to the usages of the day in such matters, should be raised to genera, and thereby entail a long list of changes in the Check-List as regards the generic element in the names of species and subspecies. Thirty-six such cases were listed at the end of the Tenth Supplement, action on which has already been twice deferred by the Committee, in view partly of the great temporary inconvenience their adoption would incur, and partly to make these changes at one time. Probably two thirds of these subgenera are well entitled to recognition as genera and are so recognized by a large part of ornithologists.

A few other changes in generic names are pending, and — if we are to follow not only the A. O. U. Code, but also the hitherto uniform ruling of the Committee — should be adopted. Over these there is trouble brewing, due to a proposed new departure in reference to such names. This is the new so-called 'one letter rule,' which has not as yet received the sanction of any body of code makers but which will soon have to be officially faced by the Union as well as by the A. O. U. Committee. It is not my purpose to discuss the merits or demerits of the proposed new rule in this connection, but simply to state that while to adopt it would save three or four impending changes of generic names, its adoption would also require the changing of a greater number of other generic names which now form a part of the Check-List. Under present rules, names which are etymologically the same, but which vary slightly in construction, only that form of the word having priority can be used in zoölogical nomenclature. The new rule proposes that any number of variants of the same name are available, if they vary by only a single letter, even if the letter be merely a connectent vowel, or depend on gender, as indicated by the terminal syllable.

There has been so much discontent expressed over the constant changes in the Check-List that it is perhaps proper to consider for a moment whether it is really worth while to try to have an up-to-date Check-List of North American birds. Only the older members of the Union can remember why an attempt was ever made to have an authoritative Check-List. It is perhaps a familiar matter of history, however, to all, that at the time of the founding of the American Ornithologists' Union there were two rival check-lists, each by an eminent authority, which differed at many points. Each of the authors of the two lists had a nearly equal following, and there was consequent confusion and lack of uniformity in the names currently in use for many of our birds. This was recognized as a serious evil, likely to increase with the lapse of time. On the founding of the Union it was conceived that if a Committee on the nomenclature of North American birds were appointed by the Union, to consist of five of the then leading authorities on the subject, that this Committee could discuss and harmonize all points of difference and formulate a check-list that should be a uniform standard, and be endorsed as such by the Union. Most fortunately this was the happy result of the very extended labors of this Committee, whose first work was to formulate and agree upon a set of rules for its guidance in compiling the check-list. These rules were published as the A. O. U. 'Code of Nomenclature,' and, though containing a number of radical departures from previous similar codes, have received wide acceptance and have had very great influence in shaping present nomenclatorial usage in all departments of zoölogy, and even in botany.

The Code and Check-List were not expected nor intended to set bounds to the progress of North American ornithology. It was presumed that new light might show the necessity of changing a few names, and that new material might modify our conceptions of the status of a number of species and subspecies, and add some new forms to the list. This has happened, and to a much greater extent than was anticipated. Hence it became desirable to continue the Committee, whose function it has since been to revise all proposed changes in names and all proposed additions to the Check-List. The eleven supplements that have been issued constitute the published record of its work.

The Committee has, of course, no absolute power; it can only suggest or recommend, or give its opinion. But to the rank and file of the A. O. U. its opinion has fortunately the force of law.

Let us suppose, now, that after the publication of the first Check-List, the Committee had been permanently discontinued and things ornithological had been allowed to drift, and each one left to form his own opinion as to the merits of new forms or proposed emendations of nomenclature. Where would have been our hoped-for uniformity of nomenclature? While a Committee of five, or seven, members selected from the more experienced and best informed workers in technical ornithology may not be infallible in its rulings, its combined opinion is certainly entitled to respect, and may be considered as a rather important balance wheel in the ornithological machine, and it is generally welcomed as affording a tangible hitching-post for current opinion on matters where only experts are competent to decide. Its function of arbitrator is not always an agreeable duty, and is certainly undertaken with the utmost conscientiousness. Its labors are not limited to the few days or weeks spent in annual or semiannual sessions; its work is apportioned in advance among subcommittees who often spend weeks in careful investigation of the work assigned them. Material is assembled from all available sources, including the types of the new forms involved, and also as much as possible of the original material used by the describer of the forms. In many cases the material required is not available, or at least not available in sufficient quantity for a satisfactory decision, and the case is then deferred for final action later.

We have seen how much the Check-List has been modified by changes and additions. We may now consider how many proposed changes and proposed additions the Committee has declined to approve. First, as to proposed additions which have been disapproved. These number 1 genus, 11 species, and 48 subspecies, of which two-thirds have been proposed within the last six years. Second, proposed changes in nomenclature and in the status of species and subspecies disapproved. These include 13 names of genera, 21 names of species, 10 names of subspecies and 28 proposed changes of status, or about half as many as have been adopted. Besides this, the cases deferred and still pending in-

clude the names of 6 genera, 8 species, and 4 subspecies, and the status of 8 species and 30 subspecies. In other words, only 52 per cent of the modifications proposed have been endorsed by the Committee. If there had been no Committee to which these 500 or more questions could have been referred for a formal verdict it is perhaps easier to imagine than to describe what would have been the condition of the nomenclature of North American birds in 1902. Of course some tender corns have been trodden on, and the owners of some of them still prefer their own opinion to that of the Committee, and possibly in some cases their action is warranted. But doubtless all will admit that a few errors are better than chaos. The chief departure from the Committee's rulings relate to certain groups retained in the Check-List as subgenera, contrary to the general consensus of opinion; the tendency to their recognition as genera doubtless only anticipates the final action of the Committee, these questions being among its deferred cases.

A word, in conclusion, in reference to the 'hair-splitting' tendencies of the day, of which complaint is more or less prevalent. The degree of difference necessary for formal recognition in nomenclature is ever likely to be a bone of contention, its decision being, in the nature of the case, more or less a matter of temperament as well as of opinion. The danger of excessive splitting is greater now than ever before, since we have reached a point where comparatively few strongly marked local forms remain to be discovered and named, while the number of enthusiastic young workers is steadily increasing. Plainly, not every degree of differentiation that can be recognized by the trained expert needs recognition by name, and not every slightly differentiated form that can be distinguished readily on comparison of large series of specimens should be considered as entitled to a place in a list of North American birds. The trinomial system unfortunately lends itself readily to abuse, and can easily be made to bring the whole system of naming subspecies into disrepute. Whether or not the differentiation is so readily distinguishable as to warrant its recognition in nomenclature is a question that may very fittingly be left to a Committee of experts, whose combined opinion is more likely to be right than that of a single authority, however cautious and experienced.

BIRDS OF PORTO RICO.

BY B. S. BOWDISH.

(Concluded from Vol. XIX, Oct., 1902, p. 366.)

53. *Tyrannus dominicensis*. GRAY KINGBIRD.—Very abundant wherever I went, and equally so at all seasons. It is perhaps the most conspicuous bird of Porto Rico, being very evenly distributed about the woods and fields, along the creeks, and about the houses in the towns.

In general habits it is much like the common Kingbird; it seems even bolder in defence of its nest, while out of the breeding season it appears rather less pugnacious, though not at all averse to indulging in many a mock battle with its own kind in the tree-tops, uttering loud harsh cries. Its nesting habits, and its eggs are scarcely distinguishable from those of *T. tyrannus*. One pair, nesting about twenty rods from a ranch house near Aguadilla, furnished a set of three eggs, slightly incubated, June 9, 1900. The nest was on a horizontal limb of a mango tree ten feet from the ground, in an open field; diameter 7.00×2.25 , depth 3.00×1.50 inches. It was composed of fine rootlets and dead vines. Another set of three eggs, one fresh, the other two with incubation commenced, was taken from a nest situated like the last, July 9, at the same locality. It was placed twelve feet from the ground on a horizontal limb of a tree in an open field. Diameter of nest, 8.00×3.12 ; depth, 2.50×1.25 . It was composed of twigs, exteriorly, and lined with rootlets. If a nest is destroyed the birds build another close by, often in the same tree, sometimes in the same position as the first. The number of eggs is almost invariably three, and they apparently rear but one brood in a season, the dates for fresh eggs ranging from June 20 to July 22. In the shade trees on a road leading from Cataño to Bayamon, I have seen as many as eight occupied nests at one time. Several stomachs examined showed the following contents: male, few small berries; female, one large berry-seed and remains of insects; male, berries; male, flies, grasshoppers and other insects; male, berries, coleoptera, and other insects; two males, insects; male and female, seeds and insects; male, seeds and insects; male, seeds and insects; male, insects and two large seeds. The seeds were those of wild fruits on which they feed quite largely. The voice when scolding an intruder resembles that of *T. tyrannus*, and they usher in the morning with notes at times quite similar to some the Phæbe occasionally utters. At times their notes cover quite a wide range of variability.

54. *Pitangus taylori*. TAYLOR'S FLYCATCHER.—Of this species almost the same description may be repeated throughout as for the preceding. In some places it seems a little less common than the Gray Kingbird, in others it seems fully to equal it in numbers. Its eggs I have not seen but presume they resemble those of the Gray Kingbird. Two nests with

young found June 1 and 5, respectively, were not in any way distinguishable from those of the latter bird. The notes are very similar, somewhat harsher, and the bird is perhaps more voluble than its relative, and bolder and more aggressive in defense of its nest. The stomach contents of several specimens examined was as follows: female, insects; male, insects; male, fruit seeds and skins; female, lizard about two and one half inches long, and remains of another lizard and several hornets.

55. *Myiarchus antillarum*. ANTILLEAN CRESTED FLYCATCHER.—A common and fairly evenly distributed bird, observed alike in the vicinity of San Juan, Aguadilla, and Mayaguez, and on the island of Vieques. Rather more quiet than many of the flycatchers. Its cry is peculiar and distinctive,—a long-drawn, mournful whistle, more like the note of the Acadian Flycatcher than of any other member of this family that I know. June 1, 1900; near Aguadilla, a pair were greatly disturbed by my approach to a small tree, in an open field, which contained several holes. Native boys said they nested in these holes, which seems probable, but at the time of my visit they had apparently not yet built. It is probable that the eggs and nest resemble, on a smaller scale, those of our Crested Flycatcher. The bird has more the appearance of the Phæbe. A few stomachs examined contained small shells and coleoptera, small yellow wasps and remains of beetles and fruit-seeds. Other examples contained a much larger percentage of fruit remains and seeds.

56. *Blacicus blancoi*.—Common in the western part of the island. Its most common note is a purring cry somewhat suggesting the note of the Wood Pewee, and its general habits and method of feeding are also similar to those of that bird. It is not shy, and often pursues its insect prey in very close proximity to a person, usually with apparent indifference, sometimes exhibiting a slight degree of curiosity. A deserted nest found near Mayaguez, June 27, 1901, could have hardly belonged to any other bird. It was hung in the tips of a branch of a tree growing in a coffee plantation, on a hillside, and was fifteen feet from the ground. It was built of fine hair-like roots, green stringy moss, and two white flower-petals. It measured 5.50×2.00 inches outside, and 2.75×1.25 inside. It was very frail and could be seen through from below. It contained one addled egg, and young had apparently been reared in it. The egg measured 0.75×0.56 inches; it had a light creamy ground color dotted sparingly, chiefly about the larger end, with specks and dots of burnt umber and cinnamon. Both the nest and the eggs suggest those of the Acadian Flycatcher. They are now in the U. S. National Museum.

57. *Corvus leucognaphalus*. WEST INDIAN CROW.—Although I never met with this species, I was told by two of the men of my company that they saw fifteen or twenty at different times at Caguas. In size and general appearance it is much like our common Crow, but the unexposed portion of the feathers are snowy white. A government collection of which I had charge in San Juan contained a mounted example of this species.

58. *Agelaius chrysopterus*. YELLOW-SHOULDERED BLACKBIRD.—In general habits and notes this species is almost the counterpart of our Red-wing. Common in the vicinity of marshy ground wherever I went. I have never found their nests, but I presume that in the marshes, among the cat-tails, flags, bulrushes and other dense growth, almost impenetrable to man, they find a safe retreat, and doubtless nest there in about the same manner as the Red-wing, in the United States. On June 8, 1901, I visited one of the large marshes in the vicinity of Mayaguez for the purpose of investigating their breeding habits, but on observing many nearly full-grown young on the wing and beginning to show the yellow shoulder patch, I did not prosecute the search further. In variety and quality their notes seem almost identical with those of the Red-wing. They sometimes enter the cornfields with the grackles, for the grain, and both came to the post stables at Mayaguez to feed on the scattered oats, but this bird apparently feeds mainly on insects in the vicinity of the marshes. I also found them on Mona. The sexes are alike in color, and the young quickly attain the shoulder patch.

59. *Icterus portoricensis*. PORTO RICO ORIOLE.—An abundant bird throughout the island, and also found on Vieques. Its feeding habits, and particularly its notes, suggest the blackbirds rather than the orioles. Both fruit and insects enter into its bill of fare, but my examination of the stomachs, of both adults and juveniles, indicated that insect food predominates. The alarm note is a blackbird-like chip, but I have never heard a song. June 9, 1900, I observed a young one about half-grown, which may furnish a clue to the date of breeding. They are said to nest in the palms. Near Aguadilla, Sept. 23, 1901, I found a nest under one of these trees, which had evidently been dislodged from the tree. It was obviously of oriole architecture, and undoubtedly belonged to the present species. It was well woven of fibrous strips from the foliage of the palm, and quite resembled a nest of the Orchard Oriole.

60. *Icterus icterus*. TROUPIAL.—I often saw them in cages and was told that they were not rare in certain localities, but I did not find them. An introduced species.

61. *Quiscalus brachypterus*. SHORT-WINGED GRACKLE.—Its general habits and notes are like those of the Bronzed Grackle. They nest in the higher cocoanut and royal palm trees, and sometimes several nests are placed in one tree. They are usually nearly or quite invisible from the ground. I have not seen the eggs but presume they resemble those of other members of the genus. At Aguadilla on July 24, 1900, native boys climbed a cocoanut tree and procured a nest with eggs. The eggs had been destroyed before I heard about them. I obtained the nest and sent it to the U. S. National Museum. It was built of grasses and bits of wild cotton (of which there was a quantity growing near), and lined with fine roots and one feather. In the center there was almost no bottom, probably where it rested on a leaf-stem. No mud was used in its construction. It measured 2.63 × 2.13 inches in depth, and 6.25 × 3.25 in diameter and

bore a general resemblance to nests of the Bronzed Grackle, though rather less bulky. The nesting season seems to begin the last week of May or the first of June. The birds have a great variety of notes, generally resembling those of other grackles. Near Mayaguez, Oct. 2, 1900, I observed a flock of about a dozen of these birds evidently feeding on vermin in the hair of a cow. She stood quietly, apparently realizing their purpose, and they clambered over her belly, legs, udder and teats and climbed up and down her tail as though it were a weed-stalk. After standing for some time she moved along and the grackles followed her.

62. *Spermestes cucullatus*.—This introduced species is locally and seasonally common. Oct. 9, 1901, at Mayaguez, I shot a female, and near the same spot I shot a male, on the 21st. Stomachs contained grass, weed seeds and fine grit. The habits of this and the next species are strikingly suggestive of those of the American Goldfinch, particularly the flight and notes of the next.

63. *Sporæginthus melpoda*. This exotic is abundant in some of the marshy tracts in the vicinity of Mayaguez and Cabo Rojo Lighthouse. I have never found them far from these wet tracts. Birds collected May 23 and 30 showed indications that they were breeding at the time. They undoubtedly nest among the flags and rank growth in the marshes, but these places are so difficult of investigation that I failed to find a nest.

64. *Ammodramus savannarum*. WEST INDIAN GRASSHOPPER SPARROW.—Fairly common in suitable localities. I collected them near San Juan, Aguadilla, and Mayaguez, and a nest and eggs from a pasture studded with dwarf bushes, close to San Juan Bay. The nest was in a slight depression in a clump of wire grass, in a small space clear of bushes, and was composed entirely of fine grasses. It was very neat, domed over, growing grasses being woven into the sides, and was well concealed. It measured 3.75×2.00 inches in diameter and 3.00×2.00 inches in depth. It contained three well incubated eggs, not distinguishable from those of *A. s. passerinus*. Another set taken at Aguadilla, June 16, 1900, consisted of three fresh eggs. The nest was built of bits of grass, finer ones being used for lining; it was partially domed and protected by a clump of grass and situated in a slight hollow in an open field. The bird in appearance and habits closely resembles *A. s. passerinus*.

65. *Loxigilla portoricensis*. PORTO RICO GROSBEAK.—I found this Grosbeak very common in the vicinity of San Juan, Mayaguez, Aguadilla and Las Marias. The males have a song very much like that of the Song Sparrows, but exaggerated. They also have call whistles of several notes each, one of which, a high-pitched note repeated three times rapidly, is easily imitated. Some of their notes are strikingly like notes of the Cardinal. The bird is somewhat shy and objects to too close observation, usually keeping well concealed, and flying away into the bushes when approached. Its food consists chiefly of fruit and seeds of various kinds.

June 15, 1900, I found a nest near Aguadilla. It was in a ravine between two of the wooded hills which rise sugar-loaf shaped from the

level pastures. It was built among thick bushes, in a clump of twigs against the body of a small tree, eight feet from the ground and well concealed. The female was so shy that I hardly had a glimpse of her, and though I went away and waited several hours she apparently did not return. The nest was built of weed and vine stems, dead leaves and skeletons of leaves, and was well domed. It measured 6.25×3.00 inches in diameter, with a depth of 7 inches to the top of the dome, 3 to the lower edge of the entrance, and 2 inches inside. It contained three eggs of a decided grosbeak type, in size and appearance much like eggs of the Rose-breast.

The females of this species are much shyer and more seldom seen than the males. Oct 25, 1901, I shot, near Mayaguez, a female of this species which closely resembled a male, but the black was a little more dingy; the ovaries contained an egg that would have been deposited the next day. This would seem to indicate that they may sometimes rear two broods in a season.

66. *Tiaris bicolor omissa*. GRASSQUIT.—An abundant bird in all of the localities which I visited except Mona and Decicheo Islands. I have already dealt with this bird at such length that I will here only refer the reader to 'The Osprey,' Vol. I (new series), p. 45.

67. *Tiaris olivacea bryanti*. BRYANT'S GRASSQUIT.—I did not find this bird as abundant anywhere as the preceding; although not at all rare about San Juan and on the Island of Vieques, it was scarce in the vicinity of Mayaguez and Aguadilla. The song is somewhat more musical than that of *T. b. omissa*; the other notes are much the same. I failed to find a nest, but a female shot at Vieques, Jan. 30, 1899, would have deposited an egg the next day.

68. *Nesospingus speculiferus*.—Although I made special search for this Tanager I failed to find it. A three days' trip into the mountains about Las Marias was made especially in search of this species but without success. It is strictly a bird of the mountains.

69. *Euphonia sclateri*.—A specimen, taken by a boy with a 'bean shooter' and given to me, was the only one obtained. They are said to be resident in the vicinity of Ponce, but to visit the country about Mayaguez only in the late summer and autumn, in small flocks. The above mentioned specimen showed no development of the ovaries, and the stomach contained seeds of small fruit. The boy who took it said that he observed small flocks several times, and spoke of their singing in a very charming manner, but I did not at any time either see or hear any.

70. *Spindalis portoricensis*.—I did not meet with this bird in the vicinity of San Juan, nor on the smaller islands, but it is abundant near Aguadilla, Mayaguez, and Las Marias. The only song I have heard it utter was a more or less broken succession of sparrow-like chips and twitters, sharp and strong. The flight is slightly undulating. The food is about 70% fruit and seeds, the remainder insects. Quite unlike the Grosbeak, this Tanager is unsuspecting, frequently feeding quite close to one.

At Aguadilla, June 9, 1900, I took two nests with eggs, from trees growing in small clumps near a house on a cleared plantation. The first nest contained two eggs, slightly incubated. The nest measured 4.00×2.25 inches in diameter and $2.25 \times .75$ inches in depth. It was constructed of fine vines and tendrils, and placed ten feet from the ground, in an upright fork of a small mango. The second contained three eggs, advanced in incubation. The nest measured 4.00×2.13 in diameter and 2.25×1.00 inches in depth. It was composed of fine vines and tendrils, ten feet up in the fork of a small mango tree in a coffee patch near a house. These nests were frail saucer-shaped structures, greatly resembling in position and structure typical nests of the Rose-breasted Grosbeak. The eggs were also much like those of that bird.

71. *Progne dominicensis*. WEST INDIAN MARTIN.—I found this bird abundant at all points visited (except Decicheo Island), including Vieques and Mona. It apparently nests exclusively about buildings, being seldom seen away from towns during the breeding season, except on the wild island of Mona, where it probably nests in rock crevices near the mouths of the caves. It is migratory. Oct. 13, 1899, I recorded the last one for that year, apparently a young of the season. The first recorded to arrive for 1901 were three noted on Feb. 1. On Feb. 5 I wrote: "About 3 p. m. a fine rain commenced, and as it began to increase, the air above the barracks was suddenly filled with numbers of *Progne dominicensis*, whirling and circling in every direction. There must have been hundreds of them. This lasted for some time when they disappeared as suddenly as they had come, just as the rain increased to a heavy storm." On July 22, 1899, I noted, in the city of San Juan, a nest belonging to a pair of these birds, situated in a niche between the window-cornice and roof of a balcony, on the front of a house. As the birds seemed to be carrying food, it doubtless contained young. In their general appearance, notes and habits, this species closely resembles the Purple Martin.

72. *Petrochelidon fulva*. CUBAN CLIFF SWALLOW.—Unlike the Martin, the Cliff Swallow has not abandoned its primitive method of breeding, and I saw no indication of their nesting in the vicinity of buildings. It also differs from the Martin in that it is apparently not migratory, seeming to be equally abundant at all seasons. July 23, 1900, near Aguadilla, I found a colony of these birds occupying a small cave in a rocky hill near a road. About fifty or sixty birds were circling about, and in the roof of the cave there were about fifteen or twenty nests. The cave was about twenty feet high and the nests inaccessible, but they appeared to be less elaborate than those of their American relatives. I intended to visit this cave again with a ladder but circumstances prevented. The stomach of one shot July 1 contained a great quantity of small beetles. In company with about half a dozen of its kind this bird was circling about a tree and occasionally alighting in the top branches, doubtless engaged in catching these beetles. In notes, etc., this bird resembles the United States species.

73. *Vireo calidris barbatula*. BLACK-WHISKERED VIREO.—Abundant wherever I went. Apparently at least partially migratory, but of this my evidence is not very positive. On May 1, 1900, I found a finished nest near Aguadilla, on a bush-grown hillside. It was hung in a horizontal fork of a bush, about seven feet from the ground, at the back of a tiny clearing just off a trail. It was composed of fibres and cottony substance and exceedingly handsome, somewhat resembling some specimens of Bell's Vireo. I visited it again on the 20th, but found the nest half torn away and fragments of egg shells lying on the ground beneath. June 9 I found another nest, from being attracted to the tree by the singing of the male. The female was on the nest and remained there while I climbed the tree to within eight feet of her, and jarring the limb and throwing sticks failed to dislodge her, she only crouching closer into the nest. This nest greatly resembled typical nests of *V. olivacea*, and was not nearly so handsome as the first. The two eggs were hardly distinguishable from those of *V. olivacea*. The nest and eggs are in the National Museum. The birds watched the rifling of their home without protest. On the same day I found another nest, which I again visited on the 12th. It was twelve feet up, in the tip of a branch overhanging a road. This was another handsome nest, like the first. It contained newly hatched young. The song and notes of this species resemble those of *V. olivacea*. They eat almost as much fruit and seeds as insect food.

74. *Vireo latimeri*.—I first noted this bird across the Bay from San Juan, back in the bush-grown hills, on April 1, 1900. Hearing a new note, I stopped and began an investigation which ended in the securing of an adult male and female and a two-thirds grown young male. These birds were presented to the National Museum, and were the first received by it in some years, the species being then represented in the Museum collections by an old and discolored specimen. From the time of collecting the above three specimens until the late summer and autumn of 1901, I found these birds rare, and exceptionally silent, when, returning to Mayaguez from Mona Island, I found they were in full song and quite numerous on a certain bush-grown hillside. They were not, however, readily secured, as they mostly kept to the most impenetrable jungles, and though far from shy, were so restless that one might be forty rods away by the time I reached the spot where I had just heard him. I succeeded, however, in securing a series of about twenty birds for the National Museum. The song at this time, though vireo-like, was distinctive, and while not easy to indicate on paper, would not be readily forgotten. On June 15, 1900, I described in my note-book a quite different song, as follows: "This bird has a note quite different from that of any other Vireo I have heard. It sounds somewhat like *too tu-roo*, with the accent on the first syllable, and the last two run together and prolonged." It was musically whistled and repeated a number of times. On June 21, 1900, I wrote: "A *Vireo latimeri* came within six feet of me. He was singing, and the song was quite different from those previously recorded, more vireo-like,

though still distinct from that of any other vireo I have heard." This was the song I heard so much, later on, from the Mayaguez hillside; it was repeated at frequent intervals for about five minutes, the bird then remaining silent for about the same space, and then beginning again. A male shot April 22 was evidently then breeding, and the immature birds secured in September and October would seem to indicate the rearing of more than one brood in a season. Their food seems to consist almost wholly of small insects, very few seeds being found in the stomachs examined, this species being quite different in this respect from *Vireo calidris*.

75. *Cœreba portoricensis*. PORTO RICO HONEY-CREEPER. — Like the Gray Kingbird, the Honey-creeper is a characteristic bird all over the island, in the shade trees of the city streets, in the coffee plantations, in the woods and bushy tangles, and nesting in every possible situation. In habits it resembles both wrens and warblers. Their manner of feeding is somewhat suggestive of the chickadees, as they climb among the leaves and flowers, and the food, as shown by stomachs I have examined, includes small insects, largely coleopterous, spiders, and small worms. The nests are built somewhat like those of the Marsh Wrens, but of firmer material, with an entrance at one side, placed in the tips of branches, and varying from two to fifty feet from the ground. The entrance has usually a porch roof, so to speak, extending outward and downward over it. The prevailing materials are fine rootlets, grasses, vines, straws, and tendrils, with occasional feathers, hair, bits of wool, and wild cotton, and other materials are more or less frequently utilized. The measurements of a few nests are as follows:

	Outside depth.	Inside depth.	Outside diameter.	Inside diameter.
No. 1.	6.25	2.25	3.75 × 3.00	1.63
" 2.	5.00	2.25	3.00 × 4.50	1.63
" 3.	4.00	2.50	4.00	1.50
" 4.	6.75	2.50	3.50	1.25
" 5.	4.25	2.00	4.00	1.25

The inside depth is from the bottom of the entrance to the bottom of the nest. These are probably average examples. Of twenty sets of eggs examined, one was of 4, nine were of 3, and ten were of 2 eggs each.

The eggs are of a light creamy ground tint, varying in some examples to lighter, and in others to pinkish buff. The markings of fine dots are of a decidedly darker shade, a sort of salmon, and vary from being quite sparse in some to others in which the ground tint is nearly obscured. The song is a wheezy trill, and the alarm note a sharp chirp, somewhat like a warbler's note, and between these they have quite a variety of intermediate notes.

76. *Mniotilta varia*. BLACK AND WHITE WARBLER. — A fairly common winter resident, though much less so than in Cuba. Observed in Vieques

and at Mayaguez. First observed in 1899 on Jan. 17, last seen Feb. 18. In 1900, first seen Feb. 3; last, no record. In 1901, first, Oct. 10; no other record.

77. *Compsothlypis americana*. PARULA WARBLER.—The most common of the warblers in winter. In Vieques particularly abundant. Winter of 1899–1900, first, Jan. 18; last, April 8. I also saw a bird June 12, 1900, which at close quarters I was sure was this species, but did not secure it. 1900–01, first, Nov. 5; last, Feb. 23; 1901–02, first, Oct. 25. Have found seeds in the stomach of one of these birds.

78. *Dendroica tigrina*. CAPE MAY WARBLER.—One noted at Mayaguez, Oct. 30, 1901.

Dendroica petechia bartholemica. PORTO RICO YELLOW WARBLER.—Apparently the main point of difference between this form and *D. aestiva* is that there is more rufous on the crown of the present bird. The rufous streaks on the sides and breast are perhaps a little more pronounced. They are very abundant in the mangrove swamps about San Juan Bay. I also found a few in a low, bush-grown, rather swampy cocoanut grove near Mayaguez. The song and notes seem exactly like those of *D. aestiva*.

I never found a nest, but a female shot April 8, indicated that breeding, if not already begun, would soon commence, as was also indicated by a specimen taken April 22. Stomachs examined contained insect food only, chiefly beetles; in one a green beetle about one eighth of an inch long predominating. A wounded bird kept for a short time ate hard-boiled egg readily.

✓ 79. *Dendroica coronata*. MYRTLE WARBLER.—Though abundant in Cuba in winter, this bird is apparently not so in Porto Rico. At Vieques I shot a male Jan. 22, 1900, and another Jan. 30. The contents of the stomach of the first was insects, of the second, good-sized seeds. In Cuba the larger proportion of the food is seeds.

80. *Dendroica maculosa*. MAGNOLIA WARBLER.—Apparently far from an abundant winter visitant. I noted one in a tree in a small park in the city of San Juan, Sept. 26, 1899, and was surprised to see it so early. I also shot a male from a tree beside a street in Mayaguez, Dec. 26, 1900. Stomach contents, beetles about one eighth of an inch long.

81. *Dendroica adelaidæ*. ADELAID WARBLER.—This species, peculiar to Porto Rico, I met with only in the vicinity of Aguadilla, and there in no great numbers, chiefly about a glade between two hills, where the nest of *Loxigilla portoricensis* was taken. May 18, 1900, I shot two males, their condition indicating that they were nesting. The stomach of one contained small caterpillars, that of the other, spiders; a female and juvenile male, shot June 15, contained small insects. This young one had not been long out of the nest. Aug. 5, male and female, stomach contents, small insects. They have a warbler-like chip, but I have never heard a song.

✓ 82. *Dendroica palmarum*. PALM WARBLER.—Not a very common winter visitant, according to my experience. Shot a male in a mangrove

swamp on San Juan Bay, Feb. 12, 1900; stomach contents, long spider-legs. Another male, March 10, near same spot; stomach contained insects. April 8, in same locality, a female, stomach contained insects. A large number of stomachs examined in Cuba contained seeds.

✓ 83. *Dendroica discolor*. PRAIRIE WARBLER.—Next to the Parula Warbler the most common of the migrant warblers. Winter of 1899–1900, first seen Jan. 17; last, no record; 1900, first, Sept. 23; no record for last; 1901–02, first, Sept. 30; no record for last. Stomachs of most Porto Rican birds contained insects only, but I have found only seeds in the stomachs of some Cuban birds.

✓ 84. *Seiurus aurocapillus*. OVEN-BIRD.—Fairly common, though less so than in Cuba. I have no dates to offer for arrivals and departures. Shot a male at Vieques, Jan. 16, 1900; stomach containing eight good sized seeds. Dec. 1, 1900, male, at Mayaguez; stomach contents, insects. Saw one at Mayaguez, Oct. 14, 1901, and shot a male Oct. 21; stomach contents, small quantity of insect matter.

85. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—This bird was not recorded from Porto Rico previous to the time I obtained it at Vieques. Dec. 27, 1899, I shot a female; stomach contents, fine insect remains. Jan. 22, 1900, male; stomach contents, insects. Jan. 22, female, stomach contents, one small snail, and water insects. Nov. 30, at Mayaguez, sex ?, stomach contained fine aquatic insects. Not rare.

86. *Seiurus noveboracensis*. WATER-THRUSH.—Not found as commonly as the last. Shot a female at Mayaguez, Nov. 30, 1900; stomach contents, small aquatic insects. Shot a female at Mona Island, Aug. 18, 1901; stomach empty, condition very fat. It seemed strange indeed to find a bird of this kind on this bare dry rock.

87. *Setophaga ruticilla*. AMERICAN REDSTART.—A quite common winter visitant. Saw one at Mayaguez, Sept. 24, 1900. Noted one at Vieques Nov. 30, 1899; another at Mayaguez, Nov. 4, 1900. One of the very few warblers in whose stomach I have not found seeds.

88. *Mimus polyglottos orpheus*. WEST INDIAN MOCKINGBIRD.—Common wherever I went, except on the islands of Mona and Decicheo. Appearance, song, and habits much the same as those of the American form. I found a nest at San Juan, March 12, 1899, containing three young about ten days old. I also found a nest at Aguadilla, May 19, 1900, containing seven eggs. It is possible that two females laid in this nest but the eggs were quite uniform in appearance, and were advanced in incubation. This nest was about ten feet up in a small tree, by a fence near a house. The nests, situations, eggs, etc., are apparently not different from those of *M. polyglottos*. Stomachs examined contained: a single dragonfly; blue berries; two small centipedes, and a large beetle, minus the head; one large striped beetle. The natives take the young from the nest and rear them, and prize them very highly as cage song birds. They are apparently very easily reared. A boy offered me a healthy young bird for ten cents.

89. *Margarops fuscatus*.— I never met with this bird on the main island, but they were fairly common in the creek-bottoms at Vieques, and abundant among the rocks in the scraggy growth on Decicheo, and still more so around the openings of the caves on Mona Island, where it is the most characteristic land bird. Here I saw a number of bulky nests, built of twigs, on shelves and in niches of the rocks, at the roofs and near the mouths of the caves. These the lighthouse keeper told me belonged to these thrushes, and on Aug. 8 I found one containing the skeleton and feathers of a half grown young, establishing the identity beyond doubt. On Decicheo I shot four birds; a female, July 6, 1900, stomach containing dark purple berries; July 9, two females and one male, stomachs of male and one female contained dark purple berries, the other the entire body of a bombacine moth, about one and a quarter inches long. Specimens taken at Mona had fed chiefly on berries and the fruit of the giant cactus, a katydid or occasional other insect entering into their bill of fare. At Decicheo, on July 8 I made the following note: "As dusk came on I sat in a grotto in the rocks, listening to the vesper song of the *Margarops fuscatus*. Many of the notes are strongly suggestive of the vesper notes of the Robin. One characteristic note, however, is a whistled *tu-whee*, frequently interspersed in the Robin notes. Its vesper song is quite as distinct from its daylight carols as the Robin's. The daylight notes, as they vary, recall notes of the Robin, Catbird, and several of our Thrushes." The bird sings in the evening until it is fairly dark, and its morning notes are ringing with the first streaks of light. Its alarm note is strikingly like that of the Catbird, but rather louder. It is shy and retiring, retreating out of sight the moment it realizes that it is seen.

90. *Mimocichla ardosiacea*. Quite common around Aguadilla and Mayaguez, in the hills back of Cataño, and near Las Marias, but I did not find it on the smaller islands. Its notes are somewhat like those of the preceding species, but the song is far inferior in variety, clearness and sweetness. Its alarm note is entirely different, being difficult of description, a rapidly repeated note something like that of the Cuban Paroquet, on a small scale, and a single nasal *quirk*. It also has a note somewhat resembling that often uttered by Wilson's Thrush in late summer. Its food consists of both fruit and insects, the former greatly preponderating. Though somewhat shy it is less so than *M. schistacea* of Cuba, and far less so than *Margarops fuscatus*. I saw a deserted nest, bulky and well cupped, looking much like an overgrown nest of the Wood Thrush, in the fork of a tree, in the hills near Mayaguez, which could hardly have belonged to any other species than the present. I have shot immature birds in August.

91. *Conurus maugaei* (?).— The occurrence of a *Conurus* in Porto Rico has been considered doubtful. That there is, however, a Paroquet still fairly common in the mountains near Lares every Porto Rican will testify, and I met a considerable number of Americans who had seen them. I

did not visit the section referred to myself, but I was offered live birds which I was assured were brought from there, and at a price that could hardly have been made on birds brought from other islands. It seems to me that the Paroquet referred to in Dr. Richmond's list as "*Conurus latiflorus*—Mona only?" should have a place in the list of Porto Rican birds. *Conurus gundlachi* Cabanis, supposed to be the same as *C. maugei*, was described from Mona Island.

SUPPLEMENTARY LIST.

The principal works and papers referring especially to the birds of Porto Rico, cited in the subjoined list, are the following.

1864. TAYLOR, E. CAVENDISH. Five Months in the West Indies. Part II. Martinique, Dominica, and Porto Rico. < *Ibis*, April, 1864, pp. 157-164.
Notes on 48 species, including 31 observed in Porto Rico.
1866. BRYANT, HENRY. A list of Birds from Porto Rico presented to the Smithsonian Institution, by Messrs. Robert Swift and George Latimer, with descriptions of New Species or Varieties. < *Proc. Boston Soc. Nat. Hist.*, X, 1866, pp. 248-257.
Records 41 species, of which 9 are described as new.
1870. SUNDEVALL, CARL J. Foglarna pa on Portorico.... < *Oefvers. Konigl. Vetensk. Akad. Förhandl. för år 1869* (1870?), pp. 593-604.
About 100 species are enumerated, with annotations.
1874. GUNDLACH, JUAN. Beitrag zur Ornithologie der Insel Portorico. < *Journ. f. Orn.*, 1874, pp. 304-315.
Annotated list of 116 species.
1878. GUNDLACH, JUAN. Neue Beitr ge zur Ornithologie der Insel Portorico. < *Journ. f. Orn.*, 1878, 157-194.
1878. GUNDLACH, JUAN. Apuntes para la Fauna Puerto Riguena. < *Anal. Soc. Esp. Hist. Nat.*, VII, 1878, pp. 135-422. Aves, pp. 141-422
Bibliography and collation of previous authors, and extended notices of the species, 153 in number.
1889. CORY, CHARLES B. The Birds of the West Indies. Roy. 8vo, pp. 324.
Porto Rican birds are included, mostly on the authority of previous writers. Gives descriptions and bibliographical references.

The following 70 species of birds, not met with by me, have been recorded from Porto Rico by various authors, mainly by Dr. Juan Gundlach.

1. *Colymbus dominicensis*. Taylor, 1864; Gundlach, 1878.
2. *Sterna maxima*. Gundlach.
3. *Sterna sandvicensis acnflavida*. Gundlach, 1874.
4. *Sterna dougalli*. Gundlach, 1874.

- . 5. *Hydrochelidon nigra surinamensis*. Gundlach, 1878.
- . 6. *Phaethon æthereus*. Sundevall.
- . 7. *Mareca americana*. Gundlach, 1878.
- . 8. *Querquedula discors*. Gundlach, 1874.
- . 9. *Pacilonetta bahamensis*. Gundlach.
- . 10. *Spatula clypeata*. Sundevall.
- . 11. *Dafila acuta*. Gundlach, 1878.
- . 12. *Aythya affinis*. Gundlach, 1878.
- . 13. *Aythya collaris*. Gundlach, 1878.
- . 14. *Erismatura jamaicensis*. Gundlach, 1878.
- . 15. *Chen hyperborea nivalis* (?) = *Chen hyperborea*, Gundlach, 1878.
- . 16. *Dendrocygna arborea*. Gundlach.
- . 17. *Ajaia ajaja*. Gundlach.
- . 18. *Guara alba*. Gundlach, 1878.
- . 19. *Plegadis autumnalis*. Gundlach, 1878.
- . 20. *Botaurus lentiginosus*. Gundlach, 1878.
- . 21. *Ardetta exilis*. Bryant, 1866 ; Gundlach, 1878.
- . 22. *Ardea occidentalis*. Gundlach, 1874.
- . 23. *Garzetta candidissima*. Gundlach, 1878.
- . 24. *Hydranassa tricolor ruficollis*. Bryant, 1866 ; Gundlach, 1878.
- . 25. *Nycticorax nycticorax nævius*. Gundlach, 1878.
- . 26. *Aramus giganteus*. Bryant, Sundevall, Gundlach.
- . 27. *Porzana flaviventris*. Gundlach, 1878.
- . 28. *Porzana carolina*. Bryant, 1866 ; Gundlach, 1878.
- . 29. *Porzana jamaicensis*. "Observado por el Dr. Hall in Bayamon in julio 1879." Gundlach, in MS.—J. A. Allen.
- . 30. *Ionornis martinica*. Bryant, 1866 ; Gundlach, 1878.
- . 31. *Fulica americana*. Gundlach, 1878.
- . 32. *Himantopus mexicanus*. Sundevall, 1869 ; Gundlach, 1874, 1878.
- . 33. *Gallinago delicata*. Sundevall, 1869 ; Gundlach, 1878.
- . 34. *Micropalama himantopus*. Sundevall, 1869.
- . 35. *Ereunetes pusillus*. Sundevall, 1869.
- . 36. *Calidris arenaria*. Gundlach, 1878.
- . 37. *Limosa fedoa*. Gundlach, 1878.
- . 38. *Totanus melanoleucus*. Sundevall, 1869.
- . 39. *Symphemia semipalmata*. Gundlach, 1878.
- . 40. *Numenius hudsonicus*. Gundlach, 1878.
- . 41. *Numenius borealis*. Gundlach, 1878.
- . 42. *Squatarola helvetica*. Gundlach, 1878.
- . 43. *Charadrius dominicus*. Gundlach, 1878.
- . 44. *Ægialitis meloda*. Gundlach, 1878.
- . 45. *Ægialitis semipalmata*. Gundlach, 1878.
- . 46. *Ægialitis wilsonia*. Gundlach, 1874.
- . 47. *Arenaria morinella*. Recorded by Gundlach. There was a specimen in a San Juan collection, but the locality was hardly sure.
- . 48. *Jucana spinosa*. Gundlach, 1878.

- . 49. *Columba corensis*. Gundlach, 1878.
- . 50. *Columba inornata*. Gundlach.
- . 51. *Buteo platypterus*. Gundlach, 1878.
- . 52. *Falco peregrinus anatum*. Gundlach, 1878.
- . 53. *Falco columbarius*. Sundevall, 1869; Gundlach, 1878.
- . 54. *Coccyzus erythrophthalmus*. Gundlach.
- * 55. *Antrostomus vociferus*. Clark P. Streater shot a female, recorded by Cory (Auk, 1889, p. 276).— the only record to date, apparently.
- * 56. *Chordeiles virginianus minor*. Skin in the National Museum from the San Juan collection; locality doubtful.
- . 57. *L m ornis viridis*. Gundlach, Cory, etc. Peculiar to Porto Rico
- . 58. *Eulampis holosericeus*. Recorded by Gundlach. There a two skins in the National Museum from Culebra.
- * 59. *Trochilus colubris*. Gundlach, 1878.
- * 60. *Bellona exilis*. Cory, 1886-88.
- * 61. *Tyrannus tyrannus*. Cory says: "Accidental in Cuba, Porto Rico? San Domingo?"
- 62. *Pyrrhomitris cucullata*. Gundlach, 1878. (Introduced.)
- 63. *Hirundo erythrogaster*. Gundlach, 1878.
- 64. *Tachycineta bicolor*. Gundlach, 1878.
- 65. *Riparia riparia*. Gundlach, 1878.
- 66. *Virco olivaceus*. Gundlach, 1878.
- 67. *Dendroica caerulescens*. Gundlach, 1878. Evidently not common in Porto Rico.
- 68. *Dendroica striata*. Gundlach, 1878.
- 69. *Dendroica dominica*. Gundlach, 1878.
- 70. *Geothlypis trichas*. Gundlach, 1878.

MIGRATION OF RICHARDSON'S GROUSE.

BY A. W. ANTHONY.

IT WAS recently my fortune to spend several months within the range of Richardson's Grouse, and to witness its very extensive migrations to and from its breeding grounds, migrations so dissimilar to anything with which I am familiar in the other closely allied species, I have thought my notes on the subject worthy of record.

In order that the character of the migration may be more fully understood, it is necessary that I give a somewhat detailed description of the region over which my observations extend.

The mining camp of Sparta, which was the base of my operations, lies at the lower edge of the pine belt at 4100 feet altitude at the base of the Powder River Mountains and about fifteen miles west of Snake River in eastern Oregon.

North of the camp, the ridges, which for the most part trend north and south, are cut by the deep cañon of Eagle Creek. Running easterly, cutting a gap in the heavy growth of pine, tamarack and fir, of from five hundred to one thousand feet in depth and half a mile in width north of the Eagle, the ridges of the main range rise to approximately eight thousand feet above the sea, dividing the waters of Powder River from those of the Wallow. In these higher altitudes is found the true home of Richardson's, Franklin's and the Gray Ruffed Grouse.

South of Sparta the country falls away rapidly in a series of sage-covered benches and ridges to Powder River, from which it rises with equal rapidity to the divide between its waters and those of Burnt River, known locally as the Lookout Mountains.

The higher parts and deeper cañons of this range are well wooded with pine and fir, but from information furnished by the residents, no grouse winter there.

On the first of March, 1902, when the first of the migrating grouse made their appearance along the edge of the timber north of Sparta, the snow was from two to four feet in depth, though the lower slopes near Powder River were bare and had begun to show the first signs of sprouting grass. Snow squalls and rough

weather seemed to check the southward flight until about the 10th, although a few birds were passing over daily. The tracks on the snow bore ample testimony as to the manner in which the migration was made.

From the higher slopes north of Eagle Cañon, the birds sailed until the rising ground brought them to the surface of the snow on the south side of the creek, usually well above the cañon. From this time until the highest point of the ridge south was reached the journey was performed on foot. Immediately north of Sparta lies a conical peak known as Baldy, some seven hundred feet above camp, the highest point in the ridge south of Eagle Creek. From the top of Baldy, and in an area not to exceed one hundred feet square, I think fully eighty-five percent of the grouse passing over Sparta take their departure. From east, north and west up the steep, snowy slopes hundreds of trails led toward the top and not one could be found leading downward. The flight from the top of the peak was almost invariably undertaken at about sunrise or sunset. It is only when birds are disturbed and driven from the peak that they will attempt to cross to the southern ridge during the middle of the day. Throughout the day grouse are arriving along the upper slopes of Baldy, singly, in pairs, and small flocks that have perhaps formed since the southward march began, as I think they do not winter in company, but the flight from the peak is usually in flocks of from a dozen to a hundred birds. Though the ridge south of Sparta is four hundred feet or more lower than the top of Baldy, it is fully a mile and a half distant in an air line, and the flight is seldom sustained to carry the birds to the top. Usually they alight on the snow half way up the slope, and after a few moments' rest, continue the journey on foot; those passing over in the evening spend the night, I think, in the pines, the last of which are seen along this divide; but those arriving in the morning soon pass on, walking down any of the small ridges leading toward Powder River. From the lava cliffs, which form the cañon along this part of the river, they fly across to the lower slopes of Lookout Mountains, up which they walk, continuing the migration as far, at least, as the valley of Burnt River.

On arriving at the first bare ground, gravel is eagerly sought

for, after which the tender green shoots are greedily devoured, and the remainder of the migration is much more leisurely performed.

The first birds which I saw the past spring were males, but I could not be sure that either sex preceded the other in migration. A few birds undoubtedly remain and nest throughout the timbered region of Powder River Mountains, but the percentage is small indeed compared with those that nest on the bare sage plains along Powder and Burnt Rivers. Many of the nests are placed in the shelter of the scattered growth of chokecherry, aspen, or cottonwood that fringes the water courses tributary to the river; and a few of these nests may produce young that reach maturity, but fully as many birds lay in the shelter of a bare rock, or scanty sage brush in the open plain, in company with Sage Grouse; and fortunate indeed is the bird, nesting in such location, that raises its young. In a circuit of not over six miles from my camp on Powder River the past May, were ranged not less than twenty thousand sheep which tramped out the nests so completely, that, while finding dozens of broken nests, I saw not one that had not been destroyed, of either Richardson's or Sage Grouse, and only one young bird. Nevertheless, many of them do escape, as their numbers testify, although I am told, on good authority, that there are very few in comparison with their former numbers.

The love note of the male Richardson's Grouse bears no resemblance to that of its near kinsman, the Sooty Grouse of the Cascade and Coast Ranges. From a perch in a tall fir, the latter utters a series of hoots, deep and throaty, while the subject of the present sketch has, so far as I have heard, but a single nasal toot, loud and far reaching. When uttered the bird is usually strutting on the ground before a member of the gentle sex, with the tail spread and elevated and the wings drooping, resembling nothing so much as a turkey gobbler in miniature. The note is uttered as, with lowered head and threatening mien, he rushes at the hen, or perhaps at an intruding rival.

The return migration is less pronounced in its beginning, and more gradual in its progress. Toward the last of July the broods of well grown young, attended by the adults, begin to appear along the ridges, returning as they came by walking invariably up to the

tops of the hills and ridges and as invariably flying as near to the top of the next as their gradually descending flight will carry them. Before the middle of August, the migration is in full swing, and flocks are seen each evening, passing over Sparta. Frequently they alight in the streets and on the house-tops. I recall with a smile the memory of a flock of a dozen or more which lit one evening in front of the hotel. For a time pistol bullets and bird shot made an accident policy in some safe company a thing to be desired, but strange to relate none of the regular residents of the town were injured. The same may be said of most of the grouse, though one, in the confusion, ran into the livery stable and took refuge in a stall, where it was killed with a stick.

Straggling flocks from south of Powder River prolong the fall migration until near the first of October, after which none are seen below the high elevations north of Eagle Creek.

AN ORNITHOLOGICAL VISIT TO LOS CORONADOS ISLANDS, LOWER CALIFORNIA.

BY J. GRINNELL AND F. S. DAGGETT.

ITINERARY.

TWENTY miles due south of Point Loma, near San Diego, California, and half that distance from the Lower California coast, in Mexican waters, is a group of small islands known as Los Coronados Islands. The group consists of four principal islands with smaller outlying rocks, some of which are only completely separated from the main islands at high tide. The largest, or South Island, is a huge ridge some two miles long and of varying width. The sides are precipitous and impossible to scale except at the few favorable points. The backbone presents an irregular skyline like the back of a dromedary. The southern extremity, about six hundred feet high, ends in a bold promontory. At the north the ridge ends in detached rocks. A cove on the east side, about

one third distant from the north end, affords shelter with good anchorage for small craft, and at present is the landing place of a launch which makes a trip to the island from San Diego whenever five or more persons wish to enjoy the fishing, which in these little frequented waters is said to be unexcelled.

About a mile north of South Island appears a jagged point of land, little more than a great irregular rock, and scarcely a fifth of a mile in extent. Lying between these two, though rather out of line to the westward and nearest the latter, is another somewhat larger mass of rock. Both of these together are known as Middle Islands.

- Away to the north some four miles, and most inaccessible of all, lies the fourth island, which completes the group and is called North Island. It is almost a duplicate of South Island, if anything, more rugged, but not so large. Red sandstone crops out in places, with here and there small caves and overhanging shelves, a feature evidently attractive to many seabirds. An entire absence of water on any of the islands during the long dry season prevents the existence of goats, foxes and other land mammals usually present on the larger islands off our southern coast. North Island, however, is literally overrun with mice. These and the land birds must be able to do without water unless they can drink the salt sea water.

On August 6, 1902, we availed ourselves of an opportunity to visit the Coronados Islands in the launch rather than trust to the uncertain moments of sailing craft, heretofore the only means of reaching the islands. A few miles out from the pier, at Coronado Beach, opposite San Diego, whence we embarked, we began to meet with birds, singly and in small companies. Cormorants, gulls and pelicans scattered before the sharp puff of the launch, while several Forster Terns seemed to be attracted for a minute, eyeing us curiously before flying off. As we approached South Island, bird life made itself more apparent, the surface of the water being dotted with cormorants and pelicans, many of them being young-of-the-year. Heermann gulls in immature plumage, recent arrivals from their breeding grounds far to the south, kept in constant view. Great patches of white on the rocky headlands and outlying rocks indicated favorite roosting places.

Immediately upon our arrival at South Island we struck out in the skiff, towed over for this purpose, to visit the easternmost of the two Middle Islands which looked particularly favorable. We rowed out of the cove and coasted along the rocky shore, a favorite place for turnstones and oystercatchers, past the detached ledges at the north and where pelicans and cormorants roosted to the water's edge, and finally headed directly across the intervening channel, swerving now and then to avoid masses of kelp. As we neared our objective point several oystercatchers came flying out to meet us, with their loud cries, and in one of these we recognized *Hematopus frazari*, a species neither of us had ever before seen. Making a landing even in calm weather is attended by a feeling of uncertainty, for one has to select a shelf of rock where the water deepens at once, so that the boat will not be thrown down hard against submerged pinnacles by the receding swells. One has to swing the boat in just right on the top of a wave and leap to the exposed rock at the proper moment. We managed to make a dry landing, and get our boat safely hauled up on a flat rock. Six hours later the tide had fallen, and we experienced much difficulty in getting the skiff back to the water uninjured. But such little experiences, if not too serious, lend continued interest to a short vacation trip like ours. This small island proved of unexpected interest, for here we found an accessible breeding colony of petrels. The afternoon was entirely occupied in digging out and taking care of these birds, their young and eggs. One of us made the circuit of the island, meeting with oystercatchers, turnstones, and tattlers on the partly exposed reefs, their feeding grounds. We started back across the channel at dusk. Flying-fish, startled by the oars, darted past us with wonderful velocity, often passing uncomfortably near. Cormorants and pelicans left the rocks as we glided by, and our entrance to the cove was heralded by the weird cry of some disturbed gull.

The next morning, August 7, we made an early start for North Island, this time leaving both Middle Islands well to the left. Cutting through the belt of kelp, which completely girdles North Island, we made a landing at about the center of the east side. Here a short inlet leads to an amphitheatre-like slope which rises steeply to the ridge several hundred feet above. The unusually

rugged nature of this island makes it the favored one of the group for the larger seabirds, thousands of which annually nest here. We spent the forenoon in climbing about the rookeries and examining the nesting sites, most of which were by this time abandoned. Our visit was much too late, for most of the young had left. This locality would furnish many an interesting object for the bird photographer during April and May. At noon we returned to the cove at North Island, where the launch met us, and in the evening of the same day we were back at San Diego with many hours of tedious bird-skinning to look forward to.

The following is a more detailed account of all the birds we found at Los Coronados Islands.

NOTES ON SPECIES.

1. *Ptychoramphus aleuticus*. CASSIN AUKLET.—Large flats of soft ground near the top of North Island were percolated with burrows, larger than the normal ones of petrels. Many were dug into but proved empty save for fragments of white egg-shells and in one case a dead young Cassin Auklet. Large numbers of this species evidently breed here earlier in the year.

2. *Larus occidentalis*. WESTERN GULL.—This species was numerous about all the islands. At North Island clouds of fully fledged young and adults kept circling about overhead during our stay there. A few young still unable to fly were met with toward the south end of this island. These were possessed of remarkable agility in scrambling among the rocks into places of concealment.

3. *Larus heermanni*. HEERMANN GULL.—Many gulls of this species were congregated over the kelp beds among the islands. All seen were in the dark-headed, immature plumage, not a single adult being observed. These were all probably northward migrants from some winter breeding ground far to the southward.

4. *Oceanodroma melania*. BLACK PETREL.—This species was breeding sparingly on Middle and North Islands in company with the Socorro Petrel. We obtained but four specimens, each with an egg. The four eggs were white, though more or less nest-soiled, and unspotted. They measured, in inches, 1.50×1.04 , 1.44×1.03 , 1.37×1.08 , and 1.52×1.02 , or, in millimeters, 38×26.7 , 36.7×26.4 , 35×27.5 , and 38.6×26 . Three of these eggs were on the point of hatching, the other being infertile. The nesting burrows of the Black Petrel seemed to us indistinguishable from those of the Socorro Petrel described beyond. Bonaparte's *Procel-laria melania* (Compte Rendu, XXXVIII, April 1854, p. 662) was described

without any more definite locality than "California" being indicated; but as many of Delattre's birds are stated to have come from San Diego, it seems probable that the type of *O. melania* was from this vicinity.

5. *Oceanodroma socorroensis*. SOCORRO PETREL. — The Socorro Petrel was found breeding commonly on both North and Middle Islands, but on the latter they were most accessible, and here on the afternoon of August 6, we secured by continuous hard work twenty-four adults, with many young and eggs. This island presents two jagged peaks about a hundred feet high, with a sag between the two. To one side of this saddle is a basin perhaps two hundred feet across unevenly edged with ragged ledges. The bottom of the basin farthest from the saddle has been undermined by a subterranean channel connecting with the surf on the outside of the wall. Here one can look down thirty feet or more and see the water surging back and forth with the swell. The rest of the basin sloping up to the saddle is covered by disintegrated rock from the surrounding walls, and supports a scanty growth of dwarfed 'buck-thorn' bushes. Where this bush is thickest a few inches of peaty soil has accumulated and this we found to be a favorite burrowing place for the petrels. Other parts of the island were also occupied, but in those places the burrows usually ended underneath or between heavy fragments of rock and so were mostly impossible to reach. We were first made aware of the presence of the colony by the strong and characteristic odor of petrel oil, for of course not a bird is to be seen above ground during daylight. Following the scent we soon found the openings, generally more or less hidden by weeds or stones. A cursory survey showed that the basin was honey-combed with burrows. In the loose talus of the slopes they extended directly down into the ground, turning aside here and there to avoid pieces of rock, and ending, where further excavation had become impossible, in a cavity about twice the diameter of the main burrow. Those in the more level ground were often entirely concealed by wide spreading bushes which had to be cut away before the entrance could be reached. Otherwise these latter were easy of access, for the peaty, fibrous nature of the soil rendered shallow burrows possible, and such were easily uncovered by sliding the hand in and lifting up the top soil. The terminal chambers were larger here than in the burrows among the rock fragments. Often two burrows crossed or united, but always the occupants were in separate terminal cavities. The shortest burrow did not exceed twelve inches in length, the first lifting up of the top disclosing a Socorro Petrel and egg. The longest observed was in stoney ground, and zigzagged about so that in all its windings it extended fully six feet. The nest cavities sometimes showed a sparse flooring of fine twigs and grass, but just as often they were altogether bare of any lining. Most of the nests contained downy young, from newly hatched ones to individuals in which the wing and tail feathers were more than half grown. The juvenals were uniformly smoke gray in color not obviously different from corresponding ages of the Leach Petrel. Perhaps some of these belonged to

the Black Petrel, for an adult was never found in a burrow with a young bird more than a day or two old. But in some sixteen of the burrows there was an egg, in which case one of the parent birds was brooding, either male or female, indifferently. The Socorro Petrels' eggs were white, and either immaculate, or showing a faint ring of lavender and cinnamon dots around the larger end. Nine examples average, in inches, 1.20×0.90 , or, in millimeters, 30.5×23 .

Among our skins of *O. socorroensis* are four which show more or less white on the rump. One of these (σ , No. 4331, Coll. F. S. D.) has the lateral upper tail-coverts from base to tip pure white; so that the rump may be described as white with a dusky median stripe. This specimen is in this respect not distinguishable from some examples of *O. leucorhoa*, and in fact the only difference apparent to us is a scarcely perceptible darker shade to the general plumage. Another specimen (No. 4333, Coll. F. S. D.) has only the outer webs of the lateral rump feathers whitish. Another (No. 5246, Coll. J. G.) has a still more restricted edging of white; while one more (No. 4322, Coll. F. S. D.) has merely a trace of pale edging. All the rest of our series of twenty-four specimens have the rump uniform sooty brown like the back. This variation toward the white-rumped condition has been noted in this species before (Anthony, Auk, XV, 1898, pp. 37, 38), and seems to be purely individual. Yet it may reasonably serve to indicate probable recent origin from a widespread, white-rumped ancestor like *O. leucorhoa*, which *O. socorroensis* otherwise approximates so closely. A comparison of specimens of *O. socorroensis* with the fine series of *O. homochroa* in the California Academy of Sciences collected by Leverett M. Loomis on the Farallones, shows the differences between these two forms to be slight but constant, consisting in somewhat paler color and smaller size of the latter.

6. *Sterna forsteri*. FORSTER TERN.—Several were seen flying about the launch while we were approaching and yet some distance from South Island.

7. *Phalacrocorax auritus albociliatus*. FARALLONE CORMORANT.—Several pairs were breeding on the south end of North Island. The nests were built up quite substantially on rocks and bushes near the summit of the ridge. Two nests contained two and three eggs respectively, while several others had small young. This species builds separately from the Brandt Cormorant, none of which were seen in company with the former.

8. *Phalacrocorax penicillatus*. BRANDT CORMORANT.—This was the most abundant cormorant in the vicinity, and many had evidently nested around the sides of North Island, where numerous empty nests were noted.

9. *Pelecanus californicus*. CALIFORNIA BROWN PELICAN.—Large numbers were always to be seen about the islands, either roosting on outlying rocks or going and coming in undulating lines from their feeding grounds somewhere up the mainland coast. A big colony had bred on North Island, for nests were numerous there at the south end. Most of the young were full grown and able to fly, but a few were found still in a

more or less helpless state. One nest contained two young about half grown. On being approached they tumbled out precipitately, falling all in a heap. They soon righted themselves, however, and regained their wonted composure with a ludicrous expression of gravity.

10. *Heteractitis incanus*. WANDERING TATLER.—A lone individual was observed on August 6, at the edge of the surf on Middle Island.

11. *Actitis macularia*. SPOTTED SANDPIPER.—Two individuals were seen on South Island on August 6. They were feeding along the rocks at the water's edge.

12. *Numenius hudsonicus*. HUDSONIAN CURLEW.—Two were noted flying over South Island on August 7.

13. *Arenaria melanocephala*. BLACK TURNSTONE.—About a dozen were seen about Middle Island on the rocks at the edge of the surf.

14. *Hæmatopus frazari*. FRAZAR OYSTERCATCHER.—One was seen on North Island and another secured from Middle Island. This specimen is a male in adult plumage and bears out well the characters assigned to this form by Mr. Brewster.

15. *Hæmatopus bachmani*. BLACK OYSTERCATCHER.—Several pairs of this species were seen about Middle and North Islands, all adults, but from their anxious behavior we judged there must be young about. As we approached the former island two Black and a Frazar Oystercatcher came out circling together around our skiff with the usual loud cries.

16. *Haliaeetus leucocephalus leucocephalus*. BALD EAGLE.—One was seen at South Island. We were told that a pair had a nest there.

17. *Falco anatum anatum*. DUCK HAWK.—Duck Hawks were seen flying over North and Middle Islands. On the highest ridge of the latter were many remains of gulls for which we thought Duck Hawks might be accountable. In several cases the skins of the victims were neatly turned inside out over the head leaving the attached skeleton picked clean.

18. *Corvus corax sinuatus*. AMERICAN RAVEN.—A raven was seen flying over Middle Island, and another near the cove on South Island.

19. *Salpinctes obsoletus*. ROCK WREN.—Rock Wrens were observed on each of the three islands visited. They seemed to be most numerous on North Island where they were seen skipping about among the nests in the old pelican rookery, as well as along the stoney ridges. The specimens secured are all in worn juvenal plumage, or else in the midst of the annual moult. No differences are evident to distinguish these from mainland examples.

20. *Carpodacus clementis*. SAN CLEMENTE HOUSE FINCH.—House Finches were fairly common on South Island, and perhaps twenty were seen on Middle Island. But on North Island only a single individual was discovered, though the vegetation and general conditions on the three islands appeared about the same. On Middle Island, on August 6, a nest was found in a ledge of rock overhanging the petrel grounds. The formation was a sort of conglomerate, showing many holes where smooth cobble-stones had fallen out. In one of these natural cavities, ten feet

above the base of the ledge and overhung by a projecting slab, was a linnets' nest containing small young. The nest consisted of dry remains of ice-plant amassed to fit the cavity, while the cup-shaped depression was lined with gull feathers. The three young were only about one-third grown, though possessed of lusty voices which served to indicate their whereabouts. On the same island was a flock of linnets composed mostly of full-grown juvenals. The specimens secured agree in differing decidedly from the mainland form. They seem to be identical with the San Clemente Island form, for they possess the bulky bill and heavy brown streaking characteristic of *clementis*. An adult male taken on Middle Island (No. 5236, Coll. J. G.) has the bill as large as the largest in an extensive series from the Santa Barbara Islands.

21. *Melospiza coronatorum*. CORONADOS SONG SPARROW.—We found Song Sparrows on all of the three islands visited. On South Island juvenals were seen along the path which leads back from the 'hotel' at the cove. On the Middle Island, where we found the petrel colony, an old and weather-beaten nest was found under a bush. This contained a faded but still identifiable egg-shell with contents dried. On North Island Song Sparrows were fairly common, and here on August 7, we obtained twelve specimens. As we landed, an individual was fearlessly hopping close at hand among the boulders almost at the edge of the surf. Most of the Song Sparrows, however, were seen higher up toward the crest of the island, where they were haunting the sparse growth of shrubs on the shaded northeast slope. We saw no trace of fresh water anywhere, and the scanty vegetation presented anything but an inviting appearance. Yet here we heard the familiar notes and full song of these birds which on the mainland keep so close to verdant water courses and damp lowlands. The Rock Wren, always a bird of the driest localities, did not seem out of place, but the Song Sparrow seemed altogether foreign to such surroundings. Strange that the latter should accommodate itself to a desert place like this, while truly dry-land birds like *Amphispiza*, *Aimophila*, and *Pipilo* are absent altogether. Nevertheless here were the plastic Song Sparrows, and our specimens show that this colony, isolated, for we wish we knew how many decades, has not remained indifferent to its unique environment. Certain constant characters are presented which, though doubtless considered by some as 'trivial,' seem to us significant, and therefore entitle the form to a distinctive name.

Melospiza coronatorum, new species.

SPEC. CHAR.—Most nearly resembling in coloration *Melospiza clemente*, and general size about the same, but tarsus decidedly shorter and bill smaller; differs from *Melospiza cinerea cooperi* of the adjacent mainland in much paler ground color, narrower streaking and smaller bill.

TYPE.—♂ adult, No. 5232 Coll. J. G.; Los Coronados Islands (North Island), Lower California; August 7, 1902.

DESCRIPTION OF TYPE (in complete newly acquired adult annual plumage).—Superciliary stripe conspicuously olive-gray, becoming pure white in the supraloral region; median crown stripe posteriorly drab-gray, becoming white next to the culmen; lateral crown stripes burnt umber; the whole top of head between the superciliary stripes narrowly streaked with black; postocular stripe burnt umber streaked with black; rictal streak black mixed with burnt umber; suborbital and loreal regions whitish flecked with black; auriculars drab-gray; malar stripe white faintly tinged with cream-buff posteriorly; submalar streak black mixed posteriorly with burnt umber; chin and throat pure white, with a few sooty feather-tips; sides of neck drab-gray and hind neck drab, both obscurely dusky streaked; ground color of back and rump broccoli brown; rump immaculate, but back and upper tail-coverts narrowly streaked with black; to be more explicit, an interscapular feather has a black shaft-streak margined narrowly with hazel, the rest of the exposed feather externally being drab; breast and sides streaked with black, each exposed feather bearing a cuneate shaft-streak margined on either side very narrowly with hazel; belly and anal region pure white; flanks and crissum pale clay color streaked with sooty brown; tail sooty brown externally edged with pale mars brown; wing-coverts and quills centrally sooty brown edged with pale mars brown, the coverts and secondaries tipped with pale drab.

MEASUREMENTS OF TYPE.—Wing, 2.50; tail, 2.90; tarsus, .77; hind toe and claw, .54; middle toe and claw, .80; bill from nostril, .34; culmen, .43; depth of bill at base, .24.

RELATIONSHIP.—A comparison of this with other members of the adaptive *Melospiza cinerea* group shows it to be nearest the two California insular forms, *clementæ* and *graminea*. The coloration seems to be much alike in the three cases; at present nothing can be safely stated on this point, for all the material at hand from the Santa Barbara Islands is in worn summer plumage (March to June). In general size *coronatorum* is nearer *clementæ* than *graminea* though with smaller bill and feet than either. It is quite significant that the Coronados Islands form should thus present characters much more like those of the form on San Clemente Island, seventy miles to the northwestward, than like those of the mainland race twelve miles at most to the eastward. *Coronatorum* differs from *M. c. cooperi* of the adjacent mainland in smaller bill, paler coloration and much narrower streaking. The differences from the other California races are still more conspicuous, so that further comparison may not be drawn. The following measurements indicate the difference in proportions between the three insular races. It must be kept in mind that the specimens of *clementæ* and *graminea* are in worn plumage, so that more or less wearage (say 3%) should be added to the wing and tail lengths given. Most of the *coronatorum* skins are in complete new fall plumage. The dimensions are given in inches, instead of millimeters, because most of the published measurements of California Song Sparrows have been in inches.

<i>M. coronatum</i>		Wing.	Tail.	Tarsus.	Hind toe and claw.	Bill from nostril.	Culmen.
5232	Coll. J. G.	♂ ad. an.	2.50	2.90	.77	.54	.34
5231	" "	" "	2.53	2.90	.77	.55	.34
5229	" "	♂ 1st an.	2.50	2.75	.75	.53	.32
5228	" "	" "	moulting		.67	.53	.30
5230	" "	♂ ad. an.	2.31	2.67	.80	.60	.32
5233	" "	juv.	2.33	2.57	.75	.54	.32
5362	Coll. F. S. D.	♂ "	2.38	2.72	.68	.52	.31
5370	" "	♂ "	2.50	2.90	.80	.59	.33
5365	" "	♂ "	2.35	2.71	.68	.54	.34
5372	" "	juv.	moulting		.77	.57	.32
5396	" "	" "	2.42	2.72	.77	.53	.31
5416	" "	" "	2.23	2.52	.72	.53	.31
<i>M. graminea</i>							
		Av. 7 ad. ♂♂	2.39	2.53	.83	.57	.35
		Av. 3 ad. ♀♀	2.30	2.50	.79	.56	.34
		Av. 3 juvs.	2.41	2.50	.84	.57	.32
<i>M. clemente</i>							
		Av. 10 ad. ♂♂	2.53	2.78	.88	.57	.37
		Av. 3 ad. ♀♀	2.40	2.64	.84	.57	.35
		Av. 3 juvs.	2.49	2.75	.84	.59	.33

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Zonotrichia leucophrys intermedia (= *Z. l. gambeli*) recorded (p. 11) from Los Coronados Islands without comment. This species and a few others may be expected to regularly visit the islands in winter.

1883. BELDING, L. Catalogue of a collection of Birds made at Various Points along the Western Coast of Lower California, North of Cape St. Eugenio. [Edited by R. Ridgway.] < Proc. U. S. N. M., V, March 21, 1883, pp. 527-532.

On pages 528 to 529 occurs a brief description of Los Coronados Islands, where "a few birds only were taken . . . the more important of which are the following": *Phalacrocorax penicillatus*, *Hæmatopus palliatus* (= *H. frazari*) and *Hæmatopus niger* (= *H. bachmani*); only these three are mentioned.

1888. BREWSTER, W. Descriptions of supposed New Birds from Lower California, Sonora and Chihuahua, Mexico and the Bahamas. < Auk, V, January, 1888, pp. 82-95.

Hæmatopus frazari, p. 84, new species; type from Carmen Island, Gulf of California. Belding's Coronado specimen critically mentioned.

1889. BRYANT, W. E. A Catalogue of the Birds of Lower California, Mexico. < Proc. Cal. Ac. Sc., 2nd Ser. II, December 17, 1889, pp. 237-320.

Pelecanus californicus recorded as nesting on Los Coronados Islands; also mention of the three species found by Belding.

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1899. MCGREGOR, R. C. Notes on California Song Sparrows. < Bull. Coop. Orn. Club, I, September, 1899, pp. 87, 88.

Song Sparrow recorded from Los Coronados Islands, and referred to *Melospiza melodia clementæ* (= *Melospiza coronatorum*).

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Popular account of the birds seen while rowing out to the Islands.

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1902. BREWSTER, W. Birds of the Cape Region of Lower California. < Bull. Mus. Comp. Zoöl., XLI, September, 1902, pp. 1-242, map.

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SUMMARY.

Twenty-two species of birds are known from Los Coronados Islands. Fifteen of these are indigenous, while seven are visitants which breed elsewhere. Only six native land birds have been found, of which the Bald Eagle, Raven, and Duck Hawk are birds of long flight and general distribution. Two of the remaining three are different in certain recognizable features from their relatives on the adjacent mainland ten miles distant, being most like those on San Clemente Island, six times as far away in another direction. The non-indigenous species are all of wide distribution along the Pacific coast of North America.

INDIGENOUS SPECIES.

Ptychoramphus aleuticus.
Larus occidentalis.
Oceanodroma melania.
Oceanodroma socorroensis.
Phalacrocorax auritus albociliatus.
Phalacrocorax penicillatus.
Pelecanus californicus.
Hæmatopus frazari.
Hæmatopus bachmani.
Haliæetus leucocephalus.
Falco anatum.
Corvus corax sinuatus.
Carpodacus clementis.
Melospiza coronatorum.
Salpinctes obsoletus.

NON-INDIGENOUS SPECIES.

Larus heermanni.
Sterna forsteri.
Heteractitis incanus.
Actitis macularia.
Nūmenius hudsonicus.
Arenaria melanocephala.
Zonotrichia leucophrys gambeli.

THE VERNACULAR NAMES OF BIRDS.

BY EDWIN W. DORAN, PH. D.

BOTH the general public and professional ornithologists constantly make use of the vernacular names of birds. This statement is also true of nearly all forms of animal life which are of any economic importance. In fact, vernacular names are perhaps more often employed even by scientists than formerly, and the subject is one of growing importance.

Since this is true, it is important, first, that these vernacular names be correct, that is, formed in accordance with some established principles of construction; and, secondly, that the same name be always applied to a particular species. Though there will generally be several names in use for our commoner animals, especially our game-birds, the same name ought not to be applied indiscriminately to several different birds, as is often done. There ought to be some means of knowing also just what animal is designated by any particular vernacular name: or there ought to be in convenient form for reference a list of all the commoner names applied to any particular species. The whole subject of vernacular names ought to be put upon a scientific basis.

These considerations have led the writer to undertake the preparation of a work which shall give (1) the vernacular name of every bird found in North America, written in correct form, with special reference to the proper compounding of names;¹ and (2) a synonymy of all the vernacular names, with the most common, or most suitable one indicated. This is intended to secure uniformity in writing the common, or popular, names, especially as to the correct compounding of the words; and also to secure, as far as possible, the adoption of a single suitable name for each bird, or at most a limited number of well-selected names. Many birds, especially game-birds, have from five to twenty names, some even more than fifty names. This multiplicity of names produces great confusion.

¹ The author has prepared also a work on 'The Compound Vernacular Names of Insects.' See article in 'Entomological News' for Nov., 1902.

The importance of this subject is manifest to all. One of the most noted ornithologists in this country recently in a private letter to the writer said: "It is a subject which has been much neglected, and I am glad you are taking it up. The matter of compound names has given me not a little bother, and the question of hyphens still more." If the subject has given trouble to men of the highest rank, certainly younger and less skillful workers will find still more trouble.

There is not only a great lack of uniformity in writing the compound vernacular names of birds; but, with regard to many names, a majority of the ornithologists seem to have selected incorrect forms. This statement may seem paradoxical, as correct form in speech is determined generally by the majority of the best speakers and writers. However, that does not necessarily mean a majority of the best ornithologists, or best entomologists, but a majority of those who give attention to the selection of correct forms of speech in accordance with certain underlying language-principles.

The design of this paper is to get at the source of not a few incorrect forms by calling attention to what seems clearly a mis-application, or lack of application, of language-principles in many vernacular names in the A. O. U. 'Check-List of North American Birds.' There are about one hundred seventy-five of these names which are manifestly incorrect in form. As this 'Check-List' is the standard for all ornithologists, even in regard to vernacular names, that seems the proper place to begin, though the writer is not unmindful of the great array of ornithological talent he is controverting at the outset.

It is necessary to lay down certain fixed principles and to formulate certain rules as a standard with which to compare these forms which appear to be wrong. The rules given below do not necessarily govern in the formation of all vernacular names of birds, as it seems best to leave the full discussion of the subject to another paper, which will appear later. These are intended to apply especially to the selections from the 'Check-List' which follow; but they are sufficient for all names of the same nature.

The 'Standard Dictionary,' in the Introduction, lays down three general principles for compounding English words. The second, the only one needed for the present purpose, is as follows:

“That abnormal association of words generally indicates unification of sense, and hence compounding in form.”

In accordance with this *principle* I have formulated the following

Rules for Compounding Vernacular Names of Birds.

Write as a compound word:—

1. A general name, used with any other name prefixed for specification and denoting food or prey (cherry-bird, sparrow-hawk);
2. A general name used with any other name prefixed for specification denoting, —
 - a. similarity (quail-dove);
 - b. habit (butcher-bird);
 - c. characteristic (song-sparrow);
 - d. habitat (house-sparrow).
3. Any two or more names or words in joint arbitrary use (road-runner, turnstone).
4. A phrase consisting of an adjective and a noun, together used as a mere name: generally written without the hyphen (redpoll, yellowlegs, goldeneye).

For additional information on these various word-forms and the underlying principles, see ‘The Compounding of English Words,’ by F. Horace Teall. The literature on this subject is very meager.

I have selected from the ‘Check-List’ representatives of the various incorrect forms, giving also the corresponding numbers in a column at the left. At the right is given a reference to the foregoing rule which governs each case. In some cases two or three rules apply. Many words are followed by “etc.” to indicate that several other words of the same group are compounded in accordance with the same rule; for example, all the different kinds of screech-owl, humming-bird, song-sparrow, etc.

LIST OF NAMES.

15	rhinoceros- auklet	2a
29	pigeon- guillemot	2a
39	ivory- gull	2a
51	herring- gull, etc.	1
56	mew- gull	2c
113.1	red- tailed tropic- bird	3
144	wood- duck	2d

147	canvas-back	2a, 3
148	lesser scaup-duck, etc.	2d
151	American goldeneye, etc.	4
162	king-eider	2a
164	velvet-scoter	2a
166	surf-scoter	2d, 2b
169	lesser snow goose, etc.	2a
171.1	bean-geese	2a
175	barnacle-geese, etc.	2a
176	emperor-geese	2a
188	wood-ibis	2d
202	black-crowned night-heron	3, 2b
206	sand-hill crane	3
208	king-rail	2a
211	clapper-rail, etc.,	2c
217	corn-crake	2d
233	stilt-sandpiper	2a
244	curlew-sandpiper	2a
253	greenshank	4
255	yellowlegs, etc.	4
275	ring-plover, etc.	2c
281	mountain-plover	2d
282	surf-bird	2d, 2b
292	mountain partridge	2d
294a	valley-partridge	2d
298a	Labrador spruce-grouse, etc.	2d
301	willow-ptarmigan, etc.	2d
305	prairie-hen, etc.	2d
309	sage-grouse	2d
315	passenger-pigeon	2c
320	ground-dove	2d
325	turkey-vulture	2a
330	everglade-kite	2d
331	marsh-hawk	2d
337b	Saint Lucas redbird	4
350	harpy-eagle	2a
351	gray sea-eagle	2d
355	prairie-falcon	2d
356	duck-hawk, etc.	2d
365	American barn-owl	2d
373	screech-owl, etc.	2c
377	hawk-owl, etc.	2a
381	elf-owl	2a
386	mangrove-cuckoo	2d
417	whippoorwill, etc.	3
420	night-hawk, etc.	2b

423	chimney-swift	2d
428	ruby-throated humming-bird, etc.	3, 2c
444	king-bird, etc.	2a
461	wood-pewee, etc.	2d
490	fish-crow	1a
49Sc	Florida redwing	4
501	meadow-lark, etc.	2d
506	orchard-oriole	2d
515	pine-grosbeak, etc.	2d
519	house-finch, etc.	2d
533	pine-siskin	2d
540	vesper-sparrow	2b
543	lagoon-sparrow, etc.	2d
546	grasshopper-sparrow, etc.	2a
552a	western lark-sparrow	2a
559	tree-sparrow, etc.	2d
581	song-sparrow, etc.	2c
584	swamp-sparrow	2d
585	fox-sparrow	2a
598	indigo-bunting	2a
604	dick-cissel	3
605	lark-bunting	2a
612	cliff-swallow, etc.	2d
613	barn-swallow, etc.	2d
619	cedar-waxwing	2d
635	Bahama honey-creeper	1a
636	black-and-white warbler	3
653	mangrove-warbler, etc.	1b
669	hermit-warbler	2c, 2a
681	Maryland yellowthroat, etc.	4
698	meadow-pipit	2d
702	sage-thrasher	2d
703	mocking-bird	2c
713	cactus-wren	2d
717a	cañon-wren	2d
724	short-billed marsh-wren, etc.	3, 2d
738	mountain-chickadee	2d
759	dwarf hermit-thrush, etc.	2a, 2c
768	mountain-bluebird	2d, 4

ARIZONA BIRD NOTES.

BY HERBERT BROWN.

MY EXPERIENCE with the Elf Owl (*Micropallus whitneyi*) is that during the spring and summer months they home almost wholly in holes made by woodpeckers in the sahuara, or giant cactus. Although so common to the hills and plains of Arizona this cactus does not grow in the immediate vicinity of Yuma. It is, however, plentiful about twenty miles above on the Colorado, in the great washes that slash the mesas at right angles with the river, and along the river bottom bordering the foothills. By comparison with those growing in central and southeastern Arizona these cactus are small, seldom averaging more than thirty feet in height. Nearly all contain woodpecker holes, many of which appear at some time to have been used. They must have been made over a long series of years, or at a time when bird life was more plentiful than now, as not one in fifty have occupants of any kind. During my last two visits to that section I worked the cactus over a large scope of country and was surprised at the poverty of bird life.

May 18, 1902, by the aid of a 21-foot ladder, I climbed my first cactus on the Colorado. It was a prolific tree. In one hole I found an Elf Owl sitting on three partially incubated eggs. In another hole I found her mate, and in still another five young woodpeckers (*Centurus uropygialis*). As this cactus had been so fruitful I very naturally expected to find many others equally so, but did not. I returned everything to their nests. For seven hours four men worked the big ladder on every promising cactus within a radius of several miles, but we found only three additional owls, one of which played 'possum' and escaped; the other two I brought home with me. Both were females, as with one I took three partially incubated eggs, and a fresh egg was found in the box on my return home.

This trip was made wholly for the purpose of satisfying myself as to the presence of the Elf Owl on the Colorado. We were twenty-one hours in making it, as the sun was intensely hot and the road both heavy and rough. Although the object sought had been accomplished I was not very well satisfied with results. A week

later we tried it a second time, under more favorable conditions, as we were but a little more than fifteen hours making it. It differed scarcely from the first in the way of Elf Owls, as but four were taken during the day, and with them two sets of eggs, one of three and one of four. Both sets were partially incubated, but less so than those on the preceding week. With one exception the birds were taken from cactus growing in or close to the edge of the valley.

I expected to have met with some form of Screech Owl, but found no sign of them whatever. I found two partially built nests of the Ash-throated Flycatcher (*Myiarchus cinerascens*), and five nests of young Gila Woodpeckers (*Centurus uropygialis*), and one of Swainson's Hawk (*Buteo swainsoni*). These, with the owls, represent nearly 100 miles of travel and the work of four men for two days, with the thermometer well up to 150 degrees in the sun. I merely mention these things to illustrate the hard work a bird man bumps against on the Lower Colorado. The young woodpeckers were of all sizes and conditions of feather. In one nest, containing three very young birds, I found a fresh egg. The hawk's nest contained two young birds. They left the nest as we approached it, but struck the ground less than fifty feet away. They were a beautiful pair, and encouraged by their screaming parents were full of fight, but by a little maneuvering I managed to get them to the scant shade of a paloverde tree where I left them. The nest was a bulky affair, made of sticks and padded with dead bark. It was built against the body of a cactus and was supported by a pair of curving arms. The partially consumed bodies of a wood rat and a large lizard were on the nest.

I found many bats in the cactus, sometimes a dozen or more in a single hole. They were all of the pale form of *Vespertilio fuscus*, ugly little rascals to put one's hand among. In one cactus I uncovered a whole colony. Every hole chopped into, and there were at least ten of them, swarmed with bats. Finally but one remained to be examined; as it was rather awkwardly situated I was inclined to leave it, and in doing so stated to my companions that owls were too cleanly to associate with such dirty neighbors. I did, however, cut it open and, to my surprise, I found an owl. If it was a case of convenient larder the nest contained no evidence

of it. I might here add that I have never seen unused food in the nest of an Elf Owl, but with Screech Owls such things have been of common occurrence.

I have been more or less familiar with the Elf Owl for the past eighteen years and am, or should be, fairly well acquainted with them. In one day I took over thirty adults, and turned everyone of them loose. In the matter of plumage I never found but one out of the ordinary. It had a black eye disk and black eye. When handled, they are, apparently, as inoffensive as a canary, and will feign death when first taken in the hand, but that it is fully conscious of its surroundings is evidenced by its quick dart for liberty the moment the grip of the hand is relaxed. I once thought that this semblance of death was due to paralytic fear, but after losing a number of birds I came to believe it a wise provision for its preservation. Have often tried the experiment and the little fellows never failed to take advantage of it. Occasionally two, male and female, are taken from the same hole. On the Santa Cruz I saw an owl taken from its nest which contained three of its own and two eggs of the Gila Woodpecker. As it was in possession, it had, undoubtedly, driven away the original occupant. All the eggs were fresh.

For years I was of the belief that adult birds could not be kept alive in confinement. With an abundance of fresh meat before them they would, if permitted, deliberately starve to death. An examination of their stomachs disclosed their food to be largely insects. A small black ant and numerous beetles are, apparently, their principal food. With this knowledge I had no trouble in keeping them alive indefinitely. The six taken up the river enjoyed the best of health during the weeks I kept them here. Two were sent to Los Angeles and died shortly after reaching their destination; the other four were sent to New York and died in transit. Their daily food consisted of crickets, grasshoppers, lizards, small birds and mice. Years ago, before I knew how to properly feed adults, I raised five. When first taken they had been hatched only a few days, but they did well and eventually grew into handsome birds. If I remember rightly I sent them to the Zoölogical Gardens at Philadelphia, but do not know how they fared afterwards.

Outside of the river bottom there is really but little bird life on the Colorado. The rainfall, sometimes, does not exceed a half inch a year. The valley is densely brushed and heavily wooded along the sloughs and banks, but the dead hills give no sign of vegetable life. From twenty to fifty miles above Yuma is a great basin hedged in by detached volcanic mountains. At one time they were covered with pine timber, but are now baked and bare. The wood has become silicified, is hard as adamant and heavy as iron. I have been told by vaqueros familiar with that country, that an occasional tree can still be seen standing, but it has not been my good fortune to see one although I have been five times through the section where they are supposed to be. In the washes, some of which are a mile wide, giant cactus, paloverde, and ironwood make up almost the sum total of vegetation. In May the ironwood (*Olneya tesota* Gray) was covered by dense masses of purple bloom and presented a delightful contrast to the black and brown of the overshadowing hills.

Next year I hope to define the western boundary of the Elf Owl on the California side of the Colorado River.

Red-winged, Yellow-headed and Brewer's Blackbirds, and the Dwarf Cowbird, are the most common of all winter residents in the neighborhood of Yuma, Arizona. Redwings scatter up and down the Colorado and Gila River bottoms and can be found nesting throughout the summer. The Yellowheads and Brewer's go north in the spring and are not again seen till the fall migration has set in. Cowbirds are gregarious the year through. During the summer months, when all respectable birds are paired and nesting, these little black and brown midgets can be seen fifty in a flock, and the work of the pestiferous female is apparent in the nests of nearly all small birds found hereabouts. In the winter they skirmish for food in the town by the hundreds. They are audacious little scamps and are ever ready to take chances with the boldest of blackbirds, and some of the latter will almost suffer themselves to be driven over before they will get out of the way.

That Cowbirds are a recognized nuisance is evidenced by the determination of their afflicted neighbors to rid themselves of honors thrust upon them. Last summer my attention was called

to the three-story nest of a Sonora Yellow Warbler and its efforts not to raise a brood of bastards. The first or lower nest contained one cowbird egg and one warbler egg, the second two cowbird eggs and several broken shells of the warbler, the third contained one egg of each bird and had been abandoned. Between the first and second lot of eggs the nest had been thickly padded; between the second and third lots the padding was not so thick, but was sufficient to thoroughly cover the objectionable eggs. I have seen numerous nests of small birds, most of which contained one or more eggs of the Cowbird. Double nests are quite common, the Cowbird eggs being entirely padded over. One of these double nests was that of a Sonora Yellow Warbler. It was a beautiful thing. The lower nest contained three fresh eggs of the mother bird and one Cowbird egg, the upper one three legitimate eggs. Occasionally, but not often, I have found Cowbird eggs in the nests of larger birds than themselves, notably in those of Abert's Pipilo, but the predisposition is in favor of the nests of vireos, warblers and small flycatchers. This is carried on to such an extent on the lower Gila that it is almost impossible to find a nest of any of the foregoing birds that does not contain one or more of the eggs or young of the Cowbird. To my knowledge more than one hundred eggs of this parasite were taken from nests and destroyed during the past season.

Blackbirds announce their arrival here not later than October first, sometimes a week or two earlier, and from thence on they drift along towards the latter part of the month. Young birds have come in as late as October 20. Their short tails and persistent demands on the other birds for food precluded any mistake as to their age. The Redwings and Brewer's make themselves at home wherever they can get food, but the Yellowheads go lower down the valley and have a fondness for working over refuse in stock corrals, straw stacks and wheat fields. The spring migration commences by the middle of April and by the end of the month nearly all are gone. These dates will hold about good for the average year, but 1892 was different from anything I had heretofore seen. The birds did not get away for a month later. Small bunches of Redwings nest in the willows and arrow weeds on the Gila and make odd visits to their old feeding grounds dur-

ing the early summer, but eventually they disappear and are not again seen till they become due in the fall. During the winter months Redwings, Brewer's and Cowbirds make common cause in the streets and yards of this town. Once in a while an odd Yellowhead can be seen among them, but, as a rule, they flock alone.

Abert's Pipilo is the most common of all pipilos to be found on the Colorado and lower Gila. They are gregarious during the early winter months and, I believe, they go no further south as they are to be found here the year through. I have repeatedly seen large numbers of them together, scratching in the earth and sunning themselves like a lot of quail. May 3, 1900, I found a nest containing five eggs. That is my earliest record for the year, and the only nest I ever saw with five eggs. On July 14, of that year I saw young birds still in the nests. During 1901 I made no record, but for 1902 I made the most complete one ever made in this section of the country. June 12 I found the first nest of this pipilo, it contained three fresh eggs, and on August 3 the last one. It also contained three eggs. As you will observe, there is a difference of a month and nine days between the nesting seasons of 1900 and 1902, and the difference of fully a month in the closing. The young birds seen July 14 were eight or ten days old, and the eggs taken August 3 were fresh. I have no reason to offer for this great difference. There can be no mistake in the matter for the reason that on each of the years named I had a responsible man in the brush with a note book and his sole business was to watch the birds. I am almost certain that two broods of young are raised a year. The nest of this pipilo is somewhat bulky, is loosely made and loosely placed in any convenient fork of tree or bush. The favorite nesting material, hereabouts, is the inside bark of willow and cottonwood. It is torn off in strips, about one quarter of an inch wide, of varying lengths. An average sized nest is six inches in diameter, outside measurement, and four inches deep, three inches in diameter and two and a half inches deep, inside measurement. It is lined with fibrous roots, shredded bark, hair, grass or other convenient material. During their summer molt the birds are ragged and disreputable in appearance.

The American White Pelican (*Pelecanus erythrorhynchos*) has a

playground between here and the Gulf. During the early spring months of 1901 they passed up the river by thousands, but during the spring of 1902 they were much less in evidence. February 28, 1901, they went into camp a few miles above here. To that time I did not think it was possible to see so many pelicans together. They occupied a wide sweep of sand, left by an overflow of the Colorado and, at a distance, resembled great banks of snow. They remained, hereabouts, coming and going, to May first, when they suddenly disappeared and were not again seen till September 17. Those seen during the late spring went directly up the river.

The Little Green Herons (*Butorides virescens*) generally reach here by the middle of April, and by the end of the month they are common both up and down the river. By the middle of June the nesting season is apparently at its best. The nest is a rude platform of twigs, or small sticks, through which the eggs can be seen from below. When possible they are built above the water and generally in the fork of a small tree. I saw one nesting within the town limits of Tucson, but it was the only one of the kind I ever saw in that neighborhood.

On the night of December 15, 1899, there was a heavy fall of rain accompanied by continuous gusts of wind. On the morning following the surface of the river was dotted with numerous bunches of ducks and Pied-billed Grebes. Men and boys shot at everything afloat from both sides of the river, while such as could did their butchering from boats. Both ducks and grebes were confused, and although kept much on the wing, could not be driven away. The Southern Pacific railroad bridge crosses the river directly opposite the town, and, queerly enough, below this bridge the birds would not go. A ferry cable, stretched across the river about 300 yards above the bridge, was a dead line to many ducks, but the grebes were sharper eyed and never collided with it. I was told that six ducks were killed at one time by striking against it. Out of a flock of about a dozen I saw four killed in that manner, two as they flew up the stream and two more as they circled and went down. The feathers would be knocked off in great bunches and they would fall to the water like pieces of lead. But it was of the grebes I wished to write and not of

ducks. They were shot at without mercy, decency or common sense, and although it was tails up at the flash of a gun they were eventually tired down and killed off. The only redeeming feature to the slaughter, if there could be one, was that the Mexicans and Indians used them for food. I estimated one bunch to be 30 feet in diameter, and there were numerous small bunches scattered up the river for at least a quarter of a mile. Since that time I have not seen a half dozen on the river. They can, however, be met with at any time during the year at a laguna of brackish water about fourteen miles above here, where they probably nest. I hope to be able to determine that this spring. The Western Grebes, in limited numbers, are also permanent residents of the laguna. A few occasionally straggle lower down, but not often.

NOTES CONCERNING CERTAIN BIRDS OF LONG ISLAND, N. Y.

BY WILLIAM C. BRAISLIN, M. D.

THE following data for the most part relate to recent occurrences of species more or less rare or uncommon on Long Island. One species or hybrid (*Helminthophila lawrencei*) is here for the first time recorded from Long Island. The note concerning another species (*Larus minutus*) has to do with the occurrence of this bird in North America, as well as on Long Island, for the second time.

Fratercula arctica. A specimen of the Puffin was sent me from Montauk by Mr. Arthur Miller, with a request that it might be identified and its name furnished. The sender stated that but for its poor state of plumage, he should have kept the bird for mounting, as it was to him an ornithological curiosity. It was found on the beach, March 30, 1902. The state of plumage which rendered it an imperfect specimen for mounting rather added to its interest as a 'skin,' since it was due to moult. Its

flight feathers are lacking, the new quills, although sprouting, being as yet rudimentary and entirely incapable of supporting it in the air. The feathers of the breast are largely wanting, leaving the skin well protected, however, by the abundant dark-colored down. Its comparatively helpless condition was doubtless responsible for its having been driven ashore, where it perished in the surf.

Uria lomvia. Brunnich's Murres occurred on the Long Island coast during the winter of 1901-02. Four were obtained from various localities. On Dec. 6, 1901, a female was killed at Sag Harbor on a fresh-water pond. It came into the possession of Mr. Ivan C. Byram a taxidermist of that village, who sent it to me in the flesh. Mr. Robt. R. Peavey of Brooklyn shot one at Rockaway Beach on Dec. 26, and kindly presented it to me. A member of the crew of the Amagansett Life-saving Station, George H. Mulford, found one on the beach, dead, at that place Dec. 30, 1901, and another on March 2, 1902. The last is rather remarkable as a Long Island specimen of the species, in that the feather coloration approaches nearly, if not quite, the full nuptial plumage. The feathers of the chin, sides of the throat and neck are of the dark, sooty color seen in adults collected at their breeding stations. No other skin which I have seen from Long Island has the dark coloring so much developed. This may be attributed to the date of occurrence, which is a late one for the species in this latitude. The bill of this bird is larger than our usual specimens, its depth, in fact, somewhat exceeding the limit for *U. lomvia* as indicated in Chapman's 'Birds of Eastern North America.'

Alca torda. An immature Razor-billed Auk was sent me by Capt. James G. Scott, keeper of the Montauk Point Light, on Nov. 14, 1901. In regard to it he wrote: "The bird I sent you was brought to me by a fisherman, and I think he found it on the beach, for I have found them dead on the beach."

Alle alle. Two little Auks were found by the same member of the Amagansett Life-saving crew referred to above, while patrolling the beach on the evening of December 14, 1901. He wrote me that he had so obtained them and added: "The sea was running very high and I suppose that they were washed in on the beach."

Larus minutus. The occurrence of the Little Gull in North America was regarded with doubt by ornithologists, owing to the absence of any satisfactory evidence, until the absolute record in this journal by Mr. William Dutcher, concerning its occurrence at Fire Island, Long Island, New York, in September 1887 (Auk, Vol. V, 1888, p. 171). After a comparatively short interval the bird has been again taken on Long Island and the record of its occurrence here constitutes the second instance for North America. Mr. Robt. L. Peavey of Brooklyn was fortunate in securing this specimen of *Larus minutus*, which was in company with a flock of Bonaparte's Gulls, some of which were also secured, at Rockaway Beach, May 10, 1902. This rare specimen Mr. Peavey has generously donated to the Museum of the Brooklyn Institute of Arts and Sciences. The plumage is that of the immature bird, just taking on that of the adult. Evidences of the latter are present on the forehead and at the base of the upper mandible which parts are nearly completely clothed in new, black feathers; on the chin at either side a few new, black feathers appear, as also over the eyes and a very few on the crown. Sex, ♀ (determined by Mr. George K. Cherrie, Curator of the Department). Culmen, 90 in.; wing, 8.20 in.

Anser albifrons gambeli. At Sag Harbor I recently had the opportunity of examining the collection of mounted birds of Mr. I. C. Byram, a taxidermist residing there. Among other birds of interest was a fine specimen of the White-fronted Goose. Concerning it he subsequently wrote as follows: "I have looked up the date of the goose, and find that I killed it Oct. 18, 1889. It was feeding in a fresh-water pond near here. My dog started it out of the water and it flew over my head and I killed it."

Olor columbianus. A Whistling Swan was killed at Flatlands, a village within the boundaries of Greater New York, by Asher White, a farmer living there, on Dec. 24, 1901. He had the bird mounted and I recently examined the specimen at his house on Mill Lane. I was informed that the bird had been killed on Flat Creek, one of the tide-water channels emptying into that portion of Jamaica Bay known locally as Flatlands Bay. The father and grandfather of the White who shot the swan, and who also lived here, on occasion 'gunned' for the market, but

never met this species. On the day on which he made this capture he had gone to this creek for water-fowl, where tall grass formed a natural blind. The swan was first seen in flight and took to the water not far off, but out of gun-range. After long waiting, however, it swam within range when the farmer killed it by a heavy charge of shot, with which he was fortunate enough to break the neck of the immense bird.

Accipiter atricapillus. Mr. Byram of Sag Harbor has in his collection of birds a fine adult Goshawk. It was killed at Amagansett March 21, 1899, and mounted by him. He states in regard to this species: "I also had another to stuff, March 1, 1899, which was caught in a trap on Gardiner's Island."

Cathartes aura. Mr. Robt. L. Peavey, of this city, secured a specimen of the Turkey Vulture at Rockaway Beach, June 21, 1902. A former specimen secured by him at the same place, three years previously, I have recorded in this journal (*Auk*, XVII, 1900, p. 70).

Helminthophila lawrencei. At Cold Spring Harbor, Long Island, May 8, 1902, a specimen of Lawrence's Warbler was secured. Nothing except its peculiar coloring was noted as distinguishing it from numbers of other warblers feeding in the same trees with it. The specimen is a male, and seems perfectly typical. This is the first recorded instance of its occurrence on Long Island.

Mimus polyglottos. A Mockingbird, in immature (breast-spotted) plumage was killed on Rockaway Beach Sept. 14, 1902, and kindly presented to the writer by Mr. Robt. L. Peavey of Brooklyn. Another was reported killed here two weeks previously.

THE DIARY OF A CARDINAL'S NEST.

BY GERTRUDE FAY HARVEY.

Plate I.

THE Cardinal (*Cardinalis cardinalis*) is a common bird here in southwestern Ohio, and is with us throughout the year. There is one pair which seems never to leave our neighborhood nor to separate, staying together the year round. Every winter we feed these birds to keep them from want, and every summer we continue to feed them because we hate to stop.

For three years they have built in our garden, the successful nests being in a heavy honeysuckle vine at a little distance from the house. Twice they built the nest close to the porch, but both times they deserted it before the eggs were laid. So, when the birds made a tour of inspection in the conservatory this spring, we had little hope of their settling in so conspicuous a place, or, at least, of their staying to raise their young. The Cardinal has the reputation of deserting his nest for slight reasons.

The Cardinals were first seen in the conservatory on the 13th of April, having entered by an open ventilator in the roof, as all the other windows were closed at that season. Birds often come by accident into the greenhouse, but usually when once inside they make wild efforts to get out, dashing against the glass and flying frantically about. The Cardinals seemed to have come in deliberately, and they showed their superior intelligence by the manner in which they grasped the situation. Walls of glass did not delude them in the least. When their inspection was finished they calmly departed by the little opening through which they had come in.

The next day they came again, and a few days later were noticed to have twigs in their beaks, as though planning a nest. On the 20th of April they selected the site — a fork in a Marechal Neil rose vine, and they began to bring in a great amount of material, which did not take definite shape until the 26th. Throughout the process of building the female gathered the material and did all the work, the male keeping close at her side,



CARDINAL, NESTING IN A CONSERVATORY.
Photographed from Nature.

and accompanying her on each trip. They worked in the morning only. The site was a difficult one for building and a great quantity of stuff was wasted before the foundation was finally established. It was interesting to observe that when a stem fell to the floor instead of lodging in the crotch where it was put, the bird never picked it up, but flew off in feverish haste for another. At one stage of the proceeding there was much more nest on the floor than in the vine. When finished, it was unusually strong and elaborate for a Cardinal's nest, which is apt to be alarmingly frail and slight. They used in it a great amount of paper. The Cardinals' nests which I have examined always contain one or two pieces of paper, but this one had an entire layer of eight or ten pieces. The supports and outer layer were of fine twigs and weed stems, the next layer paper, the next of the thin bark which they peel from grape vines and honeysuckles, and which is characteristic of all Cardinal's nests. The lining was dried grass.

The nest was completed on the first of May and the first egg was laid the next day. Four eggs were laid. The female did all the work of incubation, while the male fed her frequently. Occasionally the female would give a loud whistling call, which the male immediately obeyed, sometimes bringing her food, sometimes taking a stand near by while she went out for herself.

The conservatory in which the nest was built communicates with the dining room by means of two glass doors and with the kitchen by an open window. The nest was on a level with the eyes of a person standing in the dining room and was about five feet from one door and about eight feet from the kitchen window. The position was very exposed, as the Marechal Neil is a spindling vine, and provides not such covert of leaves as the bird usually selects. The female bird, who in the winter is much less bold than the male, was now exceedingly courageous, remaining on her nest while we watered the very plant in which it was fixed. Noises in the kitchen did not trouble her in the least. As soon as the birds began to build we scattered their seed on a shelf near by instead of in the usual place outside. They did not resort to it much until after the young were hatched. After the little ones were flown the old birds seemed to rely upon this supply altogether, coming to it many times a day.

The female began to sit on the nest on the 4th of May. On the 16th three eggs were hatched, the nestlings of equal size and apparently just out, though as I had been absent the day before I cannot say positively. The fourth egg did not hatch and was removed by one of the birds soon after our finding the others hatched. The parents worked together to feed the young, the male at first passing food to the mother bird for them and afterwards feeding them himself. The food was grubs and insects, which the old birds swallowed and gave to the young by regurgitation during the first week. Afterwards it was given directly and it was then interesting to see what large mouthfuls the little fellows could accommodate. When nine days old, one of them swallowed, without choking, a grub two inches long and as large as a lead pencil. The birds were remarkably cleanly, removing all excrement from the nest and carrying it outside of the greenhouse.

On the 24th of May I noticed the young birds growing very restless and trying to get out of the nest, while the mother resolutely pushed them back again. On the morning of the 25th they left the nest, the mother pushing and helping them out. One of the little ones was drowned in a tank of water, another left the greenhouse seemingly urged by the parent birds. The next morning the other left and both were led away to a thicket across the street. For almost a month after that we saw only the old birds who continued to come in for food.

On the 19th of June the father and the young birds, now full-sized, came for seed, which the parent cracked and fed to the young. When the little ones left the nest they were dark brown, with very dark bills. When they returned wings and tail were red, excepting a little brown at the tips, and red blotches were appearing on breast and back, so we suppose both to be males. The bills were still dark. They gave no note but the shrill peep of a young bird. The three came back very often and twice spent the whole morning inside. Often the young birds would come alone and help themselves, though they always demanded to be fed when the father was along. The mother at this time was sitting on a second nest across the street, so we saw her less often than before.

During most of July and August I was away, and on my return there were two sets of young birds, but as they were growing more timid and never appeared altogether, I cannot tell their number. On the whole the year's nests have been more successful than is usual for the Cardinal Grosbeak, and we fondly hope that they will seek the shelter of our roof again next year.



AN EPIDEMIC OF ROUP IN THE CANANDAIGUA CROW ROOST.

BY ELON HOWARD EATON.

Plate II.

ABOUT the middle of December, 1901, a malady broke out among the Crows (*Corvus americanus*) of Ontario County, New York, which, ere spring, had decimated the ranks of the local 'roost.' As soon as winter had fairly begun, reports commenced to come in of Crows which had been "blinded by freezing of their eyes," as the farmers expressed it.

Upon careful examination it was found that the roup had invaded the Ontario flock, and birds were dying daily from its effects. In one field about twenty dead and dying birds were picked up in one day. Nearly every grove or large field within a distance of ten miles from the roosting-grounds displayed one or more dead Crows. Nearly every wandering crow's track in the snow, after circling round and round in an apparently aimless manner, would lead one to a black carcass lying under a tree or against a fence. Usually they sank down with their bills in the snow and their wings very slightly extended, but sometimes they died in a sitting posture with the feathers of the head ruffled up to their fullest extent. Often the birds died in trees, clutching the branches to the last and then falling headlong into the snow or landing on their backs with the wing tips pointing upwards.

All the sick birds were suffering from an acute inflammation of

the pharynx and the anterior portion of the head, including the nostrils and eyes. Often there was a mucous discharge from the nostrils. The eyes were usually blinded by a membrane forming over the exterior of the cornea. Sometimes only one eye was seriously affected, and this was usually the left one, as far as I noticed. If this membrane was rubbed off, the eye looked quite clear again and sight was temporarily restored, but within half an hour the membrane reformed and the patient would flutter about like a bird with the cerebellum destroyed or with the eyes shot out.

That death ensued from the acute disease and not merely from starvation due to blindness was abundantly proved by caring for sick birds and forcing food down their throats, for they died in nearly every instance. While it is true that those birds which survived the disease were, in every instance, birds that had been blinded in only one eye, we believe that this merely indicates that the roup was less severe in those cases, which was the cause at the same time of the slight affection of the eyes and of the bird's recovery.

It was believed by many that these Crows were suffering from having wet snow and sleet freeze on their 'faces' at night, and that one eye often escaped because it was more protected by being tucked under the feathers as the bird slept. There is little to support this theory, in fact it seems almost absurd. There have been many winters much more severe which seemed to have no effect on our crow roosts. The disease was an epidemic. This is further shown by the fact that no serious plague appeared either in the Rochester roost or in that near Niagara Falls.

Nevertheless, the disease disappeared with the coming of warmer weather. A visit to the roost about the last of March failed to discover a single sick bird, although hundreds of corpses were lying about the grove and in the surrounding fields. The last evidence of the disease which I saw was a bird sitting in an open field on the sunny side of the woods on April 6. When approached he flew lazily to a large oak and, lighting on one of the larger branches with some difficulty, proceeded to *rub his right eye on the bark*. The field glass revealed the fact that his eye was badly swollen, and the surrounding skin was partially bare of feathers.



SIX DEAD CROWS, LYING AS THEY FELL, UNDER THE PINES.
Photographed from Nature, Jan. 12, 1902.



SEVENTY-THREE DEAD CROWS, GATHERED FROM A PORTION OF THE
ROOST ONE HUNDRED AND FIFTY FEET IN DIAMETER.
Photographed from Nature, April 5, 1902.

It is probable that one thousand Crows died of this disease during the last winter in Ontario County, but when the roost was visited just before the disbanding in the spring very little difference was noticeable in the immense numbers of birds which gathered at dusk to pass the night in that little grove.

The accompanying photographs (Pl. II) may give a little help in understanding the conditions as they actually existed.

TWENTIETH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE TWENTIETH CONGRESS of the American Ornithologists' Union convened in Washington, D. C., Monday evening, November 17, 1902. The business meeting was held at the residence of Dr. C. Hart Merriam, and the public sessions at the U. S. National Museum, beginning Tuesday, November 18, and continuing for three days.

BUSINESS SESSION. — The meeting was called to order by the President, Dr. C. Hart Merriam. Twenty-one Fellows were present. The Secretary stated that at the opening of the present Congress the membership of the Union numbered 753, constituted as follows: Fellows, 48; Honorary Fellows, 16; Corresponding Fellows, 61; Members, 53; Associates, 575.

During the year the Union lost sixty-five members, nine by death, fourteen by resignation, and forty-two for non-payment of dues. The deceased members include one Fellow, two Corresponding Fellows, one Member and five Associates, as follows: Maj. James C. Merrill, U. S. A.,¹ a Fellow, who died at Washington, D. C., Oct. 27, 1902, in his 50th year; Dr. James G. Cooper,² a Corresponding Fellow, who died at Haywards, Calif., July 19, 1902, aged 72; Emil Holub,³ a Corresponding Fellow, who died at

¹ For an obituary notice, see *Auk*, XX, p. 90.

² For an obituary notice, see *Ibid.*, XIX, pp. 421-422.

³ For an obituary notice, see *Ibid.*, XX, p. 92.

Vienna, February 21, 1902, in the 55th year of his age; Chester Barlow,¹ a Member who died at Santa Clara, Calif., November 6, 1902, at the age of 26; also the following Associates: Clarence M. Morrell, who died at Pittsfield, Me., July 15, 1902, aged 30 years; William H. Daffin, who died at Philadelphia (Tacony), Pa., April 21, 1902; Alonzo M. Collett,³ who died at Denver, Col., Aug. 22, 1902, at the age of 33 years; Aubrey B. Call, who died at Burlington, Vermont, Nov. 20, 1901, and Curtis C. Young,⁴ who died at Port Daniel, Quebec, July 30, 1902, at the age of 28 years.

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

All of the officers were reelected, as follows: Dr. C. Hart Merriam, President; Charles B. Cory and Charles F. Batchelder, Vice-Presidents; John H. Sage, Secretary; William Dutcher, Treasurer; Frank M. Chapman, Ruthven Deane, E. W. Nelson, Witmer Stone, Drs. A. K. Fisher, Jonathan Dwight, Jr., and Thos. S. Roberts, members of the Council.

Harry C. Oberholser, of Washington, D. C., was elected a Fellow; Ernst Hartert, of Tring, England, and John A. Harvie-Brown, of Larbert, Stirlingshire, Scotland, were elected Honorary Fellows; Arthur J. Campbell, of Melbourne, Australia, W. P. Pycraft, of the British Museum, London, Dr. Hermann von Ihering of the Museu Paulista, Sao Paulo, Brazil, and Alfred J. North, of Sydney, New South Wales, were elected Corresponding Fellows. Eighty-four Associates were elected, and the following thirteen persons were elected to the class of Members, namely: Andrew Allison, of Bay St. Louis, Miss.; Dr. William C. Braislin, of Brooklyn, N. Y.; Arthur C. Bent, of Taunton, Mass.; Hubert Lyman Clark, of Olivet, Michigan; Edward A. Goldman, Paul Bartsch, Arthur H. Howell, and Dr. F. H. Knowlton, of Washington, D. C.; Arthur H. Norton, of Westbrook, Maine; Prof. J. Gilbert Pearson, of Greensboro, N. C.; Samuel F. Rathbun, of Seattle, Washington; P. M. Silloway, of Lewiston, Montana; and Prof. C. O. Whitman, of Chicago, Ill.

¹ For an obituary notice, see *Auk*, XX, p. 92.

² For an obituary notice, see *Ibid.*, XIX, pp. 422-423.

³ For an obituary notice, see *Ibid.*, XIX, p. 423.

⁴ For an obituary notice, see *Ibid.*, XX, p. 94.

Drs. Allen, Dwight, Merriam, and Richmond, and Messrs. Brewster, Ridgway and Stone were reelected 'Committee on Classification and Nomenclature of North American Birds.'

PUBLIC SESSION. *First Day.* The meeting was called to order by Vice-President Cory.

The first paper of the morning was 'Notes on the life of Edward Harris, with extracts from his Journals,' by Geo. Spencer Morris.

Next came 'Summer Bird Life of Eastern North Carolina,' by Prof. J. Gilbert Pearson. This paper provoked much discussion and many inquiries were made regarding the protection of birds in North Carolina. Dr. Bishop spoke of the slaughter by marketmen and milliners' agents of the species found along the coast, and Mr. Dutcher on proposed legislative bills for the preservation of such birds. Dr. Palmer told of the immense number of ducks annually taken to the northern markets from the North Carolina coast. He thought the upland as well as the shore birds needed protection. Prof. Pearson referred to the destruction of the Bobwhite and of the illegal methods used in shipping them north.

The third paper was 'The Development of the Pterylosis,' by Hubert Lyman Clark. Remarks followed by Dr. Allen, Messrs. Chapman, and Lucas, and the author.

The afternoon session was devoted to the following papers, all being illustrated by lantern slides, viz.: 'Comparison of the Bird Life of Gardiner's Island and Cobb's Island,' by Frank M. Chapman; and 'A Contribution to the Life History of the Herring Gull,' by Wm. Dutcher.

Second Day. The meeting was called to order by the President. The first paper, by Dr. J. A. Allen was entitled 'The A. O. U. Check-List — its History and its Future.' Remarks followed by the Chair.

The second, 'A glance at the Historical side of the Check-List of North American Birds,' was by Witmer Stone, and dealt mainly with the period preceding the founding of the American Ornithologists' Union.

'Evolution of Species and Subspecies as illustrated by certain Mexican Quails and Squirrels,' by E. W. Nelson, was the subject of the third paper. Remarks followed by Dr. Merriam, Messrs. Stone, Chapman, Maynard, and the author.

The next, 'Form in Bird Music,' by H. W. Olds, was discussed by Messrs. Brewster, Morris, Dutcher and Fuertes, Mrs. Patten, the Rev. Wm. R. Lord, and the author.

The concluding papers of the morning were by Dr. R. M. Strong, entitled: 'Change of Color without Molt,' and 'Iridescence and White Feathers.'

The following papers — all illustrated by lantern slides — were given at the afternoon session, viz.: 'Some Problems of Local Bird Population,' by Prof. Walter B. Barrows; 'Ancient Birds and their Associates,' by F. A. Lucas; 'Observations on the Herons of the District of Columbia,' by Paul Bartsch; and 'Bird Life in the Bahamas,' by Frank M. Chapman and Louis Agassiz Fuertes.

Third Day. — The meeting was called to order by the President. Mr. Dutcher, Chairman of the Committee on Protection of North American Birds, presented the report of his Committee for the previous year, which was followed by an address by Dr. T. S. Palmer on 'Federal Game Protection in 1902.' By invitation, Mr. Sheibley, of the U. S. Department of Justice, spoke of certain prosecutions under the Lacey Act.

'Nesting of the Red-bellied Woodpecker in Harford Co., Md.,' by Wm. H. Fisher, was the third paper. In the absence of the author it was read by Dr. Palmer.

The fourth paper, 'An Epidemic of Roup in the Canandaigua Crow Roost,' by Elon H. Eaton, was read, in the author's absence, by Mr. H. W. Olds. Remarks followed by F. A. Lucas, Wm. Palmer, and Dr. S. D. Judd.

The following papers were read by title:

'Some Variations in the Piping Plover, *Ægialitis meloda*,' by Dr. Jonathan Dwight, Jr.

'The Significance of Trinomials in Nomenclature,' by Witmer Stone.

'Notes on *Picoides americanus* and *Picoides arcticus* in Minnesota,' by Dr. T. S. Roberts.

'Some Food Habits of West Indian Birds,' by B. S. Bowdish.

'The Domestic Affairs of Bobwhite,' by John N. Clark.

Resolutions were adopted thanking the Board of Regents of the Smithsonian Institution for the use of a hall in the U. S. National Museum for a place of meeting, and for other courtesies

extended; to the Washington members of the Union for the cordial welcome and generous hospitality shown visiting members; to Prof. S. P. Langley, Secretary of the Smithsonian Institution, for his polite invitation to the members of the Union to visit the National Zoölogical Park; and to the Superintendent of the Park, Dr. Frank Baker, through whom the invitation was received.

Dr. T. S. Palmer, Mr. Frank M. Chapman and Dr. C. W. Richmond were appointed 'Committee on International Bird Protection,' and Ruthven Deane and William Dutcher delegates to the forthcoming Congress.

The question of holding a Special Meeting of the Union in California during May or June, 1903, was referred to a Committee, with power.

On Friday, November 21, after adjournment of the Union, many members visited the National Zoölogical Park by invitation of the Secretary of the Smithsonian Institution. Prof. Langley received the visitors, who were subsequently taken through the Park by Dr. Frank Baker, the Superintendent.

The Congress adjourned to meet in Philadelphia, November 16, 1903.

JNO. H. SAGE,
Secretary.

GENERAL NOTES.

Breeding Grounds of the Black and Socorro Petrels. — A Correction. — In my recent paper on the 'Birds of the Cape Region of Lower California,' I stated (p. 33) that "on July 10, 1896, Mr. Anthony found some Black and Socorro Petrels breeding together on one of the Coronados Islands (in the Gulf of California)." There is a Coronados Island lying close to the eastern shore of the Peninsula in the Gulf of California in about latitude 26° N., and a group of islands bearing the same name situated off the Pacific coast only about twenty miles south of San Diego, California. Just what led me to attribute Mr. Anthony's observations to the former locality I cannot now remember, but in so doing I was evidently in error, for Mr. Frank S. Daggett writes me that he has definite information to the effect that Mr. Anthony did not visit the Gulf

of California in 1896, and further that on July 10 of that year he was at the Coronados Islands near San Diego—where, moreover, Mr. Daggett himself has since taken the eggs of both the Petrels above mentioned.—WILLIAM BREWSTER, *Cambridge, Mass.*

A Hybrid Duck.—After ten years of hunting for real wild hybrids, the writer has finally succeeded in securing a drake which he regards as an even mixture of Mallard and Northern Black Duck. The bird was shot by the writer about a year ago, and he has waited some time for the experience to be repeated—as often happens after one has once succeeded in finding a bird or flower new to him—but I have caught no mate for my drake.

Several thousands of ducks have been examined in the hope, not merely of finding rare ducks in the market or in the strings of gunners, but especially for indications of a crossed breed. Often I have found 'blue bills' which could be assigned only with great difficulty to the species *Aythya affinis* or to *A. marila*. Especially was this true of females. Measurements have been found quite unreliable in deciding these cases, for it is a common thing to find a male of *A. affinis* which is up to the smaller measurements of *A. marila*, and often the flank markings are so indefinite, and the head iridescence also, that no one could say with precision what the bird was. Hybrids in these races are practically indefinable.

But between the Mallard and Black Duck we expected to find crosses, and also to be able to distinguish them with certainty. While it has been a common experience to come across Black Ducks which show traces of Mallard blood, as was Mr. Brewster's experience, I have been unable to find any Mallard which could be said to bear traces of a Black Duck infusion. It is true that these latter forms would be harder to distinguish, but the young drakes and females were carefully examined with the possibilities fully in mind.

These traces of Mallard blood we have found most common in the form recently described by Mr. Brewster as *Anas obscura rubripes*—birds which we have habitually called "Winter" or "Big" Black Ducks in this vicinity.

The hybrid here under notice exhibits strong Black Duck characters on the head, neck and back. The pattern and dusky shade of the Black Duck are also shown on all portions of the plumage, even where the Mallard affinities are strongest. Mallard blood shows strongest in the white frame of the speculum which is about one-half the typical width of white seen in the Mallard, in the light shade and wavy cross vermiculations of the scapulars, flanks and belly, in the blackish upper and under tail-coverts, and in the green of the nape and sides of the crown.

This specimen was in prime physical condition, an adult male with the testes unusually well developed considering the time of year.—ELON HOWARD EATON, *Rochester, N. Y.*

The Wood Ibis again in Colorado. — I am pleased to be able to record for our State two more specimens of *Tantalus loculator* (Wood Ibis). These two birds were shot by Mr. L. L. Llewellyn of this city (Denver) on Aug. 30, 1902, at a small lake about twelve minutes from the city, and were identified by myself. By the softness of the bones as well as by the plumage, it is apparent that they are young of the year. They had remained about this lake for at least two weeks before they were shot, and although a house was close by, they were not afraid. They were so tame, in fact, that they were easily approached in the open and both killed at one shot at a distance of about forty yards. When picked up the throat and upper esophagus of one of them contained a carp at least six inches in length, which had evidently been held in that position fifteen or twenty minutes, since their movements had been watched for that length of time and no fish had been taken. — A. H. FELGER. *Denver, Colo.*

The Stilt Sandpiper in Knox County, Maine. — On August 13, 1902, I took a specimen of the Stilt Sandpiper (*Microfaluma himantopus*) on Matenic Island, Knox County, Maine. If I am not mistaken, this is the first record of this species for that county. I was shooting Turnstones on some half-tide ledges between Matenic and Matenic Green Island, when I noticed a bird flying in from seaward which I took to be a Summer Yellowleg. When it came within shooting distance I dropped it on the rocks, and on picking it up, was surprised to find that I had a Stilt Sandpiper, which later I found to be a female.

August 23, I found Wilson's Petrel (*Oceanites oceanicus*) in numbers, four miles south of Seguin Island. They were feeding on the wash of the bait from a fisherman's hook, and were noticed a number of times to plunge beneath the surface of the water for the food they were after. Although I have watched many thousands of Leach's Petrels while they were feeding, I have yet to see one plunge beneath the surface. — HERBERT L. SPINNEY. *Seguin, Me.*

Massachusetts Breeding Dates for *Bartramia longicauda*. — For the last eight years I have had the pleasure of watching some six to eight pairs of Bartramian Sandpipers on the sheep fields of Marthas Vineyard, the remnant of what was formerly not an uncommon breeder there. As a result, I have the following personal breeding records :

June 3, 1894. Nest with four eggs, incubation one third advanced.

June 4, 1894. Nest with four young, just hatched and running.

May 25, 1895. Nest with four eggs, incubation commenced.

May 25, 1895. Nest with broken shells, destroyed probably by a Crow.

May 30, 1896. Nest with four eggs, incubation one fourth advanced.

May 25, 1900. Nest with four eggs, incubation commenced.

Mr. Mackay has recorded a nest of three eggs found on Tuckernuck Island on June 22, 1896 (Auk, April, 1897, p. 229), but the date and num-

ber of eggs would appear to me to indicate a second laying, the first having probably been destroyed.

I am induced to give these records because Mr. Howe has stated in his notes on these birds made at Williamstown, Mass. (Auk, Oct. 1902, p. 404), that the birds did not probably breed in Massachusetts until after the middle of June. This may be true in Berkshire County, but is certainly not true in Massachusetts as a whole. The average summer temperature at Marthas Vineyard is $67\frac{1}{2}^{\circ}$ and at Williamstown about 65° , but in winter the range is from 32° at the former to 22° at the latter. This causes an earlier spring at Marthas Vineyard and will account for some difference in nesting dates, though I should hardly expect to find it so much as three weeks.—OWEN DURFEE, *Fall River, Mass.*

Recent Records of the Wild Pigeon.—Occasionally some old-timer writes to the newspapers announcing the return of the Wild Pigeon (*Ectopistes migratorius*), and in nine cases out of ten the Mourning Dove (*Zenaidura macroura*), has been the innocent cause. One recent discussion in the Toronto papers was brought to an abrupt and apparently satisfying conclusion by the announcement, copied from a sporting journal, that one of the American consuls in South America had stated that the Wild Pigeon had taken refuge on, I think, the east side of the Andes, anyway that the consul and pigeons were far enough away to satisfy the most inquiring. I have for some time kept a careful record of reported announcements of Wild Pigeons, and among them I have selected the following as reliable:

1896. October 22, Toronto. "Saw eleven Wild Pigeons flying in a south-west course over Well's Hill."—J. Hughes Samuel.
1898. April 14, Winnipegosis, Manitoba. An adult male taken, mounted by Mr. G. E. Atkinson, Winnipeg.
1898. September 14, Detroit, Michigan. Immature bird taken, mounted by Mr. C. Champion, Detroit, by whom it was sent to me.
1900. May 16, Toronto, Ont. Mr. Oliver Spanner saw a flock of about ten flying west over the mouth of the Etibocoke River (ten miles west of Toronto), between 10 and 11 A. M., and about an hour afterwards the same flock returned, flying eastward towards Long Branch. Mr. J. G. Joppling had joined Mr. Spanner and saw the birds return; they were flying low, just over the trees.
1900. July 6, Toronto, Ont. "Saw five at Centre Island going southwest. They passed out over the lake."—J. Hughes Samuel.
1902. May 16, Penctanquishene, Ont. One seen; pair seen two days later, in same locality by Mr. A. L. Young.—J. H. FLEMING, *Toronto, Ont.*

Turkey Vulture at Moose Factory, James Bay.—The Rt. Rev. Dr. Newnhan, Bishop of Moosonee, examined a Turkey Vulture (*Cathartes aura*) taken by one of his men at Moose Factory in June, 1898. The record was given to me the following year, but I neglected to record it.—J. H. FLEMING, *Toronto, Ont.*

Black Vulture at Taunton, Mass.—I take pleasure in recording the capture of an adult female Black Vulture (*Catharista urubu*) at Taunton, Mass., on Oct. 5, 1902. This is the first record for the species in Bristol County, and there are but very few records for the State.

The bird was discovered sitting on the roof of a barn, where it remained while its captor went to the house for his gun.—A. C. BENT, *Taunton, Mass.*

Golden Eagle in Middle Southern Ohio.—To my only record of *Aquila chrysaetos* for middle southern Ohio as given in the 'Wilson Bulletin' for September, 1902, page 83, I am now able to add another. On Nov. 15, 1902, I received an almost adult female in the flesh, shot Nov. 14, two miles from Waverly, Ohio. It measured: Extent, 2150 mm.; bill, 83 mm. (curvature included); tarsus, 110 mm.; tail, 335 mm.; wing, 620 mm.; length without bill, 820 mm.—W. F. HENNINGER, *Tiffin, Ohio.*

Richardson's Merlin (*Falco columbarius richardsonii*) on the Coast of South Carolina.—Upon looking over some Pigeon Hawks (*F. columbarius*) that I had packed away for many years, I came across a superb female that struck me at once as being none other than Richardson's Merlin. Upon comparing the specimen with Mr. Ridgway's description in his 'Manual of N. A. Birds' I found the bird to agree perfectly. The secondaries, primaries and primary coverts are margined terminally with white. The outer webs of the primaries (except the second) are spotted with ochraceous. The tail has six light and five dark bands. The specimen is apparently an *adult* female and was shot and prepared by the writer on October 15, 1895, near Mount Pleasant, S. C.

To what extent the list of South Carolina birds can be increased by the capture of northwestern birds there can be no conjecture.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Barn Owl on Long Island.—When Mr. Beard made the record of this species in 'The Auk,' Vol. XIX, p. 398, he evidently had overlooked the previous record of the same family of owls in Vol. III, p. 439.—WILLIAM DUTCHER, *New York.*

Barn Owl in Northern Ohio.—While the Barn Owl (*Strix pratincola*) is a fairly common bird in the State of Ohio south of Columbus, records of this bird from northern Ohio are rather scarce (*cf.* Oberholser, *Birds of Wayne Co., Ohio*, p. 280). In a local collection here I found two mounted specimens, not sexed, of this species, both killed in the fall of 1901 almost within the city limits of Tiffin. One of these had been kept in captivity for about six months by the coroner of Seneca County. A third specimen was seen at the time the others were captured.—W. F. HENNINGER, *Tiffin, Ohio.*

Yellow-billed Cuckoo's Egg in a Robin's Nest.—On July 2, 1902, while examining various nests in a lot back of my house in Granby, Conn., as was my almost daily habit, I found in a Robin's nest with two eggs, an egg of the Yellow-billed Cuckoo (*Coccyzus americanus*). The nest proved to be deserted, although early on the 1st of July, when the Robin's eggs were the sole contents, both birds were about. There is no mistaking the egg: light greenish blue, $1.31 \times .93$, elliptical.—STANLEY W. EDWARDS, *Granby, Conn.*

Breeding of the Alder Flycatcher (*Empidonax traillii alnorum*) near Plainfield, New Jersey.—In 'The Auk' for January, 1901, I recorded the probable breeding of the Alder Flycatcher in Ash Swamp near Plainfield, New Jersey.

The question was settled the following summer by finding two nests in that locality. The first, which I found on June 16, contained three eggs, which proved to be the full set. On the 20th I discovered another nest with three eggs, which had increased to four on the 23rd. These two nests were only a few rods apart, both placed in wild rose bushes within three feet of the ground. The sitting birds would slip away at my approach and it was with some difficulty that I at length succeeded in seeing one of them actually on the nest. This nest and eggs I took and they are at present in my collection.

The above dates show the Alder Flycatcher to be one of our latest breeders, ranking in this respect with the Goldfinch and the Cedar Waxwing.

I found this bird at two other localities in July, 1901—a small swampy tract a mile west of Ash Swamp, and Great Swamp, Morris County, New Jersey—in each of which it undoubtedly nests. It seems probable, therefore, that it breeds in suitable localities all through northern New Jersey, and it will be of interest to learn how much, if any, further south its breeding range extends. It is not included in Thurber's 'List of the Birds of Morris County,' and in the recent 'Birds of Princeton' it is given as a transient only.

While studying this little flycatcher in its haunts I recorded the ordinary song note as *kra-teal* or *great deal*. Later I found that Mr. P. B. Peabody had written it *grea' deal*. This is, to my ear, the best representative of the note that I have seen. Sometimes, as stated by Mr. J. A. Farley in his recent article, it is given in almost one syllable as *hrreal*, but I do not think that the apparent length or number of syllables is dependent on the distance of the bird, for I have heard the *grea' deal* when within a few feet of the performer.—W. D. W. MILLER, *Plainfield, N. J.*

Western Evening Grosbeaks Nesting in Mexico.—Out some 200 miles from the city of Chihuahua and close to the Sonora line, I saw different bunches of Western Evening Grosbeaks (*Coccothraustes vesper-*

tinus montanus). This being in June, all were mated and preparing to nest.

One day, while riding up a water-course in the heart of a great pine forest, I saw, but 20 or 30 yards away, a female Grosbeak with a beak full of dry grass, hopping on the ground, closely followed by three males. I drew up at once, and from the saddle I watched the actions of the birds, with the hope that I might discover the location of the nest. The three males, in their anxiety each one to be nearer than the other to the female, caused her to drop her load, and fly into a pine tree, the three males following. The whole lot finally disappeared among the pines well up the hill-side. Examination of the tree into which the birds flew revealed nothing, and though I passed this spot every day or two, I saw nothing more of the birds. At other times I followed pairs that had come some distance to drink, from tree to tree over hills and hollows, with nothing but failure at the end.—GEO. F. BRENINGER, *Phoenix, Ariz.*

Another Record of *phryothorus ludovicianus* in Massachusetts.—As I was returning home about seven o'clock on the morning of September 6, 1902, I stopped near the edge of a damp thicket of bushes and small trees, consisting of willows, red maples and gray birches, with tangles of briars and wild grapes. This tract, several acres in extent, is in the northern part of Fall River, Mass. After a few moments my attention was attracted by a new bird song. This came from a black alder bush, which was so thick I could not identify the singer. After singing there for a few moments, the bird hopped on to an exposed twig, and I at once secured it,—a male Carolina Wren. Dr. Dwight, after examining the bird, has kindly written me that it is a young bird, in juvenal plumage. Among other variations of the song, I noted some which I presume are those Mr. Chapman refers to as the 'tea-kettle' notes.—OWEN DURFEE, *Fall River, Mass.*

The Blue-gray Gnatcatcher in Massachusetts.—I observed a Gnatcatcher, doubtless the Blue-gray (*Polioptila carulea*) at West Manchester, Mass., November 16, 1902. My attention was at first attracted by a new bird note—a nasal *twee*—several times repeated. The bird was flitting about in the top of an apple-tree and gave me a good, though brief opportunity to note his catbird-like form and kinglet-like actions before he flew farther off. He was very active and soon disappeared entirely, but not without having shown me his blue-gray color against the green of a Norway spruce. Messrs. Howe and Allen's list of the 'Birds of Massachusetts,' credits the State with six records for this species—all in the fall (August 27–December 18). West Manchester is only a few miles from Magnolia, where Mr. Outram Bangs took an immature female, August 27, 1879.—FRANCIS H. ALLEN, *Boston, Mass.*

Ohio Notes.—The Red-headed Woodpeckers (*Melanerpes erythrocephalus*) have practically deserted this section. Prior to 1899 they were numerous, but during the past three years they have become less and less common, until now they are almost extinct as far as this locality is concerned. Formerly almost every telegraph pole contained one or more nests, but this year I examined poles extending over sixteen miles but found only eleven nests.

The only cause that can be assigned for their disappearance is the erection of new poles which were, perhaps, too solid for the construction of nests. The other species of woodpeckers, which usually nest in trees, show no decrease.

There has been a noticeable increase in the numbers of Baltimore Orioles in the past two years and now they are as common as Catbirds and Bluebirds. The Bluebirds (*Sialia sialis*) have decreased to some extent, but are still common. Cowbirds have deserted this immediate vicinity, while ten miles west they are numerous.—NAT S. GREEN, *Camp Dennison, Ohio.*

Birds Killed by Hailstones.—On September 20, 1902, we had in 'The Highlands' of this city a severe hail-storm, lasting from 6.00-6.25 P. M., during which time hail from $\frac{1}{8}$ in. to $\frac{3}{4}$ in. in diameter fell hard and fast. On the following morning, when the storm had cleared away, beneath the tall cottonwood trees at the intersection of West Twenty-fourth Avenue and Boulevard F, lay scores of little bodies of feathered dead. There were beneath fourteen trees eighty-four birds by actual count, one tree alone, the largest of them all, spreading its arms above the forms of twenty-five sleeping songsters. House Finches and English Sparrows, that on previous days had battled among the branches above now lay side by side, with half a dozen Robins interspersed.—A. H. FELGER, *Denver, Colo.*

Vernacular Names of Birds.—In the present number of 'The Auk' (pp. 38-42) Dr. Edwin W. Doran proposes certain rules for the construction of vernacular names of birds, relating mainly to the use or non-use of the hyphen in certain classes of names. If the use of the hyphen could be permanently regulated by the formulation of a set of rules, how great a boon would be conferred upon writers, and particularly upon editors! As, however, the use of the hyphen varies within wide limits, in accordance with the radically different rules enforced by editors or publishing houses, from its practical non-use to its employment to connect remote elements into a compound word, there is little hope of securing a uniform system of hyphenization in the construction of bird names. Every observing person knows that many of the current magazines have adopted what may fairly be termed an anti-hyphen fad, this greatly abused but very useful sign being practically tabooed by them as a connective between the

parts of compound words. Or, to put it still better, compound words are either printed as a single word or their elements are treated as separate words, generally the latter. But in publications which allow the hyphen its time-honored function, great diversity is met with in the manner of its use in just the class of cases to which Dr. Doran has called our attention.

In discussing this matter by letter with Dr. Doran, I stated that I should greatly prefer current usage to his rules, and write Gyr-falcon and Sparrow Hawk instead of Gyr-falcon and Sparrow-Hawk. I should also write not only such names as Redpoll, Yellowthroat, and Bluebird without the hyphen, but also Kingbird, Nighthawk, and Meadowlark in the same way, as against King-bird, Night-Hawk, and Meadow-Lark, as required by his rules.

This, of course, brought up the question of what is 'current usage'; and Dr. Doran replied that he would determine current usage, or "good usage," or "general usage" by such authorities as the 'Century Dictionary,' the 'Standard Dictionary,' Murray's great 'English Dictionary,' and Newton's 'Dictionary of Birds,' and states, no doubt correctly, that his rules conform to those employed in these authoritative works. In other words, hard-and-fast rules are followed for the determination of what phrases are properly to be written as compound words, requiring the use of the hyphen. The 'Century,' he admits, writes 'Kingbird' while all the others write 'King-bird.' "One can hardly," he says, "be said to go counter to good usage, with such authorities as these on his side; there are no better in the English-speaking world."¹

But is there not another side to the subject? The form words finally take in a language is reached by a process of change, or through 'evolution,' by the survival, perhaps not of the fittest, but of the form most favored. Many compound words now almost universally printed as one word without a hyphen, were originally used as two separate and distinct words, and later as a hyphenized compound word, and later still as a single word without any hyphen. For example, the word handbook is still current in three forms—hand book, hand-book, and handbook, though the first is now rare. Many similar cases must occur to everyone, especially among words that are comparatively new, owing their origin to recent inventions and discoveries requiring the coining of new terms to indicate new processes, forces, and substances.

Frequency of use of a compound word has obviously much to do with its form. It is common to write 'forehead' 'fore-neck,' and 'hind neck,'

¹ I trust there is no breach of courtesy in thus referring to a private correspondence. Dr. Doran has expressed the hope that a subject so important will be fully discussed, and for this reason preferred to publish his criticism of the A. O. U. Check-List vernacular names in 'The Auk'; and has furthermore had the kindness to suggest that I should publish my views on the subject in the same issue of this journal.

the frequency of their use being indicated by the order in which they are here written. Forehead is a common everyday word in constant use; fore-neck is in less frequent employ and is a more special term, while hind neck is comparatively infrequent; but in modern descriptive natural history writing, where all are in frequent use, the tendency is to give all the same form, writing each phrase as a single word without the hyphen. In the same way we have, in the same class of descriptive writing, 'tooththrow,' 'underparts,' and 'upperparts,' although the dictionaries treat each as either two separate words, or as requiring the hyphen. It is thus the users of words and not the dictionary makers, with their fixed rules based on 'language-principles,' that determine the form of much-used compound words. When 'general usage' has established the form of a word, contrary to the ruling of our 'standard authorities,' they later usually fall in line, as shown abundantly by the history of many common word-forms.

In the case of bird names (and other animal and plant names as well), it is more common to blend an adjective and a noun, as in bluebird, than two nouns as in nighthawk; and in the treatment of both these classes of words, our 'standard authorities,' the dictionaries, are more or less inconsistent, for the reason just stated. For example, 'flycatcher' is almost universally written without a hyphen, while 'gnatcatcher' and 'oystercatcher' are almost as uniformly written with a hyphen. In the Check-List, and almost universally, except in the dictionaries and in English publications, we have Barn Owl, Orchard Oriole, and Marsh Hawk, instead of Barn-Owl, Orchard-Oriole, and Marsh-Hawk, etc. In the Check-List, we have Meadowlark and Nighthawk, on the ground that in the one case the bird is not a lark and in the other, is not a hawk; and the name in each case is written solid as one word for the purpose of indicating the fact by making a new name.

The rule requiring the compounding and hyphenizing of such bird names as Ivory Gull, Herring Gull, Wood Duck, Night Heron, Clapper Rail, Stilt Sandpiper, Mountain Plover, Passenger Pigeon, Wood Ibis, Song Sparrow, Cliff Swallow, Tree Creeper, etc., is a purely arbitrary, dictionary 'language principle,' so long as Gray Gull, Green Heron, Brown Creeper, Painted Bunting, Varied Thrush, and all similar bird names are treated by the same 'language-principles' as composed of two separate words. The practical inconvenience of enforcing the dictionary rules in such cases is considerable, since in indexes, in looking for Ivory Gull, Herring Gull, and similarly with other names, we would find our gulls scattered under half-a-dozen different letters of the alphabet, and our pigeons, sparrows, pewees, warblers, etc., similarly dispersed. In the case of the Ivory Gull, ivory is just as much a descriptive adjective as gray, or black-backed, referring to its color (inaccurately of course), and not indicating that it is made of ivory or has anything to do with ivory. 'Water-Thrush' is thus written in the Check-List especially to indicate that it is not a thrush, and 'Quail-Dove' to indicate a group of

pigeons that, superficially at least, have a resemblance to both quails and doves. It would be better to write the first waterthrush, in conformity with meadowlark and nighthawk.

In short, the whole matter resolves itself into a question of convenience, since convenience determines use, which in turn is 'current usage'; and current usage as already said, is not necessarily established by our 'standard authorities,' but by the people to whom the words are most necessary, and by whom they are hence most used. In British English many words are spelled differently from what they are in American English, and hyphens are used in the former much more freely, as a rule, than in the latter. In American publications of all sorts, except dictionaries, the names of birds, animals and plants are written, as regards hyphenized words, practically in accordance with the system followed in the A. O. U. Check-List. By the British method, and by Dr. Doran's rules, we should lose most of our sparrows, gulls, plovers, rails, etc., and should have, in their places, Song-Sparrows, Tree-Sparrows, Field-Sparrows, Sage-Sparrows, Vesper-Sparrows, and similarly hyphenized gull-names, plover-names, rail-names, and so on to the end of the list, producing little short of a revolution in the arrangement of our bird names in indexes, and in the use of the hyphen in vernacular names of animals in general, and the introduction of a method entirely contrary to present tendencies in American English. Better a little inconsistency than hard-and-fast rules that tend to inconvenient and cumbersome word-forms without any adequately offsetting advantage. — J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

RECENT LITERATURE.

Ridgway's 'Birds of North and Middle America.' Part II. — It is with great pleasure that we record the appearance of Part II¹ of Mr. Ridgway's 'Birds of North and Middle America.' In reviewing Part I (Auk, XIX,

¹ The Birds | of | North and Middle America: | A Descriptive Catalogue | of the | Higher Groups, Genera, Species, and Subspecies of | Birds | known to occur in North America, from the | Arctic Lands to the Isthmus of Panama, | the West Indies and other Islands | of the Caribbean Sea, and the Galapagos Archipelago. | By | Robert Ridgway, | Curator, Division of Birds. | — | Part II. | Family Tanagridæ — The Tanagers. | Family Icteridæ — The Troupials. | Family Cœrebidæ — The Honey Creepers. — Family Mnioiltidæ — The Wood Warblers. | — | Washington: | Government Printing Office. | 1902. = Bulletin of the United States National Museum, No. 50. Part II. — 8vo, pp. i-xx + 1-834, pl. i-xxii.

Jan. 1902, pp. 97-102) the scope and general character of this great work, the classification adopted, and the method of treatment employed, were stated at some length; it is hence necessary in the present connection merely to state the scope and some of the special points of the present volume.

Part I included only the single great family Fringillidæ, while Part II covers the four families Tanagridæ, Icteridæ, Cœrebidæ, and Mniotiltidæ.

As previously noted, Mr. Ridgway has transferred the genera *Pitylus* and *Saltator* from the Tanagridæ to the Fringillidæ. The genus *Calyptophilus* is also now excluded and provisionally referred to the Mimidæ; certain species referred by Dr. Selater to the genus *Chlorospiza*, forming the genus *Hemispingus* Cabanis, are removed to the Mniotiltidæ; and the genus *Iridophanes* Ridgway is transferred from the Cœrebidæ to the Tanagridæ. As now constituted, 21 genera of Tanagridæ come within the scope of the present work, and are represented by 112 species and subspecies.

The family Icteridæ comprises 22 genera and 111 species and subspecies, of which 42 are included under the single genus *Icterus*, which the author finds himself unable to satisfactorily divide into subgenera. He also confesses his inability to separate the family into subfamilies, notwithstanding the wide extremes in structure and habits shown by its different components.

The family Cœrebidæ includes 6 genera and 29 species and subspecies.

The family Mniotiltidæ has 28 genera and 181 species and subspecies, of which 57 belong to the single genus *Dendroica*, 14 to *Helminthophila*, 23 to *Geothlypis*, and 9 to *Basileuterus*. "*Helminthophila cincinnaticnsis* (Langdon) is not introduced into the 'key' for the reason that it is obviously a hybrid between *H. pinus* and *Oporornis formosa*"; *H. lawrencei* and *H. leucobronchialis*, however, are treated as species, but the problem of their relationships is considered a very complicated one, it being "altogether probable . . . that dichromatism as well as hybridism enters into the question of their origin." It seems hard to lay the ghost of Wilson's *Muscicapa minuta*, or 'Small-headed Flycatcher,' which here still masquerades as *Wilsonia microcephala* Ridgway, on account of "the peculiar combination of characters indicated in the original description being shared by no other bird to my [Ridgway's] knowledge." That there could have been any error in Wilson's description is not intimated. The *Sylvia montana* of Wilson (*Dendroica montana* of the A. O. U. Hypothetical List) is, however, synonymised as the young of *D. virens*; but Audubon's *Sylvia carbonata* is given a place as *Dendroica carbonata*, although it "continues to be known only from Audubon's description and colored plate."

Among the new species and subspecies here described for the first time are two from the United States, namely, *Compsothlypis americana rama-lineæ* (p. 486, geographic distribution added on p. 783), the Mississippi Valley form of the Parula Warbler, which is said to have a breeding range

"from Louisiana and Texas to Michigan, Wisconsin and Minnesota"; and *Wilsonia pusilla chryseola*, separated as a Pacific coast form of *W. p. pileolata*, breeding from southern California to British Columbia. The new extralimital forms include *Phainothraupis rubica nelsoni*, from Yucatan; *Geothlypis incompta*, from Abaco Island, Bahamas; *Geothlypis exigua*, from Andros Island, Bahamas; *Geothlypis flavida*, from New Providence, Bahamas; *Geothlypis nelsoni microrhyncha*, from Hidalgo, Mexico; *Basileuterus culicivorus flavescens*, from the State of Jalisco, Mexico; and *Rhodinocincla rosea eximca*, separated as the Central American form of true *rosea* of South America.¹

In respect to generic changes, *Megaquiscalus* is raised to a full genus for the Boat-tailed Grackles, as is *Holoquiscalus* for the West Indian Grackles, thus restricting *Quiscalus* to *Q. quiscula* and its subspecies. *Peucedramus* is very properly raised to a full genus for the Olive Warbler; *Oporornis* and *Chamethlypis* are also raised to full genera, and the old genus *Scotophaga* is restricted to *S. ruticilla* and *S. picta*.

Under *Chamethlypis*, *Geothlypis poliocephala ralphii* of the A. O. U. Check-List is considered inseparable from true *poliocephala*. Of *Piranga rubriceps*, introduced into the Check-List as a straggler (standing as [607.1]) on the basis of its capture in California, Mr. Ridgway says: "The identification of the specimen on which the record is based is undoubtedly correct; but even granting no mistake has been made as to the specimen having actually been taken in California, the occurrence must have been wholly fortuitous, most likely an escape from captivity, and the species has no claim to a place in the North American fauna" (p. 776). It is so exclusively a South American bird that it is treated as extralimital to the scope of the work here under notice. In all probability *Icterus icterus*, a South American Oriole said to have been taken at Charleston, S. C., has no better claim to a place in our list, and should be similarly excluded. It may be added that several 'Texas' birds admitted provisionally on the authority of Giraud,—as *Scotophaga miniata*, *Cardellina rubrifrons*, *Ergaticus ruber*, and the two species of *Basileuterus*—receive no confirmation of their claim to recognition as Texas species, the collation of the records and material thus far gathered only serving to throw greater doubt upon the supposed Texas origin of Giraud's specimens on which these species are alleged to have been originally based. The nearest point of record for several of them is still the highlands of Mexico.

Icterus audubonii is treated as a subspecies of *I. melanocephalus*. The

¹ We would suggest that it would be a convenience to reviewers and bibliographers, and probably to others, if the author would indicate, either in the text, table of contents, or in a separate list, the new forms described, as they are not always clearly indicated in the text, and have to be determined by an examination of the context. Omission is also made, in several instances, to indicate a type specimen for the new form.

range of *Agelaius phoeniceus richmondi* is extended northward to include "the coast district and lower Rio Grande Valley of southern Texas," which therefore brings it within the limits of the Check-List. All the North American forms of *Sturnella* are made subspecies of *magna*, except *neglecta*, which Mr. Ridgway continues to look upon as a full species.

Mr. Ridgway admits eight forms of the *Geothlypis trichas* group, and discusses at some length their distribution and relationships, as also the seven forms recognized from the Bahamas. We regret the lack of space to transcribe his very interesting presentation of the case. *G. trichas scirpicola* Grinnell is considered as not separable from *G. t. arizela* Oberholser.

The present volume exceeds the first in size by about one hundred pages, and includes 55 more species and subspecies, Part II containing 433—316 species and 117 subspecies. The 22 plates illustrate the structural details of 77 genera.

In execution Part II conforms in all its details with Part I, so that the explanation of methods of treatment, and the high commendation already given for Part I, apply equally to Part II, which is marked throughout by the extreme care and thoroughness so well known to characterize Mr. Ridgway's technical work. Finally, we heartily congratulate the author and all ornithologists that we have assurance that Part III is so well advanced that we may confidently expect its publication before the end of the present year, it being already in press.—J. A. A.

Mrs. Bailey's 'Handbook of Birds of the Western United States.'¹—As stated in the publisher's announcement, "This book is intended to do for the western part of the United States what Mr. Frank M. Chapman's 'Handbook' has done for the East. It is written on similar lines, and gives descriptions and biographical sketches of all our western birds in a thoroughly scientific yet not unduly technical form, including all the United States species not treated by Chapman, besides those which are common to both sections of the country." This is a perfectly fair statement of the scope and character of the work, which in method of execution and accuracy of detail merits the highest commendation. The author has had rare opportunities for personal observation of the birds in life of which she writes, having spent several seasons in the field in Texas, in Arizona, and in California, and has enjoyed an especially favorable environment for the production of a thoroughly accurate and well-

¹ Handbook of Birds | of the | Western United States | including | the
Great Plains, Great Basin, Pacific Slope, | and Lower Rio Grande Valley | By
Florence Merriam Bailey | With thirty-three full-page plates by Louis | Agassiz
Fuertes, and over six hundred cuts in the text | [Vignette] Boston and New
York | Houghton, Mifflin and Company | The Riverside Press, Cambridge
| 1902 — 12mo, pp. i-xc + 1-512. Price, \$3.50, postage extra.

balanced manual of the birds of the western United States. Indeed, as stated in her 'prefatory note,' she has had the advice and the help of experts, and the resources of the National Museum and Biological Survey collections as a basis for the technical side of her work.

In an 'introduction' of nearly 80 pages are stated, first, the general sources of information upon which she has relied in the general treatment of the subject. Then follows a section (pp. xxvi-xxxiii) on collecting and preparing birds, nests, and eggs by her husband, Mr. Vernon Bailey, who has also contributed more or less of the biographical matter throughout the book. There are directions for note-taking and keeping journals, and several pages on 'life zones,' with a map, by her brother Dr. C. Hart Merriam, of the United States west of about the 100th meridian and northern Mexico, shaded to indicate the various life areas. 'Migration' and 'economic ornithology' are briefly treated, and there are half a dozen pages on 'bird protection' by Dr. T. S. Palmer. Then follow a number of briefly annotated local lists, most of them here for the first time published, as: 'List of the Birds of the vicinity of Portland, Oregon,' by A. W. Anthony; 'List of Water Birds of San Francisco Bay,' by William H. Kobbé; 'List of Birds of Santa Clara Valley and Santa Cruz Mountains, exclusive of Water Birds,' by Walter K. Fisher; 'List of Birds to be looked for in the vicinity of Pasadena,' by Joseph Grinnell; 'List of Birds of Cheyenne and vicinity,' by Frank Bond. A 'List of the Birds of Fort Sherman, Idaho,' is compiled from the late Dr. J. C. Merrill's notes in Vols. XIV and XV of 'The Auk,' and a list for Pinal, Pima, and Gila Counties, Arizona, is compiled from W. E. D. Scott's papers published in Vols. III-V of 'The Auk.' An important but very condensed list of 'Books of Reference' occupies pp. lxxxiii-lxxxviii.

The main body of the work (pp. 1-477) treats of the species and subspecies in systematic sequence, in the order of the A. O. U. Check-List, and following its nomenclature. An appendix gives a 'Field Color Key' to the genera of the more common passerine birds, and is followed by a very full index. The systematic portion of the book is furnished with very freely illustrated keys to the higher groups, as well as the usual keys to the genera and species. Mr. Fuertes's 36 full-page plates illustrate in full-length figures leading types of the bird life of the region, and a large number of additional heads, by the same author, and here first published, contribute further to the attractiveness, as well as usefulness of the work. Many new outlines of structural features are added from drawings by Miss Franceska Weiser, while a large number of additional illustrations are from the publications of the Biological Survey, 'The Auk,' 'Osprey,' and the author's previous works. Besides all these, a large number of photographic illustrations from bird skins are introduced, often with excellent effect, but, owing largely to the small scale of the reproduction, not infrequently they fail to be either very useful or attractive embellishments.

Without going further into details, it may suffice to say that the author is to be congratulated on having produced a very much needed Handbook

in a thoroughly creditable manner, and has thereby merited the thanks of thousands of bird students to whom her book will truly prove a 'boon.'—
J. A. A.

Brewster's 'Birds of the Cape Region of Lower California.'¹—The Cape Region of Lower California, as here defined, comprises the terminal portion of the peninsula "southward from the northern base of the mountains between La Paz on the Gulf shore and the town of Todos Santos on the Pacific Coast," and is a sharply defined faunal and floral area, characterized by peculiar climatic conditions which have left their impress upon the animal and plant life. It is a mountainous country, separated from the more northern part of the peninsula by a low desert tract which forms a formidable barrier to the extension of plant and animal life, either from the north southward or from the south northward. It has a rather humid climate, and is situated on the edge of the tropics, the Tropic of Cancer crossing the center of the region. Its area embraces about two degrees of latitude and one of longitude.

The basis of this excellent monograph consists of a collection of "upwards of 4,400 birds" made for the author by Mr. M. Abbott Frazar in 1887. An 'Introduction' of twelve pages is devoted largely to an itinerary of the trip, which describes in detail the localities where Mr. Frazar collected, and also defines the region and indicates its peculiar physical characteristics. The 'Systematic Notice of the Birds' occupies pages 13-219, and is followed by a bibliography, and a good index. Mr. Brewster regrets that there is so little to record respecting the life histories of the species, Mr. Frazar's field notes proving scanty, and other ornithologists who have visited the region seem to have been more intent on gathering and preparing specimens than on recording field observations. "The main portion of my paper," says the author, "treats only of birds which are definitely known to have occurred in the Cape Region, but in dealing with the distribution of such of these as are not confined to this area, I have consulted—and frequently cited, also—all the more important records that I could find relating to the central and upper parts of the Peninsula as well as to southern California, and in addition I have outlined, briefly, the general range of each species or subspecies along the Pacific coast, hoping thereby to show more clearly the precise relations in which the different forms stand geographically to the Cape fauna."

Acknowledgment is made to his assistant, Mr. Walter Deane, for the preparation of the bibliography, which includes some seventy titles, and for preparing the synonymy. He has performed the task, says Mr. Brewster, "with infinite care and faithfulness, verifying every citation by

¹ Birds of the Cape Region of Lower California. By William Brewster. Bull. Mus. Comp. Zoöl., Vol. XLI, No. 1. pp. 1-241, with Map. September, 1902.

direct examination of the original text. A fuller synonymy has been given for the thirty or more birds which appear to be either peculiar to the region under consideration or especially prominent members of the fauna. . . . The synonymy is intended to serve, at least primarily, merely as an index to what has been published on the characteristic birds of the Cape Region, and on the *local history* only of those which visit it during migration or in winter, or which breed but casually or very sparingly within its confines."

The number of species recorded for the region is 167, with 88 additional subspecies, or a total of 255 forms. Of these four are described as new, and 36 are recorded for the first time as occurring in the Cape Region. The new forms are: *Totanus melanoleucus frazari*, *Megascops xantusi*, *Bubo virginianus elachistus*, and *Tachycineta thalassina brachyptera*. The latter is mentioned as "an interesting illustration of the recognized fact that isolated, non-migratory birds are given to having shorter wings than those which regularly perform extended journeys." Mr. Brewster had previously described three new species and nine new subspecies from this same collection, which makes sixteen new forms characterized by him from the Cape Region, or one half of those recognized as peculiar to it.

Among the noteworthy points in the present admirable paper is a discussion of the relationship of *Brachyrhamphus craveri* and *B. hypoleucus*, Mr. Brewster reaching the conclusion that the doubts that have been expressed as to their specific distinctness are without foundation. The conclusion is also reached, after the comparison of a large amount of material, that *Buteo borealis lucasanus* is not separable from *B. b. calurus*. Specimens from the Cape St. Lucas region are slightly smaller than more northern examples of *calurus*, as would be expected, but "so far as color and markings are concerned they cannot be separated from *calurus*." *Melanerpes formicivorus angustifrons* is considered as "specifically" distinct "from its nearest allies," but no reasons for this opinion are here stated. The Cape form of *Myiarchus cinerascens* is believed to be worthy of subspecific recognition, under the name *pertinax* applied to it by Baird in 1859, but it has not of late been considered as separable from *cinerascens*. On the other hand, Mr. Brewster finds that the characters ascribed to *Sayornis nigricans semiatra*, as distinguished from *nigricans*, are "too trifling and inconstant to deserve anything more than passing notice." He agrees with Mr. Ridgway that the so-called *Astragalinus psaltria arizonæ* is "scarcely a definite form." *Ammodramus halophilus* is considered as not separable from *A. rostratus guttatus*, or at least, that it is premature to give it recognition till we know more about it. *Tireo gilvus swainsoni* is believed to be "a good subspecies." The case of *Hylocichla guttata nana* (Aud.) is discussed at length, and the reasons fully given for the revival of the name *nana* for the small Hermit Thrush of the Pacific coast region.

The 'Cape Region' of Lower California has long been of special interest,

owing to its geographical position and peculiar physical characteristics, and Mr. Brewster's detailed and painstaking analysis of its bird life is a most welcome addition not only to the literature of ornithology but to geographical zoölogy.—J. A. A.

Henshaw's 'Birds of the Hawaiian Islands.'¹—The author modestly says: "There being at present no popular work upon Hawaiian birds, the present little volume has been prepared with the view of breaking ground in this department, and with the hope that it may prove of assistance to those who are already bird-lovers and, as well, may stimulate others to become such." While thus avowedly popular in character, it is much out of the line of ordinary popular bird books, inasmuch as it deals with questions outside of the usual range of such works. Nearly the first quarter of the book is devoted to such general subjects as the origin of the Hawaiian avifauna, its peculiar environmental conditions, environmental changes disastrous to Hawaiian birds, the diseases of Hawaiian birds, the ornithological knowledge of the natives, the history of ornithological investigations in the islands, faunal zones, etc. This is followed by 'Part II. Descriptive,' which gives a very full biographical account of each species, and a description of its external characters. Following this is a table showing the geographical distribution of the native species by islands, and an index.

The number of species treated is 125, "including residents, migrants and strays, together with a few that are extinct or practically so." Eleven species have been introduced into one or more of the islands and have become more or less firmly established. "There are 60 species of woodland Passeres that are endemic and are peculiar to the islands, these being distinctively *the* Hawaiian Birds."

Notwithstanding the fact that in recent years so much has been done to make known scientifically the birds of the Hawaiian Islands, through the great works of Mr. Scott B. Wilson and Mr. Walter Rothschild, and the lesser writings of other investigators, we have here for the first time an attempt to place within the reach of the ordinary bird lover a descriptive list combined with a full account of what is known of their life histories, based largely on the original observations of the author.

"With the exception of a few species," says Mr. Henshaw, "that are evidently comparatively recent comers from America, like the Night Heron, Gallinule, Marsh Hawk, and the Short-eared Owl, Hawaiian birds are quite unlike any others. They fall naturally into a few groups of related species, and so different are they from the birds of other lands that their relationships are traceable only with great difficulty." Accord-

¹Birds of the Hawaiian Islands | being a | Complete List | of the | Birds of the Hawaiian Possessions | with Notes on their Habits | By | H. W. Henshaw | — Price \$1.00 | — | Honolulu, H. I. | Thos. G. Thrum, Publisher. | 1902 — Svo, pp. 146.

ing to Dr. Gadou, the greater part of the distinctively Hawaiian birds belong to the single family Drepanididæ, almost beyond doubt of American origin, and find their nearest relationship in the American family Cœrebidæ. They were probably the first birds to obtain a foothold in the islands, and later received a few additions from Australia.

Hawaiian birds apparently do not take kindly to innovations, and prefer the virgin forests to the proximity of man. "Unlike many European and American birds, which flourish in the garden and orchard and find comfort and safety in man's protection, none of the island species seem to desire to be on neighborly terms with man, or to be capable of adapting themselves to the changes which follow in his wake. For a time they are content to fly over his clearings and to feed in the forest hard by; but to nest by his door and profit by his bounty seem to be foreign to their wild natures and presently, unable to reconcile themselves to his unwarranted intrusion into their ancient fastnesses, they retreat to the unvexed and virgin forest." The destruction of the forests, that has followed the invasion of civilized man, is hemming them into constantly diminishing areas, "and in a few years the opportunity to study the habits of some of the unique bird forms which have been developed upon these islands will be lost forever." Even slight changes in environmental conditions have a marked influence and species "even become extinct when the causes seem wholly inadequate." Mr. Henshaw believes that among the causes of the decline of certain species is "the necessity of continuous inbreeding," and gives his reasons at considerable length for this belief, citing examples in illustration. They are also obviously affected by prolonged storms and slight changes of temperature, and are also subject to diseases, especially by the growth of tumours on the feet, and sometimes about the mouth. These tumours have been found to be of bacillic origin, and are most prevalent on "the windward side of Hawaii, where the annual rainfall is from 130 to 180 inches." Apparently fully one tenth of the species of Hawaiian birds are either extinct or rapidly approaching extinction, or about one sixth of the distinctively Hawaiian forms.

In referring to the work of Mr. R. C. L. Perkins, who began collecting in 1892, Mr. Henshaw notes that as his large collections contained but one new species, we may consider that the list of Hawaiian birds is practically complete, but the still more important study "of their life histories, of their relations to each other and to the avifauna of other lands," remains as a still more important study. To this end the author's 'Birds of the Hawaiian Islands' is an important contribution, as well as an incentive and an aid to future observers.—J. A. A.

Snodgrass and Heller on the Birds of Clipperton and Cocos Islands.¹—

¹ Papers from the Hopkins Stanford Galapagos Expedition, 1898-1899. XI. The Birds of Clipperton and Cocos Islands. By Robert Evans Snodgrass and Edmund Heller. Proc. Washington Acad. of Sciences, Vol. IV, pp. 501-520. Sept. 30, 1902.

Clipperton Island lies in latitude $10^{\circ} 17'$ north and $109^{\circ} 13'$ west, and about 600 miles distant from the mainland, the nearest point of which is the west coast of Mexico, near Acapulco. It is little more than a coral reef, practically without vegetation, and its land fauna consists of a few species of sea birds, which resort to it in immense numbers for a breeding station, a single species of lizard, a dragonfly, a beetle, and a few diptera. Cocos Island, situated about five degrees further south and some twenty-two degrees further east, off the west coast of Costa Rica, and about 250 miles from the mainland, is mountainous and covered with trees and a dense undergrowth. The plant species are few, however, and the land fauna consists of a few indigenous birds, a lizard, and a few species of insects. Though visited by several kinds of water birds, it is not, like Clipperton Island, a great breeding resort for sea fowl. Both islands are described in much detail, and most of the birds obtained at each are described at length. The birds recorded from both islands number only 15 species, of which only five — all boobies and terns — are recorded from Clipperton Island and 10 from Cocos Island, while two are common to both localities. Two of the species, a tern and a booby, were first described by the authors of the present paper from specimens taken by them at these islands. Of the four indigenous land birds found at Cocos, three are peculiar to the island, two of them having been first made known by Mr. A. W. Anthony in 1895. — J. A. A.

Knight's 'The Birds of Wyoming.'¹—This is a fully annotated and well illustrated list, based in part on "published reports pertaining to the birds of the State," partly on unpublished observations of ornithologists or collectors of Wyoming birds, and partly on collections made especially for the museum of the University of Wyoming by Mr. Chas. W. Gillmore, now of the Carnegie Museum. Mr. Knight, being a geologist, makes no claim to being an ornithologist, and appears to have prepared the work in response to constant inquiries "for some literature on the birds of the State," which, as curator of the museum, he felt called upon to furnish. He is entitled to congratulations on having prepared what seems to be an excellent list of the birds of Wyoming, which, with the other pertinent matter included, forms a 'Bulletin' that must be of great assistance to students of Wyoming birds. The introductory matter includes a résumé of the literature pertaining to the subject, 'A Note on Studying Birds,' and a reprint of Prof. Laurence Bruner's 'Birds in their Relation to Agriculture,' this preliminary matter occupying pp. 1-23, while a supple-

¹ The Birds of Wyoming. By Wilbur C. Knight. Bulletin No. 55. Wyoming Experiment Station, University of Wyoming, Agricultural College Department, Laramie, Wyoming. September, 1902. 8vo, pp. 174, with 48 full-page half-tone plates and numerous text illustrations. Sent free upon request, by the Director of the Experiment Station.

ment gives the Bird and Game laws of the State. 'A Preliminary List of the Birds of Wyoming, with Notes,' occupies pp. 22-158, recording 288 species and subspecies, to which is added a 'Hypothetical List' of 12 species. The annotations relate mainly to the manner of occurrence of the species, but include also, in the case of the hawks and owls, copious extracts from Dr. A. K. Fisher's report on the food of hawks and owls, and in the case of the blackbirds from Prof. F. E. L. Beal's report on the food of these birds. The numerous plates, and the illustrations of structural details in the text, all drawn by Mr. Frank Bond, and here for the most part first published, add greatly to the usefulness and attractiveness of this praiseworthy effort to give needed information about the birds of Wyoming.—J. A. A.

Henninger's List of the Birds of Middle Southern Ohio.¹—This list is based on the observations of the author during the period from August 15, 1894, to July 1, 1902, and is the first formal list of the birds of the region, which is stated to be restricted mainly to Scioto and Pike Counties. The list numbers 216 species, of which two are introduced, and seven are considered as 'hypothetical' and placed in a separate category. The list is not put forth as a complete enumeration of the birds of the region, but as a trustworthy list so far as it goes, each record having been carefully scrutinized, while most of the species recorded "are represented by specimens in the author's or local collections." The annotations relate mainly to relative abundance and the dates of migration. The list is thus a welcome and important addition to faunal literature.—J. A. A.

Blatchley's 'A Nature Wooing.'²—The scene of Professor Blatchley's little book is mainly the vicinity of Ormond, Florida, and consists of observations, mostly in the form of a journal, on the animal and plant life of the region visited, being only to a small extent ornithological. It is written in a popular vein, by a scientific observer, an appendix of 20 pages giving formal lists of the species of various orders of insects collected, while *passim* there are numerous references to birds, reptiles, mollusks, etc. Pages 174-179 give, with illustrations, an account of the discovery of two humeri of the Great Auk in a shell mound at Ormond, as already recorded in 'The Auk' (XIX, July, 1902, pp. 255-258) by Dr. O. P. Hay. The volume will afford pleasant reading to nature lovers, especially those visiting the region to which it relates.—J. A. A.

¹ A Preliminary List of the Birds of Middle Southern Ohio. By Rev. W. F. Henninger. The Wilson Bulletin, Vol. IX, No. 3, Sept., 1902, pp. 77-93.

² A Nature Wooing at Ormond by the Sea. By W. S. Blatchley, Author of 'Gleanings from Nature.' Indianapolis: The Nature Publishing Company. 1902. 12mo, pp. 145, with 12 pl., map, and 63 text illustrations. Price, post-paid, \$1.25.

Keyser's 'Birds of the Rockies.'¹— This is a narrative of the author's experiences in a rather limited portion of Colorado, supplemented by an annotated list of the birds thus far recorded from the State, based, with due acknowledgment, on Prof. W. W. Cooke's 'The Birds of Colorado.' The author's field of observation included the immediate vicinity of Pike's Peak, and other points in the Rockies to the northward and southward, and also excursions to the foothills and adjoining edge of the Plains to the eastward. He evidently enjoyed his experiences with all the enthusiasm of an ardent bird lover, and recounts them at length in ecstatic phrases for the entertainment of those of similar ilk who may not have enjoyed his opportunities. He is often prolix and repetitive in telling of his feelings under these inspiring surroundings as well as in recording what he saw and learned in the way of new bird acquaintances, but he is evidently so sincere and so much in earnest that much can be pardoned. While the work is not given forth as a record of new discoveries, it cannot fail to be entertaining and enjoyable to the class to which it most obviously appeals—the amateur bird lover. The book is beautifully printed and illustrated, Mr. Horsfall's vignettes and marginal illustrations being very appropriate and pleasing. Besides, Mr. Keyser is an intelligent observer, and has a good general knowledge of his subject. In his opening chapter, 'Up and Down the Heights,' he has something to say of the vertical migration of birds in the Rockies, and of the faunal differences between this region and the States to the eastward of the Great Plains,—of the eastern forms one misses, of the western types that take their places, and of the representative, slightly differentiated forms that replace familiar eastern species. In the second chapter, 'Introduction to Some Species,' certain eastern and western forms are compared, and in a pleasant way much information is conveyed that cannot fail to interest and instruct the average lay reader. The other eleven chapters, under the titles, 'Bald Peaks and Green Vales,' 'Birds of the Arid Plain,' 'Over the Divide and Back,' 'A Pretty Hummer,' 'A Notable Quartette,' etc., deal with some particular locality or excursion, or with some particular species or group of species, so that in the course of the volume most of the common birds of the region come in for a share of the author's attention. The colored plates, by Mr. Fuertes, of some of the more characteristic and striking species, contribute greatly to the general attractiveness of a book that is well worthy of extended sale, and which occupies a hitherto somewhat neglected field in the list of popular bird books.—J. A. A.

¹ Birds of the Rockies | By Leander Keyser | Author of "In Bird Land," etc. | — | With Eight full-page Plates (four in color) | by Louis Agassiz Fuertes; Many Illustrations in the Text by Bruce Horsfall, and | Eight Views of Localities from photographs | — | With a complete Check- | List of Colorado Birds | [monogram]— | Chicago. A. C. McClurg and Co. | Nineteen Hundred and Two.—8vo, pp. i-xviii,+19-355, pls. 8 (4 in color), 8 full-page half-tones, and 30 half-tone marginal text cuts.

Burroughs's 'John James Audubon.'¹ — Of the twenty-five 'Beacon Biographies' thus far issued, only two relate to naturalists — Louis Agassiz and John James Audubon.

The first was very happily treated by Alice Bache Gould,² and a more fitting author for the second could hardly have been found than John Burroughs, himself an ornithologist and a poet-naturalist, able to weigh Audubon's work, and to sympathize with his tastes and ambitions. In the brief preface the author very fairly compares Audubon and Wilson, their temperaments, opportunities, methods of work and their achievements. Then follows a 'chronology' of the important events in Audubon's life, and a just and very readable résumé of his history, character, and works, based of course on previously published sources of information. He recounts the meeting of Audubon and Wilson at Louisville, Kentucky, in March, 1810, as told by Audubon himself, and also as briefly noted by Wilson. There are appropriate and very interesting extracts from Audubon's journals and other writings, but mainly the biography is an admirably condensed account of Audubon's life and character. In comparing Audubon with Wilson he says (preface, p. x): "Both men went directly to nature and underwent incredible hardships in exploring the woods and marshes in quest of their material. Audubon's rambles were much wider, and extended over a much longer period of time. Wilson, too, contemplated a work upon our quadrupeds, but did not live to begin it. Audubon was blessed with good health, length of years, a devoted and self-sacrificing wife, and a buoyant, sanguine, and elastic disposition. He had the heavenly gift of enthusiasm — a passionate love for the work he set out to do. He was a natural hunter, roamer, woodsman; as unworldly as a child, and as simple and transparent. We have had better trained and more scientific ornithologists since his day, but none with his abandon and poetic fervor in the study of our birds." Again (p. 33): "Wilson was of a nature far less open and generous than was Audubon. It is evident that he looked upon the latter as his rival, and was jealous of his superior talents; for superior they were in many ways. His drawings have far more spirit and artistic excellence, and his text shows far more enthusiasm and hearty affiliation with Nature. In accuracy of observation, Wilson is fully his equal, if not his superior."

Mr. Burroughs does not hesitate to openly question the accuracy of some of Audubon's tales of adventure during his early wanderings, some of which "sound a good deal like an episode in a dime novel, and may well be taken with a grain of allowance." Of his bird paintings, he says: "His bird pictures reflect his own temperament, not to say his nationality;

¹ John James Audubon. By John Burroughs. The Beacon Biographies of Eminent Americans. Edited by M. A. DeWolfe Howe. Boston: Small, Maynard and Company, 1902. 12mo, pp. xxii + 144.

² See Auk, Vol. XVIII, 1901, p. 285.

the birds are very demonstrative, even theatrical and melodramatic at times. In some cases this is all right, in others it is all wrong. Birds differ in this respect as much as people do—some are very quiet and sedate, others pose and gesticulate like a Frenchman. It would not be easy to exaggerate, for instance, the flashings and evolutions of the redstart when it arrives in May, or the acting and posing of the catbird, or the gesticulations of the yellow-breasted chat, or the nervous and emphatic character of the large-billed water thrush, or the many pretty attitudes of the great Carolina wren; but to give the same dramatic character to the demure little song sparrow, or to the slow moving cuckoo, or to the pedestrian cowbird, or to the quiet Kentucky warbler, as Audubon has done, is to convey a wrong impression of these birds." The coloring, as, well as the posing, "is also often exaggerated." But in view of all that Audubon accomplished, and often under such adverse conditions, "it ill becomes us," says Mr. Burroughs, "to indulge in captious criticism."

In brief, Mr. Burroughs has well accomplished his task, and placed within the reach of the many persons interested in the personal history of the great pioneer painter-naturalist, in a handy and comparatively inexpensive volume, a concise history of his life, character, and works. The photogravure portrait serving as frontispiece is from the well-known painting by Healy, made in 1838, now owned by the Boston Society of Natural History.—J. A. A.

Strong on the Development of Color in Feathers.—In a paper¹ of 40 pages, illustrated with 9 plates, Dr. Strong gives a detailed account of his investigations of the development of color in feathers. The work was done in the Zoölogical Laboratory of Harvard University, under the direction of Dr. E. L. Mark. It was begun in the fall of 1899, and was continued at intervals for many months, the material used being principally the remiges of the Common Tern (*Sterna hirundo*), but feather germs were also used from "*Passerina ciris* Linn., *Passerina cyanea* Linn., *Munia atricapilla* Hume, and the common dove," and dry feathers from *Cyanocitta cristata*, *Sialia sialis*, *Pitta sordida*, *Pitta moluccensis*, *Cotinga cayana*, and *Megascops asio*. Dr. Strong was well qualified for the task by his special training in the requisite technique of such investigations, and enjoyed the exceptional advantages of a well equipped laboratory, famous for its facilities for histological investigation. The paper is necessarily highly technical, and the results and not the methods will here receive notice.

A brief introduction is followed by 'II. Methods and Materials'; 'III. The Development of the Feather,' considered under 'A. The Feather

¹ The Development of Color in the Definitive Feather. By R. M. Strong. Bulletin Mus. Comp. Zoöl., Vol. XL, No. 3, pp. 146-186, pls. i-ix, October, 1902.

Germ'; 'B. The Differentiation of the Feather,' as (1) the barbules, (2) the barbicels, (3) the barb, (4) the rachis, (5) the residual cells, (6) the cornification and withdrawal of the feather. 'IV. The Production of Color in the Feather'; 'V. The Pigmentation of the Feather'; under which are considered, (A) the chemical nature of feather pigments, (B) the origin of pigment, and (C) the distribution of pigment in feathers. 'VI. Change of Color without Molt'; 'VII. Summary'; and 'Bibliography.'

In his introduction the author says: "A theory of change of color without molt was the subject of a rather warm controversy about the middle of the nineteenth century, and there has been something of a revival of the discussion in the last few years. It has seemed to me that a solution of the problem could not be attained without a thorough consideration of the causes of color and its development."

Under 'VI. Change of Color without Molt,' he states: "The changes in color claimed by many writers to occur without molt may be grouped under two heads: (1) the destructive, and (2) the constructive. Under destructive changes are included the results of abrasion and physical disintegration. Constructive changes include supposed regeneration and rearrangement of pigment." Then follows a reference to the recent writers on the subject, who have claimed change of color without molt, of which he says: "Descriptions of repigmentation have been mostly pure speculation. Within a few years the following remarkable explanation of the pigmentation of the feather has been given by Keeler ('93)": which he then quotes. He cites the still more recent work of Birtwell, from whom he quotes concerning the supposed rearrangement of the melanin granules in the feathers of the Indigo Bunting; and also quotes Chadbourne's argument for a so-called vital connection of the feather with the organism. After noting the claims of these and other authors, and explaining to some extent the sources of their errors, he says: "There is no satisfactory evidence of the occurrence of repigmentation . . ."

"Pigmentation takes place, as has been shown, at a very early stage in the differentiation of the feather, when the cells composing its fundament are in an active condition and in intimate relation with sources of nutrition. In the case of melanin pigments, there are branched pigment cells which supply pigment in the form of rod-shaped granules directly to the feather fundament. The contention for a flow of pigment from the barbs into the barbules, etc. (Keeler), is at once made absurd by the fact *that the barbules are pigmented before the barbs are differentiated.*¹

"Variations in color patterns are usually correlated with variations in the distribution of pigment in the earlier stages of the feather's development. When completed, the feather is composed of cells which have been entirely metamorphosed into a firm horny substance and its pigment is imbedded in that lifeless matter. The cells composing a barbule are fused into a solid, more or less homogeneous structure. *The pigment of one portion of the barbule is as effectually isolated from that of another as*

¹ Not italicized in the original.

is the coloring of various parts of a piece of agate.¹ Likewise in the barb and rachis, pigment is definitely and permanently located either in the solid cortex or in effectually separated cells of the medulla; and there are no pores large enough to admit the passage of melanin granules. The characteristic longitudinal arrangement of melanin granules, which one finds at the close of cornification of the feather, is permanent

"When the feather is completed, the dermal pulp possesses no functional connection with it; the barbs and barbules are then practically isolated from the vital processes of the organism and have no further power of growth.

"The arguments against change of color without molt through repigmentation or regeneration may be summed up as follows:

"1. Most feather pigments are too resistant to chemical reagents to warrant belief in their solution and redistribution.

"2. Pigmentation of the feather has been observed to take place only in the younger stages of the feather germ.

"3. At the end of cornification melanin granules have a definite arrangement, which is permanent.

"4. When cornification has ensued, the various elements of the feather are hard, more or less solid, structures and their pigment contents are effectually isolated from one another.

"5. There is no satisfactory evidence of the occurrence of repigmentation, and all the histological conditions render such an event highly improbable."

The results of his histological studies on the formation and growth of the feather, the differentiation of the various parts of its structure, the origin and supply of pigment to the feather, etc., are summarized in sixteen numbered paragraphs at the close of the paper, from which we quote the following:

"15. Before cornification has ceased, all the pigment which the feather is ever to receive has been supplied to the cells composing its fundament [the growing base of the feather].

"16. Changes in the color of plumage may take place (1) by a molt, during which the new feathers may have the same pigmentation as their predecessors or a different one; (2) by a loss of certain portions of the feather; or (3) by physical disintegration in the cortex of the feather as the result of exposure. There is no satisfactory evidence of a process of repigmentation, and the histological conditions of the feather render such a process highly improbable."

Dr. Strong's paper is one of the most noteworthy ornithological papers of the year, and should go far toward the settlement of the much discussed question of the repigmentation of feathers. We have here the results of an impartial investigation by an expert histologist, in opposition to speculation and conjecture, put forth by persons untrained in modern histological methods.—J. A. A.

¹ Not italicized in the original.

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NOTES AND NEWS.

DR. JAMES CUSHING MERRILL, a Fellow of the American Ornithologists' Union, died at his home in Washington, D. C., on October 27, 1902. He was born March 23, 1853, in Cambridge, Massachusetts, where his boyhood was spent and the earlier part of his education obtained. He afterwards attended school in Germany, and on returning to this country entered the Medical Department of the University of Pennsylvania, from which he was graduated in 1874. About a year later he was appointed

Assistant Surgeon in the United States Army. For many years after this he was stationed at various military posts in the West and Southwest, where he devoted most of his leisure time to studying and collecting birds and their nests and eggs. He also collected insects, especially beetles, and to some extent mammals and fishes, and he was an ardent sportsman and hunter of big game. Nearly all of his specimens were given to personal friends or to museums, the greater part of the bird skins going to Mr. Brewster's collection, and most of the nests and eggs to the National Museum.

On November 16, 1892, Dr. Merrill was married to Mary Pitt Chase of Maryland, and on March 13, 1894, he was made a full Surgeon with the rank of Major. Three years later (April 1, 1897) he was appointed Librarian of the Surgeon General's Office at Washington. Here he spent the remainder of his days, performing, with his accustomed steadfastness and ability, tasks irksome to a man of his temperament, and so very arduous and confining that by degrees his health gave way under the strain. He kept steadily at his work, however, until within a few months of his death, although in the summer of 1902 he was induced to spend a few weeks at White Sulphur Springs, Virginia, in the vain hope that the rest and change might do him permanent good.

Dr. Merrill was elected an Active Member of the American Ornithologists' Union at its first Congress in 1883. He was intensely loyal to its interests and universally beloved and respected by its members, for he had rare personal charm and marked ability as a naturalist, although his extreme modesty prevented him from undertaking tasks and attaining honors to which he might otherwise have successfully aspired. He was by no means uninterested in purely technical matters of science and fully qualified, both by nature and training, for dealing with them effectively, but his published writings relate almost exclusively to personal field observations on the habits and distribution of western birds and mammals. They are not numerous but their quality is of the first order, for he was an exceptionally accurate and intelligent observer as well as a pleasing and finished writer. His more important ornithological papers are:— 'Notes on the Ornithology of Southern Texas, being a list of birds observed in the vicinity of Fort Brown, Texas, from February, 1876, to June, 1878' (Proc. U. S. Nat. Mus., Vol. I, 1878, pp. 118-173); 'Notes on the Birds of Fort Klamath, Oregon. With remarks on certain species by William Brewster' (Auk, Vol. V, 1888, pp. 139-146, 251-262, 357-366); and 'Notes on the Birds of Fort Sherman, Idaho' (Auk, Vol. XIV, 1897, pp. 347-357; Vol. XV, 1898, pp. 14-22).

In accordance with a standing order of the Union respecting deceased Fellows, a special memorial of his life and work will be presented at the next Congress of the American Ornithologists' Union, and published later in 'The Auk.'—W. B.

DR. EMIL HOLUB, a Corresponding Fellow of the American Ornithologists' Union, died at Vienna, February 21, 1902, in the 55th year of his age. For the following notice of the life and work of this well-known African traveller and collector we are indebted to 'The Ibis' (July, 1902, p. 521).

"Dr. Holub was a native of Bohemia and of Czech descent. He was educated as an apothecary, but emigrated early to South Africa, and practised as a doctor at Kimberly and elsewhere. His original inducement to penetrate into the far interior of the country was his ardent taste for natural history, especially ornithology, to the pursuit of which his first seven years of travel were mainly devoted. His journeys were described in his 'Sieben Jahre in Süd-Afrika' (Wien, 1881), a work which was translated into English and published in London. In conjunction with the late Freiherr v. Pelzeln, the collection of birds made on this occasion was described by him in a volume entitled 'Beiträge zur Ornithologie Sudafrikas' (Vienna, 1882). Dr. Holub subsequently returned to South Africa, and made a more extended expedition into the Marotse and Mashukulumbé countries north of the Zambesi, now forming part of Northern Rhodesia. During his four years' wanderings on this occasion (1883-87) a large collection of native arms and implements, as well as of natural objects, was made, and was exhibited at Vienna on his return to Europe. This journey was described in his work 'Von der Capstadt ins Land der Maschukulumbé' (2 vols., Vienna, 1890)."

CHESTER BARLOW, a Member of the American Ornithologists' Union, and one of the best known of the younger ornithologists of this country, died at Mountain View, Santa Clara County, California, Nov. 6, 1902. Death resulted from an incurable form of tuberculosis and took place after a few weeks of marked debilitation and but a few days of final confining sickness. Interment was made at Mountain View in the presence of a large number of friends, prominent among whom were many members of the Cooper Ornithological Club of which Mr. Barlow was a founder and the Secretary for nine years.

Although but 28 years of age he had accomplished much for ornithology, and the position which he held among his fellows in California and among the younger ornithologists throughout the country was unique. He was a thoroughly self-made man, and the large degree of popularity which he enjoyed was due to sterling qualities combined with a loving disposition and an impressionable nature. He was educated in the common schools of Santa Clara, California, and immediately after graduation took a position as a clerk in the Santa Clara Valley Bank. Indeed, while still in school he helped support his widowed mother by assisting with the accounts at this bank in spare hours, having begun his career as stable boy for one of its senior officers. His ability and integrity soon won promotion, and in the course of a few years he became assistant cashier and later was elected a member of the board of directors. He was married Oct. 15, 1899, to Miss Jeannette Nicholls of Santa Clara,

and his home life was a very happy one. He spent all his leisure in the woods and fields indulging his love for the birds and things of nature, showing an energetic spirit and a rare enthusiasm. He knew the haunts of all the birds near his home in the Santa Clara Valley, and though his time was much occupied by business, he seldom failed to contrive a way to obtain a daily hour or two in the field during the spring and summer months. He was a careful and discriminating collector and a very ardent advocate of bird protection. He was also an enthusiastic and successful photographer, being one of the first in this country to obtain good pictures of birds in their haunts. Although having no special education, and making no profession of wide knowledge of technical ornithology, in his short career he unquestionably accomplished more for the advancement of bird study in California than any other one man has done. He was preëminently a man of action—a man who obtained results. He is entitled to all the credit for the original organization and much of the subsequent prosperity of the Cooper Ornithological Club. To his enterprise and foresight was due the birth of the Club's 'Bulletin,' later 'The Condor,' and to his unflinching industry and vigilance, its recognized position at present as the best ornithological journal of its class in the world. As secretary of this club and as editor of 'The Condor' he became quite widely known, and his correspondence was exceedingly voluminous; and such was the charm of his nature that many who had never seen him learned to love him through the hearty, sympathetic, and likewise virile letters that he wrote them. It was his dearest wish to visit the eastern States to meet some of his correspondents and attend a congress of the A. O. U., and had he lived he would have done so as soon as circumstances permitted. As it is, those who mourn him are on both sides of the continent, and those to whom his death is almost like that of a brother are not a few.—W. H. O.

LUDWIG KUMLIEN, an associate of the American Ornithologists' Union, died at his home in Milton, Wisconsin, Dec. 4, 1902, after long suffering from cancer of the throat, in the 50th year of his age. He was a son of the late Thure Kumlien, one of the pioneer naturalists of Wisconsin, and a valued correspondent of Baird, Brewer, Cassin and Lawrence, and was born at Sumner, Wisconsin, March 15, 1853. He was educated at the Albion Academy and the University of Wisconsin, and at the time of his death was Professor of Physics and Natural History in Milton College, to which he was chosen in 1891. He was for a time an assistant in the United States Fish Commission, and a special agent of Fisheries for the Tenth Census, and previously naturalist of the Howgate Polar Expedition, spending two years in the Arctic regions, and forming very important collections in various departments of natural history. His report as naturalist of the expedition was published in 1879, forming Bulletin No. 15 of the U. S. National Museum (8vo, pp. 179), entitled 'Contributions to

the Natural History of Arctic America made in connection with the Howgate Polar Expedition, 1877-78' (Birds, pp. 69-105). He contributed to the late G. Brown Goode's 'North American Food Fishes,' and to various other publications of the Fish Commission, particularly in reference to the fishes of the Great Lakes, and was for a time employed in scientific work at the Milwaukee Public Museum. He was an occasional contributor of notes and short papers on ornithology to 'The Auk,' 'The Nidologist,' 'Forest and Stream,' and other natural history publications, but his most important ornithological publication was his report on the birds of the Howgate Expedition. He was married in 1892 to Miss Anabelle Carr, who, with three young children, survives him.

CURTIS CLAY YOUNG, an Associate of the American Ornithologists' Union since 1891, died at Port Daniel, Province of Quebec, Canada, July 30, 1902. He was born in New York City, November 2, 1874, and was preparing at the Brooklyn Latin School to enter the Lawrence Scientific School of Harvard University when forced by ill health to abandon further formal study. His love of ornithology became his chief interest, and remained so until his death. In spite of increasing physical disability he made collecting trips to Port Daniel, Quebec, to Dutch Guiana, the Island of Trinidad, and the Bahamas. He was also a member of the Linnæan Society of New York, and of the Brooklyn Institute. His collection of birds, numbering about 800 skins and 400 sets of eggs, is to be placed in the museum of Vassar College.—W. F.

PERRY O. SIMONS, widely known as an energetic and careful collector of birds and mammals, and for several years past employed by the British Museum to collect in western Mexico and in western South America, was assassinated by his native guide near Cuevas, Argentina, about the end of December, 1901. Through his career as a collector he accomplished so much for the promotion of science that it seems desirable to place on record in 'The Auk' some account of his life and services. For the following biographical sketch we are indebted to his brother, Mr. Luther B. Simons, of Maywood, Nebr., who for several years assisted his brother in his work in South America, and who has kindly furnished the facts here given in response to our solicitation.

Mr. Simons was born at Mineral Point, Wisconsin, October 6, 1869, where he spent his boyhood on a farm, and took great pleasure in hunting, fishing, and trapping. In 1886 he left his Wisconsin home and went to Riverside, California. He always had a fondness for books, and a strong desire to secure an education. He was graduated from the Riverside High School in 1893, and the following year entered Stanford University. He spent four years in Stanford, his special course being electrical engineering. During the summer vacations he visited the mountains of California and Arizona, with other Stanford students, to hunt, fish, and collect specimens of birds and mammals, and soon became

an expert collector. In 1896-97 he was employed by Mr. W. W. Price to collect in Mexico. He left San Francisco November 25, 1896, accompanied by his brother, for Mazatlan, Mexico, and the next ten months were spent in collecting in the States of Sinaloa and Durango. The collection of mammals was purchased by the British Museum, and gave such satisfaction that Mr. Oldfield Thomas, the Curator of Mammals, soon engaged Mr. Simons for a three years collecting trip to the Andean region of South America. He was again accompanied by his brother. They left San Francisco September 28, 1898, on the steamer 'City of Sidney.' Work was begun at Guayaquil, Ecuador, and after collecting for some time at various points near the coast, the brothers crossed the Andes by way of Mount Chimborazo, and camped for some time at Riobamba. "From Riobamba," to quote from Mr. Luther B. Simons's letter, "we went down the Río Chambo as far Río Topo; then returning to Riobama we traveled southward, visiting Cuenca and Loja, two prominent cities in the highlands of Ecuador. Leaving Ecuador we entered Peru, traversed the desert of Piura and Sechura, and passed on down the arid coast to Lambayeque, and thence inland to Cajamarca. Here we were detained by a revolution, and witnessed a big battle, but were not molested.

"From Cajamarca to Lima we traveled partly in the high Andes and partly along the desert coast, there being not a single trail through the interior of Peru, the country is so broken by deep cañons. From Lima we crossed the Andes by the Lima and Oroya Railroad and made a large collection on the Río Perené. We then returned to Lima and took passage by steamer for Mollendo, the southern port of Peru. Here we made small collections and then passed on to Arequipa, Puno, Lake Titicaca, and Santo Domingo. After a month's stay at Santo Domingo we returned to Puno and shipped what specimens we had, and then took passage on the steamer 'Coya' for La Paz, Bolivia. From this point we went into the interior, to a place called Mapiri, on the upper Madra de Dios River.

"We had now been absent two years, which was longer than I had agreed to remain with the expedition, and after making a thorough collection at this point I bade my brother a sad farewell, returned with the specimens to La Paz, and then to Mollendo, sailing thence for San Francisco. My brother had intended to hire some native assistants, but later decided to travel alone. For a year longer he prosecuted his work very successfully, collecting at many points in southern Bolivia and the northern border of Chili. From Antofagasta he went by steamer to Valparaiso, and then by rail to Mendoza, Argentina, collecting at various points in Chili and Argentina. The last letter I received from him was written at Mendoza, December 15, 1901. From information I have received from the British Consul General at Valparaiso, he had dispatched his collecting chest, tent, etc., from a place called Puente del Luca to Valparaiso, and had attempted to cross the Andes on foot to Los Andes, Chili, with a native guide, who, when near a place called Cuervas, Argen-

tina, is supposed to have struck him on the back of the head with a 'penca,' or loaded knot at the end of a rein, and then to have driven a spike through his forehead. His body was found and buried near where the tragedy occurred. The murderer, whose motive was robbery, is now in prison at Mendoza."

Mr. Simons collected birds as well as mammals, sending large collections of the former to the British Museum, but upon which no formal report appears to have yet been published.

Mr. Thomas has described many new species, as well as several new genera of mammals collected by Mr. Simons during his three years' work in western South America, where he collected at numerous points, both on the coast and at high altitudes in the Andes, from southern Ecuador to northern Argentina. This notice of Mr. Simons may be fittingly closed by the following brief but emphatic tribute from Mr. Thomas published in the 'Annals and Magazine of Natural History' for April, 1902 (p. 237 footnote): "While this paper is in press news has been received that Mr. Simons, the most successful mammal collector that I have ever had to deal with, has fallen a victim to his intrepidity, and has been murdered by a guide when crossing the Andes alone with him. Brave to a fault, cheery and enthusiastic, fond of a wild life, successful as a trapper, painstaking, systematic, and extraordinarily rapid in his work, Mr. Simons was the perfection of a collector, and we shall not easily find his like again. I shall hope to publish later a summary of his Andean journeys and their scientific results."

DURING the absence of Mr. Otto Widmann, of Old Orchard, Mo., on a visit to Germany during the past summer, his house was burned and with it the greater part of his library and his manuscripts, including his twenty-five years' observations on birds, and the manuscripts of his nearly completed work on the birds of Missouri. Under this terrible discouragement he can feel sure of the deep sympathy of his fellow ornithologists; whose respect and esteem he has gained by his many contributions to American ornithology, and through personal acquaintance. It is to be hoped that Mr. Widmann's great loss will not prevent his placing before the ornithological world the results of his long experience in a comparatively little known field.

A NEW work on the 'Birds of Ohio,' by William Leon Dawson, with introduction and analytical keys by Lynds Jones, is announced by the Wheaton Publishing Company of Columbus, Ohio, for publication in September, 1903. The work will be a royal octavo of about 500 pages, with 80 colorotype and about 200 half-tone plates, the latter illustrating the "hat tats or favorite haunts of each bird resident of Ohio," as well as many photographic representations of live birds. It will be sold only by subscription, at from \$5.00 to \$7.50, according to the style of binding

RESPECTING the long delayed new edition of the late Dr. Coues's 'Key to North American Birds,' we have received the following circular of information from the publishers, which we feel sure will interest all readers of 'The Auk.'

"Messrs. Dana Estes & Co. announce that the fifth revised edition of the 'Key to North American Birds,' by Dr. Elliott Coues, so long and patiently awaited by the public, will be ready in the spring of 1903. The reason for the unusual delay in its publication may be briefly stated. When Dr. Coues died in 1899 he left the manuscript wholly finished, but the copy was rendered hard to decipher without the exercise of most intelligent care by reason of innumerable interlineations, erasures, abbreviations, 'riders,' and detached notes, written in a minute, and sometimes difficult handwriting. It was evident that had the Doctor lived he would have cast his material, although completed as he left it, into a form which would present fewer difficulties to the compositor. His sudden death left the copy in such shape that the task of revision and preparation for the press required double the amount of work that had been anticipated. The publishers, however, have had the good fortune to obtain the services of a thoroughly equipped ornithologist, who has read the proof with the most painstaking care, which has been ably supplemented by the efforts of a number of professional proof readers. The result is a book which Dr. Coues would have been proud to own as the crowning work of his life. The publishers announce it as being absolutely authoritative and definitive, and express confidence that it is entirely free from errors of statement or form.

"Some of the features which will make the work more than ever indispensable to ornithologists, professional as well as amateur, may be briefly summarized:

"1. The detailed, careful descriptions of species — as in former 'Keys.'

"2. The accounts, much fuller than in former editions, of the breeding habits of birds — dates, nests, and particularly the detailed description of eggs, with careful measurements of same.

"3. The full collation in the *text* (not in an appendix as in former editions) of the nomenclature of species in the 'Key,' with the nomenclature and numeration of the American Ornithologists' Union Check-List.

"(4) The full synonymies and bibliographical references in the case of nearly all species — a new feature of the 'Key,' and invaluable to students of all degrees of advancement. To the preparation of this important feature of the last edition of his 'Key,' Dr. Coues brought his rare gifts as bibliographer and nomenclator. The painstaking character of this work makes it possible for the student to extend with ease his researches in the case of a great many species.

"(5) The professional discussion of questions of classification and nomenclature by perhaps the most eminent of modern ornithologists.

"(6) The introductory (*i. e.*, general) descriptions of ordinal, family, and other groups, are much amplified over those in preceding editions of

the 'Key,' being of a broad scope, which make plain the comparative relationships of North American families, genera, and species of birds, with extralimital forms (Old World and neotropical). This broad treatment makes of the 'Key' more than the merely faunal work which its title would imply — *i.e.*, while it is still emphatically a 'Key to North American Birds,' it contains, more than ever in the past, much general information in regard to birds.

"(7) An invaluable feature of preceding editions — the scholarly explanation of the etymology of scientific names — is retained, and will continue to make the 'Key' unique among works of its class.

"Throughout the 'Key' — in all departments, life histories, descriptions, etc. — Dr. Coues's famous descriptive powers are fully displayed as in the past."

'LONDON BIRDS and other Sketches,' by J. Digby Pigott, is announced by Edward Arnold (37 Bedford St., London), a large crown octavo, with photogravure illustrations. It includes, besides several chapters on London birds and London insects, sketches of the 'Birds of the Outer Farnes,' 'The Shetlands in the Birds'-nesting Season,' 'Haunts of the Shearwater,' 'In Dutch Water Meadows,' etc.

'BIRD-LORE's' plans for 1903 include an article on the first (1872) edition of Coues's 'Key' by its financial sponsor Prof. F. W. Putnam which will doubtless contain some interesting historical details, and, in view of the proposed publication this spring of the revised, two-volume edition of the 'Key' will be especially interesting. The article will be accompanied by photographically reproduced pages of proof of the systematic portion of the 'Key,' with corrections and characteristic annotations by Dr. Coues. 'Bird-Lore' also proposes to publish the photographs of the fifty odd prominent ornithologists forming its Advisory Council and this series, in connection with the group photographs of the Founders of the American Ornithologists' Union, members of the Nuttall Club, and of the Delaware Valley Ornithological Club, will indeed make this magazine an album of American Ornithologists. The February number will contain an article by Mr. A. J. Campbell of Melbourne, author of 'Nests and Eggs of Australian Birds,' on the Mound-building birds of Australia, with, we believe, the first photographs of the singular structures erected by these birds to be published in this country.

AMONG the minor Ornithological Clubs, good work has been done at London, Ont., by the 'Ornithological Section of the Entomological Section of Ontario.' At the recent annual meeting of the Entomological Society held in that city the name of the 'Ornithological Section' was changed to 'The McIlwraith Ornithological Club.' This was done at the request of the members of the Club, who wished to acknowledge the

indebtedness of Canadian ornithologists to Mr. Thomas McIlwraith of Hamilton, one of the founders of the A. O. U. and the oldest as well as the foremost Canadian in the science.

The papers read at the meetings of the McIlwraith Club are usually published in the 'Ottawa Naturalist,' but a few have appeared in 'The Auk.' The officers of the Club are: Chairman, J. E. Keay; Secretary W. E. Saunders.

THE THIRD ANNUAL CONFERENCE of the Audubon Societies was held in Washington November 19 and 20, in connection with the A. O. U. Congress, a joint meeting of the Audubon Society delegates and the American Ornithologists' Union being held on the morning of December 20, to hear the report of the Chairman of the A. O. U. Committee on Bird Protection, and an address by Dr. T. S. Palmer on the results of the enforcement of the Federal law for the protection of birds. A public meeting of the Audubon Society delegates was held on the evening of the 19th, and the annual business meeting on the evening of the 20th. Delegates were present from sixteen of the different State Societies. At the public meeting a number of formal papers were read relating to various phases of the work of bird protection, and at the business meeting the special work to be undertaken by the National Committee of Audubon Societies was outlined, this including an attempt to secure the passage of proper laws for the protection of birds in a number of States which have thus far failed to take such action. A Committee was also appointed, consisting of William Dutcher, Frank M. Chapman, T. S. Palmer, and Witmer Stone, to examine the sample stock of wholesale millinery dealers, with a view to systematic and intelligent coöperation between the wholesale millinery trade and the Audubon Societies. Mr. Dutcher was re-elected Chairman of the National Committee, and funds were guaranteed to defray the cost of employing a clerical assistant to enable the Chairman to carry on the arduous duties that are inseparable from this important position. The educational side of bird protection work was deemed of the highest importance, and steps were taken to bring the Societies in closer touch through coöperative publication of educational leaflets and the establishment of a bureau for the exchange of lantern slides for use in lectures on bird protection.

In furtherance of this plan the Chairman has prepared the following:

"APPEAL FOR BIRD NEGATIVES.

"One of the most effective methods of educational work employed by the Audubon Societies is the illustrated lecture.

"Very few of the Societies, however, have been able to secure illustrations owing either to lack of means or of suitable negatives from which to make slides.

"The National Committee thinks it so important that all of the Societies should have a number of bird lectures continuously in use that it appeals to the members of the A. O. U. who have bird negatives which they have ceased to use, to contribute them to the National Committee in order that slides may be made from them and furnished to the several societies, without cost.

"Negatives of any species of wild North American birds will be accepted.

"Acknowledgment of all contributions will be made in 'Bird-Lore,' the official organ of the Audubon Societies.

WILLIAM DUTCHER,
*Chairman National Committee
of Audubon Societies.*"

As shown by the report of the Chairman of the A. O. U. Committee on Bird protection, published elsewhere in this number of 'The Auk,' very satisfactory progress has been made the past year in securing better laws for the protection of birds, and a better enforcement of those already enacted, and the great extension and important influence of the work of the Audubon Societies.

SUPPLEMENT.

REPORT OF THE A. O. U. COMMITTEE ON THE PROTECTION OF NORTH AMERICAN BIRDS.

BY WILLIAM DUTCHER, CHAIRMAN.

Plates III-VI.

I have considered the birds ;
And I find their life good,
And better the better understood.— GEORGE McDONALD.

THE Scottish poet struck the keynote of bird protection when he said, the more we study the life of birds the better we understand them, and he intimates that it is impossible to find anything that is not good in bird life.

Nearly a score of years since one of the Fellows of our Society, the late George B. Sennett, first called the attention of ornithologists to the rapid disappearance of our non-game birds, especially the water birds, owing to their use as millinery ornaments, this fashion having then assumed alarming proportions.

As the result of his alarm note, the original A. O. U. Bird Protection Committee was organized in 1886 and much good work was accomplished ; later a National Audubon Society was organized and managed by ' Forest and Stream,' until it outgrew its promoters, or the fashion of wearing the plumage of wild birds seemed to decline, when the Audubon Society and the A. O. U. Protection Committee ceased to exist, except in name. It was hoped that the reform was a permanent one, but a few years later the fashion revived to a greater extent than ever before. Coincident with this revival a few local or State Audubon societies were organized, and have since been doing splendid aggressive work. They are confined, however, exclusively to localities where the most active ornithological work has been done, notably, Massachusetts, Connecticut, New York, Pennsylvania and Illinois. Necessarily the work of these societies is local, and it was not until another ornithologist, Mr. Abbott H. Thayer, appealed to the bird-loving pub-

lic for financial support with which to establish a warden system for the protection of the breeding sea birds, that anything of a national character was attempted.

How very successful has been the result of Mr. Thayer's appeal to preserve the bird life of the seashore for posterity is shown by the annual reports of this Committee. While the ornithologists of the country are investigating the habits, food and distribution of birds, they note and call attention to their disappearance, both by natural and artificial causes, and sound the alarm which is responded to by the Audubon Societies that are at the present time doing such energetic, systematic and effective work in bird protection. In this connection it is interesting to note how closely Audubon societies and work for the protection of birds follow in the steps of scientific ornithological work.

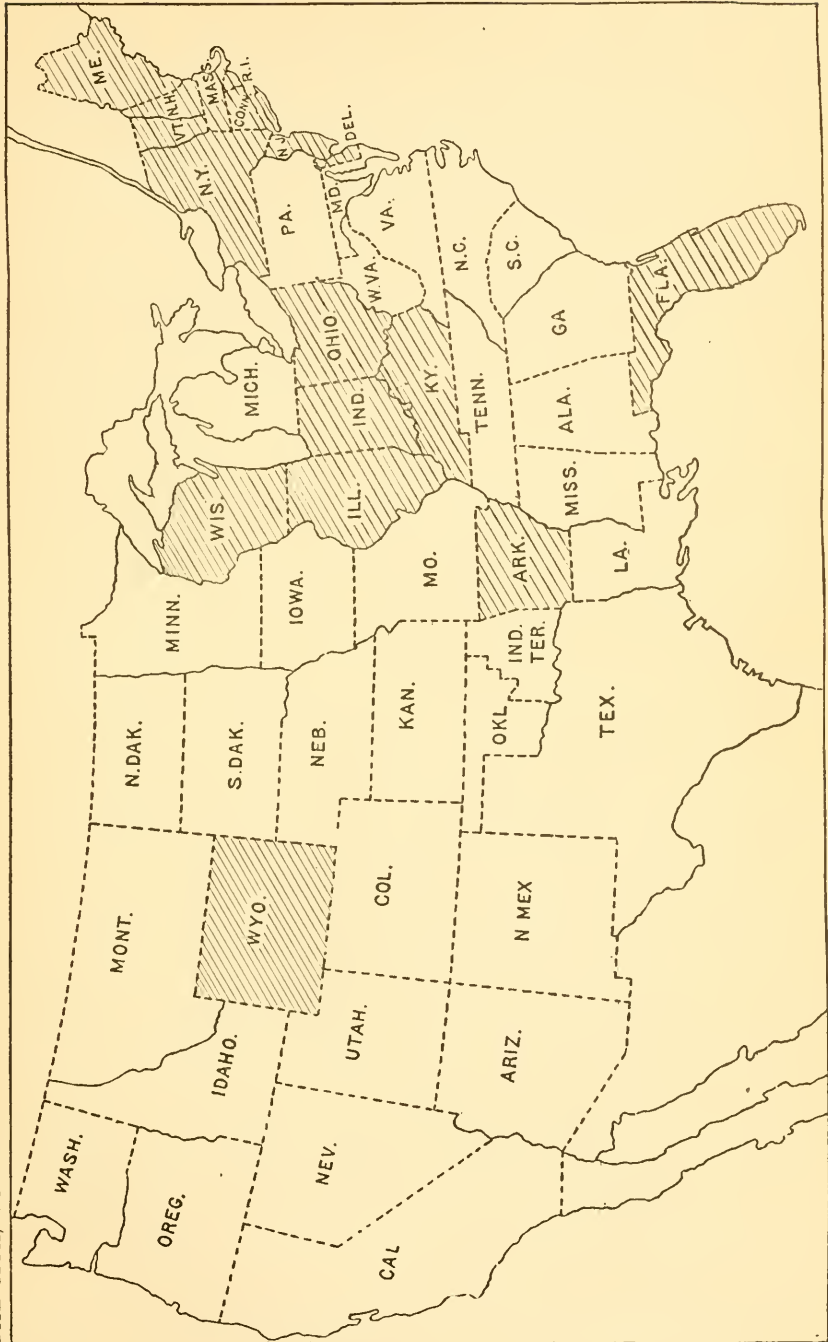
The accompanying map (Pl. III) shows that in the States where the American Ornithologists' Union has the largest membership, Audubon societies have been established, and that where there are no working ornithologists, no Audubon societies exist, and none are likely to be founded. This is notably the case in the Gulf States and in some parts of the West. This may in some degree be accounted for by the smallness of the population in these localities; happily, however, where the smallest number of people live is the least need for protection work, the greatest need being in the most densely populated centers, especially near the great cities and towns having a large foreign element among their citizens who will kill anything that flies, be it large or small.

The two great bodies of bird-lovers should go hand in hand, one for the purpose of obtaining an intelligent insight into bird life, and the other for the protection of the life of the bird.

During the past few years Audubon Societies have been organized quite rapidly, so that now thirty-two are in existence, some of them doing excellent and valuable work, while others are merely organizations in name, being small, and their influence almost restricted to the town in which they are located; however, these latter will serve as the nucleus from which to expand in the future. Many of the most active Audubon workers have for a long time agitated the subject of a national body composed of representatives from each State society who could give attention to all subjects of a national character.

PLATE III.

THE AUK, VOL. XX.



MAP SHOWING STATES (Shaded) WHICH HAVE ADOPTED THE A. O. U. MODEL LAW.

During the past year, after two meetings of delegates, one held in Cambridge, Mass., in November, 1901, and a second in New York in April, 1902, the idea culminated in the formation of a federation known as the National Committee of Audubon Societies.

The primary work of this Committee is to look after legislation, the formation of new Audubon societies, and the distribution of uniform literature, in conjunction with the work of the A. O. U. Protection Committee. As the work done by these two bodies is so closely related, and as the same person acts as the chairman of each, but one report is deemed advisable. Before, however, detailing the actual results accomplished during the past twelve months the Chairman takes this opportunity of suggesting certain lines of activity for the coming year, as well for members of the American Ornithologists' Union as for the members of the various Audubon Societies.

Every ornithologist should be the center of bird knowledge in his locality, not working for his own pleasure only, but seeking to gather about him all of the bird lovers in his section to instruct them in the life history, and especially the economic value, of birds. He should especially seek to interest the young people and children, for he may thus be educating and developing a learner who will some day develop into an Audubon or a Baird. These local groups will enlarge, their influence spread, and soon may result in an Audubon Society, if one does not already exist, or in strengthening the one now at work. The ornithologist should also make himself thoroughly acquainted with the game and bird laws of his State, and if they are satisfactory and comprehensive, should never in the slightest degree violate them, either in spirit or in deed, and he will thus be in a position to exact from every other citizen a like strict conformity with the bird statutes. If the bird laws are not satisfactory he should at once agitate the subject of adopting the American Ornithologists' Union model law for his State, and should by every means in his power seek to create public opinion in favor of a new bird law.

Besides his knowledge of the distribution and migration of the birds of his vicinity he should acquire a comprehensive knowledge of the food habits of the birds, in order that he may intelligently direct the attention of the agriculturists of his locality to the good

that the birds are doing and how great an asset to the State they are from an economic standpoint. To get this professional knowledge it is not necessary for him to collect bird stomachs for investigation, for the necessary investigations have already been admirably made by the Division of Biological Survey of the United States Department of Agriculture. The many excellent reports issued as the result of the work of the corps of experts of this division, should be studied carefully by every person who considers himself an ornithologist.

Again, an ornithologist should seek to attract attention to the economic and ethical side of bird life and to mould public opinion through short, pithy articles in the press. Strictly scientific statements clothed in a popular and attractive dress will always be read and do good, and will often be republished by many widely separated papers. If prejudice exists among the people regarding certain birds, such as owls, hawks, etc., and if any birds which are really non-game birds are considered as game birds, a well devised and instructive series of articles regarding these species should be contributed to the press. Prejudice is always the result of lack of knowledge and the ornithologist should seek to inform the public by every means in his power of the good offices of birds and thus change prejudice to ardent friendship.

The work of the Audubon Societies follows somewhat the same channels, but instead of being the effort of a single individual, is that of a number of well equipped individuals who work as a unit, and direct the efforts of a large number of helpers known as local secretaries. Every well equipped Audubon Society should have an Executive Committee with an active, energetic chairman who, if possible, should be an ornithologist, or if this be not feasible there should be one on the committee. One of the members should be a lawyer to whom should be referred all legislative and legal matters that need attention. The treasurer, if such can be obtained, should be a person who can successfully, by personal influence, finance the affairs of the society, and the secretary should be a person who is capable and willing to devote much time and labor freely to the work. On the committee should be some person who is ready with the pen, and capable of establishing active relations with the public press. Moreover, the executive

committee should never be a large one, but one harmonious in feeling, easy to get at and responsive to an urgent call. The president of the society need not necessarily be an ornithologist, but should be a man or woman well known in the State and of widespread influence. The larger the list of vice-presidents the better; these should be well known and influential persons from all portions of the Commonwealth, and should include teachers, preachers, legislators, agriculturists, etc., but only those who are heartily and earnestly in sympathy with the work of bird protection. With this equipment for the work let us consider briefly what the work of an active, energetic Audubon Society is.

First.—As rapidly as possible the State should be organized into small districts and in each one should be established a local board, with a secretary to carry out the plans suggested by the parent society, and also to secure members for the society and to create local sentiment in favor of bird protection, and the enforcement of the laws.

Second.—A number of illustrated lectures should be kept actively in circulation among the local branches. These lectures should not be too scientific in character, but the narrative of bird life, explaining the lantern slides, should deal briefly with the food habits, and especially with the song and home life of the bird. Everything in the lecture should induce a desire in the hearer to continue the study of the bird as a fellow citizen, entitled to love and protection. The lectures may be efficiently supplemented by bird charts, if scientifically correct in drawing, and by well selected libraries of bird books, to be loaned for stated periods to the local clubs or branches.

Third.—In the United States at the present time there are enrolled in the public and private schools nearly 18,000,000 children. It is with this vast body of plastic minds that the Audubon Societies must deal and must bend every energy to see that they are early taught to know and love the birds. The hope and promise of bird protection in this country lies in the education of this vast army of young people. If they can be brought into sympathy with the Audubon movement, as it now exists, there will not be so much need of legislation, nor will so many wardens be needed in the future. The Societies in each State should get in

touch and establish working relations with the Superintendent of Public Instruction, to the end that educational bird leaflets may be distributed among the teachers, who will have them read to or distributed among the pupils. The seed thus sown among the children will bear fruit of love for nature that will affect the parent and the home.

Fourth. — Another activity of the Audubon Societies should be to exact strict conformity to the bird laws of the State, not by prosecutions in their own name, but by securing legal evidence of violations of bird laws that come under their notice and furnishing it to the legally constituted authorities, usually the game commissioners, for use in prosecutions. All such violations as killing protected birds by pseudo sportsmen, wantonly for sport or practice, by boys who rob and destroy nests, or kill birds with catapult or airgun, by the foreign element who imagine that liberty means license, by all who engage in the barbarous practice of what is known as side shoots, and by the pot hunter who kills protected birds and sends them to market where the dealers may keep them in cold storage for future use; by the plume hunters who shoot the breeding birds that the devotees of fashion may be pampered at the price of suffering and cruelty.

In every section of the country may be found large and flourishing organizations of women, banded together for mutual improvement. These women's clubs can be made powerful auxiliaries and helpers of the Audubon movement if the matter is brought to their notice in a reasonable and intelligent manner. On numerous important occasions during the past year a consideration of the Audubon movement has formed one of the subjects of debate by conventions of women's clubs. If the club women of America frown upon the use of birds' plumage for millinery ornaments very much ground will have been gained for the cause.

That it is necessary to watch the markets and millinery establishments at the present time is only too well known. Very recently nearly 80,000 Snow Buntings were found by a State game warden in a cold storage house in one of the larger eastern cities, and were identified by a trained ornithologist. The writer of this report has recently seen offered for sale by one of the leading department stores in New York such valuable birds as Flickers

made up for millinery ornaments. The millinery advertisements in the papers openly offer birds' plumage, seemingly without fear of the laws. The following taken from a New York paper, of Oct. 21, 1902, shows that the work of the Audubon Societies is not yet finished. "At \$20.00 Hat of tan felt, shepherdess shape; bound with tan velvet, trimmed only with a beautiful bird, the colors of whose plumage — white, rich red brown, gray and black, blend artistically with the hat."

Letters have been brought to the attention of your Committee that have been sent out by feather dealers offering to buy in large quantities such birds as herons, terns, gulls, etc. Further, the Committee has on file a strictly reliable account of the killing of 40,000 game birds, mostly sandpipers, on the North Carolina coast, for millinery purposes, the bodies of the birds having been thrown away after the plumage was secured. In this connection it may be well to suggest to sportsmen that if they wish the game birds of the country preserved they must insist that all game laws should contain a section as follows: "It shall be unlawful for any person to catch or kill, buy or sell, have in possession or ship, at any time, any wild bird known as a game bird, to be used as an article of dress or for millinery purposes."

Fifth. — The Audubon Societies should get in touch with the farmers' clubs, the granger, agricultural and horticultural societies of their own States in order that their members may be taught how much good the birds do the agricultural and forestry industries. The agricultural interest of the country is by far the largest and most important one, and those directly interested in it far outnumber those interested in other industries. The farmers should be taught to feel regarding the much misunderstood and persecuted owl family as the late Lord Kimberley did, who once said, "Almost the greatest crime which any one can commit on my estate is to kill an owl."

During the past year legislative work has progressed satisfactorily, two States having adopted the model law, viz., Kentucky and Ohio; Congress adopted it for the Territory of Alaska, and it was adopted in the Northwest Territories, under the title of the 'Useful Bird Ordinance,' approved April 19, 1902. This ordinance applies to a larger extent of country than is covered by any law in the

United States, and coupled with the provision of the Alaska law, gives practically uniform protection to non-game birds throughout the region north of the United States and west of Hudson Bay, with the single exception of British Columbia.

During the coming legislative season it is proposed to make an active effort to obtain the passage of the A. O. U. model law in the following States: California, Georgia, Kansas, Michigan, Minnesota, Missouri, Montana, North Carolina, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, Washington, and West Virginia.

The accompanying map (Pl. IV) shows how large a part of the United States still requires legislative work. The Committee urges upon the members of the Union and of the Audubon Societies resident in the several States mentioned above to make the passage of the A. O. U. model law¹ their personal interest. A citizen of a State has a far greater influence in such matters than an outsider, no matter how well intentioned and sincere his efforts may be. Create a sentiment by speaking or writing to your senator and representative and urge the merits of the bill and the vital necessity for its passage. Get as many as possible of your friends and neighbors to do the same, get the press and clergy to take up the subject, and likewise the farmers' clubs. In this manner the voice of the people will be heard from all parts of the State and the intelligent legislator will carry out the wishes of his constituents.

The subject of bird protection long since passed the emotional stage, and while there may still be connected with the growing movement some pure sentiment, it cannot be considered any longer sentimental, but is founded on cold facts.

Careful investigation has proved that birds are of great economic value, and to the end that this important asset of the State and Nation may be preserved, the Audubon movement exists in this country.

While the Audubon Societies and the American Ornithologists' Union are struggling to preserve the bird life of our own country, is there not a broader view to take of bird protection? Should

¹ The model law is given in full in the report for 1902 (*Auk*, XIX, p. 59).

we not take some steps to prevent the loss of bird life in other countries; in other words, should this movement not be an international one?

It is eminently fitting that the bird protectors of the United States should join hands with the bird protectors of the other world powers to stop the use of the plumage of wild birds, regardless of the habits of the bird.

Recently there appeared in the press a notice published by the Millinery Merchants' Protective Association, as follow :

"Inasmuch as the Audubon Societies of New York and other cities have sent out circular letters warning the trade against buying and selling birds and bird plumage, which has caused the impression to prevail among some buyers that all birds and bird plumage are prohibited, we find that it is necessary, in order to inform the trade of what they can and cannot use, to make the following statement :

"Milliners are warned to eliminate from their stock the birds of America protected by State laws, which include what have been popularly used for the last two or three seasons for millinery trimming, namely, gulls, sea pigeons, herons, terns, and grebes.

"The laws, both National and State, do not affect the following imported birds: paradise, parrots, parroquets, merles, impeyans, nicobars, albenas, Japan and Chinese pheasants, golden pheasants, marabous, gouras, and argus."

These birds certainly all have their mission to perform in the countries in which they are found, as the North American birds have on this continent. While it may not be possible for this government to legislate to prevent foreign bird skins from being admitted, yet it is believed to be a duty of the A. O. U. and the Audubon Societies to call the attention of the bird-loving citizens of foreign countries to the great numbers of exotic birds that are killed to furnish millinery ornaments for the American trade. It is reported that the Government of India, in September of this year, issued an official order prohibiting the export of wild bird skins and feathers. This will take from the market a great many parroquets, impeyans and nicobars. As the United States has recently come in possession of a vast insular province in the East, we should also urge the Executive of the United States to instruct the Civil Government of the Philippines not to permit any

wild birds to be killed or shipped from those islands for millinery purposes.

The question of bird protection is important enough for the American societies to agitate and recommend an International Congress for the purpose of devising means of preserving the wild birds of the world. We should at this Congress of bird students and bird protectors send words of greeting and warning to like bodies in other portions of the world, and to that end your Committee suggest that a committee of five members be appointed by the President of the A. O. U. to prepare and forward memorials to all bird protective societies in England, Germany, Holland, Japan and Australia, or to any other foreign country from which wild bird skins are exported. The committee should be composed of three Fellows of the Union and two Fellows who are members of the National Committee of Audubon Societies.

One of the vital necessities in movements of this character is money; without it the work is seriously handicapped and retarded. During the past three years an expenditure of less than eighteen hundred dollars per annum has served, by the strictest economy, to meet the necessary demands of warden service, printing leaflets for educational work, postage, and actual necessary traveling expenses. No salary or compensation of any kind has been paid. The work, however, is expanding so rapidly and the demand for bird literature is so great from all parts of the country that a much larger sum of money must be received this year than heretofore or the Committee cannot answer all of the calls upon it. The detail necessitates the employment of clerical aid in order to give prompt attention to the large correspondence and other office work. Additional wardens will be necessary this year, more of the 18,000,000 school children should be reached, more farmers should be educated in the economics of birds than ever before. These are the plans it is hoped to be able to carry out if the friends and lovers of the birds will give the financial support. The sordid aspect of continually holding up to view the money question is disagreeable but is unfortunately necessary. Too few people realize their public social responsibilities. If they have been good to the family they think their whole duty performed, but there is a broader field — the civic duty of doing good to their

neighbors and the State. The protection of birds, from the economic standpoint, is as much a civic duty as voting honestly and intelligently. The A. O. U. and the Audubon Societies are the forces to do the work, but from the citizen who realizes his civic obligations must come the means.

The work accomplished during the past twelve months is given in detail under three heads, viz., (1) Legislation, (2) Warden System, and (3) Audubon Work.

The results are given by States, in order that the citizens of each may see all that has been done for the birds of their Commonwealth.

ARKANSAS.

Legislation.—The bird law is very satisfactory; the only improvement that can be suggested is to remove all of the beneficial hawks and owls from the excepted species, leaving only such as have been proved to be harmful by the investigations of the U. S. Department of Agriculture.

Warden System.—No wardens are employed under the Thayer Fund.

Audubon Work.—There is no Society at present in the State, although the subject of organizing one has been under consideration for some time and possibly may be accomplished in 1903. An active and efficient member of the A. O. U. Protection Committee, Mrs. Louise McGown Stephenson, resides in Arkansas and she reports the following results: "Although my efforts toward organizing an Audubon Society in the State have been fruitless so far, there is no doubt that the subject of bird protection has been brought to the minds of a great number of people during the past year, and in such a manner that I can really see its effects. A case that attracted a great deal of attention, because of its unusual character, was that against a young man charged with caging a mockingbird, in violation of the statute. A fine of \$3.00 and costs was imposed and paid and the bird was released. In May, I read a paper, 'The Economic Value of Birds', before the Arkansas State Federation of Women's Clubs, and exhibited the Audubon Bird Charts, and distributed many copies of the A. O. U. Protec-

tion Committee's report, as well as numbers of the Government bulletins. I have given a set of bird charts to the white and colored schools, and the kindergarten. Several school boards throughout the State have promised to place the bird charts in their schools. In April, I wrote to all the Circuit Judges, asking them to charge the grand juries in their circuits regarding the bird law.

"I promise diligence in the coming year and hope to achieve more tangible results from daily work."

CALIFORNIA.

Legislation.—This State has practically no laws whatever for the protection of non-game birds, except the crane and meadow-lark. Gulls are protected if within five miles of the town of Santa Monica. An effort will be made at the next session of the legislature, 1903, to have the A. O. U. model law adopted; this will afford an opportunity for the large and flourishing society of ornithologists, the Cooper Club, to display the same intelligent activity in bird protection that they give to bird study. The very large and valuable agricultural interests of the State certainly demand that the valuable birds of the State shall be protected by the most comprehensive laws.

Warden System.—No wardens were employed. However, through the Thayer Fund, the services of Mr. J. M. Willard of the Cooper Club were secured to investigate the condition of bird life in the vicinity of Eagle and Tule Lakes; his report, given in full, indicates how very necessary it is that a good bird law should be enacted at once. He says:

"Three men joined forces to gather grebe plumes for the market. After a couple of season's work, one of them dropped out, leaving the others, who were half-brothers, still at work. These men were Tom Kurr and Oscar Rankin. They owned a boat, and a team with which to haul it from one lake to another. As far as I could find, they only shot on Eagle Lake and Tule Lake; although it is probable that they shot on other neighboring waters. The ranchers of the country around these lakes seem to

consider the slaughter of the birds as a legitimate trade, and encourage it rather than otherwise.

“On June 29, 1899, I visited Eagle Lake and found the hunters encamped on the south end: they had a boat, and mornings and evenings they skirted the edge of the lake and shot every grebe they could see. I asked if they did not often shoot the parents from the young; and the answer was: ‘Oh, yes, but the young soon die. We do not shoot the mother if we see the squab.’ But they had killed four or five young that morning. Their season opened about the first of May, and at the time of my visit they claimed to have secured about six hundred skins; fifteen to eighteen grebes was considered a good day’s work. In preparing the skin they strip it off, cutting down the back. An abundance of plaster of Paris is sprinkled on, and after a little drying the skin is ready for shipment. Their only market was in San Francisco; but I could not get the name of the firm. The last of July the hunters moved their seat of operations; but on the 23rd of September I met them returning. I know nothing of their further operations that year.

“Not knowing the condition of the birds on Tule Lake before the shooting began, I cannot form a very good estimate as to the injury sustained.

“At the time of my visit to Tule Lake this year the water was very low, and most of the tules of the shallower portions of the lake were beaten down. I walked out into the very center of the lake, the water coming scarcely above my ankles most of the time. Going into the marsh only an American Bittern was seen, but as I came out I started a flock of fifteen grebes, which flapped away with discordant cries. Later I found numbers of waders, chief among which were Black-necked Stilts.

“The lower end of the lake was much deeper, and there was a little open water between the bunches of tules; on this water were ducks, coots and grebes in abundance. Considering the lake from what I saw at this end, I should say that the grebes are still abundant, but taking the lake as a whole I do not think there are many grebes on it. I do not think, however, that the upper, shallower end of the lake is a good place for grebes, at this season of the year at least; further, there might have been numbers of

birds all about me hidden in the tules, startled by the noise of my passage, for I made considerable, floundering waist-deep over and through the mat of fallen tules.

“I can speak with greater authority on the condition of the birds of Eagle Lake, for I am familiar with it from a six months’ stay in the region.

“I do not think that the number of grebes has been affected seriously, if at all, by the hunters. There were not many birds near the shore, but out from shore half or three-quarters of a mile were numbers of the birds. Several pairs of ducks were seen in shore, and gulls, terns, cormorants, pelicans, and even plover, were abundant. One goose had her brood still with her.

“The birds out in the lake were, of course, too far away for me to distinguish species; but frequently birds would swim in shore, in pairs or singly, and these were usually grebes. When I was on the lake in 1899, I rowed out among these birds, and was able to determine that most of them were grebes.

“So much for the work of the ‘professional’ plume hunters. I do not think that their work has had much permanent effect on the birds. The persons who do the most lasting harm are the ranchers in the neighboring mountains and valleys. In July, 1899, I witnessed a sickening slaughter. Three men visited a heronry of Great Blue Herons, in which the young birds were about two-thirds grown. With rifles they shot every heron, young and old, that they could see, killing forty or fifty in all. Earlier in the season they had visited a breeding ground of gulls, pelicans, and cormorants, and had broken every egg they could find. The reasons given for this slaughter is that the birds are killing off the fish from the lake, and that they are of no use in the world.”

Mr. Willard adds, in a subsequent letter, that he is heartily in sympathy with the movement for the passage of good bird laws in the Pacific Coast States, where they are badly needed.

Audubon Work. — The Audubon Society is merely a local one at Redlands and is not doing any active State work.

The Cooper Club should take the matter of a good bird law in hand at once, and should also foster and encourage the Audubon movement in California.

CONNECTICUT.

Legislation. — The bird law is very satisfactory, as it embraces in its sections all of the A. O. U. model law.

Warden System. — No wardens were employed by the Thayer Fund.

Audubon Work. — The Connecticut Society is doing most excellent work and is one of the most aggressive and well-equipped in the country. It reports a membership of 7,165.

It has distributed many leaflets, besides 2,000 copies of the bird law; these have been posted in all express offices, and in 126 summer hotels, and it is contemplated putting them in saloons.

It has three illustrated traveling lectures and eighteen circulating libraries. The latter have been in 35 different schools, three months each.

Bird charts have been sent to 53 schools and libraries. The illustrated lectures have been sent out 54 times.

The Society puts its energies in lectures, charts, and libraries.

DELAWARE.

Legislation. — The A. O. U. model law is in force.

Warden System. — No wardens were employed by the Thayer Fund.

Audubon Work. — The secretary of the Delaware Audubon Society reports a membership of 535. "We have distributed no leaflets, but copies of our bird law have been posted in all the stations along the line of the Delaware Railroad and in every post-office in towns where we have a member; also many have been placed in the public schools. The President owns an illustrated lecture and has been most generous in its use. Our Society is very scattered, but we have created a public sentiment in favor of bird protection."

DISTRICT OF COLUMBIA.

Legislation. — The law is satisfactory and is rigidly enforced.

Audubon Work. — This Society reports 292 members. Number of leaflets and circulars distributed, 245, besides copies of laws

sent to all who have applied for them, and to many who have not. This Society feels that its most effective work has been accomplished in its educational efforts, through the schools and frequent meetings and lectures in the winter months, and field meetings during April and May, for the past three years. Classes for teachers have been formed and courses of six weeks' study given. All milliners and dealers have been warned against selling the plumage of native birds. Occasional inspections of markets, millinery establishments, and live bird stores have been made. The Society has not directly made any prosecutions but has furnished evidence that has led to convictions in a number of cases.

A reference library of bird books is owned, to which additions are made from time to time.

FLORIDA.

Legislation. — The law is satisfactory and is being enforced.

Warden Work. — Florida contains so much wild land, especially in the southern portion, and is the home of so many interesting and beautiful birds, that the Thayer Fund employs a special officer who has legal authority to make arrests and who devotes his entire time to the work of bird protection. As the territory that he has to cover is very large, and the methods of travel are slow and uncertain, it would be a great help in the work if the Society could secure the funds with which to purchase a light-draft naphtha or electric launch. This would enable our warden to move rapidly from place to place and readily overtake plumers, who have to depend on sails as a motive power while visiting the breeding grounds when pursuing their nefarious business. Our warden, Mr. Bradley, is well known to several members of the A. O. U., and also to members of the Florida Audubon Society.

How very necessary this special work in Southern Florida is, can best be shown by a letter dated April 30, 1902, addressed to the Chairman of the Executive Committee of the Florida Audubon Society by one of the members, a resident of the southern section of the State, to whom the question was referred for investigation.

"I did not at once answer your letter in reference to rookeries



FIG. 1. BROWN PELICAN AND NEST IN YOUNG CABBAGE PALMETTO.
The same nest, with a bird seated on it, is shown in the picture below.



Photographed by Frank M. Chapman.

FIG. 2. A CORNER OF PELICAN ISLAND.

From Bird-Lore

The nest on the young cabbage palmetto in the background, with a bird upon it, is shown in detail above.

and the appointment of game wardens to look after them, because I was not then certain where the greatest need for protection, in this section of the country, existed. But I have since found out. I returned only last night from an extended cruise among the Keys to Cape Sable and the Southwest coast. At Cape Sable I found the paradise of plume hunters and the purgatory of birds. The latter, driven from haunt to haunt all over the State, have at last reached the uttermost limit of mainland territory, and to it the hunters have followed them. There dwells in a state of constant terror the last surviving flock of Flamingo known to exist within the boundaries of our State; they number nearly one thousand birds and are wonderfully beautiful to look upon. There are also Roseate Spoonbills, Egrets, Wood Ibises, and many other species in sadly diminished numbers, but still numerous enough to delight the heart of an ornithologist or bird lover. But, alas, the relentless plume hunter has followed them even to this remote sanctuary, and the reported destruction of bird life last month is heart sickening. The utter extermination of those beautiful remnants can only be averted by the prompt appointment of a resolute game warden and a rigid enforcement of existing laws.

“The game warden, to deal with this situation, must be a resident, well acquainted with local conditions, a strong, fearless man, and one fully alive to the value of bird protection: also, he must be not only willing but anxious to serve.

“Fortunately for the birds and for us, I found residing at Cape Sable, a man who combines in himself all these requirements. He is a young man, brought up from earliest childhood on the east coast of Florida, a thorough woodsman, a sturdy, fearless fellow, filled with a righteous indignation against the wretches who, in open defiance of all laws, are using every effort to kill off the few remaining birds of that section, and he is anxious to be invested with authority for the protection of those that still remain. He has a brother equally interested in the subject who would make a most efficient deputy. I have known these boys for many years, and can honestly say that I know of no better man for game warden in the whole State of Florida than the elder. It is a case in which the promptest possible action is desirable, since another season will doom the Cape Sable flocks to destruction if

measures for protection are not taken in time. The warden must have fullest authority from the State and be supported by the entire strength of our Society; also a certain remuneration must be given him, as he will be obliged to cover much territory at a great expense of time."

Since his appointment in May last Mr. Bradley has been actively engaged in visiting all parts of his territory, posting notices, and thoroughly informing the citizens that there is now a law protecting birds. A large class of the citizens are law abiding, but were not before acquainted with the fact that a bird law is in force. In several other channels he has rendered valuable service, especially in investigating the subject of 'egging,' which has heretofore been carried on in an alarming and very destructive manner. Every effort will be made during the coming breeding season to stop this wasteful practice, as it is now absolutely illegal.

Another warden was employed, Capt. C. G. Johnson, keeper of the Sand Key Lighthouse, about seven miles from Key West. A large number of sea birds breed on this and adjacent keys, all of which have been thoroughly posted with warning notices. The warden reports that no birds have been shot nor have any eggs been taken by fishermen or others. Some eggs are destroyed every year by turtles crushing them when they are crawling up on the key to deposit their own eggs. The warden also writes that the Key West fishermen are all under obligations to him for permitting them to come ashore on the key in order to catch sardines for bait. "They have all been notified by me personally about the law, and I do not think that they will give any trouble in the future." I was informed by a previous keeper that several thousand breeding birds could not successfully raise more than a few hundred young, so thoroughly were the eggs collected or trampled on in order to get fresh ones on the succeeding visit.

The sea birds that breed on the various keys at the Dry Tortugas have had complete protection, as per the following letter from T. C. Treadwell, Captain, commanding U. S. Naval Station, April 21, 1902.

"*Dear Sir:*—

"Replying to your letter of the 12th inst. with regard to the protection of birds on these keys, I have to state as follows :

"It has been the custom here for a long time to get eggs from Bird Key. A short time after my arrival here (in June last) I issued an order forbidding this and published the poster of the Ornithologists' Union, and birds have not been harassed since that time.

"I will have the warning notices you sent posted, and issue necessary orders for the protection of the birds on these keys, and do whatever I can to help the Ornithologists' Union in their work.

"Bird Key is less than a mile from Fort Jefferson. Upon this key gulls, terns, etc., breed in enormous numbers, also to some extent on Loggerhead, about three miles distant.

"There are in this vicinity, besides the above gulls and terns, pelicans, hawks, doves, boatswain birds, and other sea birds."

Pelican Island, in Indian River, which is the breeding home of a large colony of Brown Pelicans, was cared for by a paid warden during the present year. Mr. Paul Kroegel, who was in charge, reports that the island was posted with warning notices, and that he kept close watch over it. He also says that owing to reckless slaughter in former years the birds are not nearly as plentiful as formerly, but as the birds are not being disturbed this year they have become very tame. On May 25 they had about finished laying eggs. On July 25 he wrote that "the young were all able to fly. I believe this to be the most peaceful season the birds have known. Living as I do directly opposite the island I can see every boat that goes there. I have only had occasion to go there four times in addition to my regular trips. It is impossible to tell how many young were raised but I should judge about five hundred or more."

As it is important that this colony should always be protected, it has been deemed advisable to get legal possession of it, and to that end your Committee has had it surveyed and has taken all the necessary steps to purchase the island from the State of Florida, the title still being in the name of the Commonwealth as unsurveyed public lands. It is hoped that before the next breeding season is reached the A. O. U. will have absolute control of the island as owner in fee simple. In this connection it is fitting to call attention to the very valuable aid rendered by Mrs. F. E. B. Latham, of Grant, in securing protection for this colony of pelicans, and also for material help in other matters relating to bird protection in her section of Florida.

Audubon Work. — The State Society is particularly aggressive and is doing fine work, especially in educational lines. The chairman of their Executive Committee reports the distribution of about 4,000 leaflets. "In addition, 2,200 warning notices have been sent to every part of the State; 300 of these were posted in the offices of the Southern Express Company and one in every post office in the State.

"Fifteen Massachusetts Audubon Bird Charts, accompanied by the 'First and Second Book of Birds' (Miller), are in circulation as the nucleus of a library. They are in charge of local secretaries who place them in schools in their towns. Notices have been sent to persons found violating State bird laws, and sales of caged wild birds have been prevented. Letters were written to Florida Congressmen urging the passage of the Alaska Game bill. An article was written by a member of the Society on the egret, entitled 'Does Fashion make Women Heartless?' This was originally published in the Florida 'Times-Union', was copied in many other papers, and was eventually published in leaflet form for general distribution.

"As the introduction of bird study in schools seemed to be a matter to bring before the people, several articles on this subject have been contributed to the 'Times-Union', and all have been published, through the courtesy of the editor, Mr. Wilson.

"Special editorials on bird protection have been written and published by Mr. Painter, editor of the 'Florida Agriculturist.'

"For the first time, in Florida, summer schools were opened at various large centers, and it was the endeavor of the Society to have some attention given to bird and nature study, and it is felt that our success was largely forwarded by Mr. Sheats, State Superintendent of Instruction. The influence of the summer work is showing itself in the schools of the State, as the following extracts from letters bear witness: 'East Florida Seminary and Military Institute, J. M. Guillian, Sup't. In our science work we show the value of birds and shall try to have every student leave the institution a lover and protector of birds.' The President of the State Normal School says: 'Our model school has a large amount of nature study and we urge young teachers to cultivate a love of birds and explain their economic value to their pupils. It

is a pleasure to me to encourage this work, which I hope in the future to carry on in a more systematic manner.'

"The membership of our Society is about 400; lately some 230 circular letters soliciting membership have been sent out and it is hoped good results will follow. When we realize what interest has been developed since the Society was organized in 1900, especially among the educational classes, we feel we are furthering bird protection."

ILLINOIS.

Legislation. — The bird law is satisfactory, as it embraces nearly all of the A. O. U. model law.

Warden System. — No wardens were employed by the Thayer Fund.

Audubon Work. — This is one of the larger and more aggressive societies, especially in its activity against the sale of illegal millinery goods in Chicago. It reports a membership of 14,272, and that it has distributed several thousand leaflets, of which 1,000 were sent to milliners and contained the portion of the law bearing on their work. Slides to illustrate a bird lecture have been prepared, and it is expected that a traveling lecture outfit will shortly be in use. It also has two traveling libraries in circulation.

Convictions for violation of the bird law have been obtained through the Game Commissioner and his wardens. An effort will be made to have a law passed establishing a Bird Day in conjunction with Arbor Day. The President of the Society has examined the stock of a number of Chicago millinery houses to point out illegal plumage. The proprietors of a number of these houses have written letters to the executive officers of the Society expressing full sympathy with Audubon work and also promising not to sell any North American birds. The National Committee leaflet, 'Ornithology in the Schools,' will be distributed by the Superintendent to teachers in the State. The Society will also have printed an 'Outline of Bird Study'; this outline has been in part printed by the Illinois Federation of Women's Clubs, in one of its hand books under programs for study classes, and was there credited to the Audubon Society. During the past year one leaflet

was published, 'Birds in Horticulture,' by Wm. Praeger. The Executive Committee is now divided into sub-committees,—on Meetings, Legal Millinery, Bird Study, and Junior Members,—for each of which there is a special chairman, and publications.

INDIANA.

Legislation.—The bird law is excellent, being after the A. O. U. model; but the beneficial hawks and owls should be removed from the excepted class.

Warden System.—No wardens were employed by the Thayer Fund.

Audubon Work.—This Society is actively at work along the line of enforcement of the law, as shown by the following report:

"E. E. Ertle, Chief Deputy Commissioner of Fish and Game for Indiana, was in consultation with W. W. Woollen, secretary of the Indiana Audubon Society, for the purpose of securing the coöperation of that society with the State Fish and Game Commission, more effectually to protect the birds. His proposition, which will be accepted, is to deputize every member of the Audubon Society an officer of the Commission, with full police power, and the duty of arresting and prosecuting all persons found violating the law for the protection of birds.

"It is also proposed to have deputies placed at all the lake and other summer resorts, with explicit instructions to arrest, after warning, tourists, strangers and others who may violate such laws. Placards will be posted in the hotels at all summer resorts, giving a synopsis of the fish and bird law of Indiana."

IOWA.

Legislation.—The bird law needs improving, as it only protects a limited number of species. As, however, there will not be a session of the legislature until 1904, nothing can be done during the coming year except to endeavor to create a sentiment in favor of the A. O. U. model law.

Warden System.—No wardens were employed by the Thayer Fund.

Audubon Work.—There are two societies in the State, one with headquarters at Keokuk and the other at Schaller. The

latter reports a membership of 200, and that it has distributed some thousands of the National Committee leaflet No. 2, 'Save the Birds.' It also has an illustrated traveling lecture which is doing good educational work. No report was submitted by the Keokuk society.

KENTUCKY.

Legislation.— During the past year the American Ornithologists' Union model law for the protection of non-game birds was adopted in this State.

Warden System.— No wardens were employed in Kentucky; 3,000 muslin warning notices, giving the text of the bird law, displayed in the post offices of the State, were furnished by the Thayer Fund.

Audubon Work.— The Kentucky Society is a very small one, having only 100 members. About 500 leaflets were distributed, in addition to the warning notices. One library of bird books is in circulation. Two convictions under the new law have been obtained.

LOUISIANA.

Legislation.— On June 26, 1902, a new game law was approved by the Governor. It gives partial protection to six species of non-game birds, but leaves unprotected all of the other valuable and beneficial non-game birds of the State. It permits the trapping and caging of Mockingbirds and Redbirds "for domesticating purposes." This practically means that the live bird dealers, who make their headquarters in New Orleans, can send out their trappers and secure Mockingbirds and Cardinals enough to supply the rest of the world. If the citizens of Louisiana awake some day to the fact that their gardens and fields have been denuded of these beautiful singers they will know that her legislators saw fit in 1902 to refuse to pass the A. O. U. model law, which had been introduced. The Hon. J. A. McIlhenny made a strong but uphill fight for the bill, which was finally defeated by the influence of the cage bird dealers.

Warden System. — No wardens were employed by the Thayer Fund, nor is it deemed expedient to make any effort to patrol the few remaining sea bird colonies on the Louisiana coast until there is a law to protect them.

Audubon Work. — During the past few weeks a Society has been organized, which will at once be incorporated. Some very ardent bird protectors will be its officers and managers, and much good work is expected from them. Its first and most important duty will be to educate the people of Louisiana regarding the value of birds as an asset of the State, in connection with its agricultural and forestry interests. When the people have awakened to these facts they will take measures to protect the birds.

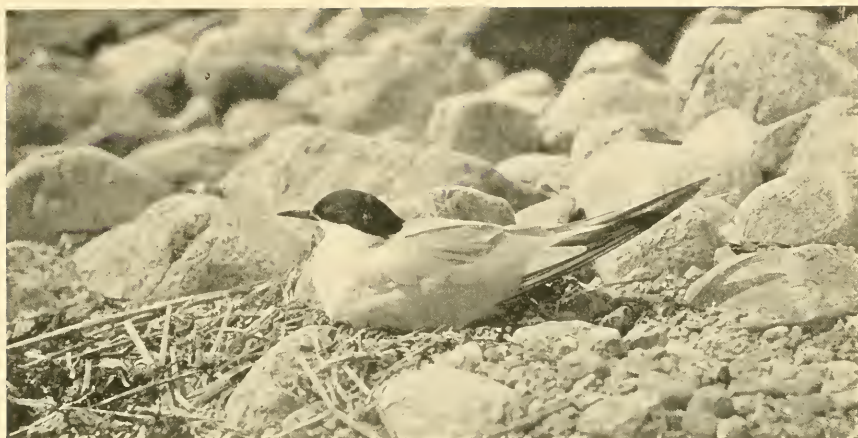
MAINE.

Legislation. — The law is entirely satisfactory.

Warden System. — Warden work has been continued this year with the most satisfactory results. All of the stations have been visited by some member of the Union, and the following extracts from their letters and the reports of the wardens will give in detail the practical benefits resulting from the operation of the Thayer Fund.

G. E. Cushman, warden at Bluff and Stratton Islands, reports as follows: "As I am a fish and game warden for the State, I have a chance to go along the coast, and I have seen more terns this year than last, and it has been remarked to me several times this year that there are more gulls on our coast than for years, and that they are very tame. I protect all kinds of birds."

Mr. A. H. Norton, a member of the Union, visited these colonies July 1, and writes: "It gives me much pleasure to report a most satisfactory condition there. The colony breeding on Stratton Island resorts to the brackish rivers which flow from the Scarborough marshes, to feed, and while at Pine Point, one of the seaward barriers between the ocean and these marshes, I was greatly pleased to see large flocks of the terns resting on the seaward beach at high water, a thing I have never witnessed there before, and there were also large flocks on the edge of the marshes at rest.



Photographed by F. M. Chapman.

From Bird-Lore.

FIG. 1. COMMON TERN ON NEST.
Photographed at a Protected Colony on the Coast of Massachusetts.



Photographed by William Dutcher.

FIG. 2. YOUNG COMMON TERN, HIDING; Illustrating Protective Coloration.
Photographed at a Protected Colony in Maine.

“I think that the birds have been practically unmolested at both feeding resorts and breeding grounds. By the way, I had furnished one of the fishermen at Pine Point, which is a favorite gunning resort in the season, a good supply of the warning notices, and some of these he tacked upon the door of his house, and I think that the result was good. At any rate, the residents there are quite familiar with the law and respect it, as far as I have been able to observe.”

Mr. Norton, while inspecting the islands in Muscongus Bay, discovered that terns had commenced to breed again on the Outer Green Island and Junk of Pork. These islands formerly supported colonies of terns but later were abandoned. It is evident that protection and the enforcement of the bird law of Maine may result in the growth of the infant colonies on these two islands; he suggests that these islands be posted in 1903, in the hope that the colonies may increase to their former abundance.

Mr. Norton also visited Metinic Green Island, where he was confident he would find a colony of terns. He reports as follows: “I was not prepared for the sight which was before me. From the time I departed from Burnt Island Life Saving Station, one or more terns were always in sight. Upon arriving I found the birds in practically an unmolested condition, and extremely tame. I need not say that this magnificent colony of birds owes its existence to-day to your vigorous and successful action against the market for tern skins. I estimate the colony at upwards of two thousand. Two pairs of Laughing Gulls rose at our arrival, and search revealed two nests. That night thirty-two Laughing Gulls, all adults, came to roost on the ledges just off the shore. Sea pigeons were in some numbers, grouped in little bunches upon the water or resting upon the rocks. Petrels were also breeding, but in small numbers in comparison with other colonies in this region. The Terns were the Common and Arctic, the latter being far the most abundant. At this time few nests contained eggs; some young were just hatched, and from these every stage of growth was before me. As I walked along the shore, the young, which could fly short distances, went in all directions before me, and the usual throng of screaming adults hovered above.

“In every direction the adults were going out and coming in

with food. A few young were with their parents three miles from land. Here, as at Freeman's Rock, a great mortality among the young was observed. There was at this island, at half tide, some large pools, and a calm cove protected from the ceaseless surf, and these, at the right stages of the tide, were filled with young terns bathing like land birds, and evidently they were in the height of enjoyment when thus engaged. In 1896 I visited this island and recorded a fairly large group for the size of the place; to-day I judge the colony has doubled, and in view of the ease by which this place could be given protection an overflow seems the natural result. The island contains about 12 or 15 acres, and owing to the absence of sheep is covered with a rank growth of grass. Mr. Snow, the owner of the island, signified his willingness to lease the island to the A. O. U., and would probably act as our warden."

Capt. J. E. Hall, keeper of the Matinicus Rock Lighthouse, reports that the terns were not disturbed at all, and that there was a large increase; he also states that there was an unusual mortality among the young birds owing, he thinks, to the very cold season and heavy rainfall which chilled the very young birds. Mr. F. H. Herrick, a member of the Union, visited this island for the Committee and estimates that this colony numbers about 3,500 birds.

Capt. Mark Young, owner of and warden on No-Man's-Land Island, reports as follows: "Not an egg has been taken nor a Herring Gull killed in the colony I have charge of. The first eggs were found May 15, and the first young bird June 8." Mr. Herrick visited this island also, and states that Capt. Young takes great interest in his birds and makes a good warden. He says: "I spent some days on the island, July 11-14, and estimate the number of birds at 3,000. Very few eggs were then to be seen, but young in all stages, up to one and a half pounds; no chicks had taken to the water at that period. I expected to find the birds far wilder than at Great Duck Island, but could see little difference in this respect. At either place they settled readily within 20 or 30 feet."

Mr. A. H. Norton, who made an extended tour of investigation along the Maine coast for the Protection Committee, reports that a fair sized colony of terns still flourishes on the Eastern and Western Barge Islands, near Mt. Desert Island.

Capt. W. F. Stanley, keeper of the Great Duck Island Lighthouse and the warden, reports as follows regarding the large colony of Herring Gulls in his charge: "Commenced to arrive March 12, and the number increased until the last of May. The first egg was found May 15, and the first completed set of three eggs May 22." He estimates that there are 3,400 birds on Great Duck Island and about 2200 on Little Duck. He has had no trouble in protecting the birds or eggs and the only mortality was from natural causes, almost always accidents.

Mr. Herrick, who spent some days on the Duck Islands, reports these colonies in excellent condition.

Mr. W. L. Baily, one of the members of the Union, also visited the Duck Islands this season to complete his study of the life history of the Herring Gull. He reports that the "gulls were possibly more abundant than in 1901. There seemed to be more birds but few more nests; the great quantity of birds that were hatched last year were not there and must be wanderers unless they have settled in other parts."

Capt. O. Cummings, keeper of the Nash Island Lighthouse and the warden of Cone Island, reports as follows: "No eggs were taken nor were the Herring Gulls disturbed." This colony numbers nearly 1,000 adult birds, and there was a normal increase during the breeding season. This was the only colony that was not inspected.

Capt. O. B. Hall of the Crumple Island Life Saving Station was the warden for the colonies of Terns, Herring Gulls and other birds on the islands in his vicinity. He reports that all of the Herring Gulls that bred in 1901 in this locality arrived as usual in the spring, but shortly after left and bred further east on Pulpit Rock. This he attributed to the fact that the herring were more abundant there. He posted warning notices, and the birds were not disturbed. Their increase was normal.

The terns started to breed on Egg Rock as usual, but during a very heavy storm on June 27, the rock was swept by the heavy surf and all the eggs and young were destroyed. The adult birds then deserted the rock.

Mr. Norton visited this station and confirms the report of Capt. Hall; he also adds: "On Freeman's Rock, a mound or ledge

rising like a rugged cone for perhaps fifty feet and containing less than two acres of area, was a flourishing colony of terns and Black Guillemots. From the top of the rock the entire colony of terns was in sight at once. I roughly estimated them at from five to seven hundred old birds, with Arctic Terns decidedly in the majority. I found the warning notices most conspicuously placed, and on the small rocks they commanded attention long before we reached them. Further observation led me to consider this a most important factor in the protection afforded by the Committee. The birds here were very tame, and there were no evidences of molestation. A few nests still contained eggs (July 25), and young were in every stage of growth to those that could take short flights; none were on the wing, and were everywhere to be found, making it necessary for one to look carefully before each step when walking in the scanty herbage. Abundant as were the living, I noticed quite an extensive mortality among the downy young, and their decaying bodies were scattered over the island. There was no visible cause, but two things suggested themselves: one, an epidemic; the other, that the damp, cold summer just passed had not supplied sufficient warmth and sunlight to keep them from being chilled. The Sea Pigeons were also tame; they were in little groups of from two to six, and in one instance a flock of fifteen was seen."

Capt. R. G. Johnson, keeper of Libby Island Lighthouse and the warden for the Brothers Islands and Libby Island, reports as follows: "Since the enforcement of the law there has been an increase in the number of young Herring Gulls raised on the Brothers. They sit on the shores in large numbers after they become full fledged. There is also a marked increase in the number of terns on Libby Island. I do not allow any shooting on the island."

Capt. L. E. Wright was the warden for the Old Man Island and Double Shot Island, each of which was the breeding place of Herring Gulls. He reports that the birds were not molested, as all classes of people take it for granted that the birds must be let alone.

Mr. Norton, who passed close to the Old Man colony July 26, reports that numbers of gulls were hovering about it and were

lighting on the ground and trees. The same day Mr. Norton visited Machias Seal Island and reports as follows: "Of Puffins, I saw but few, but was assured by the officials of their abundance at evening and morning. Petrels were abundant, and terns were by the thousands. With my limited time I was unable to determine the presence of anything but the Common Tern and Arctic Tern. Capt. Kelly told me that no one molests the birds."

Audubon Work.—There is no Society in Maine, but the Ornithological Society is practically doing the same work in a very intelligent and satisfactory manner, all of its large membership being ardent bird protectors. The Secretary, Mr. A. H. Norton, writes as follows regarding Audubon work: "Expect to have some data of value to present at our annual meeting, and it seems that success must come of the efforts that are being made. If the spirit of bird protection could be worked more into the rural public schools, I believe that it would be seed sown in the right ground. With the millinery market banished, a few years of protection, the early inculcation in the young of the principle of kindness to living creatures, I believe that our bird colonies will be secure."

MARYLAND.

Legislation.—None. The present law is a very good one, although there are some valuable birds that it does not protect, and others that are not protected the entire year. Killing the Mourning Dove should not be permitted at any time, nor should the sale of Flickers be permitted in Baltimore, as it furnishes a market for birds which must be illegally killed in other portions of Maryland or in other States.

Warden System.—The same warden was employed who has acted for the two previous years; he reports a very steady and material increase in the colony of Common Terns under his care, and that no attempt was made by plume hunters to disturb the birds; he also says that little or no eggging was done, as the fishermen think it cheaper to buy eggs of domestic fowls for use rather than risk the heavy fine for taking the eggs of terns.

Audubon Work.—The Maryland Society is small, numbering

only 80 members, and has done no active work during the past year. The National Committee will make an effort during the coming season to enlarge and build upon the existing nucleus. The city of Baltimore, being a large distributing center, needs an active and aggressive body of Audubon workers to see that the wholesale millinery establishments do not deal in illegal plumage. An effort should also be made to improve the present bird law, as suggested under the head of legislation. The Maryland members of the A. O. U. are urged to take a personal interest in this matter and push bird protection work in their State.

MASSACHUSETTS.

Legislation.—The bird law in this State may and should be improved. It does not protect the beneficial hawks and owls, nor does it protect the Herring Gull and Black-backed Gull between November 1 and May 1, practically the only season when they are resident in Massachusetts. In this connection it is but just to call attention to the fact that the Audubon Society, through its Protective Committee, has made earnest and repeated efforts to improve the law and promises renewed efforts during the coming legislative session.

Warden Work.—Mr. Mackay, who has for so many years energetically and successfully protected the tern colonies on Muskeget Island, reports that during the past season they were cared for in the usual manner, and he also reports that the tern colony on Penikese Island was protected by the owners, the Messrs. Homer. By permission of the owner of Naushon Island, Mr. J. M. Forbes, his manager, Charles O. Olsen, was appointed warden for the Wepeckets Islands. The islands were liberally posted with warning notices and the warden reports that this colony of terns has not been disturbed to any extent this year. On June 15 he counted 860 eggs and found four young birds just hatchèd.

Mr. J. E. Howland of Vineyard Haven, an ardent sportsman and an earnest bird protector, volunteered to post warning notices in the growing colony of Least Terns on Marthas Vineyard. He reports: "I have a number of times visited the shore and have seen a good many Least Terns about; they nest in limited

numbers all along our south shore. I informed a member of the State Police, who lives in Edgarton, of the posting of the notices, and he gave parties in that section to understand that the warning must be respected."

Audubon Work.—The Massachusetts Society is another of the aggressive and progressive ones. It reports a membership of 5,362. It has distributed in the neighborhood of 8,000 circulars during the past year, besides posting 800 copies of the bird law. Two illustrated lectures and five libraries are kept at work continuously.

Definite evidence of violations of the law have been brought to the attention of the Fish and Game Commission, thus enabling the State officers to obtain convictions. A second bird-chart has been published, and the annual bird calendar has been continued. Each winter a lecture course is maintained. The Society has 110 local secretaries, some of whom are doing splendid work in the way of free lectures, hat shows, and bird walks. The report of the Society for 1897-1902, published Oct. 10, 1902, gives an admirable résumé of the good accomplished by this 'very much alive' group of bird protectors. The liberal circulation of this excellent publication will do very much to advance Audubon work, not only in Massachusetts but throughout the whole country.

MICHIGAN.

Legislation.—The bird law is, in many respects, an excellent one, but is not comprehensive enough, as it does not protect all of the non-game birds. By a very simple amendment to Section 14, Public Acts of 1901, the law would be much improved.

Warden Work.—No wardens were employed by the Thayer Fund. Late in the season a large colony of Herring Gulls was called to the attention of the Chairman, and it is proposed to have them guarded by a paid warden during the breeding season of 1903.

Audubon Work.—There is no society in the State, but some educational work has been done by the Chairman of the National Committee. Through the courtesy of the Great Record Keeper, Emma E. Bower, M. D., of the society of the 'Ladies of The

Maccabees for Michigan,' 2700 copies of the National Committee Leaflet No. 3, 'Save the Birds,' has been sent to the local branches and will be read to the members, who number over 68,000.

MINNESOTA.

Legislation.—The bird law is a good one but should be amended by giving protection to the beneficial hawks and by removing the 'Turtle Dove' from the list of game birds. There should also be a provision preventing caged birds from being offered for sale and from being shipped out of the State. If the words "wild birds" were to be substituted for "harmless birds" in the law it would be much more effective.

Warden System.—No wardens were employed by the Thayer Fund. In this connection it is suggested that if any A. O. U. member will 'locate' within the State any large colonies of breeding water birds, especially Gulls and Black Terns, wardens will be appointed for service during the breeding season.

It appears from examinations of millinery stock in other States that the Black Tern is the species that is now most used as a millinery ornament.

Audubon Work.—Two societies are working in the State, the one at Lake City being rather local in its efforts. It was started by a few persons who loved birds and desired to study them, the principal object being to interest the children and teach them to love and protect the birds. The State Society reports a membership of 1200.

MISSOURI.

Legislation.—The Executive Committee of the Missouri Audubon Society has drafted a new game bill which will be introduced at the next session of the Legislature, early in 1903. It is very comprehensive; the A. O. U. model law is used for the sections referring to the non-game birds. If this bill becomes a law, game animals and all birds will be hedged about with the very best kind of legal protection.

Warden System.—No wardens were employed in the State.

Audubon Work.—While the Missouri society is small, consist-

ing of about 180 members, it is remarkably active and aggressive. It has advocated through the press a better bird law and has distributed 28,000 circulars having the same object in view. Remarkable success has rewarded its efforts, and it has succeeded in creating a demand throughout the State for the reforms that the society recommends. It promises that when its bill becomes a law it shall be enforced to the letter.

NEBRASKA.

Legislation.— There is grave doubt whether under the present bird law any protection is given to the large class of harmless but useful water birds. Further, no one should be permitted to kill the beneficial hawks and owls, even on his own premises. Doves should be removed from the list of game birds. It would be a marked improvement if the A. O. U. model law were to be adopted by the Legislature.

Warden System.— No wardens were employed by the Thayer Fund.

Audubon Work.— There is no society in the State, but the members of the Nebraska Ornithologists' Union have been very active in bird protection work, especially along educational lines. Leaflet No. 2 of the National Committee, 'Ornithology in the Schools,' was written by a member of the Nebraska Society, and it has had a circulation of many thousand copies. It has circulated thousands of leaflets on bird protection issued by the Department of Ornithology of the University of Nebraska. Prof. Bruner and Dr. Wolcott of the society, give illustrated lectures on birds, both emphasizing bird protection.

NEW HAMPSHIRE.

Legislation.— The bird law is very satisfactory, the A. O. U. model having been adopted, together with a strong common carrier clause.

Warden System.— No wardens were employed by the Thayer Fund.

Audubon Work.—The society reports a membership of 306. About 4000 leaflets and circulars have been distributed during the past year; also 500 copies of the bird law have been posted or distributed. An illustrated lecture has been loaned to all who apply for it, free of cost, the only condition being that the lecture shall be free to the public. During the past year it has been almost constantly in use and has apparently given great satisfaction. One circulating library is in use. The Society has had the coöperation of the very active State Fish and Game Commission, and has in several cases been instrumental in checking violations of the law. Fines have been imposed by the Commission. As there is no appeal from their action, no cases have come into court. The same activities which have engaged the society from the beginning will be continued. These are especially interesting women's clubs in the work, the formation of branch societies, and the distribution of bird literature at grange meetings and teachers' institutes, and furnishing to the public schools an outline of bird study for regular use throughout the year.

The Secretary adds: "So far as concerns the local and State work of our society, my feeling is one of hopefulness, but when I see, as I did in my recent trip, both in New York and Boston, how regardless both milliners and wearers of millinery are of the existing bird laws and of the feelings of bird lovers, I must acknowledge that the work of the Audubon societies is but begun. It is evident that our efforts to influence public opinion in behalf of bird protection must be continued with unabated zeal."

NEW JERSEY.

Legislation.—The law is satisfactory and is being actively enforced by the Fish and Game Commissioners, who show no mercy to anyone found guilty of killing a non-game bird at any time, or game birds out of season.

Warden System.—Two wardens were employed by the Thayer Fund to guard colonies of Laughing Gulls and Terns on the coast. During the coming season these wardens will have the power of arrest conferred upon them by the Fish and Game Commission, which will add very much to their effectiveness. Capt.

R. S. Ludlam, of Stone Harbor, reports that the 'mudhen,' *i. e.*, Clapper Rails, did splendidly, but that the colony of about 1,000 Laughing Gulls did not raise over 100 young this year, owing to the loss of nearly all the eggs by a heavy storm tide early in June. The colony of terns is very small but made a normal increase. The birds were not disturbed by men or boys during the season.

Capt. J. B. Rider, of Little Egg Harbor, reports that the colony of terns in his charge did well this year and probably raised about 600 young, as near as he could judge: they were not disturbed. These two small colonies of terns and the one colony of Laughing Gulls are all that are left of the once countless numbers that bred on the New Jersey coast; all were cruelly and wantonly sacrificed on the altar of fashion. It will take years of the most patient and watchful care to repopulate the beaches and marshes of the New Jersey coast with these beautiful and graceful sea birds.

Audubon Work.—The New Jersey Society reports about 500 members. Local societies have been started in seven places during the past year. About 300 leaflets have been distributed, also some warning notices. Appeals and letters were sent out to over 200 persons last spring in an effort to pass an anti-pigeon shooting bill, which proved unsuccessful. During the coming winter the attempt will be renewed. A circular will shortly be sent out in an effort to check the use of wild bird plumage for millinery ornaments. The Society is doing all it can to create sentiment in favor of bird protection and to aid the Fish and Game Commission in its effective enforcement of the bird laws.

NEW YORK.

Legislation.—An amendment, which materially strengthened the previously excellent bird law, was passed at the last session of the legislature, as follows: "Section 141. Wherever in this act the possession of fish or game, or the flesh of any animal, bird or fish, is prohibited, reference is had equally to such fish, game or flesh coming from without the State as to that taken within the State."

A great many convictions have been obtained during the past year by the Forest, Fish and Game Commission, who deserve great credit for the effective manner in which they are enforcing

the bird statutes. The suit referred to in the report of 1901, was settled early this year by the payment on the part of the defendant of the sum of \$260; there is also a judgment for a large amount held against him, which it was agreed not to press unless he was again found violating the law. The moiety of the fine paid that was given to the member of the Audubon Society who furnished the evidence was contributed to the Endowment Fund for the Protection of North American Birds.

Warden Work.—Three wardens were employed by the Thayer Fund, as in the previous year.

Capt. C. W. Rackett, who had charge at the north end of Gardiner's Island, reports that no terns were shot nor were any eggs taken, and he thinks that the increase has been large.

Capt. H. S. Miller, who has charge of the colony at the south end of Gardiner's Island, also reports a very satisfactory season for the terns, and a material increase. This large colony of terns is very fortunately located, as Mr. John Lyon Gardiner, the proprietor of the island, will not allow any shooting or trespassing, and therefore the terns and other birds are exceptionally well protected. There is also a fair-sized colony of terns on Fisher's Island, which was protected by Capt. Fowler. This colony is somewhat scattered, and it is more difficult to give them absolute protection, they being nearer the cruising ground of the hundreds of small craft that are to be found in Long Island Sound during the summer months.

At the request of Mr. Harold Herrick of New York, President Baldwin of the Long Island Railroad had warning notices, giving the bird laws, posted in every station. This action probably did a great amount of good. The members of the Bird Section of the Rochester Academy of Science have done splendid protection work during the past year by posting a large number of warning notices in Munroe County, and by work in the schools among the teachers and scholars.

Audubon Work.—The Secretary of the New York Audubon Society reports that it is now better equipped to develop the educational features of the work than ever before. Through the efforts of Miss Blunt, one of the local secretaries, a sufficient sum of money was secured to equip an illustrated traveling bird lecture.

The lecture has been given many times before audiences varying in numbers up to three or four hundred. Three sets of colored plates of birds are owned and loaned for class work. Fifty sets of the Massachusetts Audubon Bird Charts have been distributed among the local secretaries. Over 18,500 leaflets and law posters have been distributed during the past year. Of these nearly 1,500 were sent directly to the milliners, live bird dealers and wholesale butchers in Greater New York. The special circular sent directed their attention to the State and Federal laws protecting birds, and requested a strict observance of the same. Eleven new local secretaries have been added during the past year, making the number at the present time 68. The total membership of the society is 3,418. The Hon. Charles R. Skinner, Superintendent of Public Instruction, has agreed to send a copy of the National Committee leaflet No. 2, 'Ornithology in the Schools,' to every school in the State early in the coming year.

NORTH CAROLINA.

Legislation.—The bird laws of this State are very unsatisfactory. A few birds receive protection a portion of the year only, the balance none at all. County laws now in force should be superseded by one law for the whole State, which should be comprehensive and stringent. In few States on the Atlantic Coast has there been such a wholesale slaughter of bird life as in North Carolina. When thousands of game birds are killed in a single season for the feathers alone it is time to cry, halt! and for the strong arm of the law to interfere. Until the legislature of North Carolina sees fit to pass an effective bird law this slaughter will continue, but it is to be hoped that one will be enacted before it is too late.

Warden System.—No wardens were employed by the Thayer Fund, as it has been found useless to engage wardens where there is no law to be enforced. When a good bird law is placed on the statute books of North Carolina, wardens will be at once employed to guard all of the colonies of sea birds that remain on the coast.

Audubon Work.—The Audubon Society of North Carolina

“for the Study and Protection of Birds and the Preservation of Game,” was organized in Greensboro, North Carolina, on the 11th of March, and was incorporated on the 21st day of October, 1902.

At the present time its membership is as follows: Life members, 8; sustaining members, 86; regular members, 308; junior members, 386; total, 788. Six branch organizations have been formed in graded schools, and it is the purpose of the Society to grant charters to these branch societies. They are as yet in an experimental stage; some have regular meetings and much interest is displayed, while others have been all but failures. About 9000 leaflets have been distributed, and the secretary has given fifteen public lectures, presenting the objects and aims of the Audubon Society. It is assisting the National Committee in procuring better legislation for the preservation of birds, and as a means of doing this is preparing to distribute 100,000 leaflets in the State before the meeting of the legislature in January, 1903.

OHIO.

Legislation. — During the past year a radical improvement was made in the game laws of Ohio, the section covering the non-game birds practically being the A. O. U. model law. If the Ohio Audubon Society sees that the statute is enforced the birds will receive ample protection.

By a special act of the legislature an annual Forest and Bird Day was authorized to be observed in the State.

Warden System. — No wardens were employed, but the Thayer Fund furnished for distribution in the State 3,000 warning notices, giving extracts from the non-game bird sections of the law, and the penalty for violating the same.

Audubon Work. — The Secretary reports as follows: “The Audubon Society of Ohio has just completed the fourth year of its existence. From a struggling nestling, it has grown steadily and healthily toward maturity, as nestlings should, and already its wings are plumed for glorious flight. As the eagle, ‘she dwelleth on the rock and hath her lodging there.’ That rock is *success*.”

“The Audubon Society exists no longer as a sneer and a by-word, in the eyes of the people, a sentimental fad, but as an

earnest body of Nature-lovers and students, too far removed from vulgarity to contemplate with pleasure the wanton destruction of *any* living creature.

“From the auspicious inauguration of the Society until the present time there has been a growing knowledge with the public of the aims and purposes of the great Audubon movement, so that inquiries concerning the whys and wherefores of the work are rapidly diminishing in number. The demand now is not so much ‘Tell me something about this new Society,’ as ‘Give me literature, that I may by this means tell others the story.’

“The mails have been used hundreds of times for the purposes of the Ohio work this past year, and the four newspapers that are printed in English in Cincinnati, have received and kindly published notices of all monthly meetings.

“There has been a constant and impelling desire that the teachers and club women of our State should receive our literature.

“In November of last year, the Corresponding Secretary carried a message to hundreds of women assembled at the State Federation of Women’s Clubs in the city of Dayton, she having been granted, by the courtesy of the President of that organization, ten minutes’ time upon the program of the convention, and in conjunction with the Recording Secretary, who, by the way, did splendid service at the same time in the public schools of Dayton in behalf of Bird Protection, distributed much literature from that point.

“The President and acting Treasurer met the Game Commission at the Cuvier Club, during the session of the Ohio Legislature, and proved themselves extremely useful in making valuable suggestions to the Commission relative to the proposed amendment of Section 6960 of the laws of Ohio, the section relating to the non-game birds.

“Our President originated and secured the passage of the bill making it obligatory upon teachers to observe Forest and Bird Day in the schools of the State.

“Our Society is always represented in as many County Institutes for Teachers as possible. If there cannot be personal representation, a message is sent.

“A Branch Chapter is just forming this week in Cleveland,

which its projectors state, is to be the banner organization of the State.

"The workers in Cincinnati are being appointed to the different school districts of the city, for the purpose of conducting a vigorous campaign in the schools during the winter months.

"Of all classes, the mothers are the hardest to reach, and our greatest hope lies in the teachers, who are molding, in large measure, the generations to come."

OREGON.

Legislation.—The bird law is very defective, as it does not protect *all* of the non-game birds of the State.

Warden Work.—No wardens were employed by the Thayer Fund.

Audubon Work.—The Secretary reports as follows: "The Audubon Society of the State of Oregon came into existence July 1, 1902, as the result of the untiring enthusiasm of the Rev. Wm. R. Lord, the delegate whom Oregon sends to the present convention. The association has about 300 active members, but this is hardly a correct index to the interest that has been aroused. Last spring Mr. Lord gave bird talks to 18,000 public school children, to about 1,000 teachers, and to 3,000 other adults in evening lectures, everywhere receiving a hearty response to his message. There is every indication of a large increase in the membership next spring.

"No leaflets or circulars have been sent out, publicity having been obtained in other ways, viz., by means of Mr. Lord's talks, the circulation of his book on Oregon and Washington birds, which has been placed on the list for supplementary reading in the public schools by the State Text Book Commission of Oregon, and by the frequent and full newspaper reports of the work of the association.

"Copies of our bird laws are in the hands of our president, and are sent out upon request.

"Lectures have in the main taken the form of impromptu talks, without illustration. We have a collection of unusually attractive photographs of Oregon sea and land birds, taken in their native

haunts by some of our members. Stereopticon slides have been made of these. The photographs, enlarged to life-size, are of rare beauty as well as of scientific value.

“There have been one or two prosecutions and convictions of offenders against the bird laws; one \$10 fine for robbing nests in Portland was imposed by the efforts of our president, who is an attorney.

“Our work has chiefly taken the form of bird boxes and field observations. The John Burroughs Club of Portland offers annual cash prizes to the school children of Oregon for their knowledge of native birds. There is a growing interest in these contests, which embrace both a field test, 60%, and a composition test, 40%. An auxiliary club of 71 members at our State capital is about to introduce its work into the public schools. Mr. Lord expects to continue his lecture work next spring. Other projects will be planned to meet the demands of the hour as they arise.”

PENNSYLVANIA.

Legislature.—The non-game bird laws are in a very unsatisfactory condition, inasmuch as there is doubt whether the law of May 14, 1889, as amended April 15, 1891 (Sec. 30-36), was repealed or superseded by the law of 1897. The first of the above statutes is by far the better of the two and should be re-enacted, if it is not now in force. The Audubon Society should bring a test case to have the matter legally determined.

Warden System.—No wardens were employed by the Thayer Fund. In this connection the following very interesting letter is presented:

“On my father’s birthday I take great pleasure in sending the enclosed check as a contribution towards the fund for the protection of the gulls and terns. One of the last things which gave him pleasure in this world, a few days before his death, was watching from his window at Wood’s Hole, a large flock which had come into the harbor after a school of young herring. He used to lament their possible extinction, and would have rejoiced in this effort to prevent it. Yours very truly, LUCY H. BAIRD.”

Audubon Work.—The Secretary reports a membership of 6,800.

“About 2,000 educational leaflets were distributed during the year, also 1,000 copies of the bird laws have been posted. Our best work has been accomplished with our circulating libraries. There are twelve of these of ten books each. These were sent to sixteen different schools, making a total of 29 periods of three months each. A number of the teachers wrote appreciative letters, telling how much the books had been used and enjoyed.”

RHODE ISLAND.

Legislation.—The bird law is satisfactory.

Warden System.—No wardens were employed by the Thayer Fund.

Audubon Work.—The Secretary reports the membership to be 621. About 500 leaflets have been distributed. An illustrated lecture is owned and is in constant use, also a circulating library. Fifty sets of the Massachusetts Audubon Society Bird Charts have been purchased during the past year and have been distributed among the country schools of the State. It is planned to have bird lectures under the auspices of the society during the present winter.

SOUTH CAROLINA.

Legislation.—Some of the provisions of the bird law are excellent, but the law is not comprehensive enough, as it does not give protection to a large number of species. The bird lovers of South Carolina, and especially the agriculturists, should insist that the law be improved at the next session of the legislature.

Warden System.—No wardens were employed by the Thayer Fund.

Audubon Work.—This Society is local and has not accomplished anything outside of its immediate neighborhood. An effort will be made by the National Committee during the coming year to enlarge and strengthen the nucleus already established. The A. O. U. members and all bird lovers are urged to aid this effort.

TEXAS.

Legislation.—An effort will be made to have the American Ornithologists' Union model law passed during the next session of the legislature, which convenes in January, 1903. While some of the song, insectivorous and sea birds are protected under the present law, many are not, and a large number of counties are exempted from the statute. The large agricultural interests of Texas imperatively demand that a comprehensive bird law shall be enacted at once and strictly enforced.

It is a pleasant duty to call attention to the very valuable work being done by the Southern Pacific R. R. Co., through its Industrial Agent, Prof. H. P. Attwater, who visits all portions of the Commonwealth to lecture to farmers' clubs and granges; this gives him an opportunity to call attention to the value of all bird life and thus create a sentiment in favor of its protection. The Thayer Fund has furnished a large number of leaflets regarding birds for distribution among the agriculturists and teachers of Texas.

Warden System.—It has not been deemed best to employ any wardens on the Texas coast until a satisfactory law is in force. If the next legislature enacts a good law wardens will be engaged for the breeding season of 1903.

Audubon Work.—There is no Society in Texas at the present time, but steps are being taken to organize one, and it is hoped that before the next report is made a large and aggressive society will be at work.

VERMONT.

Legislation.—While the present law is a very good one in its main features, it can be improved. An effort in that direction is now being made, the A. O. U. model law being before the legislature, which is now (November) in session.

Warden System.—No wardens were employed by the Thayer Fund.

Audubon Work.—A society has been established about a year, it having existed as a bird club for some time previous to organi-

zation as an Audubon Society. The enrolled members number 250. The local work done has been very satisfactory and its influence is spreading to other portions of the State, two branch societies having already been formed. They have succeeded in interesting the children to an unusual degree by junior meetings and bird walks. Two libraries of bird books are in circulation among the district schools, and have stimulated interest in bird study.

VIRGINIA.

Legislation.—The bird laws of this State are wholly bad; very few non-game birds are protected at all, some are protected during a portion of the year, while that most destructive of all methods of bird extermination, egging, is legalized by law during the early weeks of the breeding season.

The county system of local bird laws is in vogue, and it should be superseded at once by a law covering the whole State. Bird protection cannot successfully be promoted where the law protects a species in one county and in an adjoining county no protection is given. It is a well established legal proposition that wild birds are an asset of the State and do not belong to the citizen as an individual, therefore the State should provide a law for their protection and preservation, just as it does for any other of its valuable rights and assets.

The A. O. U. members and the Audubon Society, as well as all bird lovers, should combine in a strenuous effort to have the A. O. U. model law adopted. At the last session of the legislature a bill was introduced by Representative James R. Caton, at the request of the Virginia Audubon Society, but it was not carried through the House, although it was favorably reported and reached its third reading. The session was short, and was largely taken up with a constitutional amendment.

The effort for a new bird law will be renewed at the coming session of the legislature, and in the interim educational work will be done through the press and by the distribution of leaflets, in order that a public sentiment for bird protection may be aroused. If from every portion of the State the constituents of the delegates

write and urge, or even go so far as to demand a new law, the appeal will be listened to.

Warden Work.— On the Virginia coast some of the most important work attempted by your Committee is done through the Thayer Fund. The work, however, is very largely moral suasion rather than legal protection. The law is so thoroughly unsatisfactory that the wardens find it hard to give absolute protection during the early weeks of the breeding season. With all the drawbacks it is our pleasant duty to report that all of the sea bird colonies on the Virginia coast are making a steady gain. If the legal taking of eggs could be stopped, the gain would be much more rapid than it is now. It is now impossible for plume hunters to visit this coast and kill Terns and Laughing Gulls by the thousands, as they did only a few years since; if such an attempt were to be made the plumers would have to reckon with a very determined party of eight wardens, extracts from whose reports are herewith given.

Capt. J. M. Fedderman, of Assateague Beach, says: "Eggs are taken, but no one can estimate the number, as parties hunt for them at all times. From two boys I took 16 Marsh Hen's eggs and 6 Willet's eggs, which were replaced in the nests and were afterward hatched. On August 26 a party did some shooting, but on investigation I was unable to find any gulls or terns on them and therefore could not have them fined. There is a good harbor here for vessels, and the sailors give the most trouble looking for eggs; boys being the next most troublesome. Summer boarders rarely disturb eggs but shoot at anything that flies, merely for practice. Marsh Hens are much more numerous than four or five years back, and there has been some gain in the numbers of Willets. If means could be devised to stop the taking of eggs the increase in birds would be surprising."

Capt. J. B. Whealon, of Wallops Beach, says: "Most of the people in this vicinity are in favor of protecting birds, but there is a class of baymen that will take eggs, and sometimes kill breeding birds. They give more trouble than any other persons. Prior to two years since the gulls were almost all destroyed, but now there is a big increase; I should judge they have doubled in numbers, and there is also a marked increase in the Willet; more young Willets were seen in August than at any time in five years past."

Capt. L. F. Taylor, of Metomkin Inlet, says: "There has been a normal increase in the Laughing Gulls and Willets, but for some reason the Marsh Hens do not seem to be so numerous. The increase in Big and Little Strikers (Terns) seems to be larger than it was last season. Very few eggs have been taken in my locality; on only one occasion did I have to prevent eggging by a party of two. They desisted at once when I cautioned them."

Capt. J. A. D. Savage, of Wachapreague Beach, says: "The Marsh Hens have made some increase, but the other species, viz., Black-headed Gulls, Flood Gulls, Willets, and Strikers have not increased materially. This can be accounted for as follows: the beach here is gradually washing away and getting lower, which compels the beach breeding birds to move to other localities where they can find higher beaches and where there is less danger from storm tides. I believe that fewer eggs have been taken this season than ever before, and I do not know of a single instance when birds were killed. Those who made a business of killing birds in former years have been forced to desist, knowing that they are watched and will be brought to account if caught."

Capt. J. W. Richardson, of Parramores Island, says: "It is not unlawful to take eggs during a part of the breeding season and many are taken each year; but I can see that since I have been acting as warden there are many more birds now than formerly, with the exception of the Willet and Marsh Hens, which are only holding their own. This is owing to the fact that they are slaughtered after the open season commences, which opens nearly a month too early. The law should be changed."

Capt. J. E. Johnson, of Hog Island, says: "Many eggs are taken during the open season, but by reason of the protection given the birds I can see that hundreds are raised each year; it is especially noticeable in the Black-headed Gulls, Terns and Willets. Marsh Hens do not seem to increase, owing, I think, to the high tides that destroy many of them."

Capt. J. R. Andrews, of Cobbs Island, says: "Large numbers of the eggs of the Black-headed Gulls were taken during the open season, also a few of the eggs of Terns and Skimmers. The men who rake for clams give me the most trouble, as they live in boats which are anchored very near the marshes where the gulls breed.

The eggging is mostly done at night when it is impossible to catch the offender. This year I found a new colony of about 1,000 Skimmers on an island where they had not bred before; there were also about 500 Common Terns and 30 pairs of Wilson's Plover breeding on the same island. This must be an overflow from the colonies near the station."

Capt. G. D. Hitchens, of Smiths Island, says: "There is a great increase in the birds since they have been protected on Smiths Island and on the Isaacs, and the increase is greater this year than last." The coöperation of the Marine Hospital Service to prevent eggging on Fishermans Island was asked by your Committee and was accorded by Surgeon General Wyman, who wrote as follows: "The Quarantine Officer reports that he believes it advisable to coöperate with your Union in its work, and to this end has directed his subordinates on Fishermans Island to desist from further gathering eggs thereon or in that vicinity."

The bird colonies on the Virginia beach were visited by a number of members of our Society during the past season and all unite in reporting that very satisfactory work is being done by the wardens. Mr. Kirkwood made his annual inspection trip in August to all the stations. A few statements are extracted from his very full report:

"Capt. N. B. Rich, who last year had charge of the Assateague Beach station, is now a superintendent of the life saving service. When sending out orders to the various captains he added a clause directing them to protect the birds all they could without interfering with their regular life saving duties, and they now feel that they can talk in quite a different tone from that used formerly. The wardens all agree that the law should be changed.

"The increase in the numbers of Least Terns is too great to be the result of colonies on this beach; some of them must have come from further north.

"I did not see any Royal Terns, so they probably have been exterminated, so far as Virginia is concerned. On the whole, birds were more numerous than last year, the increase being about normal, except in the case of the Least Tern, which is entirely beyond expectation."

Audubon Work. — There is a small society which is doing con-

siderable work in trying to get better legislation, in which effort all the Virginia members of the A. O. U. should join.

WASHINGTON.

Legislation. — The bird law is very limited in its scope and only protects song birds. An effort will be made at the next session of the legislature (January, 1903) to have the A. O. U. model law passed.

Audubon Work. — There is no Audubon Society in the State, and little has been done in bird protection work as yet.

An interesting incident regarding the tameness of sea gulls is related by Sergeant Albert I. Smith of Battery I, First Artillery, U. S. A.: "It may interest you to hear of an incident that was part of my daily pastime while stationed at Fort Canby, which is a lonely post, sticking up on the jagged coast cliffs. There were innumerable sea gulls inhabiting the rocks and during the rigorous winter months I noticed that the poor birds scarcely caught sufficient food from the stormy waters of the coast. I began by depositing among the rocks the collected remains from our mess table after each meal. The feathered indigents readily understood my purpose and gathered in vast numbers to partake of our soldier food. Soon they grew exceedingly tame and particularly alert for the bugle's mess call, the notes of which no doubt, were as welcome to them as to us. Round and round they would circle, screaming for joy, and when I appeared on the rocks with their food box they would flutter about me like gentle barn-yard poultry, scrambling over my body or alighting on my wrists to peck a morsel from my fingers."

The above story is vouched for by Mr. William H. Kobbé, who says: "The gull story is doubtless true. I have often seen the Battery cooks thus feed the birds, which became so tame as to become a nuisance, walking up and down the road and even into the kitchen. I can hardly believe that the birds could distinguish mess from any other call, but it is possible that all the calls during the middle of the day had the same effect upon them."

WISCONSIN.

Legislation. — The law is entirely satisfactory.

Warden Work. — No wardens were employed by the Thayer Fund.

Audubon Work. — Audubon work is going on actively and successfully, especially among the school children. The membership is now very nearly 18,000. The Society owns nearly 200 lantern slides of birds, 70 being colored, which are rented for a small sum to any school branch or local society desiring to use them. One circulating library of bird books is owned; there have been so many calls for it that the society hopes to add others in the near future. By the courtesy of the State Superintendent of Public Instruction the Arbor and Bird Day Manual for 1902 carried the invitation of the Audubon Society to each public school in the State to coöperate in the work of bird protection and to form a school branch. The success of these branches is almost entirely due to the intelligent assistance of the teachers, without which it would be impossible to carry on any organized work among the children of the Commonwealth. The Society publishes a small monthly magazine, devoted especially to bird subjects for children.

THE THAYER FUND.

The treasurer of the fund submits the following statement, showing the subscriptions and disbursements during the year ending November 1, 1902, to the correctness of which he certifies.

NEW YORK, NOV. 1, 1902.

WILLIAM DUTCHER, *Treasurer.*

IN ACCOUNT WITH THAYER FUND.

Balance brought forward from 1901 \$301.60

SUBSCRIPTIONS.

J. E. Thayer	\$250.00	Mrs. H. L. Higginson	\$10.00
S. B. Fay	200.00	S. McV. Hinton	10.00
C. L. Freer	100.00	Mrs. M. L. Parsons	10.00
Miss L. L. Kane	100.00	J. J. Donaldson	10.00
Mrs. Q. A. Shaw	50.00	W. G. Van Name	10.00
Mrs. V. E. Macy	50.00	L. H. Baird	10.00
C. H. Dodge	50.00	Miss Fanny Dwight	10.00
Mrs. D. Pickman	50.00	A. C. Gelpcke	10.00
W. E. Dodge	50.00	B. H. Christy	10.00
George Dorr	50.00	H. Herrick	10.00
George W. Vanderbilt	50.00	E. Bowditch	10.00
Florida Audubon Society	50.00	Mrs. W. A. Wardsworth	10.00
Charles H. Raymond	25.00	Mrs. E. Davis	10.00
C. P. Latimer	25.00	Mrs. T. M. Brewer	10.00
E. D. Sharpe	25.00	H. S. Baldwin	9.00
Mrs. J. S. Kennedy	25.00	L. J. Emery	5.00
E. L. Osgood	25.00	Mrs. H. Holt	5.00
Dean Sage	25.00	Rev. L. F. Chamberlain	5.00
H. S. Russell	25.00	Mrs. S. L. King	5.00
E. L. Parker	25.00	Elizabeth A. Gatter	5.00
F. J. Heckel	25.00	Harriet E. Clarke	5.00
S. G. Ward	25.00	H. H. White	5.00
J. Pinchott	25.00	M. L. Van Orden	5.00
W. Hunnewell	25.00	F. M. Day	5.00
G. Abbott	25.00	S. Brooks	5.00
Dr. H. C. Eno	25.00	Geo. C. Shattuck	5.00
S. D. Warren	25.00	Miss Cowper Lord	5.00
Anne Whitney	20.00	Miss Lord	5.00
W. B. Dickerman	20.00	Benj. Nicoll	5.00
Conn. Audubon Society	20.00	Adeline Willis	5.00
John Markoe	20.00	S. L. King	5.00
Wm. Brewster	19.62	Mrs. Theodore Thomas	5.00
Ruthven Deane	19.62	J. L. Cox	5.00
Mr. and Mrs. W. M. Smith	15.00	Mrs. W. Putnam	5.00
Royal, II, and Reg. C. Robbins	14.00	Mrs. C. Platt	5.00
Mrs. J. W. Elliot	15.00	Mrs. Brinton Cox	5.00
W. S. Rainsford	11.00	Mrs. S. S. Darrell	5.00
Cornelius B. Smith	10.00	A. B. Duncan	5.00
Adeline Manning	10.00	24 contributions from \$2.70 to	
Miss A. F. Brush	10.00	\$1.00 each	41.45
Miss Clara L. Crane	10.00		\$2246.29

EXPENDITURES.

Arkansas.

2 Bird Charts	\$2.38	
Express44	2.82
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California.

J. M. Willard, trav. expenses — investigation of colony of grebes, etc., at Tule Lake .	49.00	
Telegrams	4.35	53.35
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Colorado.

2 Bird Charts		2.38
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Florida.

2 Government coast charts showing bird keys50	
Express	2.15	
Mrs. F. E. B. Latham, trav. expenses visit- ing breeding colonies	2.50	
Warning notices	40.85	
Sec'y of State — 3 certified copies of law .	5.05	
Negative of birds on Pelican Island . . .	2.00	
J. O. Fries, survey of Pelican Island . . .	10.00	
“ “ expenses in the matter of pur- chase of Pelican Island	25.00	
P. Kroegel, affidavits “ “ “ “	4.00	
4 Wardens, salaries	250.00	
Telegrams and exchange	1.41	343.46
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Georgia.

Bird books for Agric. Com. of Legislature .	7.20	
Telegrams to legislators	3.55	
Printing circular letter to Hort. Societies .	1.50	12.25
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Indiana.

2 Bird Charts for Audubon Society	2.28	
Chairman, trav. expenses to Legislature .	28.00	30.28
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Iowa.

2 Bird Charts for Schaller Audubon Society	2.38	
Slides for Iowa Audubon Society . . .	11.80	
Advertising in Des Moines 'Capital' . . .	2.55	16.73
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Kentucky.

Dr. T. S. Palmer, trav. exp. to Legislature	19.00	
Chairman, " " " " . . .	30.35	
Warning notices	34.50	
Certified copy of law	1.03	
Express70	
Telegrams	5.23	90.81
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Louisiana.

Circular letters sent to Legislators . . .	13.60	
Typewritten copy of House Bill 132, A. O. U.		
Model Law	5.00	
Chairman, trav. expenses to Legislature . .	135.89	
Certified copy of bird law	3.75	
Telegrams	6.36	164.60
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Maine.

11 Wardens, salaries	294.40	
A. H. Norton, trav. expenses inspecting breeding colonies	27.30	
H. L. Spinney, " " "	3.50	325.20
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Maryland.

Warden, salary	25.00	25.00
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Massachusetts.

Warning notices	6.00	
1 Warden, salary	30.00	
Express95	
J. E. Howland, posting warning notices .		
at Marthas Vineyard	3.50	40.45
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Nebraska.

2 Bird Charts	2.38	
Express on Leaflet No. 2	1.02	3.40
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New Jersey.

Chairman, trav. expenses to Legislature	4.43	
Telegrams49	
Wardens, salaries	40.00	44.92
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New York.

Chairman, trav. expenses to Legislature	16.95	
E. Hick, warden, trav. exp. in re illegal shooting	9.83	
1 Copy Check-List to Forest, Fish & Game Com.	1.05	
1 Certified copy New York Law	1.30	
2 Bird Charts for Sup't Schools of N. Y. State	4.76	
2 Wardens, salaries	40.00	
Warning notices	24.00	
Birds purchased in evidence	5.23	
Telegrams36	
Advertising	2.00	
Express30	105.78
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North Carolina.

Bird books for A. S. Doane	1.75	
Bird charts for N. C. Audubon Society	2.36	
Printing leaflet No. 1 (N. C.) for Aud. Soc. " " No. 2 " " " "	12.25	
	12.20	
Express on above	1.30	29.86
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Ohio.

Chairman, trav. expenses to Legislature	28.00	
Warning notices	41.00	69.00
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Virginia.

Chairman, trav. expenses to Legislature	40.65	
Telegrams to legislators	2.08	
F. C. Kirkwood, trav. expenses inspecting breeding colonies	44.35	
Wardens, salaries	230.00	317.08
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General Expenses of Committee.

Printing	220.30	
Advertising	20.00	
Postage	144.00	
2 Bird Charts for office	2.18	
Letter cases	2.00	
Clasp envelopes, sending out reports and pamphlets	15.38	
Express	7.45	
Telegrams and messenger	1.59	
Sundries	12.25	425.15
		<u>\$2102.52</u>
Balance forwarded to 1903		143.77
		<u>\$2246.29</u>

The above report and financial statement are

Respectfully submitted, for the Committee,

WILLIAM DUTCHER.

New York City, November 1, 1902.

ENDOWMENT FUND FOR THE PROTECTION OF NORTH
AMERICAN BIRDS.

Contributions, 1901	\$170.05
Contributions, 1902	51.88
Interest earned	5.65

Total amount of Fund, November 1, 1902, \$227.58. Deposited in Free-
stone Savings Bank of Portland, Connecticut, by direction of Council of
American Ornithologists' Union, incorporated in 1888 at Washington,
District of Columbia.

FORM OF BEQUEST.

I do hereby give and bequeath to "The American Ornithologists'
Union" of the City of Washington, District of Columbia, for the Endow-
ment Fund for the Protection of North American Birds, —————
dollars.

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RUTHVEN DEANE, Chicago, Ills.
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NATIONAL COMMITTEE OF AUBUDON SOCIETIES.

WILLIAM DUTCHER, *Chairman*, 525 Manhattan Avenue, New York.

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A QUARTERLY JOURNAL OF

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VOL. XX.

APRIL, 1903.

No. 2

THE DOMESTIC AFFAIRS OF BOB-WHITE.

BY JOHN N. CLARK.¹

To THE man who keeps his eyes and ears open, there are new sources of entertainment and instruction bursting upon his vision at every turn. They often come as surprises—for Nature, ever prolific in resource, offers a new program at every interview. Such were the thoughts that suggested themselves as I took the pen to recount a little episode that afforded much entertainment for me the past summer.

I frequently observed during later June and early July a stately Bob-white stationed on a post near at hand where at early morn and fading day he called out with great energy his weather prognostications with little favor to the haymakers, as if he were a trusted employee of the Weather Bureau.

By the roadside in that immediate vicinity grow numerous patches of what I call scrub. There are hazel scrub, wild rose scrub, and blueberry and dwarf willow scrubs—annually mowed. Mowing does not destroy or discourage them, but puts them in the form so popular in Japan when practiced upon trees kept in plant form by trimming and training. These scrubs, cut to stubs from six to ten inches, renew their annual leaf and vigor and afford nice

¹[This article has a sad interest, owing to the death of the author since the manuscript was received for publication. See 'Notes and News' in the present number of 'The Auk'.—EDD.]

runways for small birds and quadrupeds beneath their green cover, and often a nice nesting place for Madam White, as I have several times observed in the passing years. This year circumstances detained the mowing till Tuesday, the fifth day of August. I hesitate somewhat from fixing this as the exact date as I had no interest at the time nor any thought of the subsequent interest involved. I know it was Tuesday and am strongly impressed with its correctness. Early in the afternoon I took a walk up the road to inspect the progress of my employee and found him skillfully clipping away the weeds and shrubbery that had sprung up by the roadside. Almost his first casual remark was, "There is a quail's nest in the shrubbery the other side of the road." A quail's nest, thought I, pretty late in the season for Bob-white to set up domestic affairs. But my curiosity led me to the spot and a little inspection. Old Bob sprang up out of the shrub with startling whirl of wing and dropped into a small growth of bush a few rods away. The nest was built in a scrub of blueberry bushes that had been cut about ten inches from the ground year after year, interwoven with the annual growth of grasses and weeds pertaining to a wayside. The nest was a neat little bower, deftly woven, covered and concealed. Only a few steps away was the public road with teams, pedestrians and even dogs passing every hour of the day. But little recked Bob-white in his cozy nest for, as I have already intimated, it was Old Bob had possession and twelve, clean, white eggs. A moment's inspection sufficed to satisfy my curiosity and I quietly withdrew to avoid any possible diversion in the domestic affairs of the White family.

It was about this time, or shortly after, in crossing a field a few rods back of this nest, I was startled to find myself in the midst of a flock of young birds, juvenile Bob-whites about the size of an English Sparrow, upspringing on every side and scurrying in every direction, evidently proud of their ability to take wing, though of little use would that be to protect them from old Tabby's paw had she been in my place. What attracted my special attention was the fact of only one old bird being with the flock of little ones and that bird a female Bob-white. I would add further that this flock was observed several times in the following weeks and always with one solitary guide and protector, and that one the mother.

Tuesday, the twelfth day of August, in passing the spot I thought of the White family and turned aside for a moment's interview. I found 'Old Bob' still on guard, promptly responding, relieving himself in haste from his nursery duties with evident solicitude. It brought one matter of interest to my mind, the dictum of a recent writer in one of our ornithological publications that Old Bob never took upon himself any share in the domestic cares and responsibilities of his household, not even to the bringing an occasional tidbit to the wife absorbed in household duties, yet here he was faithfully discharging the whole duties of overseer, house-keeper and wet nurse. And I will add that during the whole period of observation there was no appearance of Madam White at the premises. The nineteenth found 'Old Bob,' ever faithful, unwearied in his devotion to the household and its cares, and my interview was a very brief one.

The twenty-sixth day of August, I was thinking what a fine thing it would be if I could catch 'Old Bob' as incubation was complete and the babies cuddled together in their nursery just ready to launch forth upon life's weary wanderings mid swarming enemies. What a prize it would be for my camera! But no such good fortune awaited me and no change appeared in the household affairs of the White family.

September second; another month opens on the scene and it occurred to me that if Old Bob should get out a brood they would make poor broilers for the Dogs of War so soon to be let loose, October first being only one month away. Old Bob burst upon the scene with his usual vigor, the same startling whirl of wings to which my nerves could never get reconciled, dropped in his old place and began to whine piteously. I peeped into the nest to find everything unchanged.

"Poor Bob," said I, "right sorry I am for you. All these weary weeks, in storm and sunshine, faithful to life's duty as you view it, and all for naught"; and here I fell to blaming myself for the disturbing interviews that might have wrought this disastrous end to all his care, and I went away feeling the deepest sympathy and regret for poor Bob.

My sympathy and regrets were all wasted. The morrow found the nest deserted, and only empty shells neatly cut in halves, as if severed by an expert with sharp tools, filled the nest.

A recent author on ornithological subjects arranges a list of birds into two classes, one, like the sparrows, that annually rear two broods in the season; and one, including Bob-white, never rearing but one. This little episode does not prove him incorrect and yet there are points circumstantially convincing to my mind that he was mistaken.

It was just one month after the events narrated above. October had come: the Nimrods had put on cap and boots and the fusillade had already begun, but not yet near. I was reading quietly in my chair when I was startled by the heavy report of a gun, fired evidently only a short distance away from my yard but the scene invisible by intervening foliage. A little later I saw go marching proudly by, a boy with a big gun in one hand and a big male Bob-white in the other, great triumph sparkling in his eyes. He probably feasted that night. Menu — Quail on toast, seasoned with a mayonnaise of glory.

✓ OCCURRENCE OF THE EMPEROR GOOSE IN HAWAII.

BY H. W. HENSHAW.

THE present season of 1902-03 bids fair to be a notable one as regards the occurrence of North American birds in the Hawaiian Islands. About the middle of October there occurred a heavy northeast trade storm, and, coincident with it, an unusually heavy flight of ducks and geese reached the island of Hawaii. Flocks of the former, consisting of scores, and even of hundreds, were reported from various points on the windward side. The ducks were mostly of two species, viz., the Pintail (*Dafila acuta*), and the Shoveller (*Spatula clypeata*). Although these two species are of annual occurrence upon all the islands of the group, where they winter, they have not been known in such abundance upon the island of Hawaii, not a favorite with ducks, for many years.

Among the flocks were doubtless not a few individuals of species

hitherto unknown to occur in the islands, but when killed these usually fell into the hands of natives and of sportsmen from whom next to nothing can be learned respecting the contents of their game bags save that among them were strange ducks.

The capture of three "Black-headed Ducks" has been reported from Puna and a photograph of two of these, taken after death by Mr. H. E. Wilson, is before me as I write. From this I identify them, with but little doubt, as the American Scaup Duck (*Aythya marila nearctica*). Neither of the Scaups has hitherto been reported from the group.

A fine specimen of the Red-breasted Merganser (*M. serrator*) fell into the hands of Mr. C. M. Walton of Pahala, Kau, by whom it was preserved. This is the second recorded instance of the occurrence of this duck in the archipelago, though there is reason to believe that its presence here is not so very exceptional.

December 9, a specimen of *Larus glaucescens*, in superb juvenile winter plumage, was shot near Hilo by Mr. John Rinehart. This gull is known to occur in Hawaiian waters more often than any other North American gull, being piloted down here from San Francisco by both steamers and sailing vessels.

But the most interesting capture to be recorded is that of four Emperor Geese (*Philacte canagica*) at Kalapana, on the Puna coast, December 12, by Mr. H. E. Wilson, who fortunately possessed the interest and skill requisite to preserve all four. Two of the birds I have seen. They are in superb winter plumage, and are not only the first to be reported from the Hawaiian Islands but, if I mistake not, from any locality anything like so far south as latitude 19°. Several species of geese in small numbers have found their way to the islands from time to time during the fall migration, and during the present season small companies have been reported here and there along the coast. No doubt it was in company with other geese or with ducks that the present wanderers were enticed to southern latitudes.

Such casual occurrences as those above noted — but few in comparison with the many that are never chronicled — indicate the manner in which birds may be introduced to new and distant lands, and how the habit of annual winter migration to suitable regions is begun.

The habitual winter migration of ducks from the northwest coast to the islands, as well as that of the plover, has unquestionably been going on for many centuries, and had begun long before the islands possessed human inhabitants to profit by the visits of food birds. Yet no doubt the migration from America is very recent as compared to the length of time most of the land birds have been island residents.

At first thought it seems strange that, with the exception of the Short-eared Owl — now a long time resident and even yet a casual emigrant from the northwest — no west coast land birds have found their way hither, or at any rate have become established in the islands. The most probable explanation of the fact is that when blown off the coast, as the land birds must frequently be, and even when such strays join flocks of water birds on their way hither, as no doubt they often do, their strength gives out long before they reach port. Circumstances must needs be very exceptional when even so strong and hardy birds as woodpeckers can fly two thousand miles without stopping, if indeed they can perform the feat under any conceivable conditions. In the unlikely event of the birds reaching land after so prolonged and tremendous a flight there remains the probability of their dying from exhaustion.

Nevertheless, the ancestral stock from which have sprung the Meliphagidæ and the Muscicapidæ, which are probably of Australian derivation, and the Drepanididæ, which may have come from neotropical America, successfully solved what must have been practically the same problem of prolonged flight over the ocean, and why not such birds as the American Picidæ, Fringillidæ, and Corvidæ, to say nothing of other hardy and strong flying birds, not one of which has a representative in the island avifauna?

In referring to the migration of the west coast water birds to the archipelago I have elsewhere expressed the belief that, as time went on, the number of American species wintering in the islands was likely to increase, and that perhaps some might become permanent residents. I did not for the moment take into account the constantly increasing number of island sportsmen and gunners to whom everything that flies is game, and who are not only sure to prevent the possibility of additional species locating on the islands but who threaten the existence of several species long resident.

It is much to be regretted that the few species which are legitimate objects of pursuit by sportsmen, like the Hawaiian Goose, Hawaiian Duck, and the Plover and Turnstone, are becoming scarcer and scarcer every year. Yet it is at least to be said that these birds serve as food, and hence are not entirely wasted. No such excuse, however, can be urged in defence of the slaughter of such birds as the Hawaiian Stilt, Night Heron, Mud Hen (*Gallinula*), and Coot (*Fulica*). These birds, though occasionally eaten by the natives and Portuguese, are too 'gamy' for most palates, and are usually shot and thrown away, with the natural result that they have been quite exterminated in many localities and are becoming scarcer and scarcer in all districts.

PRESERVING EQUILIBRIUM BY THE USE OF ONE WING.

BY WILLIAM HUBBELL FISHER.

Plate VII.

I WAS at the Brown Palace Hotel, in the city of Denver, Colorado, from March 14, 1902, until the 21st day of the following May, and occupied a room on the seventh floor, about ninety feet above the pavement of the street. There I quite frequently fed the House Finches (*Carpodacus mexicanus frontalis*) of the neighborhood with bird seed spread upon my window sill. These birds became quite familiar. Often as many as twelve or fourteen of them were upon the sill at once. As the spring advanced, they came in pairs, and it frequently happened that a hungry pair having taken possession of the seed would drive off all the others until they had satisfied their appetites. In driving off the other birds, this pair would often meet with great opposition, and frequently severe combats occurred, often in mid air. I have pictures of the birds one darting down upon another as a hawk does upon his prey. At other times, the possessors of the locality would drive the intruders to the edge of the sill, and would often push off the intruder. Two of my instantaneous photographs reveal the

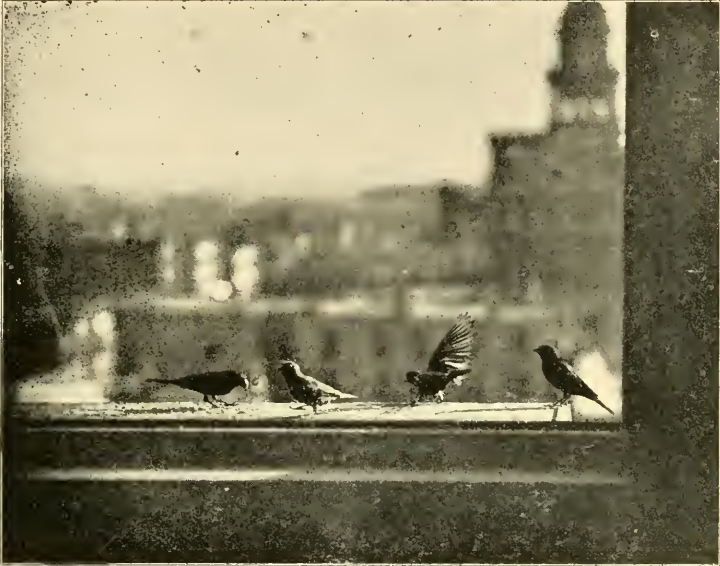
fact that when a bird—an intruder—had been thus driven to the edge of the sill and was being pushed off, he used one wing to keep himself from being forced into the air, the other wing not being in use.

On such occasions, the attacking bird would rush at the intruder and drive him almost off, and push him to the edge of the sill, and then as quick as a flash, in a nonchalant way, return and get ready to eat again the bird seed.

I have the pleasure of presenting a copy of one of the photographs thus taken, which illustrates such use of a single wing. The photograph was taken with a focal plane shutter. The movement of the wing must have been very rapid, as I did not observe it with the naked eye. The bird is evidently using the air to prevent its being forced off the sill somewhat as a man would use his arm against a post when being forced down a declivity. In illustration of this, I submit a photograph of two boys, one pushing the other down a declivity in Eden Park, Cincinnati.

I am aware that in the case of pigeons, where two males are fighting, the birds use only the wing next to their opponent. They strike their opponent over the back or head with the single wing with great force, the wing being returned with wonderful celerity to its place at the side, the other wing not being in use, but I have never before observed the use of a single wing to prevent the bird from being thrown into an abyss, as in the present instance.

I have another photograph of a House Finch, when driven to the sill, using the outer wing only for the same purpose. In this second instance, the outer wing is the left one.



PRESERVING EQUILIBRIUM.

BIRD MIGRATION AT SOME OF THE BAHAMA
LIGHTHOUSES.

BY J. LEWIS BONHOTE, M. A., F. Z. S. L., M. B. O. U.

THE birds dealt with in this paper from Cay Lobos were received in two consignments and cover the period of twelve months, from August, 1900, to May, 1901. Forty species are included, bringing the total number of species observed on the Cay to 54, which, when we consider that the Cay is but a bare rock of a few acres, standing well out at sea, is no inconsiderable number for observations extending over such a short period. It is to be regretted that Mr. Thompson has been removed to another station so that we are unlikely to receive further consignments from this locality; but Mr. Thompson has already sent a small collection from his new station, which is dealt with in this paper, and we may therefore hope to receive many further records from him.

Of the birds procured one of the most noticeable is *Aramus giganteus*, but from the direction of their flight, and the time of year (28th Jan.) it is probable that they were merely moving along the coast of Cuba, and not on any direct migration. *Porphyrio martinica* occurs as a solitary wanderer, most probably, considering the lateness of the hour (4 A. M.), from some northern region. *Helmintherus swainsoni*, *Dendroica cerulea*, *Sylvania mitrata*, *Pyrranga rubra*, and *Empidonax acadicus* are recorded for the first time within the limits of the Bahamas.

Looking at the collection from a Cuban point of view we may notice the occurrence of *Dendroica evelynæ*, which has not yet, as far as we are aware, been observed in Cuba, but which, from the occurrence of this specimen, probably occasionally straggles there.

As regards the nights on which large movements were observed, the 20th Oct. and the 22nd Nov. were those on which most species were procured on the fall migration, and in both cases the wind was northeast. October seems to be the chief migratory month, as specimens were got on every night that the elements proved favourable.

On the spring migration the nights of the 15th and 21st March,

the 15th April and the 13th May were the richest in variety of species, and on three of these occasions the wind was southeast. On the 15th April, however, the night in which 17 different species were procured, the wind was north-northwest. Although we think it is well to draw attention to these facts, too much stress should not be laid on the direction of the wind, as the number of birds striking is probably far more dependent upon the state of the atmosphere (*i. e.*, rainy, misty, cloudy, etc.) than on the actual direction of the wind. In the cases under consideration it will be noticed that, with the exception of the 13th May, Mr. Thompson records rain or mist in every instance; it may be well also to notice that the birds invariably come up to the light against the wind and strike on the lee side of the lantern.

As regards species which were observed but of which no specimens were sent, we notice Swallows on the 20th and 31st August; Kingfisher (*Ceryle alcyon*) 21st August and 1st Sept.; Rice Birds (*Dolichonyx*) 1st and 8th Sept., and Mr. Thompson estimates that on the last mentioned date the flock consisted of at least 200 individuals. A Barn Owl also was seen on the 1st September. Flocks of small birds visited the island on the 4th and 9th Sept., 28th Oct. and 27th November.

On the 20th April a large migration took place, the greater bulk of which were small Passeres, but it also included Fighters (*Tyrannus*) and Rice Birds (*Dolichonyx*). The last spring movement recorded is on May 10, when a small flock of Passeres rested on the Cay.

There remains only for me to give my best thanks to Messrs. Thompson and Solomon for all the trouble they have taken and to hope that they may send us many more equally interesting consignments.

CAY LOBOS LIGHT.

Turdus mustelinus.

No. 8. *a.* 15th April, 1901.

Turdus fuscescens.

No. 15. *a.* 15th April, 1901.

Mniotilta varia.

No. 2. *a, b.* 29th Oct., 1900.

No. 4. *c-f.* 21st March, 1901.

- No. 5. *g-k*. 23rd March, 1901.
 No. 3. *i*. 3rd April, 1901.
 Nos. 8 and 15. *h-m*. 15th April, 1901.

Parula americana.

- No. 2. *a-e*. 20th Oct., 1900.
 No. 6. *f*. 29th Oct., 1900.
 No. 9. *g, h*. 22nd Nov., 1900.
 No. 4. *i-l*. 21st March, 1901.
 No. 5. *m-o*. One male, two females, 23rd March, 1901.
 No. 6. *p*. One female, 25th March, 1901.
 No. 4. *q*. 11th April, 1901.
 No. 6. *r*. One male, 15th April, 1901.
 No. 11. *s-u*. Two males, one female, 13th May, 1901.
 No. 12. *v*. One female, 14th May, 1901.

Helmintherus swainsoni.

- No. 5. *a, b*. 23rd March, 1901. No. 6. *c*. 26th March, 1901.
 This is the first record of this species within the Bahama area.

Dendroeca coronata.

- No. 9. *a*. 22nd Nov., 1900. Struck at midnight.
 No. 2. *b*. 14th Feb., 1901. No. 5. *d, e*. 23rd, March, 1901.
 No. 4. *c*. 21st March, 1901.

Dendroeca palmarum.

- No. 6. *a*. 29th Oct., 1900. No. 5. *g*. 23rd March, 1901.
 No. 7. *b-d*. 30th Oct., 1900. No. 8. *h*. 15th April, 1901.
 No. 9. *e*. 22nd Nov., 1900.

Dendroeca cærulea.

No. 6. *a, b*. 26th April, 1901. Hitherto only recorded from Cuba and Grand Cayman in the West Indies.

Dendroeca discolor.

- No. 5. *a-c*. Males, 23rd March, 1901.
 No. 8. *d-g*. Four males, 15th April, 1901.
 No. 11. *h*. One male, 13th May, 1901.

Dendroeca tigrina.

- No. 2. *a*. One male, 20th Oct., 1900.
 No. 9. *b*. 22nd Nov., 1900.
 No. 2. *c-e*. Three females, 14th Feb., 1901.
 No. 8. *f, g*. One male, one female, 15th April, 1901.
 No. 5. *h*. One male, 21st April, 1901.

Dendræca cærulescens.

- No. 2. *a.* One male, 20th Oct., 1900.
 No. 5. *b.* One male picked up on the cay, 28th Oct., 1900.
 No. 5. *c-e.* One male, two females, 23rd March, 1901.
 No. 7. *f.* One male, 14th April, 1901.
 No. 8. *g, h.* Males, 15 April, 1901.
 No. 9. *i.* Male, 19th April, 1901.
 No. 12. *k.* Female, 14th May, 1901.

Dendræca dominica.

- No. 4. *a-d.* 21st March, 1901. No. 5. *e-g.* 23rd March, 1901.

Dendræca striata.

- No. 2. *a.* Female, 20th Oct., 1900.
 No. 15. *b, c.* Males, 15th April, 1901.
 No. 10. *d-f.* 10th May, 1901.
 No. 11. *g, h.* One male, one female. 13 May, 1901.

Seiurus aurocapillus.

- No. 9. *a.* 22nd Nov., 1900. No. 11. *e.* 13th May, 1901.
 No. 15. *b-d.* 15th April, 1901.

Seiurus motacilla.

- No. 6. *a.* 26th March, 1901. Struck the Light at 3 A. M.

Seiurus noveboracensis.

- No. 7. *a.* 30th Oct., 1900. No. 5. *b.* 11th April, 1901.

Oporonis agilis.

No. 10. *a.* 9th May, 1901. Struck at 7.30 A. M. There are only two previous records of this species in the Bahamas; the first from Cay Sal, where Mr. Winch met with it on migration about the 14th May, 1891 (Auk, Vol. VIII, p. 352), and the second obtained by myself at Nassau during the autumn migration on the 12th Oct., 1898.

Geothlypis trichas.

- No. 2. *a.* One male, 29th Oct., 1900. Struck at midnight.
 No. 6. *b.* Male, 29th Oct., 1900.

Sylvania mitrata.

No. 6. *a.* 15th April, 1901.

Setophaga ruticilla.

No. 2. *a-c.* One male, two females, 20th Oct., 1900.

No. 7. *d.* Male, 14th April, 1901.

No. 11. *e.* 13th May, 1901. Struck at 2 A. M.

Vireo flavifrons.

No. 5. *a.* 23rd March, 1901. Struck at 11.20 P. M. This species is said by Cory (Cat. B. W. Indies, p. 116, 1892) to have occurred on New Providence but I have not been able to find a copy of the reference. (A. H. Jennings, John Hopkins Univ. Cir., Vol. VII, p. 39). I have, however, recently obtained a single specimen myself on Andros.

Vireo crassirostris.

No. 5. *a.* 23rd March, 1901.

Pyranga rubra (Linn.).

No. 8. *a.* Female, 15th April, 1901. A certain amount of confusion seems to exist with regard to the synonymy of this species, and a mistake occurred in my previous paper on the birds of New Providence (Ibis, 1899, p. 518). In that paper a bird is recorded in the introduction as *P. aestiva* and occurs in the text as *P. rubra*. That specimen is the *P. aestiva* (Gmel.) of the 'British Museum Catalogue,' which is the same as the *P. rubra* of Cory, 'Birds of the West Indies,' p. 85 and 'Cat. W. Ind. Birds,' p. 114. The specimen under consideration, however, is the *P. rubra* (Linn.) of the B. M. Cat., recorded by Cory as *P. erythromelas* (Vieill.) in his 'Birds of the West Indies,' p. 86. This is therefore the first record of this species within the Bahama area.

Cyanospiza cyanea.

No. 8. *a.* 15th April, 1901.

Tyrannus griseus.

No. 9. *a.* 24th April, 1901. Six specimens of 'Fighters,' presumably of this species, inhabited the Cay for three days, March 24th-26th.

Empidonax acadicus [= *virescens*].

No. 8. *a.* 15th April, 1901. The first record from the Bahamas.

Dorichia evelynæ.

No. 8. *a.* 15th April, 1901. The occurrence of this bird so near the Cuban coast points to its occasional occurrence on that island.

Spyrapicus varius.

No. 4. *a.* 21st March, 1901. This specimen must have been a very bright male; the white tips and the outermost spots of the primaries are tinged with pinkish and the white margins of the outer tail-feathers are of a dull pinkish brown.

Columba leucocephala.

No. 10. *a.* 21st Dec., 1900. Struck the tower at 12.20 A. M.

Charadrius fulvus.

No. 4. *a.* 25th Oct., 1900.

Streptopelia interpres.

No. 8. *a.* 14th Nov., 1900. Shot on the Cay.

Tringoides macularius.

No. 10. *a.* 25th April, 1901.

Ardea virescens.

No. 2. *a, b.* 20th Feb., 1901.

No. 8. *c.* 22nd April, 1901. "About 30 arrived on the night of the 20th and all left the following day with the exception of one, which was shot on the 22nd."—T. R. T.

I have compared these specimens with the individual I obtained at Nassau in 1898 and I find that that specimen should be referred to *A. bahamensis* of Brewster and not to this species as erroneously recorded (*Ibis*, 1899, p. 519).

Nyctiardea violacea.

No. 3. *a.* 23rd Oct., 1900. Immature.

No. 4. *b.* 21st March, 1901. A fine adult.

Aramus giganteus.

No. 1. *a-c.* 28th Jan., 1901. Nine examples were seen in all; they came from the N. W. and left going S. E. This is the first record within the Bahama area.

Porphyrio martinica.

No. 1. *a.* 19th Oct., 1900. Struck at 4 A. M.

Porzana carolina.

No. 1. *a.* 19th Oct., 1900.

Sterna cantiaca [*acutiflvida*]. BLACKSHANK.

No. 12. *a-c.* 17th Jan., 1901.

No. 1. *d.* 23rd Jan., 1901. This species and *S. dougalli* sleep on the Cay whenever a strong breeze is blowing.

Sterna dougalli. REDSHANK.

No. 11. *a-c.* 26th Dec., 1900. Shot on the Cay.

No. 12. *d.* 14th May, 1901. Struck at 1.15 A. M.

Sterna antillarum.

Mr. Thompson has sent me some eggs of this species laid on the Cay.

Sterna fuliginosa.

No. 5. *a.* 23rd March, 1901. I also received eggs of this species from a Cay about thirty miles from the station.

Extracts from Schedules.

Date	Name of Bird	Weather	Wind	Side of light struck
19 Oct., 1900.	<i>P. martinica, P. carolina</i>	Fog & rain	S. W. 1	
20 " "	<i>M. varia, P. americana, D. tigrina, D. cærulescens, D. striata, G. trichas, S. ruticilla</i>	Rainy	N. N. E. 2	—
23 " "	<i>N. violacea</i>	Clear	E. 6	—
25 " "	<i>C. fulvus</i>	Rainy	N. E. 6	—
28 " "	<i>D. cærulescens</i>	"	"	—
29 " "	<i>P. americana, D. palmarum, G. trichas</i>	"	"	—
30 " "	<i>D. palmarum, S. noveboracensis</i>	—	—	—
14 Nov., "	<i>S. interpres</i>	Misty	N. E. 5	S.
22 " "	<i>P. americana, D. coronata, D. palmarum, D. tigrina, S. aurocapillus</i>	Misty	N. E.	S.
21 Dec., "	<i>C. leucocephala</i>	Rain & fog	S. W. 3	S.
28 Jan., 1901.	<i>A. giganteus</i>	—	N. W. 4	—
14 Feb., "	<i>D. coronata, D. tigrina</i>	Rain & mist	S. W. 1	N. W.
20 " "	<i>A. virescens</i>	—	N. W. 4	—
21 Mar., "	<i>M. varia, P. americana, D. coronata, D. dominica, S. varius, N. violacea</i>	Rain	S. E. 4	N. W.
23 " "	<i>M. varia, P. americana, H. swainsoni, D. coronata, D. palmarum, D. discolor, D. cærulescens, D. dominica, V. flavifrons, V. crassirostris, S. fuliginosa</i>	Foggy	S. E. 2	S. & W.
25 " "	<i>P. americana, H. swainsoni, S. motacilla</i>	—	S. E. 2	S. W.
3 Apr., "	<i>M. varia</i>	—	N. W. 3	—
11 " "	<i>P. americana</i>	—	N. W. 3	—
14 " "	<i>D. cærulescens, S. ruticilla</i>	—	S. 3	—
15 " "	<i>T. mustelinus, T. fucescens, M. varia, P. americana, D. palmarum, D. cærulea, D. striata, D. discolor, D. tigrina, D. cærulescens, S. aurocapillus, S. noveboracensis, S. mitrata, P. rubra, C. cyanea, E. acadicus, D. evelyne</i>	Misty	N. N. W. 3	S. E.
19 " "	<i>D. cærulescens</i>	Misty	S. E. 5	N. W.
21 " "	<i>D. tigrina.</i>	—	N. N. W. 4	—
23 " "	<i>A. virescens.</i>	—	—	—
24 " "	<i>T. griseus.</i>	—	—	—
9 May, "	<i>D. striata, O. agilis.</i>	Cloudy	S. E. 1	—
13 " "	<i>P. americana, D. discolor, D. striata, S. aurocapillus, S. ruticilla.</i>	Clear	S. E. 1	—
14 " "	<i>P. americana, D. cærulescens.</i>	—	—	—

THE BIRD ROCK CONSIGNMENT.

Mr. Thompson having been transferred to the above light last autumn I have much pleasure in tabulating below the results of the first consignment from his new station.

Bird Rock Light, situated in Lat. 22° 50' N., Long. 74° 15' W., marks the northeastern limit of the Crooked Island Passage and is on a small cay lying just off Crooked Island. It is, of course, too early to speak definitely as yet, but, as might be expected, it does not appear to lie on any great migration route, and the few specimens captured during the fall of last year are solitary stragglers, with the exception of a flock of *Coccyzus americanus* which struck the light in some numbers on the night of the 15th October.

Margarops fuscatus.

No. 5. 14th Nov., 1901. One specimen struck at 9.50 P. M.

Dendroeca striata.

No. 4. Several specimens, adults and young, 16th Oct.

Vireo calidris.

No. 1. 14th Sept. Struck at 5.15 P. M.

Coccyzus americanus.

No. 3. 12 specimens, 15th Oct.

Zenaidura macrura.

No. 2. 29th Nov. Shot on the cay.

Chamæpelina passerina.

No. 1. One specimen, 18th Sept.

Porzana carolina.

No. 3. One specimen, 15th Oct., 1901.

Date	Name of Bird	Weather	Wind	Side of light struck
8 Sept., 1901.	<i>C. passerina</i>	Misty	S. W. 2	N. E.
14 " "	<i>V. calidris</i>	"	S. E. 3	—
15 Oct., "	<i>C. americanus, P. carolina</i>	Rain & mist	S. 5	N.
16 " "	<i>D. striata</i>	Misty	W. 5	E.
14 Nov., "	<i>M. fuscatus</i>	Clear	N. E. 2	N. W.
29 " "	<i>Z. macrura</i>	Mist & rain	N. by E. 5	—

THE CAY SAL CONSIGNMENTS.

From the Cay Sal Light I have received, through the kindness of Mr. J. S. Solomon, two small consignments, the one covering the spring migration of 1901 and the other the autumn and winter movements of 1901-02.

The lighthouse of Cay Sal is situated on the westernmost point of the Cay Sal Bank in Lat. $23^{\circ} 55' N.$, Long. $80^{\circ} 25' W.$, and lies nearly midway between Florida and the north coast of Cuba. During the year covered by the schedules no great movements appear to have been observed, most of the birds arriving singly or in twos and threes; the greatest rush recorded took place on the 13th of March and was made up of four or five small species of Passeres, which commenced striking about 2 A. M. and continued until dawn. Many of these birds remained on the cay three days before continuing their journey.

The only other large movement took place, curiously enough, on the 15th December, a time when, as a rule, but little migration is to be looked for; as in the previous rush the species represented were much the same; they commenced to strike at 10 P. M. but ceased about 5 A. M. and very few were seen on the cay the next day.

The other point of note is the occurrence on two occasions of the Purple Gallinule (*P. martinica*) which is probably therefore a regular migrant to the Bank.

Mniotilta varia.

No. 1. *a, b.* 13th March, 1901.

Parula americana.

No. 1. *a-h.* Six males, two females, 13th March, 1901.

Helminthophila bachmani.

No. 1. *a.* 13th March, 1901.

Dendroeca coronata.

No. 1. *a.* 13th March, 1901.

No. 1. *b-i.* 15th Dec., 1901.

Dendroeca palmarum.

No. 1. *a-f.* 13th March, 1901.

No. 1. *g, h.* 15th Dec., 1901.

Geothlypis trichas.

No. 1. *a-f.* Four males, two females, 13th March, 1901.

No. 1. *g.* One female, 15th Dec., 1901.

Ammodramus savannarum.

No. 1. *a-h.* 15th Dec., 1901.

Dolichonyx oryzivorus.

No. 3. *a-c.* Three males in full plumage, 28th March, 1901.

Coccyzus americanus. RAIN CROW.

No. 2. *a.* 17th March, 1901. This is the same species as that previously recorded (Auk, 1901, p. 148) as *C. minor* from Cay Lobos but not the same as *C. minor maynardi* from Nassau.

Porphyrio martinica.

No. 5. *a.* 24th April, 1901.

No. 2. *b.* 9th Feb., 1902. Struck the lantern at 11.30 P. M.

Sterna fuliginosa. EGG BIRD.

No. 4. *a.* 18th April, 1901. "These birds breed on the Cay every year, when they gather by thousands from May to August."—J. S. S.

Extracts from Schedules.

Date	Name of Bird	Weather	Wind	Side of light struck
13 Mar., 1901.	<i>M. varia, P. americana, H. bachmani, D. coronata, D. palmarum, G. trichas</i>	Cloudy	E. S. E. 5	N. & N. E.
17 " "	<i>C. americanus</i>	Cloudy	N. E. 5	—
28 " "	<i>D. oryzivorus</i>	Cloudy	S. 5	—
18 Apr., "	<i>S. fuliginosa</i>	Cloudy	E. S. E. 6	—
24 " "	<i>P. martinica</i>	Cloudy	N. W. 4	—
15 Dec., "	<i>D. coronata, D. palmarum, G. trichas, A. savannarum</i>	Cloudy	N. N. W. 5	S. E.
9 Feb., 1902.	<i>P. martinica</i>	Cloudy & squally	N. E. 6	S.

A LIST OF THE LAND BIRDS OF LAKE VALLEY,
CENTRAL SIERRA NEVADA MOUNTAINS,
CALIFORNIA.

BY MILTON S. RAY.

Plates VIII and IX.

THE following notes are the result of two seasons I have spent in Lake Valley, — from June 4 to 20 in 1901, and from June 16 to July 3 in 1902. My brother William R. Ray has accompanied me, and in 1902 Olof Heinemann joined us. I had the pleasure of meeting Mr. Loren E. Taylor in 1901 and Messrs. Chester Barlow, Henry R. Taylor, W. W. Price, and F. M. Willard in 1902, at various points in the region, all of whom are well known workers in this locality. The observations of Messrs. Wilfred H. Osgood, R. H. Beck, and Forrest Hanford have also added a number of species to the list. Liberal extracts have been taken from the 'Land Birds of the Placerville-Lake Tahoe Stage Road' by Chester Barlow (*Condor*, Vol. III, No. 6).

A very small portion of Lake Valley lies in Nevada, as the State line turns a little north of here and runs southeast across the mountains. The valley is about 15 miles long and 8 miles wide. On the north it is bounded by Lake Tahoe, while on all other sides it is surrounded by rugged, snow-capped mountain ranges. The principal peaks are: Tallac on the west, rising to 9785 feet; further west and to the south snowy Pyramid attains 10,020 and Crystal 10,015 feet, while on the eastern range Job's and Freel's Peaks have an altitude of 10,637 and 10,900 feet respectively. Lakes are numerous, there being a score of them between Mount Tallac and Pyramid Peak at altitudes varying from 6400 to 8500 feet. Star Lake, the only one on the east, is one of the highest in the world, the altitude being about 9000 feet. It usually remains covered with a thick coat of ice until the end of June, and is a great resort for Clarke Nutcrackers and other birds of the Hudsonian Zone.

The altitude of Lake Valley is a little above that of Lake Tahoe, which is 6220 feet, and for the most part the valley is level,



Photographed by W. R. Ray.

LOOKING WEST FROM ROWLAND'S MEADOWS, SHOWING TRANSITION, CANADIAN, HUDSONIAN, AND ALPINE ZONES.

though hilly adjacent to the mountain sides. It presents six distinct types of country.

(1.) The major portion is sandy, more or less thickly wooded with pine, tamarack, sagebrush and the broad-leaved wild sunflower. The majority of the timber on the eastern half is second growth.

(2.) There are also large areas of fertile grassy meadows along the numerous streams whose banks are fringed with willow, aspen and other trees.

(3.) At the mouth of the Little Truckee River, called Rowlands, is a marsh extending about three miles along the lake shore and from one to three miles inland. The above three types of country lie in the Transition Zone.

(4.) Portions of the hillsides are very rocky, sparsely wooded, but thickly covered with the thorny buck brush, manzanita, and wild beach. This district lies in the Canadian Zone.

(5.) On the mountain sides are dense forests of massive firs, balsam, pine, and tamarack. Picturesque lakes, rushing torrents, and foaming waterfalls characterize this portion of the country, the lower part of which belongs to the Canadian Zone, and above 8000 feet to the Hudsonian Zone.

(6.) The last type is the barren rocky areas above the timber line on the various mountain peaks, or the Alpine Zone.

The principal points of the region are :

	Altitude.
Lakeside (State Line)	6220
Bijou (P. O.) 2 miles west of Lakeside, on lake shore . . .	6220
Rowlands, 4 " " " " " " " . . .	6220
Tallac (P. O.) 7 " " " " " " " . . .	6220
Glen Alpine, 14 " " " " a rocky gorge . . .	6700
Sierra House, 2½ miles southeast of Lakeside, in Lake Valley	6300
Meyer's Station, 7 " south " " " " " . . .	6400
Summit, 12 " southwest " " on the ridge . . .	7600
Phillip's Station 14 " " " " " " " . . .	6900

The weather in the valley is erratic. In summer magnificent thunderstorms, followed by a downpour of rain, hail, and occasionally light snow, are common while in a few hours the sun will be shining and the sky clear. The climate in general, however, is cold in the morning and evening and rather warm at midday.

Bird life in general is varied and numerous, in striking contrast

to places west of the summit, like Echo, Slippery Ford, and Raton. This is no doubt due to the fact that species of many zones occur here, owing to the diversified character of the country. The breeding season is very early for the altitude of 6220 feet, it being about the same as Slippery Ford, west of the summit, at 4000 feet elevation.

It is a noticeable fact that even 500 or 1000 feet make a difference in nesting dates, allowing for the usual variation. For instance, at Bijou on Lake Tahoe, on June 7, eggs of *Junco hyemalis thurberi* were well along in incubation, and by June 15 most nests contained young. At Phillip's Station eggs slightly incubated were found June 16, and on July 3, 4 and 5 we observed young birds flying about at Wright's Lake and various other places on this mountain plateau; while at 9000 feet, on July 6, while ascending Pyramid Peak, two nests of eggs were found in which incubation had just commenced. The lateness of the season also delays nesting, but only of certain species, it having little effect on birds breeding in protected situations, like woodpeckers, bluebirds and chickadees.

LIST OF SPECIES.¹

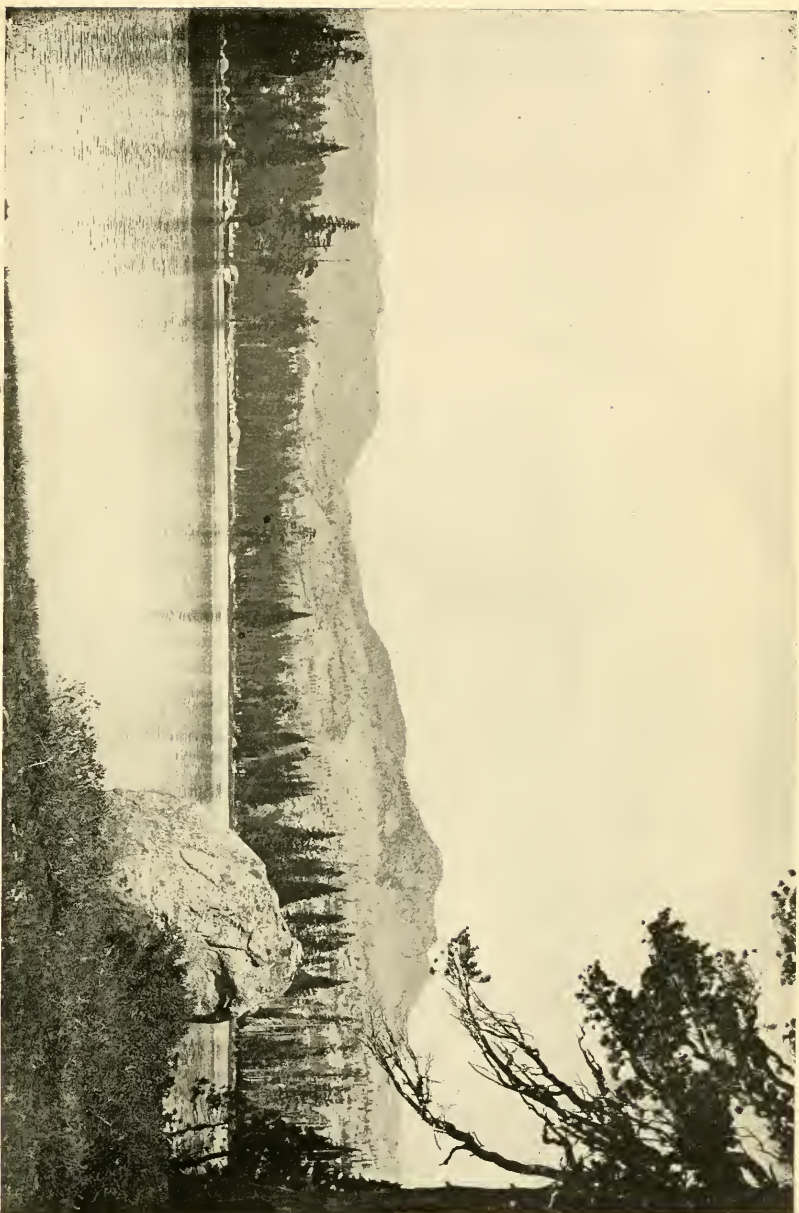
17. *Oreortyx pictus plumiferus*. PAINTED PARTRIDGE.—Rather scarce on the floor of the valley although a number were seen near Tallac in June, 1901. It is common on the mountain sides, especially on the road to Star Lake.

18. *Dendragapus obscurus fuliginosus*. SOOTY GROUSE.—This bird is more often heard than seen. It is not uncommon on the ranges surrounding Lake Valley. On July 4, 1902, on the road to Pyramid Peak, a parent with young about the size of a Valley Quail, was flushed from the brush along the road. In her solicitude for the young she could have been hit with a driving whip. Mr. Price states they remain in these high altitudes all the year, and also records a set of seven eggs, well advanced in incubation, found at Glen Alpine, June 7, 1900.

19. *Zenaidura macroura*. MOURNING DOVE.—Common, especially about Bijou. I am inclined to think these birds do not breed here until late in July, as notwithstanding their abundance I found no nests.

¹ Asterisk signifies skin taken

Sixteen water birds have been listed, so this list starts with No. 17.



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Photographed by O. Heinemann.

WRIGHT'S LAKE, NORTHWEST OF PYRAMID PEAK

20. *Cathartes aura*. TURKEY VULTURE.—A common species in the valley; a number were seen almost every day.

21. *Accipiter velox rufilatus*. WESTERN SHARP-SHINNED HAWK.—Not uncommon about Lake Valley; in fact all the birds of prey were far more numerous here than at any point on the trip.

22. *Accipiter cooperi*. COOPER HAWK.—Observed about Glen Alpine Springs by Mr. W. W. Price, and also at the base of Pyramid Peak, where, he states, they no doubt breed.

23. *Accipiter atricapillus striatulus*. WESTERN GOSHAWK.—Seen near Pyramid Peak in June and July, 1897, by Mr. Price where, he states, they undoubtedly breed.

24. *Buteo borealis calurus*. WESTERN RED-TAILED HAWK.—The most common raptore in the region. I noticed it every day on various rambles. A field glass is very handy for identifying these birds when at a great height.

25. *Aquila chrysaëtos*. GOLDEN EAGLE.—Observed about Glen Alpine by Mr. Price, and about Pyramid Peak and Mt. Tallac, where it nests on rocky ledges.

26. *Falco sparverius deserticolus*.* DESERT SPARROW HAWK.—This bird is rather scarce in Lake Valley. During the first week of June, 1901, one was shot on the Bijou camp grounds. Seen about Mt. Tallac and at Pyramid Peak by Mr. Price, where he found a nest at 9000 feet on July 5, 1897.

27. *Nyctala acadica*. SAW-WHET OWL.—A single specimen, shot by Mr. A. S. Bunnell at Glen Alpine in July, 1898.

28. *Bubo virginianus saturatus*. DUSKY HORNED OWL.—We saw a Horned Owl, probably this variety, near Forni's, at the base of Pyramid Peak, on July 5, 1902.

29. *Glaucidium gnoma*. PIGMY OWL.—Mr. Price shot three at Glen Alpine on August 10, 1900; one an adult female, the others young of the year.

30. *Ceryle alcyon*. BELTED KINGFISHER.—Fairly common along the lake shore between Bijou and Rowlands, and it probably nests in the sandy bank which forms an unbroken line between these two points.

31. *Dryobates villosus hyloscopus*. CABANIS WOODPECKER.—Mr. L. E. Taylor secured two specimens at Fallen Leaf Lake on Sept. 2, 1901. I also noticed this bird occasionally about Rowlands.

32. *Xenopicus albolarvatus*. WHITE-HEADED WOODPECKER.—This woodpecker and *Colaptes cafer collaris* are the only species of this family which can be really called common in Lake Valley. The male is an attractive bird, with his glossy black coat and white head. They are especially fond of the grub of a large beetle found in newly-dead tamaracks, and as these are also the principal bait used for catching the famous Tahoe trout, the experienced fisherman looks for a trunk this bird has recently tapped. The bird breeds commonly in Lake Valley, nesting in dead pines and tamaracks from 5 to 25 feet up. By June 1 most nests contained young in various stages.

33. *Picoides tenuirostris*. SIERRA THREE-TOED WOODPECKER. — Mr. W. W. Price records two young shot at the head of Glen Alpine gorge July, 1898, and a pair near Pyramid Peak, August, 1896.

34. *Sphyrapicus thyroideus*. WILLIAMSON SAPSUCKER. — Noted as nesting at the base of Pyramid Peak by Mr. Chester Barlow. Mr. L. E. Taylor collected an immature female at Cascade Lake on August 8.

35. *Ceophlæus pileatus abieticola*. NORTHERN PILEATED WOODPECKER. — Mr. Taylor collected a male at Gilmore Springs, near Tallac, Sept. 2, 1901.

36. *Melanerpes torquatus*. LEWIS WOODPECKER. — Mr. R. H. Beck records it as common and breeding about Bijou in the summer of 1896. Personally I have not observed it in the region.

37. *Colaptes cafer collaris*. RED-SHAFTED FLICKER. — A common species, nesting at various heights in dead pines in Lake Valley and on the mountain sides. All nests examined during June, 1901 and 1902, contained young.

38. *Phalænoptilus nuttallii californicus*. DUSKY POORWILL. — Mr. Taylor collected a female at Meyer's Station on Sept. 2, 1901.

39. *Chordeiles virginianus*. NIGHTHAWK. — The Nighthawk is extremely common, and only on cloudy days when they fly low is one able to realize the abundance of these birds. I noticed at least 100 in one band on the road to Star Lake, darting back and forth in what was evidently a good feeding ground. A single set of two eggs is recorded by Mr. Price as being found on a bare rock near Suzy Lake late in July, but where the thousands of Nighthawks breed is still a mystery. I have never found a nest nor an indication of one, and probably the reason is the birds do not start to breed until the end of July or later.

40. *Calypte anna*. ANNA HUMMINGBIRD. — Mr. Price records a female, evidently a straggler, as being shot near Pyramid Peak, July, 1896.

41. *Selasphorus platycercus*. BROAD-TAILED HUMMINGBIRD. — Recorded as a rather rare summer visitant at Lake Tahoe in Grinnell's 'Check-list of California Birds.'

42. *Selasphorus rufus*. RUFOUS HUMMINGBIRD. — Mr. W. W. Price notes this bird as common and nesting about Glen Alpine. I also saw it occasionally at Bijou.

43. *Contopus borealis*. OLIVE-SIDED FLYCATCHER. — This flycatcher is not abundant in Lake Valley; I noticed it occasionally at Rowlands, but more often on the mountain sides among the heavy timber.

44. *Contopus richardsoni*. WESTERN WOOD PEWEE. — A very common bird throughout the region. I found a freshly built nest on June 7, 1901, near Lake Tahoe at 30 feet up in a dead tree near a small stream; another at Bijou, on June 20, 1901, placed on a branch of a small tamarack, 15 feet up, with three fresh eggs. On June 18, 1902, near Bijou, a nest was found saddled on a tamarack branch, 12 feet up, and also contained three fresh eggs; and another nearby was situated in a tamarack 40 feet up with the same complement. The last two nests, now before me, are

similar in construction and material, being externally composed of grasses, weed fibres, bits of bark and string, and lined with horse-hair and various bird feathers. In one the brilliant yellow feathers of the Western Tanager are conspicuous. This nest measures 4 inches across, the cavity being 2 by 1½ inches deep. The most interesting nest of this bird I ever saw was at Echo on June 15, 1902. It was on a small dead branch hanging from the main trunk of a giant pine, fully 75 feet up. The nest and bird were so small at this great height that they could be scarcely seen, and my friend Olof Heinemann, who was with me, gazed for a number of minutes before he could perceive it. The female was observed whirling round and round in the almost completed nest and presently flew off and returned with a bit of material which was carefully placed. Few can realize the time and patience required to build these, one of the most beautiful of all forest bird homes.

45. *Empidonax trailli*. TRAILL FLYCATCHER.—This bird is rather scarce; a single nest was found July 1, 1902, made of hemp fibres and grasses and laced to an upright fork of a willow beside a small stream near the Sierra House. It contained a single fresh egg, of the usual pale buff blotched with reddish brown. This is the highest altitude at which I have ever found this bird. At Buck's Ranch, Plumas County, elevation 5000 feet, I found a nest, which I collected with the parent, June 29, 1901, in a willow, 3 feet up, near a small brook. It contained four eggs in which incubation had just begun. The bird is evidently a late breeder, in fact, in this region all the flycatchers breed late.

46. *Empidonax hammondi*. HAMMOND FLYCATCHER.—Mr. Price states he has observed young of this species frequently about Pyramid Peak late in the summer.

47. *Otocoris alpestris merrilli*. DUSKY HORNED LARK.—On October 6, 1901, Mr. Taylor collected a female at Meyer's Station, and another near Lake of the Woods on October 9, at 8900 feet altitude.

48. *Pica hudsonica*. AMERICAN MAGPIE.—Common about Rowlands and in thickets along streams. I found numerous nests during the month of June containing full-grown young, but in most cases the young had already left. The nests were rough looking structures of sticks and all placed in willows from 7 to 20 feet up.

49. *Cyanocitta stelleri frontalis*. BLUE-FRONTED JAY.—Scarce on the floor of the valley but abundant on mountain sides. A nest found near Fallen Leaf Lake, placed on the branch of a small fir in plain view, 8 feet up, contained four large young on June 15, 1901. A late nest for this species was noted near Phillip's Station in a tamarack 15 feet up, which contained four small unfeathered young on July 3, 1902. When about the nest the jays are very quiet and drop their usual noisy ways.

50. *Nucifraga columbiana*. CLARKE NUTCRACKER.—This bird is not common in the valley, although the day we arrived, June 16, 1902, I saw a large band of Nutcrackers near Rowlands, and noticed others occasionally in the pine woods during my stay. They are abundant at high altitudes, as Star Lake and Pyramid Peak.

51. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.—Thousands of these birds nest every year at Rowland's marsh, in the thick tules over, usually, a considerable depth of water (4 to 10 feet). Freshly built nests, eggs in all stages of incubation, and fully fledged young were found during the month of June. Sets contained from two to five eggs. The nests were compactly made and well fastened to the tules, but when the young become grown the nest is frequently tipped to one side, precipitating the juveniles into the water. In one nest, in a rather sparse tule patch, the young birds were just on the verge of falling out, and on our approach one of them tumbled into the water. We replaced the young one in the nest, when another repeated the act, and another, until we finally gave up attempting to put them back. We paddled a short distance away and watched the nest; soon the occupants, probably none the worse for their immersion, decided to set forth again. All of them succeeded in keeping afloat until they clambered up in the tules with an agility which surprised me when the helplessness of most young birds is considered.

52. *Agelaius phœniceus neutralis*. * SAN DIEGO RED-WINGED BLACKBIRD.—This species outnumbers all other birds in the marsh and it is strange it should have been overlooked by previous workers (it not being recorded in Mr. Barlow's list). I shot seven red-winged blackbirds at random and all proved to be this species, as were all the red-wings I observed. On every trip to the marsh I found numberless nests, placed usually in small willows just above the water or attached to marsh grass. All sorts and conditions of eggs and young were found during June. On account of the unusually heavy snowfall in 1901, the lake rose rapidly in June, flooding hundreds of nests of this bird. Many were deserted, some containing eggs and others drowned young.

53. *Agelaius gubernator californicus*. BICOLORED BLACKBIRD.—Mr. Beck observed this bird nesting in the marsh near Bijou (presumably Rowlands) in June, 1896.

54. *Agelaius tricolor*. TRICOLORED BLACKBIRD.—Observed nesting on the shores of Lake Tahoe by Mr. Beck who collected a set of five eggs on June 12, 1896. Personally I have never seen either this or the preceding species and do not think they can be considered by any means common.

55. *Sturnella magna neglecta*. WESTERN MEADOWLARK.—Not uncommon in the broad meadows about Lakeside, Bijou, and Rowlands. They were rather shy, and I did not secure a specimen. To me the song seemed somewhat different from that heard in our coast valleys but a bird shot at Meyer's Station on Sept. 30, 1901, by Mr. Taylor, is recorded as this species, so I am, no doubt, mistaken.

56. *Scolecophagus cyanocephalus*. BREWER BLACKBIRD.—Common about Rowland's marsh and various meadows throughout the valley. I found nests in a variety of situations; some were placed in a depression in the damp ground in meadows, some in willows a foot or less above the

water, like those of the Red-wing, and others a few feet up in tamarack saplings. All these situations are quite at variance with those selected on the coast, which is generally in a pine or evergreen about 20 feet up. I noticed in June, 1901, large numbers of these birds nesting in the sagebrush near Carson, Nevada, owing to the absence of trees; but the most unusual nests were a number found in cavities of old piles over the water at Bijou and Rowlands. One of these, at the latter place, was above 20 feet of water and 50 yards from the shore. It held five large young on June 29, 1902, but could not be photographed successfully owing to the lack of contrast, the birds, nest and pile all being dark requiring a time exposure impossible in a canoe. As with the other blackbirds, the breeding season extends through June, although the majority of nests had young by June 15.

57. *Coccythraustes vespertinus montanus*. WESTERN EVENING GROSBEAK.—Observed by Mr. Barlow at Echo, just west of the summit, on June 14, 1901.

58. *Pinicola californica*. CALIFORNIA PINE GROSBEAK.—Mr. Barlow saw this bird at Forni's, at the base of Pyramid Peak, on June 9, 1900.

59. *Carpodacus purpureus californicus*. CALIFORNIA PURPLE FINCH.—Collected at Glen Alpine on June 24, 1900, by Mr. Price, who states it is rare on the east slope of the range.

60. *Carpodacus cassini*. CASSIN PURPLE FINCH.—This purple finch is found, though not abundantly, in Lake Valley. It was common about Wright's Lake and Forni's in the Pyramid Peak region in July, 1902. At Bijou, June 10, 1901, I located a nest in a massive pine over 100 feet up and so far out on the branch as to be inaccessible. A few days later I located a nest near Lakeside in a similar situation.

61. *Carpodacus mexicanus frontalis*. HOUSE FINCH.—Extremely common, especially about Bijou. I am inclined to think the abundance of this bird has been attributed by error to *Carpodacus cassini*. I found numerous nests in small pines and tamaracks, from six to fifteen feet up, and placed in the usual careless manner with little or no attempt at concealment. Here the birds are late breeders, nest building commencing in the latter part of June, and in most cases no eggs were deposited until July 1 or later. Most sets consisted of three eggs, of the usual white ground color with a faint tinge of bluish, lightly spotted.

62. *Loxia curvirostra bendirei*. SIERRA CROSSBILL.—Rare. Mr. Taylor collected a female near Meyer's Station Sept. 1, 1901, and it has been seen on two occasions by Mr. Price, once near Pyramid Peak, and at Glen Alpine.

63. *Leucosticte tephrocotis*. GRAY-CROWNED LEUCOSTICTE.—Observed by various writers on the summit of Pyramid Peak. On our visit, July 5, 1902, numerous leucostictes were seen flying about the boulders and on the broad patches of snow. I patiently watched a number for about half an hour with a field glass but failed to notice any indication of a nest in the vicinity. In the meantime my brother and Heinemann

had already started back for camp and, desiring to make a short cut, went down the slope where it is very precipitous. Here, after some distance, it became difficult to advance or retreat. A little distance away a pair of leucostictes was observed in a rocky ledge. The pair was watched, and soon one flew into a long, winding, impenetrable cavity among the huge granite slabs of the ledge. On their approaching the spot the bird flew out and began hopping about showing some anxiety. There is little doubt that the birds had a nest there but it was impossible to reach it.

64. *Astragalinus psaltria*. ARKANSAS GOLDFINCH. — A straggler was shot by Mr. Price on the summit of Mount Tallac, August, 1892.

65. *Spinus pinus*. PINE SISKIN. — Observed commonly by Mr. Price at the head of Glen Alpine gorge where he has taken young in July and August.

66. *Zonotrichia leucophrys*.* WHITE-CROWNED SPARROW. — This sparrow is found sparingly about Bijou and Lakeside in Lake Valley, but is abundant on the summit and about Pyramid Peak. It is a pleasing songster, the song being similar to that of *Z. l. nuttalli*, but the ending is more abrupt. I have heard the male singing as late as nine o'clock at night and at the first signs of daybreak. On June 10, 1901, scarcely fifty yards from camp, my brother stumbled on a nest well concealed among the grass at the foot of a small willow. We had passed this spot a number of times but the parent had been so alert as to steal off unnoticed. The eggs, four in number, were fresh and measured .87 × .62, .86 × .62, .83 × .62, .72 × .59. They are greenish white with numerous small spots of reddish brown. The nest is of weed stems and grasses, lined with horse-hair. It measures 4½ inches, over all, while the cavity is 2½ by 2 inches deep. I took the parents with this nest and the male, with a broken wing led me a merry race over the meadow, as I had used the last shell in my auxiliary barrel.

67. *Zonotrichia leucophrys gambeli*. INTERMEDIATE SPARROW. — Mr. Taylor secured three specimens about Glen Alpine and one at Meyer's Station during the latter half of September, 1901, while in its migration from the north.

68. *Spizella socialis arizonæ*.* WESTERN CHIPPING SPARROW. — Very common throughout the valley, nesting in pine and tamarack saplings, usually five or six feet up. The nests are all very similar — of grasses and vegetable fibres lined with horse or cow-hair, or both. They are placed insecurely, owing to the character of the trees, near the end of the branch. In Yosemite Valley, in the summer of 1898, I found most nests placed in willows where they had a better foundation. The reason why the birds do not select the willow as a nesting site here is probably because they are not fully leaved when the breeding season commences. Some nesting dates are as follows: June 10, 1901, Bijou, four eggs, fresh; June 11, 1901, Bijou, four, incubation just begun; June 11, 1901, Bijou, four small young; June 17, 1902, Bijou, four eggs, incubation just begun; July 2, 1902, Bijou, four fresh eggs.

69. *Spizella breweri*. BREWER SPARROW. — Several were shot near Meyer's Station in July, 1896, by Mr. Wilfred Osgood. I saw what I took to be this bird on the brush covered rocky slopes on the east side of the valley, but did not notice it about Bijou.

70. *Junco hyemalis thurberi*. * SIERRA JUNCO. — A common summer resident; frequents the fertile meadows and localities adjacent to streams more than the dry, sparsely wooded sections of the valley. My first nest was found on June 7, 1901, containing four eggs that were just blowable. This nest was completely hidden by the wide drooping leaves of a wild sunflower, and was situated on the bank of an irrigating ditch, two miles over the State line in Nevada. My prettiest set of eggs was taken a long distance west of the summit, one mile west of Maple Grove, near River-ton, on June 13, 1902. While driving along the road we flushed a junco from a dripping mossy bank just above the road. The nest was very damp, and well lined with coon hair. The eggs, three in number, were fresh, and heavily marked in a wreath around the larger end with great blotches of rich chestnut red and lavender. Near Phillip's Station, on June 16, 1902, a nest was discovered on the ground, flush with the surface, with four eggs of the lightly marked type, in which incubation had just begun. A curious nest was noted at Bijou in an empty tin can. It had held two eggs, but these had rolled out on the ground and the birds had deserted it. At an altitude of about 9000 feet, while climbing Pyramid Peak, on July 5, 1902, I collected a nest with three partly incubated eggs placed under the projecting ledge of a great boulder. Another was found with four eggs, in which incubation had also just begun. It was located in a similar situation and appears in the photograph by my brother who found it. All the above nests are similar in construction, being made of grasses and weed stems and some are lined with horse or other hair.

71. *Melospiza cinerea montana*. MOUNTAIN SONG SPARROW. — A rather common bird about Rowlands and also seen occasionally in thickets along streams, where a nest was found on the ground June 20, 1902, containing five badly incubated eggs. It was so securely hidden by a tall broad-leaved plant that I would have passed it by unnoticed had not the parent fluttered off at my feet. On June 22, 1902, I found a nest at Rowland's Marsh in a willow, over deep water, containing four small young.

72. *Melospiza lincolni*. LINCOLN SPARROW. — On June 7, 1902, Mr. Forrest Hanford secured a specimen on a meadow at 7,200 feet elevation, where it was probably about to breed.

73. *Passerella iliaca unalascensis*. TOWNSEND SPARROW. — Mr. Price records six sparrows of this form taken on Silver Creek, within three miles of Pyramid Peak, in September, 1896. One specimen was very light colored and referable to the Fox Sparrow rather than to *P. i. unalascensis*.

74. *Passerella iliaca megarhyncha*. THICK-BILLED SPARROW. — Rather abundant on the bushy, rocky hillsides in the eastern part of Lake Valley, where it delivers its sweet song from some patch of brush or jagged rock. I was unable to locate any nests.

75. *Oreospiza chlorura*. GREEN-TAILED TOWHEE.—Mr. Taylor secured two specimens in September at Glen Alpine Springs.

76. *Zamelodia melanocephala*. BLACK-HEADED GROSBK. — I noticed it on a ridge east of Fallen Leaf Lake where a male was pouring forth his clear, joyous notes from the top of a fir.

77. *Cyanospiza amœna*. LAZULI BUNTING.—A single specimen was shot in September, 1896, on Silver Creek, at about 7000 feet, by Mr. Price, who states it is rare above 4500 feet.

78. *Piranga ludoviciana*. WESTERN TANAGER.—The most brilliantly colored bird in the region. While it is fairly abundant in Lake Valley, it is more common in the heavy timber on the mountain sides. A nest was found June 11, 1901, on the Bijou camp grounds in a tamarack only 15 feet up (misprinted 25, Osprey, Vol. V, No. 8), containing five fresh eggs. Another, at Fyffe, 38 miles west of the summit, was 50 feet up in a pine, and held four partly incubated eggs. The average height, however, is about 30 feet. The nests are frail grosbeak-like structures of rootlets.

79. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Common; forty nests were found under the eaves of an old saloon built over the water at Rowlands. Eggs and young in all stages during June.

80. *Hirundo erythrogaster palmeri*. WESTERN BARN SWALLOW.—Common, nests in barns and other outbuildings about Bijou and Rowlands. A rather strange nest was found at the latter place on June 19, 1902, containing four fresh eggs. It was plastered against a rafter in a small cottage, the bird gaining entrance through a small jagged hole in a windowpane.

81. *Tachycineta bicolor*. * TREE SWALLOW.—Abundant along the lake shore, especially about Rowlands, where it nests in dead trees and stumps about the marsh. A nest found at this place on June 12, 1901, was placed in a hole of a pile of an old wharf, over the water, and held six eggs in which incubation had just begun. The nest was profusely lined with feathers. On June 22, 1902, a nest was found in the same hole with five well incubated eggs and two others nearby held large young.

82. *Tachycineta thalassina*. VIOLET-GREEN SWALLOW.—Seen in August on the lakes in Glen Alpine nearly every year by Mr. Price.

83. *Vireo gilvus swainsoni*. WESTERN WARBLING VIREO.—Observed by Mr. Barlow on the Forni meadow near Pyramid Peak, altitude 7500 feet, in June, 1900.

84. *Vireo solitarius cassini*. CASSIN VIREO.—Mr. Price notes it as rare in Glen Alpine except during the early migration of the young when they are very common.

85. *Helminthophila rubricapilla gutturalis*. CALAVERAS WARBLER.—Mr. Price states it is rather common at Glen Alpine and on the slopes of Mt. Tallac to at least 8000 feet.

86. *Helminthophila celata lutescens*. LUTESCENT WARBLER.—Observed by Mr. Price to be rather common in Glen Alpine in July and August, although he states he has no evidence that it breeds.

87. *Dendroica aestiva morcomi*. WESTERN YELLOW WARBLER.— This I noted as the commonest warbler in Lake Valley. All nests I found were in pines or tamaracks, and placed rather insecurely when on the end of the branch, owing to the character of the tree, but when found in saplings the nest was placed against the trunk. One in a tamarack, 12 feet up, near Bijou, contained three well incubated eggs on June 25, 1902, and another, found on the same day, near by, held four small young, and was placed 8 feet up in a pine.

88. *Dendroica coronata hooveri*. ALASKA MYRTLE WARBLER.— I am reluctant to make observations that may be questioned, but I am reasonably sure I saw a bird of this species near Lakeside on June 26, 1902. It was a male and lit close to me on the dead limb of a pine. Unfortunately I did not have a gun with me but having that 'Audubonian' fire-arm, the field glass, I was enabled to examine the bird well. My notes, made at the time, tally with the descriptions of this bird. It had some resemblance to *Dendroica auduboni*, but the conspicuous white throat distinguished it in an instant.

89. *Dendroica auduboni*. AUDUBON WARBLER.— This highly colored warbler is, next to *Dendroica aestiva*, the most abundant species in the valley, and in some districts is even more common. A nest found with four almost fresh eggs on June 17, 1902, at Bijou, was placed 25 feet up against the main trunk of a tamarack. Another at Emerald Bay, on the lake shore, in a pine four feet up, held five eggs, four well incubated and one perfectly fresh. This was on June 27, 1902. Both sets are heavily and richly marked, as is usual with the eggs of this species. The nests are similar, of hemp fibres, fine rootlets, bits of bark, and lined very profusely with feathers, and can be distinguished by their large size from those of *D. aestiva* at a glance.

90. *Dendroica townsendi*. TOWNSEND WARBLER.— A male was shot near Gilmore Lake, on the slope of Mt. Tallac, at 8500 feet, early in August, 1900, by Mr. Chas. Merrill and is recorded by Mr. Price.

91. *Dendroica occidentalis*. HERMIT WARBLER.— Mr. Price notes it as rather rare, except late in July and early in August, about Silver Creek when the migration of the young takes place.

92. *Geothlypis tolmiei*. TOLMIE WARBLER.— Mr. Price states it is rather common up to 8000 feet, both in the Silver Creek region and on Mt. Tallac.

93. *Geothlypis trichas occidentalis*.— WESTERN YELLOW-THROAT.— Mr. Price observed a yellow-throat in the marshes about Tallac referable to this species, but secured no specimens.

94. *Wilsonia pusilla pileolata*. PILEOLATED WARBLER.— This warbler is not uncommon in the willow thickets along streams and about Rowlands. Mr. Price records it as common in Glen Alpine, where a nest, placed on the ground under a fallen aspen, at Lily Lake, was found in July, 1898, with five eggs. Mr. Barlow also saw this bird on the summit on June 14, 1901.

95. *Cinclus mexicanus*. AMERICAN DIPPER.—Rare in the valley proper but not uncommon along the turbulent streams in the mountains that surround it. On June 25, 1902, I noticed a pair of dippers and young along a small stream on the road to Star Lake.

96. *Troglodytes aedon parkmani*. PARKMAN WREN.—Mr. Price observed this bird in Glen Alpine and shot a pair early in August, 1900, on Mt. Tallac at 8000 feet.

97. *Certhia familiaris zelotes*. SIERRA CREEPER.—Rather scarce. I noticed several pairs of these birds in groves of dead pines in marshy tracts at Rowlands.

98. *Sitta carolinensis aculeata*. SLENDER-BILLED NUTHATCH.—I saw this bird frequently on the summit in the middle of June, 1902. Also observed by Mr. C. Barlow and Mr. L. E. Taylor. Mr. Price also remarks it is common above 6000 feet on both sides of the range, at Silver Creek and about Glen Alpine.

99. *Sitta canadensis*. RED-BREASTED NUTHATCH.—Mr. Price notes it as common at Silver Creek during migrations and states it may breed there.

100. *Sitta pygmaea*. PYGMY NUTHATCH.—A family were noted on Silver Creek, at 7000 feet, in August, 1896, and several were taken by W. W. Price, who states it is possible they were migrating.

101. *Parus gambeli*. MOUNTAIN CHICKADEE.—The sprightly little chickadee is rather common about the valley and was observed up to above Star Lake, at about 9000 feet altitude. A curious nest of this bird was found on June 26, 1902, near Bijou, placed in a pine stub, the entrance being from the top of the stub running down about a foot perpendicularly. The parents were confiding little fellows, flitting back and forth with food for the five young ones notwithstanding I stood only a few feet away.

102. *Regulus satrapa olivaceus*. WESTERN GOLDEN-CROWNED KINGLET.—Mr. Taylor collected a female at Glen Alpine, Sept. 19, 1901.

103. *Regulus calendula*. RUBY-CROWNED KINGLET.—Mr. Taylor took an adult female at Glen Alpine, Sept. 19, 1901. Mr. Price states it breeds commonly in the forests of alpine hemlock on the slopes of Pyramid Peak and at the head of Glen Alpine but that he has never succeeded in finding a nest.

104. *Myadestes townsendi*. TOWNSEND SOLITAIRE.—Mr. Taylor collected four specimens at Glen Alpine Springs in September, and one at Meyer's Station, Oct. 7, 1901.

105. *Hylocichla ustulata*. RUSSET-BACKED THRUSH.—A single record. Mr. H. R. Taylor found a nest at Echo just west of the summit (altitude 5700 feet), June 16, 1902, with four eggs, placed in a small dense fir tree in a meadow.

106. *Hylocichla aonalaschkæ sequoiensis*. SIERRA HERMIT THRUSH.—I have never noticed this bird on the floor of the valley but as soon as the ascent of the mountain sides is commenced the song is heard. The

bird is nowhere so abundant as about Phillip's Station, on the summit. Here this peerless singer was heard occasionally through the day but more often at dusk. I found a nest, built principally of rootlets, placed in a small tamarack 6 feet up, along the road east of Phillip's Station on July 3, 1902. It contained three rather pale blue eggs in which incubation had just begun. I discovered two other nests the same day, one along the road, 6 feet up in a tamarack, with four small young; the other was found deep in the woods, artfully placed among the branches of a dead tamarack, and held four large young. In the last two cases the parents were reluctant to leave the nest, and hopped about the branches near by, showing great anxiety and settled down on the nest immediately after we left.

107. *Merula migratoria propinqua*. WESTERN ROBIN. — As usual in the Sierras the robin was the most common bird of its size, in Lake Valley as well as up to 8000 feet altitude. It begins to lay in the Lake Valley about the first of June, and a little later or earlier at other points, according to the altitude.

108. *Hesperocichla nævia*. VARIED THRUSH. — Mr. Price collected a specimen on Silver Creek, Oct. 1, 1896.

109. *Sialia arctica*. * MOUNTAIN BLUEBIRD. — Very common in Lake Valley. I found nine nests one day on a ramble near Bijou, all placed in dead trees or stumps, from 3 to 15 feet up. After the first week in June nests contained partly incubated eggs, although an occasional late nest was found. The Western Robin, Western Chipping Sparrow and the Mountain Bluebird are the three commonest birds in the pine woods, and although the latter is last on this list it is by no means the least interesting bird in the region.

FOOD HABITS OF SOME WEST INDIAN BIRDS.

BY B. S. BOWDISH.

SO FAR as I have noticed, few writers have given much attention to the extent to which many birds of families which in the States are considered more or less strictly insectivorous, feed in the West Indies largely on fruit and seeds.

In 'The Auk' for October, 1902, Mr. John Grant Wells mentions *Vireo calidris* as feeding more or less on small red berries, and occasional mention of other cases may be found.

In Porto Rico the woodpecker, *Melanerpes portoricensis*, forms

about half its bill of fare of fruit and seeds. The Gray Kingbird, *Tyrannus dominicensis*, sometimes gleans more than half of its living from vegetable substances; *Pitangus taylori* feeds about as largely on fruit, etc.; *Myiarchus antillarum* and *Blacicus blancoi* also feed quite largely on such matter. These species constitute the list of native flycatchers.

In Cuba three Woodpeckers — *Xiphidiopicus percussus*, *Melanerpes superciliaris*, and *Colaptes chrysocaulosus* — according to the stomachs that I have examined, subsist on a diet not more than one third of which is insectivorous.

Two native Vireos of Porto Rico, *V. talidris* and *V. latimeri*, feed to some extent on vegetable matter, and at times half or more of the food of the former is vegetable.

Finally, Warblers coming to Cuba and Porto Rico from the States for the winter were found to eat more or less weed seed and in some cases to feed very largely on it.

In these islands, teeming with insect life, it seems a little remarkable, even considering the temptation afforded by abundance of fruit, that birds habitually considered insectivorous should feed on vegetable matter to the extent of almost completely changing their normal food habits, and I have no explanation to account for it.

Following is the result of examinations of a few stomachs:

Melanerpes portoricensis. ♂ and ♀, July 2, seeds and buds with a small percentage of insect matter; ♀, Dec. 13, seeds and remains of worms; ♀, Dec. 28, seeds; ♀, April 8, insects; ♀, April 22, seeds and remains of spiders; ♀, two seeds and small insects; ♂, Aug. 3, insects; 4 specimens (3 ♀ and 1?), May 26, one beetles, others seeds and remains of fruit; ♀, May 30, beetles and other insects; ♀, June 27, dragonfly; ♂, Sept. 6, insects and seeds.

Tyrannus dominicensis. ♂ and ♀, July 2, small shells and coleoptera; ♀, Oct. 4, insects, chiefly coleoptera; ♂, Jan. 18, a few small berries from trees; ♀, Jan. 20, one large berry-seed and remains of insects; ♀, Jan. 24, berries and insects; ♂ and ♀, Jan. 26, seeds and insects; ♀, Jan. 27, seeds and insects; ♂, Jan. 28, insects and seeds; ♀, Jan. 29, insects.

Myiarchus antillarum. ♀, July 21, seeds and coleoptera; ♀, Jan. 18, wasps; sex? July 1, beetles and seeds of small fruit, ♂, July 11, worm; ♀, March 1, fruit and beetles; ♂, June 26, seeds of small fruit and one beetle; ♂, July 18, seeds of berries; ♀, a few seeds and large quantity of coleoptera; ♀, Sept. 5, seeds of a small yellow fruit and one beetle; ♀,

Sept. 19, five seeds and a beetle; ♂, Oct. 5, large white grub and other insects; ♀, Oct. 15, several seeds of small fruit and wasps; ♀, Oct. 19, two thirds berries and one third insects.

Blacicus blancoi. ♂, Feb. 3, beetles; ♂, Feb. 10, beetles; ♀, May 30, flies; ♂, June 2, beetles; ♀, June 25, beetles; ♀, July 15, beetles; ♀, July 18, insects and remains of berries; ♂, seeds of berries; ♂, July 21, beetles; ♂, July 27, beetles; ♂, July 31, beetles; ♂, Aug. 3, insects; ♀, Aug. 25, flies and millers; 2 ♂ and 1 ♀, Aug. 30, beetles; 2 ♂, Sept. 2, insects; ♂, Sept. 3, beetles; ♂, Sept. 14, beetles; ♀, Sept. 15, beetles; ♂ and ♀, Sept. 22, beetles; ♂, Sept. 23, beetles; ♂, Oct. 16, beetles.

Vireo calidris. ♂, July 2, insects; ♂, May 27, insects; ♀, July 1, almost entirely seeds of small fruit; ♀ juv., May 30, legs of beetle; ♂, May 30, insects and seeds of a small red fruit; ♂, July 14, insects; ♂, July 17, small fruit remains; ♀, Sept. 28, insects.

Vireo latimeri. ♂, ♀ and juv. ♂, Apr. 1, insects and in juv. small centipede; ♂, Apr. 22, insects; ♂ juv. July 17, grasshopper and small red berries and seeds; ♂ and ♀, July 26, insects and small fruit seeds; ♂, Aug. 1, chiefly seeds; ♂ juv., Sept. 5, worm and insects; ♂ juv., Sept. 14, insects; ♂, Sept. 17, large tree seed and several beetles; ♂, Sept. 18, cricket and five tree seeds; ♂, Sept. 23, flies and worm; ♂, Sept. 25, small worms; ♂, Sept. 26, small hairy caterpillars; ♂ and ♀, Sept. 27, beetles and one seed; ♀, Oct. 9, 10 small black seeds and trace of insects; ♂, Oct. 10, yellow berries and legs of insects.

I also found seeds in the stomachs of the Black and White, Parula, Myrtle, Palm, and Prairie Warblers, particularly the Myrtle and Palm, the latter feeding almost exclusively on seeds of weeds, near Santiago and Guama, Cuba.

This would appear largely to eliminate the question of food supply from the problem of causes of bird migration.

A REVIEW OF THE GENUS *CATHERPES*.

BY HARRY C. OBERHOLSER.

IDENTIFICATION of the Texas Cañon Wrens has involved a canvass of the entire group, the results of which investigation are presented herewith.

The genus *Catherpes* Baird¹ is a very well-defined one, of which there seem to be five recognizable forms, all, without doubt, subspecies of *Catherpes mexicanus*.

Catherpes mexicanus mexicanus (Swainson).

Thryothorus mexicanus SWAINSON, Zool. Illustr. Ser. 2, I, 1829, pl. xi.

Troglodytes murarius LICHTENSTEIN, Preis-Verz. Mex. Vögel, 1830, No. 80.

Thriothorus guttulatus LAFRESNAYE, Rev. Zool. 1839, p. 99.

Chars. subsp.—Largest and darkest, the depth of color especially noticeable on the upper surface.

Type locality.—Real del Monte, Hidalgo, Mexico.

Geographical distribution.—Tableland of Mexico, excepting the northern portion.

This essentially Mexican race occurs nowhere in the United States, all records to such effect belonging under the other forms.

Catherpes mexicanus albifrons (Giraud).

Certhia albifrons GIRAUD, Descr. Sixteen Species North Am. Birds, 1841, p. 31.

Chars. subsp.—Similar to *Catherpes mexicanus mexicanus*, but rather smaller, except the bill; and decidedly paler above, the head more grayish.

Type locality.—"Texas" [probably northeastern Mexico].

Geographical distribution.—States of Nuevo Leon, Coahuila, and probably Tamaulipas, Mexico; north to Texas at the mouth of the Pecos River.

¹ Pac. R. R. Rep., IX, 1858, p. 356 (type *Thryothorus mexicanus* SWAINSON).

The specimen upon which Giraud based his description of *Certhia albifrons*, although a dark, immature bird, with a small bill, agrees best with the form that enters the United States only along the lower Rio Grande,—a conclusion already announced by Mr. Nelson;¹ but that this type, now in the United States National Museum, came originally from within the present boundaries of Texas, as claimed, may well be doubted, particularly if the results of investigation regarding others of Giraud's reputed "Texas" birds be admitted as negative evidence.

Catherpes mexicanus polioptilus, subsp. nov.

Chars. subsp.—Like *Catherpes mexicanus albifrons*, but paler above and with a much shorter bill.

Type locality.—Deer Mountain, Chisos Mountains, Texas.

Geographical distribution.—From western Texas, through New Mexico, Arizona, and northwestern Mexico to Lower California.

Description.—Type, male adult, No. 168350. U. S. Nat. Mus., Biological Survey Collection; Deer Mountain (opposite Mount Emory to the east), Chisos Mountains, Texas, 6500 feet; H. C. Oberholser. Upper surface grayish brown, becoming rufescent posteriorly, and spotted with darker brown and buffy; rump and upper tail-coverts chestnut; wings fuscous irregularly barred and margined externally with light chestnut; tail pale chestnut, with narrow black bars; ill-defined superciliary stripe dull whitish; cheeks, lower part of auriculars, throat, and jugulum white; abdomen chestnut, sparingly dotted with darker brown.

Specimens from New Mexico, Arizona, and Lower California are, as a rule, somewhat darker than those from Texas, and though evidently verging more or less toward *punctulatus*, apparently belong here.

Variation, both seasonal and individual, is great in both *polioptilus* and *conspersus*. Young birds of these races seem to be darker than adults.

Catherpes mexicanus punctulatus Ridgway.

Catherpes mexicanus punctulatus RIDGWAY, Proc. U. S. Nat. Mus. V, 1882, p. 343.

¹ Auk, XV, 1898, p. 160.

Chars. subsp.—Similar to *Catherpes mexicanus polioptilus*, but decidedly darker above, and of smaller size.

Type locality.—Forest Hill, Placer County, California.

Geographical distribution.—California (excepting the southeastern part), Oregon, and southern Washington (Almota).

Catherpes mexicanus conspersus Ridgway.

Catherpes mexicanus var. *conspersus* RIDGWAY, Amer. Nat. VII, Oct. 1873, p. 602.

Chars. subsp.—Resembling *Catherpes mexicanus polioptilus*, but smaller (except the bill); paler and more rufescent above, particularly on the head.

Type locality.—Fort Churchill (southeast of Wadsworth), Nevada.

Geographical distribution.—Wyoming and Colorado, west to Nevada and southeastern California.

Average millimeter measurements of males of the five forms of *Catherpes* are as follows:

No. of specimens	Name	Wing	Tail	Exposed culmen	Tarsus	Middle Toe
5	<i>Catherpes mexicanus mexicanus</i>	65.8	56.2	22.2	19.7	15.1
2	<i>Catherpes mexicanus albifrons</i>	62.8	53.8	24.3	18.5	14.3
5	<i>Catherpes mexicanus polioptilus</i>	63.4	54.6	20.7	19.1	13.7
5	<i>Catherpes mexicanus punctulatus</i>	59.9	50.4	19.1	18.3	13.6
5	<i>Catherpes mexicanus conspersus</i>	59.6	52.1	20.4	17.5	13.2

A SYNOPSIS OF THE GENUS *PSALTRIPARUS*.

BY HARRY C. OBERHOLSER.

THE genus *Psaltriparus*, though by Dr. Gadow not considered separable from *Acredula*,¹ is, nevertheless, an easily recognizable group. As commonly accepted it comprises the few small species of Paridæ treated below.

¹ Cat. Birds Brit. Mus., VIII, 1883, p. 54.

Psaltriparus Bonaparte.

Psaltriparus BONAPARTE, Compt. Rend. XXXI, 1850, p. 478.

Psaltrites CABANIS, Journ. f. Orn. 1881, p. 333 (nom. emend. pro *Psaltriparus*).

Type.—*Psaltriparus personatus* Bonaparte; = *Parus melanotis* Hartlaub.

Range.—Guatemala, Mexico, and the western United States.

Psaltriparus melanotis melanotis (Hartlaub).

Parus melanotis HARTLAUB, Rev. Zool. 1844, p. 216.

Psaltriparus personatus BONAPARTE, Compt. Rend. XXXI, 1850, p. 478.

Psaltrites helviventris CABANIS, Journ. f. Orn. 1881, p. 333, pl. iv, fig. 1.

Type locality.—Mexico (southern part).

Geographical distribution.—Guatemala, and southern Mexico north at least to Hidalgo and Michoacan.

The black sides of the head and the rich brown color of the back serve readily to distinguish this form from all others of the genus. The bird described by Cabanis as *Psaltrites helviventris*,¹ from Western Mexico, interrogatively Tehuantepec, though sometimes synonymized with *Psaltriparus plumbeus*, is undoubtedly the female of *P. melanotis*.

Psaltriparus melanotis iulus Jouy.

Psaltriparus melanotis iulus JOUY, Proc. U. S. Nat. Mus. XVI, 1894, p. 776.

Type locality.—Hacienda El Molino, Jalisco, Mexico.

Geographical distribution.—Jalisco, with probably north central Mexico.

Similar to *P. melanotis*, but the back paler, as are also the lower parts.

Psaltriparus melanotis lloydi (Sennett).

Psaltriparus lloydi SENNETT, Auk, V, Jan. 1888, p. 43.

Psaltriparus santaritæ RIDGWAY, Proc. U. S. Nat. Mus. X, September, 1888, p. 697.

¹ *Loc. cit.*

Type locality. — Limpia Cañon, near Fort Davis, Texas.

Geographical distribution. — Southwestern Texas, southern New Mexico, southern Arizona, and northern Mexico.

Resembles *P. m. iulus*, but the back is almost clear plumbeous instead of light brown. Specimens from northern Mexico (Chihuahua) show intergradation with *iulus*, so that *P. lloydi* must be considered a subspecies of *P. melanotis*.

Adult males of *lloydi* are of course distinguishable at a glance from the very distinct *Psaltriparus plumbeus*, but females and young require to be examined more closely. The adult female of the former differs from both sexes of *plumbeus* in having a distinct blackish streak along each side of the head above the auriculars. Young males present generally a greater contrast between the color of the head and back than is seen in *plumbeus*, and, furthermore, nearly always have, even when very young, some black or blackish brown on the sides of the head or neck, with often a narrow black or blackish collar on the hind neck, — this, however, frequently incomplete or partially obscured. Young females have but very slight indication of blackish on the sides of the head, sometimes none, in which latter condition they cannot with certainty be separated from *plumbeus*.

The type of Mr. Ridgway's *Psaltriparus santarita* is an immature male of *lloydi*, as a careful examination shows, and it can be easily matched by young male specimens from any part of the range of the latter.

Psaltriparus plumbeus (Baird).

Psaltria plumbea BAIRD, Proc. Acad. Nat. Sci. Phila. June, 1854, p. 118.

Type locality. — Little Colorado River, Arizona.

Geographical distribution. — Western Texas to eastern California, north to eastern Oregon and western Wyoming.

Psaltriparus minimus minimus (Townsend).

Parus minimus TOWNSEND, Journ. Acad. Nat. Sci. Phila. VII, pt. ii, 1837, p. 190.

Type locality. — Columbia River.

Geographical distribution. — Pacific coast region, from San Francisco Bay, California, to Washington.

The darkest specimens come from the state of Washington. Those from the northern coast of California, particularly near San Francisco Bay, are intermediate between *minimus* and *californicus*.

Psaltriparus minimus californicus Ridgway.

Psaltriparus minimus californicus RIDGWAY, Proc. Biol. Soc. Wash. II, 1884, p. 89.

Type locality. — Baird, Shasta County, California.

Geographical distribution. — California, excepting the northern coast region; northern Lower California.

Lighter colored than true *P. minimus*, and apparently a good form. We therefore can see no reason for the suppression of the name *californicus*, which Mr. Grinnell has recently sought to accomplish.¹

Psaltriparus grindæ Ridgway.

Psaltriparus grindæ RIDGWAY, Proc. U. S. Nat. Mus. VI, 1883, p. 155 (Belding MS.).

Type locality. — Laguna, Lower California.

Geographical distribution. — Southern part of Lower California.

This bird seems to be specifically distinct from *Psaltriparus minimus*, as Mr. Brewster has recently stated.²

The name, moreover, should be credited to Ridgway instead of Belding, to conform to the present treatment of manuscript names.²

¹ Pac. Coast Avifauna, No. 3, 1902, p. 72.

² Bull. Mus. Comp. Zool., XLI, 1902, p. 205.

A LIST OF LAND BIRDS FROM CENTRAL
WASHINGTON.

BY ROBERT E. SNODGRASS.

DURING the summer of 1902 the Washington Agricultural College equipped and maintained in the field for one month, a biological collecting expedition. The material obtained includes principally mammals, birds, reptiles, fishes, insects and plants. The birds are given in the appended list.

The region selected as the basis of exploration is the old dry cañon of the Columbia River in the northeast quarter of Douglas County, known as the Grand Coulee. This is simply a great gorge fifty miles long and from one to two miles wide, cut down three hundred to five hundred feet into the enormous layers of basalt that form the top of the country throughout central and southeast Washington.

Although the Grand Coulee is now dry, with the exception of scattered, mostly alkaline lakes, having neither outlets nor inlets, it certainly at one time was nothing less than the channel of the Columbia River. There is no doubt that the latter, during glacial times, was so dammed up to the west that its original course became entirely closed. Its waters then rolled back upon themselves and a great lake was formed between the mouths of the Sans Poil and Okanogan Rivers. When this became too great for its embankments, an outlet stream started off overland to the southwest. This, however, soon cut for itself a channel in the soft basalt rock, and before the glaciers released the dammed up waters of the lake and let them once more follow their natural course in a great bend to the west and south, this short-cut stream had formed the Grand Coulee. It met the old river bed far to the southwest, near the Saddle Mountains and just south of where the Northern Pacific Railroad now crosses the Columbia. Since returning to its old course the river has cut its cañon down five or six hundred feet below the floor of the Coulee. This has given to the people living in this region the notion that, if water ever did flow through the Grand Coulee, it must have gone north and not south.

The Grand Coulee is, then, simply what was once a temporary short-cut for the Columbia River around the eastern face of the glaciers. Its walls, except in the neighborhood of Coulee City, are vertical cliffs rising in places probably between four hundred and five hundred feet. Their bases are everywhere hidden behind high banks of talus. This talus is continually accumulating, and is almost everywhere so new that it consists of angular fragmental material. At Coulee City, only, the walls of the Coulee are low and sloping. They are here worn down to such a gentle inclination that the Central Washington Railway is graded nearly across the cañon. At only four other places has it been possible to construct a wagon road or even a trail out of the Coulee.

Of course the mere geological interest of the Grand Coulee cannot make it of any biological importance. However, the fact that its floor is only in a few places capable of cultivation, has caused it to be left, by the advancing flood of wheat that has overwhelmed much of the Big Bend country, almost intact and in its original, native, undisturbed condition. It is a sunken biological oasis in a desert of wheat fields. Nothing can be more distressing to a naturalist than to travel across the Big Bend country and for a whole day to see not one square foot of Nature's original sage-brush verdure; to camp at night on a strip of land a few feet wide between a dusty road and a barbed-wire fence; and to 'bum' wood and water from a neighboring farm-house. Not even are there willow- and weed-fringed streams in the depressions between the hills. There is nothing left of Nature but the air and the dust of the road.

This desolateness, however, is occasionally relieved by coming upon great stretches of most refreshing 'scab-land' country. Such areas alternate with the wheat deserts in Lincoln County and occupy also a large space along the eastern edge of the Grand Coulee. On them there is scarcely any soil, only enough for sage-brush to grow on. The surface is cut by erosion into irregular hollows, low hills, abrupt walls, ridges and small tower-like buttes. A weird and wild aspect has this country — Nature's reserve for the naturalist. In the hollows are scattered about small densely alkaline lakes whose waters have a beautiful greenish-black color by transmitted light. The traveler on these strips is never

haunted by the distressing expectation of finding drinking water. The wild and formidable nature of the country is sometimes trampled on by bands of grazing cattle, but nowhere does it and never will it submit to the hideous insult of being made to support a wheat field or a farm-house. The Sage Sparrow, the Sage Thrasher and the Horned Toad live in perfect tranquillity, for no fear have they that their children's children or great-grandchildren will here ever be subjected to the shame of living on else than the sage-brush of their fathers.

To the student of geographical distribution the Big Bend fauna must be of special interest, since the country represents the northern limit of the sage-brush region in the Northwest. Immediately to the north of the Columbia River arise the low but pine clad Okanogan Mountains. On the west the sage-brush is limited by the Cascades. On the east it is bounded to the north by the region of small pines occupying Spokane County, and to the south by the (naturally) bunch-grass covered hills of the Palouse country. Collecting in the Grand Coulee possesses a great attractiveness due to the intrinsic interest of the region it represents, and, furthermore, it is enhanced through the variety given to the fauna by numerous small reedy marshes scattered through the cañon.

Numerous water birds breed in the Coulee, but we did not have time to devote much attention to them. We have specimens of the following species: *Anas boschas*, *Erismatura jamaicensis*, *Fulica americana*, *Tringa maculata*, and *Ægialitis vocifera*.

Specimens of most of the species recorded in the following list were secured. Some were merely seen, but such are so described, and in most cases the identification could not be mistaken. Where doubtful, the doubt is indicated. The paper by W. L. Dawson on the Birds of Okanogan County, referred to several times in the list, is that published in 'The Auk' for April, 1897, pages 168-182.

1. *Pediœcetes phasianellus columbianus*. COLUMBIAN SHARP-TAILED GROUSE (known here in the Northwest as 'Prairie Chicken'). — None of these were met with in the Coulee region, but several individuals were seen at Crab Creek and a whole family at Sprague in the southeast part of Lincoln County. They are or have been plentiful throughout the whole southeastern part of the State.

2. *Centrocercus urophasianus*. SAGE HEN. — These great birds are

reported to be common throughout Douglas County. We obtained three specimens — an adult female and two young — from a small band of them southeast of Coulee City. None were seen in the Grand Coulee and we were told by inhabitants that they never come down into the cañon.

3. *Zenaidura macroura*. MOURNING DOVE.—Rather common throughout the Big Bend country. Several nests were found on the ground in the sage-brush.

4. *Cathartes aura*. TURKEY VULTURE.—A number seen flying about in the Coulee. Observed as far north as the Columbia River.

5. *Circus hudsonius*. MARSH HAWK.—Several seen in the Coulee flying above the small marshes.

6. *Accipiter cooperi*. COOPER'S HAWK.—Rather common along the high cliff walls of the Coulee, keeping generally above shot-gun reach.

7. *Buteo borealis calurus*. WESTERN RED-TAIL.—Common everywhere.

8. *Falco sparverius deserticolus*. DESERT SPARROW HAWK.—Common everywhere along the cliffs of the Coulee, nesting in holes high up on the walls.

9. *Asio wilsonianus*. AMERICAN LONG-EARED OWL.—Not seen in the Coulee region. Common along Crab Creek in Lincoln County.

10. *Bubo virginianus pallescens*. WESTERN HORNED OWL.—Only two individuals of this owl were seen: one was in the wheat fields near Wilbur in the northwest part of Lincoln County, the other was at Crab Creek in the southwest part of the same county. Although neither was secured there can be little doubt as to the variety since this is the resident form about Pullman in Whitman County.

11. *Speotyto cunicularia hypogæa*.—BURROWING OWL.—This owl is common throughout the central and southeastern part of the State.

12. *Ceryle alcyon*. BELTED KINGFISHER.—Several observed at Crab Creek in Lincoln County. None met with in the Coulee.

13. *Melanerpes torquatus*. LEWIS'S WOODPECKER.—One specimen obtained in the pines that occur sparsely scattered about in the north end of the Grand Coulee. The granite underlying the basalt is exposed as rough hills on the floor of the Coulee for eight miles south from the head. On this granite there grew a few evergreens, mostly small trees of *Pinus ponderosa*.

14. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.—Several Flickers were heard in the pines of the northern end of the Coulee and one or two were seen, but no specimens were obtained. It is probable that they were of the form named, for Dawson records it from Okanogan County just north of here.

15. *Phalænoptilus nuttallii*. POOR-WILL.—Abundant both in the Coulee and over the region southeast of it. Found specially numerous at Crab Creek in Lincoln County. According to Dawson, this bird in Okanogan County "is confined to semi-arid regions in valleys and 'draws.'"

16. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—Very common throughout the Big Bend country.

17. *Tyrannus tyrannus*. KINGBIRD.—Common throughout the Big Bend country, nesting abundantly. Taken the whole length of the Grand Coulee.

18. *Tyrannus verticalis*. ARKANSAS KINGBIRD.—This flycatcher was found everywhere that the last was observed except at the southern end of the Coulee. We found it from a short distance north of here, however, to the Columbia. It is common throughout Lincoln and Whitman Counties.

19. *Sayornis saya*. SAY'S PHŒBE.—Is not abundant but occurs everywhere in the Big Bend country.

20. *Empidonax difficilis*. WESTERN YELLOW-BELLIED FLYCATCHER.—This species was not observed anywhere in the Grand Coulee, nor in the Big Bend country till we got south to Crab Creek in the southeastern part of Lincoln County. Along Crab Creek there is a dense growth of trees, affording a resort for birds such as does not occur northwest or west of it. Hence, we found that this was the northwest limit of many birds common to the southeast in Whitman County. This flycatcher is one of them.

21. *Otocoris alpestris merrilli*. DUSKY HORNED LARK.—Common throughout the Big Bend region.

22. *Pica pica hudsonica*. AMERICAN MAGPIE.—These birds occur throughout the whole length of the Grand Coulee, but they are not very common. They were not observed on the plains to the east and southeast, but were again found at Rock Creek in Whitman County.

23. *Corvus americanus*. AMERICAN CROW.—A few bands observed at the head of the Coulee along the Columbia River. Found common at Rock Creek below Rock Lake in the northwest part of Whitman County.

24. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD. Common in two marshes in the Grand Coulee, one near the middle, the other about eight miles from the head. Not seen elsewhere in the Big Bend, but found at Rock Creek in Whitman County.

25. *Agelaius phœniceus*. RED-WINGED BLACKBIRD.—The writer cannot be certain that the Red-winged Blackbird of the inland Northwest is *A. phœniceus*, not having material at hand for comparison. Occurs in all marshy places.

26. *Sturnella magna neglecta*. WESTERN MEADOWLARK.—Common everywhere.

27. *Icterus bullocki*. BULLOCK'S ORIOLE.—Occurs in favorable places in the Grand Coulee throughout its length, but was not found common anywhere.

28. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD.—Common everywhere except in sage-brush remote from water.

29. *Astragalinus tristis*. AMERICAN GOLDFINCH.—Goldfinches were

not common in the Big Bend country. A few were seen at Freshwater Lake in the south half of the Coulee, and they were rather numerous along the Columbia at the head of the Coulee.

30. *Poœcetes gramineus confinis*. WESTERN VESPER SPARROW. — This is probably the most common bird of the Big Bend region. It inhabits alike the original undisturbed sage-brush covered tracts and the most extensive wheat fields. Everywhere it flits up before one, and it is a constant occupant of all barbed-wire fences.

31. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW. — Common everywhere in the Coulee and also throughout the Big Bend country.

32. *Spizella breweri*. BREWER'S SPARROW. — This very little sparrow associates everywhere with the much larger but similarly-colored Vesper Sparrow. It is, however, not nearly so abundant as the latter. The Columbia River is apparently almost the northern limit of its range in Washington, for Dawson reports but one specimen from Okanogan County.

33. *Amphispiza belli nevadensis*. SAGE SPARROW. — We found this species common on the sage-brush plain south of the Grand Coulee between the towns of Adrian and Ephrata on the Great Northern Railway, and also about Soap Lake (or Alkali Lake) in the southern end of the Coulee. North of here we did not meet with it, either in the Coulee or on the plains at either side, nor did we see it anywhere to the east or southeast. Dawson does not report it from Okanogan County. We probably collected the bird at the northern limit of its range. It has never been taken in Whitman County, and nothing is known of its range in the middle of the southern part of the State.

34. *Melospiza melodia montana* (?) MOUNTAIN SONG SPARROW. — This is a rare bird in the Big Bend. A few individuals were seen and heard near Freshwater Lake about two miles south of Coulee City. Only one specimen was obtained here. No others were met with in the whole country until we got to Crab Creek in the southeastern part of Lincoln County. The bird is abundant all over Whitman County.

35. *Pipilo maculatus* var. ? One individual seen near the town of Ephrata on the Great Northern Railway, just southwest of the mouth of the Grand Coulee. No others met with.

36. *Cyanospiza amœna*. LAZULI BUNTING. — A few individuals seen at Freshwater Lake in the southern part of the Coulee, and a few at the head along the Columbia. Only one specimen obtained.

37. *Piranga ludoviciana*. LOUISIANA TANAGER. — This species was found only on the bank of the Columbia at the head of the Grand Coulee.

38. *Petrochelidon lunifrons*. CLIFF SWALLOW. — Common throughout the entire length of the Coulee, nesting along the cliffs. This is also the commonest swallow all over the Big Bend country.

39. *Hirundo erythrogaster*. BARN SWALLOW. — This swallow was not met with in the Coulee. A few were seen about the towns of Wilbur and Harrington in Lincoln County.

40. *Tachycineta thalassina lepida*. NORTHERN VIOLET-GREEN SWALLOW. — This species was common at various places in the Grand Coulee, but was not so universally abundant as the Cliff Swallow.

41. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE. — Not common but found the whole length of the Coulee.

42. *Dendroica aestiva*. YELLOW WARBLER. — Found wherever favorable clumps of small trees or bushes occur.

43. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT. — Common in reedy marshes of the Grand Coulee. Taken also at Rock Creek in the northwest part of Whitman County.

44. *Icteria virens longicauda*. LONG-TAILED CHAT. — We found this bird near the town of Ephrata southwest of the mouth of the Grand Coulee, at various places in the Coulee as far north as the Columbia, at Crab Creek in the southeastern part of Lincoln County, at Rock Creek in northwestern Whitman County. It occurs also about Pullman and along the Snake River in Whitman County.

45. *Setophaga ruticilla*. AMERICAN REDSTART. — One male specimen taken in dense growth of trees along Crab Creek in southeastern part of Lincoln County. A female seen here also, but otherwise the species was not met with.

46. *Oroscoptes montanus*. SAGE THRASHER. — This bird is seldom seen and it confines itself to the undisturbed sage-brush areas. We saw two individuals near the town of Ephrata on the Great Northern Railway, another in the Grand Coulee somewhat north of the middle, a fourth at Crab Creek in Lincoln County, and a fifth one in the wide strip of 'scab-land' just south of Sprague in Lincoln County. Two specimens were obtained.

47. *Galeoscoptes carolinensis*. CATBIRD. — This bird is common in Whitman County, and we found it in the southeastern part of Lincoln County at Crab Creek. Nowhere beyond here, however, *i. e.*, to the north or west, did we meet with it.

48. *Salpinctes obsoletus*. ROCK WREN. — This wren is common throughout the length of the Grand Coulee, but it almost confines itself to the slopes of talus along the bases of the walls. It occurs also in all of the 'scab-land' country where there is a great deal of bare rock forming low walls and projecting in rugged irregular masses. It is never to be found on a level open country. Even in the Coulee it seldom ventures far out onto the flat floor of the cañon, invariably associating itself only with rocky places.

49. *Cistothorus palustris plesius*. WESTERN MARSH WREN. — Rather common in some of the marshes of the Grand Coulee. Although the writer has no material at hand for other localities for comparison, there is probably no doubt of the identification here given.

50. *Parus atricapillus occidentalis*. OREGON CHICKADEE. — Found common along Crab Creek in Lincoln County, but not met with in the Coulee country.

51. *Merula migratoria propinqua*. WESTERN ROBIN.— Found throughout the Coulee but nowhere very plentiful.

52. *Sialia arctica*. MOUNTAIN BLUEBIRD.— Two specimens obtained in the Grand Coulee, both north of the middle. No others seen anywhere in the Big Bend country.

GENERAL NOTES.

The Dovekie (*Alle alle*) on Long Island, N. Y.— January 15, 1903, Mr. George W. Mott of Westminster Kennel Club brought in a Dovekie to be mounted. I inquired where he procured it, and he informed me that it had been given him by a boy who found it the morning previous, lying in the road midway between the steamboat dock and Babylon Village. It evidently had struck either the electric light or telephone wires, as the neck and breast were much bruised. The bird was found in a road crossing meadows near Great South Bay, and at least three and one half miles from the ocean. Both plumage and body were in good condition.— HENRY MOTT BURTIS, *Babylon, L. I.*

A Hybrid Duck, *Anas boschas* × *Nettion carolinensis*.— Hybrids among the Anatidæ are well known to be of frequent occurrence and some of the crosses are so common as to be scarcely worthy of record. A specimen that has recently come into possession of the Academy of Natural Sciences of Philadelphia, however, seems to be quite an unusual mixture, and a hasty glance through the literature fails to discover a similar record, although there are several instances of hybrids between *Anas boschas* and the old world species *Nettion crecca*.

The bird in question was secured by my friend, Dr. Charles B. Penrose of Philadelphia, on the upper part of Currituck Sound, N. C., on January 17, 1903. It is a drake and combines in almost equal proportions the characters of the Mallard and Green-winged Teal. The back is mainly Teal with the plainer feathers of the Mallard showing on the median line; the wings are also those of the Teal but the speculum is bluer and edged with black, while the fulvous bar is mixed with black and white. Below the belly is dusky like the Mallard's, with the same fine transverse vermiculations, and while the breast is spotted with black like the Teal's, the ground color is rich chestnut, with a tendency to lighter edges to the feathers as in the Mallard. The head is solid green like that of the Mallard with a narrow white neck band, and with a rufous frosting on the occiput covering part of the area so colored in the Teal. On the sides of the breast are the characteristic diagonal white stripes of the Teal. Size intermediate between the two.

The bird is strikingly beautiful and its flesh, in the opinion of an epicure, was as fine as any duck he had ever eaten.—WITMER STONE, *Academy of Natural Sciences, Philadelphia, Pa.*

A Correction.—In 'The Auk' for 1902, p. 76, I noted a European Widgeon (*Mareca penelope*) taken in North Carolina as probably the first to be recorded from the State. I find a record, however, which I previously overlooked, in the Bulletin of the Nuttall Club for 1879, p. 190, where the capture of two males is recorded, one on Dec. 17, 1878, and one on Jan. 17, 1879, by De L. Berier.—REGINALD HEBER HOWE, JR., *Concord, Mass.*

Wood Ibis in Montana.—It will be of interest to the readers of 'The Auk' to know that a specimen of the Wood Ibis, *Tantalus loculator* Linn., was taken in Montana early in October, 1902. The specimen was sent me from Madison Valley, Madison County, where it was shot by Mr. Bert Maynard, Ennis, Mont. While Mr. Maynard and two other men were in the barnyard feeding the pigs, the bird came and lit on the ground among the pigs and sheep and began feeding on the grain. It was reported to be either "very tame or very tired" and did not take flight even when closely approached.

The bird is young and undersized and was identified for me by Edgar A. Mearns, Major and Surgeon, U. S. A. The head and neck are not bald as in the adult, but are clothed with the plumage of the young.

The specimen is deposited in the collections of the Montana Agricultural College.—R. A. COOLEY, *Montana Agric. College, Bozeman, Mont.*

Woodcock Notes.—I have recently received several interesting dates regarding the occurrence of the American Woodcock (*Philohela minor*) in Massachusetts. Mr. Edward A. Brigham of Grafton, Mass., informs me that he shot a bird several years ago on Christmas Day which was in excellent condition. Also, that on March 7, 1901, he saw a bird of this species—the earliest spring date in his experience. On March 17, 1903, he put up a fine large bird at the same place. Deputy Thomas L. Burney of Lynn, Mass., informs me that he has a specimen of a Woodcock, which was picked up on Estey St., Lynn, Mass., by Mr. Geo. Woodman on Dec. 11, 1902, while still alive, but in an emaciated condition.—GEORGE H. MACKAY, *Boston, Mass.*

A Turnstone (*Arenaria interpres*) Taken in the Mid-Pacific.—I was a passenger on the schooner 'Julia E. Whalen' returning from Marcus Island when, on August 28, 1902, in Long. 174° W., Lat. 33° N., a Turnstone came alongside and after a few moments dropped down on the deck. I saw the bird when it was quite a distance off, coming from a northerly direction and flying directly for the vessel. On its nearer approach it was not difficult to determine the species, as it made two or

three narrowing circles about the schooner preparatory to alighting, which it soon did in a dazed and somewhat exhausted condition. I caught the bird in my hands, and on examination I found it to be literally nothing but skin and bones. However, we were loath to take its life and accordingly improvised a cage on the bottom of which was placed a quantity of small pieces of rock from the ship's ballast. No sooner had our captive been placed in the cage than it began to flip these stones over with its beak, in search of its usual quarry. A dish containing salt water was placed within reach. After taking a few swallows, it proceeded to toss stones and loose bits into the receptacle with its beak, and then, for want of something better to do, it waded in and tossed them out again. Fresh water it did not seem to care for at all. We were at a loss to know what we could offer the bird from the ship's store that it would be liable to eat. Lobster, being shell-fish, was first tried. Of this the bird would only take bits in its bill when it would note an unusual flavor, and condemn it as food. Bits of oyster were tried and similarly rejected. Tinned clam, roast meat, and fresh fish were refused. Boiled rice and other cereals were offered without avail. Finally cockroaches, which were the only insect pest on shipboard, were suggested and tried. It was interesting to watch the Turnstone assault them. The bug, which is an adept at self concealment, would no sooner strike the bottom of the cage than it would scurry under a stone. The bright-eyed bird would give instant chase, roll the stone to one side and snap up the bug. Then beating it vigorously on the ground several times, it would lay it down and observe it narrowly. Taking it up again and giving it a final thrash or two it proceeded to gulp it down. Cockroaches were evidently not suitable food, for on the second morning after its capture the bird was found dead.

I made it into a skin, which bears a tag stating that it was an adult male, taken on the date and in the locality mentioned, in full autumn plumage, measuring 9.30 in. in length; wing, 6.05 in.; culmen, .85 in.; tarsus .95 in.

At the time the Turnstone came on board we were some 500 miles to the north and east of Midway Island, which was the probable destination of the bird (and where we had observed the same species only a few days previously). Assuming the bird had started from Alaska on its fall southerly migration it was at the time of its capture 1800 miles out from the nearest land, and must have been in continuous flight for more than 40 hours before it sighted our vessel. The fact that it was alone was unusual, as the species commonly migrates in small flocks, of which we saw quite a number while we were performing our journey of over 7000 miles in the Mid-Pacific.—WM. ALANSON BRYAN, *Bishop Museum, Honolulu, H. I.*

Nesting of the Goshawk in Southern New Hampshire.—On the 21st of July, 1902, I came upon a large *Accipiter* in a clearing in some woods

at Alstead, N. H. The bird screamed loudly and when I began to search for a nest, flew at me twice like a bolt, so that I instinctively put up an elbow to guard my head. I found a nest containing two nearly full-grown young in a smallish pine about forty feet from the ground. On the 27th I saw at 4.45 A. M. a full-grown Goshawk kill and begin to devour a pullet under the window of the farm-house where I lived. I therefore on the 29th shot one of the young hawks from the nest and sent it to Mr. Brewster, who has identified it as a young Goshawk (*Accipiter atricapillus*). Alstead is seventeen miles from Keene, in southern New Hampshire. According to Mr. G. M. Allen this is the most southern breeding record which he can find for this bird in New England. —RALPH HOFFMANN, *Belmont, Mass.*

Barn Owl on Long Island, N. Y.—On April 23, 1902, Mr. James Forster, Superintendent on Harbeck Place at Islip, L. I., sent me a fine adult American Barn Owl (*Strix pratincola*) to be mounted. The bird was in fine plumage but rather thin in flesh. No further data could be obtained, as Mr. Forster moved away shortly after. —HENRY MOTT BURTIS, *Babylon, L. I.*

The Short-eared Owl (*Asio accipitrinus*) Taken Far Out at Sea.—The steamer 'Tampico,' which plies between Honolulu and Puget Sound, was boarded, when 680 miles off the mainland, by a Short-eared Owl which had in all probability been lured out to sea in pursuit of shore birds which at this season are in full migration, and, losing its bearings, became a wanderer at the mercy of the high seas. The bird was observed by the mate at 8 P. M. circling about high overhead. After a time it alighted on one of the yards and there remained during the night and the greater part of the following forenoon, when it was captured and placed in a cage. Capt. Ames, regarding the captive as a mascot, and not an ill omen, decided to keep it alive, and ordered it to be carefully fed on a diet of raw meat. Despite all care and attention it died Oct. 10, 1902, one day after the steamer had arrived at Honolulu. Only the wings and feet were preserved. I had the privilege of examining them and, together with the description furnished by the captain, satisfied myself that the bird was none other than an adult *Asio accipitrinus*. The wing measured 12.50, the tarsus about 1.75.

Since it is generally believed that the stock from which the Hawaiian variety of owl was derived came originally from America, the above bit of evidence may be regarded as in a measure confirming that view. Taken in connection with the record of the specimen observed (in October, 1900) by Capt. Johnson of the bark 'Roderick Dhu,' some 500 miles off the Hawaiian Islands, it makes a chain of evidence showing the relationship of the Hawaiian 'Pueo' to the continental form, and at the same time tending strongly to invalidate the subspecies *sandvicensis* of current writers.

That both of the foregoing records were made during the month of October seems more than a mere coincidence. The migration of the owls themselves, or the migration of certain birds which they pursue, may account for it. Be that as it may, the result has been the same and these Islands have received their stock of owls as a result of some such circumstance. — WM. ALANSON BRYAN, *Bishop Museum, Honolulu, H. I.*

Note on *Psittacula modesta* Cabanis. — *Psittacula modesta* Cabanis (Schomburgk. Reisen in British-Guiana, III, 1848, 727) was described from a female taken in British Guiana. This specimen, so far as known to me, has until now remained unique. Count Salvadori in 1891 (Cat. Bds. Brit. Mus., Vol. XX, p. 245, footnote) says: "Graf von Berlepsch, who has recently examined the typical specimen in the Museum of Berlin, has sent me a description of it, which agrees in every respect with the female of *Psittacula sclateri*." Salvin, five years earlier (*Ibis*, 1886, p. 70) stated, under *Psittacula modesta*: "Graf von Berlepsch is of opinion that *P. sclateri* is referable to this species, *P. modesta* being the older title."

Berlepsch and Hartert, in their recent memoir 'On the Birds of the Orinoco Region' (Nov. Zool., Vol. IX, p. 108, April, 1902) record a male specimen of *P. 'sclateri'* from "La Union on the Caura River," Venezuela, without further comment. This is the most eastern record of *P. sclateri* I have met with, the previous records being from Peru and Ecuador.

I have before me a male specimen taken by Mr. C. C. Young, on the Saramaca River, Dutch Guiana, May 31, 1899. It bears a striking resemblance to a male specimen of *P. sclateri* (No. 6313, Am. Mus. Nat. Hist.), from the Verreaux Collection, labeled "Rio Javarri" (a cotype?). The Guiana bird differs in being of a lighter, more yellowish green below, particularly on the breast, and in the rump being of a brighter shade of ultramarine. That the two forms are specifically the same there seems no reason for doubt, but it seems probable that the Andean form is separable from the Guiana form, although the differences, judging from the specimens here under notice, are not strongly marked, the two forms being recognizable, respectively, as *Psittacula modesta* and *P. modesta sclateri*. — J. A. ALLEN, *American Museum of Natural History, New York City.*

Breeding of the Evening Grosbeak in Captivity. — In the spring of 1901, I was given three Evening Grosbeaks alive, two females and a male, by Mr. Geo. E. Atkinson. These birds were taken at Portage la Prairie, Manitoba, one young female in 1899, and a pair in February, 1900. These birds are typical *Coccothraustes vespertinus*, and had previously shown no disposition to breed, nor did they till the spring of 1902. In March I noticed that the male was not getting on with the females as well as he had previously, being frequently chased about by them; in April he had subdued them, and very soon showed a decided preference for one and so

persecuted the other that I had to remove her to a separate cage. About this time, or a little earlier, I noted a decided brightening of the beaks of both sexes, and the birds became very noisy, though I noticed no attempt at a song on the male's part.

It was the middle of June before I removed the birds to an outside aviary, and they very soon began to build, though slowly at first, the male leading in the work; the foundation of twigs was finished by June 25, and the walls begun. They used a good deal of excelsior, and the rootlets from an old Catbird's nest. The female took charge of the lining, using dried grass in preference to hair. By the 28th the nest was finished, and on July 1 the first egg was laid, the set of four eggs being completed on the 4th. The eggs were laid in the early morning, and the male roosted at night close beside the nest. I removed the set on the 7th, as I was leaving for a two weeks' absence, and could not attend to the young if hatched. From the beginning of the nest building the male increased his attention to the female, putting freshly shelled sunflower seed in her beak and feeding her at every opportunity; if she were sitting the food was carried to her. Before the egg laying both birds were noisy, uttering their rather harsh note incessantly, but as the female became absorbed in caring for the eggs she joined less in the outcry, and the male too became quieter, though both birds joined in protesting if any unusual object became visible from the cage. They were not greatly disturbed by my entering the cage to feed them, though at first the female always left the nest.

The male in his efforts to fix the female's attention assumed a curious posture, very closely resembling that of a young bird when fed. He began by alighting a little below her, preferably on the ground, throwing his head back and uttering a low, rather harsh call, as a nestling does when expecting food; his wings were partly spread and fluttered very rapidly till the black primaries became an outline, causing the snow white of the secondaries to stand out with vividness; otherwise the bird was motionless, with the tail partly spread.

About the 16th of July three eggs of a second set were noticed in the nest; one had disappeared before my return, and on the 30th, one of the two remaining eggs hatched. The young birds' nakedness was emphasized in contrast with the pure white down patches, particularly that on the head. The second egg did not hatch, and I removed it. I was from the first considerably handicapped in the matter of food; the old birds, as the breeding season commenced, gradually changed their food. Sunflower, their favorite seed, was neglected, and they ate a small amount of lettuce and chickweed, a good many strawberries, a little grated carrot and what insects I could get for them; they refused mockingbird food but ate the yolk of hard-boiled eggs. Meal-worms I was unable to get in any number, but earthworms were plentiful and the birds ate them in quantity. The male kept a sharp lookout for any insect that wandered into the cage; ants' eggs were also eaten. I had to use care in gathering

insects, as the trees in the garden had been sprayed and I feared giving them poisoned food.

The old birds partly masticated the worms and fed them to the young bird in the form of pellets. On the 5th of August the young Grosbeak had its eyes open and seemed to be thriving on the food given it. On the 13th I found it had left the nest, and I replaced it. I fancy from this time the old birds began to neglect it, as they started to moult. On the 15th I noticed that the bird was not being properly cared for and I had to replace it in the nest at night. The first time it resumed its place in the nest it was covered by the female, but other nights it sat on the edge of the nest, the parents roosting beside it. It would not consent to being fed by me, and died on the 16th. The old birds were not at all disconcerted at its loss, and I noticed a lessening of the number of worms consumed, and very soon the normal food of seeds was resumed. Later on the birds removed the lining from the nest and finally threw down the remainder. The young bird's call for food was never loud.

Description of young bird, sixteen days old.—Downy neossoptiles still adhered to the tips of feathers. Above smoky brown bases of feathers lighter, giving the back a mottled appearance; top of head darker; forehead creamy brown; bare space in front of eye (lores) black. Underneath creamy brown; under tail-coverts white; tail (two thirds grown) marked as in adult female; wings black; primaries (partly grown) edged on outer side with creamy white; three outermost quills black; secondaries and greater wing-coverts with broad markings of white, the coverts showing a tinge of yellow. Bill greenish horn; feet flesh-color.

Length 114. mm.; wing 64. mm.; tail 19. mm.

Sex, a male as nearly as could be determined; decomposition was very rapid which, together with the age, made the sexing uncertain. Much of the down was lost in skinning, from the same cause.

Description of eggs.—Ground color a clear blue, having distinct spots, almost blotches, of black distributed sparingly about the middle, leaving the smaller end clear, or almost so, the larger end more or less thinly covered with small spots, blotches, and penciled markings of black, accompanied more sparingly by the same markings in a washed or indistinct brown; a few markings of the same about the middle. Measurements: No. 1, 23×16 mm.; No. 2, 24×17 mm.; No. 3, 26×17 mm.

No. 1 had a very weak shell and was empty or nearly so; No. 2, like No. 1 in markings, both eggs having less of the heavy markings about the middle. No. 3 and 4 are like the second set and probably typical.—J. H. FLEMING, *Toronto, Ontario.*

A Further Note on the Subspecies of *Passerculus sandwichensis* inhabiting Labrador.—Mr. J. D. Sornborger lent me some time ago for examination three specimens of *Passerculus* from Labrador. Two are from Okak, and one from Hopedale. As they are not sexed they do not serve to amplify the data in regard to the sexual range of size the race shows.

No. 1451 (52), taken at Hopedale by W. W. Perrett in 1898, in slightly worn plumages, measures, wing, 2.75; tail, 1.86; tarsus, .80; bill, .41 × .42.

No. 1452 (55), taken at Okak by C. Schmitt on July 6, 1896, in unworn plumage, measures, wing, 2.90; tail, 1.95; tarsus, .84; bill, .40 × .26.

No. 1453, taken at Okak by C. Schmitt on June 29, 1897, in worn plumage, measures, wing, 2.56; tail, 1.87; tarsus, .80; bill, .39 × .24.

It was pointed out by Dr. Allen in 1871 (*Winter Birds of Florida*) that Savanna Sparrows show tremendous individual variation, which is by the way true to a great degree in all Fringillidæ, and he tabulated the measurements of twenty-six breeding specimens from Massachusetts which showed a range of wing measurement from 2.44 to 2.95, only two of which, both males, however, measured over 2.80, and these two, Nos. 5092 and 5096 in the collection of the Museum of Comp. Zoölogy, I have remeasured, and had my measurements checked, and find they now measure 2.90 and 2.62 respectively. Of some hundreds of measurements published by others, and taken from fresh and dried skins, I have yet to find but this one bird from south of Labrador whose wing measurement overlaps sexed Labrador specimens.

The range of wing measurements shown by Labrador specimens which I have examined is as follows:—males, 2.86–2.93; female, 2.65¹. Unsexed, including immature, 2.56 (worn), 2.75–2.90.

I present these facts not to help prove the validness of the race in the face of the A. O. U. Committee's ruling, for recognition of subspecies unfortunately is often, if not generally a matter of personal opinion and judgment, but I present them simply as facts.—REGINALD HEBER HOWE, JR., *Concord, Mass.*

A Winter Record for the Chewink on Long Island, N. Y.—On January 12, 1903, I saw in a small piece of woodland near Long Island City, N. Y., a male Chewink (*Pipilo erythrophthalmus*). It was in full plumage and very active, but permitted me to approach within twenty-five feet of it. I have looked for it since, but have not seen it again. This is the only instance known to me of this species wintering here.—W. F. HENDRICKSON, *Long Island City, N. Y.*

Note on *Sylvia cærulea* Wilson.—In 'The Auk' for January, 1897 (XIV, p. 97), Mr. Ridgway published a short note entitled '*Dendroica cærulea* vs. *Dendroica rara*,' stating that *Sylvia cærulea* Wilson (1810) was unfortunately preoccupied by *Sylvia cærulea* Latham (1790), and that the earliest tenable specific name for the Cerulean Warbler is *rara* (*Sylvia rara*) Wilson, 1811. Of course, here was a clear case, provided the

¹Specimen kindly loaned by Mr. W. E. Clyde Todd, No. 393, Carnegie Museum, taken at Nain, Aug. 26, 1901, by D. A. Atkinson. Appreciably larger than the average of southern females.

facts were as alleged. In the same number of 'The Auk' (p. 131) the proposed change was endorsed by the A. O. U. Committee on Nomenclature (Eighth Supplement), and is of course adopted in Mr. Ridgway's 'Birds of North and Middle America' (Part II, p. 570).

In 'The Auk' for April, 1899 (XVI, p. 185), Mr. Oberholser called attention to the ruling of the A. O. U. Committee on this case, and showed that in accordance with this ruling the name of the House Finch would be *Carpodacus mexicanus obscurus* (McCall) instead of *C. m. frontalis* (Say), on the ground that Say's name *Fringilla frontalis* (1823) was preoccupied by a *Fringilla frontalis* Vieillot (1817). Mr. Oberholser evidently accepted the Committee's ruling on the *Dendroica cærulea* case with reservation, which he says "involves an interpretation of Canon XXXIII of the A. O. U. Code of Nomenclature to which little if any attention seems to have been called." He continues: "It appears advisable to raise this question, inasmuch as it affects the validity of some other current names; and this the more as in regard to it there seems to be neither unanimity of opinion nor uniformity of practice. Briefly stated, it is this: in considering the tenability of specific names, so far as preoccupation is concerned, shall any account be taken of homonyms which are mere combinations, *i. e.*, not original descriptions? To illustrate: *Motacilla cærulea* of Linnæus, 1766, was called *Sylvia cærulea* by Latham in 1790,—evidently a simple transfer of Linnæus's species to another genus. Now, does this *Sylvia cærulea* of Latham, 1790, preclude the use of *Sylvia cærulea* Wilson, 1810, for another and widely different species, the former being now a *Poliioptila*, and the latter a *Dendroica*? Canon XXXIII is apparently quite explicit upon this point, its text being as follows: '... a specific or subspecific name is to be changed when it has been applied to some other species of the same genus, or used previously in combination with the same generic name.' The phrase, 'or used previously in combination with the same generic name,' seems to leave no doubt of its meaning; and a strictly literal interpretation of this clause will treat alike all combinations, whether or not they happen to be those of original descriptions."

I have quoted Mr. Oberholser at length, for the reason that he has stated the case so fully and concisely. The phraseology of that portion of Canon XXXIII quoted by Mr. Oberholser is open to his construction of it, and apparently to no other. Yet that no such ruling was intended by the Committee I am sure; for (if I may be pardoned a seemingly egotistical reminiscence) I may say that I formulated Canon XXXIII, and the explanatory remarks under it, and I am sure that nothing was further from my intention, or that of the Committee, than to enact a provision open to a construction so at variance with general usage in such matters, and with the practices of the Committee, previously (as individuals) and since. The two pages of 'remarks' under Canon XXXIII discuss all phases of the subject except this, and clearly show that the Committee had in mind only homonyms given as names to species described as new,

and not homonyms due to the shuffling of names, or to the reclassification of species under other genera than those under which they were originally described. In fact, any other construction never occurred to me prior to Mr. Oberholser's discussion of the case of *Sylvia cærulea* Wilson.

In regard to the action of the Committee on this case, I must confess, with shame, that I did not look up the matter, and did not know that Latham's *Sylvia cærulea* was simply Linnæus's *Motacilla cærulea*, but supposed Latham's *Sylvia cærulea* was bestowed upon a species considered by him as not previously described.

As I had never before known of any attempt to change a name in ornithology on such grounds I was taken quite unawares, and voted for the change without knowing the real facts in the case. Whether or not the original change was an inadvertence on the part of Mr. Ridgway, he has in other cases followed a directly opposite course. In the case of the House Finch the Committee ruled (Tenth Suppl., Auk, July, 1901, 311) that *Fringilla frontalis* Vieillot, 1817, did not render invalid *Fringilla frontalis* Say, 1824, for the reason that Vieillot's *Fringilla frontalis* was simply the reference of a previous *Loxia frontalis* to the genus *Fringilla*. This case is perfectly parallel to that of *Dendroica cærulea* vs. *D. rara*, which has not heretofore been formally challenged, and thus has not come before the Committee for reconsideration.—J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

A Late Fall Record for the Cape May Warbler (*Dendroica tigrina*) in Eastern Massachusetts.—Toward dusk of Oct. 9, 1902, at the time when smaller birds are actively moving about, I noticed a few restless warblers in a Norway maple near my home in Ponkapog, Mass. It was impossible for me to determine the species, as they remained near the top of the tree, but one bird was shot, and proved an immature female Cape May Warbler. I am not positive as to the identity of the other birds in this group, but one other bird which I saw was not *Dendroica tigrina*.—FRED. B. MCKECHNIE, *Boston, Mass.*

Late Records for Eastern Massachusetts.—Mr. Louis A. Shaw of Chestnut Hill, Mass., informs me that he shot on the 20th of November, 1902, an adult male Wilson's Warbler (*Wilsonia pusilla*), which he had first noted on the previous day. This is the second record of the capture of this warbler in late autumn in Massachusetts (Hoffmann, Auk, 1900, p. 196). Mr. Shaw also reports seeing Fox Sparrows (*Passerella iliaca*) on December 4, 1902, and a Ruby-crowned Kinglet (*Regulus calendula*) on November 16, 1902.—REGINALD HEBER HOWE, JR., *Concord, Mass.*

A Case of Mistaken Diagnosis.—In August, 1882, while searching in an ancient shell-heap near Northeast Harbor, Mt. Desert Island, Maine, I found what appeared to be the upper mandible of a bird's bill. In the same shell-heap, two years before, I had found part of the tarsus of a

wild turkey (Bull. Nutt. Ornith. Club, Vol. VI, 1881, p. 60). Taking the 'bill' to Mr. Wm. Brewster for identification we found that it resembled most closely the bill of Cabot's Tern, being considerably smaller than the bill of the Royal Tern. It differed, however, from the bills of these and other terns in having a very hard epidermis with a brilliant polish. Feeling considerable doubt as to the identity of the specimen, I showed it to Mr. J. A. Allen, who believed that it was not in his province and suggested that Mr. Walter Faxon might clear up the mystery. Respecting the crustacea, Mr. Faxon, however, promptly replied that it was not a crab's claw. At Mr. Brewster's suggestion I then sent it on to the Smithsonian institution and received the following reply. "Where Mr. Brewster has failed I ought perhaps to be duly cautious in expressing an opinion. Nevertheless a careful examination and comparison of the fragment of a bird's bill you enclose leaves little doubt in my mind as to the bird, which is the Royal Tern (*Sterna regia*). Compare the remnant with the bill of that bird and I think you will agree that in contour the agreement is very close. The cutting edges of the fragment are worn down, and the size otherwise reduced by rubbing, as witness its polish. Due allowance being made for loss of size, and it appears to me that the conclusion expressed above is inevitable . . . I should have added that Mr. — agrees with me." Not satisfied with the identification I let the matter rest and did not, fortunately, rush into print with the interesting note. Two years later, while examining a dogfish, *Squalus americanus*, I was struck with the resemblance of the spine in front of the anterior dorsal fin to my shell-heap bird's bill with its polished epidermis. On comparing them the identity is unquestionable. — CHARLES W. TOWNSEND, M. D., *Boston, Mass.*

RECENT LITERATURE.

Ornithological Magazines. 'The Condor.'—The fourth volume of 'The Condor,'¹ for 1902, consists of about 150 quarto pages of excellent matter relating mainly to Pacific coast ornithology. The January-

¹ The Condor, Bulletin of the Cooper Ornithological Club of California. Published bi-monthly at Santa Clara, Cal., in the interests and as the official organ of the Club. Walter K. Fisher, Editor. Palo Alto, Cal.; Joseph Grinnell, Business Manager, Palo Alto, Cal. Subscription, \$1.00 a year in advance; single copies, 25 cents. Vol. IV, 1902, pp. i-iv, 1-148, with numerous half-tone illustrations.

February number includes 'A Trip to Mono Lake. Ornithological and Otherwise,' by Walter K. Fisher (with half-tone illustrations); 'A Study of Bird Songs,' by John J. Williams; 'The Pinyon Jay,' by H. C. Johnson; 'The Crissal Thrasher in California,' by M. F. Gilman; 'The Louisiana Tanager,' by J. H. Bowles; 'The Wingless Cormorant of the Galapagos,' by Rollo H. Beck; and numerous shorter articles, including local records of interest, editorials, reviews, and the official minutes of the Club.

This number appears with a new cover design, by Walter K. Fisher, "typifying the land of the setting sun and its lordly condor." The adoption of three editorial rules is announced, as follows: (1) The omission of "the possessive *s*" in common names of animals and plants, unless a contributor expressly requests its retention. It looks a little odd to see 'Clarke Crow,' instead of the familiar 'Clarke's Crow,' and so on with similar names, but "as the name was given in the sense of a dedication, no particular ownership being intended or implied," the innovation has much in its favor, and this form will doubtless seem natural and proper as soon as its novelty wears off. But we can hardly give consent to 'pinyon' and 'canyon,' etc., although this form has recently acquired a wide vogue, even among writers from whom we should expect better things. (2) The use of the single *i*, in the genitive singular of specific and subspecific names — a very convenient rule, and in most cases a more correct form than *ii*, which is often absolutely incorrect; but the change is contrary to the A. O. U. Canon XL, which requires: "The original orthography of a name is to be rigidly preserved, unless a typographical error is evident." This rule is intended to prohibit the emendation of names, particularly generic names, as the context clearly implies, since the ending of specific and subspecific names is necessarily subject to modification to make them agree in gender with the name of the genus. It is perhaps to be regretted that the A. O. U. Committee did not provide for a uniform ending of the genitive singular, so that we might avoid such abominations as *cooperii*, *gairdnerii*, etc., and *auduboni*, *bachmani*, etc., with either one *i* or two *ii*, as the original describer happened to write; and whether he used one *i* or two no one can ever certainly remember and must verify by looking up the case. (3) The printing of the initial letter of common names in lower case, unless personal or geographic. This may do in newspapers and magazines, and in general literature, but for strictly ornithological works or journals it strikes us as in bad taste, in all instances where a particular species is formally mentioned.

The March-April number contains 'The Scissor-tailed Flycatcher,' by Florence Merriam Bailey; 'Some Experiences of 1901,' by P. M. Silloway; 'Hummingbird Experiences from my Note Book,' by Mollie Bryan; 'Winter Observations on the Colorado Desert,' by F. S. Daggett; 'A few Notes on the Nesting of *Trochilus alexandri*,' by R. S. Wueste; also many 'records' and shorter communications, including letters and the official minutes of the Club; and in addition to these several technical papers. The latter include 'Status of *Cyanocitta stelleri carbonacea*

Grinnell,' by Walter K. Fisher, and 'The Monterey Fox Sparrow,' by Joseph Grinnell. Mr. Fisher attempts to defend *carbonacea* against the dictum of the A. O. U. Committee (namely, "Not considered worthy of recognition by name"), and incidentally gives a synopsis of the western jays of the *stelleri* group, illustrating their ranges by a map, and indicating thereon 'areas of intergradation.' While the question is merely one of opinion between Mr. Fisher and the Committee as to whether the degree of differentiation characterizing *carbonacea* is 'worthy of recognition by name,' the paper is an interesting and valuable contribution to our knowledge of just what are the differences between the several races of these jays, their ranges, and areas and manner of intergradation.

Mr. Grinnell believes that Monterey winter specimens of *Passerella* represent the *Fringilla meruloides* of Vigors, whose breeding range is assumed to be the Yakutat Bay region of Alaska, and that Ridgway's *Passerella iliaca unnectens* is merely Vigors's *meruloides* renamed.

The May-June number contains: 'Among the Sea Birds of the Oregon Coast,' by William L. Finley; 'Nesting of the Prairie Falcon,' by O. W. Howard; 'Notes on a small collection of Birds from the Island of Maui, Hawaii,' by Richard C. McGregor; 'Unprotected Breeding Grounds,' by Vernon Bailey; 'A Study of Bird Songs' (Chapter II), by John J. Williams; and the usual shorter communications, reviews, and official minutes, with, in addition, two technical papers, as follows: 'The Downy Woodpeckers of California,' by Walter K. Fisher; and 'The Western Barn Swallow,' by Joseph Grinnell. Mr. Fisher separates the "so-called Gairdner Woodpecker from California" from "typical *gairdneri* of Oregon and Washington under the name *Dryobates pubescens turati*, founded on *Picus turati* of Malherbe," on the ground of smaller size and lighter coloration. He gives a synopsis of the Western races of the Downy Woodpecker, of which he recognizes four, namely: (1) *Dryobates pubescens nelsoni* Oberholser, (2) *D. p. leucurus* (Hartlaub = *D. p. homorus* Cabanis = *D. p. oreacus* Batchelder), (3) *D. p. gairdneri* (Aud.), (4) *D. p. turati* (Malherbe).

Mr. Grinnell bestows the name *Hirundo erythrogastra palmeri* on the *H. e. unalaschkensis* W. Palmer (*nec* Gmelin), which he says shows a "significant tendency toward *Hirundo tytleri* Jerdon of Kamtschatka."

The July-August number has 'Incubation Advanced,' by Corydon Chamberlin; 'Vocal Powers of the Yellow-billed Magpie,' by H. R. Noack; 'Some Echoes from the Sierra,' by Chester Barlow; 'Notes on the Black-throated Gray Warbler,' by C. W. Bowles; 'Nesting of the Little Flammulated Screech Owl on San Gorgonia Mountain,' by M. French Gilman; 'Winter Plumage of the Black-tailed Gnatcatcher,' by H. S. Swarth; 'An Unusual Set of Eggs of Clarke Nutcracker,' by H. C. Johnson; 'Notes on the Verdin,' by M. French Gilman; 'Bird Studies in Strawberry Valley, Aug. 25-Oct. 25, 1902' [sic], by Mrs. C. A. Moody; 'A Domesticated White Pelican' (illustrated); and the usual 'notes,' reviews, editorial matter, correspondence, etc., including an extended

review by 'W. K. F.' of Grinnell's 'Check-List of California Birds.' Also a paper on 'The Southern White-headed Woodpecker,' by Joseph Grinnell, who separates the southern form as *Xenopicus gravirostris*, on the basis of its "much heavier bill and slightly larger size." Although "the differences between *X. albolaryvatus* and *X. gravirostris* are slight, and apparently exist only in dimensions, chiefly those of the bill," it is given rank as a full species, and this, notwithstanding the admission that "geographical continuity of ranges possibly exists; but it seems quite as likely that a broad hiatus exists in the vicinity of Tehachapi Pass." This affords another instructive illustration of Mr. Grinnell's criterion for species (cf. Auk, XIX, 1902, p. 406). No measurements are given, but the bills of both forms are illustrated by outline figures.

The September-October number contains 'In Memoriam: Dr. James G. Cooper,' by W. Otto Emerson, with portrait; 'The Ornithological Writings of Dr. J. G. Cooper,' by Joseph Grinnell, consisting of an annotated list of his papers; 'A Letter from Dr. Coues to Dr. Cooper,' dated Feb. 21, 1869; 'Some Observations on the Rufous-crowned Sparrow,' by C. Barlow (illustrated); 'The Redwood Belt of Northwestern California. I. Faunal Peculiarities of the Region,' by Walter K. Fisher; 'Status of the Arizona Goldfinch in California,' by Joseph Grinnell (considered as "only an extreme, and by no means uncommon male plumage of the Arkansas Goldfinch"); 'Nesting of Swainson Hawk,' by C. S. Sharp; 'Audubon Warbler in Washington,' by J. H. Bowles; 'A Study of the Black-headed Grosbeak,' by Anna Head; and editorial comment, 'notes,' etc.

The November-December number contains: 'Birds of the Little Sur River, Monterey County,' by Joseph Grinnell; 'The Holbøll Grebe in Montana,' by P. M. Silloway; 'The Redwood Belt in Northwestern California. II. Land Birds,' by Walter K. Fisher (63 species); 'A List of Birds collected in Norton Sound, Alaska,' by Richard C. McGregor (64 species); 'The Least Tern at San Diego,' [by F. W. Kelsey]. A notice of the death of the Editor of 'The Condor,' Chester Barlow; a letter from Garrett Newkirk, and reviews of several ornithological papers by 'J. G.' and 'W. K. F.' complete the number, which closes the year's volume of 148 pages, illustrated with numerous half-tones.

With the beginning of Volume V the editorship of 'The Condor' was assumed by Mr. Walter K. Fisher, who is well fitted for the position, and under whose supervision we trust that the prosperity and usefulness which has hitherto characterized this excellent journal will be still further increased.

'Bird-Lore.'—As is perhaps well-known, 'Bird Lore' is a strictly non-technical ornithological magazine, even to the uniform exclusion of technical bird names. It is conducted on a high plane as regards literary standing and merit, and its two-fold aim is the promotion of bird study among the people at large and the protection of birds. Typographically, as regards text and illustrations, it is a model of book-making, and its

matter, while non-technical, is scientifically accurate, and its methods for popularizing the study of ornithology are devised with excellent forethought, and provide instruction on broad and well-systematized lines. The editor's experience as an investigator, and lecturer on ornithology, and his enthusiasm as a bird-lover, fit him especially for the task of editing a magazine of the scope and purpose of 'Bird-Lore.' The magazine consists of the following departments: 'General Articles,' of varied scope, mostly contributed by well-known writers on ornithology; 'For Teachers and Students,' mostly editorial matter; 'For Young Observers'; 'Notes from Field and Study'; 'Book News and Reviews,' including notices of the leading ornithological magazines, and of the leading papers and books on both technical and popular ornithology; 'Editorial'; and 'Audubon Department,' edited by Mrs. Mabel Osgood Wright. In the following notice of Volume IV, for 1902,¹ it will be impossible to mention more than a few of the leading articles of each number.

January-February number, general articles: 'Recollections of Elliott Coues,' by D. G. Elliot, with portrait of Coues at twenty-one; 'Coues at his First Army Post,' by Capt. C. A. Curtis, U. S. A. (retired); 'Extract from Journal of Elliott Coues' First Journey to the West' (from *Am. Nat.*, June, 1871); 'The Western Evening Grosbeak,' by Wm. Rogers Lord; 'Bird Clubs in America. I. The Nuttall Club,' by Francis H. Allen (illustrated with a full-page photograph of the Nuttall Club in session); 'Bird-Lore's Advisory Council' (giving names and addresses of the 63 members of the Council); 'How to Name the Birds. Studies of the Families of the Passeres,' by Frank M. Chapman (a series of illustrated papers running through the year); 'The Christmas Bird Census' (reports from numerous correspondents giving lists of birds observed on Christmas day, 1901, at many widely separated localities). 'For Young Observers,' contains a 'prize essay' on the Crow, by Fred T. Morrison (aged 11). Then follows: 'Book News and Reviews,' including reviews of Ridgway's 'Birds of North and Middle America,' Part I, the 'Proceedings of the Nebraska Ornithologists' Union,' Seton's 'Lives of the Hunted,' and Kellogg's 'Elementary Zoölogy,' by the editor, and of 'The Condor,' by 'T. S. P.,' and 'The Osprey,' by 'A. K. F.' A page of short editorials, and 'The Audubon Societies' complete the number, this latter department including 'A Midwinter Meditation,' by Mrs. Wright (pp. 37-39),

¹ Bird-Lore. An Illustrated Bi-monthly Magazine devoted to the Study and Protection of Birds. Edited by Frank M. Chapman. Official Organ of the Audubon Societies. Audubon Department edited by Mabel Osgood Wright. Vol. IV, 1902. The Macmillan Company, Harrisburg, Pa., and New York City. Royal 8vo, pp. i-viii + 1-208. Subscription rates, United States, Canada and Mexico, 20 cents a number, \$1.00 a year; in all countries in the International Postal Union, 25 cents a number, \$1.25 a year, post-paid.

full of pertinent hints to the over-zealous bird-student, in this author's best vein of 'putting things.' This department also contains a 'Directory of State Audubon Societies,' and the 'Fifth Annual Report of the Pennsylvania Audubon Society,' by its secretary, Mrs. Julia Stocton Robins. There are also two half-tone illustrations of a Crow Roost, near Salem, N. J., from photographs by moonlight, taken by C. D. Kellogg.

The foregoing indicates the general character of the contents of each number. Respecting the other five numbers of Vol. IV, only very general reference can be made. March-April number: 'Voices of a New England Marsh,' by William Brewster (pp. 43-56, illustrated); 'Bird Clubs in America. II. The Delaware Valley Club,' by Samuel N. Rhoads (with a photograph of the Club in session); 'English Starling,' by Edith M. Thomas (poem); and the usual instalment of 'How to Name the Birds,' and the usual reviews and other departmental matter, including a noteworthy paper by Mrs. Wright on 'After Legal Protection, What?'

May-June number: 'The Increase of the Chestnut-sided Warbler,' by A. Radclyffe Dugmore (illustrated); 'The Chebec's First Brood,' by Francis H. Herrick (illustrated); 'The Wood Thrush and the Whip-poor-will,' by Garrett Newkirk (poem, illustrated); 'A Grebe Colony,' by Gerard A. Abbott. 'How to Name the Birds' (illustrated), and the usual varied department matter concludes the number, which gives a very full account of the 'First Meeting of the National Committee of the Audubon Societies of the United States,' held in New York City, April 4, 1902.

July-August number: 'Concerning the 'Bad Repute of Whiskey John,' by Fannie Hardy Eckstorm; 'Nighthawk Notes,' by George H. Selleck (illustrated); 'The Veery's Note,' by Ernest Crosby (poem); 'The Nesting of the Yellow-throated Vireo,' by John Hutchins. September-October number: 'The Destructive Effects of a Hail-storm upon Bird Life,' by H. McL. Morton, M. D. (at Minneapolis, Minn.); 'A Goldfinch Idyl,' by Ella Gilbert Ives (illustrated); 'A Question of Identity,' editorial, answering the question "What constitutes justifiable grounds for publicly recording the occurrence of an exceedingly rare species, or of a species beyond the limits of its own country?" 'A Debt of Bird Students,' editorial,—their obligations to the American Ornithologists' Union.

November-December number: 'On Journal Keeping,' by Ernest Thompson Seton; 'Flamingoes' Nests,' by Frank M. Chapman, giving views of nests *in situ* of colonies of these birds, and an account, from personal observation, of the Bahama colonies; 'The Weapons of Birds,' by Frederic A. Lucas (illustrated); 'Whiskey John in Colorado,' by Edward R. Warren (illustrated); 'Bird-Lore's Advisory Council,—portraits of William Dutcher, T. Gilbert Pearson, Lynds Jones, and E. W. Nelson; 'How to Study Birds,' by Frank M. Chapman,—the first of a series of illustrated papers, to run through Vol. V, giving instructions to students as to how and what to observe in studying birds. 'The Screech Owl's Valentine,' a poem by Florence A. Van Sant, and the usual field notes, correspondence, reviews, Audubon Society Reports, report of the

Twentieth Congress of the A. O. U., etc., complete the number, which contains also the index to the volume.

'The Wilson Bulletin.'—As a popular magazine of ornithology 'The Wilson Bulletin,' which has just completed the ninth volume of its second series (fourteenth of the whole series), fills a very important place in the journals of its class. The Volume for 1902¹ contains in each number from four to eight general articles, various notes, and a few pages each of editorial matter and reviews of recent books and papers on ornithology. Its scope is defined as "the study of living birds";—their habits, their relations to their surroundings, and their economic relations to man. Naturally it is a strong supporter of bird protection and of popular bird study, especially in the field.

The March number contains: 'The Rock Nuthatch [*Sitta syriaca*] and its Nest,' by H. C. Tracy, with illustrations, 'Food Habits of the Wilson Snipe,' by Benj. T. Gault; 'Notes on the Winter Birds of Arkansas,' by N. Hollister (an annotated list of about 50 species); 'A Columbus [Ohio] Mid-winter Horizon,' by W. Leon Dawson; four pages of 'Notes' relating mostly to Ohio winter birds, by the editor; 'Some Franklinville Fringillines,' by 'Franklin'—a humorous skit on trinomialism; five pages of editorial notes and comment, and six pages of reviews. The June number has: 'Bird Studies in Lorain County, Ohio. Winter Studies,' by Lynds Jones (pp. 37-58, with a map of the county), a summary of ornithological and weather conditions, covering several winters, with pertinent comment; 'A Preliminary List of the Birds of Yakima County, Washington,' by Wm. Leon Dawson (an annotated list of 123 species); 'Incubation Period of the Mockingbird,' by John W. Daniel, Jr.; 'A Bird New for Ohio,' by Lynds Jones (*Mareca penelope*); and five pages of editorial matter, notes, and reviews.

The September number has: 'A Preliminary List of the Birds of Middle Southern Ohio,' by Rev. W. F. Henninger (noticed in 'The Auk,' XX, 1903, p. 83); 'The Spring Migration of 1901,' with an Average Table for Lorain County, Ohio, by R. L. Baird; 'Maryland Birds,' by Rev. J. H. Langille; 'Kirtland's Warbler (*Dendroica kirtlandi*) again in Ohio,' by Lynds Jones (two observed opposite Ashland, Ky., Aug. 28, 1902); and six pages of editorial matter, notes, and reviews.

The December number contains: 'The Cuban Tody (*Todus multicolor*),' by John W. Daniel, Jr., with a half-tone plate; 'Some Bluebird Boxes and Troubles,' by Frank Bruen'; 'My Summer Boarders, Season 1902,' by Wm. J. Mills; 'All Day with the Birds, May 7, 1902,' authorship not

¹ The Wilson Bulletin, Published Quarterly by the Wilson Ornithological Chapter of the Agassiz Association. Edited by Lynds Jones, Oberlin, Ohio. Old Series, Vol. XIV; New Series, Vol. IX, 1902. 8vo, pp. 144, with illustrations. Subscription, 50 cents a year. Published on the 15th of March, June, September, and December.

stated; 'Winter Birds,' by Lynds Jones (Scioto and Pike Counties, Ohio, and Bristol, Conn.); 'An Addition to the Birds of Middle Southern Ohio,' (*Larus philadelphia*) by W. F. Henninger; 'A New Year Horizon for All,' by the Editor; 'A New Bird for Ohio, Red-legged Duck (*Anas obscura rubripes*),' by W. F. Henninger; and ten pages of editorial matter, 'general notes,' reviews, and correspondence.

In the December number the editor briefly reviews the history of the nine volumes of 'The Wilson Bulletin,' forming the 'New Series,' in which he says: "From a small beginning our official organ has come to fill a place in the study of our birds which we may well point to with pride. While the development has been slow it has been sure." This is indeed a modest claim, in view of the many valuable papers that in recent years have resulted from the work of various members of the 'Wilson Ornithological Chapter,' and which have found a medium of publication in 'The Wilson Bulletin'; for all of which great credit is due to the efforts and example of the editor, Professor Lynds Jones of Oberlin.—J. A. A.

Jacobs's 'The Story of a Martin Colony.'¹—This is a very interesting and suggestive account of the growth and prosperity of a Purple Martin colony under the author's protecting care during a period of seven years—1896-1902—at Waynesburg, Pennsylvania. In 1896 a twenty-room bird house was erected by the author in his grounds, but to his disappointment only one pair of birds at first availed themselves of these ample accommodations, but later these were joined by four other pairs, of which "the males were all birds of the previous year." But through disturbances by English Sparrows and other mishaps only eleven young birds reached maturity. The next year ten pairs took possession and 35 young birds "were successfully brought out." The third year additional house room was provided by the erection of a new 34-room dormitory. This was occupied by fourteen nesting pairs, and thirteen of the males being birds of the previous year led Mr. Jacobs to believe that all were from the house first erected. The number of young reaching maturity this season was between 90 and 100, several mishaps having interfered with the prosperity of the colony. The wonderful increase in three years prompted the erection of further quarters in 1899, and the colony continued to increase. In 1901 there were 67 pairs of nesting birds, and in 1902 the annual census of the colony, taken May 28, gave the following results: "Rooms occupied, 72; containing eggs, 50; containing both eggs and young, 2; nests undergoing construction, 20; total number of eggs and young on this date, 245."

¹Gleanings | No. II. | The Story of a | Martin Colony. | Illustrated. | — | Observations on a Colony | of Purple Martins. | (Progne Subis.) | — | By J. Warren Jacobs. | — | Waynesburg, Pa., | Independent Book and Job Office. | 1903.—8vo, pp. 24, and 3 half-tone plates. Price, 35 cents.

Mr. Jacobs's brochure contains three half-tone plates, illustrating the houses with their colonies of breeding birds, and the general narrative of the founding and increase of the colony is followed by sections entitled: 'Return from the South,' giving the dates of spring arrivals from 1891 to 1902; 'Nest Building, Deposition and Number of Eggs, and Incubation,' and relates the manner of nest building, the number of eggs to the set, and the length of the period of incubation. The record shows that a total of 1150 eggs were laid during the seven years, and that 850 young reached maturity. 'The Growing Young and the Parents' Care' is the title of a most interesting and instructive chapter, and is followed by: 'Something about Their Food'; 'Their Enemies, Causes of Death, etc. '; 'Off to the South'; 'A Chapter on a Cabinet Series of Their Eggs'; and 'On the Construction of Houses.' The author says: "I have robbed my pets but I do not wear their feathers in my hat!" During the seven years of his fostering care he confesses to having taken eleven sets of eggs for study, of which one had been deserted, and the others were soon followed by the deposition of second sets. The sets vary in number from 3 to 7 eggs to the set, and the size of the eggs is largest in the smallest set, but the smallest average size does not always coincide with the largest number of eggs to the set.

In short, Mr. Jacobs's history of his Martin colony is a valuable contribution to ornithology, as regards both the economic and natural history phases of the subject.—J. A. A.

Pycraft on 'The Significance of the Condition of Young Birds at Birth.'¹—Mr. Pycraft believes that too much stress has been laid by systematists on the widely diverse conditions the young of different groups of birds present at birth, as regards their helplessness or otherwise, and whether clothed or more or less naked; and further claims that the significance of these conditions has been misunderstood. "The real explanation of the matter," he says, "seems rather to turn upon a question of expediency, designed, so to speak, to reduce infant mortality." He claims to present facts "strong enough, on the one hand, to refute the older views, and on the other, to justify the theory, firstly, that birds were originally arboreal and their young nidifugous; secondly, that nidicolous habits and helplessness of young birds are specialized adaptations to an arboreal or gregarious mode of life; and, thirdly, that the young of gallinaceous birds form a link in the chain of evolution of nidifugous habits. The free finger tip and arrested development of the outer quill-feathers point to a prior arboreal habit, whilst the accelerated development of the inner quill-feathers indicates an adaptation to enable the young to escape

¹The Significance of the Condition of the Young at Birth. By W. P. Pycraft, A. L. S., F. Z. S. Popular Science Monthly, Vol. LXII, Dec. 1902, pp. 108-116.

from the enemies surrounding a terrestrial nursery. The third and last stage is represented by the protective coloration, a device which has been almost universally adopted by nidifugous birds, owing to its greater effectiveness."

The Hoatzin is taken as the main clew to the problem. In the structure of its wing "we have a revelation of a phase of bird-life hitherto unsuspected; inasmuch as its peculiar developmental stages, each with its period of functional activity, enable us to interpret the hitherto meaningless and puzzling characters seen in the wing of the fowl and turkey, and their allies. These constitute well-nigh invincible proofs of an earlier and universal arboreal existence, extending back to the time of the earliest known bird archæopteryx. Certainly the skeleton, especially the wing, lends the strongest support to this view. This carries us further back still, and suggests the conclusion that the reptile stock from which the aves are descended was probably also arboreal."

He explains that infant mortality could be reduced (1) by depositing the eggs on the ground, or (2) curtailing the activity of the young, the latter being produced by reducing the amount of food-yolk and inducing an earlier hatching period. But space will not permit us to give a synopsis of his many ingenious suggestions.—J. A. A.

Strong on a Case of Abnormal Plumage.¹—The case here described is that of an abnormal condition in the juvenal plumage of a hybrid between the Common Ring Dove (*Turtur risorius*) and the Red Ring Dove (*T. humilis*) of China, in which the remiges, rectrices and contour feathers were crossed by a subterminal band of paler color, in which the barbules were imperfectly developed. "It is significant," says the author, "that these abnormalities occur at uniform distances from the distal ends of the feathers throughout the whole plumage, and it seems reasonable to conclude that the conditions responsible for the abnormalities were constitutional, and affected the germs of all the feathers simultaneously, though in three different degrees of intensity." The abnormalities are ascribed to malnutrition at the time the juvenal plumage was developing. The character of the malformation is described in detail and illustrated with figures.—J. A. A.

Trowbridge on 'The Relation of Wind to Bird Migration.'²—In 'The Auk' for July, 1895 (XII, pp. 259-270), Mr. Trowbridge published an interesting paper on 'Hawk Flights in Connecticut.' The present paper contains further observations on the migrations of hawks in southern Con-

¹ A Case of Abnormal Plumage. By R. M. Strong. Biol. Bull., Vol. III, No. 6, pp. 289-294, with 6 text figures. Nov. 1902.

² The Relation of Wind to Bird Migration. By C. C. Trowbridge. Amer. Nat., Vol. XXXVI, 1902, pp. 735-753, with 3 maps.

necticut, and on the effect of the wind on the migrations of various other species of birds. His conclusions are as follows:

"1. That the migratory movements of hawks are largely determined by the direction of the wind, hawks regularly depending on favorable winds as a help in migration.

"2. That an adverse wind not only retards the migratory movement, but that it almost completely arrests it.

"3. That the migratory period of the various species of hawks lasts for from about fifteen days to one month; during this time the migratory movements take place on days when favorable winds occur.

"4. When the wind is favorable and approximately parallel to the direction of migration, hawks fly and sail at a high altitude and occasionally soar in circles.

"5. When the wind is favorable but nearly perpendicular to the migratory direction (the favorable component being small), hawks fly low and soar continually, often alternating soaring with the wind and flying or sailing against it.

"6. That hawks migrate during the daylight, and, other conditions being the same, they are most abundant in migratory flights when the atmosphere is clear.

"7. When a migratory flight of hawks takes place, continued favorable winds exhaust the number of hawks ready to make the migratory journey, but a second favorable wind about one week later may cause a second flight equal in magnitude to the first.

"8. That a favorable wind, when the favorable component is small, may cause decided deviations of the course of migrating birds from the main migrating direction."

The author believes that other birds take advantage of favorable winds in migrating, and that in the case of the Falconidæ the habit has become well formed. Several tables are given showing the influence of weather conditions upon the flights of migrating hawks in southern Connecticut. A series of maps of the coast-line of the New England States and New Jersey is given showing the lines of flight of hawks in both autumn and spring in relation to the direction of the wind.—J. A. A.

Richmond on Birds from the Andaman and Nicobar Islands.¹—The collection contains 520 specimens, representing nearly 100 species, collected mostly at the Great and Little Nicobar Islands by Dr. W. L. Abbott. Nine species are described as new. Besides giving the collectors' valuable field notes, measurements and critical remarks are added by Dr.

¹ Birds collected by Dr. W. L. Abbott and Mr. C. B. Kloss in the Andaman and Nicobar Islands. By Charles W. Richmond, Assistant Curator, Division of Birds, U. S. National Museum. Proc. U. S. Nat. Mus., Vol. XXV, No. 1288, pp. 287-314, 1902.

Richmond. The generic name *Collocalia* Gray, 1840, is shown to be antedated by *Salanga* I. Geoffr., 1837.—J. A. A.

Richmond on Birds from the Coast and Islands of Northwest Sumatra.¹—This collection, consisting of about 450 specimens, representing about 140 species, was also made by Dr. W. L. Abbott, whose untiring efforts have done so much in recent years to enrich the collections of birds and mammals in the U. S. National Museum. The present collection was made during a five months' cruise along the northwest coast of Sumatra and adjacent islands. Nineteen of the species Dr. Richmond has described as new, including 11 in the present paper and 8 in a previously published paper (*cf.* Proc. Biol. Soc. Washington, XV, 1902, pp. 187-190). The list is briefly annotated from Dr. Abbott's notes, and Dr. Richmond supplies here and there considerable important technical comment.—J. A. A.

Fisher on a New Tern from Necker Island.²—As one of the fruits of the cruise last year of the U. S. Fish Commission steamer 'Albatross', engaged in deep-sea dredging around the Hawaiian Islands, Mr. Walter K. Fisher has described a new tern as *Procelsterna saxatalis*, first obtained on Necker Island, but also observed at French Frigate Shoals and Bird Island, of the Leeward Islands, Hawaiian group. It was found breeding at these islands in considerable numbers, and eggs and young were obtained. It is nearly related to two other members of the genus found in southern seas.—J. A. A.

Bonhote's 'Field Notes on some Bahama Birds.'—In volumes VIII and IX of the 'Avicultural Magazine,'³ Mr. J. L. Bonhote gives a very pleasantly written account of his observations on the birds of the Bahamas. He divides the country into "four classes" (1) the thick bush or 'coppet,' (2) the 'Pine Barrens,' (3) the open swamps or lagoons, and (4) the outlying rocks or 'Cays,' each of which is treated separately with its characteristic birds. His paper is thus not a systematic, faunal list,

¹ Birds collected by Dr. W. L. Abbott on the Coast and Islands of Northwest Sumatra. By Charles W. Richmond, Assistant Curator, Division of Birds. Proc. U. S. Nat. Mus., Vol. XXVI, No. 1318, pp. 485-542. Feb., 1903.

² A New *Procelsterna* from the Leeward Islands, Hawaiian Group. By Walter K. Fisher. Proc. U. S. Nat. Mus., Vol. XXVI, No. 1322, pp. 559-563. Feb., 1903.

³ Field Notes on some Bahama Birds. By J. L. Bonhote, M. A., F. Z. S., M. B. O. U. Reprinted and repaged from the 'Avicultural Magazine,' Vol. VIII, pp. 278-288, Vol. IX, pp. 19-24, 54-62, 87-95; 8vo, pp. 55, and 6 half-plates.

but a popular account prepared expressly to interest the general reader. His observations are, however, interesting and valuable to the ornithologist. All of the principal species are passed in review, some of them briefly, while others are noticed at some length. The six half-tone plates illustrate chiefly the nesting habits of the Noddy and Sooty Terns, although two are devoted to the Fishhawk.—J. A. A.

Mrs. Wheelock's 'Nestlings of Forest and Marsh.'¹—This pleasantly written book "claims to be as accurate as careful observation in the field, with and without a glass, can make it," and has been written from the author's own notes "gleaned during several years of study of the nesting habits of our familiar birds, and some not quite so well known." The observations here recorded appear to have been made chiefly in the lake shore region near Chicago, and include studies of the nesting habits of the Meadowlark, Bluebird, Red-winged Blackbird, Yellow-headed Blackbird, Robin, Crow, Phæbe, Wood Pewee, Baltimore Oriole, Chickadee, Marsh Wrens, Sora Rail, Spotted Sandpiper, Killdeer Plover, Bob-white, Woodpeckers, Swallows, Blue Jay, etc. Mrs. Wheelock is evidently an enthusiastic and painstaking observer, and has managed to record the ways and motives of her feathered neighbors with a minuteness that suggests here and there the aid of a helpful imagination. The numerous half-tone illustrations of nests and nestlings add greatly to the realism of her graphically related experiences in the field, and combine with the text to render her book especially attractive as a popular contribution to the life-histories of some of our commoner birds.—J. A. A.

Proceedings of the Delaware Valley Ornithological Club.¹—The second number of 'Cassinia'² consists of the 'Abstract of Proceedings' of the Club for the year 1902, preceded by the principal papers read before the Club during the year. The frontispiece is a portrait of Edward Harris, illustrating a biographical sketch by George Spencer Trotter, of this friend and patron of science in the early days of American ornithology. He was especially a friend of Audubon, accompanying him on his tour through the South Atlantic and Gulf States in 1837, and on his Missouri River Expedition in 1843. Although he published little, he appears to have played an important part in the early history of ornithological work in this country. He was born at Moorestown, N. J., Sept. 6, 1799, where he died in 1863. He is commemorated in ornithological literature in the names of several North American birds named in his honor by Audubon, as *Picus harrissi*, *Falco harrisi*, Harris's Sparrow, etc.

¹ Nestlings | of | Forest and Marsh | By | Irene Grosvenor Wheelock | [Vignette] With Twelve Full-Page Photogravures and many Illustrations in the | text from Original Photographs from Nature by | Harry B. Wheelock | Chicago | A. C. McClurg & Co. | 1902—12mo, pp. 257.

² Cassinia: A Bird Annual. Proceedings of the Delaware Valley Ornithological Club of Philadelphia, No. VI, 1902. Roy. 8vo, pp. 66. Feb. 1903.

Other papers are 'Henslow's Bunting (*Ammodramus henslowi*) in New Jersey,' by Samuel N. Rhoads; 'The Unusual Flight of White Herons [in New Jersey] in 1902,' by William B. Evans; 'Notes on the Germantown Grackle Roost,' by Arthur Cope Emlen; 'The Heart of the New Jersey Pine Barrens,' by Herbert L. Coggins; 'Report on the Spring Migration of 1902,' by Witmer Stone. Following the 'Abstract of Proceedings,' and 'Bird Club Notes,' is a list of the officers and members.—J. A. A.

Publications Received.—**Berlepsch**, Hans Graf von. (1) Mitteilungen über die von den Gebrüdern G. und O. Garlepp in Bolivia gesammelten Vögel und Beschreibungen neuer Arten. (Journ. f. Orn., 1901, pp. 81-98.) (2) Beschreibung zweier neuer Drosselformen aus Südamerika. (Ornithol. Monatsb., 1902, pp. 69-71.)

Berlepsch, Graf Hans von, and Jean Stolzmann. (Proc. Zool. Soc. London, 1902, pp. 18-60.)

Bignell, Effie. My Woodland Intimates. 12mo. The Baker and Taylor Co., New York. \$1.00.

Bonhote, J. L. Field Notes on Some Bahama Birds. (Avicult. Mag., Vols. VIII and IX; also separate, pp. 33.)

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Dubois, Alphonse. Synopsis Avium, fasc. x-xii, 1902.

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Jacobs, J. Warren. The Story of a Martin Colony. Illustrated. 8vo, pp. 24. Waynesburg, Pa., 1903.

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Richmond, Charles W. (1) Note on *Pinaroloxias inornata* (Gould). (Proc. Biol. Soc. Wash., Vol. XV, pp. 247, 248, Dec. 16, 1902.) (2) Birds collected by Dr. W. L. Abbott on the Coast and Islands of Northwest Sumatra. (Proc. U. S. Nat. Mus., Vol. XXVI, pp. 485-524.)

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Shufeldt, R. W. The Classification of Certain Groups of Birds. (Am. Nat., Vol. XXXVII, Jan., 1903, pp. 33-64.)

Strong, R. M. A Case of Abnormal Plumage. (Biol. Bull., Vol. III, Nov., 1902, pp. 289-294.)

Trowbridge, C. C. The Relation of Wind to Bird Migration. (Am. Nat., Vol. XXXVI, pp. 735-753.)

Weed, Clarence M. A Partial Bibliography of the Economic Relations of North American Birds. (Bull. No. 5, New Hampshire Agric. Experiment Station, 1902.)

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Proceedings California Acad. Sci., Zool., III, Nos. 5 and 6, Jan. and Feb., 1903.

Proceedings and Transactions Nova Scotia Institute of Science, X, Part 3, 1902.

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CORRESPONDENCE.

Some Suggestions.

EDITORS OF 'THE AUK':—

Dear Sirs:—I take this occasion to voice the feelings of many amateur ornithologists who are members of the A. O. U. We all have the keenest sympathy for the success of the cause for which 'The Auk' stands as the organ of the A. O. U., and we fully realize that the highest advancement of American ornithology can be accomplished only through and by professional men, and that 'The Auk' must and should be their favored organ.

But we further believe that the continued success of 'The Auk' and Union depends upon the moral and financial support which they receive from the amateur members of the A. O. U. In many, maybe in most instances, this support must be dependent upon the contents of 'The Auk.' Many of the readers of 'The Auk'—and I am one of them— are only secondarily interested in technical and local faunal articles. Their leisure opportunities, and perhaps their inclinations, are sufficient to grasp only the general features of systematic and faunal ornithology. On the other hand they are intensely interested in general and field ornithology, and peruse and study those matters which relate to the habits and life histories of the feathered kind with the keenest enjoyment. Such reading appeals to their sympathy and feelings, enlivens and deepens their interest, and may lead them on to the study of scientific ornithology, which is in most instances regarded at first as dry and uninteresting.

I feel assured that if 'The Auk' contained more articles of the nature of Bent's late article on North Dakota Anatidæ, or Peabody's on Le Conte's Sparrow—articles interesting to the student as well as to the professional—the membership of the A. O. U. would be measurably increased, the funds available for publishing 'The Auk' would be greater, and its value both to the scientist and to the amateur would be enhanced.

Very truly yours,

J. C. KNOX,
Jackson, Minn.

Jan. 17, 1903.

[The above letter is in line with others received from time to time by the Editors of 'The Auk,' offering suggestions for its improvement from the standpoint of the lay reader. But Mr. Knox's letter is exceptional in its courteous tone, and in the reasonableness of its suggestions. That the matter may be better understood, it seems well to present in this connection a few words of editorial comment.

'The Auk' is, first of all, the organ of the American Ornithologist's Union, which is primarily an association of professional ornithologists, or

advanced workers in ornithology, whose purpose of organization was to promote community of interest, and coöperation among the leaders of the science, and to secure a medium of intercommunication, and for the publication of the results of their investigations. Secondly, the purpose of the Union was to secure the affiliation of all American bird students, — to bring the amateurs into touch with the professionals, in the hope that their interest in bird study would thereby be fostered and their efforts be in a measure favorably guided by being brought into contact with the more experienced workers. For this reason the lay element was invited to accept enrollment in the Union, to attend its annual congresses, to present papers and otherwise participate in the scientific proceedings, and especially to form acquaintances and associations that would prove pleasant and helpful. Such has been, we believe, to as large an extent as could be reasonably expected, the outcome of the founding of the Union. Its membership is, however, so widely scattered that, although the congresses are held alternately in the larger eastern cities, the social feature of the organization is necessarily somewhat limited.

In regard to 'The Auk,' its function is, first of all, that of a medium of publication for the working ornithologists, and holds the position of the 'Proceedings' or 'Annals' of a scientific society. It pays nothing for the articles contributed to its pages, and rarely solicits contributions. More matter is offered for publication than can be accepted, and the editorial function as to choice of material is limited to excluding what seems the least desirable. It thus differs notably from the ordinary literary magazine, which pays for its contributions and whose editorial management is supposed to cater to the public needs or taste.

Mr. Knox refers to certain papers as being especially desirable and stimulating to the clientèle for whom he assumes to speak. The editors of 'The Auk' never reject articles of this character; they are only too glad to receive this class of papers. The rejected matter is almost wholly of the class to which Mr. Knox specifically objects. The editors of 'The Auk' cannot publish for the entertainment of its readers what does not come to their hands. Technical papers, containing the results of special research by members of the Union, should, in the nature of the case, be promptly accepted; faunal papers, which are a real contribution to knowledge, are not lightly to be passed by; but if they relate to comparatively well known regions, or contain little that is new, they are rated at once as unavailable. Finally, it is the aim of the editorial staff of 'The Auk' to cater especially to the popular side of ornithology, to furnish to the amateur readers papers that they will enjoy and find profitable. The technical side will always take care of itself; the demand for space for such contributions is always greater than the supply, and it is papers of this character that get the cold shoulder and not those of a popular character, provided of course that they contain something worthy of record.—EDS.]

Vernacular Names of Birds.

EDITORS OF 'THE AUK'.

Dear Sirs:—The subject of vernacular names of birds is not of supreme importance in ornithology, but, since it has been opened, I hope I may be allowed to make a little suggestion. First let me say, though I am well aware that Dr. Allen's views need no endorsement from me, that I am in entire accord with them in the matter of hyphenating, and this in spite of a tendency toward purism which should perhaps lead me to stand by the dictionaries and Dr. Doran. It has always seemed to me that the words 'song,' 'tree,' 'swamp,' etc., as used in connection with the names of sparrows are as truly adjectival in sense as if they were actual adjectives instead of nouns, and I can see no good reason why the combinations should be differentiated in form from such names as 'chipping sparrow' and 'white-throated sparrow.' The case of 'quail-dove' is different, of course, as are those of 'water-thrush' and 'meadow-lark.' Personally I should have preferred 'meadow-lark,' 'night-hawk,' etc., reserving the single-word form for the more familiar compounds of the word 'bird,' but I cheerfully follow the A. O. U. in vernacular as well as in the scientific names. (There is just one bit of sentimentalism in the list, which I cannot countenance: I refuse to call a snow bunting a 'snowflake.' I also prefer, in conversation, to speak of white-bellied instead 'white-breasted' nuthatches.)

But, to come to the point of this communication, it seems to me that a much more serious difficulty than that of the hyphens is the lack of qualifying or what I may call 'specific' and 'subspecific' adjectives for the names of certain birds like the chickadee, the horned lark, the redpoll, and the towhee. Why should we not have full vernacular names for *Parus atricapillus*, *Otocoris alpestris*, *Acanthis linaria*, *Pipilo erythrophthalmus*, etc., which will tell exactly what species and subspecies is referred to in any given case without the help of the scientific name? We should not always have to use the complete name, of course, but it would be convenient to have one to use when needed and one that is sanctioned by the Union. I hope that this matter may be considered by the Committee on Nomenclature when the next edition of the Check-List is prepared.

FRANCIS H. ALLEN.

Boston, Mass.

A Rare Work on American Ornithology.

EDITORS OF 'THE AUK':—

Dear Sirs:—Captain Thomas Brown's folio 'Illustrations of the American Ornithology of Wilson and Bonaparte' is such a scarce book that you may deem it worthy of a notice in your pages. By a careful

search I have been able to trace only three copies of it. One of these is in the library of the Zoölogical Society of London, another in the possession of Professor Alfred Newton, the third (a very imperfect copy) in a private library in Tarrytown, N. Y. The latter is the one that was twice sold at auction in New York City, Nov. 23, 1896, and Feb. 23, 1897.

In 1831 the first European edition of Wilson and Bonaparte's 'American Ornithology' was published in Edinburgh, without plates, forming four volumes of Constable's 'Miscellany' and edited by Professor Jameson. That the 'Illustrations' of Capt. Brown were originally intended to accompany the text of the Constable 'Miscellany' edition is clearly shown by contemporary notices. In a notice of Jameson's edition in the 'Edinburgh New Philosophical Journal' (Jameson's), July-Sept., 1831, p. 409, we read: "As a proof of the interest the work [Jameson's edition] is exciting, we may add, that the plates of the original works are re-engraving and publishing. *Three editions* are now in progress, one in folio, another in royal octavo, a third the size of the Edinburgh [Jameson's] edition of Wilson and Bonaparte, and as stated in the advertisement, intended to bind up with that work." In an advertisement dated April, 1831, issued with some copies of the first volume of Jameson's Wilson & Bonaparte, as well as in a critical notice of the first part of Capt. Brown's 'Illustrations' which appeared in the 'London Literary Gazette' for October 8, 1831, the 'Illustrations' are spoken of as forming a companion to the letter-press of Jameson's edition of Wilson & Bonaparte. From the Constable advertisement we further learn that the first part of the 'Illustrations' was published in April, 1831, and consisted of five plates; price, medium folio, colored, 15 s.; plain, 10 s.; a few in elephant folio, colored, one guinea. "To be completed in ten parts, each containing . . . five plates." The work finally exceeded by much the limits at first assigned to it, the plates amounting to 124 at their completion in 1835, when an engraved title-page was issued, which I transcribe from the copy in the library of the Zoölogical Society:

"Illustrations | of the | American Ornithology | of | Alexander Wilson
| and | Charles Lucian Bonaparte | Prince of Musignano | With the addition
of | Numerous recently discovered Species | and Representations of |
The Whole Sylva | of | North America. | By | Captain Thomas Brown.
| FLS. MWS. MKS. MPS. | Late President of the Royal Physical Society.
| &c. &c. &c. | Edinburgh. | Frazer & Co. 54 North Bridge | William
Curry, Junr. & Co. Dublin | & Smith, Elder & Co. 65 Cornhill | London.
| MDCCCXXXV. | Designed & engraved by James Turvey." Folio.

Collation: Engraved title-leaf, engraved dedication-leaf, pp. i-iii [Systematic Index], pl. col. I-CXXIV. Plate XCVI. is erroneously numbered CVI. (rectified in the Index) and 68 of the plates have numbers gummed on after printing (these also are properly allocated in the Index).

The Tarrytown copy, which I have also had the privilege of seeing, although very defective (lacking 37 plates, title-page, dedication and index), is interesting inasmuch as it retains one of the original brown

paper wrappers, probably belonging to Part I. The title as printed on this wrapper differs from the definitive engraved title, and reads as follows:

"Illustrations | of the | American Ornithology | of | Alexander Wilson, | and Charles Lucian Bonaparte; | with the addition of numerous recently discovered species. | And including | representations of the principal insects, | forest trees, and fruits of America. | Drawn, engraved, and coloured | under the superintendence of | Captain Thomas Brown, F. L. S. M. W. S. &c. | President of the Royal Physical Society. | Edinburgh: | published by Henry Constable; | Hurst, Chance, & Co. and Moon, Boys, & Graves, London; | John Cumming, Dublin. | 1831."

Brown's book is not in any true sense an edition of Wilson and Bonaparte. It is composed partly of original figures, but in a large measure it is compiled from the works of Wilson, Bonaparte, Audubon, Richardson and Swainson, and Jardine and Selby. As specimens of the engraver's art these plates exemplify the best work of the then leading engravers of Edinburgh, such as W. H. Lizars (who engraved Selby's plates and the earliest of Audubon's), E. Mitchell, R. Scott, Jas. Johnstone, John Miller, Samuel Milne, etc. In copying, however, the artist often lost the spirit of the originals, and in many of the new figures, which must of necessity have been drawn from stuffed birds, ignorance of the life attitudes of the subjects is often painfully apparent. In one of the early plates the perching of an Arctic Owl on a Magnolia tree was probably a bit of unconscious humor on the part of the artist who designed the plate.

In 1834, a year before the completion of this series of plates, Capt. Brown published the Game Bird plates as a separate work, with a title-page engraved specially for it by Turvey, which reads as follows:

"Illustrations | of the | Game Birds | of | North America | Chiefly the size of Nature | By | Captain Thomas Brown | F. L. S. M. W. S. M. K. S., M. P. S. | Late President of the Royal Physical Society, | &c. &c. | Edinburgh | Frazer & Co. 54 North Bridge; | Wm. Curry, Junr. & Co. Dublin; | John Smith & Son Glasgow; | & Smith Elder & Co. 65 Cornhill. | London | MDCCCXXXIV. Designed and engraved by James Turvey." 16 pll. col., folio ($21\frac{1}{2} \times 16\frac{1}{2}$ in.).

I found a copy of this book, of which I can find no mention in any bibliography or library- or sale-catalogue, in a book-shop in Birmingham last year. It consists, as I have said, of the Game Bird plates of the larger work, sixteen plates, unnumbered, being plates 69-83 and 102, of the larger work. In these plates the birds only are colored, whereas in the copies of the larger work that I have seen, the accessories (plants, insects, and backgrounds) are colored also. This set of sixteen plates includes figures of several of our western birds which are interesting as being among the earliest published portraits of those species. From the following account of the Game Bird plates one can form some notion of the character of the more extended work; *ex pede Herculem*:

Pl. I. [LXXV. of the larger work]. "*Tetrao cupido*" [*Tympanuchus americanus* (Reich.)]. Fig. 1, ♂, after Wilson; Fig. 2, ♀, original. The habitat is given, "*State of New York*." Since Wilson's figure was made from a Kentucky specimen, it may be that the female (Fig. 2) was drawn from a Long Island Heath Hen (*T. cupido*), which would be very interesting, if true. I believe De Kay's rude figure (*Birds of New York*, Pl. 77, fig. 175) is the only picture of a Heath Hen not from Martha's Vineyard, besides the original figure of Catesby.

Pl. II. [LXXIV.] Fig. 1, "*Tetrao umbellus*" [*Bonasa umbellus* (Linn.)], ♂, after Wilson; Fig. 2, "*Tetrao phasianellus*" [*Pediæcetes p. columbianus* (Ord)], ♀, after Bonaparte.

Pl. III. [LXXVII.]. "*Tetrao canadensis*." [Fig. 1, ♂, *Canachites franklinii* (Dougl.); Fig. 2, ♀, *Canachites canadensis* (Linn.)]. Both after Bonaparte.

Pl. IV. [LXXVIII.]. "*Tetrao franklinii*" [*Canachites franklinii* (Dougl.)]. Fig. 1, ♂, perhaps altered from Rich. & Swains., *F. B. A.*, Pl. 61; Fig. 2, ♀, original.

Pl. V. [LXXXVI.]. "*Tetrao obscurus*" [*Dendragapus obscurus* (Say)]. Fig. 1, ♂, orig.; Fig. 2, ♀, after Bonaparte.

Pl. VI. [LXXXIX.]. "*Tetrao richardsonii*" [*Dendragapus obscurus richardsonii* (Dougl.)]. Fig. 1, ♂; Fig. 2, ♀. Original. A fine plate designed by Jos. B. Kidd, a young landscape artist of Edinburgh, a friend of Audubon. Engraved by R. Scott.

Pl. VII. [LXXX.]. "*Tetrao urophasianus*" [*Centrocercus urophasianus* (Bonap.)]. Fig. 1, ♂, orig.; Fig. 2, ♀, after Bonaparte.

Pl. VIII. [LXXXI.]. "*Lagopus saliceti*" [*Lagopus lagopus* (Linn.)]. Fig. 1, ♂, spring plumage; Fig. 2, ♂, summer plumage; Fig. 3, ♀, winter plumage. Original.

Pl. IX. [LXXXII.]. Fig. 1, *Lagopus leucurus* Sw. & Rich., adapted from Sw. & Rich., *F. B. A.*, Pl. 63; Fig. 2, *Lagopus rupestris* (Gmel.), orig.

Pl. X. [LXXXIII.]. "*Lagopus mutus*" [*Lagopus rupestris* (Gmel.)]. Fig. 1, ♂, winter; Fig. 2, ♀, summer. "Inhabits Winter Island." Original.

Pl. XI. [LXIX.]. "*Perdix virginiana*" [*Colinus virginianus* (Linn.)]. Fig. 1, ♂, after Wilson; Fig. 2, ♀, orig.

Pl. XII. [LXXXII.]. Fig. 1, "*Ortyx capistrata*" [*Odontophorus capueira* (Spix)], "drawn by Captain Brown," evidently from the type specimen of *Ortyx capistratus* Jard. & Selby (= *Odontophorus capueira*), in the collection of Sir Wm. Jardine, purchased by him from a collection of skins sold in Edinburgh (Jardine & Selby, *Ill. Orn.*, I. Pl. 38, 1828); Fig. 2, "*Ortyx neoxenus*" [young ♂, or ♀, of *Eupsychortyx cristatus* (Linn.)], outline seemingly copied from the little wood-cut in Bennett's *Gardens and Menagerie of the Zoölogical Society*, Vol. II, p. 311, 1831, though the details must have been filled in from a specimen, I should suppose. *Ortyx neoxenus* Vigors, the types of which were in the gardens of the

Zoölogical Society of London, were identified by Gould as *Eupsychortyx cristatus* (Linn.).

Pl. XIII. [LXX.]. Fig. 1, "*Ortyx macroura*" [*Dendrorhtyx macrurus* (Jard. & Selby)], a representation of the type in coll. Jardine (Jardine & Selby, Ill. Orn., I. Pl. 49, 1828), probably adapted from the plate in Jardine & Selby; Fig. 2, "*Ortyx montezumæ*" [*Cyrtonyx montezumæ* (Vig.)], after Jardine & Selby, Vol. III. Pl. 126, 1833, but altered.

Pl. XIV. [LXXI.]. Fig. 1, "*Ortyx douglasii*" [*Lophortyx elegans* (Less.)]; Fig. 2, "*Ortyx californica*" [*Lophortyx californicus* (Shaw)], ♂; Fig. 3, do., ♀. Original.

Pl. XV. [LXXXIII.]. "*Ortyx picta*" [*Oreortyx pictus plumifer* Gould]. Fig. 1, ♂; Fig. 2, ♀ [?]. Original. The earliest pictorial representation of the species, so far as I know, but unfortunately a wretched performance. The so-called female, particularly, looks as if it might have been constructed from Douglas's remarkable description of the female of *Ortyx pictus*.

Pl. XVI. [CII.]. Fig. 1, "*Scolopax noveboracensis*" [*Macrorhamphus griseus* (Gmel.)]; Fig. 2, "*Scolopax wilsonii*" [*Gallinago delicata* Ord]; Fig. 3, "*Scolopax minor*" [*Philohela minor* (Gmel.)]. All after Wilson.

That a very small edition of Brown's work was published is evinced by its excessive rarity at the present time. The book was not of a character to meet any real want, and moreover it entered into competition with the great work of Audubon's, then publishing. An entry in Audubon's journal in October, 1830, goes far toward explaining the failure of Capt. Brown's undertaking, and at the same time brings out in bright relief the indefatigable industry and colossal self-confidence of Audubon:

"A few days after I began writing on the Biography, it was known in Edinburgh that I had arrived, and Professors Jameson, Graham, and others whom I had known, called on me; and I found at the 'fourteenth hour,' that no less than three editions of 'Wilson's Ornithology' were about to be published, one by Jameson, one by Sir W. Jardine, and another by a Mr. Brown. Most persons would probably have been discouraged by this information, but it only had a good effect on me, because since I have been in England I have studied the character of Englishmen as carefully as I studied the birds in America. And I know full well, that in England novelty is always in demand, and that if a thing is well known it will not receive much support. Wilson has had his day, thought I to myself, and now is my time. I will write, and I will hope to be read; and not only so, but I will push my publication with such unremitting vigour, that my book shall come before the public before Wilson's can be got out.

"Writing now became the order of the day. I sat at it as soon as I awoke in the morning, and continued the whole long day, and so full was my mind of birds and their habits, that in my sleep I continually dreamed of birds. I found Mr. McGillivray equally industrious, for although he did not rise so early in the morning as I did, he wrote much

later at night. . . ; and so the manuscripts went on increasing in bulk, like the rising of a stream after abundant rains, and before three months had passed the first volume was finished. . .

"*March* 13, 1831. My book is now on the eve of being presented to the world. The printing will be completed in a few days."¹

What became of the royal octavo plates and of the 18° series intended to bind up with the little Jameson edition of Wilson and Bonaparte, both of which were announced in the 'Edinburgh New Philosophical Journal' for 1831, as cited above? I think it probable that the former were appropriated by Sir William Jardine, that they were in fact the plates which adorn his octavo edition of Wilson and Bonaparte, which appeared in 1832. Otherwise they are unaccounted for. If, too, one examines even an untrimmed copy of Jardine's original issue, he will perceive that the plates are cut down nearly to the quick, indeed quite to the plate mark; as if originally designed for a *royal* octavo atlas and doomed by an after-thought to be the accompaniment of a *small* octavo text.

The fate of the 18° plates appears to have been even more disastrous than that of the folio series edited by Capt. Brown. After diligent enquiry I find but two indications of the existence of any of these plates at the present time. Some years ago Professor Newton furnished Dr. Coues with an account of the first part of a set of little plates illustrating Wilson and Bonaparte's Ornithology, issued by the publishers of Jameson's edition and uniform in size with that edition. The title as given by Coues ('Birds Col. Valley,' p. 600) was as follows:

"American Ornithology. | Illustrations | of | American Ornithology; | reduced from the | original work of Alexander Wilson. | London: | published by William Spooner, 259, Regent Street, | Oxford Street; | Hurst, Chance, and Co., 65 St. Paul's Church-Yard; | and Constable and Co., Edinburgh. | [No date.] 16mo? 18mo? (say 4 × 6 inches). No. 1, containing 8 plates."

Finally, Mr. Witmer Stone has a copy of Jameson's edition of Wilson and Bonaparte which contains nineteen colored plates ($3\frac{1}{8} \times 5\frac{3}{4}$ in.) scattered through the first two of the four volumes. That these plates were made for the book in which they are found is proved by the fact that many of them bear the appropriate page-references to the text of that edition. I have little doubt that they represent a fuller set of the series Professor Newton saw, and that they belong to the small 18° edition announced in the 'New Edinburgh Philosophical Journal' in 1831.

Yours very truly,

WALTER FAXON,
Cambridge, Mass.

Feb. 17, 1903.

¹The Life and Adventures of John James Audubon, the Naturalist. Edited, from materials supplied by his Widow, by Robert Buchanan. London, 1868. Pp. 172, 173.

NOTES AND NEWS.

THOMAS McILLWRAITH, a Fellow and one of the Founders of the American Ornithologist's Union, died at his home in Hamilton, Ontario, on January 31, 1903, in his 79th year. He was born in Newton, Ayr, Scotland, 25th of December, 1824, and in 1853 settled in Hamilton, Ontario, where he became a prominent and successful business man, retiring from active business about ten years ago. From early boyhood he was an ardent lover of nature and later became especially interested in birds. As early as 1860 he had become a local authority on the birds occurring about Hamilton, notices of which he published in the 'Canadian Naturalist' in 1860 and 1861 (Vol. V, pp. 387-396, and Vol. VI, pp. 6-18, 129-198).

In 1866 appeared his carefully annotated 'List of Birds observed near Hamilton, Canada West' (Proc. Essex Institute, V, 1886, pp. 79-96), numbering 241 species. This brought him prominently to the notice of the leading American ornithologists, with a number of whom he maintained for many years a very active correspondence. In 1886 appeared his 'The Birds of Ontario, being a list of Birds observed in the Province of Ontario, with an Account of their Habits, Distribution, Nests, Eggs, etc.,' an octavo volume of about 300 pages. A second edition, entirely rewritten and greatly enlarged, including descriptions of the species, was published in 1894, forming an excellent and greatly appreciated manual of the Birds of Ontario.

In 1883 Mr. McIlwraith was invited to the meeting of the leading American ornithologists, held in New York City, which resulted in the founding of the American Ornithologist's Union. He was made a member of the Committee on Bird Migration, and the work of the District of Ontario was assigned to him for supervision. In 1889 he was elected a member of the Council, which office he held for one year. He had gathered a large collection of Canadian and British birds, many of which he had mounted. He was warmly esteemed in the community in which he lived, and left a wide circle of friends among the members of the A. O. U., by whom he has long been held in high respect.

JOHN NATHANIEL CLARK, a Member of the American Ornithologists' Union, died at his home in Saybrook, Conn., Jan. 13, 1903, at the age of 72 years. He was born in Saybrook Jan. 14, 1831, and was a descendant of John Clark of England, who settled at Saybrook Point in 1636. He was widely known and greatly respected, and had long taken a prominent part in the affairs of his native town, having for sixteen years held the office of probate judge, besides filling other public offices with credit and

fidelity. He was educated in the public schools of his native town, and during his earlier life taught school for twenty years in Westbrook and neighboring towns.

From early life he was enthusiastically interested in birds, and for many years was an authority on the birds of southern Connecticut. He had gathered a nearly complete collection of the birds, and their nests and eggs, of his region, and from time to time for many years contributed interesting notes of his discoveries to various natural history journals, notably to 'The Auk,' and its predecessor, the 'Bulletin of the Nuttall Ornithological Club.' He was the first to make known the nest and eggs of the Little Black Rail, two nests of which were discovered by him at Saybrook, Conn., respectively in 1876 and 1884.

Mr. Clark was a regular attendant at the annual Congress of the American Ornithologists' Union, participating in its proceedings, and where his presence was always welcomed as a pleasant feature of the occasion. He was absent from the last Congress, but contributed, as usual, to the program of the meeting. His last paper, entitled 'The Domestic Affairs of Bob-white,' is published in the present number of 'The Auk' (pp. 161-164). He had many warm friends among the older members of the A. O. U., by whom his memory will be long cherished, not less for his amiable personality than as an ardent field student of birds.

EDWARD STANLEY WATERS, an Associate of the American Ornithologists' Union since 1894, died at his home in Holyoke, Mass., December 27, 1902, at the age of 71 years. He was born March 22, 1831, at Salem, Mass., where his family had resided for several generations, and where his father was judge of the Salem police court. After a preparatory course at the Salem Academy he entered Harvard University, but ill health prevented his graduation. He became, however, a civil engineer, and at the outbreak of the civil war he joined the Engineer Corps, and was soon assigned to the staff of General Burnside, and later to that of General Meade. Although engaged throughout the remainder of his life in engrossing business affairs, he was greatly interested in natural history, especially in botany and geology, and evidently in ornithology, although he published little if anything relating to these sciences. He was an expert hydraulic engineer, and the construction of the big dam at Holyoke, across the Connecticut River, and one of the largest in the country, is a monument to his engineering skill. At the time of his death, and for many years previously, he was the treasurer and agent of the Holyoke Water Power Company. He was recognized as a man of high moral tone, but is said to have never mingled much in social life or in politics, belonging to but one organization, the Holyoke Horticultural Club. He is survived by two brothers, one of whom is Henry Fitzgilbert Waters, of Melrose, Mass., the well-known genealogist.

THE MICHIGAN ORNITHOLOGICAL CLUB was organized in Detroit, Feb. 13, 1903, to succeed an earlier similar organization which disbanded about three years ago. The officers elected are: President, A. B. Covert, Ann Arbor; Vice-President, Dr. Philip E. Moody, Detroit; Secretary-Treasurer, Bradshaw H. Swales, Detroit. A bird protection Committee was established, consisting of Edward Arnold, Chairman, Battle Creek; James B. Purdy, Plymouth; and Prof. Walter B. Barrows, Agricultural College; to act in conjunction with William Dutcher, Chairman of the American Ornithologists' Union Bird Protection Committee. The Club will publish a journal to be called the 'Bulletin of the Michigan Ornithological Club,' with A. W. Blain, Jr., as editor. It will be an illustrated quarterly, devoted to the ornithology of the Great Lakes Region. One of the purposes of the Club will be to secure more effective legal protection for the birds of Michigan. The Club has already about fifty members, scattered throughout this and the adjoining States. Monthly meetings will be held at Detroit, and an annual meeting at the same time and place as the annual meeting of the Michigan Academy of Sciences.

THE SECOND annual meeting of the Vermont Bird Club was held in the Williams Science Hall in Burlington, January 16 and 17. Papers were read by Mrs. E. B. Davenport on 'Birds of Mount Mansfield observed between June 6 and July 31, 1902,' mentioning 75 species; by Carleton D. Howe, 'Some suggestions to the Vermont Bird Club'; by G. H. Ross, 'Nesting of the Golden-crowned Kinglet,' an account of ten nests found in Rutland County; by Miss M. M. Tuttle, 'Nesting of the Prairie Horned Lark,' in Poultney, in March, 1902. Mrs. Davenport gave an account of the last meeting of the A. O. U.; Mr. Ross reported the taking of a Barn Owl in Danby; Prof. Votey reported the Red Phalarope from Greenboro, and Mrs. Horton an albino Cuckoo from Brattleboro. Twenty new members were added, increasing the membership to nearly one hundred. The following officers were elected for the ensuing year: President, Prof. G. H. Perkins, Burlington; Vice-President, C. D. Howe, Essex Junction; Secretary and Treasurer, G. H. Ross, Rutland. Steps are to be taken to secure an accurate list of the birds known to occur in the State, with the object of publication.

WE REGRET to learn from the publishers (Dana Estes and Company, Boston) that the publication of the new edition of Dr. Coues's 'Key to North American Birds,' announced to appear in the spring of 1903 (see Auk, XX, p. 97), is unavoidably deferred till the coming fall.

'THE WARBLER' is the title of a new ornithological magazine, of which the initial number (Vol. I, No. 1) has just appeared. It is of royal octavo size, and will be published bi-monthly, by the Mayflower Publishing Company (John Lewis Childs, president), at Floral Park, N. Y., under the editorship of the Rev. H. C. Munson. ("Subscription price, 30 cents for 3

years.") 'The Warbler' was formerly a department of the popular journal of floriculture 'The Mayflower'. It will be devoted "to the study and protection of North American wild birds, and to promoting a better appreciation of them." The present number well sustains the above-quoted editorial promise. Among the popular articles on birds is the beginning of a series of papers on 'Birds of Prey', illustrated with half-tones of groups of specimens in Mr. Childs's very large collection of mounted North American birds at Floral Park, to which, we learn from 'The Warbler,' he has just added a fine specimen of the Labrador Duck, purchased of the Free Public Museum of Liverpool, England, for \$1000.

AT THE last meeting of the American Ornithologists' Union, held in Washington, Nov. 17-20, 1902, the question of holding the next meeting of the Union in California was considered. For various reasons an attempt to hold the regular annual congress so far from the geographical center of the membership seemed impracticable, and the proposition finally took the form of a proposed special session, for the presentation of scientific papers, to be held in California during the spring or early summer of 1903. The matter was finally referred to a committee, with power to make all the necessary arrangements for such a meeting, provided the proposition proved feasible. This committee consists of Dr. C. Hart Merriam, Dr. T. S. Palmer, and Mr. John H. Sage. Late in February the Committee issued a circular of information, stating that "the railroads are not only willing to grant very favorable rates, but that most satisfactory arrangements may be made with respect to stop-over privileges." It also gave the following itinerary for the outward trip:

"The plan is to leave Chicago May 3, to reach San Francisco on or about May 13, and to hold the special meeting May 15-16 in conjunction with the California members of the A. O. U. and the members of the Cooper Ornithological Club. The stop-overs now planned are at Albuquerque and Santa Fé, New Mexico, the Fossil Forest on the Desert of the Little Colorado, the Grand Cañon in Arizona, and San Bernardino, Riverside, Pasadena, and Los Angeles in southern California. This will enable the party to visit points of greatest historic, ethnologic, and scenic interest in Arizona and New Mexico, including the old Mexican town of Santa Fé and at least one of the picturesque Indian pueblos where the stone and adobe dwellings and picturesque costumes of the people are in strange contrast with those of the East. The feature of the trip will be the stop at the Grand Cañon of the Colorado in northern Arizona, where time will be given for a descent into the most sublime and wonderful chasm known in the whole world.

"In southern California the route traverses the Mohave Desert with its fringing belt of tree yuccas, and then descends through Cajon Pass to San Bernardino, whence a side trip is planned to the celebrated orange groves at Riverside. At Pasadena an opportunity will be given to ascend Mt. Lowe in the Sierra Madre, and at Los Angeles to visit the coast at Santa Monica or Redondo." A trip to the Yosemite is also planned.

The cost of a round-trip ticket will be a single fare from the starting point to Chicago, plus \$50.00; to which should be added \$6.50 for the round trip to the Grand Cañon, making a total of \$74.50 for the round-trip ticket from New York.

The tickets for the round trip are good from May 2 to July 15, and the return trip may be made over any route the holder may be pleased to select, with an additional charge of \$11.50 if the return is made by way of Portland or Seattle, over either of the northern roads. The plan is to go as a single party, then disband and return as the various members may elect, as regards date and route. With the unrestricted stop-over privileges granted by the railroads, members have the opportunity of devoting most of the ten weeks available for the trip to sight-seeing or in ornithological field work at such points as they desire especially to select.

The number of applications for enrollment for the trip thus far received seems to render it certain that the plan of holding a special spring meeting in California is an assured success. Detailed information regarding the trip may be obtained from Mr. John A. Sage, Portland, Conn., to whom all communications should be addressed.

MR. WILLIAM DUTCHER, in his annual report as Chairman of the A. O. U. Committee for the Protection of North American Birds, published in the last number of 'The Auk,' showed (see map, pl. III¹) that 16 States had adopted the A. O. U. 'model law,' and 15 others were enumerated which were without such a law, and respecting which the Committee "proposed to make an active effort" to obtain its enactment during the then approaching legislative season. It is a subject of congratulation to all bird lovers that prior to March 20 the A. O. U. model law had been adopted by the legislatures of North Carolina, Oregon, Tennessee, and Washington, and had been favorably reported, or passed through one branch, in the legislatures of Colorado, Michigan, Missouri, Texas, and Virginia. Mr. Dutcher is to be especially congratulated on the excellent results thus far accomplished during the present year, since much of this success is due to his unremitting efforts in this good cause.

THE AMERICAN MUSEUM OF NATURAL HISTORY in New York city began some fifteen years ago to place on exhibition a series of bird groups illustrating the bird life of eastern North America, since which time between 50 and 60 groups have been placed in its exhibition halls. These include a wide range of types, illustrating most of the families of

¹ Unfortunately in 'making up' the January issue the two maps accompanying Mr. Dutcher's report were transposed as to position and number; to accord with the references in the text Plate III should be numbered Plate IV, and Plate IV should be plate III, and their location in the text correspondingly changed. The titles at the bottom of the plates are, however, correct, so that no serious confusion need result.

North American birds. At first the groups were mostly limited to the Passeres, and each group usually consisted of a single pair of birds, with its nest and eggs, or young, as the case might be, placed in their natural surroundings, reproduced in facsimile. Later more ambitious pieces were attempted, but not till 1901 was there anything on a very large scale.

In that year the 'Bird Rock Group' was installed containing seventy-three birds, illustrating seven species, and forming a group seventeen and a half feet long and six feet ten inches high. The species represented are the Common and Brünnich's Murres, the Razor-billed Auk, the Kittiwake Gull, the Puffin, Gannet, and Leach's Petrel, the scene being a section of a cliff on Bird Rock, in the Gulf of St. Lawrence, where all these species nest in close proximity. The reproduction is realistic in the highest degree, so that the group gives the visitor to the Museum an exact representation of the home life of the breeding sea bird colonies in the far north.

This masterpiece of the taxidermist's art is admirably supplemented by a large descriptive label, and with large photographs from nature of portions of the Bird Rock colony, and a diagrammatic explanation of the group. In addition to the label, the Museum has issued a 'guide leaflet' to the group, in the form of a supplement to the 'American Museum Journal,' (Vol. I, No. 11, Oct., 1901), forming an octavo pamphlet of 24 pages, with numerous half-tone illustrations from photographs from nature and of the group. The text gives a history of this famous Bird Rock from the time of its first description by Jacques Cartier in 1534 to the present time, followed by an enumeration and description of the sea birds still breeding there. This pamphlet is placed on sale, for the convenience of visitors, at the nominal price of five cents per copy.

A companion piece to the Bird Rock Group has just been installed, representing, on a similar scale and in an equally realistic manner, the bird life of the seashore as illustrated at Cobb's Island, on the coast of Virginia. This group is of the same length and height as the Bird Rock Group, but the width has been considerably extended, to give room for the better display of the birds, which occupy a sandy beach instead of the irregular face of a cliff.

To supply the background effect, furnished by the cliff itself in the Bird Rock Group, resort has been very successfully made to the skill of the panoramic artist, who has supplied a canvas background appropriately supplementing the scene suggested by the birds in the foreground, with so skillful an effect that the line of junction of the real and the simulated is difficult to distinguish. The number of species included is seven, represented by sixty-three specimens, and their haunts and manner of nesting are presented with extreme fidelity of detail. The birds represented are the Black Skimmer, the Common Tern, the Least Tern, the Gull-billed Tern, the Oyster-catcher, and the Wilson Plover. The scene is a sandy beach, strewn with oyster and other sea shells, interspersed with

tufts of the coarse grass characteristic of such beaches. The group cannot, however, be considered complete until supplied with its large descriptive label, now in preparation, and illustrated with enlarged photographs from nature, and with the 'guide leaflet' that will give the details of bird colony life on the beaches of a low sandy island.

The Museum is to be congratulated on taking the lead in the work of providing realistic representations of bird life as it exists under widely varying conditions in nature, for it is perfectly safe to say that no other Museum in the world has placed before its visitors such attractive and instructive bird exhibits as are here to be seen. Therefore not only is credit due the Museum authorities for furnishing the means and the authorization for such work, but especially to the Associate Curator of the Department of Mammalogy and Ornithology, Mr. Frank M. Chapman, for its conception, and the gathering personally in the field of the material for the groups, the photographs for their illustration, and the supervision of their preparation. To Mr. H. C. Denslow is also due great praise for the skill displayed in the preservation and posing of the numerous individual birds represented, especially the downy nestlings and half grown young which form so important a feature of the exhibit.

THE NATIONAL COMMITTEE of Audubon Societies has begun to issue a series of 'Educational Leaflets,' which it is hoped will be the means of doing much good among agricultural people and in the schools throughout the country.

No. 1, treating of the Nighthawk, was published Jan. 1, 1903, and No. 2, on the Mourning Dove, March 1. No. 3, on the Meadowlark, and No. 4, on the Robin, will be published May 1 and July 1, respectively.

It is hoped that the demand for these leaflets will be so large that the Committee will be warranted in continuing the issue at intervals of two months until a large number of the common species of birds of North America have been thus treated.

The leaflets are of uniform size, $5\frac{1}{2} \times 8\frac{1}{2}$ inches, 4 pp. The first page is illustrated with a half tone 4×5 of the species treated, from original drawings by Louis Agassiz Fuertes. The second page gives the description and distribution of the species, while the remainder of the leaflet gives the latest facts regarding the economic status of the species, from data furnished by the Biological Survey, U. S. Department of Agriculture.

Each leaflet contains a series of 'Study Points for Teachers and Scholars,' which will, if followed, enable them to gain a comprehensive knowledge of the bird in question.

These leaflets can be supplied for 50 cts. per hundred, or \$3.00 per thousand, postage or expressage included.

If the members of the A. O. U. wish to encourage the distribution of these leaflets they will be advancing the cause of bird protection along educational lines, the channel through which the most good can be done at the present time.—WILLIAM DUTCHER, *Chairman, A. O. U. Protection Committee.*

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NOTES ON THE ORNITHOLOGICAL OBSERVATIONS
OF PETER KALM.

BY SPENCER TROTTER.

A PECULIAR interest lends itself to pioneer work in any branch of knowledge, and the early history of things holds a charm that is hard to explain on purely logical grounds. Such an interest gathers about the work of Peter Kalm, the Swede, who travelled in North America during the years 1748-1751. Kalm was primarily a botanist and was sent out to America to gather specimens of plants and seeds with a view to the acclimatization of different species in Sweden. On his return to Sweden he published an account of his observations and travels in a work of three volumes entitled 'En Resa Til Norra America,' which appeared at Stockholm between the years 1753-1761. The original was later translated into English, German, and Dutch, the English translation by John Reinhold Forster appearing in three volumes under the title of 'Travels into North America,' published at London in 1770-1771. Forster was an English naturalist of some note and his name is commemorated in one of the beautiful species of North American terns.

Accustomed as we are to look upon Wilson and Audubon as the pioneers in American Ornithology we are apt to lose sight of earlier workers in the field who left behind no great monuments. To be sure, Mark Catesby's work (1730-1748) is a pre-Wilsonian monument of illustrated ornithology, and the works of Edwards,

Pennant, and Latham contain numerous illustrations of North American birds. Peter Kalm's work, on the other hand, is merely a desultory account of the different birds he observed during his sojourn, principally in the country about Philadelphia, scattered through the text of the volumes, coupled with observations borrowed from the more intelligent Swedish and English residents. The greater number of species seems altogether to have escaped his notice, probably because the plant rather than the bird was in his mind's eye. Kalm's observations have little scientific value, but they possess a certain freshness that commends them to every lover of the wayside. It is restful in these days of accurately annotated lists of many geographical forms to turn to the simple statements of what this man saw and heard and thought. The birds he tells us about are only the common birds known to the country folk. His observations give us a glimpse of historical background — a bit of real bird life in America more than half a century before the father of American Ornithology began his work.

Kalm mentions a number of birds observed during the voyage, including the Petrel, Shearwater, Tropic Bird, Gull, and Tern. "The Petrel (*Procellaria Pelagica*, Linn.)," says Kalm, "was our companion from the channel to the shores of America."

It is probable that he had under observation not only the Stormy Petrels (*P. pelagica*) but the other two species of "little black white-rumped 'Mother Carey's Chickens'" — Leach's Petrel (*Oceanodroma leucorhoa*), and Wilson's Petrel (*Oceanites oceanicus*) as well.

The shearwater described under the name of "*Procellaria Puffinus*, Linn." is probably referable to three species — the Manx Shearwater (*Puffinus puffinus*), the Greater Shearwater (*P. major*), and the Sooty Shearwater (*P. fuliginosus*) — for Kalm speaks of having seen the bird from "the channel to the American coasts"; also that "it has a brown back, and commonly a white ring round its neck." The first species is abundant on the eastern side, but rare on the western side of the Atlantic, while the word "commonly" would seem to indicate that some individuals of the Sooty Shearwater — a solid colored species — were also seen. A number of land birds took refuge on the ship from time to time, and were noted by Kalm.

The following observations pertain to the several species of American birds noted by Kalm. These ornithological observations are scattered through the book, sandwiched in among the mass of heterogeneous matter gathered by this untiring recorder. "No circumstance interesting to natural history or to any other part of literature has been omitted." The first English edition of 3 vols. (from which these notes have been drawn) and the second edition of 2 vols. (1772) contain numerous notes by the translator. The binomial nomenclature, affixed to the species, is evidently the work of Kalm after his return to Sweden, for, as Dr. Coues observes, "these accounts are among the bases of several Linnaean species, though largely anticipated by Catesby and Edwards" (*Birds of the Colorado Valley*, Bibliographical Appendix, p. 585).

DUCKS — *Sp. ?* — Under date of October 30, 1748, Kalm mentions seeing large numbers of ducks between Staten Island and "the town of New York." "We saw a number of wild ducks in immense quantities upon the water: the people called them Blue bills, and they seemed to be the same with our *Pintail ducks*, or *Linnaeus's Anas acuta*; but they were very shy." (Eng. Trans., Vol. I, p. 237.)

Wild fowl had evidently greatly decreased in numbers even at the time Kalm wrote, as appears in a note written at Philadelphia under date of November 9, 1748. The note is concluded with the following observation: "But since the arrival of great crowds of *Europeans*, things are greatly changed: the country is well peopled, and the woods are cut down: the people increasing in this country, they have by hunting and shooting in part extirpated the birds, in part scared them away: in spring the people still take both eggs, mothers and young indifferently, because no regulations are made to the contrary. And if any had been made, the spirit of freedom which prevails in the country would not suffer them to be obeyed."

CRANES.— Under date of February 17, 1749, at the village of Raccoon, New Jersey, a few miles below Philadelphia and almost opposite the site of Chester, Pa., Kalm makes the following observation:

"Cranes (*Ardea Canadensis*) were sometimes seen flying in the day-time, to the northward. They commonly stop here early in

spring, for a short time, but they do not make their nests here, for they proceed on more to the north. Certain old *Swedes* told me, that in their younger years, as the country was not yet much cultivated, an incredible number of cranes were here every spring; but at present they are not so numerous. Several people who have settled here, eat their flesh, when they can shoot them. They are said to do no harm to corn, or the like." (Eng. Trans., II, p. 72.)

The Whooping Crane (*Grus americana*) was at one time abundant on our Atlantic seaboard, and this is the species probably referred to by Kalm. Dr. Coues says of *G. americana*: "So wild and wary a bird must be much influenced by the settlement of the country."

PARTRIDGES.—At Raccoon, New Jersey, where Kalm spent much of his time among the *Swedes*, is a note under date of January 22, 1749, in which we can hardly fail to recognize our Virginia Partridge or "Bob White." The "hazel-hen" referred to in the following note is undoubtedly the Ruffed Grouse—"the birds which the *Swedes* in this country call *Partridges* and *Hazel-hens* were in whole flocks in the woods" (Eng. Trans., Vol. I, p. 290). While at Montreal Kalm heard of a bird which he judged to be the "*Ptarmigans*, or *Snow-hens* (*Tetrao Lagopus*)." (Eng. Trans., III, p. 58.)

WILD TURKEY.—"*Turkey Cocks* and *Hens* run about in the woods of this country, and differ in nothing from our tamer ones, except in their superior size, and redder, though more palatable flesh. When their eggs are found in the wood, and put under *Turkey* hens, the young ones become tame; however when they grow up, it sometimes happens that they fly away; their wings are therefore commonly clipped, especially when young. But the tamed turkeys are commonly much more irascible, than those which are naturally tame. The Indians likewise employ themselves in taming them and keeping them near their huts." (Eng. Trans., I, p. 209.)

WILD PIGEON.—At Raccoon, New Jersey, under date of March 3, 1749, occurs the following note:—"Wild Pigeons (*Columba Migratoria*), flew in the woods, in number beyond conception, and I was assured that they were more plentiful than they had been

for several years past. They came this week, and continued here for about a fortnight, after which they all disappeared, or advanced further into the country, from whence they came." (Eng. Trans., II, p. 82.)

HUMMINGBIRD.—“Of all the rare birds of *North America*, the *Humming Bird* is the most admirable, or at least most worthy of peculiar attention. Several reasons induce me to believe that few parts of the world can produce its equal. Dr. *Linnaeus* calls it *Trochilus Colubris*. The *Swedes* and some *Englishmen* call it the *King's bird*, but the name of *Humming bird* is more common.” (Eng. Trans., I, p. 210.)

Following this statement are five pages devoted to the description and habits of this interesting little bird, which seems to have excited the wonder and admiration of so many of the early travelers in America.

WHIP-POOR-WILL.—At Raccoon, New Jersey, under date of April 22, 1749, Kalm gives a somewhat lengthy account of this species, calling attention to the peculiarity of its notes as follows:—“I heard it to-day, for the first time, and many other people said, that they had not heard it before this summer; its *English* and *Swedish* name is taken from its note; but, accurately speaking, it does not call *Whipperiwill*, nor *Whip-poor-will*, but rather *Whipperiwhip*, so that the first and last syllables are accented, and the intermediate ones but slightly pronounced. The *English* change the call of this bird into *Whip-poor-will*, that it may have some kind of signification: it is neither heard nor seen in day-time; but soon after sunset it begins to call, and continues for a good while, as the cuckow does in Europe.” Observations on the habits of the bird follow. (Eng. Trans., II, p. 151.)

WOODPECKERS.—At Philadelphia, under date of October 1, 1748, Kalm writes: “A *Black Woodpecker* with a red head, or the *Picus pileatus*, *Linn.* is frequent in the *Pennsylvanian* forests, and stays the winter, as I know from my own experience. It is reckoned among those birds which destroy the maize; because it settles on the ripe ears, and destroys them with its bill. The *Swedes* call it *Tillkroka*, but all other woodpeckers, those with gold yellow wings excepted, are called *Hackspickar* in the *Swedish* language. I

intend to describe them altogether more exactly in a particular work. I only observe here, that almost all the different species of woodpeckers are very noxious to the maize, when it begins to ripen: for by picking holes in the membrane round the ear, the rain gets into it, and causes the ear with all the corn it contains to rot." (Eng. Trans., I, p. 148.)

Kalm had not yet spent a winter in America, though he speaks in the above note of knowing this bird to stay through the winter from his own experience. It is evident, therefore, that his original notes were carefully gone over upon his return to Sweden, in view of their publication. Under date of March 11, 1749, at Raccoon, New Jersey, a list of the woodpeckers was drawn up, and later revised. It is interesting as being probably the first annotated list of any group of North American birds. (Eng. Trans., II, pp. 85-88.) In this review of the woodpeckers by Kalm the most notable fact, which must be taken *cum grano salus*, is the occurrence of the Ivory-billed Woodpecker, as far north as the Delaware Valley. Possibly the bird had been observed as a straggler (for Kalm speaks of it as being only an occasional visitor) on the borders of the dense cedar swamps and pine forests of South Jersey, and this region we know is decidedly Carolinian in its faunal and floral features. At that time also a more or less unbroken woodland must have extended far up along the shores of the Delaware, quite to the site of the old Swedish village of Raccoon. But this is idle speculation, for the bird has never been authentically reported from Pennsylvania or New Jersey.

The Pileated Woodpecker is a true forest lover, and even in the time of Alexander Wilson had, like the Indian, retreated into the wilderness beyond the ever widening domain of cleared land.

Kalm seems to have been imbued with the notion that the smaller species of woodpeckers were enemies to agriculture and the orchards. The sins of the real sap-sucker were shared for many long years by his less-offending brethren. The word "flicker" does not appear among the local names of *Colaptes auratus*, the species being referred to as the "gold-winged woodpecker" and also under its Swedish names of "Hittock" and "Piut." The ground-loving habits of this bird, the palatability of its flesh, and its resemblance to the European cuckoo are commented upon.

The remarks of Kalm concerning the abundance of the Red-headed Woodpecker (*Melanerpes erythrocephalus*) in early winter as predicting a mild season brings to mind an observation made some years ago by Chris Wood, the collector. He predicted a winter of great sickness from the fact that Red-headed Woodpeckers were unusually numerous, and added that he had never known this prognostic to fail. This is an interesting piece of folklore and is probably akin to the old saying that "a green Christmas makes a fat churchyard."

The species enumerated, other than those above mentioned, are *Sphyrapicus varius*, *Dryobates villosus*, *D. pubescens*, and *Melanerpes carolinus*.

Crow. — At Philadelphia, under date of September 26, 1748, is the following observation concerning crows. "The *Crows* in this country are little different from our common crows in *Sweden*. Their size is the same with that of our crows, and they are as black as jet in every part of their body. I saw them flying to-day in great numbers together. Their voice is not quite like that of our crows, but has more of the cry of the rook, or *Linnaeus's Corvus frugilegus*." (Eng. Trans., I, p. 121.)

Under date of February 10, 1749, Kalm alludes to the premiums set upon crows' heads in the following passage. "They belong to the noxious birds in this part of the world, for they chiefly live upon corn. After the maize is planted or sown, they scratch the grains out of the ground and eat them. When the maize begins to ripen, they peck a hole into the involucre which surrounds the ear, by which means the maize is spoiled, as the rain passes through the hole which they have made, and occasions the putrefaction of the corn. Besides eating corn, they likewise steal chickens. They are very fond of dead carcasses. Some years ago the government of *Pennsylvania* had given three-pence, and that of *New Jersey* four-pence premium for every head of a *crow*, but this law has now been repealed, as the expenses are too great."

BLACKBIRDS. — In remarking upon the decrease of wild fowl (already cited) Kalm goes on to say: "But though the eatable birds have been diminished greatly, yet there are others, which have rather increased than decreased in number, since the arrival of the *Europeans*: this can most properly be said of a species of

daws which the *English* call *Blackbirds* [a foot-note speaks of them as "*Properly shining blackbirds*"] and the *Swedes* *Maize thieves*. *Dr. Linnæus* calls them *Gracula Quiscula*." (Eng. Trans., I, p. 291.)

Under date of February 23, 1749, at Raccoon, New Jersey, is a lengthy account of blackbirds, in which the author, among other observations, calls attention to the following :

"A species of birds, called by the *Swedes*, *maize-thieves*, do the greatest mischief in this country. They have given them that name, because they eat maize, both publicly and secretly, just after it is sown and covered with the ground, and when it is ripe. The *English* call them *blackbirds*. There are two species of them, both described and drawn by *Catesby*. Though they are very different in species, yet there is so great a friendship between them, that they frequently accompany each other in mixed flocks. However, in *Pennsylvania*, the first sort are more obvious, and often fly together, without any of the red-winged *stares*. . . . As they are so destructive to maize, the odium of the inhabitants against them is carried so far, that the laws of *Pennsylvania* and *New Jersey* have settled a premium of three-pence a dozen for dead maize thieves. In *New England*, the people are still greater enemies to them; for *Dr. Franklin* [Benjamin Franklin] told me, in the spring of the year 1750, that, by means of the premiums which have been settled for killing them in *New England*, they have been so extirpated, that they are very rarely seen, and in a few places only. But as, in the summer of the year 1749, an immense quantity of worms appeared in the meadows, which devoured the grass, and did great damage, the people have abated their enmity against the maize-thieves; for they thought they had observed, that those birds lived chiefly on these worms before the maize is ripe, and consequently extirpated them, or at least prevented their spreading too much. They seem therefore to be entitled, as it were, to a reward for their trouble. But after these enemies and destroyers of the worms (the maize-thieves) were extirpated, the worms were more at liberty to multiply; and therefore they grew so numerous, that they did more mischief now than the birds did before. In the summer, 1749, the worms left so little hay in *New England*, that the inhabitants were forced to

get hay from *Pennsylvania*, and even from *Old England*. The maize-thieves have enemies besides the human species. A species of little hawks live upon them, and upon other little birds. I saw some of these hawks driving up the maize-thieves, which were in the greatest security, and catching them in the air. Nobody eats the flesh of the purple maize-thieves or daws (*Gracula quiscula*); but that of the red-winged maize-thieves, or stares (*Oriolus Phoeniceus*) is sometimes eaten. Some old people have told me, that this part of *America*, formerly called *New Sweden*, still contained as many maize-thieves as it did formerly. The cause of this they derive from the maize, which is now sown in much greater quantity than formerly; and they think that the birds can get their food with more ease at present." (Eng. Trans., II, pp. 73-79.)

The purple "maize-thieves" are apparently as abundant now, about Philadelphia, as they were in the time that Kalm wrote of them. They come to us about the last of February, as Kalm noted more than a century and a half ago, and during the early autumn swarm in incredible numbers over the fields of standing corn. One autumn blackbird roost that I have known of for several years past, on the edge of a populous town, must contain thousands of birds. The babel of voices from this roost at sundown is a sound never to be forgotten and falls on the distant ear as a continuous roar.

BOBOLINK.— In a journey up the Hudson during the month of June, 1749, Kalm first saw the bobolink, as is attested by the following note: "*The white-backed Maize-thieves* appeared now and then, flying amongst the bushes: their note is fine, and they are not so large as the black maize-thieves (*Oriolus Phoeniceus*). We saw them near *New York*, for the first time." (Eng. Trans., II, p. 274.)

CARDINAL.— At Raccoon, New Jersey, under date of February 14, 1749, Kalm has entered in his journal the following note: "*Red-bird* is another species of small bird. *Catesby* has likewise figured it. Dr. *Linnaeus* calls it, *Loxia Cardinalis*. It belongs to that class of birds which are enemies to bees, lying in wait for them and eating them. I fed a cock for five months together in a cage; it eat both maize and buckwheat, for I gave it nothing

else. By its song it attracted others of its species to the courtyard, and after we had put some maize on the ground under the window where I had it, the others came there every day to get their food; it was then easy to catch them by means of traps. Some of them, especially old ones, both cocks and hens, would die of grief on being put into cages. Those on the other hand which were grown tame, began to sing exceedingly sweet. Their note very nearly resembles that of our *European* nightingale, and on account of their agreeable song, they are sent abundantly to *London*, in cages. They have such strength in their bill that when you hold your hand to them they pinch it so hard as to cause the blood to issue forth. In spring they sit warbling on the tops of the highest trees in the woods, in the morning. But in cages they sit quite still for an hour; the next hour they hop up and down, singing; and so they go on alternately all day." (Eng. Trans., II, p. 71.)

SNOWBIRD.—In the journal at Raccoon, New Jersey, dated January 21, 1749, is the following note: "A small kind of birds, which the *Swedes* call *Snow-bird*, and the *English* *Chuck-bird*, come into the houses about this time. At other times, they sought their food along the roads. They are seldom seen, but when it snows. *Catesby*, in his *Natural History of Carolina*, calls it *Passer Nivalis*; and Dr. *Linnaeus*, in his *Systema Naturæ*, calls it *Emberiza hyemalis*." (Eng. Trans., II, p. 51.)

Again, under date of March 3, 1749, at Raccoon, is the following: "The *Swedes* call a species of little birds, *Snofogel*, and the *English* call it *Snow-bird*. This is Dr. *Linnaeus's* *Emberiza hyemalis*. The reason why it is called snow-bird is because it never appears in summer, but only in winter, when the fields are covered with snow. In some winters they come in as great numbers as the maize-thieves, fly about the houses and barns, into the gardens, and eat the corn, and the seeds of grass, which they find scattered on the hills." (Eng. Trans., II, p. 81.)

SWALLOWS.—"April the 16th [1749]. This morning I returned to Raccoon [from Chester, Penna., on the opposite side of the Delaware]. This country has several kinds of swallows, viz. such as live in barns, in chimneys, and under ground; there are likewise martens.

"The *Barn Swallows*, or *House Swallows* are those with a furcated tail. They are Linnæus's *Hirundo rustica*. I found them in all parts of *North America* which I travelled over. [This statement shows that the original entry about swallows in the journal was shaped up after Kalm's return to Sweden, for as yet he had only travelled as far as New York and back]. They correspond very nearly to the *European House Swallow* in regard to their colour, however there seems to be a small difference in the note. I took no notice this year when they arrived: but the following year, 1750, I observed them for the first time on the 10th of *April* (new style); the next day in the morning, I saw great numbers of them sitting on posts and planks, and they were as wet as if they had been just come out of the sea. [At this point is inserted a lengthy editorial *excursus* by Forster on the hibernation of swallows.] They build their nests in houses, and under the roofs on the outside; I likewise found their nests built on mountains and rocks whose top projected beyond the bottom; they build too under the corners of perpendicular rocks; and this shews where the *Swallows* made their nests, before the *Europeans* settled and built houses here; for it is well known that the huts of the *Indians* could not serve the purpose of the *Swallows*.

"The *Chimney Swallows* are the second species, and they derive their name from building their nests in chimneys which are not made use of in summer: sometimes when the fire is not very great, they do not mind the smoke, and remain in the chimney. I did not see them this year till late in *May*, but in the ensuing year, 1750, they arrived on the 3rd of *May*, for they appear much later than the other *Swallows*. It is remarkable that each feather in their tail ends is a stiff sharp point, like the end of an awl; they apply the tail to the side of the wall of the chimneys, hold themselves with their feet, and the stiff tail serves to keep them up: they make a great thundering noise all the day long, by flying up and down in the chimneys; and as they build their nests in chimneys only, and it is well known that the *Indians* have not so much as a hearth made of masonry, much less a chimney, but make their fires on the ground in their huts, it is an obvious question, where did these *Swallows* build their nests before the *Europeans* came, and made houses with chimneys? It is probable that they form-

erly built them in great hollow trees. This opinion was adopted by Mr. *Bartram* [the elder Bartram — John Bartram, the first American botanist and correspondent of Linnæus], and many others here. *Catesby* has described the *Chimney Swallow* and figured it, and Dr. *Linnæus* calls it *Hirundo Pelasgia*.

“The *Ground Swallows* or *Sand Martins*, (*Linnæus's Hirundo riparia*) are to be met with everywhere in *America*; they make their nests in the ground on the steep shores of rivers and lakes.

“The *Purple Martins* have likewise been described and drawn in their natural colours by *Catesby*. Dr. *Linnæus* likewise calls them *Hirundo purpurea*. They are less common here than the former species; I have seen in several places little houses made of boards, and fixed on the outside of the walls, on purpose that these *Martins* may make their nests in them; for the people are very desirous of having them near their houses, because they both drive away hawks and crows as soon as they see them, and alarm the poultry by their anxious note, of the approach of their enemies. The chickens are likewise used to run under shelter, as soon as they are warned by the *Martins*.” (Eng. Trans. II, pp. 140–148.)

Probably half a century before Kalm wrote the Swifts, the Martins, and the Barn Swallows had forsaken the rock ledge and hollow tree to cast in their lot with the settlers, doubtless reminding many a sad heart of —

“The swallow twitt'ring from the straw-built shed,”

in the old homes across the sea.

MOCKINGBIRD.—While journeying to New York, at a point not far from Philadelphia, Kalm entered a note in his journal, under date of October 27, 1748, from which the following passage is taken. “At one of the places where we stopt to have our horses fed, the people had a *Mocking-bird* in a cage; and it is here reckoned the best singing-bird, though its plumage is very simple, and not showy at all. At this time of the year it does not sing. *Linnæus* calls it *Turdus polyglottos*, and *Catesby* in his *Natural History of Carolina*, Vol. I, p. 27, tab. 27, has likewise described and drawn this bird. The people said that it built its nests in the bushes and trees, but is so shy, that if anybody come and look at its eggs, it leaves the nest, never to come to it again.” (Eng. Trans., I, pp. 217–219).

This is interesting as an early northern record for the mocking-bird. From Kalm's statements it would appear that the bird was a more or less common summer resident in the region about Philadelphia. The species does occasionally breed in this neighborhood and may have been much more abundant in the earlier days of the settlements.

CATBIRD.— Under date of September 7, 1748, at Philadelphia is the following note: "Mr. *Peter Cock*, a merchant of this town, assured me that he had last week himself been a spectator of a snake's swallowing a little bird. This bird, which from its cry has the name of *Cat bird*, (*Muscicapa Carolinensis*, Linn.) flew from one branch of a tree to another, and was making a doleful tune." (Eng. Trans., I, p. 61.)

The rest of the narrative is a "snake story." Suffice it to say that the snake swallowed the bird, but was ultimately killed by the valiant Cock. Mr. Cock, by the way, was a very reputable citizen.

ROBIN.— In Kalm's journal at Raccoon, under date of March 12, 1749, is the following short note concerning the robin: "The bird which the *English* and *Swedes* in this country call *Robin-red-breast*, is found here all the year round. It is a very different bird from that which in *England* bears the same name. It is *Linnaeus's* *Turdus migratorius*. It sings very melodiously, is not very shy, but hops on the ground quite close to the houses." (Eng. Trans., II, p. 90.)

BLUEBIRD.— A note dated Raccoon, New Jersey, February 14, 1749, says: "The *Swedes* and the *English* gave the name of *blue-bird* to a very pretty little bird, which was of a fine blue colour, *Linnaeus* calls it *Motacilla Sialis*. *Catesby* has drawn it in his *Natural History of Carolina*, Vol. I, pl. 47, and described it by the name of *Rubecula Americana cærulea nitida, pectore rufo, ventre albo*. In *Catesby's* plate I must observe, that the color of the breast ought to be dirty red or ferruginous; the tibiæ and feet black as jet; the bill too should be quite black; the blue colour in general ought to be much deeper, more lively and shining; no bird in *Sweden* has so shining and deep a blue color as this: The jay has perhaps a plumage like it. The food of the blue bird is not merely insects, he likewise feeds upon plants; therefore in

winter, when no insects are to be met with, they come to the farm-houses in order to subsist on the seeds of hay, and other small grains." (Eng. Trans., II, p. 70.)

There is little of value to the ornithologist in these fragmentary notes, but the quaintness of the statements, and the pictures which they call up of birds against the background of those early times possess a certain charm in themselves. Moreover, as Dr. Coues has remarked, some of these descriptions formed the basis of several Linnæan species. Kalm saw the birds for himself and came directly in contact with their surroundings. Therein lies the charm. He left no great work as a monument, but so long as the beautiful *Kalmia* grows on our hillsides his name will be remembered as that of the friend of Linnæus.

NOTES ON THE BIRDS OF MADISON COUNTY, NEW
YORK, WITH ESPECIAL REFERENCE TO
EMBODY'S RECENT LIST.

BY WILLIAM R. MAXON.

THE NOTES here offered are intended to supplement Mr. Embody's 'Birds of Madison County, New York,' which was reviewed briefly in 'The Auk' for January, 1902. Mr. Embody's list, professedly incomplete, embodied mainly the results of investigations in the southeastern portion of the county and properly might have borne a less general title; for, small as Madison County is, it is extremely diverse in its biologic associations and many distinct areas must be studied carefully before anything like a comprehensive understanding, or for that matter more than a tolerably complete list, of the avifauna may be had. The central portion of the county, including several high-lying swamps and adjacent hills near Peterboro, have been worked by Mr. G. S. Miller, Jr., who has kindly furnished me many notes hitherto unpublished. To the southward and westward, however, is a simi-

lar territory of higher elevation, with crests ranging to 2000 feet and more, which so far as I know is quite untouched; and in the northwestern portion a considerable territory, including several low swamps not much above the level of nearby Oneida Lake, likewise awaits investigation. These unexplored areas are bound to yield interesting results. Of this I am convinced by the unexpected returns from several short excursions I have undertaken, in the northeastern portion, over the Stockbridge West Hill which reaches a maximum altitude of 1300 feet. Here, for example, I found a good sized colony of the Cerulean Warbler.

Madison County falls for the most part well within the Transition or Alleghanian zone, but there is an odd intermingling of Canadian and Carolinian forms. The Stockbridge West Hill and its opposite slope at the east form the sides of a broad northerly-trending glacial valley (drained by Oneida Creek), some twelve miles long, which, at a point some seven or eight miles south of the eastern end of Oneida Lake, runs out to the level country marking the bed of the ancient stream, that once swept Central New York from the westward. It is this region with which I am most familiar and to which my own records mainly apply. The following notes are published with especial reference to Mr. Embody's list; and in several instances reference is made to earlier records overlooked in its preparation.

1. *Ardetta exilis*. LEAST BITTERN.—Said to be "rarely seen in Madison County. One male taken May 30, 1897." Several specimens have been taken in the Cowasselon Swamp near Oneida during August.

2. *Nycticorax nycticorax nævius*. BLACK-CROWNED NIGHT HERON.—Not mentioned in the list; may be put down as an occasional transient visitant (See Bagg in Auk, XIV, 227, 1897).

3. *Ægialitis vocifera*. KILLDEER.—Given as a "very common summer resident." In the northeastern parts of the county the bird is rather uncommon, and it seems likely that its distribution is very local throughout.

4. *Colinus virginianus*. BOB-WHITE.—"None recorded since 1893. Formerly a not uncommon summer resident." Still occasional between Oneida and the Lake. A nest was taken at Peterboro in the summer of 1894, the only time the bird has been known to occur in that vicinity. (See also Auk, XIV, 226, 1897, and XVII, 178, 1900.)

5. *Zenaidura macroura*. MOURNING DOVE.—"Rare. One bird seen April 28, 1896." This statement is to be accounted for only upon the

score of oversight. The bird is common all the way from the lowlands of Oneida Lake south along the Stockbridge Valley to Munnsville and to Eaton where I have repeatedly observed small flocks in the buckwheat fields. Out of more than 25 nests found the majority were in apple trees but occasionally in a pine, a white cedar, or upon a fallen log.

6. *Haliaeetus leucocephalus*. BALD EAGLE.—Decidedly less common than formerly, but still to be seen on Oneida Lake. Lewis Point, near South Bay, has been a favorite nesting place for many years.

7. *Dryobates villosus*. HAIRY WOODPECKER.—“Very common resident. Breeds.” It seems extremely doubtful if this species is “very common” in any part of the county; certainly it is tolerably rare in the northern portion.

8. *Sphyrapicus varius*. YELLOW-BELLIED SAPSUCKER.—Mr. Embody reckons this a “very common transient visitant.” It is only tolerably common as a migrant, but a few remain to breed.

9. *Melanerpes carolinus*. RED-BELLIED WOODPECKER.—“Of rare and irregular occurrence. One recorded March 8, 1898.” Mr. Miller has recorded also (Auk, IX, 201, 1892) taking a bird at Peterboro, Feb. 16, 1886.

10. *Antrostomus vociferus*. WHIP-POOR-WILL.—Included by Mr. Embody only in his hypothetic list. A common summer resident, however, in the low woods about Oneida Lake, particularly at Lewis Point. Mr. Miller has taken one specimen, a fall migrant, at Peterboro.

11. *Chordeiles virginianus*. NIGHTHAWK.—“Of rare occurrence,” and only two records given by Mr. Embody. The bird is a common summer resident in the vicinity of Oneida and by Oneida Lake; it may be heard almost any early evening. Mr. Miller regards it as “not uncommon at Peterboro.”

12. *Carpodacus purpureus*. PURPLE FINCH.—Given as “very uncommon during the breeding season,” which is far from true for northern Madison County. As a migrant it is tolerably abundant, but only a comparatively small number remain through the summer. I have never discovered a nest.¹

13. *Loxia curvirostra minor*. AMERICAN CROSSBILL.—Mr. Miller reports this to be found at Peterboro throughout the summer. Mr. Embody’s latest record is for May 15, but it is said that the “birds may appear at almost any time during the year.”

14. *Ammodramus savannarum passerinus*. GRASSHOPPER SPARROW.—Mr. Embody is quite correct in regarding this as “not an uncommon summer resident.” In fact where it does occur it is tolerably common; but it was unknown from this district up to July 5, 1895. (See Auk, XIV, 227, 1897, and XVII, 178, 1900). It is nearly as common as

¹ At Thousand Island Park, Jefferson County, last summer, the Purple Finches were very common and were observed to sing freely during the first two weeks of July, the length of a visit.

the Savannah Sparrow. At Peterboro, however, Mr. Miller took only one specimen during ten years' collecting.

15. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—Given in the list only as a "common transient visitant." Mr. Miller has found it breeding at two stations near Peterboro; and I have observed it to be common in shrubby half-cleared ground near Oneida Lake.

16. *Junco hyemalis*. JUNCO.—Recorded by Mr. Embody only as a visitant. Mr. Miller observes that the bird breeds "between Peterboro and Morrisville," as he has seen young scarcely able to fly. I have observed individuals on the hills near Oneida well along in May.

17. *Melospiza lincolni*. LINCOLN'S SPARROW.—Mentioned by Mr. Embody only in his hypothetical list. Mr. Miller reports having taken a specimen at Peterboro during spring migration.

18. *Pipilo erythrophthalmus*. TOWHEE.—Not mentioned. A single specimen was taken during spring migration near Oneida by Mr. Percy Klock, and Mr. Miller also took one at Peterboro. Mr. Egbert Bagg and the writer found the Towhee resident in low woods near Oneida Lake in Oneida County several years ago (see Auk, XVII, 178, 1900), and there is no doubt that the bird breeds also in similar situations a little farther along the shore within the limits of Madison County.

19. *Progne subis*. PURPLE MARTIN.—"Rarely seen," etc. Breeds at Oneida and seems to be holding its own against the English Sparrows. I took a set of 4 eggs from an electric arc lamp at Oneida, July 12, 1895.

20. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.—Said to be "rarely seen," and three records given. According to Mr. Miller it is a "not uncommon summer resident near Peterboro."

21. *Vireo flavifrons*. YELLOW-THROATED VIREO.—"Listed as a not uncommon summer resident." Common in northern portion of the county where I have observed several nests. (See Osprey, New Series, I, 37-39, 1900.)

22. *Vireo solitarius*. BLUE-HEADED VIREO.—Given by Mr. Embody only in the hypothetical list. Mr. Miller states that it is common at Peterboro during migrations and that a few remain throughout the summer.

23. *Mniotilta varia*. BLACK AND WHITE WARBLER.—"Common transient visitant." Mr. Miller calls it a common breeder at Peterboro.

24. *Dendroica rara*. CERULEAN WARBLER.—"Rare summer resident," etc. There are earlier records than Mr. Embody's. See Auk, XVII, 178, 1900, where is recorded the discovery of a colony on the Stockbridge West Hill. I have often visited this colony. As late as July 22 (1902) many of the birds were still in song. Mr. Miller has taken a single specimen at Peterboro.

25. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER.—Given only as a "common transient visitant." Mr. Miller states that the Blackburnian is "tolerably common" at Peterboro; and I have found it to be a regular but rather rare summer resident among hemlocks in mixed woods on the Stockbridge East Hills.

26. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—Recorded as “fairly common during migrations.” It is, however, a not uncommon summer resident among the hemlocks in several localities in the northeastern part of the county. Mr. Miller states that it is common at Peterboro.

27. *Dendroica palmarum*. PALM WARBLER.—Mentioned only in hypothetical list. Mr. Miller calls it a not uncommon migrant at Peterboro.

28. *Geothlypis agilis*. CONNECTICUT WARBLER.—Not listed. A rare fall migrant at Peterboro, according to Mr. Miller.

29. *Geothlypis philadelphia*. MOURNING WARBLER.—Given as “a rather rare transient visitant. Occasionally seen during the summer.” According to Mr. Miller it breeds rather commonly at Peterboro. I find it in high woods on the Stockbridge East Hills.

30. *Icteria virens*. CHAT.—Not listed. Mr. Miller has taken a single specimen at Peterboro.

31. *Wilsonia mitrata*. HOODED WARBLER.—“Rare. Two individuals seen May 29, 1900, one of which was captured, now in the writer’s collection.” The Hooded occurs as a regular (breeding) summer resident in the woods with the Cerulean on the Stockbridge West Hill where I found it first in 1896, subsequently in 1898 and 1900. (See Auk, XVII, 178, 1900.) Two specimens were taken; one, June 24, 1898, which is in my own collection; a second, adult female, June 15, 1900, now in the U. S. National Museum collection (No. 172461). Upon one of my visits in 1900 a partially fledged bird was seen with one parent. On July 22, 1902, an adult bird in song was seen again in the same restricted area where the previous ones were observed. Altitude about 1250 feet.

32. *Wilsonia canadensis*. CANADIAN WARBLER.—Put down as “not uncommon during migrations.” Should be given as a not uncommon summer resident. Mr. Miller calls it common at Peterboro; but I have summer records from only two stations, both not far south of Oneida.

33. *Toxostoma rufum*. BROWN THRASHER.—Mr. Embury records a single specimen. The bird is rather rare in the northern part of the county, being most often seen in the lowlands toward Oneida Lake. Mr. Miller calls it an extremely rare migrant at Peterboro.

34. *Certhia familiaris americana*. BROWN CREEPER.—Mr. Embury’s records indicate that it breeds near Hamilton, and according to Mr. Miller it breeds at Peterboro.

35. *Hylocichla guttata pallasii*. HERMIT THRUSH.—Given only as a common transient visitant, which would be my verdict. Mr. Miller, however, found it breeding commonly at Peterboro.

36. *Hylocichla alicæ*. GRAY-CHEEKED THRUSH.—Given only in the hypothetical list. Mr. Miller states that it is not an uncommon migrant at Peterboro.

NOTES ON WINTER CROW LIFE IN THE
DELAWARE VALLEY.

BY WITMER STONE.

SOME years ago Messrs. Samuel N. Rhoads, Henry W. Fowler, and the writer became interested in collecting data relative to the winter habits and distribution of Crows in the lower Delaware Valley, especially with regard to the location of their roosts and the direction of their morning and evening lines of flight. As often happens circumstances prevented the completion of our work, and our notes have remained for a long while untouched. Upon looking them over with a view to continuing the main line of investigation I find some correlative material bearing upon the winter life of the crows of the vicinity of Philadelphia which, seems worthy of publication, and I present it here with due acknowledgments to my colleagues for their valuable aid in gathering the information together.

The immediate vicinity of the Delaware River, from some distance north of Philadelphia all the way to the bay, is a great rendezvous for winter crows. To the passengers on the ferryboats they are a familiar sight, as they mingle with the Herring Gulls, flapping low over the water to pick up such scraps as may go floating by or in more severe weather alighting on the grinding ice cakes, and walking about where the pack has been frozen solidly together.

On the broad meadows which line the shores of the river, both above and below the city, crows abound during the daytime and walk about in search of food until it is time to seek their roosts on the New Jersey side of the river, when the long straggling flights may be seen winging their way homeward, sometimes in the bright glow of a winter sunset, at others in the teeth of a blinding storm, but always stubbornly heading for the particular roosting ground that generations of ancestors have used before them.

It seems a pity that a bird whose habits present such an interesting and unique field for study should be subject to persecution, especially since the Department of Agriculture has shown that his good deeds in the destruction of insects quite equal his depreda-

tion and that if not positively beneficial he is at least "on the fence." Where the law does not stand in the way, however, man usually tries every path that leads to wealth and some enterprising individuals have, from time to time, made a fair profit by trapping these poor hungry winter crows to be used in lieu of pigeons in trap shooting contests.

In severe weather, when the ground is white with snow, the crows have a harder time than ever to secure a living, and hunger makes them comparatively tame, so that they fearlessly approach barn-yards, refuse dumps, and any apparent source of food. It is at such times that the trappers successfully ply their trade.

A piece of ground conveniently near a strip of woodland or fence row, and sufficiently cleared and open to attract the attention of the crows and allow free use of the net, is selected. A rough shelter is constructed for the concealment of the trapper, and near by a spring-pole about fifteen feet in length, is planted at such an angle that the free end is only about four feet from the ground. A similar pole is planted about forty yards off; between these and some distance behind them a row of stakes is driven into the ground, to which the net is attached. These are also provided with trigger releases which restrain the free edge of the net until the spring poles are liberated. The net is an ordinary shad sein, fourteen yards long and thirteen feet wide, and is attached to the spring poles at either end. When set for action the spring poles are bent back and the net is restrained by the triggers. It is then quite inconspicuous and can be almost entirely concealed by a sprinkling of grass. Pieces of horse flesh, which is preferred for bait on account of its toughness, are now scattered along between the poles and at the proper time the triggers and poles are simultaneously set free by a jerk on a rope that is held by the trapper, and the feeding crows are immediately covered and entangled in the meshes of the net.

Trapping is begun in November and continued until March whenever the conditions are favorable; one man often secures as many as five hundred birds in a season, and it is estimated that at least two thousand crows have been killed in one year to test the marksmanship of Philadelphia's trap shooters. The birds are sprung singly from ordinary pigeon traps at twenty to twenty-five

yards rise, the tails being docked about two inches to allow free action in the trap. The crows 'get off' more deliberately than pigeons but their flight is more erratic so that they prove harder to hit. About twenty per cent. usually escape from the grounds though many of these are badly wounded, and probably not five per cent. survive.

One of the most troublesome factors in crow trapping is the presence of hawks in the vicinity of the nets. These birds abound along the river marshes in winter, where they find quantities of Field Mice (*Microtus pennsylvanicus*) to prey upon and naturally in severe weather they take to the crow bait quite as readily as the crows themselves. As long as a hawk is there the crows will not remain on the ground long enough to justify a cast of the net, but continue to hover over and mob him until he is fairly settled at his feast, when they retire to the neighboring trees and await his departure, which is greeted with a rousing demonstration.

To rid themselves of this nuisance the trappers are compelled to net a number of hawks, nearly all of which prove to be the Red-shouldered Hawk (*Buteo lineatus*). This fact is interesting, as previous experience showed that nine tenths of the hawks shot on the Delaware meadows were the Red-tailed Hawk (*B. borealis*). A few of the latter species and one Black Hawk (*Archibuteo lagopus sancti-johannis*) have been netted.

Fortunately for the crows trapping can only be carried on successfully in winters when the ground is covered with snow for a considerable period. The abundance of the pigeon supply also materially affects the demand of crows, and these facts do not tend to draw a great many men to this interesting field of business. Furthermore, the temporary retirement of the chief crow trapper, who has been spending some time in jail — on another charge — has given the birds a respite of late, which we trust will continue.

One of the most interesting facts developed in the investigation of this crow trapping was that both the Fish Crows (*Corvus ossifragus*) and Common Crows (*C. americanus*) were caught in the same net, and that the former species was by no means rare, being clearly distinguished by both trappers and gunners under the name of Pigeon Crow and regarded as better for trap shooting than the larger species, since it was not necessary to 'dock' so much of the tail to get the birds in the traps.

An inspection of the barns and corncribs where the crows were confined until sold, showed that about one in five was of the smaller species. This is of course not an index of the relative proportion of the two species, but simply of those caught, and doubtless indicates that the Fish Crow was more susceptible to the allurements of the trapper than his larger brother. The abundance of the Fish Crow in winter on the meadows to the north of the city is interesting since, so far as Mr. Fowler has been able to ascertain, the species does not nest so far up the Delaware River. On the Tinicum meadows, below the city, it has frequently been reported as a summer resident, but careless observers and collectors have more than once confused the two species, and so far as my personal experience goes such nests as I have examined in this locality were unquestionably the property of *C. americanus*, though I am still of the opinion that the Fish Crow breeds there also, and that a colony of nests in the Lazaretto woods belongs to the latter species. Farther down the river the Fish Crow undoubtedly nests regularly as well as along the New Jersey coast, while of late years several pairs have occupied tall trees in the small parks in the heart of Philadelphia. The pair which have been domiciled in Logan Square, directly opposite the Academy of Natural Sciences, have been frequently observed and seem to be quite oblivious to their surroundings, feeding their young on the lower branches of the trees to the astonishment of the House Sparrows, and even making depredations upon the disarticulated skeletons which our taxidermist had put out on the roof to bleach.

Our observations would seem to indicate, that the Fish Crow is a resident species along the river but that it pushes farther north along the valley in severe winter than its normal breeding range extends. That it mingles much more with the Common Crow than some of the older writers would have us believe seems certain, although this may apply only to the district under consideration and similar spots where the ranges of the two overlap.

As the Fish Crow is not a very common species in collections, Mr. Fowler secured at my request a series of twenty-five specimens, all of which are now in the Academy's or in my own collection. The difference in color as compared with the Common Crow and the increased gloss of the plumage is constant through the whole

series. In size the largest Fish Crow fails to equal the smallest Common Crow, though exceptional examples approach more closely in dimensions of wing than is generally supposed. The bulk of the specimens, however, differ widely, and emphasize the distinctness of these two species. Indeed, to my mind it is the only distinct type of Crow in the United States apart from *C. americanus*, all the others, even *C. caurinus*, being apparently geographic derivatives of the latter. The measurements of twenty-five specimens are as follows:

Wing, 9.56-11.55; average, 10.68 ins.

Culmen, 1.41-1.63; average, 1.52 ins.

Bill from nostril, 1.02-1.20; average, 1.10 ins.

Some of the largest individuals are females, and there does not seem to be much difference in the average size of the two sexes.

A series of fifteen Common Crows from the same vicinity yields the following measurements, which will show the comparative dimensions of the two species as found in the Delaware Valley in winter.

Wing, 11.60-13.35; average, 12.28 ins.

Culmen, 1.75-2.03; average, 1.86 ins.

Bill from nostril, 1.25-1.52; average, 1.34 ins.

The average size of the skulls of the two species is as follows:

C. americanus, length, 3.58 ins.; greatest breadth, 1.48 ins.

C. ossifragus, length, 3.03 ins.; greatest breadth, 1.28 ins.

ON THE GENERIC NAMES OF THE NORTH
AMERICAN OWLS.

BY WITMER STONE.

As is well known, there has been considerable difference of opinion among ornithologists as to what species of owl should be regarded as the type of the Linnæan genus *Strix*. In the A. O. U. Check-List the question was decided in favor of the Barn Owl, which consequently stands as *Strix flammea*. In 'The Auk' for January, 1900, p. 65, the late Dr. Coues raised the claim that when Brisson, in 1760, divided the Linnæan genus into *Strix* and *Asio* he fixed *Strix stridula* as the type of the former. This question has been before the A. O. U. Committee on Nomenclature ever since, and it was in the course of investigating into its merits that I discovered other complications in the nomenclature of our Owls, which have led to the present paper.

Before entering upon a general discussion of the subject I may say, that I can find no warrant for Dr. Coues's claim. Brisson simply gave generic names to the two groups of owls which Linnæus termed (under his genus *Strix*) '*auriculatæ*' and '*inauriculatæ*'; and gave no indication of a type. This fact seems to me perfectly clear, and were there no other questions involved the generic names of our owls would remain as at present. Unfortunately, however, such is not the case, and Dr. Coues's further claim that "the last word on the subject has not yet been said" is abundantly proven.

To begin at the beginning: Linnæus, in the 10th edition of his 'Systema,' included all the owls known to him in the genus *Strix*, arranging them in two groups as follows

AURICULATÆ.

bubo.
scandiaca (doubtful).
asio.
otus.
scops.

INAURICULATÆ.

aluco (= *flammea* of XII ed.).
funerea (doubtful).
nyctea.
stridula.
ulula.
basserina.

These are all recognizable species except *scandiaca* and *funerea*, which have been usually dropped out of consideration as composite or doubtful.

As already stated, Brisson in 1760 gave names to these two groups, calling the eared owls *Asio* and restricting *Strix* to those without ears.

In 1799 Cuvier (*Leçons d' Anat. Comp.*, Tab. II) did precisely the same thing, using the names *Otus* and *Strix* respectively; and in 1806 Duméril (*Zool. Analytique*, p. 34) again named the eared owls of Linnæus, calling them *Bubo*.

Hence we have three names coextensive and absolutely synonymous — *Asio* Brisson = *Otus* Cuvier = *Bubo* Duméril: and neither of the latter can be revived for any part of the original group included under *Asio*, i.e., the *auriculate* of Linnæus (*cf.* Allen, discussion of the nomenclature of the genus *Dicotyles*, *Bull. Am. Mus. Nat. Hist.*, XVI, 1902, p. 162). This disposes absolutely of *Bubo*, and I had supposed of *Otus* also, but Dr. Chas. W. Richmond calls my attention to the fact that Pennant had used the name *Otus* long before Cuvier, and upon looking up his 'Indian Zoölogy,' 1790, p. 34, we find a plate and description of "*Otus bakkamæna*." The identity of this bird has been somewhat in doubt, but the majority of writers have regarded it as the small screech owl of Ceylon and it has been so accepted by Blanford (*Fauna of Brit. Ind.*, III, p. 297) and Sharpe (*Hand List of Birds*, I, p. 286), though neither of them seem to have realized that in so doing they were bound to adopt the generic name *Otus* for the Screech Owls.

The identification of Pennant's bird with the Barn Owl, which has been proposed by some, cannot be upheld, as the description and size are quite at variance with that species. This, moreover, would make the Barn Owl the type of *Otus* and leave the Snowy Owl as the type of *Strix*!

In the preface to Pennant's *Indian Zoölogy* of 1790 he states that there was an earlier edition published by Forster in 1781, but upon consulting this I find the bird under the name *Strix bakkamæna*. Both Sherburn and Blanford, however, quote a still earlier 1769 edition, in which the name *Otus* is used, so that we are apparently safe in accepting this as the date of the genus

Otus, though I have not personally been able to consult this edition.

The recognition of this early use of *Otus* fixes the name beyond question upon the Screech Owls and cancels the action of Savigny who, in 1809, established the genus *Scops* for these birds. It also avoids the controversy as to whether the use of *Scopus* Briss., 1760, for the Umbrette invalidates *Scops* of Savigny, a question upon which American and British authors have long been at variance.

With the Screech Owls *asio* and *scops* thus removed from the genus *Asio* of Brisson we have left only the species *bubo* and *otus*.

In 1815 Rafinesque (*Analyse*, p. 69) used the name *Bubotus*, but Dr. Richmond, who has examined a copy of this rare work in the Library of Congress, informs me that the name is "merely a new name or emendation of *Bubo* Duméril," and consequently falls with that.

In 1832 Wagler (*Isis*, p. 1221) proposed *Nyctalops* for his new species *N. stygius*. This bird is now regarded as congeneric with "*Asio otus*" (Linn.) Briss., and removing the latter to the genus *Nyctalops* we have left as the type of *Asio*, *Strix bubo* Linn.

It must not be thought that the Great Horned Owls were not provided with generic names, other than *Bubo* Duméril, which we have shown to be untenable, for we find three proposed in 1837, and others later. The former are

Ascalaphia Geoffr., *Echo du Monde Savant*, III, p. 4. (type *A. savignii* Geoffr. = *Bubo ascalaphus* Savign.).

Heliaptex Swains., *Class. Birds*, II, p. 217 (type *S. arctica* Swains. = *Bubo subarctica* Hoy).

Urrua Hodgs., *Jour. As. Soc. Bengal*, VI, p. 372 (type *V. cavearia* Hodgs. = *Otus bengalensis* Frankl.).

If my argument is correct, and *Strix bubo* is by elimination the type of *Asio* Brisson, we shall not have to consider these names at all, but I give them in order to complete the record. Moreover, they will probably not have to be considered in any case, since Swainson in the same year (1837) restricted *Asio* Brisson to the species *bubo* and *virginianus*, bringing us to the same point that I have reached by elimination.

If my views are adopted no change will be required in the genera of any of the 'earless' owls, while our 'eared' species will stand as follows:

FAMILY ASIONIDÆ.

Genus NYCTALOPS Wagler, 1832. Type *N. stygius* Wagl.*Asio* Auct. (*nec* Brisson).*Otus* Auct. (*nec* Pennant, *nec* Cuvier).366. *Nyctalops wilsonianus* (Less.).367. *Nyctalops accipitrinus* (Pall.).Genus ASIO Brisson, 1760. Type *Strix bubo* Linn., by elimination*Otus* Cuvier, 1799 (*nec* Pennant).*Bubo* Duméril, 1806.*Bubotus* Rafin., 1815.375. *Asio virginianus* (Gmel.).375a. *Asio v. pallascens* (Stone).375b. *Asio v. subarcticus* (Hoy).375c. *Asio v. saturatus* (Ridgw.).375d. *Asio v. pacificus* (Cassin).Genus OTUS Pennant, 1769. Type *O. bakkamœna* Penn.*Scops* Savigny, 1809.*Megascops* A. O. U. Check-List.373. *Otus asio* (Linn.).373a. *Otus a. floridanus* (Ridgw.).373b. *Otus a. mcalli* (Cassin).373c. *Otus a. hendirei* (Brewst.).373d. *Otus a. kennicottii* (Elliot).373e. *Otus a. maxwelliæ* (Ridgw.).373f. *Otus a. cineraceus* (Ridgw.).373g. *Otus a. aikeni* (Brewst.).373h. *Otus a. macfarlanei* (Brewst.).373i. *Otus trichopsis* (Wagler.).374. *Otus flammeola* (Kaup).374a. *Otus flammeola idahoensis* (Merriam).

I regret very much to work such a revolution in the nomenclature of such well-known birds as these owls, but it seems to me after much careful study that these changes are inevitable if we follow the rules in our Code of Nomenclature, and I consider the sooner we have done with a disagreeable job the better.

It will be noticed that the alterations are due entirely to the discovery of the early use of the generic name *Otus* by Pennant and by the enforcement of the rule relating to synonyms in the case of *Bubo* Duméril. Had Dr. Bowdler Sharpe been aware of the former and realized the proper treatment of the latter case when he wrote his excellent review of the owls in 1875 (*Ibis*, p.

324) he must, I think, have reached the same conclusion that I have here presented.

A revision such as I have offered will inevitably be severely criticised by those who do not believe in any change in our nomenclature, but who do not offer any explanation as to how we are to arrive at a fixed system of names, without such change. When they ask, "Are we any nearer to stability than we were ten years ago?" I would answer, yes! There are obviously only a certain number of publications in which descriptions of genera and species occur, and with the invaluable works of reference that Mr. Sherburn is placing in our hands we shall soon be past the possibility of the resurrection of old names.

The reason that we have to make so many changes at the present time is simply because this phase of the subject has only recently attracted the attention of more than a very few workers. Why such wholesale criticism should be aimed at the revision of nomenclature I fail to see, when revision in classification, in any branch of natural science, is accepted as a matter of course. The changes in one field, since the time of Linnæus, are just as radical as in the other. When the anatomy and embryology of each member of a group is known, the classification will reach a definite basis; and when all the published names are found and interpreted the nomenclature will likewise be finally adjusted.

However, I fear that explanations will not be of much avail, except in the case of those who have been brought face to face with questions of this sort and have been compelled to make a decision; and I must confess that with these changes and others which have been elsewhere proposed in the case of certain of the earless owls, some of the pages of our Check-List will present a decidedly unfamiliar appearance. Indeed, there is danger that their contemplation may result, on the part of some of us, in actions which, according to Thomas Pennant, are characteristic of the owls themselves, for he tells us in his quaint 'Genera of Birds' (1781) that they are accustomed to wink in the day time, prey [pray?] in the evening, and snore loudly at night!

NOTES ON THE BIRDS OF THE CARIBOO DISTRICT,
BRITISH COLUMBIA.

BY ALLAN BROOKS.

Plate X.

DESIRING to study the fauna of the northern interior of British Columbia, I spent fifteen months, from June, 1900, to October, 1901, in the Cariboo district, a large portion of the time being devoted entirely to collecting. The first eleven months were spent in the heavily timbered country in the northern portion of the district, Quesnelle Mouth, Willow River, and the mountains southeast of Barkerville. From May, 1901, till the following October I made my headquarters at the 158-Mile House, in the southwestern corner of the district, just north of the 52d parallel. Excursions were made from this point to the Chilcotin plateau, Lac la Hâche and Horsefly River.

The country around Quesnelle, on both banks of the Fraser, and north to Fort George, is entirely covered with forest, mostly coniferous, — spruce, balsam, Murray pine and Douglas fir, with a good deal of birch and poplar. The altitude of the Fraser at Quesnelle is 1600 feet.

The mountains in this region are mostly low, level plateaus, but towards Barkerville they merge into the Cariboo Range, rugged and snow-capped, with timber line at about 5500 feet.

Towards the southern portion of this range the climate becomes more humid and the valleys, such as the upper Horsefly, possess a forest growth very similar to that of the coast region, — hemlock, cedar, Douglas fir, yew, etc., with a heavy growth of underbrush, red dogwood, devil's club, etc.

The southwestern corner of the Cariboo district, like the Lilloet district to the southwest, is diversified with a good deal of open and partially timbered country; the 158-Mile House is situated on a plateau of about 3000 feet altitude (Carpenter's Mountain). Here there is a good deal of natural prairie, with numerous lakes and ponds, and scattered groves of timber and brush, the fauna and flora having many of the characteristics of the plains to the east of the Rockies.

The whole district has a very cold winter climate and a moderately warm summer. Mosquitoes and blackflies swarm, and bird-nesting in the swamps and woods is generally anything but a pleasure.

1. *Colymbus holboëllii*. HOLBELL'S GREBE.

2. *Colymbus auritus*. HORNED GREBE.

Both these grebes were abundant, breeding on nearly every pond and lake. The larger species wages incessant war upon the smaller one, the larger birds diving and coming up beneath the smaller ones time and again to the terror of the poor little fellows, who often desert their nests in consequence.

3. *Podilymbus podiceps*. PIED-BILLED GREBE.—RARE.

I kept a good lookout for the Western Grebe (*Echmophorus occidentalis*), but never saw one, not even during migrations. Their line of migration is probably straight eastward from southern British Columbia, where they are common.

4. *Gavia imber*. LOON.—Abundant; the only species of loon observed.

5. *Larus philadelphia*. BONAPARTE'S GULL.—The only gull observed during the breeding season. Breeds in the neighborhood of Quesnelle Lake.

6. *Merganser americanus*. AMERICAN MERGANSER.—Breeding on the streams and the larger lakes but absent from the smaller lakes that are devoid of fish.

7. *Lophodytes cucullatus*. HOODED MERGANSER.—Scarce.

8. *Anas boschas*. MALLARD.

9. *Mareca americana*. BALDPATE.

10. *Nettion carolinensis*. GREEN-WINGED TEAL.

These three species are all abundant breeders.

11. *Querquedula discors*. BLUE-WINGED TEAL.

12. *Spatula clypeata*. SHOVELLER.

13. *Dafila acuta*. PINTAIL.

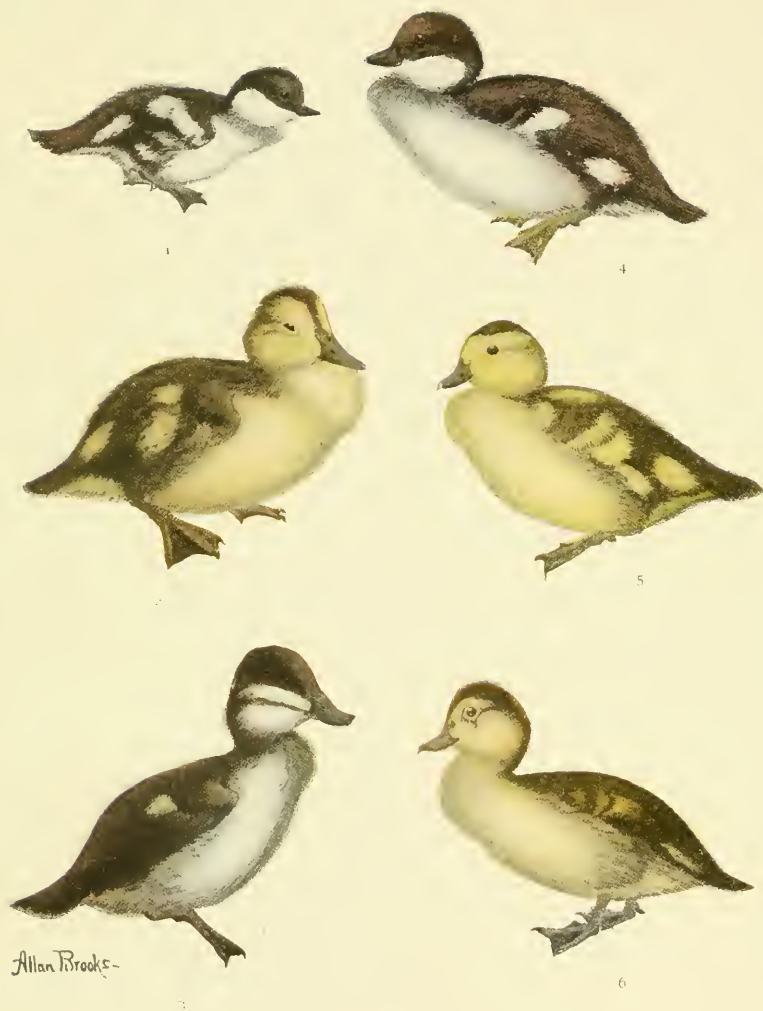
These three ducks are rather scarce breeders in the neighborhood of 158-Mile House.

I did not observe the Gadwall, the Cinnamon Teal, nor the Redhead, which are probably not found north of Lac la Hâche.

14. *Aythya vallisneria*. CANVAS-BACK.—Common breeder. The nests are bulky platforms of reeds, similar to a Coot's, found generally on small swampy ponds, away from the larger lakes, where the males associate in flocks. Eggs were taken from 21st of May to 6th June.

15. *Aythya marila*. SCAUP DUCK.—Observed only during its migrations.

16. *Aythya affinis*. LESSER SCAUP DUCK.—Abundant, breeding much later than the Canvas-back or Ring-necked. The nests were



YOUNG DUCKS.

1. *Charitonetta albeola*.
2. *Aythya vallisneria*.
3. *Erismatura jamaicensis*.

4. *Glaucionetta islandica*.
5. *Aythya collaris*.
6. *Aythya affinis*.

usually in coarse grass, with a waterway, generally a muskrat's runway, connecting with the nearest open water. Clutches varied from seven to eleven eggs each. First eggs taken on 21st June.

17. *Aythya collaris*. RING-NECKED DUCK.—A rather scarce breeder. I was able to take only one set of eggs, evidently a second laying, as there was no down. This was on the 27th June. The nest was in a tussock of grass, in eight inches of water; it was composed of coarse green grass and arched over with the drooping blades of the tussock. The nine eggs contained small embryos.

Young broods of this species were observed before the Lesser Scaups (*A. affinis*) had started to lay. The young in down are very light colored, resembling the young of the Canvasback and Redhead, and quite different from the dusky, unspotted young of the Lesser Scaup. (See Pl. X.)

18. *Clangula clangula americana*. AMERICAN GOLDEN-EYE.—Common during migrations, but not observed during the breeding season.

19. *Clangula islandica*. BARROW'S GOLDEN-EYE.—A rather scarce breeder in the neighborhood of 15S-Mile House, but common in La Hâche Valley. One set of eggs was taken from a hole in a dead Douglas fir, fifty feet from the ground, probably the deserted nest of a flying squirrel. The tree stood about four hundred yards from the nearest water. The eggs (seven) at this date (17th June) contained large embryos. I saw another nesting hole but was unable to reach it. The female brought fourteen young ones out from this.

20. *Charitonetta albeola*. BUFFLE-HEAD.—Almost every lake has one or more pairs of these charming little ducks. Unlike Barrow's Goldeneye, the nests were always in trees close to, or but a short distance away from water. These nests were invariably the deserted nesting holes of flickers, and in most cases had been used several years in succession by the ducks. The holes were in aspen trees, from five to twenty feet from the ground, and the entrance was not more than three and a quarter inches in diameter. The number of eggs ranged from two to nine, eight being the average; in color they resemble old ivory, without any tinge of green. I have several times seen the eggs of this duck described as "dusky green," but these have evidently been the eggs of some species of Teal. The female Bufflehead is a very close sitter, never leaving the nest until the hole was sawed out, and in most cases I had to lift the bird and throw her up in the air, when she would make a bee-line for the nearest lake, where her mate would be slowly swimming up and down unconscious of the violation of his home. In many cases the eggs had fine cracks, evidently made by the compression of the bird's body when entering the small aperture.

21. *Harelda hyemalis*. OLD-SQUAW.—Common on the larger lakes, but by June they had all gone North, with the exception of a single female which remained on a small lake near the 15S-Mile House throughout the summer.

22. *Histrionicus histrionicus*. HARLEQUIN DUCK.—A scarce summer resident on some of the mountain streams.

23. *Oidemia deglandi*. WHITE-WINGED SCOTER.—Numbers of these scoters remained on the larger lakes near the 158-Mile House throughout the summer, and to all appearances they were paired and breeding, yet I never found a nest, nor saw any broods of young.

24. *Oidemia perspicillata*. SURF SCOTER.—Seen throughout the summer but does not breed.

25. *Erismatura jamaicensis*. RUDDY DUCK.—A common breeder. While watching the curious antics of the males, through a binocular at very close range, I was struck with the peculiar formation of the head, there being distinct elevations over each eye resembling those of a frog. These were evidently caused by inflation from the inside of the skin. Young when first hatched are, as might be expected, very large, and dive for their food, unlike all other young ducks, which take their food from the surface for several weeks.

26. *Branta canadensis*. CANADA GOOSE.—Common. This is the only goose that breeds in Cariboo, Chilcotin, etc. I failed to find any evidence of the breeding of Hutchins's Goose, and all residents whom I questioned asserted positively that they had never seen any of the smaller geese breeding, though a few may remain through the summer, as they do in southern British Columbia, evidently non-breeding birds.

Many sets of the eggs of Canada Geese are taken and set under hens; these often produce undersized birds, which has led to the statement, so often made, of the breeding of Hutchins's Goose in British Columbia.

27. *Olor buccinator*. TRUMPETER SWAN.—Swans of this species breed in northern Chilcotin.

28. *Botaurus lentiginosus*. AMERICAN BITTERN.—Breeds in the southern portion of the district.

29. *Grus mexicana*. SANDHILL CRANE.—Breeds in suitable localities. The smaller species (*G. canadensis*) passes through on migrations only.

30. *Rallus virginianus*. VIRGINIA RAIL.

31. *Porzana carolina*. SORA.

32. *Fulica americana*. AMERICAN COOT.

All three are common and breed.

33. *Phalaropus lobatus*. NORTHERN PHALAROPE.—This phalarope may breed in northern Chilcotin, though I could find no evidence of its doing so near the 158 Mile House.

34. *Gallinago delicata*. WILSON'S SNIPE.—Common summer resident.

35. *Tringa maculata*. PECTORAL SANDPIPER.

36. *Tringa minutilla*. LEAST SANDPIPER.

These two sandpipers were frequently seen throughout the summer, but were evidently non-breeding birds.

37. *Tringa bairdii*. BAIRD'S SANDPIPER.

38. *Ereunetes pusillus*. SEMIPALMATED SANDPIPER.

39. *Calidris arenaria*. SANDERLING.

All were taken at Quesnelle during migrations.

40. *Totanus melanoleucus*. GREATER YELLOW-LEGS.—Breeding in many localities but all efforts to find the nest were unsuccessful, owing to the extreme watchfulness of the male bird, which kept constant watch from the extreme summit of some tall spruce. Young were first observed on 15th June.

41. *Helodromas solitarius cinnamomeus*. WESTERN SOLITARY SANDPIPER.—I think the Solitary Sandpiper breeds in the district, as I took young with the down still adhering to their plumage.

42. *Bartramia longicauda*. BARTRAMIAN SANDPIPER.—Frequently seen on both spring and autumn migrations. Mr. Sidney Williams took one specimen at Quesnelle and I shot another at the 158-Mile House.

43. *Actitis macularia*. SPOTTED SANDPIPER.—Common breeder.

44. *Numenius longirostris*. LONG-BILLED CURLEW.—Breeding in the La Hâche valley, but not observed in the Cariboo district proper.

45. *Squatarola squatarola*. BLACK-BELLIED PLOVER.

46. *Charadrius dominicus*. AMERICAN GOLDEN PLOVER.—Seen only during fall migrations.

47. *Ægialitis vocifera*. KILLDEER.—Common, breeds.

48. *Dendragapus obscurus richardsonii*. RICHARDSON'S GROUSE.—Common in partially wooded country in La Hâche valley, Chilcotin, and at Soda Creek, and again on the summits of the mountains of the Cariboo Range, but not in the intervening heavily wooded country. All those secured showed faint traces of a terminal tail bar.

49. *Canachites franklinii*. FRANKLIN'S GROUSE.—Abundant in all suitable localities. Towards the northern portion of the district many show an approach to typical *canadensis*.

50. *Bonasa umbellus togata*. CANADIAN RUFFED GROUSE.

51. *Bonasa umbellus umbelloides*. GRAY RUFFED GROUSE.

Most of the Ruffed Grouse of the district are intermediate between these two races, but ultra-typical examples of each were taken.

52. *Lagopus leucurus*. WHITE-TAILED PTARMIGAN.—The only Ptarmigan observed. I could find no record of *L. rufestris*, although it occurs further south.

53. *Pediæcetes phasianellus columbianus*. COLUMBIAN SHARP-TAILED GROUSE.—Abundant at 158-Mile House; scarce at Quesnelle. Those taken at the latter locality show a close approach to typical *phasianellus*.

54. *Zenaidura macroura*. MOURNING DOVE.—Scarce; in the southern portion of the district only.

55. *Nyctala tengmalmi richardsoni*. RICHARDSON'S OWL.—Quesnelle.

56. *Glaucidium gnoma californicum*. CALIFORNIA PYGMY OWL.—Taken as far north as Willow River.

57. *Dryobates villosus leucomelas*. NORTHERN HAIRY WOODPECKER.—Common at Quesnelle and in the mountains.

58. *Dryobates villosus hyloscopus*. CABANIS'S WOODPECKER.—Breeding at 158-Mile House.

59. *Dryobates pubescens homorus*. BATCHELDER'S WOODPECKER.—Scarce; not observed during the winter months.

60. *Picoides arcticus*. ARCTIC THREE-TOED WOODPECKER.—Not uncommon. As far as could be judged without actual comparison, all the specimens taken were fully as large as eastern birds. The subspecies lately described by Mr. Outram Bangs occurs in the Okanagan district to the southward.

61. *Picoides americanus*.—Taken from Willow River to Clinton; breeds throughout this region.

62. *Sphyrapicus varius nuchalis*. RED-NAPE SAPSUCKER.—Common summer resident.

63. *Ceophlæus pileatus*. PILEATED WOODPECKER.—Resident; observed as far north as Willow River.

64. *Colaptes auratus*. FLICKER.

65. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.

In the neighborhood of the 158-Mile House both species occur and interbreed. From one nest hole I took seven nestlings, which varied from typical *cafer collaris* to nearly typical *auratus*.

66. *Cypseloides niger*. BLACK SWIFT.—Observed in the southern portion of the district.

67. *Selasphorus alleni*. ALLEN'S HUMMINGBIRD.—Breeding near 158-Mile House.

68. *Stellula calliope*. CALLIOPE HUMMINGBIRD.—Breeding in the mountains west of Clinton in the Lilloet district.

69. *Empidonax traillii alnorum*. ALDER FLYCATCHER.—Breeding birds taken at Quesnelle were closer to *alnorum* than to typical *traillii*; the latter is the species breeding in the southern portion of the district.

70. *Otocoris alpestris leucolæma*. PALLID HORNED LARK.—Breeding above timber line near Barkerville. The spotted young are darker in coloration than would be expected from the color of the adult.

71. *Otocoris alpestris merrillii*. DUSKY HORNED LARK.—Breeding on Chilcotin plateau.

72. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.—Noticed only at 158-Mile House, as a straggler.

73. *Carpodacus cassini*. CASSIN'S PURPLE FINCH.—Summer resident at Soda Creek, and probably also at Quesnelle.

74. *Leucosticte tephrocotis*. GRAY-CROWNED LEUCOSTICTE.—Breeding above timber line near Barkerville. The young were fully fledged the last week in July.

75. *Leucosticte tephrocotis littoralis*. HEPBURN'S LEUCOSTICTE.—After identifying the typical species as the species breeding in the district, I was surprised to find *littoralis* the common winter visitant around Quesnelle, where no *tephrocotis* were then seen.

76. *Acanthis hornemannii exilipes*. HOARY REDPOLL.—I took one nearly typical example at Quesnelle, and also have several taken by Mr. Sidney Williams at that place.

77. *Poœcetes gramineus*. VESPER SPARROW.—The Vesper Sparrows of Cariboo seem closer to the typical species than to either of the subspecies *affinis* or *confinis*. They were common at 158-Mile House, and were also breeding at timber line near Barkerville.

78. *Ammodramus sandwichensis*?—The Savanna Sparrows of Cariboo belong to the large, small-billed race, found throughout the interior of British Columbia, and are quite distinct from the small gray form breeding in the Lower Fraser Valley and generally identified as *alaudinus*. I suspect the former is closer to *alaudinus* and that the latter is an undescribed subspecies.

79. *Spizella monticola ochracea*. WESTERN TREE SPARROW.—Breeding near Barkerville.

80. *Spizella breweri*. BREWER'S SPARROW.—Two males taken at 158-Mile House, 3d July, 1901.

81. *Melospiza lincolni striata*. FORBUSH'S SPARROW.—Tolerably common breeder; one set of five eggs taken at 158-Mile House, 5th June.

82. *Ampelis garrulus*. BOHEMIAN WAXWING.—Breeding from 158-Mile House northward. I arrived at Quesnelle too late for eggs, but kept a sharp lookout for Waxwings the following spring at 158-Mile House. I first noticed them there on 11th June, when I came across a small flock and shot one which proved on dissection to be a female about to lay. On returning to the same spot I found the Waxwings, consisting of a colony of five pairs of birds, still there, and soon discovered a nest in a Murray pine, near the end of a limb and about twenty-five feet up, this then (12th June) contained two eggs. On the 15th I took this set, which then consisted of four eggs. The nest was loose and bulky, composed of *Usnea* moss, dry grass and weed stems, and lined with fine material, with a few green aspen leaves in the lining, no doubt to render the eggs less conspicuous. On the 26th June I carefully looked over all the trees in the neighborhood with my binocular, and found three more nests, all in tall Douglas fir trees; two of these I was able to climb to; each contained four eggs within a few days of hatching. The nests were similar to the first but without the green aspen leaves, probably due to the fact that the nests were better concealed from above. I was unable to reach the fourth nest, nor could I find that of the remaining pair of birds.

83. *Ampelis cedrorum*. CEDAR WAXWING.—Not observed at 158-Mile House, but found breeding at Quesnelle, where it evidently laid its eggs later than the larger species.

84. *Helminthophila celata*. ORANGE-CROWNED WARBLER.—A scarce summer resident; specimens of old and young birds showed this to be the typical *celata* and not *lutescens*.

85. *Helminthophila peregrina*. TENNESSEE WARBLER.—This was a common breeder at 158-Mile House, where its sharp insistent song was to be heard from every copse in the partially wooded district. An account of its nesting has already been given in 'The Auk' for January, 1902 (Vol. XIX, pp. 88, 89).

86. *Dendroica auduboni*. AUDUBON'S WARBLER.—Tolerably common breeder.

87. *Dendroica maculosa*. MAGNOLIA WARBLER.—Several seen at Quesnelle during fall migration.

88. *Dendroica striata*. BLACK-POLL WARBLER.—I shot a Black-poll Warbler in the first plumage at Quesnelle but was unable to find it in the thick brush. I am very well acquainted with the species and am positive of the identity, as when first seen the bird was within five feet of me, and I had a good look at it.

89. *Sieurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.—Breeding at Quesnelle, and less commonly at 158-Mile House.

90. *Setophaga ruticilla*. AMERICAN REDSTART.—Breeding throughout the district.

91. *Galeoscoptes carolinensis*. CATBIRD.—Breeding as far north as Soda Creek.

92. *Regulus calendula*. RUBY-CROWNED KINGLET.—Breeding near 158-Mile House. On the 11th June I found a nest in a small spruce not four feet high; the nest was close to the stem and about two feet from the ground; it was a very deep cup, almost a vertical cylinder. The sitting bird must have been entirely concealed. It contained five eggs, a sixth imperfect one was sticking in the foundation of the nest; it had evidently been pushed through the lining and a fresh floor built over it.

The owners were raising a great outcry over the intrusion of a wandering brood of Whiskey Jacks; two grouse feathers were carefully put over the entrance to the nest, which made me think that it had been rifled by the jays and the lining pulled out.

93. *Hylocichla ustulata swainsoni*. OLIVE-BACKED THRUSH.—A common breeder from Clinton to Quesnelle.

94. *Hylocichla guttata pallasii* HERMIT THRUSH.—This was the form of Hermit Thrush occurring at Quesnelle; a skin from 158-Mile House seems closer to the typical form.

NOTES ON THE HABITS OF CERTAIN VENEZUELAN
BIRDS.

BY AUSTIN H. CLARK.

IN 'THE AUK' for July, 1902 (Vol. XIX, pp. 258-267), I published a list of the birds of Margarita Island, Venezuela, based on a collection made by myself in that locality in the summer of 1901. During my stay on the island, as well as while at various towns on the mainland, I took copious notes on the habits of the different species, which lack of space prevented my giving, at that time, in as much detail as I would have desired. In view of the fact that so few people ever visit this part of the world, or ever see these birds under the conditions which pertain there, I shall take this opportunity of selecting the most interesting from among them, and giving a brief sketch of their peculiarities, treating them in the order in which they were given in the list.

The Booby Gannet (*Sula sula* Linn.) was one of the commonest sea-birds at the time of my visit. The first were observed far out in the Caribbean; and on nearing the South American coast, little companies of half a dozen or so became rather frequent. But in no place did I see them so abundant as in the channel between Margarita and the mainland, and, at certain times, about Carúpano. They seemed to approach the land solely for the purpose of feeding, after which they withdrew to open water. Just off Carúpano there was a certain spot to which every day came hundreds of sea-birds of many species to fish. Over one half of this congregation were common Brown Pelicans (*Pelecanus fuscus* Linn.), and most of the rest were these gannets. Overhead soared a score or more Frigate Birds (*Fregata aquila* Linn.), while various gulls and terns composed the remainder. All the larger members of this vast flock acted in perfect unison, wheeling about until a sufficient altitude was obtained, all diving with a great splash, then all slowly rising again to repeat the performance. Every now and then a Frigate Bird would come swooping down upon some hapless gull. I was much puzzled, at first, to find a plausible explanation for the fact that, day after day, the birds collected in practically the same spot to feed. The water there

was fully as deep as in the surrounding parts, and, from the land, no difference whatever was discernible. I thought I had found a possible clue to the mystery one day, while I was watching some boys fishing off the end of the wharf. Every few minutes some fish or other, most often a sea-catfish (*Galeichthys*) would rise to the surface, feebly struggling, to be almost instantly gobbled by some watchful gull or Frigate Bird. I obtained a couple of these fish, but could find no marks whatever on them to indicate in what manner they had been disabled. The inhabitants told me that at certain times fish run ashore here by the cart-load, and say it is due to the larger fish driving them in; but the United States vice-consul at Carúpano, Señor Orsini, believes that the real cause is the escape of sulphurous fumes through some crevice in the sea bottom, tainting the water so as to make it poisonous for the fish, which, to escape death from suffocation, run ashore. As the whole country about the town is very rich in sulphur, such an explanation seems highly probable; and it may well be that under the spot where the sea-birds congregate, coming to it from miles up and down the coast, there is some sulphur spring or temporary opening slowly giving out some volcanic gas or other which disables the fish. Unfortunately I could not visit the spot to test the truth of my theory; but I took several catfish which I found one day washing up on the beach, and carried them to a salt lagoon, entirely cut off from the sea. When placed in this, they immediately swam to the bottom, and I saw them no more.

Single boobies may often be seen fishing in company with solitary pelicans, imitating in every way the actions of their larger companions, diving at the same time, and rising simultaneously. Mr. Outram Bangs has suggested to me that perhaps the booby, being smaller and more active, finds a good fare in the fish which the uncouth pelican fails to catch. Just before dark, the gannets retreat to the channel between Margarita and the mainland, and fly about, uttering a peculiar note midway between a caw and a quack. They are unsuspecting, and pay no attention whatever to a boat, resembling pelicans in this respect; but they are not so readily caught by means of a hook and line as the latter. Directly east of Margarita there is a large rock, rising to a considerable

height above the surface of the sea. My attention was drawn to it from the fact that the few White Boobies (? *Sula piscator* Vieill.) seen seemed to come from that direction. An examination of this rock in early spring might yield interesting results in regard to the breeding of many of the sea-birds of this region.

A bird which claims our attention from its great abundance and large size, is the Black Vulture (*Catharista urubu* Vieill.). You are almost never out of sight of one, while they congregate by thousands about the cities, soaring overhead, or perched on the house-tops. The poorer quarter of Carácas is a favorite rendezvous for these birds, attracted thither, doubtless, by the unrivaled assortment of foul odors to be found there, as well as by the prospects of rich and bounteous repasts. Near Carúpano they were strangely scarce, due to the generally clean and wholesome condition of the town. On Margarita they were quite common, soaring about over the hillsides, generally keeping near the ground, and collecting by the score on the beaches to feed on the dead dogs which were continually floating in, as a result of a war of extermination made on canines during my visit. They are quarrelsome birds, using both claws and beak on an adversary; and I once saw one fatally hurt by others in a fight over the eyes of a dog which had just washed up on the beach near Porlamar. In the town of Port-of-Spain, on the English island of Trinidad, where 'corbeaus' are strictly protected by law, they are especially abundant, and may be seen at all times, walking about the streets, as tame as are English Sparrows in our cities. In fact, so highly do the people of Trinidad esteem the vultures as scavengers, that many crimes which are regarded as serious in our ideas of justice are punished less severely than the killing or injuring of one of these birds. In Port-of-Spain it is a common sight to see a vulture with one of its feet crippled from having been stepped on or run over while engaged in a contest with others over a bit of offal.

Perhaps the most characteristic bird of the coast region of Margarita, certainly the one which most surely claims the attention of the traveler unused to the American tropics, is the Parrakeet (*Conurus aruginosus* Linn.). One is never out of hearing of their incessant noise while near the coast, and little flocks of a dozen

to twenty are continually passing and repassing. They have two traits which are more or less common to all the group: they become instantly quiet and motionless on alighting, and are therefore very hard to locate in a tree; and they show great solicitude for a comrade in distress. I had been on Margarita a couple of weeks before I was able to secure a specimen, in spite of their abundance, so restless are they; but at last I succeeded, by dint of skilful manœuvring, in wounding one, which came fluttering down, square onto a 'tuna' bush, on which it was impaled, struggling and screeching. The remainder of the flock, about a dozen in all, immediately descended, and hovered about their unfortunate companion, some alighting on the ground, and others in a neighboring thorn tree, displaying as much anxiety as a robin does, when some intruder is in the vicinity of her nest. In fact, so unsuspecting were they, and so heedless of my presence, that I secured eight and could have got others, had I been able to care for them properly.

Perhaps I might add parenthetically an item in regard to these eight parrakeets, which illustrates one of the inconveniences of tropical collecting. I took them back to El Valle, the little town in which I was staying, together with four Burrowing Owls (*Speotyto brachyptera* Richm.), a White-tailed Buzzard (*Buteo albicaudatus* Vieill.), and a number of shore-birds and terns. As I had had no food since early morning (it was then the middle of the afternoon) and had passed a particularly trying day, walking many miles over shadeless, scorching sand, I thought that I would eat a light repast and take a short nap before skinning my trophies. In about half an hour I arose, and was much interested, as well as surprised, to see a long line of feathers, green, brown, gray, and white, moving along close to the wall, and disappearing into a hole. Investigation revealed the fact that the motive force behind each feather was a small ant. A hasty examination of my specimens showed me that seven of my parrakeets were so denuded as to be useless, all the owls were ruined, and the water birds were so greasy as to be unfit for preservation; the hawk, also, had begun to decay. After this rather severe experience, I never rested until the results of my day's collecting had been put in order, and out of the reach of these interesting, but obnoxious insects.

In the forest, replacing the parrakeet of the coast region, we get the large green Amazonian Parrot. This bird is common, and very noisy, its cry resembling the word *loro*, by which name it is known to the natives. When flying, from its great breadth of wing, it seems to lack both head and tail, being apparently of the same width from one wing tip to the other. Although of some size, it is a difficult bird to see, owing to its color, and its adroitness at concealing itself. If it were not for its continuous racket, it would often escape detection.

At Carúpano I had the opportunity of observing some very small parrakeets, about the size of an English sparrow. They were regular visitors in the courtyard of the hotel, and could be seen occasionally in the outskirts of the town. Their habits were quite sparrow-like, both in searching for food, and when flying. I was informed here, and had it confirmed at Trinidad, that they were abundant a few miles back from the coast. There is a more or less traveled route from Carúpano to Ciudad Bolívar, passing through the barren hill region of the coast, and then crossing the great "wilderness" which borders the Orinoco. Along this trail, large mammals of many species are common, such as the jaguar, puma, and ocelot, and macaws, toucans, many parrots, and numbers of other birds are abundant. From what I was able to learn, this would be a most interesting, as well as profitable trip for some ornithologist with leisure and an inclination for new experiences. It takes a little over two weeks, and is performed by means of mules and burros. The United States consul at La Guaira told me that, had he a knowledge of taxidermy, he could do a great deal for science by preserving the many curious mammals and birds which were brought to him out of this little explored region.

We have no bird, which, for pure foolishness and general lack of spirit, can be compared with the Two-banded Puff-bird (*Bucco bicinctus* Gould). Resembling somewhat, with its large beak and dark breast bands, a clumsy kingfisher, it can be approached very closely without taking alarm; and when it does fly, it merely goes to the nearest available tree or bush and awaits the second approach of the intruder. Even when shot at, it flies only a few yards, and then alights, inviting its pursuer to try again. Sometimes it does not fly at all, but remains stupidly staring at the cause of the

disturbance, until you either take pity on its idiocy, or kill it. I have shot two of them, perched near together, the second not being moved in the slightest degree by the death of the first. Sometimes, indeed, when out collecting with native boys, I have refused to shoot a puff-bird, whereupon they would attack it with stones, on a few occasions actually succeeding in killing it without causing it to take alarm. This bird is provided with a couple of blunt spurs on its wrists, with which it might possibly give one an unpleasant surprise; but I never saw an individual attempt to use them, as when wounded, no matter how slightly, they always seem quite resigned, and do not struggle as would a robin or blue-jay under similar circumstances.

Bonaparte's Woodpecker (*Melanerpes subelegans* Bon.) is an abundant bird on Margarita, and one can almost always hear it at a greater or less distance. Its cry is a loud rattle, peculiarly harsh and grating, which gets to be quite monotonous on short acquaintance. In spite of its abundance, I had a hard time getting specimens, as it seems to be difficult to kill; so much so, in fact, that it was one of the last birds added to my list. Their nests are commonly constructed high up in the cocoanut palms.

The little Buff-breasted Hummingbird (*Doleromyia pallida* Richm.) is sure to force itself upon one's attention by means of its strikingly loud voice. Just before dark, their notes, with a peculiar metallic quality, can be heard coming from the thick scrub on the hillsides. A close approach reveals the songster, perched upon some prominent twig. Here he sits, until some rival flies up and drives him off. He generally has not long to wait, as these, in common with many other hummingbirds, are very pugnacious.

During my stay on the island, I discovered a nest of Alice's Hummingbird (*Amazilia alicie* Richm.), neatly constructed after the manner of the red-eyed vireo; but while I was engaged in getting some means by which to reach it, my native companions, thinking I had left it, took the opportunity of testing their skill at stone-throwing, with the result that the nest was totally destroyed, and the bird killed. The boys also found some nests of Atala's Emerald (*Chlorostilbon caribbea* Lawr.), but I was not fortunate enough to do so. The birds were, in two cases, readily captured.

Of all the feathered tribe on the island, the Lance-tailed Manakin (*Cheiroxiphia lanceolata* Wagl.) seemed to me the most pleasing and generally attractive. Occurring in the mountain forest, its clear whistle is a distinctive feature of this part of the country. The natives call it "tintoro" which is a very good rendering of its note; the first syllable being moderately high, the next medium, with a rising inflection, the last low. Owing to the thick undergrowth and miserable footing in the deep woods on Margarita, I had some trouble at first to secure specimens, as everything naturally fled at my painfully noisy approach, until I tried imitating their song, which was very successful. I found two nests in the forest, both about five feet from the ground, one built after the manner of an orchard oriole, and the other a loose structure like that of a rose-breasted grosbeak. Both contained four eggs, resembling those of a scarlet tanager, but somewhat lighter in color. As no birds could be found in their vicinity, I did not disturb them; but from Capt. Robinson's description of a nest of this species which he found at La Guaira, I judged that one of these, if not both, belonged to this bird.

A surprise is in store for the novice when he first meets with the Barred Ant-shrike (*Thamnophilus doliatus* Linn.). One day, shortly after my arrival, while wandering about in the deep woods, I heard a cawing in the distance. Hoping to add some jay or other corvine bird to the fauna of the island, I carefully crept to the spot whence the sound proceeded, only to find that a solitary ant-shrike had been making all the disturbance. These birds sit very erect, resembling, with their long crests, our cedar waxwing.

The Creeper (*Dendroplex longirostris* Richm.), colored after the fashion of the Common Dipper (*Cinclus cinclus* Linn.) is a very different bird in life from what one supposes from an examination of specimens in collections. As a rule they are mounted in museums on T perches, which gives them, except for their beaks, the general appearance of some peculiar thrush. But in reality, they never, as far as my experience goes, assume that position, acting more nearly like large nuthatches than anything else. Their cry is a rattle like that of the belted kingfisher, but harsher and more grating. They nest in the post-cactus.

One of the most brilliant of the common birds was the large

oriole known as the Troupial (*Icterus icterus* Linn.). They were particularly noticeable in the hot coast region, where they were a welcome offset to the discouraging presence of the black vulture. Their loud but cheerful song consists of three notes, the first rather low, the second high, and the third intermediate. The word "troupial" accented on the middle syllable is a good onomatopoeic rendering of it. I was unable to find their nests.

Another common bird, resembling the troupial in many ways, although less energetic, is the Margaritan Oriole (*Icterus xanthornus heliocides* Clark). This bird has precisely the same notes as the other but less loud, and pitched a trifle higher. The males seemed to me to be considerably brighter and more strongly orange than any I had ever seen in collections, an observation which was found to be true on comparing my specimens with others from different localities. Their nests are commonly seen constructed after the manner of those of our common oriole, and placed near the tip of the long coconut fronds.

The lagoons bordering the island, especially a few miles to the eastward of Porlamar, formed the abiding place of many shore birds and terns, while on the edges of the mangrove swamps herons of many species could be seen. The commonest of the terns was a large one which I took to be the Sooty Tern (*Sterna fuliginosa* Gmel.). This was seen in immense flocks, wheeling about over the shallow water, showing now black, now white, according as their white breasts or black backs were visible. I also met with them afterwards at different places among the West Indies, but never in such numbers as at Margarita.

One day while on the sandy plain near the coast, my attention was attracted by a flock of about twenty very large birds, in the form of a wedge flying in the direction of the lagoon which separates the two parts of the island. Their size and actions suggested geese; and it occurred to me that perhaps they were flamingoes. Although these birds have never been recorded from this locality the central lagoon and mangrove swamp seem to furnish a good situation for them, and I should not be surprised if at some future time specimens of them are obtained there.

There was one other problem connected with the bird fauna of Margarita which I was unable to solve. Near the top of a high

spur of the central mountain just south of El Valle, there was a large cave, consisting of a spacious chamber, with an entrance about ten feet in diameter, and two shafts, one leading directly up through the roof, and the other slanting. The only inhabitants were a number of small bats (belonging to the genera *Peropteryx*, *Micronycteris*, and *Glossophaga*). The whole floor was covered with the skeletons of small birds and mammals, the larger part being those of the small doves. I recognized also Bonaparte's woodpecker among them; and in addition the remains of a murine opossum (? *Marmosa robinsoni* Bangs) and some small rodent. The question arose, what brought them there? The cave was high above any place where these forms could be found commonly, if at all, and no birds but vultures were seen in the vicinity; neither were there any traces of owls having lived here. The remains must have been accumulating for many years, as in some places they were over an inch deep, and the ground in front of the cave was strewn with them.

In spite of the work done in this locality by Capt. Robinson and myself, there are still several species on the island which neither of us obtained; and it is to be hoped that, in the near future, someone will visit Margarita and make a much more complete list than we have been able to do.

RECOGNITION OF GEOGRAPHIC VARIATION IN NOMENCLATURE.¹

BY LEVERETT MILLS LOOMIS.

IT SEEMS inborn in the human mind to desire to know the names of objects, and if the objects are new, new names are invented. When the South Atlantic States were settled back in 1600, the English colonists named our Robin after its English namesake — in their eyes, longing for the familiar things of England, the Robin of the New World was the Robin of their old home. But in the Mockingbird they found no European counterpart; they could give it no onomatopoetic name, for it had the notes of all birds, so they called it the Mocking Bird. A quaint old writer, who has hidden his identity under the initials 'T. A.,' and whose tract is one of the rarest in the long list of Americana, in writing of the birds of Carolina, says: "Birds the Country yields of differing kinds and Colours . . . For Pleasure, the . . . blew bird, which wantonly imitates the various Notes and sounds of such Birds and Beasts which it hears, wherefore, by way of Allusion, it's call'd the Mocking Bird; for which pleasing Property it's there esteem'd a Rarity."

Later came Mark Catesby, the ornithologist, and proceeded to give a new name, for the trick that ornithologists have of giving new names to familiar birds, is an old trick, as old as the trade of ornithology. This new name for the Mockingbird, which appeared in Catesby's sumptuous folio, 'The Natural History of Carolina, Florida, and the Bahama Islands,' was *Turdus minor cinereo-albus non maculatus*.

Turdus minor cinereo-albus non maculatus, however, was not to be lasting; a master mind came into the world, an iconoclast. This image-breaker was Linnæus, who had genius for system — his 'Systema Naturæ' reduced ornithology to system. The Mockingbird, still the sweet singer of the Southland, is given a new

¹ Read at the special session of the American Ornithologists' Union and Tenth Anniversary of the Cooper Ornithological Club, San Francisco, May 15, 1903.

name, *Turdus polyglottos*; *Turdus* the name of the genus and *polyglottos* the name of the species.

Along the way cut out by Linnæus numerous bird students traveled. Boie in 1826 took the Mockingbird out of the genus *Turdus* and put it in a genus of his own, giving the genus the name *Mimus*, the species name remaining as *polyglottus*; the whole name of the Mockingbird thus rehabilitated was *Mimus polyglottus*. In 1827, Swainson likewise instituted a new genus for the Mockingbird, styling it *Orpheus*.

Vigors, in 1839, in working up the birds obtained by the ship 'Blossom' in her voyage along the Pacific Coast gave the Mockingbird the specific name *leucopterus*, coupling it with the generic name *Orpheus*, for he supposed he had discovered a new species of Mockingbird.

In 1858, Professor Baird thought possibly he had found a long-tailed Mockingbird in California, and tentatively named it *Mimus caudatus*. In 1865, Dr. Coues called the Mockingbird of Arizona *Mimus polyglottus*, var. *caudatus*.

The last author, Dr. Mearns, to deal with the Mockingbird, tells us in 'The Auk' for January, 1902, that there are two kinds of Mockingbirds in the United States; namely, *Mimus polyglottos polyglottos*, *Mimus polyglottos leucopterus*. I fear it will be said that ornithologists have advanced backward from the binomial *Mimus polyglottus* of Boie toward the *Turdus minor cinereo-albus non maculatus* of Catesby.

With partial knowledge of geographic variation, came departure from the binomial system. *Mimus caudatus* of Baird was found to intergrade with the eastern bird and was reduced to *Mimus polyglottus*, var. *caudatus*. Later the leading American ornithologists agreed to leave out the abbreviation var., and have the pure trinomial, as in *Mimus polyglottos leucopterus*. With this change, the term subspecies came into vogue, supplanting the word variety. Then followed a period when great series were accumulated, and subspecies multiplied, and now a large part of the United States birds bear trinomials—even Catesby is outdone, for he called the Cardinal by the binomial, *Coccothraustes ruber*, while in the last systematic work on American birds the Cardinal has this cognomen, *Cardinalis cardinalis cardinalis*—in short, *cardinalis* three times, and out.

The study of specimens has made known geographic variation, as such study has made known individual variation and variation in sex, age, and season. Systematic ornithologists have groped their way into the light; of the sixteen variants, bearing trinomials, among California 'swimming birds,' fifteen were first described as species.

The Song Sparrow from Petaluma, California, originally designated *Ammodromus samuelis*, has become a sort of classic illustration of the way the facts of geographic variation have dawned upon the minds of systematic ornithologists.

Variation in sex and season in like manner has added to the darkness; for example, the male and female of Williamson's Sapsucker have been placed in different genera, and the winter and summer plumages of the Marbled Murrelet have each been described as distinct species.

Nomenclature has been a means in gaining knowledge of variation. In seasonal and sexual variation it has proved a temporary structure. Is this not also true in geographic variation? Is not nomenclature (binomial or trinomial) in geographic variation a scaffolding to be torn down rather than the edifice that is to abide?

Granting all that is unfolded in the most elastic theories of evolution concerning incipient species—it matters not whether they hail from islands where geographic variation breaks down in individual variation, or whether they be the artificially selected sections from regions where the arid passes into the humid—we are still confronted with the question: Is the science of ornithology to be advanced or retarded by continuing the recognition of geographic variation in nomenclature?

A glance at later American works on ornithology, containing life-histories as well as the systematic aspects of the subject, reveals that variants are often treated in the same manner as full-fledged species; both are given a vernacular name, description, habitat, and biography. For example, the variant of the Murre occurring on the Pacific is placed on the same footing, in this respect, as the Tufted Puffin, notwithstanding the hiatus that separates the Tufted Puffin from all other birds; the Tufted Puffin represents complete isolation of a form, the variant of the Murre variation within the bounds of such an isolated form. Whatever

future possibilities there may be in evolution, the Tufted Puffin and the variant of the Murre are not now of the same rank. We are to work out the questions of bird life of to-day, not those of ten thousand years hence. In spite of our boasted advance, we treat variants under trinomials in the same manner Professor Baird treated them in 1858 under binomials, fulfilling the adage that "extremes always meet."

If we deal with the food of birds, we find it convenient to ignore variants; the intermediates might be the only individuals with full stomachs. Thus it happens, that Dr. Judd has lumped all the Loggerheads in dealing with the food of our Shrikes.¹ Turn in what direction we will in the study of birds upon the basis of subspecies, intermediates bar the way.

Systematic ornithologists have been forced to seek stability in nomenclature in the law of priority. From subspecies, however, there is no refuge, except the opinion of experts, which varies with the type of mind of the individual expert.²

Mr. Ridgway in the preface to the first part of his 'Birds of North and Middle America' says: "No doubt many of the forms which the author has recognized as subspecies in the present work may appear trivial to others, especially those who have not had advantage of the material upon which they are based; but in all cases it has been the author's desire to express exactly the facts as they appear to him in the light of the evidence examined, without any regard whatever to preconceived ideas, either of his own or of others, and without consideration of the inconvenience which may result to those who are inclined to resent innovations, forgetful of the fact that knowledge cannot be complete until all is known."

Dr. Allen in a review of this work remarks: ³ "Yet it is sometimes possible for slight differences to become magnified and their importance over-estimated by long and intense consideration of them — in other words, there is danger of losing one's poise of

¹ Bull. No. 9, U. S. Dept. Agric., Div. Biol. Surv., p. 20.

² The case is aggravated when the attempt is made to create species from extremes of geographic variation.

³ The Auk, Vol. XIX, p. 102.

judgment in dwelling upon minute details, which tend thereby to assume exaggerated importance."

Dr. Gill reviews the subspecies question as follows:¹ "There is a serious taxonomic problem that will confront us in the treatment of North American birds. Our ornithologists very generally have manifested a disposition to study the variations of species and to discriminate the variants as subspecies. There is a tendency in the same direction in other branches of zoology and by some it has been called the statistical method. It has been very recently employed in ichthyology. For example, Mr. Walter Garstang, of Plymouth, appears to have shown that there is an average of minor characteristics which differentiate the mackerels of different ranges as distinct races, but he has not deemed it necessary to name such races. Such studies are valuable and should not be decried. Nevertheless an instability is introduced in any group in which undue prominence is given to such variations which is embarrassing. I do not see any end to such splitting, but an interminable number of subspecies looms threatening in the future. I would suggest that in the new ornithology a very subordinate rank should be given to the subspecies. The species might be described in generalized terms, that is, including all the variants, and the diversification into subspecies indicated in terse phraseology immediately after the diagnosis of the common characters."

Better still, if we treat geographic variation not as subspecies, but as we treat variation in sex, age, season, etc. By pursuing this course we have a stable criterion. It may be rather trying at the outset, arousing in us feelings akin to superstition, to call all Song Sparrows *Melospiza cinerea*; nevertheless the geographic variations ignored² are not greater than the sexual variation in Williamson's Sapsucker and the seasonal variation in the Marbled Murrelet, once of sufficient import for generic and specific distinction.

The question is not whether we affirm or deny the existence of

¹The Osprey, Vol. III, p. 92.

²The variation in size in the Song Sparrow is insignificant compared with the variation in size exhibited in the Canada Goose.

subspecies; the question is whether a bird name should be an attempt to express the facts and theories of evolution, or whether a bird name should be a convenient handle to forms exhibiting no intergradation, the species of to-day. In trying to manufacture a nomenclature for birds of remote ages, past and future, are we not putting an impediment in the way of the study of existing birds?

What then shall we call the Mocking Bird of the writer of the old tract on Carolina, the *Turdus minor cinereo-albus non maculatus* of Catesby, the *Turdus polyglottos* of Linnæus, the *Mimus polyglottus* of Boie, the *Mimus polyglottus*, var. *caudatus* of Coues, the *Mimus polyglottos polyglottos*, *Mimus polyglottos leucopterus* of Mearns? Call them all *Mimus polyglottos*, giving in the general description of the species geographic variation along with the other variations.¹

THE CALIFORNIA MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

BY J. A. ALLEN.

IN THE April number of 'The Auk' (XX, pp. 245, 246) reference was made to a proposed special meeting of the A. O. U. to be held in California some time in May of the present year. Details were given of the itinerary for the outward trip and of the probable cost of transportation for the round trip. The proposition met with such cordial approval that two Pullman cars were required for the accommodation of the members and their friends who desired to avail themselves of so favorable an opportunity to visit the Pacific coast. Chicago was the point of rendezvous for the depart-

¹ Since the above was written, I have read Dr. Allen's observations on 'Species, Varieties, and Geographical Races' in the 'Mammals and Winter Birds of East Florida' (Bull. Mus. Comp. Zoöl., Vol. II, no. 3, April, 1871, pp. 242-249). So far have we drifted, that the republication of these observations, written more than thirty years ago, would be a timely elucidation of the present questions in ornithological nomenclature.

ture, the A. O. U. special cars being attached to a train of the Santa Fé Railway leaving that city at 10.30 P. M., May 3; and San Francisco was reached on the afternoon of May 14. The eleven days thus spent were exceedingly profitable to the travelers, the journey being broken at several points for the purpose of making side trips to places of special interest, as the old historic town of Santa Fé in New Mexico, where a day was spent; at Adamana, in eastern Arizona, in the Little Colorado Desert, a day was given to the wonderful 'Petrified Forests'; two days were allotted to a side trip from Williams, Arizona, to the Grand Cañon of the Colorado; a morning at Hesperia, Arizona, gave opportunity for an examination of the famous yucca trees in the Mohave Desert; an afternoon at Riverside, California, was a delightful experience, and a day's stop at Los Angeles was improved by many of the party to make a trip to the summit of Mount Lowe.

Very few of the members of the party had previously visited the country traversed, and everything was new and intensely interesting; and, fortunately, among the few to whom the country was not new were experts who through previous extended field work in the region were able to give information respecting its topographic features and the peculiarities of its flora and fauna.

At Chicago an informal reception was given to the A. O. U. members by Mr. and Mrs. Ruthven Deane, at whose house they thus had opportunity to meet many Chicago ornithologists and naturalists; a reception was tendered them at Los Angeles by the Southern Division of the Cooper Ornithological Club. In San Francisco they received a most cordial welcome from the members of the Cooper Ornithological Club and the California Academy of Sciences, the Museum of the Academy forming the general headquarters, and in its lecture hall was held the two days' joint session of the A. O. U. and the Cooper Club.

The purpose of holding a meeting of the A. O. U. at some point on the Pacific coast was, primarily, to bring together as many as possible of the working ornithologists of the East and the West; it was therefore especially opportune that the first special meeting of the A. O. U. and the Tenth Anniversary meeting of the Cooper Ornithological Club could be held in joint session.

The meeting was called to order at 11 A. M., May 15, Dr. C.

Hart Merriam, President of the A. O. U., in the chair, and Mr. Charles R. Keyes, Secretary of the Cooper Club, acting as secretary. Mr. Charles A. Keeler gave a brief address of welcome in behalf of the Cooper Club, and an appropriate response was made by the President of the A. O. U. An afternoon and an evening session followed, and the meeting reconvened at 10.15 A. M., May 16, adjourning, *sine die*, at 12.30 P. M., of the same day.

Thirteen eastern members of the A. O. U., and thirty-three members of the Cooper Club were in attendance at the various meetings, and about twenty visitors.

The following papers were read :

1. Origin and Distribution of the Chestnut-backed Chickadees. Joseph Grinnell.

* 2. The Cassin Auklet. Howard Robertson.

3. Recognition of Geographic Variation in Nomenclature. Leverett Mills Loomis.

* 4. Notes on the Fresno District. J. M. Miller.

* 5. Do Valley Quail use Sentinels? Jno. J. Williams.

6. An Island Community, or Bird-Life on Laysan; illustrated with lantern slides. Walter K. Fisher.

7. Notes on the Birds of Chili. Joseph Mailliard.

8. Call Notes of the Bush-tit. Joseph Grinnell.

9. General Habits of the Prairie Falcon. Donald A. Cohen.

10. Oregon Birds caught with a Camera; illustrated with lantern slides. Wm. L. Finley.

11. The Bird Islands of Our Atlantic Coast; illustrated with lantern slides. Frank M. Chapman.

12. Remarks on the A. O. U. Journey across the Continent. Louis A. Fuertes.

13. The Farallon Islands; illustrated with lantern slides. W. Otto Emerson.

Resolutions of thanks were adopted on the part of the A. O. U. members for the courtesies extended to them by the members of the Cooper Club and the Academy of Sciences, and to the A. O. U. Committee of Arrangements for the California trip.

The eastern A. O. U. members present were C. Hart Merriam, President A. O. U.; J. A. Allen, Louis B. Bishop, H. C. Bumpus, Frank M. Chapman, John Lewis Childs, Mrs. E. B. Davenport, J. Dwight, Jr., J. H. Fleming, L. A. Fuertes, W. W. Maires, T. S. Palmer, Otto Widmann.

* Read by title at the close of the session.

In the afternoon following adjournment a trip was made to the Leland Stanford University at Palo Alto, in response to an invitation from its President, Dr. Jordan. The following day Mount Tamalpais was ascended by rail, the descent being made by the Ross Cañon trail, for the purpose of seeing its fine redwoods, and getting into close touch with some of the forms of vegetation and bird life characteristic of this portion of California.

On arrival in San Francisco the A. O. U. party practically disbanded, as it was planned to do from the first, the various members independently making their plans for the return journey and for such side trips as their several interests dictated. The Yosemite Valley and Monterey were points subsequently visited by many of the members, while the Farallons, and various points on the coast, in the San Joaquin and Sacramento valleys, and in the high Sierras attracted others, some six weeks or more being available for field work or sightseeing before the expiration of the time allotted for the trip. Messrs. Chapman, Dwight, Bishop, and Fuertes planned somewhat extended collecting trips, and were greatly aided in their plans for work by the kindness of various numbers of the Cooper Club.

The trip is one to be long remembered by those who were so fortunate as to be numbered among the congenial party of forty-four persons who left Chicago on the evening of May 3, on the A. O. U. excursion to California. The lay members, so to speak, will return with greatly enlarged views of the country and its resources and scenic wonders; the strictly ornithological contingent will have acquired a clearer conception of the varied physical conditions of the vast region between the Mississippi River and the Pacific coast, and of its diversified faunal and floral areas, and the wonderfully varied climatic conditions included within the boundaries of the State of California; and last but not least in value are the acquaintances the eastern members were enabled to form with the leading workers in Pacific coast ornithology, whom for the most part they had previously known only through correspondence or their published writings. The Cooper Club has most thoroughly redeemed its promise (see editorial in 'The Condor' for July, 1902) to give "a cordial welcome and a generous reception" to the A. O. U. in the event of its being able to arrange a meeting in California.

GENERAL NOTES.

Great Black-backed Gull in Oneida County, N. Y. — An immature female Great Black-backed Gull (*Larus marinus*) was shot in the southern part of this town, the latter part of February, 1903. This is the first recorded occurrence of the species in this county. — W. S. JOHNSON, *Boonville, Oneida County, N. Y.*

Additional Records of the European Widgeon (*Mareca penelope*) in Indiana. — My last record of this duck for Indiana was noted in 'The Auk,' Vol. XVI, 1899, p. 270.

An adult male was killed March 27, 1903, on the Englis Lake marshes by Mr. James M. McKay and the mounted bird is now in his possession. While he came to the decoy alone, there were several flocks of his American cousins on the marsh at the time, in whose company he had undoubtedly been.

Mr. Harry Ehlers of Chicago, has in his collection of mounted ducks, an adult male which he shot April 7, 1898, and a female shot March 28, 1898. This pair was taken on the Kankakee marshes near Thayer, Indiana. Another male was killed by Mr. Peter Willem of Chicago, near the same locality on March 31, 1902, and the mounted specimen is in his possession.

As a specimen was captured on Licking Reservoir, Ohio, in 1902,¹ and three others on the Monroe marshes, Michigan, in 1900 and 1902.² These records bring the number to seventeen for the interior and nine for the State of Indiana. It is not a little strange that all these Indiana birds should have been taken along the Kankakee River during a period of twenty-two years. — RUTHVEN DEANE, *Chicago, Ill.*

Hybrid Duck — Mallard (*Anas boschas*) + Pintail (*Dafila acuta*). — Eight or ten years ago there was killed in this vicinity by Mr. George Lower (since deceased) a hybrid duck — *Anas boschas* (Mallard) + *Dafila acuta* (Pintail) — which specimen has just been placed in the Colorado Museum of Natural History in this city. I have recently had an opportunity of making a detailed study of this specimen and have carefully compared it with typical *A. boschas* and *D. acuta*, the results of which comparison I here give.

Bill plumbeous with black stripe on culmen as in ♂ *D. acuta*, but in measurements showing tendency toward *A. boschas*, being .75 broad at base and having culmen of 2.25; forehead and crown grayish brown streaked with black as in *D. acuta*, this well defined stripe merging into plain light cinnamon upon and terminating in a blunt point at the pos-

¹ The Wilson Bulletin, New Series, Vol. IX, p. 71.

² The Auk, Vol. XIX, p. 284.

terior extremity of the occiput; rest of head showing blending of brown of *D. acuta* with brilliant metallic green of ♂ *A. boschas* with strong tendencies toward the latter, the postocular region, extending from the eye backward across the head and from the stripe on the upper head diagonally downward to a point opposite the base of the lower mandible, bronze-green, which in the remaining portions of the head and neck shades into more definite bronze; open collar of lower neck .50 wide in front, widening to .75 on sides, and in rear extending upward into points, and here being 1.50 wide, thus showing a clear and very interesting combination of the regular narrow open collar of ♂ *A. boschas* and the long white stripes of the hind neck of ♂ *D. acuta*; upper chest, covering an area 1 in. across from neck collar, light cinnamon showing a blending of the dark chestnut of ♂ *A. boschas* with the white of ♂ *D. acuta*; lower chest, breast and abdomen grayish white (not as dark as in ♂ *A. boschas* nor as light as in ♂ *D. acuta*), lower chest covering an area 2 in. wide without zigzag markings but mottled with half-concealed circular brownish spots (the terminal portions of shaft markings as in ♀ *D. acuta*); remaining lower parts with faint zigzag dusky markings as in ♂ *A. boschas*; sides and flanks as in ♂ *A. boschas*; back and rump very much as in ♀ *D. acuta* but markings narrower and white much less prominent; tail 5.75, the four middle feathers (which are not as pointed as in ♂ *D. acuta*) forming the 'pin,' one feather of each of the middle and second pairs overlapping the other along the midrib, the middle pair dishing up at an angle of 45° and the second pair at an angle of 20°, thus showing a tendency to curl as in ♂ *A. boschas*; two middle tail feathers iridescent green, two second feathers bronze-green narrowly edged with white, remaining tail feathers with gray centres and white edgings as in ♂ *D. acuta* but edgings broader; upper and under tail-coverts as in ♂ *D. acuta*; scapulars brownish gray, darker than in ♂ *D. acuta* and lighter than in ♂ *A. boschas*, with zigzag markings finer than in ♂ *D. acuta* and a trifle coarser than in ♂ *A. boschas*, with jet-black scapular patch corresponding to that of ♂ *D. acuta* but of less extent, being only 2.50 in. long by .50 in. broad; speculum brilliant metallic green like that of head of ♂ *A. boschas* in marked contrast with the metallic violet speculum of ♂ *A. boschas* and the purplish bronze speculum of ♂ *D. acuta*, also differing from both these species in its anterior bordering, which in this hybrid is bicolored—grayish brown posteriorly and grayish white anteriorly; remaining wing markings as in ♂ *A. boschas*; legs and feet same size and color as in *A. boschas*.—A. H. FIELGER, *Denver, Col.*

The King Rail in Plymouth County, Massachusetts.—On January 20, 1903, an adult female, *Rallus elegans* was shot by Mr. Clarence Chandler at Ellenville, Plymouth County, Mass. The bird was at once sent to me and proved to be quite fat and in fine plumage. When shot the rail was skulking among some low bushes and dry grass near a salt marsh.—ARTHUR LINCOLN REAGH, M. D., *West Roxbury, Mass.*

Early Record for the Piping Plover (*Egialitis meloda*) in Rhode Island.—I have just obtained a Piping Plover which was taken on March 24 last by Mr. C. B. Clarke, a local taxidermist. The bird, which is a male in spring plumage, was shot on the Middletown marshes about three miles east of Newport. I believe this is the earliest spring record for the State.—LEROY KING, *Newport, R. I.*

Richardson's Owl (*Nyctala tengmalmi richardsoni*) in Illinois.—The only previous capture of this owl in the State was recorded in the 'Ornithologist and Oölogist,'¹ one having been taken October 15, 1884, at Rockford. I am indebted to Mr. Robert H. Van Schaack for the following information: "The Richardson's Owl was shot by my son, Louis F. Van Schaack, December 26, 1902, in Kenilworth, Ill. He found the bird along a small ditch that drains from the Skokie Swamp; he shot the owl with a toy air gun." I examined the specimen while in the possession of the taxidermist who mounted it, who informed me that he had mounted another specimen of this species about the same time, which was said to have been shot not far from Chicago, but I have been unable to get any definite locality or date.—RUTHVEN DEANE, *Chicago, Ill.*

Nesting of the Red-bellied Woodpecker in Harford County, Maryland.—Until within the last few years, I have found the Red-bellied Woodpecker (*Melanerpes carolinus*) to be quite a rare bird within a radius of twenty miles of Baltimore, and, until very lately, most of my records were made during the winter months.

For the past twenty years it has been common in the vicinity of Princess Anne, Somerset County, Maryland, but all my dates were made in the months of November, December, and January, the only time I was there. Still, from all I can find out, I am sure it is a resident there the year round, and my friends on the farm tell me they find it very destructive to the cherries.

On April 21, 1891, I made what I called my first spring note on the species, a bird being seen in a piece of heavy timber at Grace's Quarter Ducking Shore on the Gunpowder River, Baltimore County. This made me think perhaps they might nest here, but I saw no more birds within the breeding season until April, 1899, although, on July 28, 1898, in this same piece of woods Mr. F. C. Kirkwood and I saw an immature bird busily dodging the fierce attacks of a Red-headed Woodpecker.

Again, August 13, 1899, about one half mile from where the former young bird was seen, I saw two young, so small that the down was still clinging to their heads. These were apparently hunting for grubs and when one would fly it was immediately followed by the other, they seldom keeping more than ten feet apart.

Finally, after a little over twelve years' search for the nest I was

¹ Ornithologist and Oölogist, Vol. X, March, 1885.

rewarded by finding it May 11, 1902. The nest was in a dead stub growing up from the side of a red oak, and was twenty-four feet from the ground. The opening measured $2 \times 2\frac{1}{4}$ inches and it was 5 inches from the outer edge of the hole to the back wall. It went straight down for $11\frac{1}{2}$ inches, and the four eggs were resting on some fine chips.

About twelve inches below the entrance to the nest was a smaller hole. This had been commenced by the birds, but was abandoned, as they had run into a hard knot after digging in about $1\frac{1}{4}$ inches. The eggs were deposited just back of the lower hole, and there was only about one fourth of an inch of wood between them and the abandoned opening. The eggs, which are now in the collection of Mr. F. C. Kirkwood, were about ready to hatch.

The Red-bellied Woodpecker can now be called a resident species for Maryland, as I have data for every month in the year.

The only authentic record I have of their breeding in the State other than mine is a note of Mr. L. D. Willis, who saw old birds feeding young near Church Creek, Dorchester County, May 5, 1897. He says the nest was about 60 feet up, in the dead top of a red oak.—WILLIAM H. FISHER, *Baltimore, Md.*

A Much Mated House Sparrow.—In the spring of 1895 I placed a small box with a movable top in a tree near a window of my room in order to try a few experiments with the prolific English Sparrow (*Passer domesticus*) and made the following observations in 1897. During the coldest days and nights of the winter the box was not inhabited, but during warm spells it was occupied by three sparrows, a male and two females. On February 26 I first saw them carry straw to the box to repair the old nest. The male had driven away one of the females and had considerable trouble to keep her away.

I have noticed that where House Sparrows live in a box they take much time in constructing their nest, which is often not completed until some time after the eggs are laid, while those that build in trees build the whole nest in a day or two.

On March 15 the birds were still building. On March 19 I saw them copulate; also on March 23, and again on March 25. Then I shot the female while the male was only two feet away from her; he not hearing any noise, could not make out what ailed her, but it did not take him long to collect his thoughts, for he darted down and was on the ground before the female touched it. As she struck the ground she bounded in the air about a foot, which frightened him. He approached to within a foot of her and fluttered around her. She never even moved her wings after I shot her. My dog picked up the dead bird but I made him drop it by calling to him, but the male did not go back to her. Ten minutes after the male was courting another female; he seemed to know his mate was dead and wanted another immediately. On dissecting the dead bird I found the ovaries all small and the bird was apparently an old one.

On the morning of March 26 I heard the birds in the tree, and on looking out saw the male enter the box and three females were flying around the outside. He stood in the doorway and acted as if he was afraid they wanted to enter, and when one flew near the door he would rush in, turn around and chatter, as these birds do when fighting. Soon one of the females left, when the male came out and courted one of the other two. The other protested but soon flew away. On March 27 I saw them copulating, and also on March 28, and again on April 2 and 3. Then I shot the female when the male was not around. This was at noon. All the afternoon he did nothing but chirp. On dissecting the female I found the ovaries were well developed, she being nearly ready to lay; the bird was apparently a young of the previous year.

On April 4 he had another mate, but she seemed afraid to go into the box. She would enter half way and then back out. The next day she went into the box. April 10 and 11 I saw them copulate, and again on April 17, when I shot the female, at the entrance to the box while the male was on the top looking over at her. The male was very much frightened and flew away. On dissecting the female I found the ovaries very small. On April 22, the male was chirping near the box, coaxing the females to come near and then driving them away. April 23 he was courting a female near the box. On the morning of April 24 he had five females near the box. The supply of female sparrows seemed to be much greater than the demand. April 29 he was again mated. May 6 I saw them copulating. May 19 I shot this female and a cat got it. I now had to leave home for a few days, but on May 27 I found he not only had a new mate but I took from the nest five eggs, four slightly incubated and one addled. I did not shoot this bird, and on May 30 and 31 I saw them copulate. I have no further notes, as I was away the rest of the summer.

This bird had five mates up to the first of June, and he did not seem to mind, only for a few minutes, the loss of any of them, and always got a new mate sooner when he saw his mate killed (in one case in ten minutes) than when she was killed when he was away.

Apparently there must be many birds that go unmated throughout the year, for late in April this male had five females after him, all at one time. It would be interesting if some one who has the opportunity would experiment by shooting the male and see if the female would get another mate, and also carry the observation to a later period in the year. We often see several male birds fighting in the street for one female, but in this case the male had more females than he wanted.—J. H. CLARK, *Paterson, N. J.*

The Louisiana Water-Thrush in Minnesota.—On May 23, 1903, my father and I, while collecting small birds on the right bank of the Mississippi River near the mouth of Minnehaha Creek, shot an adult male Louisiana Water-Thrush (*Sciurus motacilla*). Though the female was not seen she was probably nesting near by as the male was in full song. Although Ridgway gives it (Birds of North and Middle America, Part II,

p. 640), as breeding in the "Mississippi bottoms as far as Red Wing," about fifty miles below Minnehaha Creek, we had not hitherto found this species in the vicinity of Fort Snelling.—LOUIS DI ZEREGA MEARNS, *Fort Snelling, Minn.*

Lophophanes vs. Bæolophus.—If the Crested Tits are to be separated generically from *Parus*, as the writer thinks should be done, the name *Lophophanes* should be restricted to the Palæarctic species, and the name *Bæolophus* Cabanis, used for the American species. The two groups differ materially in structural detail, and each runs through the same scale of variation as to style of coloration, both genera containing conspicuously "bridled" species (*Lophophanes cristatus* and *Bæolophus wollweberi*) and excessively plain-colored species (*Lophophanes dichrous* and *Bæolophus inornatus*). This parallelism in color-variation has served to confuse the case by leading those authors who would separate the two groups to place *B. wollweberi* in the genus *Lophophanes* on account of its general resemblance in coloration to *L. cristatus*; but *B. wollweberi* represents the extreme differentiation of the American group in structural characters.

The species and subspecies of *Bæolophus* recognized by the A. O. U. Committee on Classification and Nomenclature are as follows:—

- 731. *Bæolophus bicolor* (Linn.).
- 731a. *Bæolophus bicolor texensis* (Sennett).
- 732. *Bæolophus atricristatus* (Cassin).
- 733. *Bæolophus inornatus* (Gambel).
- 733a. *Bæolophus inornatus griseus* (Ridgway).¹
- 733b. *Bæolophus inornatus cineraceus* (Ridgway).
- 734. *Bæolophus wollweberi* (Bonap).—

ROBERT RIDGWAY, *U. S. National Museum, Washington, D. C.*

Balancing with One Wing.—Soon after reading Mr. Fishers' article in 'The Auk' for April on one wing equilibrium, I had an opportunity to observe this same method of balancing in the common Blue Jay. I secured a young Blue Jay, who had been out of the nest only twelve hours. When he perched on my finger, I turned the finger over, so as to destroy his equilibrium. But he would not be thrown off, but once shot out his left wing and gained his balance. I tried this experiment several times, with the result that he always gained his balance with one wing, usually the left one, as in Mr. Fisher's House Finches. He used his

¹ The removal of this form from the genus *Parus* renders the suppression of the subspecific name *griseus* and the substitution of *ridgwayi*, as proposed by Dr. Richmond, unnecessary.

right wing independently of the left, however, two or three times; but the left wing was used much more. This must be an inherited instinct, for the bird had not been with its parents since leaving the nest, for more than a few minutes, having been immediately placed in captivity, and the experiment tried twelve hours later.—ERNEST SEEMAN, *Durham, N. C.*

Ohio Notes.—I count myself fortunate in having found a pair of Rose-breasted Grosbeaks in this vicinity. They rarely nest here, usually remaining with us a few days, then going farther north, but this pair evidently intends to remain. I first saw them the 18th of May flying about a thicket of young trees and bushes as if their nests were near. Since that date I have seen the pair a number of times but have not yet found the nest. I am satisfied, however, that it is in the thicket and I will probably find it when the young are hatched.

The Red-headed Woodpeckers have apparently deserted this vicinity permanently; I have seen but two birds this spring. The numerous traction lines being constructed, and the consequent building up of the country districts, is, I think, the chief cause of their disappearance. On a recent trip through the more eastern counties I found the Redheads to be numerous.

The various ornithological and nature societies of Cincinnati and Hamilton County are again considering methods of dealing with the English Sparrows. In Cincinnati they are particularly troublesome, but in the past all efforts to control them have failed.

In southwestern Ohio the Cuvier Club of Cincinnati has compelled a rigid enforcement of the laws protecting our birds and has accomplished much good. Many of the desirable species are much more common than formerly. Cardinals, Orioles, Goldfinches, Thrashers, and other species are numerous. Chats, Flickers, Tanagers, Catbirds, etc., while not so numerous as the first mentioned species, are quite common.—NAT. S. GREEN, *Camp Dennison, Ohio.*

Louisiana Migration Notes.—During the past spring at New Orleans, and at other localities having the same latitude, additional data have been collected that show the extreme procrastination of many of the Warblers during the spring migration. In the wake of strong migratory impulses the last part of April, several species have loitered in this section until May was nearly half gone. The last Tennessee Warbler was noted May 9, at Audubon Park, New Orleans. April 29, and the week succeeding, this species had been reasonably common in the willow and hackberry thicket that grows on the river front at Audubon Park. In company with the Tennessee Warbler on April 26 and for one or two of the succeeding days, were one or two each of the Redstart, Black-throated Green Warbler, Magnolia Warbler, and Bay-breasted Warbler. In the matter of song, however, the Tennessee Warbler was alone. Mr. W. B. Allison reports

that in the oak and pine woods at Bay St. Louis, Miss., on the Gulf Coast, the preceding species, excepting the Tennessee Warbler, were still present as late as May 10.

The character of weather that induces this delay sometimes persists in the latitude of New Orleans past the middle of May, so it is doubtful how late the migrants of the class referred to would be apt to linger. The extreme record so far established is May 15 for the Redstart and Bay-breasted Warbler. One of each species was seen on that date in 1902 at New Iberia, La., 125 miles west of New Orleans, on the edge of the fertile prairies of southwest Louisiana, in which region migration is noticeably later than at New Orleans. The lateness of this date is less surprising for the Redstart than for the Bay-breasted Warbler, as the Redstart has been found breeding in central and northern Louisiana. Audubon, however, records that he became acquainted with the Bay-breasted Warbler in a cotton field in June. I have never seen any explanation of this anomaly.—H. H. KOPMAN, *New Orleans, La.*

RECENT LITERATURE.

Mudge on the Tongue Muscles of Parrots.¹—This paper contains a detailed and careful study of the muscles of the tongues of various species of Parrots and presents a scheme of classification based upon them and on the bones of the hyoid. Reference is made to the observations of others on the tongues of birds, but it might have been said that many of them, and especially the papers by Lucas, dealt with external modifications only. Nothing is said of these in the present memoir, so that we do not know whether or not Prof. Mudge attaches any value to outside characters, although we infer that he does not since *Trichoglossus* is not merely accorded no special rank, but is not even mentioned in the table of classification. The author states that his investigations show that the lingual muscles of the parrots are in the course of evolutionary changes, some of the muscles exhibiting the structural variations indicative of these much more markedly than others, and that the Loriidae have advanced farthest along the road of specialization. He then pro-

¹ On the Myology of the Tongue of Parrots, with a Classification of the Order, based upon the Structure of the Tongue. By Geo. P. Mudge, A. B. C. S. Lond., F. Z. S. etc. Trans. Zool. Soc. London, Vol. XVI, Oct 1902, pp. 211-272, pll. xxvi-xxix.

ceeds to trace the various stages of evolution in the order of their probable occurrence, illustrating the conditions found in a large number of species by admirable figures. And it may be said that only one who has done similar work can fully appreciate the time and labor that this study must have entailed. At the end we are presented with a table giving a systematic arrangement of the divisions of the parrots defined by the characters offered by the lingual muscles and hyoid. By these the parrots are divided into three families, Loriidæ, Nestoridæ and Psittacidæ; and here the work of Mr. Mudge may be looked upon as confirming the views of those who have established the first two families on other characters. The Psittacidæ are subdivided into two 'Groups,' one of which contains only the Psittaculinæ and Pyrrhulinæ while the second consists of seven subfamilies comprising the vast majority of parrots. To a certain extent the geographical boundaries of the subfamilies agree with the anatomical limits, but we find *Catca* bracketed with *Pyrrhulopsis*, and *Platyercus* with *Bolborhychus*, and the geographic unity is by no means conspicuous, as it is in the divisions of Gray's 'Hand List.'

It may, perhaps, be a mere personal prejudice, but the Australian region is so well marked ornithologically that it seems a little suspicious to see Australian and South American parrots placed in the same subfamily. Still every ornithologist is aware that no two schemes for the subdivision of the parrots agree in their minor details and that of Dr. Mudge is consistent in using the same class of characters throughout.

It would have been interesting to have compared the present arrangement with the results of Prof. Thompson's study of the cranial characters of parrots but, unfortunately, Thompson failed to put his results into definite shape and we are in the dark as to just what his ideas may be.

Some might perhaps urge against Prof. Mudge's classification that *Stringops* is not awarded a sufficiently high rank, being placed with other Australian species in the Cacatuinæ, but if *Stringops*, though specialized in some points is, on the whole, merely a cockatoo of generalized structure this association is what might have been expected on theoretical grounds.

Finally, it may be suggested, without in the least wishing to depreciate the most excellent work of Prof. Mudge, that it remains to be seen if an examination of the lingual muscles of any other division of birds will yield as good results as has been afforded in the present instance. The parrots, in structure and habits, are a remarkably homogeneous group of birds and it would seem that the differential evolution of their tongue muscles might be more uniform than in any other group, and consequently more available for purposes of classification.—F. A. L.

Winkenwerder on the Migration of Birds.—In the present paper¹ of

¹The Migration of Birds, with Special Reference to Nocturnal Flight. By H. A. Winkenwerder. Bull. Wisconsin Nat. Hist. Soc., Vol. II, No. 4, Oct., 1902, pp. 177-263, with diagrams and other illustrations.

nearly one hundred pages the author makes an important contribution to the literature of the subject, through, especially, his record of observations on the nocturnal movements of birds as observed by himself and others through telescopes. This detailed record, with the accompanying diagrams, forms an 'Appendix' of some 50 pages. The main discussion is divided into four chapters: (1) Historical Review; (2) The Causes of Migration; (3) Migratory Routes; (4) The Manner of Migration. The first two chapters seem rather perfunctory and unsatisfactory; the second, on the causes of migration, closes with the following statement of the author's conclusions: "Birds are set in migratory motions by a complex combination of changes in temperature, humidity and living nature. The cause for migration, however, is the failure of food in two widespread areas — the north and the south — at opposite seasons of the year" (p. 196). He also says (p. 191): "It has been maintained for years that the question of food will never explain the vernal migrations, however well it serves that purpose in autumn. . . . The assumption that the question of food will not explain the vernal migration has probably been due to our ignorance of the physical conditions of the south." He then cites a remark of Weismann's to the effect that "ponds, rivers and creeks become dry, insects disappear and even vegetation fails in many regions of the south in summer," and quotes "Mr. C. R. Ricker" (*lege*, C. B. Riker¹) on the effect of the dry season on vegetation, etc., at Santarem, Brazil (Mr. Winkenwerder, however, does not state the locality of Mr. Riker's observations), and adds: "Do not cases of this kind give us rather striking evidence that the food supply of the south is limited?" To Mr. Winkenwerder the matter is very simple. He says: "We have thus two areas in the geographical distribution of birds that are deficient in food at opposite seasons of the year, and we can see readily enough the cause for migration, both in the spring and in the fall!"

Under 'Migratory Routes' the author describes the methods and discusses the evidence afforded by the extensive series of observations on the nocturnal movements of birds as seen through telescopes at Madison and Beloit, Wis., Lake Forest, Ill., and Detroit, Mich., during May, 1900, and also in April, May, September and October, 1898-1901, at Madison. The theory of migratory routes is considered as established, and also the theory that they are determined by the topographic features of the areas traversed.

Under the head of 'The Manner of Migration' are considered 'Numbers associated in Migration,' 'The Altitude attained in Migration,' and the 'Associations of Individuals and Species.' Nine thousand birds per

¹ Mr. Riker's name is constantly misspelled "Ricker" throughout the paper, Coues appears as "Cowes", other names of authors are also misspelled, and Mr. Brewster's paper on bird migration is cited repeatedly as "Bull. Nutt. Orn. Club, No. 1," though sometimes correctly as Mem. Nutt. Orn. Club, No. 1.

hour, it has been calculated, were seen by Dr. G. O. Libby, in 1897, passing across the field of the telescope at the Washburn Observatory, during the whole period of observation. Telescopic observations seem to show that "by far the greater number do not attain an altitude much over one half mile from the earth's surface," and that former estimates of the altitudes at which birds migrate have been "far too high." As other observers have shown, many species are found in close association in migration, and also that the individuals may move singly, or in straggling bands, or in compact flocks.

As already intimated, the chief value of the present paper consists in the record of a considerable mass of new telescopic observations on the nocturnal flights of migrating birds.—J. A. A.

North American Water-Fowl.—Another bird volume of the 'American Sportsman's Library' series,¹ recently issued, treats of the 'Water-Fowl Family.'² It forms a volume of about 600 pages, under the joint authorship of L. C. Sanford, Dr. L. B. Bishop, and T. S. Van Dyke, with numerous illustrations by Fuertes, Bull, Frost, and others, the greater part of the bird illustrations being by Fuertes. The first fourteen chapters (pp. 1-502), devoted to 'Duck-shooting,' 'Goose-shooting,' 'The Swans,' 'Rail-shooting,' and 'Shore-bird Shooting,' are by Mr. Sandford, while the three chapters (pp. 503-564) treating of 'The Water-Fowl of the Pacific Coast,' are by Mr. Van Dyke. Then follows 'Diagnoses of Families and Genera' (pp. 565-579), by Dr. Bishop, and a very full and satisfactory index. Mr. Sanford has had a wide experience in the pursuit of North American 'Wild-Fowl,' and writes from an intimate personal acquaintance with the birds whose habits he so well describes. Some sixty pages are first given to the general subject of Duck-shooting, describing the different methods prevailing at various localities and under diverse conditions, including some remarks on 'The Decrease of Wild-Fowl' (pp. 63-70); then the Ducks are taken up in systematic sequence, species by species, followed by a similar treatment of the Geese, Rails, and Shore-Birds. All of the species and subspecies enumerate as North American in the A. O. U. Check-List, the waifs and strays from other countries, are included. Under each species is first given, in small type, a very full description of the birds, including sexual and seasonal variations of the plumage, in most cases including the downy young, and the eggs

¹ For a notice of the 'Upland Game Birds' see *Auk*, XIX, 1902, p. 306.

² The Water-Fowl | Family | By | L. C. Sanford | L. B. Bishop | and T. S. Van Dyke | New York | The Macmillan Company | London: Macmillan and Co., Ltd. | 1903 | All rights reserved—Crown 8vo, pp. ix + 598, 1 photogravure and 19 half-tone plates from drawings by L. A. Fuertes, A. B. Frost and C. L. Bull. American Sportsman's Library Series, edited by Caspar Whitney.

There is also a very full statement of the geographical distribution, prepared especially for use in the present connection by Dr. Bishop, who has contributed the general matter relating to the River Ducks, Sea Ducks, Mergansers, Geese, Swans, the Rail Family, etc., and the notices of the extra-limital species, and some other matter. 'The Water-Fowl Family' is thus a book for sportsmen which may be looked upon as technically correct in all matters of scientific detail, while the biographies of the species are satisfactorily full, and the details especially of interest to the sportsman are not omitted. The attention of ornithologists is directed to this book as containing much matter of permanent value from the standpoint of the naturalist, and especially to Dr. Bishop's carefully prepared summaries of the 'habitats' of the species, which give both the breeding and winter ranges, so far as they are at present known. There is also a note by Dr. Bishop (p. 365) on the intergradation of *Tringa couesi* and *T. ptilocnemis*, and apparently the first descriptions of the downy young of several species of the Ducks and Shore-birds.—J. A. A.

The 'New' Edition of Nuttall.—Two previous editions of the 'New Nuttall' have appeared during the last twelve years, the first in 1891, reviewed at length and somewhat severely in Volume IX of 'The Auk' (pp. 59–61), and the second in 1896, noticed in 'The Auk' for January, 1897 (XIV, p. 109). The present (third) edition¹ is a reprint from the electrotype plates of the second edition, with the omission of Mr. Chamberlain's preface, and a reversion to the misleading titlepage of the first edition of the 'New Nuttall.' What we have is not 'A Popular Handbook of the Birds of the United States and Canada,' but, as properly expressed in the title of the second edition, 'A Popular Handbook of the Ornithology of Eastern North America.' Why the publishers should revert to Nuttall's original title when the title of Nuttall's original work that related to "species which occur only to the westward of the Mississippi valley" has been omitted (see preface to first edition), is a question they will doubtless be frequently called upon to answer by unsuspecting purchasers of 'A Popular Handbook of the Birds of the United States and Canada.'

The present edition is printed on thin paper, thus bringing it within convenient compass for binding as a single volume; and the price being reduced from \$7.50 to \$3.00 will doubtless render the work available to a

¹ A Popular Handbook | of the | Birds of the United States | and Canada |
By Thomas Nuttall | New Revised and Annotated Edition | By Montague
Chamberlain | With Additions, and One Hundred and Ten | Illustrations in
Color | Boston | Little, Brown, and Company | 1903 — Crown 8vo, two vol-
umes bound in one, as separately pagéd 'parts.' Part I, Land Birds, pp. xlv
+ 473; Part II, Game and Water Birds, pp. ix + 431; pll. col. i—xx, and 172
text cuts. Price, \$3.00.

larger number of readers who would otherwise forego the possession of the 'New Nuttall,' which contains so much of the charming original.
—J. A. A.

Scott's 'The Story of a Bird Lover.'—Mr. Scott's autobiography,¹ published under the above title, forms a book of unusual interest. It has a fascination hard to analyze, as probably few ornithologists who open its pages will lay the book aside till the narrative of Mr. Scott's varied experiences as a field naturalist and collector has been perused to the end. That the title chosen is not unwarranted is evident throughout, and his enthusiasm will awaken a responsive throb in the hearts of many readers of kindred spirit. The 'Story' consists of fourteen chapters, each dealing with either a distinct period in the author's history or with some special excursion or field experience. It is written, we are informed, mainly from the recollection of the events chronicled long after they transpired, and thus evinces the author's retentive memory; but there are evidences here and there of slight lapses, or of lack of care in proof-reading, as in the orthography of the names of some of the persons mentioned in the early part of the narrative. The style is for the most part terse, simple, and animated, and has about it a characteristic personality unmistakable to those who have ever known Mr. Scott intimately.

The story begins with an account of the author's 'childhood,' 'youth,' and 'student days,' and follows with a general recital, in chronological order, of his field experiences, beginning with a trip to West Virginia in 1872, to western Missouri in 1874, to Florida in 1876, to Colorado in 1878, and to Florida again in 1878-79; the interval from 1882-1886 was spent mainly in Arizona, and 1886-90 on the Gulf Coast of Florida; Jamaica was visited in the fall of 1890, and two trips were made later to England. The scientific results of these numerous ornithological expeditions having already been published in a long series of special papers, only a list of them, in the form of a bibliographical supplement, being here given; but with the narrative is incorporated a large amount of personal reminiscence, relating to the people met with and the general condition of the country at the various localities visited at dates now so remote that these incidental references add much to the interest of the 'Story.'

The last chapter is entitled 'The Naturalist's Vision,' and deals with his studies of live birds confined in aviaries. From small beginnings he has now "a laboratory for the study of live birds," in which "between four and five hundred individuals are now installed and under constant observation." He outlines in this chapter some of the more obvious

¹The | Story of a Bird Lover | By | William Earl Dodge Scott | [Design] New York | The Outlook Company | 1903—8vo, pp. xi + 372, and frontispiece.

problems that await investigation, and which may be studied to advantage only through intimate acquaintance with individual birds; and finally expresses his conception of how such work should be conducted.

As already said, Mr. Scott has given us a very attractive narrative of his career as a naturalist; and so many matters of interest are chronicled that we trust a suitable index, rendering them more readily accessible, will be supplied in future editions of the work. — J. A. A.

Mrs. Bignell's 'My Woodland Intimates.'—The author of 'Mr. Chupes and Miss Jenny' (see Auk, XVIII, 1901, p. 288) here¹ presents us with a series of delightful sketches of out-of-door scenes and incidents, portraying the changing seasons and the attendant mutations in animal and vegetable life as observed in a "quiet, secluded, eastern New Jersey haunt and its immediate neighborhood." The varying aspects of field and woodland are noted under such titles as 'August Moods and Contrasts'; 'En Route' (September); 'Good-by to Summer' (October); 'Gray Days and Merry Ways' (November); 'The Solemn Midnight' (Winter); and so on through the circle of the year. While the birds are her major theme, all nature comes in review. The last chapter, 'In the North Country,' has for its scene "a beloved nook in the Laurentian Mountains of Canada." Intense sympathy with her subject, sincerity of expression, keen and intelligent powers of observation, and a happy faculty of imparting to others what she has seen and felt characterize 'My Woodland Intimates,' and entitle Mrs. Bignell's second book to rank high among popular nature books. — J. A. A.

Walter's 'Wild Birds in City Parks.'—The full title² of this little brochure sufficiently explains its purpose,—to furnish "a simple letter of introduction to 100 birds, the majority of which are commonly seen during the spring migration" at Chicago. Some 'General Hints' are first given, in the form of a few characteristics of the principal bird families, followed by 'Particular Hints,' giving the leading distinctive features of 100 species, arranged apparently in no particular order. There is also a 'Table of Arrival,' giving the birds in systematic sequence, with dates of arrival for the years 1897-1901, as observed in Lincoln Park, Chicago,

¹ My Woodland Intimates | By | Effie Bignell | author of | "Mr. Chupes and Miss Jenny" | New York | The Baker & Taylor Company | 33-37 East 17th St., Union Square North | — 12mo, pp. i-xii + 13-241. Price, \$1.00, net.

² Wild Birds in City Parks, being hints on identifying 100 birds, prepared primarily for the spring migration in Lincoln Park, Chicago. By Herbert Eugene Walter and Alice Hall Walter. Revised edition. Chicago: A. W. Mumford, Publisher, 378 Wabash Avenue, 1903. 16mo, pp. 45, with chart for Migration Record. Price, 25 cts.

and also other tables and charts relating to bird migration for the same period and locality. The usefulness of this effort to aid beginners in becoming acquainted with wild birds in life seems to be attested by the appearance of the present revised edition.—J. A. A.

Snow's Catalogue of Kansas Birds.—Professor Snow has recently issued a fifth edition of his Catalogue of Kansas Birds,¹ which first appeared in April, 1872, and was reissued, with additions, in July, and again in October, of the same year, the latter being commonly known as the 'second edition,' though here counted as the third. In 1875 a 'third' ("in reality the fourth") edition was issued, dated on the title-page "November, 1875," and "January, 1876," on the first page of the text, and now stated to have been "complete to Jan. 1, 1876." The history and character of these earlier editions is here given, followed by extended comment on Goss's and Lantz's Catalogues and especially on Prof. D. E. Lantz's 'Review of Kansas Ornithology,' published in 1899 (see *Auk*, XVI, pp. 364, 365). There is considerable criticism of Lantz's 'Review,' but the general tone seems rather hypercritical. The author treats the historic portion of his subject (pp. 1-11) at length, and in minute detail, even to points of trivial importance.

Upon this thorough foundation of criticism and research, such as the bird fauna of few States has received, Professor Snow proceeds to give us a 'Catalogue of the Birds of Kansas,' in which all species attributed to Kansas whose occurrence in the State "cannot be verified by actual captures since the opening of the University of Kansas, in September, 1886," are excluded, including 14 species entered in his earlier editions on the manuscript authority of Dr. T. M. Brewer and Prof. Spencer F. Baird. The list, as now revised and annotated, includes 342 species and subspecies, not one of which is apparently open to question. While doubtless others may be added by future captures within the State, we have here a most thorough and up-to-date exposition of the bird fauna of Kansas.—J. A. A.

Proceedings of the Nebraska Ornithologists' Union.—The Proceedings of the Third Annual Meeting of the Nebraska Ornithologists' Union forms a thick pamphlet of 108 pages, well illustrated with sixteen half-tone plates and about one hundred text cuts. The meeting was held at Lincoln, Nebraska, Feb. 1, 1902, with the President, Erwin H. Barbour, in the chair and 19 members present. The officers elected for the ensuing year were: President, J. M. Bates; Vice-President, Mrs. George H.

¹A Catalogue of the Birds of Kansas (fifth edition) with Notes upon Preceding Catalogues and Lists. By Francis H. Snow, Ph. D., LL. D., of the University of Kansas. 8vo, pp. 23, May, 1903. Reprinted from Vol. XVII, Trans. Kansas Acad. Sciences.

Payne; Corresponding Secretary, J. C. Crawford, Jr.; Recording Secretary, R. H. Wolcott; Treasurer, August Eiche. After the usual routine business the President presented his address, entitled 'The Progenitors of Birds,' which, very fully illustrated, occupies pp. 9-39, of the 'Proceedings.' The papers read at the meeting and here published number a dozen or more, and include, among the longer articles, 'Our Winter Birds,' by M. H. Swenk (pp. 52-58, an annotated list of about 120 species); 'A Comparison of the Bird-life found in the Sand-hill Region of Holt County in 1883-'84 and in 1901,' by Lawrence Bruner (pp. 58-63); 'Some General Remarks upon the Distribution of Life in Northwest Nebraska,' by Merritt Cary (pp. 63-75, includes an annotated list of the birds); 'Notes on the Nesting of Some Sioux County Birds,' by M. A. Carriker, Jr. (pp. 75-89); 'Bird and Nest Photography,' by J. S. Trostler (pp. 89-93); 'Record of Nebraska Ornithology,' by Robert H. Wolcott (pp. 93-105, bibliography). On p. 107 is an interesting note on the Carolina Paroquet, reported to have been abundant in 1856, and to have bred on an island in the Missouri River near Brownville, in the southeastern corner of the State, but it suddenly disappeared about 1866. The 'Proceedings,' edited by Robert H. Wolcott, form an important contribution to Nebraska ornithology.—J. A. A.

Fisher on the Birds of Keam Canyon, Arizona.¹—This is a nominal list of 39 species, preceded by several pages descriptive of the region, and general comment on the birds seen and formally listed at the end of the paper. He says: "Anyone unacquainted with the conditions of bird life in the arid regions would be disappointed with the small number of species found in Keam Canyon, and would be surprised at the meagre representation of most of them. Although considerable time between July 18 and August 3 [1894] was devoted to exploring the canyon and surrounding mesa for the purpose of observing birds, only thirty-nine species were found, and of these seven were included on single records." —J. A. A.

Stone on a Collection of Birds from Sumatra.—Mr. Stone states that this collection,² presented to the Academy of Natural Sciences of Philadelphia by the collectors, Messrs. Harrison and Hiller, is the "most extensive ever brought to America from this island and adds materially to our knowledge of the distribution and relationships of a number of species." The collection includes 138 species, of which one is described as new,

¹ A Partial List of the Birds of Keam Canyon, Arizona. By A. K. Fisher. *The Condor*, Vol. V, 1903, pp. 33-36.

² A Collection of Birds from Sumatra, obtained by Alfred C. Harrison, Jr., and Dr. H. M. Hiller. By Witmer Stone. *Proc. Acad. Nat. Sci. Phila.*, 1902, pp. 670-691. Jan. 20, 1903.

and there is extended critical comment on a considerable number of others. Mr. Stone finds that a majority of the species appear to range "from the lower Malay Peninsula throughout Sumatra and many into Java without material differentiation; and a comparison of the combined lists from Deli, in the northwestern extremity of the island, with those from Lampong, in the southeastern corner, show that the majority of the species occur at both points. In fact, the high mountains of the south-central part of Sumatra seem to be the only region when a conspicuously different avifauna exists. The materials are, however, far too limited to warrant any positive statements on the matter."—J. A. A.

McGregor on Birds from Norton Sound.¹—In June, 1900, Mr. McGregor made a trip to Norton Sound, Alaska, on the U. S. Coast and Geodetic Survey steamer 'Pathfinder,' where he spent the season, from June 27 to September 25. Although for the most part engaged in other work, he secured a collection of about two hundred bird skins, which, with his field observations, form the basis of the present paper, comprising a list of 63 species, with important and in some cases quite extended field notes. The paper is a most welcome and very interesting contribution to our knowledge of the summer bird life of the region bordering Norton Sound.—J. A. A.

McGregor on Philippine Birds.—The first number of a new publication entitled 'Bulletins of the Philippine Museum' consists of a paper by Mr. Richard C. McGregor,² giving the more important results of four collecting trips to various islands of the Philippine group. In these notes are recorded seven species new to the Philippine Islands, including a new *Chibia* from Cuyo Island; descriptions of previously undescribed plumages of four species; notes on some of the rarer species; and a list of new localities for a large number of previously known species, recorded for the first time from the various islands mentioned in the title of the paper, including nearly one hundred species from Ticao, where some three months were spent.

From an explanatory note in No. II of the 'Bulletins,' which gives a list of Philippine bird skins offered in exchange for first-class bird skins from "Borneo, the Moluccas, Formosa, and the Asiatic coast region adjacent to the Philippines," we learn: "The Philippine Commission has passed an act providing for the establishment of a Museum of Ethnology, Natural History, and Commerce, and has made a preliminary appropri-

¹ A list of Birds Collected in Norton Sound, Alaska, By Richard C. McGregor. The Condor, Vol. IV, 1902, pp. 135-144.

² On Birds from Luzon, Mindoro, Masbate, Ticao, Cuyo, Culion, Cagayan Sulu, and Palawan. By Richard C. McGregor. Bulletins of the Philippine Museum, I, Jan. 10, 1903. pp. 1-12.

ation to be used in the gathering of material pending the erection of a suitable museum building for the housing of exhibits and the preservation of study specimens. Systematic collecting of the birds and mammals of the Archipelago was begun some months since, and will be steadily prosecuted." The work is under the able direction of Prof. Dean C. Worcester, Secretary of the Interior, and well-known for his excellent work on the ornithology of the Philippines, of which only some of the preliminary results have yet been published. Mr. McGregor is evidently proving a most valuable aid in carrying out the work above outlined.—J. A. A.

Bangs on New Subspecies of American Birds.—During the last few months Mr. Bangs has characterized, in a series of papers in the 'Proceedings' of the New England Zoölogical Club, a number of new subspecies of American birds, as follows: (1) *Parus carolinensis impiger*,¹ based on specimens from the vicinity of Lake Ashby, Florida, which differ from the northern form in much smaller size and more brownish gray back. (2) *Thryophilus galbraithi conditus*,² from San Miguel Island, Bay of Panama. (3) *Cardinalis cardinalis magnirostris*,³ from West Baton Rouge Parish, Louisiana, characterized by larger and heavier bill, as compared with its allies. (4) *Vireosylva josephæ chiriquensis*,⁴ from Boquete, Volcan de Chiriqui, differing in yellower underparts and brighter olive green back from *V. josephæ*, described from Pallatanga, Ecuador. (5) *Merula leucauchen cnephora*,⁵ from the same locality as the last. (6) *Ardea herodias cognata*,⁶ based on a single specimen from the Galapagos Islands, with paler colors, smaller size and larger bill than North American specimens of *A. herodias*. (7) *Scotothurus verapacis dumicola*,⁷ a dark southern form of *S. verapacis*. (8) *Manacus candei electilis*,⁸ a new name for the Mexican form.—J. A. A.

Bangs's Revised List of Birds of the Liu Kiu Islands.⁹—A nominal

¹ A New Race of the Carolina Chickadee from Southern Florida. Proc. N. Engl. Zoöl. Club. Vol. IV, pp. 1, 2, March 16, 1903.

² A New Wren from San Miguel Island, Bay of Panama. *Ibid.*, pp. 3, 4.

³ The Louisiana Cardinal. *Ibid.*, pp. 5-7.

⁴ A New Race of *Vireosylva josephæ* from Chiriqui. *Ibid.*, pp. 9, 10.

⁵ Description of a New Thrush from Chiriqui. *Ibid.*, Vol. III, pp. 91, 92, Oct. 10, 1902.

⁶ Description of a New Race of the Great Blue Heron from the Galapagos Islands. *Ibid.*, pp. 99, 100, Feb. 6, 1903.

⁷ A New Race of *Scotothurus verapacis* from Chiriqui. *Ibid.*, pp. 103, 104.

⁸ Description of a New Subspecies of *Manacus candei* (Pazurd.). *Ibid.*, pp. 105, 106.

⁹ Stejneger's Catalogue of Birds thus far recorded from the Liu Kiu Islands, Japan, revised with Additions to date. Proc. N. Engl. Zoöl. Soc., III, pp. 93-97, Feb. 6, 1903.

list, bringing Dr. Stejneger's list, published in 1887 (77 species), down to date, with introductory comment, the number of species now recorded being 99.—J. A. A.

Barrett Hamilton on the Position of the Legs of Birds during Flight.—

In a paper¹ of about a dozen pages the author briefly summarizes what had been previously published on the subject and adds his own observations and some others previously unpublished. The paper closes with a list of the species observed, arranged in the two categories: 'Legs carried pointing backward,' and 'Legs carried bent forward.' The latter consists almost wholly of passerine birds, while the former includes birds of all the other orders. The legs of birds, it is noted, often afford great and constant assistance in flight. "It is almost as if, to some birds, the legs are nearly more important as organs of flight than of progression on land."—J. A. A.

Dubois's 'Synopsis Avium.'—Since our last notice of this important work (*Auk*, XIX, Oct., 1902, p. 409) two additional parts (XI and XII) have come to hand, carrying the subject into the Herodiones. Part XI includes the Columbæ, Heteroclitæ, Crypturi, Gallinæ, and part of the Accipitres; Part XII completes the Accipitres and Striges, and includes a large part of the Herodiones.—J. A. A.

North's Nests and Eggs of Australian Birds.—A second edition of Mr. Alfred J. North's *Nests and Eggs of Australian and Tasmanian Birds*² is being issued in parts, of which Part I appeared in June, 1901, Part II in April, 1902, and Part III in April, 1903. The size is full quarto, and it is tastefully printed on heavy paper, with colored plates and many figures of nests, heads, and full-length figures of the birds in the text. Part I contains the Corvidæ, and part of the Paradiseidæ, which occupy the greater portion of Part II. Then follow the Campophagidæ, completed in Part II, and the great family Muscicapidæ runs through Part III. Descriptions are first given of the birds, with a few bibliographical references, and a statement of the range. Then follows the biographical matter,

¹ On the Position occupied by the Legs of Birds during Flight. By G. E. H. Barrett-Hamilton. *The Zoölogist*, April, 1903, pp. 139-149. Also separate, repaged.

² *Nests and Eggs of Birds found Breeding in Australia and Tasmania.* By Alfred J. North, C. M. Z. S., Ornithologist, Australian Museum. (Second edition of Catalogue No. XII, entirely rewritten, with additions.) Printed by order of the Trustees of the Australian Museum; R. Ethridge, Jr., J. P., Curator (= Australian Museum, Sydney. Special Catalogue, No. I.) Part I, pp. 1-36, pls. A1, B1, June 11, 1901; Part II, pp. 37-120, pls. B2, B3, B4, April 25, 1902; Part III, pp. 121-201, pls. A2, A3, A4, April 27, 1903.

often quite extended, dealing with the general habits of the species as well as its nest and eggs. Naturally much space is given to the history of the Bower-birds, with illustrations of their bowers as well as of their nests and eggs. The work is admirable in design, and Mr. North's well-known attainments as an authority on the Australian ornithology is a guaranty of thoroughness in the execution of this great undertaking.—J. A. A.

Madarázs's Birds of Hungary.¹—This forms a quarto volume of about 700 pages, illustrated with nine plates, most of them colored, and 170 text figures, mostly of heads and structural details. It is published, unfortunately for English readers, in the Hungarian language, but there is a summary of the work in German, forming nearly one third of the volume. This is a systematic, annotated list of the 364 species authentically recorded as found in Hungary, with a statement of their manner of occurrence and distribution, with references to the main text where they are fully described, with synonymy and other technical details. The work is by a master, and must prove of great convenience and importance to students of the Hungarian ornithology. It is published by the National Museum at Budapest, and is in every way a most creditable example of book-making. It originally appeared in fifteen parts, issued at irregular intervals from October, 1899, to April, 1903.—J. A. A.

Seth-Smith's Handbook of Parrakeets.—Parts I-V of this attractive work² have appeared during the last year. It relates especially, as the title indicates, to such species as are kept in captivity, and these are very numerous. The external characters of the species are given briefly, with some account of their distribution and habits, but more special reference is made to their habits, hardiness, etc., in captivity, and their proper food and treatment under such artificial conditions. In some cases quite extended accounts are given of their habits in their native wilds. Some five pages are given to the history of our "Carolina Conure," as here called, which, in view of its approaching extermination has a sad interest. The 17 colored plates thus far issued give very satisfactory figures

¹A Magyar Nemzeti Múzeum Kiadványa. Magyarország Madarai. A Hazai Madárvilág Megismerésének Vezérfüzeteként. 170 Eredeti Szövegrajzzal és 9 Műmelléklettel. Irta Dr. Madarász Gyula. M. N. Múzeumi Igazgató-úr. Anhang: Die Vögel Ungarns auszugsweise in deutscher Sprache. Budapest, 1899-1903. Ára 40 korona. 4to, pp. xxiv + 666, pll. ix, and 170 text figures.

²Parrakeets: being a practical Handbook to those Species kept in Captivity. Royal 8vo, to be completed in 6 parts, with text figures and colored plates. London: R. H. Porter. Price, 6s net per part. Part I, June, 1902, pp. 1-40, 4 pll.; Part II, August, 1902, pp. 41-80, 3 pll.; Part III, Dec., 1902, pp. 81-128, 3 pll.; Part IV, April, 1903, pp. 129-168, 3 pll.; Part V, pp. 169-216, 4 pll.

of 28 species, and there are many excellent full-length text cuts of additional species. The book will have much interest as a popular account of a very attractive group of birds, and will be, of course, of special value to aviculturalists.—J. A. A.

Shufeldt on the Osteology of the Steganopodes.¹—In a quarto memoir of over one hundred pages, illustrated with numerous text figures and ten half-tone plates, Dr. Shufeldt here presents at length the results of his studies of the osteology and relationships of the Steganopodes. He first summarizes the classifications proposed for the group by previous authors and their views as to the relationships of the several types composing the group, and then proceeds to a detailed comparative description of the osteology of *Phaëthon*, *Sula*, *Anhinga*, *Phalacrocorax*, *Pelecanus*, and *Fregata*. He closes with some remarks on the classification of the several types composing the order, which he divides into three superfamilies (Pelecanoidea, Phaëthontoidea, Fregatoidea), the first embracing the families Pelecanidae, Phalacrocoracidae, Anhingidae, and Sulidae, the others comprising each a single family, consisting respectively of the genera *Phaëthon* and *Fregata*. Of the other families, each is also monotypic, as regards genera, except Phalacrocoracidae, to which are referred the two genera *Phalacrocorax* and *Nannopterum*. His arrangement thus agrees with Dr. Stejneger's, proposed in 1882, and followed in the A. O. U. Check-List.—J. A. A.

Shufeldt on the Classification of Certain Groups of Birds.²—The groups are the 'superorders' Archornithiformes (consisting of *Archaeopteryx*), the Dromæognathæ (comprising the Ostriches, Rheas, Emues, and Cassowaries, and the extinct Moas and the Roc (*Æpyornis*), and the Odontoholcæ (the extinct Hesperornithidæ and Ænaliornithidæ. Extended quotations are given from Huxley, Forbes, the Parkers (W. K. and T. J.), Marsh, and others, from which sources a summary of the structural characters of the diverse members composing these groups is here presented. The superorder Archornithiformes equals the 'subclass' Saururæ of many recent authors; the superorder Dromæognathæ includes all the existing and extinct struthionine birds, and is divided into five 'suborders', as follows: Struthiornithes, Rheornithes, Casuariornithes, Dinornithes, and Æpyornithes. Each of these is treated at considerable length, their differential characters noted, and those of their constituent

¹ The Osteology of the Steganopodes. By R. W. Shufeldt, M. D. Memoirs of the Carnegie Museum. Vol. I, No. 3, 1903, pp. 109-223. pl. xxi-xxx, and 37 text figures.

² On the Classification of Certain Groups of Birds. (Superorders: Archornithiformes; Dromæognathæ; Odontoholcæ). By R. W. Shufeldt. Amer. Nat., Vol. XXXVII, Jan., 1903, pp. 33-64, and 2 half-tone plates.

families. The 'superorder' Odontoholcæ embraces the family Hesperornithidæ, of the Middle Cretaceous of Kansas and Colorado, and provisionally the Enaliornithidæ of the Upper Greensand. Both groups are considered as probably ancestral forms of the Pygopodes.—J. A. A.

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NOTES AND NEWS.

THOMAS EDWARDS SLEVIN, an Associate of the American Ornithologist's Union, died at his home in San Francisco on December 23, 1902, in his 32nd year. He was born in New York City on January 20, 1871. A year of his early childhood was spent in France. In 1878 he removed with his parents to San Francisco. He came of a race of students, both on his mother's side, Bruguière, and on his father's side. His father, Thomas Edwards Slevin, LL. D., was vice-president of the Geographical Society of the Pacific.

The genius to make collections was strongly developed in the Slevin family. Mr. Slevin's grandfather gathered a large library, and his father collected the Slevin Library of works relating chiefly to the Pacific coast — now a part of the public library of San Francisco.

Mr. Slevin's interest in birds dated from his thirteenth year, when he made his first attempt at forming a collection. In later years, he attained a very high degree of skill in the preparation of specimens; in the smaller birds, his specimens, for durability and beauty of finish, are not excelled by the work of the leading preparators in this country. To the very last he was eager to improve in his methods. His collection of birds numbered about three thousand specimens, and was built up in leisure moments after office hours, on holidays, and during vacations. It is now incorporated with the study series of the California Academy of Sciences and is a monument to his earnest effort.

Mr. Slevin received his school education at St. Ignatius College, San Francisco. From his father and mother, he learned to speak French fluently. He was a member of the California Academy of Sciences, its Section of Ornithology, and the Cooper Ornithological Club.

He had in a marked degree that inborn gift to recognize at a glance and remember the differences in specimens. An exotic species once seen, its characters were indelibly fixed in his mind. If ornithology had been to him a profession, rather than his recreation, he would have attained distinction as a systematic ornithologist. He loved ornithology for the sake of ornithology — not for scientific eminence or for position. Within a few days of his death, in the closing hours of a long, painful illness, he had his mother read to him the bird portion of 'North American Fauna No. 22,' which had just reached him. Two days before the end, he told me, with a smile, that Ridgway had come, meaning he had received Part II of 'The Birds of North and Middle America.'

Mr. Slevin's preëminent characteristic was truthfulness; he was a man whose word could be absolutely relied upon.—L. M. L.

GEORGE H. READY, an Associate of the American Ornithologists' Union, died at his home in Santa Cruz, California, March 20, 1903, in his 45th year. From a notice of Mr. Ready in 'The Condor' (V, p. 82) we learn that he was born in Placerville, Placer County, California, August 5, 1858, but while still a boy went to Santa Cruz, which became his permanent home. "Four years ago, from overwork and exposure, he contracted a cold from which he never recovered. He spent several years in Phoenix, Arizona, hoping the dry air of that region would restore his health. But he afterwards wisely concluded that the comforts of a home in Santa Cruz would be a greater solace and quite as likely a restorer . . . He was an amateur ornithologist, and the birds of the region in and about Santa Cruz and Phoenix were his familiar friends, few knowing their haunts as well as he."

MRS. E. S. MOGRIDGE, well known in this country and in England as a modeler of plant accessories for bird groups, and for groups illustrating the life history of insects injurious to forest trees, died at Springfield, Mass., April 5, 1903. While at this writing we know little of her early personal history, it is proper that some record should be here made of her services to science, through her facsimile reproductions of foliage, flowers, and other plant accessories for various American Museums. In this she was assisted by her brother, Mr. H. Mintorn. They first worked on accessories for insect groups for Lord Walsingham, and for bird groups at the South Kensington Museum, London, where, about 1885 or 1886, their work attracted the attention of Mr. Morris K. Jesup, President of the American Museum of Natural History in New York. Mrs. Mogridge frequently visited New York, where she had many friends, and

while on a visit here in 1877, arrangements were made with her to assist in the preparation of bird groups, and later insect groups, for the American Museum, and she was thus engaged, with her brother, at intervals during the remainder of her life. Other museums also profited by her skill, including the U. S. Department of Agriculture at Washington, the Carnegie Museum at Pittsburgh, the Field Columbian Museum at Chicago, the Brooklyn Institute, and the Natural History Museum at Springfield, Mass., where she left uncompleted work. The late Mrs. R. L. Stuart of New York City was one of her warm friends and patrons, Mrs. Stuart generously providing the means for the construction of a large series of bird groups for the American Museum. Mrs. Mogridge was a woman of rare skill in her special line of work, exceedingly conscientious, and personally a most agreeable and cultured woman. The last twenty years of her life were passed in America, with occasional visits to England. She imparted her art to a considerable number of students, who came to her for instruction, so that the kind of work she first introduced in this country is now carried on at quite a number of our larger museums.

THE ATLANTIC SLOPE NATURALIST, edited and published bimonthly at Nazereth, Pa., by W. E. Rotzell, M. D., is among the later new aspirants to fame, of which two numbers have thus far appeared, No. 1, for March-April, and No. 2, for May-June. Although general in scope, as its name implies, the first two numbers are mainly ornithological, and contain bird notes of general interest. The editorial announcement states that "It will be devoted to natural history in general and that of the Eastern United States in particular." It is intended as "a medium through which observations may be recorded, opinions may be expressed, questions may be asked, and specimens announced for exchange." The subscription price is 30 cts. a year.

A NEW journal called 'The Zoölogical Quarterly' has made its appearance, Volume I, No. 1, bearing date May 15, 1903. It is edited by H. A. Surface, M. S., Economic Zoölogist of the Department of Agriculture of Pennsylvania, and is to be issued quarterly from his office at Harrisburg, Pa., as an official medium of publication.

The first number, also bears the title 'Zoölogical Circular, No. 1,' and carries the general title 'Birds around the Farm,' with the subheadings: 'I. Bird Houses and Nesting Sites' (illustrated); 'II. Their Economic Value, Destruction and Preservation'; 'III. Bird Study: Its Educational Value and Methods.'

THE ANNUAL MEETING of the Delaware Valley Ornithological Club was held at the Academy of Natural Sciences, Philadelphia, January 2, 1903.

Sixteen meetings were held during 1902, with an average attendance of eighteen; forty-six members attending one or more of the meetings during the year.

The Club has undertaken a study of the spring bird migration in the Delaware Valley with very satisfactory results and by soliciting the coöperation of any competent observers has brought itself in touch with a large number of bird students not included in its membership.

The more important papers of the year were, 'Gulls and Terns of the Maine Coast,' by W. L. Baily; 'The Gormantown Grackle Roost,' by A. C. Emlen; 'A Trip to Chihuahua, Mex.,' by Dr. W. E. Hughes; 'An Expedition to southern New Mexico,' by J. A. G. Rehn; 'Some Old Testament Birds,' by S. N. Rhoads; 'The 1902 Flight of White Herons,' by W. B. Evans.

The second number of 'Cassinia,' covering the proceedings of 1902, was issued in February.

The officers for the present year are: President, C. J. Pennock; Vice-President, Wm. A. Shryock; Secretary, Wm. B. Evans; Treasurer, Stewardson Brown.

THE FOURTH ANNUAL MEETING of the Nebraska Ornithologists' Union was held in Lincoln, Neb., January 24, 1903, on which occasion the following papers were read: President's address — 'Birds and Man,' Rev. J. M. Bates; 'Educational Value of Bird Study,' Mrs. C. S. Lobingier; 'Devices for Interesting Children in Bird Study,' Miss Anna Caldwell; 'Observations on the Number of Birds to the Square Mile in Custer County,' Rev. J. M. Bates; 'The Crow in Nebraska,' Wilson Tout; 'The Birds of the Niobrara Valley,' Myron Swenk; 'Birds of Cherry County, Neb.,' Dr. R. H. Wolcott; 'Remarks on a Record of Nebraska Ornithology,' Dr. R. H. Wolcott.

The following officers were elected: President, F. H. Shoemaker, Omaha; Vice-President, Miss Anna Caldwell, Lincoln; Corresponding Secretary, J. C. Crawford, Jr., West Point; Recording Secretary and Editor (permanent), Dr. R. H. Wolcott, University of Nebraska; Treasurer, Mr. August Eiche, Lincoln. The office of Custodian was created as a permanent office and Myron Swenk, of Lincoln, appointed to fill it.

Newly elected members raised the total membership of the society to nearly two hundred.

The presentation of a considerable amount of material, including many skins on which records are based, was reported, and it was resolved to secure, if possible, for the collection, all the material in the State, upon which the past records of the occurrence of rare birds in Nebraska had been based.

A committee was appointed to complete the formal organization of the Audubon Auxiliary and to put in definite shape terms of affiliation between it and the Union.

MR. WILLIAM H. KOBBE, Yale Forest School, New Haven, Conn., is preparing a paper entitled 'Birds in Their Relation to Forestry,' and would be very grateful for any information from the readers of 'The Auk' concerning this subject. He wishes particularly notes regarding the action of birds in the dissemination of seeds and in the destruction of injurious *forest* insects. The opinion of ornithologists in regard to the benefit or the reverse of Woodpeckers to the forest would also prove of value. All information used will of course be acknowledged by the author.

FROM THE recently published Seventh Annual Report of the New York Zoölogical Society we learn that during the year 1902 the bird collection was not sensibly increased, owing to the fact that no additional buildings or aviaries could be provided, the construction of the proposed Ostrich House having been necessarily deferred. A number of important species were added, however, and the successful breeding of several species is announced. The attempt to colonize the Osprey, through the introduction of a nest and some young birds from Gardner's Island, in a state of freedom within the Park proved a failure. As soon as the young birds acquired the power of strong flight "they flew away and failed to return." Similar efforts with young gulls were also unsuccessful. Several species of wild ducks, however, as the Wood Duck, Mallard, Widgeon, and Red-head are frequently seen about the pools in the Park and several species of herons are observed, attracted by their relatives in the great Flying Cage. The number of species in the bird collection on December 31, 1902, was 193, represented by 680 individuals.

In this same volume (pp. 154-159) the Curator of the Department of Birds, Mr. C. William Beebe, has an interesting paper entitled, 'Some Notes on the Psychology of Birds.' It is a pleasure to note that the fine opportunity here offered for this kind of research is being so intelligently utilized.

THE EGGS OF THE MOA forms the subject of an interesting paper in 'The Ibis' for April (Ibis, 1903, pp. 188-196), by Dr. A. B. Meyer, in which he gives the history and present ownership of four nearly perfect Moa's eggs, which represent three species; also four more or less imperfect eggs, and models of five others. The eight of which the localities are known are all from South Island, New Zealand. Dr. Meyer says: "Moa's eggs are very much rarer than those of *Aepyornis*, thirty-six of the latter being known, whereas only three or four perfect Moa's eggs are as yet recorded, besides a dozen or more imperfect or reconstructed specimens." The eggs vary greatly in dimensions, the largest, "a nearly perfect" egg of *Dinornis novæ-zelandiæ* Owen, in the Rowley Collection, measuring 252 by 178 mm., and a perfect egg of *Pachyornis elephantopus* ♀, 195 by 135 mm. "Owen constructed the egg of *Dinornis maximus* to 412 by 326 mm."

TWELFTH SUPPLEMENT TO THE AMERICAN
ORNITHOLOGISTS' UNION CHECK-LIST OF
NORTH AMERICAN BIRDS.¹

Two sessions of the Committee have been held in Washington since the appearance of the last Supplement. At the first meeting (November 21, 1902) questions of generic and subgeneric rank only were considered, and much progress was made toward eliminating these from the category of deferred cases. In April (16 to 18) of the present year a longer meeting was held, at which many additional cases were discussed, but action on certain generic names (*e. g.*, *Horizopus*) was again postponed, owing to lack of time for their proper consideration.

The list of deferred cases is still formidable, but it is hoped that at the next meeting of the Committee the number of such cases will be very materially reduced.

<i>Committee.</i>	{	C. HART MERRIAM, <i>Chairman.</i> J. A. ALLEN. WILLIAM BREWSTER. JONATHAN DWIGHT, JR. CHARLES W. RICHMOND. ROBERT RIDGWAY. WITMER STONE.
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I. ADDITIONS TO THE CHECK-LIST AND ACCEPTED
CHANGES IN NOMENCLATURE.

86a. **Fulmarus glacialis minor** (KJAERBÆLLING). This is eliminated from the Check-List as indistinguishable from *F. glacialis*, the alleged characters being the result of sexual or

¹ Four Supplements have been issued since the publication of the Second Edition of the Check-List in 1895:

Eighth Supplement, *Auk*, XIV, 1897, pp. 117-135.

Ninth Supplement, *Auk*, XVI, 1899, pp. 97-133.

Tenth Supplement, *Auk*, XVIII, 1901, pp. 295-320.

Eleventh Supplement, *Auk*, XIX, 1902, pp. 315-342.

individual variation. (Cf. CHAPMAN, Bull. Amer. Mus. N. H., XII, 1899, 229.)

96.1. **Puffinus cuneatus** SALVIN.

Wedge-tailed Shearwater.

Puffinus cuneatus SALVIN, Ibis, 1888, 353.

[B —, C —, R —, C —.]

GEOG. DIST.—North Pacific Ocean, from the Hawaiian Islands north to the Bonin Group and Lower California. (Cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 30.)

96.2. **Puffinus bulleri** SALVIN.

New Zealand Shearwater.

Puffinus bulleri SALVIN, Ibis, 1888, 354.

[B —, C —, R —, C —.]

GEOG. DIST.—New Zealand, north casually to California. (Cf. LOOMIS, Proc. Cal. Acad. Sci., ser. 3 (Zoöl.), II, 1900, 319.)

193. **Ardea wardi** RIDGW. This becomes a subspecies of *Ardea herodias*, to stand as

194b. **Ardea herodias wardi** (RIDGWAY).

Ward's Heron.

Ardea wardi RIDGWAY, Bull. Nutt. Orn. Club, VII, Jan. 1882, 5.

Ardea herodias wardi CHAPMAN, Bull. Am. Mus. N. H., XIV, 1901, 89.

[B —, C —, R —, C —.]

GEOG. DIST.—Florida, possibly extending along the Gulf Coast to Texas. (Cf. CHAPMAN, Bull. Amer. Mus. N. H., XIV, 1901, 88.)

The various subgenera of Ardeidæ in the Check-List are raised to generic rank, as follows:

GENUS **HERODIAS** BOIE.

Herodias BOIE, Isis, 1822, 559. Type, by elimination, *Ardea egretta* GMELIN.

The only North American species will stand as

196. **Herodias egretta** (GMELIN).

Ardea egretta GMELIN, S. N., I, ii, 1788, 629.

Herodias egretta CABANIS, Journ. f. Orn., 1856, 341.

GENUS **EGRETTA** FORSTER.

Egretta FORSTER, Synop. Cat. Brit. Birds, 1817, 59. Type, *Ardea garzetta* LINNÆUS.

Egretta is equivalent to *Garzetta* of the Check-List, over which name it has priority, *Garzetta* KAUP dating from 1829, and *Egretta* FORSTER from 1817.

197. **Egretta candidissima** (GMELIN).

Ardea candidissima GMELIN, S. N., I, ii, 1788, 633.

Egretta candidissima GOSSE, Birds Jamaica, 1847, 336.

GENUS **DICHROMANASSA** RIDGWAY.

Dichromanassa RIDGWAY, Bull. U. S. Geol. & Geogr. Surv. Terr., IV, 1878, 246. Type, *Ardea rufa* BODDAERT.

198. **Dichromanassa rufescens** (GMELIN).

Ardea rufescens GMELIN, S. N., I, ii, 1788, 628.

Dichromanassa rufescens A. O. U. Committee.

GENUS **HYDRANASSA** BAIRD.

Hydranassa BAIRD, Pacific R. R. Reports, IX, 1858, 660.

Type, *Ardea ludoviciana* WILSON (= *Egretta ruficollis* GOSSE).

199. **Hydranassa tricolor ruficollis** (GOSSE).

Egretta ruficollis GOSSE, Birds Jamaica, 1847, 338.

Hydranassa tricolor ruficollis A. O. U. COMMITTEE.

GENUS **FLORIDA** BAIRD.

Florida BAIRD, Pacific R. R. Reports, IX, 1858, 671. Type,

Ardea cærulea LINNÆUS.

200. **Florida cærulea** (LINNÆUS).

Ardea cærulea LINNÆUS, S. N. ed. 10, I, 1758, 143.

Florida cærulea BAIRD, Pacific R. R. Reports, IX, 1858, 671.

GENUS **BUTORIDES** BLYTH.

Butorides BLYTH, Cat. Birds Mus. Asiat. Soc., 1849 (1852),

281. Type, *Ardea javanica* HORSFIELD.

201. **Butorides virescens** (LINNÆUS).

Ardea virescens LINNÆUS, S. N. ed. 10, I, 1758, 144.

Butorides virescens BONAPARTE, CONSP. AV., II, 1855, 128.

201a. **Butorides virescens frazari** (BREWSTER).

Ardea virescens frazari BREWSTER, Auk, V, Jan. 1888, 83.

Butorides virescens frazari A. O. U. COMMITTEE.

201b. **Butorides virescens anthonyi** (MEARNS).

Ardea virescens anthonyi MEARNS, Auk, XII, July, 1895, 257.

Butorides virescens anthonyi A. O. U. COMMITTEE.

GENUS **NYCTANASSA** STEJNEGER.

Nyctanassa STEJNEGER, Proc. U. S. Nat. Mus., X, 1887, 295.
Type, *Ardea violacea* LINNÆUS.

203. **Nyctanassa violacea** (LINNÆUS).

Ardea violacea LINNÆUS, S. N. ed. 10, I, 1758, 143.

Nyctanassa violacea SHARPE, Bull. Brit. Orn. Club, V, 1895,
XI.

The following groups of Limicolæ are given full generic rank
(cf. COUES, Osprey, III, 1899, 144) :

GENUS **ARQUATELLA** BAIRD.

Arquatella BAIRD, Pacific R. R. Reports, IX, 1858, 717. Type,
Tringa maritima BRÜNNICH.

235. **Arquatella maritima** (BRÜNNICH).

Tringa maritima BRÜNNICH, Orn. Borealis, 1764, 54.

Arquatella maritima COUES, Proc. Acad. Nat. Sci. Phila.,
1861, 183.

236. **Arquatella couesi** RIDGWAY.

Arquatella couesi RIDGWAY, Bull. Nutt. Orn. Club, V, July,
1880, 160.

237. **Arquatella ptilocnemis** (COUES).

Tringa ptilocnemis COUES, Elliott's Rept. Seal Isl. Alaska,
1873 (not paged).

Arquatella ptilocnemis RIDGWAY, Proc. U. S. Nat. Mus., III,
1880, 199.

GENUS **ACTODROMAS** KAUP.

Actodromas KAUP, Skizz. Entw.-Gesch. Eur. Thierw., 1829,
55. Type, *Tringa minuta* LEISLER.

238. **Actodromas acuminata** (HORSFIELD).

Totanus acuminatus HORSFIELD, Trans. Linn. Soc. Lond.,
XIII, 1821, 192.

Actodromas acuminatus RIDGWAY, Proc. U. S. Nat. Mus., III,
1880, 199.

239. **Actodromas maculata** (VIEILLOT).

Tringa maculata VIEILLOT, Nouv. Dict. d'Hist. Nat., XXXIV,
1819, 465.

Actodromas maculata COUES, Proc. Acad. Nat. Sci. Phila.,
1861, 197.

240. **Actodromas fuscicollis** (VIEILLOT).

Tringa fuscicollis VIEILLOT, Nouv. Dict. d'Hist. Nat., XXXIV,
1819, 461.

Actodromas fuscicollis BONAPARTE, Comptes Rendus, XLIII,
1856, 596.

241. **Actodromas bairdii** COUES.

Actodromas bairdii COUES, Proc. Acad. Nat. Sci. Phila., 1861,
194.

242. **Actodromas minutilla** (VIEILLOT).

Tringa minutilla VIEILLOT, Nouv. Dict. d'Hist. Nat., XXXIV,
1819, 466.

Actodromas minutilla COUES, Proc. Acad. Nat. Sci. Phila.,
1861, 191.

[242.1.] **Actodromas damacensis** (HORSFIELD).

Totanus damacensis HORSFIELD, Trans. Linn. Soc. Lond.,
XIII, 1821, 192.

Actodromas damacensis STEJNEGER, Proc. U. S. Nat. Mus.,
VI, 1883, 71.

GENUS **PELIDNA** CUVIER.

Pelidna CUVIER, Règne Animal, I, 1817, 490. Type, *Tringa alpina* LINNÆUS.

[243.] **Pelidna alpina** (LINNÆUS).

Tringa alpina LINNÆUS, S. N. ed. 10, I, 1758, 149.

Pelidna alpina C. L. BREHM, Vög. Deutschl., 1831, 661.

243a. **Pelidna alpina pacifica** (COUES).

Pelidna pacifica COUES, Proc. Acad. Nat. Sci. Phila., 1861, 189.

Pelidna alpina pacifica STEJNEGER, Bull. U. S. Nat. Mus., VIII, 1885, 120.

GENUS **EROLIA** VIEILLOT.

Erolia VIEILLOT, Analyse, 1816, 55. Type, *Erolia variegata* VIEILLOT (= *Tringa ferruginea* BRÜNNICH).

244. **Erolia ferruginea** (BRÜNNICH).

Tringa ferruginea BRÜNNICH, Orn. Bor., 1764, 53.

Erolia ferruginea A. O. U. COMMITTEE.

Erolia replaces *Ancylocheilus* (KAUP, 1829) of the Check-List. It refers unquestionably to the Curlew Sandpiper, although described and figured by Vieillot as a three-toed species.

GENUS **OXYECHUS** REICHENBACH.

Oxyechus REICHENBACH, Syst. Av., 1852, xviii. Type *Charadrius vociferus* LINNÆUS.

273. **Oxyechus vociferus** (LINNÆUS).

Charadrius vociferus LINNÆUS, S. N. ed. 10, I, 1758, 150.

Oxyechus vociferus REICHENBACH, Syst. Av., 1852, xviii.

GENUS **OCHTHODROMUS** REICHENBACH.

Ochthodromus REICHENBACH, Syst. Av., 1852, xviii. Type,
Charadrius wilsonia ORD.

280. **Ochthodromus wilsonius** (ORD).

Charadrius wilsonia ORD, in WILSON'S Am. Orn., IX, 1814,
77, pl. 73, fig. 5.

Ochthodromus wilsonius REICHENBACH, Syst. Av., 1852,
xviii.

GENUS **PODASOCYS** COUES.

Podasocys COUES, Proc. Acad. Nat. Sci. Phila., 1866, 96.
Type, *Charadrius montanus* TOWNSEND.

281. **Podasocys montanus** (TOWNSEND).

Charadrius montanus TOWNSEND, Journ. Acad. Nat. Sci.
Phila., VII, 1837, 192.

Podasocys montanus COUES, Proc. Acad. Nat. Sci. Phila.,
1866, 96.

296. **Cyrtonyx montezumæ** (VIGORS). This becomes296. **Cyrtonyx montezumæ mearnsi** NELSON.

Mearns's Partridge.

Cyrtonyx montezumæ mearnsi NELSON, AUK, XVII, July,
1900, 255.

[B 477, *part*, C 394, *part*, R 485, *part*, C 578, *part*.]

GEOG. DIST.—Western Texas, New Mexico, and Arizona, south
into Mexico. (Cf. NELSON, Auk, 1900, 225.)

310a. **Meleagris gallopavo fera** (VIEILLOT). In the first
edition of the 'Nouveau Dictionnaire' (Vol. IX) Vieillot used
the name *Meleagris silvestris*, which was later changed to
M. fera (cf. SHERBORN, Auk, 1902, 419-420). The latter

name was inadvertently adopted by the Committee in the Ninth Supplement, but should now be replaced by

310a. **Meleagris gallopavo silvestris** (VIEILLOT).

Meleagris silvestris VIEILLOT, Nouv. Dict. d'Hist. Nat., IX, 1817, 447.

Meleagris gallopavo silvestris ALLEN, Auk, XIX, 1902, 420.

[322.] **Geotrygon chrysis** (BONAPARTE). The authority and reference should be corrected to

[322.] **Geotrygon chrysis** SALVADORI.

Geotrygon chrysis SALVADORI, Cat. Birds Brit. Mus., XXI, 1893, 571 (cf. RILEY, Auk, 1902, 397).

337c. **Buteo borealis lucasanus** RIDGWAY. This is found to be indistinguishable from *Buteo borealis calurus*, and is to be eliminated. (Cf. BREWSTER, Bull. Mus. Comp. Zool., XLI, 1902, 83.)

SUBGENUS **TINNUNCULUS** VIEILLOT.

Tinnunculus VIEILLOT, Ois. Am. Sept., I, 1807, 39. Type, by elimination, *Falco columbarius* LINNÆUS.

This should replace the subgenus *Æsalon* of the Check-List, and the subgenus *Tinnunculus*, for the Sparrow Hawks, will become

SUBGENUS **CERCHNEIS** BOIE.

Cerchneis BOIE, Isis, 1826, 970. Type, *Falco rupicolus* DAUDIN. (Cf. HOWE, Contr. N. Amer. Orn., I, 1902, 28.)

360a. **Falco sparverius deserticolus** MEARNS.

An earlier name for this subspecies is found in

360a. **Falco sparverius phalæna** (LESSON).

Tinnunculus phalæna LESSON, Compl. Œuv. Buffon, XX, 1847, 178.

Falco sparverius phalena NELSON, Auk, XIX, Oct. 1902, 398.
(Cf. NELSON, Auk, 1902, 398.)

368. **Syrnium nebulosum** (FORSTER). This name, which has been in constant use for the Barred Owl, is found to apply exclusively to the Great Gray Owl (cf. PREBLE, N. Am. Fauna, No. 22, 1902, 109). The earliest available name for the Barred Owl appears to be

368. **Syrnium varium** (BARTON).

Strix varius BARTON, Fragm. N. H. Penn., 1799, 11.

Syrnium varium PREBLE, N. Am. Fauna, No. 22, 1902, 109.

368a. **Syrnium varium alleni** (RIDGWAY).

Strix nebulosa alleni RIDGWAY, Proc. U. S. Nat. Mus., III, 1880, 8.

Syrnium varium alleni PREBLE, N. Am. Fauna, No. 22, 1902, 109.

368b. **Syrnium varium helveolum** (BANGS).

Syrnium nebulosum helveolum BANGS, Proc. N. E. Zoöl. Club, I, 1899, 31.

Syrnium varium helveolum PREBLE, N. Am. Fauna, No. 22, 1902, 109.

370. **Scotiaptex cinerea** (GMELIN). This becomes

370. **Scotiaptex nebulosa** (FORSTER).

Strix nebulosa FORSTER, Philos. Trans., LXII, 1772, 424.

Scotiaptex nebulosum PREBLE, N. Am. Fauna, No. 22, 1902, 109.

[370a.] **Scotiaptex nebulosa lapponica** (THUNBERG).

Strix lapponica THUNBERG, K. Vet. Akad. nya Handl., XIX, 1798, 184.

Scotiaptex nebulosa lapponica A. O. U. COMMITTEE.

373.2. **Megascops xantusi** BREWSTER.

Xantus's Screech Owl.

Megascops xantusi BREWSTER, Bull. Mus. Comp. Zoöl., XLI,
1902, 93.

[B—, C—, R 403, *part*, C 470, *part*.]

GEOG. DIST.—Cape Region of Lower California.

375e. **Bubo virginianus elachistus** BREWSTER.

Dwarf Horned Owl.

Bubo virginianus elachistus BREWSTER, Bull. Mus. Comp.
Zoöl., XLI, 1902, 96.

[B—, C—, R—, C—.]

GEOG. DIST.—Lower California.

394e. **Dryobates pubescens turati** (MALHERBE).

Willow Woodpecker.

Picus turati MALHERBE, Monogr. Piciidées, I, 1861, 125, pl.
28.

Dryobates pubescens turati W. K. FISHER, Condor, IV, 1902,
68.

[B 77, *part*, C 299a, *part*, R 361a, *part*, C 441, *part*.]

GEOG. DIST.—“California, *except*: desert ranges and eastern slope of Sierra Nevada, coast region north of Marion Co., and region north of upper end of Sacramento Valley.” (Cf. FISHER, Condor, IV, 1902, 70.)

SUBGENUS **ASYNDESMUS** COUES. This becomes

GENUS **ASYNDESMUS** COUES.

Asyndesmus COUES, Proc. Acad. Nat. Sci. Phila., 1866, 55.
Type, *Picus torquatus* WILSON.

408. **Asyndesmus torquatus** (WILSON).

Picus torquatus WILSON, Amer. Orn., III, 1811, 31, pl. xx,
fig. 3.

Asyndesmus torquatus COUES, Proc. Acad. Nat. Sci. Phila.,
1866, 56.

SUBGENUS **CENTURUS** SWAINSON. This becomes

GENUS **CENTURUS** SWAINSON.

Centurus SWAINSON, Classif. Birds, II, 1837, 310. Type,
Picus carolinus LINNÆUS.

409. **Centurus carolinus** (LINNÆUS).

Picus carolinus LINNÆUS, S. N. ed. 10, I, 1758, 113.

Centurus carolinus BONAPARTE, Geog. & Comp. List, 1838, 40.

410. **Centurus aurifrons** (WAGLER).

Picus aurifrons WAGLER, Isis, 1829, 512.

Centurus aurifrons LICHTENSTEIN, Nomencl. Av., 1854, 76.

411. **Centurus uropygialis** BAIRD.

Centurus uropygialis BAIRD, Proc. Acad. Nat. Sci. Phila.,
1854, 120.

454b. **Myiarchus cinerascens pertinax** (BAIRD).

Lower California Flycatcher.

Myiarchus pertinax BAIRD, Proc. Acad. Nat. Sci. Phila.,
1859, 393.

Myiarchus cinerascens pertinax BREWSTER, Bull. Mus. Comp.
Zoöl., XLI, 1902, 117.

[B 131, part, C 248, part, R 313, part, C 375, part.]

GEOG DIST.—Southern Lower California.

SUBGENUS **NUTTALLORNIS** RIDGWAY. This becomes

GENUS **NUTTALLORNIS** RIDGWAY.

Nuttallornis RIDGWAY, Man. N. Am. Birds, 1887, 337. Type, *Tyrannus borealis* SWAINSON. (Cf. COUES, Osprey, III, 1899, 144.)

459. **Nuttallornis borealis** (SWAINSON).

Tyrannus borealis SWAINSON, Fauna Bor.-Amer., II, 1831, 141, pl. 35.

Nuttallornis borealis OBERHOLSER, Auk, XVI, Oct. 1899, 331.

474a. **Otocoris alpestris leucolæma** (COUES), of the Check-List, becomes474a. **Otocoris alpestris arcticola** OBERHOLSER.**Pallid Horned Lark.**

Otocoris alpestris arcticola OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 816.

[B—, C—, R—, C—.]

GEOG. DIST.—“In summer, Alaska (chiefly the interior), with the valley of the Upper Yukon River; in winter, south to Oregon, Utah, and Montana.” (Cf. OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 816.)

474c. **Otocoris alpestris arenicola** HENSHAW. This becomes474c. **Otocoris alpestris leucolæma** (COUES).**Desert Horned Lark.**

Eremophila alpestris b. *leucolæma* COUES, Birds N. W., 1874, 38.

Otocoris alpestris leucolæma STEJNEGER, Proc. U. S. Nat. Mus., V, 1882, 34.

[B—, C 53b, R 300a, C 83.]

GEOG. DIST.—Western United States, from central Dakota,

western Kansas and western Nebraska to Idaho and Nevada, north to Alberta, Saskatchewan, and Assiniboia, south in winter to Colorado, Texas, southeastern California, and northwestern Mexico.

474e. **Otocoris alpestris chrysolæma** (WAGLER). This becomes

474e. **Otocoris alpestris actia** OBERHOLSER.

California Horned Lark.

Otocoris alpestris actia OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 845.

[B —, C 53a, part, R 300b, part, C 84, part.]

GEOG. DIST.—“Coast region of northern Lower California and of southern California north to San Francisco Bay, including the San Joaquin Valley.” (Cf. OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 845). True *chrysolema* WAGLER is confined to Mexico.

474k. **Otocoris alpestris hoyti** BISHOP.

Hoyt's Horned Lark.

Otocoris alpestris hoyti BISHOP, Auk, XIII, 1896, 130.

[B —, C —, R —, C —.]

GEOG. DIST.—“In summer British America from the west shore of Hudson Bay to the valley of the Mackenzie River, north to the Arctic coast, south to Lake Athabasca; in winter southward to Nevada, Utah, Kansas and Michigan, casually to Ohio and New York (Long Island).” (Cf. OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 812.)

474l. **Otocoris alpestris occidentalis** (MCCALL).

Montezuma Horned Lark.

Otocoris? occidentalis MCCALL, Proc. Acad. Nat. Sci. Phila., 1851, 218.

Otocoris alpestris occidentalis STONE, Proc. Acad. Nat. Sci. Phila., 1899, 21.

[B —, C —, R —, C —.]

GEOG. DIST.—“In summer, central New Mexico, west to central Arizona; in winter, south to northern Sonora and Chihuahua, Mexico, and southeast to Texas.” (Cf. OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 856.)

474m. **Otocoris alpestris insularis** TOWNSEND.

Island Horned Lark.

Otocoris alpestris insularis TOWNSEND, Proc. U. S. Nat. Mus., XIII, 1890, 140.

[B —, C —, R —, C —.]

GEOG. DIST.—Santa Barbara Islands, California.

475. **Pica pica hudsonica** (SABINE). This should be corrected to

475. **Pica pica hudsonia** (SABINE), the latter being the original spelling of the specific name.

482a. **Aphelocoma sieberii couchii** (BAIRD).

Couch's Jay.

Cyanocitta couchii BAIRD, Pacific R. R. Reports, IX, 1858, 588.

Aphelocoma sieberii couchi OBERHOLSER, Auk, XIX, 1902, 300.

[B —, C —, R —, C —.]

GEOG. DIST.—Northeastern Mexico to southwestern Texas (Chisos Mountains). (Cf. OBERHOLSER, Auk, XIX, 1902, 300.)

501c. **Sturnella magna argutula** BANGS.

Southern Meadowlark.

Sturnella magna argutula BANGS, Proc. N. E. Zool. Club, I, 1899, 20.

[B 406, *part*, C 214, *part*, R 263, *part*, C 320, *part*.]

GEOG. DIST.—Florida and the Gulf coast to Louisiana, north through lower Mississippi Valley to southeastern Illinois, and southwestern Indiana.

SUBGENUS **MEGAQUISCALUS** CASSIN. This becomes

GENUS **MEGAQUISCALUS** CASSIN.

Megaquiscalus CASSIN, Proc. Acad. Nat. Sci. Phila., 1866, 409. Type, *Quiscalus major* VIEILLOT. (Cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 235.)

513. **Megaquiscalus major** (VIEILLOT).

Quiscalus major VIEILLOT, Nouv. Dict. d'Hist. Nat., XXVIII, 1819, 487.

Megaquiscalus major RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 235.

513a. **Megaquiscalus major macrourus** (SWAINSON).

Quiscalus macrourus SWAINSON, Anim. in Menag., 1838, 299.

Megaquiscalus major macrourus RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 235.

No. 512 of the Check-List thus becomes No. 513a, the serial number 512 being eliminated.

GENUS **COCCOTHAUSTES** BRISSON. This is eliminated from the Check-List.

SUBGENUS **HESPERIPHONA**. This becomes

GENUS **HESPERIPHONA** BONAPARTE.

Hesperiphona BONAPARTE, Consp. Avium, I, 1850, 505. Type, *Fringilla vespertina* W. COOPER. (Cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 57.)

514. **Hesperiphona vespertina** (W. COOPER).

Fringilla vespertina W. COOPER, ANN. LYN. N. H. N. Y., I,
ii, 1825, 220.

Hesperiphona vespertina BONAPARTE, CONSP. AVIUM, I, 1850,
505.

514a. **Hesperiphona vespertina montana** RIDGWAY.

Hesperiphona vespertina var. *montana* RIDGWAY, in Hist. N.
Am. Birds, I, 1874, 449.

530a. **Astragalinus psaltria arizonæ** (COUES). This is eliminated from the Check-List (as equivalent to No. 530), the characters ascribed to it being due mainly to age or season. (Cf. GRINNELL, CONDOR, 1902, 115, 116; BREWSTER, BULL. MUS. COMP. ZOÖL., XLI, 1902, 136.)

SUBGENUS **PASSERCULUS** BONAPARTE. This becomes

GENUS **PASSERCULUS** BONAPARTE.

Passerculus BONAPARTE, Geog. & Comp. List, 1838, 33.
Type, *Fringilla savanna* WILSON. (Cf. RIDGWAY, BULL. U.
S. Nat. Mus., No. 50, pt. I, 1901, 187.)

541. **Passerculus princeps** MAYNARD.

Passerculus princeps MAYNARD, Am. Nat. VI, 1872, 637.

542. **Passerculus sandwichensis** (GMELIN).

Emberiza sandwichensis GMELIN, S. N., I, ii, 1788, 875.

Passerculus sandwichensis BAIRD, Pacific R. R. Reports, IX,
1858, 444.

542a. **Passerculus sandwichensis savanna** (WILSON).

Fringilla savanna WILSON, Am. Orn., III, 1811, 55, pl. 22,
fig. 2.

Passerculus sandwichensis savanna RIDGWAY, Proc. U. S. Nat. Mus., III, 1880, 178.

542b. **Passerculus sandwichensis alaudinus** (BONAPARTE).

Passerculus alaudinus BONAPARTE, Comptes Rendus, XXXVII, 1853, 918.

Passerculus sandwichensis γ . *alaudinus* RIDGWAY, Field and Forest, III, 1877, 198.

542c. **Passerculus sandwichensis bryanti** RIDGWAY.

Passerculus sandwichensis bryanti RIDGWAY, Proc. U. S. Nat. Mus., VII, 1885, 517.

543. **Passerculus beldingi** RIDGWAY.

Passerculus beldingi RIDGWAY, Proc. U. S. Nat. Mus., VII, 1885, 516.

544. **Passerculus rostratus** (CASSIN).

Emberiza rostrata CASSIN, Proc. Acad. Nat. Sci. Phila., 1852, 348.

Passerculus rostratus BAIRD, Pacific R. R. Reports, IX, 1858, 446.

544a. **Passerculus rostratus guttatus** (LAWRENCE).

Passerculus guttatus LAWRENCE, Ann. Lyc. N. H. N. Y., VIII, 1867, 473.

Passerculus rostratus var. *guttatus* COUES, Check-List, 1874, 33.

544b. **Passerculus rostratus halophilus** (MCGREGOR).

Ammodramus halophilus MCGREGOR, Auk, XV, July, 1898, 265.

Passerculus rostratus halophilus RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 202.

544c. **Passerculus rostratus sanctorum** (RIDGWAY).

Passerculus sanctorum RIDGWAY, Proc. U. S. Nat. Mus., V,
1883, 538.

Passerculus rostratus sanctorum RIDGWAY, Bull. U. S. Nat.
Mus., No. 50, pt. I, 1901, 201.

SUBGENUS **COTURNICULUS** BONAPARTE. This becomes a full
genus, to include Nos. 545, 546, 546a, and 546b. Hence

GENUS **COTURNICULUS** BONAPARTE.SUBGENUS **CENTRONYX** BAIRD.

Centronyx BAIRD, Pacific R. R. Reports, IX, 1858, 440.
Type, *Emberiza bairdii* AUDUBON.

545. **Coturniculus bairdii** (AUDUBON).

Emberiza bairdii AUDUBON, Birds Amer., VII, 1843, 359, pl.
500.

Coturniculus bairdii BONAPARTE, Consp. Avium, I, 1850, 481.

SUBGENUS **COTURNICULUS** BONAPARTE.

Coturniculus BONAPARTE, Geog. & Comp. List, 1838, 32.
Type, *Fringilla passerina* WILSON.

546. **Coturniculus savannarum passerinus** (WILSON).

Fringilla passerina WILSON, Am. Orn., III, 1811, 76, pl. 26,
fig. 5.

Coturniculus savannarum passerinus RIDGWAY, Proc. U. S.
Nat. Mus., VIII, 1885, 568.

546a. **Coturniculus savannarum bimaculatus** (SWAINSON).

Anmodramus bimaculatus SWAINSON, Philos. Mag., n. ser., I,
1827, 435.

Coturniculus savannarum bimaculatus RIDGWAY, Bull. U. S.
Nat. Mus., No. 50, pt. I, 1901, 205.

546b. **Coturniculus savannarum floridanus** MEARNs.

Florida Grasshopper Sparrow.

Coturniculus savannarum floridanus MEARNs, Proc. U. S. Nat. Mus., XXIV, 1902, 915.

[B —, C —, R —, C —.]

GEOG. DIST.— Central Florida (Kissimmee prairie region).

Nos. 547, 547*a*, and 548 are transferred from *Coturniculus* to *Ammodramus*. The reference to the subgenus *Ammodramus* on p. 227 (Check-List, 1895) is to be removed, and the reference to the genus on p. 223 is to be placed above No. 547.

581. **Melospiza melodia** (WILSON). This becomes a subspecies of *Melospiza cinerea* (GMELIN), hence Nos. 581–581*k*, together with four additional subspecies (581*l*–581*o*) and No. 581.1, will become

581. **Melospiza cinerea melodia** (WILSON).*Fringilla melodia* WILSON, Am. Orn., II, 1810, 125, pl. xvi.*Melospiza cinerea melodia* RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 354.581*a*. **Melospiza cinerea fallax** (BAIRD).*Zonotrichia fallax* BAIRD, Proc. Acad. Nat. Sci. Phila., 1854, 119.*Melospiza cinerea fallax* RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 362.581*b*. **Melospiza cinerea montana** (HENSHAW).*Melospiza fasciata montana* HENSHAW, Auk, I, July, 1884, 224.*Melospiza cinerea montana* RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 358.581*c*. **Melospiza cinerea heermanni** (BAIRD).*Melospiza heermanni* BAIRD, Pacific R. R. Reports, IX, 1858, 478.

Melospiza cinerea heermanni RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 364.

581d. **Melospiza cinerea samuelis** (BAIRD).

Ammodramus samuelis BAIRD, Pacific R. R. Reports, IX,
1858, 455.

Melospiza cinerea samuelis RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 369.

581e. **Melospiza cinerea morphna** (OBERHOLSER).

Melospiza melodia morphna OBERHOLSER, Auk, XVI, April,
1899, 183.

Melospiza cinerea morphna RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 372.

581f. **Melospiza cinerea rufina** (BONAPARTE).

Passerella rufina BONAPARTE, Consp. Av., I, 1850, 477.

Melospiza cinerea rufina RIDGWAY, Bull. U. S. Nat. Mus., No.
50, pt. I, 1901, 373.

581g. **Melospiza cinerea rivularis** (BRYANT).

Melospiza fasciata rivularis BRYANT, Proc. Cal. Acad. Sci.,
2d ser., I, Sept. 29, 1888, 197.

Melospiza cinerea rivularis RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 363.

581h. **Melospiza cinerea graminea** (TOWNSEND).

Melospiza fasciata graminea TOWNSEND, Proc. U. S. Nat. Mus.,
XIII, 1890, 139.

Melospiza cinerea graminea RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 369.

581i. **Melospiza cinerea clementæ** (TOWNSEND).

Melospiza fasciata clemente TOWNSEND, Proc. U. S. Nat. Mus.,
XIII, 1890, 139.

Melospiza cinerea clementæ RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 368.

581j. **Melospiza cinerea juddi** (BISHOP).

Melospiza fasciata juddi BISHOP, Auk, XIII, April, 1896, 132.

Melospiza cinerea juddi A. O. U. COMMITTEE.

581k. **Melospiza cinerea merrilli** (BREWSTER).

Melospiza fasciata merrilli BREWSTER, Auk, XIII, Jan. 1896,
46.

Melospiza cinerea merrilli RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 361.

581l. **Melospiza cinerea pusillula** (RIDGWAY).

Alameda Song Sparrow.

Melospiza fasciata pusillula RIDGWAY, Auk, XVI, Jan. 1899,
35.

Melospiza cinerea pusillula RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 370.

[B—, C—, R—, C—.]

GEOG. DIST.—Salt marshes of San Francisco Bay, California.

581m. **Melospiza cinerea cooperi** (RIDGWAY).

San Diego Song Sparrow.

Melospiza fasciata cooperi RIDGWAY, Auk, XVI, Jan. 1899, 35.

Melospiza cinerea cooperi RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 367.

[B—, C—, R—, C—.]

GEOG. DIST.—San Quentin Bay, Lower California, north along
the coast to Monterey Bay, California, east to Fort Tejon, San
Bernardino, etc.

581n. **Melospiza cinerea caurina** (RIDGWAY).

Yakutat Song Sparrow.

Melospiza fasciata caurina RIDGWAY, Auk, XVI, Jan. 1899,
36.

Melospiza cinerea caurina RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 375.

[B —, C —, R —, C —.]

GEOG. DIST.—Coast of Alaska, from Yakutat Bay to Lituya Bay.

5810. **Melospiza cinerea kenaiensis** (RIDGWAY).

Kenai Song Sparrow.

Melospiza melodia kenaiensis RIDGWAY, Auk, XVII, Jan. 1900,
29.

Melospiza cinerea kenaiensis RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 375.

[B —, C —, R —, C —.]

GEOG. DIST.—Coast of Kenai Peninsula, Alaska, from east side
of Cook Inlet to Prince William Sound. (Cf. RIDGWAY, Bull. U.
S. Nat. Mus., No. 50, pt. I, 1901, 376.)

581.1. **Melospiza cinerea insignis** (BAIRD).

Melospiza insignis BAIRD, Trans. Chicago Acad. Sci., I, 1869,
319, pl. xxix, fig. 2.

Melospiza cinerea insignis RIDGWAY, Bull. U. S. Nat. Mus.,
No. 50, pt. I, 1901, 376.

602. **Sporophila moreletti sharpei** LAWRENCE. This
becomes

602. **Sporophila moreletti** (BONAPARTE).

Morelet's Seed-eater.

Spermophila moreletti BONAPARTE, Consp. Avium, I, 1850,
497.

Sporophila moreletti CABANIS, Mus. Hein., I, 1851, 150.

[B 388, C 200, R 252, C 296.]

GEOG. DIST.—Lower Rio Grande, in Texas, south through eastern Mexico and Central America, to Costa Rica (both sides). The subspecies *sharppei* is not satisfactorily differentiated from *moreletti*. (Cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 575.)

[607.1.] **Piranga rubriceps** GRAY. This is removed from the 'Check-List' and becomes

18.1. **Piranga rubriceps** GRAY, of the 'Hypothetical List.'

GENUS **IRIDOPROCNE** COUES.

Iridoprocne COUES, Birds Colo. Valley, 1878, 412. Type, *Hirundo bicolor* VIEILLOT. (Cf. COUES, Osprey, III, 1899, 144.) Hence No. 614 becomes

614. **Iridoprocne bicolor** (VIEILLOT).

Hirundo bicolor VIEILLOT, Ois. Am. Sept., I, 1807, 61, pl. 31.
I[*ridoprocne*] *bicolor* COUES, Birds Colo. Valley, 1878, 412.

615a. **Tachycineta thalassina brachyptera** BREWSTER.

Saint Lucas Swallow.

Tachycineta thalassina brachyptera BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 167.

[B 228, *part*, C 113, *part*, R 156, *part*, C 161, *part*.]

GEOG. DIST.—Cape region of Lower California. (Cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 167.)

627a. **Vireo gilvus swainsonii** (BAIRD).

Western Warbling Vireo.

Vireo swainsonii BAIRD, Pacific R. R. Reports, IX, 1858, 336.

V[*ireo*] *g*[*ilvus*] *swainsonii* COUES, Key N. A. Birds, 1872, 121.

[B 245, *part*, C 125a, R 139a, C 175.]

GEOG. DIST.—Western United States, east to the Rocky Mountains; south in winter to central and western Mexico. (Cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 174; RIDGWAY, Manual N. A. Birds, 1896, 472.)

GENUS **HELMITHERUS** RAFINESQUE. This name is corrected to **Helmitheros**, to agree with the original spelling.

656.1. **Dendroica nigrifrons** BREWSTER. This has been shown to intergrade with *D. auduboni* (Cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 555); hence

656a. **Dendroica auduboni nigrifrons** (BREWSTER).

Dendroica nigrifrons BREWSTER, Auk, XVI, April, 1899, 94.

Dendroica auduboni nigrifrons RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 555.

681e. **Geothlypis trichas sinuosa** J. GRINNELL.

Salt Marsh Yellow-throat.

Geothlypis trichas sinuosa GRINNELL, Condor, III, May, 1901, 65.

[B —, C —, R —, C —.]

GEOG. DIST.—Salt marshes of San Francisco Bay, California. (Cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 672.)

682.1. **Geothlypis poliocephala ralphii** RIDGWAY. This becomes

682.1. **Geothlypis poliocephala** BAIRD.

Rio Grande Yellow-throat.

Geothlypis poliocephala BAIRD, Review Am. Birds, 1865, 225.

[B —, C —, R —, C —.]

GEOG. DIST.—Lower Rio Grande Valley, in Texas, south into Mexico (Morelos, Michoacan, Sinaloa, etc.).

The supposed subspecies *ralphi* proves to be indistinguishable from *G. poliocephala* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 687).

685b. **Wilsonia pusilla chryseola** RIDGWAY.

Golden Pileolated Warbler.

Wilsonia pusilla chryseola RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 714.

[B 213, part, C 102a, part, R 125a, part, C 148 part.]

GEOG. DIST. Pacific Coast district, from southern California to British Columbia, southward during migration to Arizona, Lower California, and western Mexico. (Cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 714.)

SUBGENUS **TELMATODYTES** CABANIS. This becomes

GENUS **TELMATODYTES** CABANIS.

Telmatodytes CABANIS, Mus. Hein., I, 1850, 78. Type, *Certhia palustris* WILSON. (Cf. COUES, Osprey, III, 1899, 144.)

725. **Telmatodytes palustris** (WILSON).

Certhia palustris WILSON, Am. Orn., II, 1810, 58, pl. 12, fig. 4.

Telmatodytes palustris HENRY, Proc. Acad. Nat. Sci. Phila., 1859, 107.

725a. **Telmatodytes palustris paludicola** (BAIRD).

Cistothorus palustris, var. *paludicola* BAIRD, Rev. Am. Birds, I, 1864, 148.

Telmatodytes palustris paludicola RIDGWAY, Geol. Ex. 40th Parallel, IV, 1877, 425.

725b. **Telmatodytes palustris griseus** (BREWSTER).

Cistothorus palustris griseus BREWSTER, AUK, X, 1893, 216.

Telmatodytes palustris griseus A. O. U. COMMITTEE.

725c. **Telmatodytes palustris plesius** (OBERHOLSER).

Cistothorus palustris plesius OBERHOLSER, Auk, XIV, 1897, 188.

Telmatodytes palustris plesius A. O. U. COMMITTEE.

725.1. **Telmatodytes marianæ** (SCOTT).

Cistothorus marianæ SCOTT, Auk, V, April, 1888, 188.

Telmatodytes marianæ A. O. U. COMMITTEE.

727c. **Sitta carolinensis nelsoni** MEARN'S.

Rocky Mountain Nuthatch.

Sitta carolinensis nelsoni MEARN'S, Proc. U. S. Nat. Mus. XXIV, 1902, 923.

[B 278, *part*, C 38a, *part*, R 51a, *part*, C 58, *part*.]

GEOG. DIST.—Rocky Mountain region of the United States, south into Mexico (Chihuahua and Sonora). (Cf. MEARN'S, Proc. U. S. Nat. Mus., XXIV, 1902, 923.)

727d. **Sitta carolinensis lagunæ** BREWSTER.

Saint Lucas Nuthatch.

Sitta carolinensis lagunæ BREWSTER, Auk, VIII, 1891, 149.

[B —, C 38a, *part*, R 51a, *part*, C 58, *part*.]

GEOG. DIST.—Cape region of Lower California. (Cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 203.)

The range of No. 727a thus becomes restricted to the Pacific coast region of the United States.

SUBGENUS **LOPHOPHANES** KAUP. This becomes

GENUS **BÆOLOPHUS** CABANIS.

Bæolophus CABANIS, Mus. Hein., I, 1850, 91. Type, *Parus bicolor* LINNÆUS.

Lophophanes was based on *Parus cristatus* LINNÆUS, which is generically distinct from the American crested Titmice. This

necessitates the adoption of *Bæolophus* as the generic name of *P. bicolor* and its allies (cf. RIDGWAY, Auk, XX, 1903, 308.) Hence

731. **Bæolophus bicolor** (LINNÆUS).

Parus bicolor LINNÆUS, S. N. ed. 12, I, 1766, 340.

B[æolophus] bicolor CABANIS, Mus. Hein., I, 1850, 91.

731a. **Bæolophus bicolor texensis** (SENNETT).

Parus bicolor texensis SENNETT, Auk, IV, 1887, 29.

Bæolophus bicolor texensis RIDGWAY, Auk, XX, 1903, 308.

732. **Bæolophus atricristatus** (CASSIN).

Parus atricristatus CASSIN, Proc. Acad. Nat. Sci. Phila., 1850,
103, pl. 2.

Bæolophus atricristatus RIDGWAY, Auk, XX, 1903, 308.

733. **Bæolophus inornatus** (GAMBEL).

Parus inornatus GAMBEL, Proc. Acad. Nat. Sci. Phila., 1845,
265.

Bæolophus inornatus RIDGWAY, Auk, XX, 1903, 308.

733a. **Bæolophus inornatus griseus** (RIDGWAY).

Lophophanes inornatus griseus RIDGWAY, Pr. U. S. Nat. Mus.,
V, Sept. 5, 1882, 344.

Bæolophus inornatus griseus RIDGWAY, Auk, XX, 1903, 308.

733b. **Bæolophus inornatus cineraceus** (RIDGWAY).

Lophophanes inornatus cineraceus RIDGWAY, Proc. U. S. Nat.
Mus., VI, 1883, 154.

Bæolophus inornatus cineraceus RIDGWAY, Auk, XX, 1903, 308.

734. **Bæolophus wollweberi** (BONAPARTE).

Lophophanes wollweberi BONAPARTE, Compt. Rend., XXXI,
1850, 478.

Bæolophus wollweberi RIDGWAY, Auk, XX, 1903, 308.

741*b*. **Parus rufescens barlowi** J. GRINNELL.**Barlow's Chickadee.***Parus rufescens barlowi* J. GRINNELL, Condor, II, 1900, 127.

[B—, C—, R—, C—.]

GEOG. DIST.—Coast Range of California, from Monterey county to San Francisco Bay. (Cf. GRINNELL, Condor, II, 1900, 127.)

II. PROPOSED CHANGES IN NOMENCLATURE NOT ADOPTED.

Cyclorhynchus vs. *Phaleris* (cf. GRANT, Cat. Birds Brit. Mus., XXVI, 1898, 607). The type of *Phaleris*, by elimination, is *Alca pygmaea* GMELIN, hence no change is necessary.

37. **Stercorarius parasiticus** vs. *S. cephus*, and38. **Stercorarius longicaudus** vs. *S. parasiticus* (cf. ROTHSCHILD & HARTERT, Novit. Zool., 1902, 413). In the opinion of the Committee the proposed changes are undesirable.123*a*, 123*b*. **Phalacrocorax pelagicus robustus et resplendens** vs. *P. pelagicus*, and124. **Phalacrocorax urile** vs. *P. bicristatus* (cf. GRANT, Cat. Bds. Brit. Mus., XXVI, 1898, 361, 358). A change in these cases appears to be unwarranted.151. **Clangula clangula** vs. *C. glaucion* (cf. GODMAN, Biol. Cent.-Am., Aves, III, 1902, 225). As *Clangula* has page precedence over *glaucion* no change is necessary.

Charitonetta vs. **Clangula**. (Cf. GODMAN, Biol. Cent.-Am., Aves, III, 1902, 226). As *Charitonetta* seems fairly entitled to generic recognition, no change seems advisable.

Olor vs. *Cygnus* (cf. ELLIOT, Auk, 1899, 226). In accordance with its former ruling (Auk, 1899, 129) the Committee decided that the change in this case was unnecessary.

298c. **Canachites canadensis canace** vs. *C. canadensis*, and

298b. **Canachites canadensis osgoodi** vs. *C. canadensis* (cf. GRANT, Ibis, 1902, 233, 234). No change is considered necessary.

320. **Columbigallina passerina terrestris** vs. *Chamaepelia passerina*, and

320a. **Columbigallina passerina pallescens** vs. *Chamaepelia passerina* (cf. GODMAN, Biol. Centr.-Am., Aves, III, 1902, 250).

The Committee finds no reason for altering the status of these subspecies in the Check-List.

Buteola (Cf. COUES, Osprey, III, 1899, 144). The characters are too slight to warrant the adoption of *Buteola* as a full genus.

Strix vs. *Aluco*, and **Strigidæ** vs. *Aluconidæ* (cf. COUES, Auk, 1900, 66). No change is deemed necessary. Dr. Coues was in error when he stated that Brisson fixed the type of the genus *Strix* in 1760. (Cf. STONE, Auk, XX, 272.)

394b. **Dryobates pubescens homorus** vs. *D. p. leucurus* (cf. W. K. FISHER, Condor, IV, 1902, 69). It is considered inexpedient to make a change here, as Hartlaub's description of *D. leucurus* is too brief and inaccurate to render identification a matter of certainty.

Antrostomus vs. *Caprimulgus* (cf. Tenth Suppl., Auk, 1901, 317). In the absence of precise anatomical information concerning the members of these genera, it is thought to be unwise to change the status of the species in the Check-List.

464.2. **Empidonax insulicola** vs. *E. difficilis* (cf. GRINNELL, Pac. Coast Avif., No. 3, 1902, 43). No argument is advanced for this proposed change, and no action by the Committee is deemed necessary.

- 484c. **Perisoreus canadensis nigricapillus** vs. *P. c. fumi-
frons* (cf. HOWE, Osprey, 1902, 105).
485. **Perisoreus obscurus** vs. *P. canadensis obscurus* (cf.
HOWE, Osprey, 1902, 105).
- 485a. **Perisoreus obscurus griseus** vs. *P. canadensis* (cf.
HOWE, Osprey, 1902, 105).

The proposed changes in the above three cases appear to be quite unnecessary.

SUBGENUS **Picicorvus** vs. genus *Picicorvus* (cf. COUES, Osprey, III, 1899, 144). *Picicorvus* is not considered worthy of full generic rank (cf. Seventh Suppl., Auk, 1895, 167).

- 501a. **Sturnella magna hoopesi** vs. *S. m. mexicana* (cf. CHAPMAN, Bull. Am. Mus. N. H., XIII, 1900, 298, 303). This form is considered to be sufficiently distinct from *S. m. mexicana* to retain its present status in the Check-List.

- 550d. **Ammodramus maritimus macgillivraii** vs. *A. maritimus* (cf. HOWE, Contr. Am. Orn., I, 1902, 32). The Committee is unable to find sufficient grounds for reversing its decision in this case.

- 622a, b, c. **Lanius ludovicianus excubitorides, gambeli,** and **anthonyi** vs. *L. ludovicianus* (cf. GRANT, Novit. Zool. 1902, 461).

No change is considered necessary in respect to the status of these subspecies of *Lanius*.

Dendroica montana vs. *D. virens* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 784). The identification of Wilson's *Sylvia montana* with *Dendroica virens* appears to be not without question, and its present position in the Hypothetical List is thought to best represent its status.

- 713a. **Heleodytes brunneicapillus bryanti** vs. *H. brunneicapillus* and

- 743a. ***Psaltriparus minimus californicus*** vs. *P. minimus* (cf. GRINNELL, Pac. Coast Avif., III, 1902, 68, 72). As no reasons are advanced for the proposed changes, no action by the Committee appears to be necessary.

III. SPECIES AND SUBSPECIES NOT ACCEPTED.

Xenopicus gravirostris GRINNELL, Condor, 1902, 89.
Characters too trivial and inconstant for recognition.

Otocoris alpestris enthymia OBERHOLSER.

Otocoris alpestris ammophila OBERHOLSER.

Otocoris alpestris leucansiptila OBERHOLSER. (Cf. OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 817, 849, 864.)

The characters exhibited by these forms are considered too slight for recognition in nomenclature.

Cyanocitta stelleri borealis CHAPMAN, Bull. Am. Mus. N. H., XVI, 1902, 240.

Rejected as being almost indistinguishable from true *stelleri*, the alleged differences proving to be mainly seasonal.

Ammodramus australis (MAYNARD). (Cf. DUBOIS, Syn. Avium, fasc. IX, 1901, 632.)

This is equivalent to *A. savannarum passerinus*, it having been based on a winter migrant of the latter obtained in the Bahamas.

Melospiza sanaka MCGREGOR, Condor, III, 1901, 87.

Not distinguishable from *M. cinerea*.

Melospiza fasciata ingersolli MCGREGOR, Bull. Cooper Orn. Club, I, 1899, 35.

Almost identical with *M. c. merrilli*.

Melospiza cinerea gouldi (BAIRD). (Cf. GRINNELL, Pac. Coast Avif., III, 1902, 65.)

A later name for *M. c. samuelis*, the type of *gouldi* being merely a specimen of *samuelis*.

Melospiza melodia santecrucis GRINNELL, Condor, III, 1901, 92.

Not considered worthy of recognition, its relationship with *M. c. cooperi* being too close for separation as a distinct subspecies.

Progne subis floridana MEARNs, Proc. U. S. Nat. Mus., XXIV, 1902, 918.

Inseparable from *P. subis*, the alleged color characters being due to age.

Hirundo erythrogaster palmeri GRINNELL, Condor, IV, 1902, 71.

Considered as not satisfactorily distinguished from *H. erythrogaster*. (Cf. also Tenth Supplement, Auk, XVIII, 313.)

Geothlypis trichas scirpicola GRINNELL, Condor, III, 1901, 65. Rejected as being equivalent to *G. t. arizela*.

IV. DEFERRED FOR FURTHER INVESTIGATION.

[Cases added to this list since the appearance of the last supplement are marked with an asterisk.]

Colymbidæ vs. *Podicipidæ* (cf. OBERHOLSER, Auk, 1899, 286).

Phalerinæ vs. **Simorhynchinæ** (cf. OBERHOLSER, Auk, 1899, 286).

52. **Larus vegæ** vs. *L. argentatus* (cf. KOBBE, Auk, 1902, 19-24).

94. **Puffinus fuliginosus** vs. *P. griseus* (cf. SALVIN, Cat. Bds. Br. Mus., XXV, 1896, 386).

120. **Phalacrocorax dilophus** vs. *P. auritus* (cf. GRANT, Cat. Bds. Br. Mus., XXVI, 1898, 373).

121. **Phalacrocorax mexicanus** vs. *P. vigua mexicanus* (cf. GRANT, Cat. Bds. Br. Mus., XXVI, 1898, 378).

127. **Pelecanus californicus** vs. *P. fuscus* [= *occidentalis*] *californicus* (cf. GRANT, Cat. Bds. Br. Mus., XXVI, 1898, 478).
Rallus levipes BANGS, Bull. New Engl. Zoöl. Club, I, 1899, 45.

- 216.1. **Porzana coturniculus** (cf. McLAIN, Bull. Cooper Orn. Club, I, 1899, 99).
- [230.1.] **Gallinago major** (GMELIN) vs. *G. media* (cf. OBERHOLSER, Auk, XVI, 1899, 179).
- * *Totanus melanoleucus frazari* BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 55.)
- 277a. **Ægialitis meloda circumcincta** vs. *Æ. meloda* (cf. SHARPE, Cat. Bds. Brit. Mus., XXIV, 1896, 294).
- * *Lagopus leucurus peninsularis* CHAPMAN, Bull. Am. Mus. N. H., XVI, 1902, 236.
- * 310. **Meleagris gallopavo merriami** vs. *M. g. intermedia* (cf. GRANT, Ibis, 1902, 235).
- * 318. **Leptotila fulviventris brachyptera** vs. *L. brachyptera* (cf. GODMAN, Biol. Centr.-Am., Aves, III, 1902, 259).
- * *Accipiter velox rufilatus* (cf. GRINNELL, Pac. Coast Avif., III, 1902, 32).
- Buteo borealis umbrinus* BANGS, Proc. New Engl. Zoöl. Club, II, 1901, 67.
- * *Buteo borealis socorroensis* (cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 35).
- * 358. **Falco richardsonii** vs. *F. columbarius richardsonii* (cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 90).
- * *Cerchneis sparverius paulus* HOWE, Contr. Am. Orn., I, 1902, 26.
- Nyctala** vs. *Cryptoglaux* (cf. RICHMOND, Auk, 1901, 193).
- * 375b. **Bubo virginianus arcticus** vs. *B. v. subarcticus* (cf. RICHMOND, Proc. Biol. Soc. Wash., 1902, 86).
377. **Surnia ulula** vs. *S. u. doliata* (cf. SHARPE, Hand-List, I, 1899, 296).

- **Speotyto cunicularia becki* ROTHSCHILD & HARTERT, Novit. Zool., IX, 1902, 405.
- *396a. **Dryobates scalaris lucasanus** vs. *D. lucasanus* (cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 102).
Picoides arcticus tenuirostris BANGS, Auk, 1900, 131.
- *407b. **Melanerpes formicivorus angustifrons** vs. *M. angustifrons* (cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 105).
Myiarchus crinitus residuus HOWE, Contr. Amer. Orn., I, 1902, 30.
- *458a. **Sayornis nigricans semiatra** vs. *S. nigricans* (cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 119).
Contopus vs. *Horizopus* (cf. OBERHOLSER, Auk, 1899, 331).
•*Contopus richardsoni saturatus* BISHOP, Auk, 1900, 116.
Otocoris alpestris aphrasta OBERHOLSER, Proc. U. S. Nat. Mus., XXIV, 1902, 860.
Cyanocitta stelleri carbonacea (cf. W. K. FISHER, Condor, 1902, 41).
Agelaius phoeniceus richmondi (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 335).
- *501b. **Sturnella magna neglecta** vs. *S. neglecta* (cf. RIDGWAY, l. c., 365).
- *503. **Icterus audubonii** vs. *I. melanocephalus auduboni* (cf. RIDGWAY, l. c., 282).
Loxia curvirostra bendirei (cf. MERRIAM, N. Am. Fauna, No. 16, 1899, 123; RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 50).
- *544b. **Ammodramus rostratus halophilus** vs. *A. r. guttatus* (cf. BREWSTER, Bull. Mus. Comp. Zoöl., XLI, 1902, 139).

- 567b. **Junco hyemalis connectens** vs. *J. oreganus shufeldti* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 285).
- 567c. **Junco hyemalis thurberi** vs. *J. oreganus thurberi* (cf. RIDGWAY, *l. c.* 287).
- 567d. **Junco hyemalis pinosus** vs. *J. oreganus pinosus* (cf. RIDGWAY, *l. c.* 288).
- 568.1. **Junco annectens** vs. hybridity between *J. caniceps* and *J. mearnsi* (cf. RIDGWAY, *l. c.* 276).
- 570a. **Junco phænotus dorsalis** vs. *J. dorsalis* (cf. RIDGWAY, *l. c.* 297).
- 574a. **Amphispiza belli nevadensis** vs. *A. nevadensis* (cf. GRINNELL, Auk, 1898, 59; FISHER, *ibid.* 190).
- Melospiza cinerea cleonensis* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 371).
- **Melospiza cinerea phæa* FISHER, Condor, 1902, 36.
- **Melospiza coronatorum* GRINNELL & DAGGETT, Auk, 1903, 34.
- Passerella iliaca fuliginosa* RIDGWAY, Auk, 1899, 36.
- Passerella iliaca annectens* RIDGWAY, Auk, 1900, 30.
- Passerella iliaca insularis* RIDGWAY, Auk, 1900, 30.
- Passerella iliaca townsendi* RIDGWAY, Auk, 1900, 30.
- **Passerella iliaca annectens* vs. *P. i. meruloides* (cf. GRINNELL, Condor, 1902, 45).
- *588d. **Pipilo maculatus atratus** vs. *P. m. megalonyx* (cf. GRINNELL, Condor, 1902, 23).
- 591a. **Pipilo fuscus albigula** vs. *P. albigula* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 433).
- 591b. **Pipilo fuscus crissalis** vs. *P. crissalis* (cf. RIDGWAY, *l. c.* 434).
- 591c. **Pipilo fuscus senicula** vs. *P. crissalis senicula* (cf. RIDGWAY, *l. c.* 436).

591*d*. **Pipilo fuscus carolæ** vs. *P. crissalis carole* (cf. RIDGWAY, *l. c.* 435).

591*d*. **Pipilo fuscus carolæ**. Proposed elimination from the Check-List (cf. Condor, 1901, 108).

SUBFAMILY **PTILIOGONATINÆ** vs. Family *Ptiliogonatide* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 21).

Lanius ludovicianus migrans W. PALMER, Auk, 1898, 248.

* 649. **Compsothlypis nigrilora** vs. *C. pitaiyumi nigrilora* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. II, 1902, 490).

* *Compsothlypis americana ramalinæ* RIDGWAY, *l. c.* 485.

* 658. **Dendroica rara** vs. *D. acerulea* (A. ALLEN, Auk, XX, 1903, 216).

SUBFAMILY **MIMINÆ** vs. Family *Mimide* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 23).

* *Helodytes brunneicapillus couesi* (cf. MEARN, Auk, 1902, 143).

* *Helodytes brunneicapillus anthonyi* MEARN, Auk, 1902, 143.

Salpinctes obsoletus pulverius GRINNELL, Auk, 1898, 238.

* *Salpinctes obsoletus pulverius* vs. *S. pulverius* (cf. GRINNELL, Pac. Coast Avifauna, III, 1902, 68).

* *Cistothorus palustris dissaëptus* BANGS, Auk, 1902, 352.

SUBFAMILY **SITTINÆ** vs. Family *Sittide* (cf. RIDGWAY, Bull. U. S. Nat. Mus., No. 50, pt. I, 1901, 22).

740*a*. **Parus hudsonicus stoneyi** vs. *P. h. evura* (cf. GRINNELL, Pac. Coast Avifauna, I, 1900, 60).

* *Parus hudsonicus littoralis* (cf. CHAPMAN, Bull. Am. Mus. N. H., XVI, 1902, 245).

Chamæa fasciata intermedia GRINNELL, Condor, II, 1900, 86.

742*a*. **Chamæa fasciata henshawi** vs. *C. fasciata* (cf. OSGOOD, Proc. Biol. Soc. Wash., XIII, 1899, 41).

*743b. **Psaltriparus minimus grindæ** vs. *P. grindæ* (cf. BREWSTER, Bull. Mus. Comp. Zool., XLI, 1902, 205).

*758b. **Hylocichla ustulata œdica** vs. *H. ustulata* (cf. GRINNELL, Auk, 1902, 128-130).

Hylocichla aonalaschkæ slevini GRINNELL, Auk, 1901, 258.

**Sialia sialis grata* (cf. HOWE, Contr. Am. Orn., 1902, 31).

Action on the following generic and subgeneric names is still deferred.

- | | |
|---------------------------------|-------------------------------|
| ✓ <i>Ægialeus Reichenb.</i> | ✓ <i>Hydrocoloeus Kaup.</i> |
| ✗ <i>Aristonetta Baird.</i> | ✓ <i>Limonites Kaup.</i> |
| - <i>Astur Lacép.</i> | * <i>Myioborus Baird.</i> |
| * <i>Chamæthlypis Ridgw.</i> | * <i>Oporornis Baird.</i> |
| ✓ <i>Chroicocephalus Eyton.</i> | ✓ <i>Ortygops Heine.</i> |
| ✓ <i>Cymochorea Coues.</i> | - <i>Pallasicarbo Coues.</i> |
| ✓ <i>Dytes Kaup.</i> | * <i>Peucedramus Coues.</i> |
| - <i>Endomychura Oberh.</i> | ✓ <i>Phæbastria Reichenb.</i> |
| - <i>Exanthemops Elliot.</i> | ✓ <i>Proctopus Kaup.</i> |
| ✓ <i>Fuligula Steph.</i> | - <i>Pseuduria Coues.</i> |
| ✓ <i>Heteropygia Coues.</i> | ✓ <i>Psilosops Coues.</i> |
| ✓ <i>Hierofalco Cuvier.</i> | ✓ <i>Tachytiorchis Kaup.</i> |



NEST AND EGGS OF PHILADELPHIA VIREO. (Eggs natural size.)

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FURTHER NOTES ON THE PHILADELPHIA VIREO,
WITH DESCRIPTION OF THE NEST AND EGGS.

BY WILLIAM BREWSTER.

Plate XI.

IN THE 'Bulletin of the Nuttall Ornithological Club' for January, 1880, I published some 'Notes on the Habits and Distribution of the Philadelphia Vireo (*Vireo philadelphicus*).' This article was followed in 1897 by Dr. Dwight's 'A Study of the Philadelphia Vireo (*Vireo philadelphicus*),' which gives by far the fullest and best account of the bird's habits, and especially of its song, that has ever appeared. Of its breeding habits we still know very little. "On the 9th of June, 1884, while camped near Duck Mountain," Manitoba, Mr. Seton found a nest which "was hung from a forked twig about eight feet from the ground, in a willow which was the reverse of dense, as it grew in the shade of a popular grove. The nest was pensile, as usual with the genus, formed of fine grass and birch bark. The eggs were four in number, and presented no obvious difference from those of the Red-eyed Vireo, but unfortunately they were destroyed by an accident before they were measured . . . The bird on being shot answered perfectly to Coues's description, except that on the breast it was of a much brighter yellow than I was led to expect." (Ernest E. T. Seton, *Auk*, II, 1885, pp. 305, 306). The identification of this nest must be accepted, of course, as wholly satisfactory, but that of

the nest taken in 1895 at Lansdowne, Ontario, Canada, by Mr. Young and attributed by him with apparent confidence to the present species, leaves much to be desired. The parent birds, he tells us, were merely "observed" through "strong field glasses." Although "*decidedly* smaller than the Red-eye" they were "more bulky in shape," while "the yellow shading of the breast was not very evident." These statements are not calculated, on the whole, to inspire confidence, especially as Mr. Young admits that he "had never met with the species before." Had he been familiar with its appearance in life he would have known that it looks less instead of "more bulky" than the Red-eye and that the yellow of its under parts is invariably conspicuous when the bird is viewed in a good light. The chances are that the Vireos he saw were merely small individuals of *V. olivaceus*. At all events the record is not supported by good enough evidence to be worth serious consideration. The nest to which it relates was built in a low shrub (*Spiræa salicifolia*) and contained, in addition to two eggs of the Cowbird, a single egg of the rightful owner which "was marked exactly like that of the Red-eye Vireo but was smaller, and according to its size was rather more globular in shape" (C. J. Young, Auk, XV, 1898, pp. 191, 192).

As I reported in 1880 (in the article above mentioned), the Philadelphia Vireo is a not uncommon summer resident of the region lying about Lake Umbagog in western Maine and northern New Hampshire where its favorite haunts are second-growth woods about the edges of farms or other openings and burnt lands sparsely covered with young poplars and paper birches. In places of this character I found it very generally if somewhat sparingly distributed during the greater part of June, 1879, but although the behavior of several pairs which I had under almost daily observation that season convinced me that they were breeding I failed to discover any of their nests. Nor was I more fortunate in 1881 when the numbers of the birds appeared to be unchanged. My next spring visit to Umbagog was made in 1896 when, with the assistance of Mr. C. H. Watrous, Mr. R. A. Gilbert and one of the local guides, I devoted upwards of five consecutive weeks (May 12-June 15) to looking for rare birds and nests in the immediate neighborhood of the lake. The corre-

sponding period of the following year was also spent in the same locality with the same companions. The field work accomplished during these two seasons was by far the most thorough and successful of any that I have ever done, before or since, in this region, yet on both occasions I failed to meet with the Philadelphia Vireo after the close of its vernal migration, although I searched for it faithfully and persistently in the places where I had seen it in former years, as well as in other similar localities. Whether it was really absent during these two summers or, for some reason, not in full song up to the date of my departure — in which case I might easily have overlooked it — I am not, of course, able to say, but I can confidently affirm that it reoccupied certain of its ancestral haunts near the southern end of Lake Umbagog during the past season, and that at least one pair attempted to breed there, for I found and took their nest and eggs.

This piece of good fortune fell to my lot quite unexpectedly and by the merest chance — as so often happens in such cases. I had gone to the lake on June 11 with no thought of doing any field work but chiefly for the purpose of superintending the packing and shipment of a portion of my camping outfit for which I had prospective use elsewhere. The 12th and 13th were stormy days, admirably adapted for continued and contented application to drudgery of this kind. On the 14th, however, the weather was perfect, and as my task was practically finished I started for a walk immediately after breakfast. On reaching the woods I found them so very wet, after the heavy rains of the preceding two days, that I was glad to follow a road that led through an extensive tract of second growth poplars and paper birches, intermingled with a few balsams and red spruces. I had gone but a short distance into this cover, when an unfamiliar looking plant growing by the roadside arrested my attention. As I paused to examine it, I became conscious that a Vireo which I took, at first, to be a Red-eye, was singing in an aspen (*Populus tremuloides*) directly overhead. No doubt I had been hearing him for some time, letting the sound “pass in one ear and out the other,” as most of us are accustomed to do when the tiresome ‘Preacher’ is holding forth. Nor is it likely that the song of this particular bird would have finally attracted my notice had it not suddenly

occurred to me that the notes of the Philadelphia Vireo are closely similar to those of the Red-eye and that I had found the former species in this very same piece of woods in 1879. No sooner had this thought entered my mind, than I began to give critical attention to the voice that continued to come almost unceasingly from somewhere among the upper branches of the aspen. It was exceedingly like that of *Vireo olivaceus* but pitched in a slightly higher key, while the notes were less varied and separated by decidedly wider intervals. One of them, moreover, was dissimilar in form to anything that the Red-eye habitually utters. As I noted these slight peculiarities it came back to me that they were all characteristic of the song of the Philadelphia Vireo which, by the way, I had last heard in 1881, and hence did not remember very vividly. All the while I had been momentarily expecting to get a sight at the singer, or, at least, to ascertain his exact position, for there was not a breath of wind and no bird, however small, could have stirred among the easily agitated leaves of the aspen without betraying his whereabouts. The leisurely, halting song, however, continued to afford the only tangible evidence that a Vireo was concealed somewhere among the dense, deep green foliage. After encircling the tree a dozen times or more, tilting my head upwards until the muscles of my neck ached intolerably, I lost all patience and deciding that the bird must be sitting quite motionless on some leafy twig — as Vireos will sometimes do for many minutes at a time, when singing in the heat of the day — I collected a number of stones with the intention of throwing them at random into the denser parts of the tree, hoping thereby to dislodge the sluggish bird. Just as I was about to carry this plan into effect it occurred to me that the males of certain of our New England Vireos are given to singing on the nest while taking their turns at incubating the eggs.¹ This reflection caused me to drop the stones and begin looking for a nest instead of a bird. A few moments later I saw, through an opening in the foliage, in the very middle of the tree, scarce ten feet below its topmost twigs and fully thirty feet above the ground, a globular object of a light

¹I have never known the Red-eye to do this but it is a common if not regular practice with the Warbling and Solitary Vireos.

grayish brown color. Holding my glass on it with some difficulty — for I was now actually trembling with excitement — I made it out clearly to be a small, neatly-finished and perfectly new-looking Vireo's nest attached to a short lateral twig of one of the long, upright terminal shoots that formed the crown of the aspen. Looking still more closely I could see the head of the sitting bird and even trace the swelling of his throat and the slight opening of his bill as he uttered his disconnected notes. Soon after this he left the nest and flying to a neighboring tree alighted on a dead twig where I had a clear view of him and quickly satisfied myself that without question he was a Philadelphia Vireo. He looked no larger than a Nashville Warbler, and his breast, when he turned it towards the sun, appeared bright yellow, while his throat was unmistakably — if less strongly — tinged with the same color. It was fortunate that I was able to thus positively identify him by sight at this particular time. Had I not done so I should have continued my walk without troubling myself further about either him or his nest, for the song which he now began — and continued, with occasional brief pauses, for upwards of ten minutes — was to my ears *absolutely indistinguishable from the typical song of Vireo olivaceus*. The voice appeared to be the same in pitch as well as quality, the notes similar in both form and expression, and the delivery equally rapid. I regret that it did not occur to me to time the number of separate utterances per minute, but I feel sure that there must have been as many as the most voluble 'Preacher' often succeeds in producing. Dr. Dwight says that "*V. philadelphicus* sings at the rate of from twenty-two to thirty-six notes a minute, averaging a trifle over twenty-six, while *V. olivaceus* rattles on at the rate of from fifty to seventy, their song rate averaging a trifle over fifty-nine." This, no doubt, is ordinarily true, but equally without question the rule just quoted is not always adhered to by either species — as, indeed, Dr. Dwight seems to have known, or at least suspected. His comparative description of the songs of the two birds is so good and true at most points that, as a whole, it is not likely to be ever improved upon. Nevertheless by reason of its very depth and subtilty of analysis it tends to obscure what is really the crux of the whole matter, viz., the fact that the differences with which it deals so

ably are too slight and inconstant to be easily recognized or safely relied on as a means of identification. In other words, only those who possess critical and highly trained ears can hope to distinguish the Philadelphia Vireo from the Red-eye by its song alone, while even the experts in such matters are likely to be occasionally deceived.

The bird which we left perched on the dead branch remained there, as I have just said, upwards of ten minutes, basking in the sunshine and pouring out a perfect flood of song. At the end of this period he flew directly back to the nest and on entering it at once resumed the listless, interrupted singing which I have already described. I am nearly sure that he did not again leave it that forenoon, for whenever I revisited it—as I did every fifteen or twenty minutes—I found him still there and still singing. He seemed rather ill at ease, keeping his head in almost constant motion and occasionally turning half around in the nest. Once he stretched his neck well out and down over the rim to seize the loose end of one of its component strands, which he tugged at so violently with his bill as to perceptibly shake the whole structure. Perhaps this was done merely to relieve his evident ennui, or he may have been giving vent to irritation caused by the prolonged absence of his mate, who was not seen at all on this occasion.

When we took the nest, early the next morning (about six o'clock), the male was again sitting and beguiling himself as before by frequent snatches of his leisurely song. He did not leave the nest until my assistant, Mr. Gilbert, reached and slightly shook the branch to which it was attached, when he flew directly off out of sight through the woods—no doubt in search of his mate, for he returned with her a few minutes later. Both birds came close about Gilbert's head while he was still in the top of the tree, making their low scolding note which so closely resembles that of the Warbling Vireo, but the male seemed shy and suspicious and soon departed again. The female was much tamer and showed more concern, remaining in the tree until she was finally shot—just after the nest and eggs had been safely lowered to the ground. On skinning her I found that she would have added no more eggs to the three perfectly fresh ones which were found in the nest.

The nest was hung, after the usual Vireo fashion, in a fork between two diverging, horizontal twigs. One of these, a lateral branch from the upright shoot already mentioned, is rather more than a quarter of an inch in diameter and evidently formed the chief support, as the other twig is scarce thicker than the flower stem of a buttercup. The nest is firmly bound to both for some distance along its rim. It is much longer than broad; measuring externally 3.20 inches in length, 2.75 in width, and 2.65 in depth; internally 2.00 in length, 1.50 in width, and 1.35 in depth. Its walls are more than half an inch thick in places, its bottom almost a full inch. It appears to be chiefly composed of interwoven or closely compacted shreds of grayish or light brown bark, apparently from various species of deciduous trees and shrubs as well as, perhaps, from dried weed stalks. The exterior is beautifully decorated with strips of the thin outer bark of the paper birch, intermingled with a few cottony seed tufts of some native willow still bearing the dehiscent capsules. Most of these materials are firmly held in place by a gossamer-like overwrapping of gray-green shreds of *Usnea*, but here and there a tuft of willow down or a piece of curled or twisted snow-white bark was left free to flutter in every passing breeze. It would be difficult to imagine anything in the way of external covering for a bird's nest more artistically appropriate and effective. The interior, too, is admirably neat and pretty, for it is lined with the dry, tan-colored needles of the white pine (among which are a very few slender blades of grass), arranged circularly in deep layers around the sides and bottom of the cup in which the eggs were laid. Most of these materials are also used habitually by the Red-eye, but the nest of the latter is seldom, if ever, so liberally and tastefully decorated. That of the Solitary, however, is occasionally ornamented in much the same way and to a nearly equal degree. The nests of both these species, as well as those of the Warbling and Yellow-throated Vireos, are almost invariably larger, rounder and relatively shallower than this nest of the Philadelphia which, indeed, most nearly resembles that of the White-eyed Vireo in size and proportions, although the nest of the latter is usually much deeper and more purse-shaped.

The eggs measure respectively .80 × .54; .81 × .53 and .79 ×

.54 (one hundredths of an inch). They are elongate ovate in shape and pure white, sparsely spotted with burnt umber, chocolate and dull black. Most of the markings are small and rounded while many of them are mere specks. On two of the eggs they are rather generally distributed save about the smaller ends which are immaculate, but on the third egg they are practically confined to the larger end. All three eggs resemble most closely those of the Red-eyed Vireo but they are decidedly smaller than average eggs of that bird, while in respect to shape they are unlike any Vireo's eggs in my collection, a peculiarity which is not likely to prove constant, however. Many of my Red-eye's eggs have similarly clear white shells, but all the eggs of the Warbling Vireo, in my collection, are more or less strongly tinged with cream color, and with most of them the dark markings are blacker and somewhat coarser than in these eggs of *V. philadelphicus*.

As I have already said, the Philadelphia Vireo's nest found in Manitoba by Mr. Seton was only about eight feet above the ground, in a small willow, while that which I took at Lake Umbagog was at a height of fully thirty feet in a well-grown aspen. Which of these two situations comes the nearer to being the usual or typical one cannot be settled, of course, on the basis of evidence so scanty and conflicting as that above mentioned. No doubt the nest will be found to vary considerably in position — as well as details of construction — in different regions or even with different birds in the same region; but I am now inclined to believe (although with Dr. Dwight I have hitherto had a directly opposite impression) that in northern New England, at least, it will prove to be ordinarily built, like that of the Warbling Vireo, in the tops or among the upper branches of good-sized trees. If this be so it is no longer difficult to understand why those of us who have spent season after season in places where the Philadelphia Vireo breeds rather numerously have looked in vain for its nest in thickets or among the lower branches of the trees.

AUDUBONIANA.

BY S. N. RHOADS.

THE three Audubon letters herewith presented recently came into my possession and were found to contain so much of an apparently unpublished character of interest to ornithologists that it was thought best to have them printed.

All were written to Edward Harris of Moorestown, one of the most faithful and helpful friends of Audubon during his life, and the one man, not related to the Audubon family, who most substantially aided the widow of J. J. Audubon in the financial difficulties which she underwent just prior to Edward Harris's death in 1863.

The light thrown upon Audubon's relations with, and attitude toward, contemporary American and English ornithologists, especially Townsend, Nuttall, and Bonaparte, is of no small value and significance. So little indeed do we know about Townsend, outside his charming and classic 'Narrative,' that these historic references to him by such a man as Audubon are a precious legacy and but confirm the impression that with Townsend there prematurely perished one of the humblest, gentlest, and therefore truly greatest, of Nature's noblemen.

Perhaps at no period in Audubon's life was the pressure greater, from the literary and scientific side, than when these letters were written to Harris. The insatiable claims of *priority* had taken fast hold upon a spirit naturally averse to technique and artificiality, and in his journal of even date we see how he occasionally revolted against this form of slavery and sighed for the woods and fields.

Within the mere closet naturalist these heart to heart talks of the Great Bird Lover with his scholarly friend may stir no emotions deeper than curiosity, but there are others who can keenly sympathize with Audubon's struggles in a foreign land to forestall his friendly rivals on both sides of the Atlantic, and can forgive the importunity, suspicion, vanity and supersensitiveness which tormented his artistic, freedom-loving soul in the greatest crisis of his life.

LETTER NO. I.¹

Duplicate

London, Oct. 26th., 1837.

I have this moment received your dear letter of the 4. instant, for the contents of which, I do indeed most truly thank you, but the most important point contained in it, Dr. Spencer is now at Paris quite well and quite happy. I have not heard of his supposed intentions to visit Russia, at least not until you have shewn yourself in Europe for awhile. When will you come? I have not received one single letter from Dr. Morton since my return to England, and have been the more surprised at this, because I look upon *him* as a worthy good man and as on one whom, since my last visit to him, I cannot but consider as my friend.

The return of Dr. Townsend to our happy land has filled me with joy, and trebly so when you tell me that he is as friendly disposed to me as I ever have been towards him. I congratulate you, my dear friend, in the step which you have so kindly taken in my favour, by first selecting all such Birdskins as you or Townsend have considered as new, and also in having given freedom to Dr. Morton to pay Dr. Townsend Fifty Dollars for the skins selected by you, under the *prudent* considerations or restrictions talked of in your letter. May I receive all the Bird skins very soon, for depend upon it, now or never is for me the period to push on my publication. If I have any regret to express it is, that Townsend or Dr. Morton or yourself did not at once forward to me the *whole* of the Bird skins brought latterly by Townsend, for I can assure you that it has become a matter of the *greatest nicety* to distinguish the slight though *positive* species lines of demarkation between our species of Birds — and if on this reaching you, the least doubt exists amongst yourselves respecting any one, why send it to me at once by the very earliest conveyance. If by New York, with letter to M. Berthoud to lose not a day, provided a packet, either to *Liverpool*

¹ Outside address :

To Ed^d Harris Esq^r.

Moorestown New Jersey

9 miles from Philadelphia Pennsylvania

U. S. A.

or London, is ready to sail! Had Townsend sent me the *whole* of his disposable birds, I might now have perhaps been able to have mad[e] him a remittance in cash, which the single arrival of the German Naturalists, who are now in California may hereafter put an end to. Mention this to him, nay, shew him this letter if you please and assure him that I am willing to exert myself in his behalf. Indeed, I wish you to urge him in forwarding me either his own manuscripts or a copy of all such parts as appertain to Birds, as soon as possible, knowing (I think) that he will not undertake to publish them himself under his present (I am sorry to say) embarrassed pecuniary circumstances. Tell him that I want all about the habits of *any* Birds which he has written upon, especially, however, those found from the beginning of his journeys until his return, and appertaining to species belonging to our fauna or otherwise. Their exact measurements, dates, localities, migratories or vice versa inclinations, descriptions of nests, eggs &c. periods of breeding; in a word all that he can, or will be pleased to send me — and you may assure Townsend, that all he will confide to me will be published as coming from *him*, although I may think fit to alter the phraseology in some instances. Tell him to be extremely careful in the naming his new species, and that [if] he thinks of difficulties in this matter, to leave it to me, as *here* I am able to see all the late published works (and they are not a few) and work out the species with more advantage than any one can at present in Philadelphia. Do not take this as egotism far from it, it is in friendship and for his sake that I venture on undertaking such an arduous task. I am *exceedingly* [anxious] to receive a letter from him (for Nutall, though an excellent friend of mine and a most worthy man, will not answer me in time on this subject) of *all* the birds contained in the *plates* now at the Academy of Natural Sciences in Philada., *which he saw on the Rocky Mountains*, over those mountains, *on the Columbia River* and off *the coast* of our *Western boundaries*. This I want much, and if he would simply dictate to you plate 1. not there, plate 2. there, plate 3 there &c. &c. this would amply answer my purpose, and this I wish you not to neglect to forward me *as soon as possible by duplicate!* Of course I cannot speak upon any one of the new species of which you speak until I have examined them all. To talk of new species in

London is a matter not now understood in any part of America, and sorry will you be as well as himself, when I assure you that out of the *twelve* supposed to be, and published by Dr. Morton, from Townsend's first cargo, not more than six are actually undescribed, although I have taken upon myself the risk of publishing *his* names to the Birds on my plate, but which of course I am obliged to correct in my letter press. *The little beautiful owl*, I would venture to say has been described by Vigors at least ten years ago, &c. &c. Swainson never goes to bed without describing some new species, and Charles Bonaparte, during his late visit to London, has published as many as 20 of a night at the Museum of the Zoological Society Insects &c. &c. Stir, work hard, [be] *prompt* in everything. My work *must* soon be finished, and unless *all is received here* by the month of May next, why I shall have to abandon to others what I might myself have accomplished. God bless you, many happy years. We are all well, thank God, just now. Remember me and us kindly to all around and every friend and believe me ever your most truly and sincerely attached friend,

John J. Audubon.

To Edward Harris, Esq^{re}.

Addressed, care "Messrs. Rathbone, Brothers & Co.

When you send to Liverpool.

Liverpool."

¹If Townsend has brought Birds Eggs, ask him to send them me. I will return all to him that he may want. I greatly regret that you did not find me the *water* Birds of which you speak, as I might have perchance found something new or curious among them. The Golden Eye Duck especially, if any he had?

J. J. Audubon.

¹ This paragraph, with the signature, is the only part of this letter in Audubon's own hand. The preceding portion was a copy of his draft, and marked "Duplicate." Undoubtedly Audubon had to make so many alterations in the original that he was ashamed to forward it. The address on the wrapper is Audubon's penmanship.

LETTER No. 2.¹

Edinburgh, 14th. Sep^r., 1838.

My Dear Friend:

Not having received anything from you in answer to my last, I suppose that you may yet be away from Glasgow, but as we ourselves are going off tomorrow morning to the "Highlands," with a view to be at Glasgow on Thursday next, I write to you now, with the hope of meeting with you *then!* Nothing of importance has occurred here since my last, but *the book* has considerably swollen in its progress towards completion.

We all unite in best wishes to you and I remain as ever your most truly attached and sincere friend,

John J. Audubon.

We intend being at home again on Saturday next.

LETTER No. 3.²

Edinburgh December 19th., 1838.

My Dear Friend:

Your letter of the 13th. instant to Victor reached us this morning, and glad were we all to hear from you.

My object in writing to you is, for the purpose of assuring you that I feel great in preparing a box of bird skins for you according to your desire. It is true, however, that as I am now on the eve of commencing my synoptical arrangement of our birds, I shall not be able to show you as many of my specimens I could otherwise have done, but you must take the will for the deed. The

¹ Outside address:

To Edward Harris Esq^r.
Comrie's Royal Hotel,
Glasgow.

² Outside address:

To Edward Harris Esq^r.
Care of Messrs. Hottinguer & Co.
Paris.

Box will be taken as far as London by Victor, who will leave us on the first of January. You will find in it a list of the contents, and I trust such bird skins as may answer your purpose well. Besides these Victor will also attend to your request as soon as in New York and will ship to you by way of Havre as you direct.

I am glad that you should have seen what you conceive to be the great *rara avis* *F. Washingtonii*. I am sorry you could not have pocketed it, but who knows if it is not left yet in store for you and I to shoot a pair of these noble birds at The West, and that, after having satisfactorily examined its habits, its eggs, or its young! *Bonaparte*, between you and I, is exceedingly ignorant as regards our birds, as I found to my cost when he was in London, and where he pumped me sadly too much, but it is now over and I forgive him as I do all others who have or who *may* try to injure me.

John Bachman wrote to me that he had left in commission to Trudeau, the purchase for me of a copy of Vieillot's *Osieaux de l'Amérique Septentrionale* and also a copy of Boié or Bojé work on birds generally, but I have received neither books or promises of them from Trudeau. Pray ask him something upon this subject, and if he has not purchased them as yet, perhaps you would undertake the task yourself, and show to Havell as soon as possible, for I shall be sadly in want of them in a few weeks more. I should also like you to try to find Mr. Augustus Thorndike of Boston, to whom Victor wrote a few days ago, with the view to enquire from that Gentleman when he wished *his* copy of the *Birds of America* to be delivered. Victor addressed the letter to "his Hotel" or to the care of the "American Embassy." We are not sure, however, whether he is in Paris at present, and let me know what discoveries you have made as regards this. — Victor will remain ten days in London and wishes you, should you write to him there, to put your letter *under cover* to *Havell* and request him to *keep* it. Victor will write to you from thence.

I cannot account why Trudeau has not written to me in answer to my last, now full two months old? Should you *perchance* discover a specimen of the Bird of Washington in Paris and purchase the same, I should like you to send it me *on loan* to enable me to compare it with mine, and the Immature of the *F. Albicilla of Europe!*

I have got twelve sheets of the 5th. Vol. of Biographies already printed, and I expect to have quite finished by the 1st. of April next. I have decided on the *Trichas* resembling *Sylvia Philadelphica* of Wilson. It is a distinct species, but what will probably surprise you more, the *S. Agilis* of the same author is also perfectly distinct from either. All this you will plainly see when you read their separate descriptions and compare the three species.

I wish you would ask Trudeau whether *he* recollects the specimen of an Eagle sent by Townsend in his first collection, numbering 54 and which the latter has lost, though he considered it as a new species. It was procured in California. Townsend speaks sorrowfully of the loss of this specimen. It never came under my eye, did it come under yours? Ask Trudeau whether he ever saw my *Hirundo Serripennis* in America, Bachman wrote to me that Trudeau thought he had at New York in the skins of Frederick Ward. I think Trudeau will be pleased with the anatomy of our birds, as it opens mysteries hitherto unknown in connection with the relative affinities of some species toward others and assists in the formation of groups &c., in what some day or other, will be called a *Natural arrangement!*

I wish I could have spent a few weeks in Paris with you and Trudeau, as I readily imagine that some new species of North American birds may yet be found there unknown to the World of Science. I have written to Mr. Chevalier and to Townsend, but will not, I dare say, hear anything more of the former until through Victor, who intends to see him very shortly after his arrival in America.

My Dear Wife is much better than when you saw her, and I hope that when once again she has been safely landed on our shores and enjoyed the warmth of our own Summers, her health will be quite restored.

The *Little Lucy* has grown as fat as butter, and the rest of us are well.

We all unite in kindest best wishes to you and to Trudeau, and I remain as ever, my Dear Friend,

Yours,

John J. Audubon.

6 Alva Street.

NOTES ON THE BIRDS PECULIAR TO LAYSAN
ISLAND, HAWAIIAN GROUP.¹

BY WALTER K. FISHER.

Plates XII-XVI.

WE DO not naturally associate land birds with tiny coral atolls in tropical seas. It is therefore a strange fact that such a diminutive island as Laysan, and one so remote from continental shores, should harbor no less than five peculiar species: the Laysan Finch (*Telespiza cantans*) and Honey-eater (*Himatione freethi*), both 'drepanidid' birds, the Miller Bird (*Acrocephalus familiaris*), the Laysan Rail (*Porzana palmeri*), and lastly the Laysan Teal (*Anas laysanensis*). I use the term 'land birds' loosely, in contradistinction to sea-fowl, multitudes of which breed here throughout the year. The presence of these species is all the more remarkable because none appear on neighboring islands, more or less distant, some of which are very similar to Laysan in structure and flora.

Reaching out toward Japan from the main Hawaiian group is a long chain of volcanic rocks, atolls, sand-bars, and sunken reefs, all insignificant in size and widely separated. The last islet is fully two thousand miles from Honolulu and about half-way to Yokohama. Beginning at the east, the more important members of this chain are: Bird Island and Necker (tall volcanic rocks), French Frigate Shoals, Gardner Rock, Laysan, Lisiansky, Midway, Cure, and Morell. Laysan is eight hundred miles northwest-by-west from Honolulu, and is perhaps best known as being the home of countless albatrosses.

We sighted the island early one morning in May, lying low on the horizon, with a great cloud of sea-birds hovering over it. On all sides the air was lively with terns, albatrosses, and boobies,

¹ These notes were made during a visit of the Fish Commission steamer 'Albatross' to Laysan, May 17 to 23, 1902, and are abridged from a more extended report on the avifauna of the island, to appear in the Bulletin of the U. S. Fish Commission.

and we began to gain some notion of what a pandemonium the distant swarm was raising. We landed on the west side, where there is a narrow passage through the breakers, which curl with beautiful hues on the coral reef, and then sweep shoreward with flying foam.

Mr. Max Schlemmer, the superintendent, his two assistants, and a couple of dozen Japanese laborers constitute the human population. The phosphate rock is very valuable for manufacturing fertilizer, and is worked assiduously during the summer months. To Mr. Schlemmer the expedition owed much, for his unflinching courtesy and substantial aid very materially promoted the success of our week's visit.

Laysan is a slightly elevated atoll, rudely quadrilateral in contour, and suggests a shallow basin or platter. It is three miles long by one and one half broad. In the center is a wholly enclosed lagoon, covering perhaps one hundred acres. This is surrounded by a broad, level plain, that part nearest the very saline waters of the lagoon being destitute of any vegetable life. From this plain the land rises as a gentle sandy slope to a low divide or rim (about twenty-five feet above the water) near the sea beach. Not a tree breaks the monotonous expanse, but instead are low bushes (*Chenopodium sandwicheum*, *Santalum freycinetianum*, *Scaevola kanihi*) and broad areas of high, tussocky grass. On the narrow seaward slope the turf is short and wiry, and a broad band between the bare shores of the lagoon and the beginning of the bush-grass is covered mostly with matted beds of succulent *Portulaca lutea*, and reddish-flowered *Sesuvium portulacastrum*. Beautiful morning-glories, yellow *Tribulus* (remining one of *Potentilla*), showy *Capparis*, and numerous other flowers add a bit of color to the landscape.

Laysan is a bird paradise. Albatrosses (*Diomedea immutabilis* and *D. nigripes*) by the thousands rear their young here each year, free from fear of molestation or injury. More numerous even are the Sooty Terns (*Sterna fuliginosa*), while the Gray-back Tern (*S. lunata*), White Tern (*Gygis alba kittlitzii*), Noio (*Micranous hawaiiensis*), and Noddy (*Anous stolidus*) are all abundant. Attractive and interesting birds are the boobies, of which two species, *Sula cyanops* and *Sula piscator* are on the

island in large numbers. The droll Frigate Bird (*Fregata aquila*) is here in all the glory of his bright red gular 'balloon,' and the splendid Red-tailed Tropic Bird (*Phaethon rubricaudus*) in satiny plumage of the palest rose pink, is a familiar member of the community; as he nervously flits by in the tropical sunshine his feathers glisten with the lustre of burnished metal. Among the Procellariidæ, the Bonin Petrels (*Æstrelata hypoleuca*) may be mentioned as exceeding even the Laysan Albatross in numbers, but as they live in deep burrows one would hardly think it. Next come the Wedge-tailed and Christmas Island Shearwaters (*Puffinus cuneatus* and *P. nativitatis*), which are abundant, and the rare Sooty Petrel (*Oceanodroma fuliginosa*) nests in some numbers during the winter months.

We were at once impressed by two striking facts: the great numbers of birds and their surprising tameness. Especially true is this of the sea-fowl. They seemed little put out by our presence and pursued their ordinary duties as if we were an essential part of the landscape. Even the land birds were fearless. While we sat working, not infrequently the little warbler, or Miller Bird, would perch on our table or chair backs, and the Laysan Rail and Finch would scurry about our feet in unobtrusive search for flies and bits of meat. Each day at meal-time the crimson Honey-eater flew into the room and hunted for millers. As we strolled over the island the Rails scampered hither and thither like tiny barnyard fowls, but soon returned, craning their necks to discover why they had so foolishly retreated. As for the sea-birds there was scarcely a species that seriously objected to our close approach, or at any rate departed when we attempted to photograph them. In fact the albatrosses were astonishingly fearless, and would sometimes walk up and examine some portion of our belongings, as if they had known us always.

It is far from my intention to speak of the sea-birds in detail but merely to sketch hastily, though perhaps inadequately, the conditions and creatures amid which the five peculiar land birds have presumably been evolved.



LAYSAN FINCH AND NEST.

LAYSAN FINCH. *Telespiza cantans* Wilson.

The Laysan 'Finch' is a stocky, independent creature about the size of a Black-headed Grosbeak, and its appearance strongly suggests one of the big-billed finches. The fully adult bird is a light rich yellow, greenish on the back, and a deep brownish on the wings and tail, the coverts and secondaries edged with yellowish, and this plumage is not assumed until the individual is over a year old, or perhaps not before the second season. The female is like the male but a trifle duller in tone. Both illustrations of Plate XII show the species in the subadult, brownish, streaked feathering, which it will be seen is worn through the first nesting season.

Telespiza and the next species considered, *Himatione freethi*, are placed in the Drepanididæ, a family peculiar to the Hawaiian Islands. The differences between these two birds seem great, and in fact about the only common character uniting the many diverse species into the composite family is the peculiar disagreeable musky scent said to emanate from birds in the flesh. I detected no such odor on either of the Laysan species, but it may have escaped me. The origin of the Drepanididæ remains still a sealed book, but their affinities seem to be American.

We much enjoyed the company of the Laysan Finch. He is a sociable, saucy and fearless fellow, and captivates one by his nonchalant, independent air. We could not walk anywhere without encountering them singly and in little companies—the latter being mostly males—diligently searching for food among the bushes or frolicking, toward the center of the island, in open stretches covered with portulaca and a pinkish flowered sesuvium. When disturbed they eye the intruder in an inquisitive, half-doubting manner, and utter their mellow, linnet-like call. If pursued they do not fly far, but escape by running along the ground, or suddenly crouching under a grass tussock. Not infrequently they hopped about the piazza where we were preparing specimens, and sought for food beneath the chairs. One day when I was alone and quite still, a handsome male alighted on a table at my elbow and proceeded to explore a large heap of loose papers. He was soon lost in the rustling pile, which he demolished with great energy in his search for novelties.

Telespiza is not particular as to its food, but is fond of the soft parts of grass stems, tender shoots of bushes, seeds, and especially of sea-fowl eggs. I once frightened a tern off her 'nest,' and almost immediately a pair of Finches flew to the egg. One of them cracked a neat hole in the shell with a few strokes of its powerful beak, and began to feed, although I was hastily adjusting a camera only a yard or two away. Nor did the removal of some rocks which obscured the view bother them greatly, for they merely hopped a few feet away and watched me calmly, resuming their repast as soon as I had finished. (Plate XIII, Fig. 1.) But suddenly a Rail rushed out of the grass, and with feathers erect made for the Finches in such a determined manner that the pair flew away and left *Porzana* sole possessor. The latter lost no time in finishing the egg. (Plate XIII, Fig. 2.) Undoubtedly the finches eat a goodly number of eggs in the course of the season, for this was not the only case observed.

Their favorite nesting site is in the middle of a big tussock of grass, somewhat nearer the ground than *Himatione* and *Acrocephalus* usually build. *Chenopodium* bushes are also frequently used for we found nests here, as well as in grass clumps bordering the open near the lagoon — a location very popular with all the land birds. In each instance, in the latter case, the nest was wedged in the center of a tussock, well hidden by tall grass stems. It is constructed of handy materials, such as rootlets, twigs, and coarse grass, and the whole is rather loosely put together. The shallow cup, $2\frac{3}{4}$ inches in diameter, is lined with shredded grass. The position and character of the nest is shown in Plate XII.

There are three eggs in a complete set, although we found some nests with only two. A fairly typical specimen is bluntly ovate, of lustreless white, with small blotches and spots of light sepia and lilac gray, crowded toward the larger end, and very sparingly present on the acute half. Sometimes the spotting is distributed evenly over the whole surface. There is much variation in size and color. A typical example measures 24 by 18 millimeters.

The finches were so unsuspecting that I had little difficulty in securing photographs of them at the nest. The reader must remember that none of the various precautions usual in bird photography were here taken. The camera was within a few feet



FIG. 1. LAYSAN FINCH EATING TERN'S EGG.



FIG. 2. LAYSAN RAIL EATING TERN'S EGG.

of the nest, in plain sight, and the operator was seated beside it waiting his chance. The bird in the pictures spent much of its time scratching sand, just behind the grass tussock, and would occasionally hop onto the edge of the nest to see what was happening.

LAYSAN HONEY-EATER. *Himatione freethi Rothschild.*

The Laysan Honey-eater is a brilliant little bird, about the size of a warbler, and very attractive when seen flitting here and there in the soft green of chenopodium bushes. Its plumage is of a lustrous scarlet vermilion, brightest on the crown, with wings, tail, and abdomen a dull sepia.

They are most abundant in the interior of the island near the open plain bordering the lagoon. Here on the extensive beds of succulent portulaca they may be seen throughout the day, busily walking about like pipits, either gathering insects or drinking honey from the numerous half-blown buds. The brush-like tongue of these creatures renders the gathering of honey, and such tiny insects as may infest the interior of corollas, an easy task. In fact it was no uncommon occurrence to see one go from flower to flower, and insert its bill between the petals of a nearly opened bud, with a certain precision and rapidity which suggested a hummingbird, except of course that the *Himatione* was on its feet.

I also observed them catching green caterpillars from *Chenopodium sandwicheum* bushes, the leaves of which resemble those of its well-known congener — our garden pig-weed. The Honey-eaters are partial to small brownish-gray moths or 'millers' which abound on the island. While we were at lunch, nearly every day a *Himatione* flew in and extracted these creatures from cracks between boards. It then grasped the miller with one foot, after the manner of a bird of prey, clinging with the other to the rough board wall, and ate the soft parts of its quarry. After a few moments the still fluttering victim was released, and the destructive search resumed. It became evident that the millers, relieved of important parts of their anatomy, did not thrive after such treatment. We heartily wished the little bird good luck, for the

millers left unpleasant memories, and likewise the imprint of their fuzz on many of my negatives.

The nest, like that of *Telespiza*, is built in grass tussocks, about two feet from the ground. The structure is loosely made, of fine grass and rootlets, and the dainty bowl is lined with rootlets and brown down from young Albatrosses (*Diomedea immutabilis*). There are no large white feathers in the lining, at once making the nest distinguishable from that of *Acrocephalus familiaris*, which builds in neighboring tussocks. The complete set seems to be four. The ovate egg is pure lustreless white, blotched and spotted at the large end with grayish vinaceous, and with fewer light and dark spots of Prout's brown. A typical specimen measures 18 by 13.75 millimeters.

Himatione freethi is closely related to the Apapane (*H. sanguinea*) of the larger Hawaiian Islands. The derivation of the two Laysan Drepanidæ is therefore rather plain, for although *Telespiza* is a monotypic genus, it belongs with the large-billed genera *Chloridops*, *Rhodacanthis*, and *Loxioides* of Hawaii, *Pseudonestor* of Maui, and *Psittacirostra* of Kauai, Oahu, Molokai, Lanai, and Hawaii.

MILLER BIRD. *Acrocephalus familiaris* (Rothschild).

The sociable little Miller Bird is one of the Reed Warblers belonging to the Sylviidæ, a characteristic Old World group, although a certain American genus, *Polioptila*, is also included in the family. It is curious that nowhere else in the whole Hawaiian group does any species of *Acrocephalus* occur. The genus is a wide ranging one, extending over the whole of the central and southern Palearctic Region, having also representatives in Australia and South Africa, while one division of the group is exclusively Polynesian. Many of the species are highly migratory, and winter in the tropical regions of Asia and Africa, and in the islands of the Malay Archipelago. But the subgenus *Tartare*, or genus as some consider it, to which the Laysan bird belongs, is a distinctly Polynesian group. It is distributed over the islands between 30° north latitude and 30° south, and between longitude

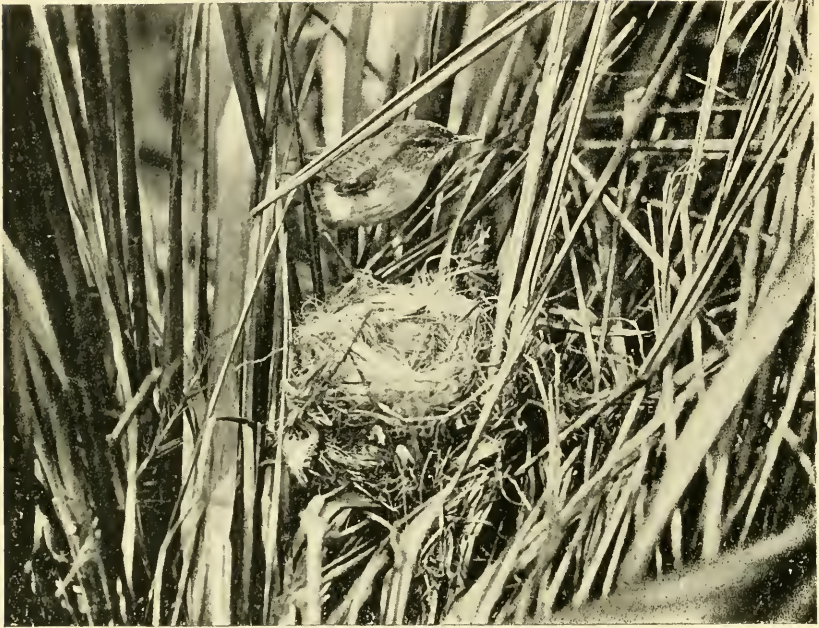


FIG. 1. ACROCEPHALUS FAMILIARIS AND NEST.



FIG. 2. NEST OF ACROCEPHALUS FAMILIARIS.

120° or 125° east and 120° or 125° west. Oustalet¹ considers that this restricted group, *Tartare*, which has only eight oceanic species shows perhaps closer affinities with *Berniera* of Madagascar, than with the European and Asiatic *Acrocephalus* (*l. c.* p. 210). *Tartare luscini* is found on Guam and Saipan, *T. syrinx* in the Carolines and on Pagan of the Mariana Islands, *T. rehsei* on Pleasant Island, *T. equinoctialis* on Christmas Island, *T. pistor* on the Fannings, *T. mendance* on the Marquesas, *T. longirostris* through the Society and Paumotu Archipelagos, and finally *T. familiaris* on Laysan. I am not aware with what species *familiaris* shows closest kin, but *à priori* one would rather favor the idea that the first colonists to Laysan came from the Carolines or the Ladrões (Mariana Islands) rather than from the south, for the reason that the genus is not present in the main Hawaiian group.

The Miller Bird is one of the most abundant of the species under consideration and is seen to best advantage during the cool of the morning or in late afternoon, for then it is very active, and at times musical. During the heated portion of the day, after the custom of our wood warblers, it retires to remain in seclusion among shady bushes, or tall tussocks of grass where its nest is made. Like most of the birds on the island *Acrocephalus* is rather unsuspecting, though not by any means so tame as either the Finches or Rails. I have read that its congeners in other parts of the world are quite shy, but many rules usual in bird manners seem here to be thrown aside. That the little creatures are far from nervous is demonstrated by the accompanying illustration (Plate XIV, Fig. 1). The camera was planted about thirty inches from the nest, and when everything was arranged I crouched under the instrument, and waited quietly for five minutes till the bird returned.

Whenever in evidence *Acrocephalus* always appears busy. It feeds largely on moths and other insects, and receives its local name from a fondness for millers, which, as already intimated, abound on the island. The little warbler drags these insects from their secluded hiding places with much skill. Its dull brownish-

¹M. E. Oustalet, *Les Mammifères et les Oiseaux des Isles Mariannes* Nouvelles Archives du Museum, 3rd series, VII, 1895, 212.

olive plumage renders it inconspicuous, and one scarcely takes notice when it flies about the verandas, or into the dark corners of a room, searching for its favorite food. We often saw this species with *Himationes* gleaning insects in the broad purslane beds near the lagoon.

The nest is built usually in the midst of a big tussock of grass, and the birds seem to congregate along with the Finches and Honey-eaters near the open plain, several times mentioned in foregoing pages. We were puzzled to find many nests entirely completed, but without eggs, and finally concluded that the birds had not yet begun to lay in any numbers. Only two sets, one of three and the other (incomplete) of two, were taken. The nest is composed of dried grass stems and blades, fine rootlets, and is lined with rootlets, shredded grass and white albatross feathers, some of the last being woven into the coarser structure of the nest. These feathers are strictly characteristic of all the nests we found, so that the Miller Birds probably began very long ago to make use of this convenient material. None of the other birds use the large white feathers, although as already stated the *Himatione* employs soft albatross down. The eggs vary in ground color from the palest olive buff through greenish white to almost pure white. The markings consist of olive blotches and spots of various intensities, crowded at the blunt end, and likewise very tiny lines and specks, scattered over the whole egg. Sometimes there are drab shell marks. One egg was as small as 19 by 14 millimeters and another as large as 22 by 15.

LAYSAN RAIL. *Porzanula palmeri* *Frohawk.*

The Laysan Rail is a wide-awake, inquisitive little creature with a seemingly insatiable desire for first-hand knowledge. It is one of the most naïve, unsophisticated, and wholly unsuspecting birds in the whole avian catalogue. Usually it is confiding and familiar in its relations with man, yet sometimes holds aloof with a show of reserve. It will occasionally hide behind a bunch of grass, as if afraid, and then suddenly saunter forth with entire change of demeanor, and examine the intruder with critical care. One can

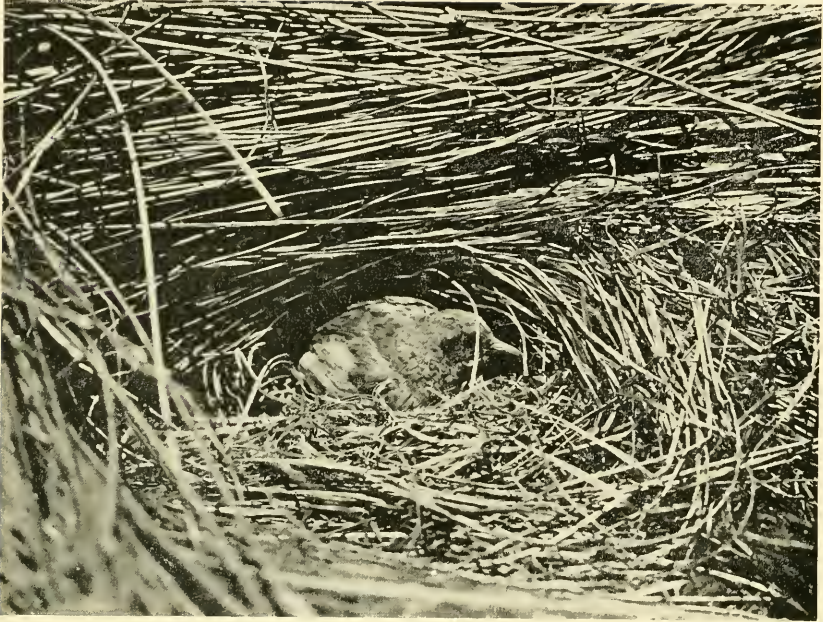


FIG. 1. LAYSAN RAIL ON NEST.



FIG. 2. NEST OF LAYSAN RAIL.

never tell just how he will be received by the next Rail. Often they scurry away as if pursued by a *bête noir*, but an insect will stop them in their mad career, and, having promptly disposed of this interruption, they seem to forget their former fright and walk about stretching their necks in a highly inquisitive manner. It is evident that they are incapable of pursuing any train of thought for more than an instant. Their ideas seem to flash by in kaleidoscopic succession, and within a minute they make as many false starts as a monkey. One can scarcely imagine more foolish and amusing little birds than these.

Porzanula palmeri is a very distinct form, and whence the original colonists came is rather difficult to conjecture. Just why these first birds never left the island, as the Golden Plovers do now, is also hard to say; unless, driven by strong winds they were so completely worn out and lost that they never dared to abandon the welcome land. The fact remains that they did not leave, and we now find a bird resembling *Porzana* in most respects, but with wings woefully useless and short. The *Porzana* type of coloring is present in a much lighter and bleached form.

The Rails are everywhere on the island in great numbers. There is scarcely a bunch of grass but harbors a pair. They probably have no serious enemies, so that the only check to their increase is space and food supply. It is possible Man-o'-war Birds may pick one up now and then, especially the chicks, but I saw nothing to substantiate this. Yet the Rails like to slink about in the shade of grass tussocks or bushes, much in the same way that a chipmunk seeks the shadow of a log in preference to crossing a bright sunny space. This trait suggested the idea that they might have winged enemies. However if necessity or even inclination calls, the Crakes show no aversion to coming out into the sunshine, especially for food, so that perhaps it is the hot sun which causes them to retire to cooler by-ways.

They spend a large part of their time creeping, mouse-like, in and out of nooks and crannies, as if trying to satisfy their genius for exploration. Old petrel burrows fallen in, low-bending bushes and grass tufts are searched with care and precision in this unending quest. As they walk their heads are thrust forward from side to side, the very pictures of inquisitive interest. They used some-

times to come up and peer at my shoes, with one foot poised in air. Scarcely a thing escapes their beady red eyes. The smallest spider or beetle is snapped up with as much avidity as a more conspicuous seed.

We caught all our specimens in an ordinary dip-net. Usually it was only necessary to place the net on the ground edgewise when presently a rail would make its appearance and proceed to examine the 'new phenomenon' at close range. Often they would fairly walk into the net, and Prof. J. O. Snyder obtained a photograph illustrating this amusing incident.

In strolling through the brush we could hear the Crakes calling here and there. Their song is a plaintive high-keyed little rattle which resembles remotely an alarm clock with a muffled bell, or pebbles ricocheting on a glass roof. I have observed them standing under bushes in the shade rattling away in this manner, with swollen throats and bills slightly opened. I once saw two approach one another, with feathers erect and heads lowered, and begin rattling in each others face. Then they suddenly ceased and slunk away in opposite directions.

At the house the little Rails walked about the veranda in search of food with far less fear than the chickens, and while Prof. Snyder and I were preparing specimens, not infrequently a Rail or two would be walking under our chairs, searching for morsels of meat. They took no notice of Albatrosses and other sea birds. I saw two in a lively serpentine chase about a young Gony's legs, the big creature appearing like an uncouth mammoth above the trim little Rails.

They do not seem to exhibit any desire to fly, probably having learned from experience that their wings are no longer to be relied upon. I have only seen them spread their wings when hopping up to a perch, or when running fast. I often chased them to see if they could rise from the ground, but they would not even try.

Their food consists of small insects, seeds, green material, and sea-birds' eggs. Their beaks are rather weak, and I doubt if they break any eggs except the thinner shelled ones of the terns. I did not myself see the Rail actually puncture an egg, but in Rothschild's "Avifauna of Laysan," the following note from Henry Palmer's diary is of interest.

“While out this morning both my assistant and I saw a little Rail break and eat an egg. We had disturbed from its nest a Noddy (Anous); immediately the Rail ran up and began to strike at the egg shell with its bill, but the egg being large and hard, he was quite a long time before making a hole. The Rail would jump high into the air, and come down with all its force on the egg, until it accomplished the task, which once done the egg was soon emptied. By this time the Tern came back and gave chase, but in vain.” (*L. c.*, pt. I, p. x.)

Porzanulas lurk about the outskirts of tern colonies all the time, and I once had to frighten a Crake from the nest of a Tropic Bird, while attempting to photograph the egg. I also saw a Rail rush at some Telespizas and drive them from a tern's egg, upon which they were feeding, as related in the account of the Finch. The Rail then set to and finished the repast, dragging the embryo about in an ineffectual attempt to swallow it. With such habits it is difficult to see how these creatures can ever seriously be at a loss to find food.

The following episode illustrates, I think, very forcibly the fearlessness of these Rails. While photographing a nest, I propped back the mass of sedge stems which obscured it. The camera was only a few feet away, and during the adjusting of apparatus, the Rail crept onto the eggs and energetically began to cover herself with the soft lining. After photographing her several times, I lifted her off, and moved the camera still closer, but almost at once she slipped back again, and settled down contentedly. Then, with the focusing cloth I persuaded her to retire to the tall grass, near at hand. I ran back to the camera, but on turning perceived my rail skipping across the flattened grasses in hot pursuit, and I was able to make only a hasty inspection of the ground-glass before she had settled on the nest again. It was under these circumstances that Plate XV, figure 2, was secured. Figure 1 of the same plate shows the Rail.

The Rails make their nests either in the midst of thick tussocks of tall grass, near the ground, or else in close-matted clumps of a juncus-like sedge, which grows in a narrow band along the outermost edge of the lagoon-plain, just where the area of bushy grass and brush begins. We had only to walk over the tangled beds of

this sedge, and watch where the Rails ran out, when a nest could easily be found. It is placed on the ground at the end of a little tunnel, about five or six inches long, and is a roundish cavity, lined above and on all sides, except the little entrance way, with soft dried stems. The eggs are deposited in a little bowl-shaped hollow about four inches in diameter (Pl. XV, Fig. 2). We found several sets of threes and a few incomplete sets of twos. The eggs are large in proportion to the bird, a typical specimen measuring 31 by 21 millimeters, and in contour they are bluntly ovate or elliptical ovate. The ground color is a pale olive buff, closely and rather evenly spotted with pale clay color, or raw sienna, and faint lilac gray. The clay color is brightest and predominates. All the eggs collected were fresh. The young apparently begin to hatch about the middle of June.

LAYSAN TEAL. *Anas laysanensis* *Rothschild.*

That an islet, scarcely three miles in its longest dimension and fully three thousand miles from continental shores, should harbor a peculiar species of the genus *Anas*, is, to say the least, surprising. The birds themselves are scarcely less peculiar than their distribution. Most of us picture ducks as among the wariest of wild-fowl, but the Laysan Teal, though not exactly tame, are at any rate quite unsophisticated.

I have little to record concerning their habits. They congregate about a small sedge-bordered, brackish-water pond near the south end of the lagoon. Here we saw them each day, sunning themselves, and preening their feathers on a little heap of rocks near the center of the pond. We saw them also waddling about in other parts of the island, but not commonly. Near the house there was a pair which probably had a nest in the vicinity, for one of them used to come up to the house after nightfall, and walk about like a barn-yard fowl. Mr. Schlemmer said it was searching for millers. Although these ducks can fly perfectly well, they ordinarily did not take wing until approached within a few rods, and then never went far. They much preferred to walk about, which they did in twos and threes, gleaning their food as they



FIG. 1. NEST OF LAYSAN TEAL.



FIG. 2. YOUNG OF LAYSAN TEAL.

proceeded. The stomach of a male collected near the pond was gorged with small flies, resembling the common house-fly. We did not observe any Teal near the ocean and it is probable they never voluntarily take to salt water.

We discovered one nest within a couple of rods of the pond, placed under a thick chenopodium bush. Six eggs of the palest green — almost white — rested in a shallow bowl constructed of long dry sedges. I wished if possible to secure a picture of the female, so I photographed the eggs (Pl. XVI, Fig. 1) and left them till the following morning. But when I returned to the nest, three of the eggs had hatched, one young was half out, and another egg picked. In taking the accompanying photograph (Pl. XVI, Fig. 2), one of the ducklings had to be removed in order to show the others. The type egg was preserved in alcohol. It measures 55 by 38 millimeters, and in contour is a blunt ovate.

A few days later Prof. Snyder saw three old birds with broods, one of which took to the pond. I also saw a baby swimming about, the rest of the family being somewhere in the sedge tangle. These young resemble those of Mallards.

The Teal is the least common of the five species just considered, and although I had no accurate method of estimating I would place the total number of ducks considerably below one hundred. It will be an ill day for all the birds on Laysan, if a cat, pig, or mon-goose is ever allowed to land. Any or all of these creatures would make short work of eggs and young birds, and could break up what is probably the most interesting community of sea-fowl in the world.

THE BLACK-WINGED PALM TANAGER.

BY AUSTIN H. CLARK.

THROUGH the kindness of Mr. Outram Bangs, I have been enabled to examine the large series of *Tanagra palmarum melanoptera* (Sclater) in his collection, as well as those in the collection of the Museum of Comparative Zoölogy at Cambridge.

The localities represented in the series, with the number of specimens from each, are as follows: Panama, 19; Santa Marta, 1; Margarita Island, 3; Trinidad, 2; "Venezuela," 1; Yacura, Venezuela, 1; Lake Titicaca, Peru, 2. In addition to these examples, I have, in my tabulation, made use of the measurements given by Mr. Ridgway¹ for skins from the following localities: Costa Rica, 6; Panama, 2; Trinidad, 2; British Guiana, 1; Lower Amazons, 5; Rio Huallaga (Peru), 2. This brings the whole number under discussion up to forty-seven.

For comparison, specimens of *T. palmarum palmarum*, were studied from Santarem (1), Bahia (1), and "Brazil" (3).

The object in view was to observe the variations of this subspecies with regard to its geographical distribution, and to determine whether the northern bird, occurring about Panama, is separable as a valid form, which Ridgway considers may prove to be the case.

Dr. Slater² gives the distribution of *Tanagra palmarum* as "southern Brazil and Bolivia northward to Trinidad, Venezuela, Colombia, Panama, and Costa Rica." The subspecies *melanoptera* is given³ as occurring in the western part of South America, from Nicaragua south to eastern Peru (type locality), and east to Trinidad, including Colombia, Ecuador, Venezuela, and the Amazons valley. This restricts *T. palmarum palmarum* to eastern and southeastern Brazil, north to British Guiana. Ridgway says that in the same locality in the lower Amazons district, examples occur, representing as to coloration, at least, both forms;

¹ Birds of North and Middle America, Part II, p. 59.

² Catalogue of the Birds in the British Museum, Vol. XI, p. 160.

³ Ridgway, *loc. cit.*

while Sclater states that in Guiana (Demerara and the Mt. Roraima region), Surinam (Dutch Guiana), and on the island of Mexicana (Lower Amazons), intermediate grades occur, the olive-green edgings to the wing feathers in these specimens being only slightly manifest. In the absence of material from these localities, I cannot make any remarks on this point, but I merely wish to call attention to the fact that, while Sclater regards *melanoptera* as a good subspecies of *Tanagra palmarum*, Ridgway is inclined to consider them as entitled to full specific rank.

In the accompanying table are given the averages for all the male specimens from the various points.

From the figures it will be seen at once that, as regards the wing, the largest specimens are from Peru, while the smallest are from Panama; starting at Panama, the average rises west into Costa Rica, and east, through Santa Marta, Yacura, and Margarita Island, to Trinidad. The lower Amazons specimens are the same size as those from Costa Rica, and are smaller than those from Guiana and Trinidad.

MEASUREMENTS OF *Tanagra palmarum melanoptera* SCL.

Localities	Wing	Tail	Ratio of Wing and tail	Culmen	Tarsus
Peru	98.8	76.9	1.28	13.5	21.4
Panama	90.8	68.2	1.36	13.2	20.6
Costa Rica	94.2	71.1	1.32	13	20.8
Santa Marta (1) Colombia . .	93	72	1.29	11	20
Yacura, Venezuela	94	73	1.28	14	20
Margarita Island	96.3	73.3	1.31	14	20.6
"Venezuela" (1)	100	73	1.37	13	20
Trinidad	97.2	70.8	1.37	14	21
British Guiana	97.5	72.9	1.33	13	20.6
Lower Amazons	94.7	71.4	1.32	13.2	20.8

Tanagra palmarum palmarum Max.

Brazil	99	72.2	1.37	14.5	22.2
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The tail measurements, however, do not vary in the same way. Although the birds with the shortest tails are from Panama, those

with the next shortest come from Trinidad, while Margaritan birds have the longest of any, with the exception of Peruvian examples. Costa Rican birds are close to those from the lower Amazons.

By dividing length of wing by length of tail, we obtain a ratio between the two. An examination of these figures shows that Peruvian birds have the longest tails proportionately, while those from Trinidad have the shortest. Specimens from middle northern Venezuela (Santa Marta, Yacura, and Margarita) and from Costa Rica are intermediate. Those from Panama resemble most closely Trinidad examples, while the lower Amazonian form agrees with the Costa Rican.

In regard to the length of the chord of the culmen, birds from Yacura, Margarita, and Trinidad exceed all others. Guianan and Costa Rican specimens agree in having very short beaks, while those from Peru, Panama, and the lower Amazons are intermediate.

Tarsal measurements show that Costa Rican and lower Amazonian birds are identical in this character; while Trinidad and Peruvian birds are pretty close, having the longest tarsi. Panama specimens have shorter tarsi, agreeing with those from Guiana; Santa Marta and Yacura ones have the least of all, while the Margaritan form is intermediate between them and the bird of Trinidad.

In measurements the true *T. palmarum palmarum* from southeastern Brazil is larger than the average of the subspecies *melanoptera* examined in respect to length of wing, culmen, and tarsus; but in tail measurements it is near the Santa Martan bird. The ratio between length of wing and length of tail is that of Trinidadian *melanoptera*.

In short, then, the specimens of *T. palmarum melanoptera* from Costa Rica show a striking similarity in all dimensions to those from the lower Amazons. Peruvian birds are largest, except for the beak, while Trinidad birds are near them in all respects save in length of tail. Guianan birds are also close, having longer tails than those from Trinidad. There seems to be a regular gradation from Panama along the coast to Trinidad. The most striking fact is the small size of the Panama birds as compared with those from Costa Rica on the west and Santa Marta and Yacura on the east.

There seems to be no constant variation in color; but this character is uncertain in these birds, and differences are to be met with in specimens from the same locality. The violet gloss is the most noticeable feature. This gloss is, however, mainly confined to the distal portion of the feather, and seems to undergo considerable diminution, often a month before the feathers are renewed again. Even in fresh specimens from the same place the difference is considerable, some, apparently adult, having almost none, while others have it very strongly marked.

From the data just given, it appears that, as would be expected, the largest specimen come from the high mountains of Peru. Here doubtless food is comparatively scarce, and a bird must cover a considerable area in order to obtain a sufficient supply. Size, therefore, is a distinct advantage. The lower Amazons supports a small race. Food here is abundant, and so natural selection is not called upon so urgently to weed out the smaller and weaker individuals. The race is small at Panama for the same reason; while mountainous Costa Rica, Santa Marta, Yacura, and Margarita are inhabited by larger birds. Very likely the birds on Trinidad are stragglers from the rough and barren Venezuelan shore, where the small ones have been eliminated.

The series examined contains two interesting specimens. One has a peculiarly long and narrow bill, but is otherwise apparently normal. This bird, a male, was taken on Margarita Island, and was noticed in 'The Auk' for July, 1902, p. 266.

The other is a partial albino. It is a young male¹, and was taken at Loma del Leon, Panama, on March 3, 1900. The left wing has the proximal secondary attenuated, short, and with its basal and central portions white. The next secondary is normal; but the third has a large white distal patch, extending inwards 15 mm. from the tip of the feather. The patch is central in position, and does not reach the border on either side. From the appearance of both these feathers the condition may be pathological.

The Black-winged Palm Tanager is very common on the island of Trinidad, where it can be seen at almost any time about the

¹ Collection of E. A. and O. Bangs, No. 7467.

gardens in Port-of-Spain. It is very active and restless. The song of this bird is unlike that of any of ours, being a quick ascending succession of notes, pitched very high. There is a suggestion of panting and of effort in the song, and its high key, which makes it somewhat squeaky, is rather disagreeable.

NOTES ON THE ANATOMY OF *GEOSPIZA*,
COCORNIS, AND *CERTHIDIA*.

BY ROBERT E. SNODGRASS.

Plates XVII-XX.

Geospiza and *Certhidia* are the two distinctively peculiar avian genera of the Galapagos Islands. The former consists of a large number of species and varieties, and has always been regarded as belonging to the family Fringillidæ. *Certhidia*, consisting of eight varieties comprised in two species, was formerly placed in the Cærebidæ, but both Lucas and Ridgway now regard it as belonging to the Mniotiltidæ. *Cocornis* is known only from the small island of Cocos, lying off the Gulf of Panama and northeast of the Galapagos Islands about four degrees north of the equator. It consists of one known species, and has always been assigned to the Fringillidæ. But it has probably been so classified more on account of its general resemblance to *Geospiza* than from a consideration of its own characters.

In all structural points *Cocornis* really resembles *Certhidia* more than it resembles *Geospiza*. To be sure, the adult males of *Cocornis* and of most of the *Geospiza* species are almost plain black, while the adults of *Certhidia* are gray with admixtures of olive and brownish. Yet, in the shape of the bill and in the structure of the skull *Certhidia* and *Cocornis* are almost identical. On the other hand, the structural differences between *Cocornis* and *Geospiza* are slight—the slender-billed *Geospiza* differ from *Cocornis* in the characters of the skull and skeleton of the bill,

scarcely more than *Cocornis* does from *Certhidia*. The difference is not nearly so great as that between the slender-billed and the thick-billed forms of *Geospiza* itself. Hence, a study of the characters of these three genera, is suggestive of a possible derivation of *Geospiza* from *Cocornis* and of *Cocornis* from *Certhidia*. This, however, would place *Geospiza* in the Mniotiltidæ!

In the descriptions of the skulls following it will be shown that the *Geospiza* skull departs widely from that of any ordinary Fringillid species. The writer, however, does not possess enough knowledge of comparative avian anatomy to venture any theory on the correct classification of the three genera discussed, or on their possible interrelationships. A few facts are set forth in the hope that they may be of value to others.

It is probably not impossible that *Geospiza*, *Cocornis*, and *Certhidia* may be genetically related. Cocos Island is not very distant from the Galapagos, and an ancestral *Geospiza* could easily have gotten there from the latter place. Moreover the climate and flora are utterly different on Cocos and the Galapagos, and the conditions look very unfavorable for convergent evolution. Some authors have claimed a common geological origin for the islands. In such a case we would look for a relationship at least between *Cocornis* and *Geospiza*.

A study of the plumage phases of the *Geospizæ* shows that they are most probably descended from a plain yellowish-olivaceous bird. They advance through six stages from this to the entirely black phase. The lowest forms never go beyond the third stage, being in this plumage when adult.¹ Therefore, *Cocornis* must have branched off from one of the higher groups, for it is black in the adult stage. This conclusion is not endangered by the fact that it is antagonistic to the assumption that the bill and skull of *Cocornis* are intermediate between those of *Certhidia* and the lowest *Geospiza*. There are four groups of *Geospiza* separable on a color basis, and in each the evolution of the bill has been independent. The lowest members of the higher groups have bills more similar to the Certhidian bill than have those of the lowest

¹ Discussed in Papers from Hopkins-Stanford Galapagos Expedition, No. —, Birds, Snodgrass and Heller (MS.), Proc. Wash. Acad. Sci., Vol.

group, and it is between the former and *Certhidia* that *Cocornis* is really intermediate. The theory above suggested involves the assumption that the four groups of *Geospiza* became differentiated in color before the great variation in the bill took place, and consequently, that *Cocornis* branched off from one of the melanistic groups comparatively late in Geospizan history. Such an assumption is entirely in harmony with the facts discussed by Mr. Edmund Heller and the writer in the paper referred to above in the footnote. The fact that large groups of *Geospiza* are definitely characterized by color, while there is an infinite amount of specific and subspecific variation in the bill, would indicate that the color differences were evolved and stereotyped long before the bill variation began.

What immature stages of *Cocornis* are known indicate that the adult males reach the black phase through paler phases similar to those of *Geospiza. Certhidia*, both in the adult and immature stages, is of a plain, pale and comparatively uniform coloration.

I. THE SKULL.

In order to show more strikingly the wide departure that the *Geospiza* skull makes from the ordinary Passerine type, a description of one of the most specialized forms will be given first. The descriptions of other species follow in the order of decreasing modification.

Geospiza strenua Gould (Plate XVII, Figs. 1 and 2).—Ridges of sides and posterior part of skull strikingly prominent; temporal crests parallel; interorbital area on top of skull parallel-sided and almost as wide as the inter-temporal area. In general the cranium, viewed from above, has a curious resemblance to a rodent's skull.

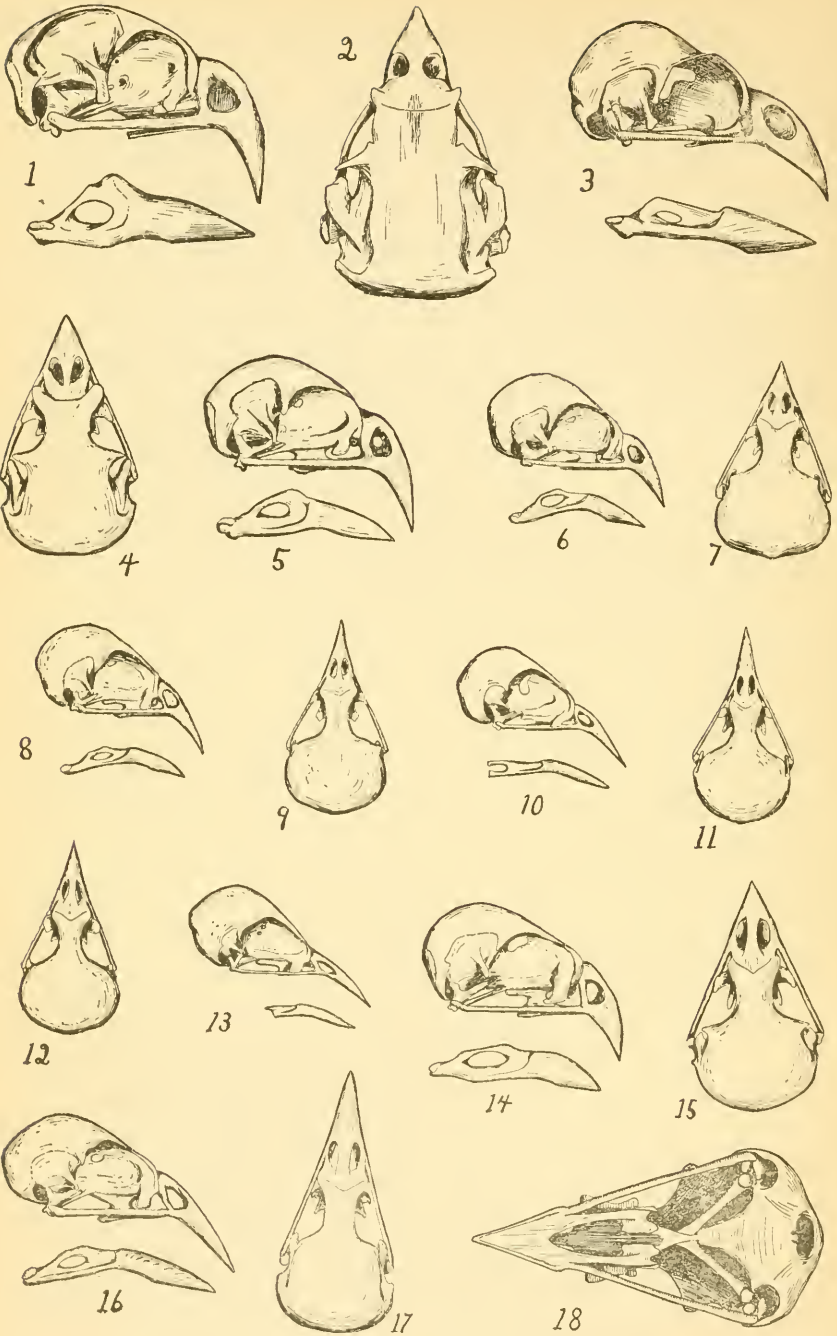
Top of head very smooth. Highest point between tips of squamosal processes; profile descending from here to lambdoidal crest in a regular curve, to base of culmen less steeply and in more nearly a straight line. Space between temporal crests transversely flat, *i. e.*, the crests are coincident with the dorsal profile. Interorbital area much wider than long, depressed mesially and declivent toward each lateral margin, the anterior margin nearly straight. Postfrontal process large, trihedral and unciform. Tem-

poral crest extremely large and high up on side of cranium, curves upward and posteriorly from posterior angle of base of postfrontal process, posteriorly it curves downward and ends in rather prominent process above ear. This crest is greatly larger than in such thick-billed genera as *Cardinalis* and *Zamelodia* (Pl. XVII, Fig. 3). In these latter forms also the crest is far below the dorsal profile of the cranium.

Temporal area very long, its length, from one extremity of temporal crest to the other, equal to distance from anterior end of crest to nostril. This gives an extremely great postorbital length to the skull, the whole configuration of the cranium being very different from that of any ordinary Passerine skull. Surface of temporal area slightly depressed and roughened, lacking the glazed appearance of top of skull. Squamosal process very large, its lower end reflexed posteriorly and lying well behind tip of postfrontal process. In *Cardinalis* the tip of the squamosal process is slightly in advance of the tip of the post-frontal process. Crotaphyte depression between post-frontal and squamosal processes wide and deep.

Tympanic region flat and almost vertical. Lambdoidal crest prominent, but smaller than temporal; median part horizontal; lateral parts deflexed and then curved inward, terminating on each side at base of a prominent mastoid process back of lower part of ear opening. This mastoid process is absent or but poorly developed in other Passerine genera examined as well as in other species of *Geospiza*. Posterior surface of skull receding, *i. e.*, when zygomatic bar is horizontal, it extends downward and slightly forward below lambdoidal crest.

Interorbital septum complete, very thick, and composed of a double wall. Preorbital parts of skull of ordinary Fringillid character. Rim of orbit rather thick and heavy in appearance on account of deflexion of lateral part of interorbital area on top of skull. In *Zamelodia*, *Cardinalis*, *Pipilo*, *Carpodacus*, *Astragalinus*, and in other species of *Geospiza* the interorbital surface is evenly concave, giving the orbital rim a much thinner appearance. On posterior wall of orbital cavity are three conspicuous, vertical, crest-like ridges. Lower end of outer one forms a process visible laterally projecting from lower part of crotaphyte depression.



ANATOMY OF GEOSPIZA, COCORNIS, AND CERTHIDIA.

Geospiza fortis and *G. propinqua* possess similar ridges. In *G. fuliginosa* and *G. scandens* there are only traces of them. They are present in some form, either as plates or ridges, in most Passerine skulls, varying greatly in size, but in *G. strenua* they are far larger than in any other skull examined by the writer.

The most striking feature about the skull of the thick-billed *Geospiza* is the abrupt angle that the tomium of the upper mandible forms with the zygomatic bar. In *G. strenua* this angle is 118° . The same angle in *Cardinalis* is 140° . That is, the deflexure of the upper mandible from the horizontal is 62° in *G. strenua* and only 40° in *Cardinalis*. In *G. strenua* the distal half of the bony culmen forms an angle of 90° with the basal part of the culmen back of the nostril. This angulation is conspicuous in all the species of *Geospiza*, although not so great in the smaller-billed forms, and is characteristic of the genus. In *Cardinalis* and *Zamelodia* there is no such angulation of the culmen in these genera, as well as in smaller-billed Fringillidæ, the culmen forms an even curve from base to tip.

Nasal bones large, the inferior or descending arm of each thick, and forming nearly a right angle with zygomatic bar. Nostril triangular, of almost an isosceles shape, lower rim horizontal and on a level with upper edge of zygoma. Width of base of upper mandible contained $2\frac{1}{3}$ times in greatest posterior width of cranium; depth $1\frac{1}{2}$ times in greatest posterior depth. Internasal septum complete.

Longitudinal bars of palatines thick, diverging slightly posteriorly, outward and downward, so that posterior ends lie below level of zygomatic bar. Posterior ends blunt. Superior internal laminæ large, widened at dorsal edges and solidly fused with rostrum of sphenoid, not projecting back of anterior ends of pterygoids. Inferior internal laminæ well developed. Lower mandible extremely large, being specially deep just back of middle through coronoid process. Depth here more than a third of the length.

Geospiza fortis fortis Ridgway (Plate XVII, Figs. 4 and 5).—This is one of the species with but a moderately large bill. The interorbital area of the top of the skull is much narrower than in *G. strenua*, being contained $2\frac{1}{3}$ times in the distance between

the temporal crests. The surface is simply concave instead of doubly convex. The temporal crests are relatively small and lie far below the dorsal profile of the cranium, the space between them being strongly arched instead of flat transversely. The space between the postfrontal and squamosal processes is relatively narrower than in *G. strenua*, but the former process ends in advance of the other. The interorbital septum is thin, and is perforated at its upper posterior angle by a hole which is a part also of a foramen opening into the cranial cavity on each posterior orbital wall.

The angle of the tonium of the upper mandible with the zygomatic bar is 122° ; *i. e.*, the deflexure of the mandible is 58° . This is 4° less than the deflexure in *G. strenua*. The angulation of the culmen is about the same in the two species. The internasal septum is not complete in *G. fortis*, forming simply a deep median keel on the under surface of the nasal bones.

The lower mandible is slenderer than in *G. strenua* and the coronoid process is not so high.

Geospiza fuliginosa parvula (Gould). (Plate XVII, Figs. 6 and 7.)—The structure of the skull in this species is very similar to that of *G. fortis*, but in it the points in which the *G. fortis* skull departs from the *G. strenua* skull are still more intensified. Both the temporal and lambdoidal crests are comparatively slight. The temporal crests are situated far down on the sides of the skull, and the top of the skull between them is high and roundly convex. The interorbital space is narrow and simply concave.

The angulation of the culmen is considerably less than in the other two species described. The deflexure of the upper mandible from the horizontal of the zygoma is 50° . This is 8° less than in *G. fortis*. The nasal septum is entirely lacking.

This is one of the smaller-billed species of *Geospiza* and the skull differs conspicuously from that of *G. strenua* in the much slenderer upper mandible and in the general lighter appearance of the preorbital parts. The basal depth of the upper mandible is contained $2\frac{1}{2}$ times in the greatest depth of the cranium.

Geospiza fuliginosa acutirostris (Ridgway). (Pl. XVII, Figs. 8 and 9.)—The skull of this form differs from that of *G. f. parvula* in the slightly slenderer, more tapering and less deflexed upper

mandible. The temporal crest is nearly obsolete, and the temporal area below it is less extensive than in *G. f. parvula*. The interorbital septum is so thin that it is almost membranous. The angulation of the culmen is inconspicuous. The deflexure of the upper tomium is about 48° .

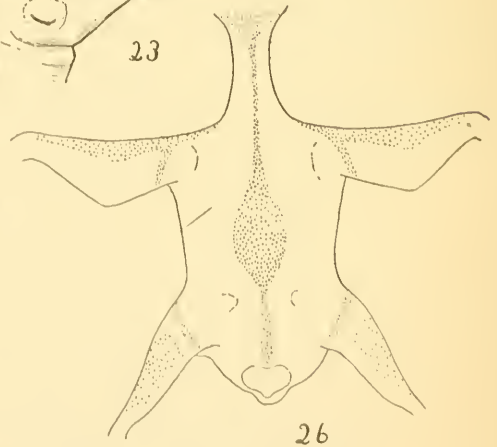
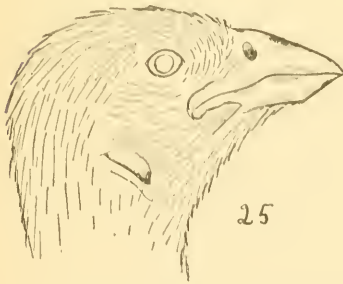
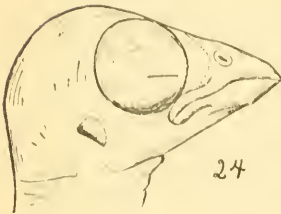
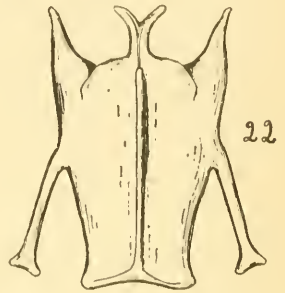
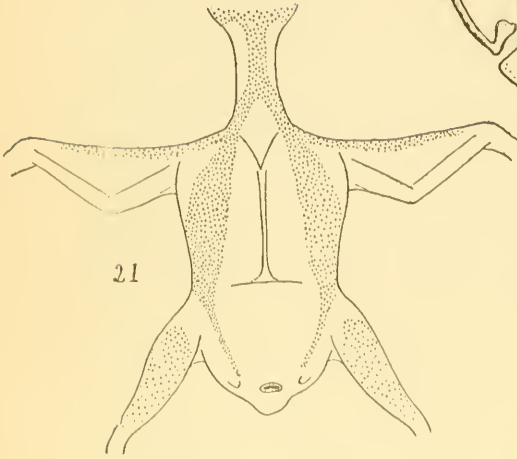
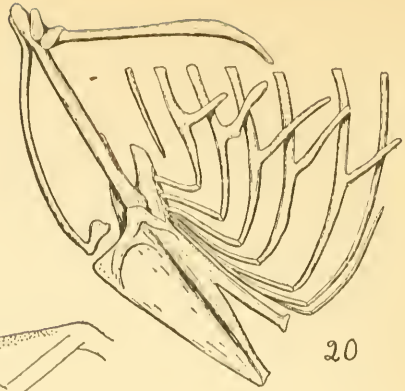
The shape of the nostril changes serially in the four skulls described. In *G. strenua* the nostril is almost an isosceles triangle with the base on a line with the upper edge of the zygoma. In the smaller-billed species, however, the upper angle becomes moved successively farther back, and the angle that the descending process of the nasal forms with the zygoma, which is almost 90° in *G. strenua*, slightly decreases. In *G. f. acutirostris* the upper angle of the nostril lies behind the vertical from the posterior basal angle.

The lower mandible is very slender and there is almost no coronoid process.

Geospiza scandens fatigata (Ridgway). (Plate XVII, Figs. 16, 17, and 18.)—The *Geospiza* group, characterized by a long slender bill, includes a number of forms that were once regarded as constituting a separate genus called *Cactornis*. The supposed species were separated on characters that have since been found to intergrade in such a manner that they can better be regarded as varieties of one species of *Geospiza*. Of this group, which has been reduced to the species *G. scandens*, the subspecies *G. s. fatigata* may be taken as typical.

There is far less difference between the skulls of *G. scandens* and *G. fuliginosa* than there is between the skulls of the latter species and *G. strenua*. That is, the former genus *Cactornis* did not differ in cranial structure from the simpler forms of *Geospiza* nearly as much as did the species in this genus, as at first limited, differ from one another.

The temporal and lambdoidal crests are almost identical with those of *G. fuliginosa*. The tip of the postfrontal process lies but slightly before the tip of the squamosal process. The fronto-nasal suture is deeply concave. It is more concave than in *G. f. acutirostris*, in the latter species more so again than in *G. fortis*, while in *G. strenua* it is almost straight. The angle of the descending process of the nasal with the zygoma is still less than in *G. f. acutirostris*,



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and the upper angle of the nostril is correspondingly farther back. The angulation of the base of the culmen is slight, and the deflexure of the upper tomium is about 45° , being a little less than in *G. f. acutirostris*.

As will be seen later, the skull of *G. scandens* approaches most closely to that of the genus *Cocornis*. The skull of *G. f. acutirostris* is nearest in size to the *Cocornis* skull, but in structure the *G. scandens* skull is almost intermediate between the two.

A digression from the series will now be made to describe the skull of the Geospizan group having a strongly curved culmen.

Geospiza crassirostris (Gould). (Plate XVII, Figs. 14 and 15.)—This species may be taken as a typical example of the *Geospiza* species formerly included in a separate genus called *Camarhynchus*, a group characterized by having the culmen strongly curved.

The skull of *G. crassirostris* is in every way very similar to that of *G. fortis*. About the only difference is that the culmen is a little more convex than in *G. fortis*, and the upper mandible is deeper in front of the nostril. The crests of the two skulls have about the same development, the interorbital areas are the same, the upper mandibles have the same deflexure, the nostrils are alike, the descending processes of the nasals form the same angle with the zygoma, and the post-frontal and squamosal processes have the same relative positions.

A study of the *Geospiza* skulls shows, then, that the various species and varieties are related to one another mostly in a serial manner. That is, evolution in the group has not been along lines radiating from a common centre, but has consisted principally of successive modifications along one line. This same thing is evinced by a study of the color phases of the plumage.

Cocornis agassizi Townsend (Pl. XVII, Figs. 10 and 11).—The general characters of the skull are almost identical with those of *G. f. acutirostris* or *G. scandens*. The upper mandible, however, is relatively a little slenderer than in either of these, and the deflexure of the tomium is about 40° . This is about 5° less than in *G. scandens*.

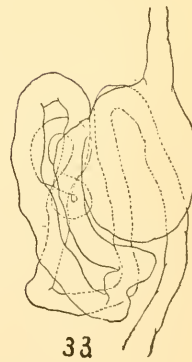
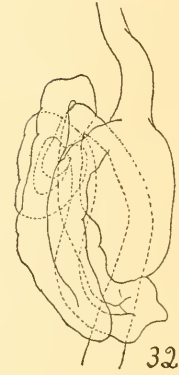
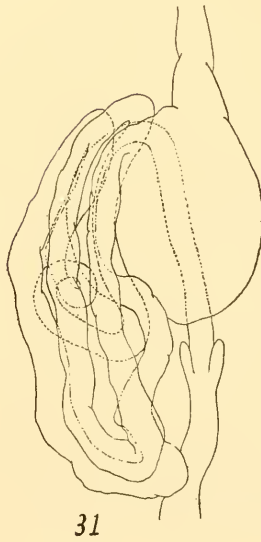
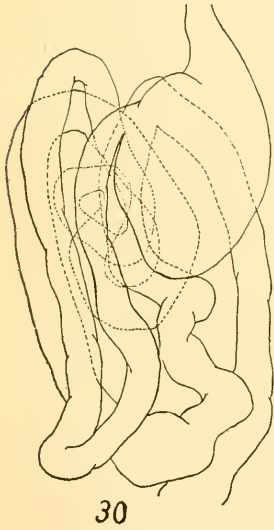
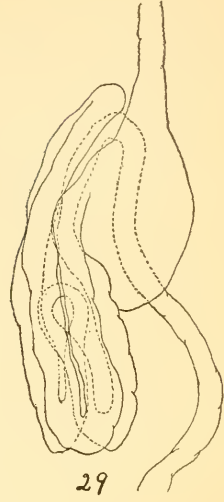
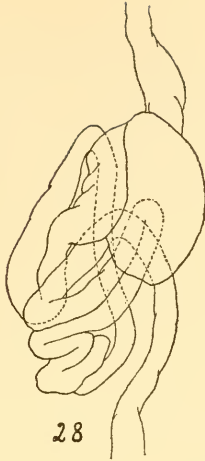
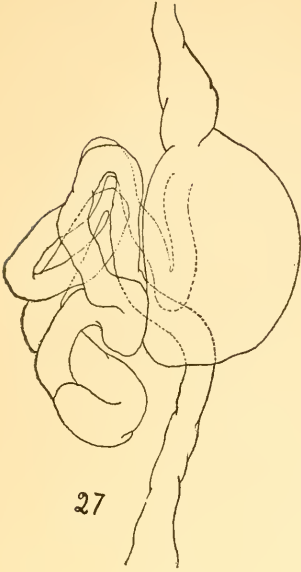
Certhidia olivacea luteola (Ridgway). (Pl. XVII, Figs. 12 and 13.)—The skull of *Certhidia* is extremely similar to that of *Cocor-*

nis. It differs from the latter in about the same way that the *Cocornis* skull differs structurally from the skull of *G. scandens*. That is, the upper mandible is slenderer and less deflexed. The angle of deflexure in *C. o. lutcola* (and the bill does not vary in the genus) is about 35° . This is just as much smaller than the deflexure in *Cocornis* as the latter is than the deflexure in *G. scandens*.

From the foregoing descriptions it is evident that the species of the three genera under consideration can be arranged in a graded series according to the structure of the skull. Such a series would begin with the members of *Certhidia*, all of which have very slender and gently deflexed bills. Following *Certhidia* comes *Cocornis* with a slender but more deflexed bill. Separated from *Cocornis* by a step no greater than that from *Certhidia* to *Cocornis* comes *Geospiza scandens*. This species, although structurally intermediate between those on each side of it, makes a digression as to size, being much larger than either *Cocornis* or *G. fuliginosa acutirostris* which otherwise follows *G. scandens* in the series. From *G. f. acutirostris* the series is uninterrupted to such forms as *G. strenua* and *G. magnirostris* in which the bill is enormously large and the upper mandible greatly deflexed, and in which the skull has an almost un-bird-like appearance on account of the curious shape and the great development of the crests.

All that the writer here intends is simply to call attention to the fact that there is a gradation in the skull characters of these three genera, progressing by almost equal steps from one extreme to the other. If any phylogenetic theory can be based on this fact then the classification of the three genera accepted at present cannot be correct, for *Certhidia* is regarded as a member of the Mnioiltidæ and *Geospiza* and *Cocornis* are placed in the Fringillidæ. The *Geospizæ* as birds have certainly a most Fringillid appearance. The same, however, cannot be so positively asserted concerning the skull of even the least modified species.

A study of the bills of nestlings would probably have little phylogenetic value. Three stages in the growth of *G. fuliginosa parvula* are shown in Plate XVIII, figures 23, 24 and 25.



II. THE THORACIC SKELETON.

The sternum, shoulder girdle and ribs show no such modifications as does the skull. The drawings of the parts in *Cocornis agassizi* (Pl. XVIII, figs. 19, 20, 22) may be taken as typical for all three genera. The sternum and shoulder girdle are of ordinary Passerine form. The ribs are somewhat variable. There are always seven that are well developed and generally there is a small eighth rib. The latter is sometimes a mere bar lying back of the lower part of the neural arm of the seventh, but often it is composed of distinct neural and hæmal segments. The second to fifth ribs inclusive always have large uncinæ processes. On the sixth rib there is sometimes present a well developed uncinæ process, but it is often rudimentary and is frequently absent.

Such variations as these have no phylogenetic significance, for they take place between closely related species and also in different individuals of the same species.

III. THE TONGUE.

Geospiza (Pl. XX, Figs. 34-38, and 40).—The tongue of *Geospiza* has a simple tapering shape, varying in length and thickness according to the form of the bill. The thin terminal margin is bifid and somewhat frayed. The upper surface is usually convex, but it is often slightly and sometimes deeply grooved longitudinally. This last character, however, varies between closely related species and even in the same species (Figs. 34 and 37). *Geospiza* is mostly granivorous but partly insectivorous.

Certhidia (Pl. XX, Fig. 41).—The tongue in this genus is the same as in the slender-billed species of *Geospiza*, except that it is more constantly grooved above. It is slender, tapering and bifid at the tip. *Certhidia* is insectivorous.

Cocornis (Pl. XX, Figs. 39 and 42).—In this genus the tongue is very long and slender. It is deeply grooved above, and expanded, bifid and greatly frayed out at the tip (Fig. 39). It differs considerably, as the figures will show, from the tongues of both *Certhidia* and *Geospiza*. The food of *Cocornis* has not been determined, but probably consists mostly of insects.



34



35



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37



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IV. THE ALIMENTARY CANAL.

No descriptions need be given of the alimentary canals. Figures 27 to 33 on Plate XIX sufficiently show the intestinal windings in several species of *Geospiza* and also in *Cocornis* and *Certhidia*. It will be seen that there is no essential difference here between the three genera.

V. PTERYLOSIS.

The pterylosis is identical in the three genera. Figures 21 and 26 of Plate XVIII, representing the feathered areas of *Cocornis agassizi*, could serve just as well for either *Certhidia* or *Geospiza*. The dorsal tract extends down the back of the neck and between the shoulders as a narrow, median band. On the middle of the back it expands into a wide, fusiform area reaching to the anterior part of the lumbo-sacral region. Here it again contracts to a narrow band, narrowest between the acetabula, and goes caudally to the oil-gland. The ventral tract begins as a median band on the anterior half of the throat. Just below the middle it divides into two bands that go outward and caudally as wide tracts along the sides of the breast. Behind the sternum each becomes again narrow, and goes caudally and inward along the side of the abdomen, ending near the anus. At the shoulder each lateral ventral tract gives off laterally the shoulder tract which divides into the alar and humeral tracts.

EXPLANATION OF THE PLATES.

Plate XVII. SKULLS. Figs. 1 and 2, *Geospiza strenua*; 3, *Zamelodia melanocephala*; 4 and 5, *Geospiza fortis fortis*; 6 and 7, *G. fuliginosa parvula*; 8 and 9, *G. fuliginosa acutirostris*; 10 and 11, *Cocornis agassizi*; 12 and 13, *Certhidia olivacea luteola*; 14 and 15, *Geospiza crassirostris*; 16, 17 and 18, *G. scandens fatigata*.

Plate XVIII. Fig. 19, *Cocornis agassizi*, inner view of bones at shoulder; 20, *C. agassizi*, side view of thoracic skeleton; 21, *C. agassizi*, ventral pterylosis; 22, *C. agassizi*, ventral view of sternum; 23, 24 and 25, *Geospiza fuliginosa parvula*.

side view of head of three nestling stages—primaries 4 mm., 13 mm. and 32 mm. long, respectively; 26, *Cocornis agassizi*, dorsal pterylosis.

Plate XIX. ALIMENTARY CANALS.—Fig. 27, *Geospiza conirostris conirostris* (length 205 mm.); 28, *G. fuliginosa parvula* (length 170 mm.); 29, *G. fortis dubia* (length 204 mm.); 30, *G. crassirostris* (length 255 mm.); 31, *G. scandens fatigata* (length 200 mm.); 32, *Certhidia olivacea luteola* (length 102 mm.); 33, *Cocornis agassizi* (length 125 mm.).

Plate XX. TONGUES.—Fig. 34, *Geospiza scandens fatigata*; 35, *G. habeli*; 36, *G. fortis fortis*; 37, *G. scandens fatigata*; 38, *G. prothemelas*; 39, *Cocornis agassizi*, tip of tongue; 40, *Geospiza fuliginosa parvula*; 41, *Certhidia olivacea luteola*; 42, *Cocornis agassizi*.

A CONTRIBUTION TO THE LIFE HISTORY OF THE HERRING GULL (*LARUS ARGENTATUS*) IN THE UNITED STATES.

BY WILLIAM DUTCHER AND WILLIAM L. BAILY.

Plates XXI and XXII.

THE facts presented in this paper are the results of several visits to the large breeding colonies of Herring Gulls on the Maine coast, made at the following dates: by Mr. Dutcher, 1900, from June 28 to July 21; 1901, by both contributors, from June 12 to 24; 1902, by Mr. Baily, from July 18 to 20 inclusive. In 1900 visits were made to nearly all of the colonies along the Maine coast by the senior contributor, commencing at the most westerly one on No-Man's-Land Island, which is situated about seventeen miles south of Rockland, Maine, and adjoins the large island known as Matinicus. In 1901 eight days were spent at the light-house station on Great Duck Island, and subsequently nearly all of the other colonies were revisited by Mr. Dutcher. In 1902 Mr. Baily revisited the Great Duck Island colony later in the season, in order to observe the methods of feeding the young birds and the habits of the young. A description of the position and

topography of Great Duck Island will answer for all of the island colonies, as in the main they greatly resemble each other. Great Duck Island is situated in $44^{\circ} 9' N.$ Lat. and $68^{\circ} 15' W.$ Lon., being an outlying island seven miles south of Mount Desert Island.

The citizens of Maine have reason to be proud of the gull homes in their State, and it is a civic obligation to care for and preserve them. One of the first duties of the patriotic citizen is to carefully conserve the natural objects in his locality; any one who would destroy them, especially for commercial purposes, is lacking in that uplifting sentiment that develops in man or woman a respect for the rights of others, and a love of country and fire-side. The writer who commands and wields the most facile pen cannot fully describe the life or beauty of one of the great breeding homes of these gulls, nor can the most accurate photograph convey to the reader more than a faint picture of the bright blue sky, the sparkling sea, the graceful motion of the birds circling overhead; nor can it add the roar of the surf on the rocky shore, nor the weird and angry cries and screams of the anxious gulls. The colony at Great Duck Island is without doubt one of the largest now existing in the United States.

The shore of the island is bold and rocky, and, as the tides rise and fall about thirteen feet, at low water great tracts of kelp rockweed are uncovered, among which the gulls find large quantities of food, such as crustacea and other marine life. At every low tide that occurs during daylight, numbers of gulls may be seen gleaning in the kelp beds, or gathered in groups sunning themselves or preening their feathers.

At high water the upper ledges of rocks are used for assembling and resting places. The surface of the island is somewhat rolling, and in the open is covered with grass and weeds, of not very luxuriant growth, as the soil seems to be very poor, being composed of decayed wood and sand. The trees are principally spruce and fir, but none are of very large size. On the southern end of the island nearly all the trees have been cut and the dead tops and branches, together with many large trunks, have been left among the stumps, making a tangle very difficult to penetrate.

At the extreme southern point of the island the United States



FIG. 1. ROCKY SHORE, GREAT DUCK ISLAND, ME. LOW TIDE.



FIG. 2. HERRING GULLS, GREAT DUCK ISLAND, ME. PROTECTED COLONY.

Lighthouse Department owns a reservation of about two acres. This contains the light tower, three dwellings, engine room, two boat houses, and a long tank-shed for catching rainwater for the fog-whistle engines. The greatest elevation of the island is about sixty feet, the average being about twenty-five feet above high-water mark. The gulls occupy the southern end of the island and are divided into two parts, which may be designated as the east and west colonies. In the former in 1901 there were about twelve hundred birds, and in the latter about eighteen hundred. In 1902 the area of the colony was somewhat larger than the previous year, extending about a hundred yards further northward in the western colony. Probably 3500 birds were breeding, 500 more than last year; on July 15 hundreds of young birds, from a day to three and a half weeks old, were scattered over the two breeding areas.

On our arrival at the island in 1901 nest building and laying was practically completed. One belated gull, however, built and occupied a nest after that date, which afforded us some insight into the method of construction. It was located on a flat rock, as some hundreds of nests were. The rock nests, usually, did not have any stick or twig foundations, but were built of grass, weeds, mosses, lichens, some kelp, either green or dry, feathers, wool, bark, and small bits of drift and rotten wood, all laid upon the rock and formed by the birds into shallow bowls. This special nest was built entirely of fresh green material, and was, when first seen, a flat, scattered mass without any form whatever. It contained one egg, the bird probably having been ready to deposit it before the nest was completed. On several occasions single eggs were found where there were no nests. A few hours later this nest was visited and in the interim the bird had formed it into the usual shape. The nests built upon the ground were almost exactly like the rock nests. Those built on trees or upturned stumps, had a solid foundation of sticks and twigs, and surmounting this the usual form and make of nest. The tree nests are always placed on a flat branch or top of a spruce or fir, one of which was in one about twenty-five feet high; however, they are not common on Duck Island, there being only about a dozen.

The grass in many of the nests was dead and brown, but it is

not certain that it was so when first placed there, although it is probable that the larger portion is old grass. During incubation the weight of the setting bird breaks down or packs the nests, so they are continually being repaired and built up around the edges with new material, which is always green grass or weeds, the effect being very pretty indeed. On several occasions gulls were seen gathering this material in their bills. The grass is bitten off or pulled up by the roots until the bird has a ball in its bill larger than a man's fist. This material is gathered where it is most plentiful and is usually carried by flight to the nest site.

The bowl of the nest varies very little in size, but some foundations are larger than others, depending somewhat upon the location of the nest. The following measurements are of nests selected as good types :

No. 1. Depth of bowl, three inches ; from top of nest to ground, ten inches ; diameter of nest at top, ten inches, at base, twenty-four inches.

No. 2. Depth of bowl, three inches ; from top to ground, five inches ; diameter at top, ten inches, at base, eighteen inches.

No. 3. Depth of bowl, two and one quarter inches ; diameter at top, nine inches, at base thirteen inches. This nest was built on the ground against a small side hill so that only one side had to be finished.

No. 4. Depth of bowl, two and one half inches ; diameter at top, nine inches, at base fifteen inches.

Many other nests were measured and examined, and the average size of the bowl was found to be about ten inches in diameter and three inches in depth.

To obtain a fair average of the size of the eggs, measurements of fourteen sets were made as follows :

No. 1.	Set, 3	$2\frac{10}{16} \times 1\frac{15}{16}$	$2\frac{9}{16} \times 1\frac{11}{16}$	$2\frac{13}{16} \times 1\frac{5}{16}$
2	" 3	$2\frac{15}{16} \times 1\frac{15}{16}$	$2\frac{15}{16} \times 2$	$2\frac{13}{16} \times 1\frac{5}{16}$
3	" 1	$2\frac{5}{16} \times 2$		
4	" 3	$3 \times 1\frac{15}{16}$	$3 \times 1\frac{11}{16}$	$2\frac{15}{16} \times 1\frac{5}{16}$
5	" 3	$2\frac{11}{16} \times 1\frac{15}{16}$	$2\frac{13}{16} \times 1\frac{15}{16}$	$2\frac{13}{16} \times 2$
6	" 3	$2\frac{15}{16} \times 1\frac{14}{16}$	$2\frac{13}{16} \times 1\frac{15}{16}$	$2\frac{13}{16} \times 1\frac{5}{16}$
7	" 3	$2\frac{11}{16} \times 2\frac{1}{16}$	$2\frac{13}{16} \times 2$	$2\frac{13}{16} \times 2$
8	" 3	$3\frac{1}{16} \times 2$	3×2	3×2
9	" 2	$3 \times 1\frac{12}{16}$	$2\frac{15}{16} \times 1\frac{13}{16}$	
10	" 3	$2\frac{14}{16} \times 1\frac{13}{16}$	$2\frac{13}{16} \times 2$	$2\frac{13}{16} \times 1\frac{5}{16}$
11	" 3	$2\frac{9}{16} \times 1\frac{15}{16}$	$2\frac{11}{16} \times 1\frac{15}{16}$	$2\frac{11}{16} \times 1\frac{5}{16}$
12	" 2	$1\frac{14}{16} \times 1\frac{5}{16}$	$2\frac{13}{16} \times 1\frac{13}{16}$	
13	" 3	$3\frac{2}{16} \times 1\frac{15}{16}$	3×2	$2\frac{13}{16} \times 1\frac{5}{16}$
14	" 1	$2\frac{6}{16} \times 1\frac{11}{16}$		

It is remarkable how quickly the eye can detect any variation in the size of an egg, as by it the shape is entirely changed. The abnormal egg in set No. 12 was infertile. Capt. Stanley, head keeper of the lighthouse, was requested to watch the nest, and he reported later that the two eggs completed the set, and that the small egg did not hatch, but the other one did, bringing forth a healthy chick. Only three runt eggs were found among the 3500 or 3600 eggs in the two colonies.

The color of the eggs varied in a remarkable degree. The ground colors were light sky blue, dead blue, light blue-gray, light gray-blue, dark lilac gray, light gray, light pea-green, green drab, warm drab, ochre drab, pink drab, light brown, and cinnamon.

The colors of the markings were chocolate, brown, rich brown, light brown, snuff brown, asphalt, black, lilac, mauve. The shapes of markings were almost infinite,—large and small spots, indistinct specks, blotches, lines and irregular streaks, somewhat like the markings on the eggs of blackbirds. One egg was found with a light sky blue ground color with tiny indistinct specks of lilac and light brown. Some of the markings were so confluent that they resulted in a distinct ring around the egg.

Among the many hundred sets of eggs seen the usual number was three, rarely two, and more infrequently one. Only one set of four was found, which was on Heron Island, in Penobscot Bay; in other respects the set was normal.

Regarding incubation, Capt. Stanley pointed out the nest in which the first eggs were laid in the season of 1901, which were as yet unhatched; they were subsequently watched very closely, being visited a number of times daily. On Tuesday, June 18, in the afternoon, one of the eggs commenced to show signs of hatching; the shell was cracking about one inch from the large end. On Wednesday afternoon the cracked portion had broken open so that a part of the bill of the chick could be seen. The other two eggs had also become pipped or cracked. About 3 P.M. on Thursday the first bird was out of the shell and was not yet dry. It was a very weak and helpless object, so much so that it could not stand for more than a moment, when it would lie down, and even its head would be flat in the nest. On Friday morning, a little after

5 o'clock, we found the second chick, it having come out during the night. The first chick, however, was strong enough on our approach to run from the nest and hide under a nearby stump (Plate XXII). The oldest bird was placed in the nest again and the two photographed with the third egg, which was now so opened that the bill of the chick showed. When the young chicks are hatched the egg shell divides very evenly at the point where the bill of the young appears. The discarded shells are never found in the nest but are carried by the old birds some feet away. About the middle of the afternoon on Friday the third chick was hatched, thus making an interval of about twelve hours between the hatching of each egg. When the third egg had hatched the other two young birds were found hiding under nearby stumps, not to get out of the sun or cold, for it was a warm cloudy day. The instinct to hide seems to be developed within an hour or two after hatching, or so soon as the young bird is strong enough to walk. The young in tree nests also seem to have sense enough not to walk off the edge of the nest, for in 1902 Mr. Baily found young at least ten days old in a tree nest. The young when very small have a weak, peeping note that cannot be heard at any great distance; this seems, however, more a petulant cry for food than of fear or anger, for it is not uttered when the young chicks are handled, nor do they make any outcry then, even up to the time that they are large enough to fly a few feet; however, the young birds can protect themselves by giving very sharp bites with their bills: this seems to be their only method of defence prior to flight, except running and hiding.

The downy plumage of the young when three days old is as follows:

Under parts dusky white, running into gray on flanks and abdomen. A distinct triangle of light cream white on the centre of belly between breast and abdomen. Breast gray, throat and head cream gray with distinct tinges of buff. Back mottled light gray and dusky, getting more buff on head. Wings: scapular space buffy, primary space gray. The gray is also darker on tertial space on wings. On back the down is dark at the base, and grows lighter near the ends. The whole upper part of the bird is covered with dull black spots, irregular in shape. Bill horn black with pink tip, three-sixteenths of an inch long. Feet dusky pink, darker on edges and under portion.



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FIG. 1. YOUNG HERRING GULL, SIXTY HOURS OLD, SHOWING RAPIDITY OF GROWTH.



FIG. 2. YOUNG HERRING GULLS AND PIPPED EGGS.

The rapidity of growth of the chicks is very remarkable, and is illustrated in the accompanying photograph (Plate XXII), showing the comparative size of an egg and a chick sixty hours old.

On June 25, 1901, the young were hatching very rapidly; a superficial census was taken of a portion of the east colony, and ten nests with young were found. Capt. Stanley wrote under date of July 26, 1901, that "some of the young birds are flying over the rocks with the help of their legs for a kick now and then." These probably were those first hatched, which would indicate that they begin to fly in from thirty to forty days.

At the time of the 1902 visit hundreds of young were present; these, when approached, even from a great distance, all ran to hiding places under the long grass, logs, or bark, behind rocks, or wherever they could find a place to poke their heads out of sight. They are very easy to find, as some part of the body is generally in view. Sometimes four or five will be found under one fallen log or decayed stump. The parents are on the wing above as long as a person is in evidence, but on the intruder hiding for a short time, they settle down, one at a time, upon their favorite perches, on top of the trees or dead stumps, rocks, etc., and apparently after some vocal communication to their young, the latter begin to back out of their hiding places and strut about, picking at objects on the ground, and now and then chasing after their parents, squeaking for something to eat.

Regarding the food of the young birds but little evidence can be offered, but that is very direct and positive. Young birds on two occasions, when being handled, vomited their stomach contents, which were preserved in separate bottles with alcohol. Five samples of stomach contents were obtained in all, which were sent to the Biological Survey in Washington. Dr. Sylvester D. Judd, of that Department, furnished a report of his examination, which is as follows:

No. 1. *Larus argentatus*, Duck Island, June 22, 1901. Contents: Muscle, bones, scales, and digestive tract of a fish not more than 4 inches long, 100%. Total amount, 100% animal matter.

No. 2. *Larus argentatus*, Duck Island, June 23, 1901. Contents: 5 blow flies (*Calliphora vomitoria*), 25%; 3 moths, one of them a noctuid, 15%; 1 *Anisodactylus* (carabid), 5%; 1 *Leptura* (cerambycid), 5%; remains of a small fish 50%. Total amount, 100% animal matter.

No. 3. *Larus argentatus*, Duck Island, June 25, 1901. Contents; 17 *Calliphora vomitoria*, 48%; 1 weevil, 1%; 1 brown carabid beetle, 2%; 2 *Lachnosterna* (May beetles), 7%; remains of fish, 30%; vegetable rubbish 20%. Total amount, 20% vegetable matter; 80% animal matter.

No. 4. *Larus argentatus*, No-Man's-Land, July 4, 1901. Contents: 2 funnels and a propodium of squids about 4 inches long. Total amount, 100% animal matter.

No. 5. *Larus argentatus*, No-Man's-Land, July 4, 1901. Contents: Eye and epidermis of a very small squid, 25%; prosternal process of elaterid beetle, 20%; tibia of a May beetle, 30%; elytron of a carabid beetle, 25%. Total amount, 100% animal matter.

In 1902 Mr. Bailey observed the parents disgorge food on the ground which the young picked up and swallowed whole. The larger young will often tackle a squid, apparently several times too large for them, and after several unsuccessful attempts will worry it down, when the bird looks as though he were sorry and would like to change his mind. In some instances the parents seemed to exhibit very little judgment as to the ability of their young, and would leave a big, tough squid in the nest for a day old young one to devour. Several such were watched picking and pulling for some time without securing any nourishment. On visiting the nest a half hour later it seemed that the parent had also been convinced that her babies were not equal to the task and had removed the squid.

The mortality among the young varies. In 1900 the island of No-Man's Land was visited at the height of the breeding season when hundreds of young gulls of all sizes could be seen. Only a very few dead ones were found and they were generally those not more than three days old. In 1901 so few young were hatched on Duck Island, at the date the observations were ended, that no data could be obtained; however, No-Man's-Land was visited July 4, 1901, and it was found that from 60 to 70% of the eggs were hatched and that hundreds of young birds were hiding everywhere. A search for dead birds was made but very few were found. In 1902 Capt. Stanley reported that during the season about 200 young birds were killed by the adults, and nearly as many more were killed by sheep stepping on them, and others by being caught under rocks and brush where they go to hide.

In the report of stomach contents, that of No. 5 was taken from

a bird that was found dead. It was examined very carefully for wounds or any evidence of a violent death but none was found, and the conclusion must obtain that it died from some natural cause. The downy plumage of the bird was in such excellent condition that it was preserved, and it was found while skinning it that the body was very much emaciated, which would indicate death by starvation, although a small amount of food still remained in the stomach.

On Duck Island the remains of one young gull was found that had met a violent death; a small portion of the back, one foot, the tarsus and tibia, the stomach and a little of the viscera remained, the rest having been eaten. From the appearance of the remaining portions it was judged that the bird had been killed by a hawk, as it had been pulled apart; it showed no marks whatever of being chewed by a mammal. No hawks were seen on the island, although Capt. Stantley states that members of the hawk family often visit the island, especially during the migratory season.

The Captain also stated that the crows on the island destroyed some eggs, but he had never seen any evidence that they ever ate young gulls. He also stated that he was sure there were no four-footed enemies of the gulls, as he had made diligent search on the island for mammals and could never find the slightest trace of any. He had carefully looked for tracks in the snow many times but always without success. The Captain also says that the old birds sometimes kill the young. The adult seems then to exhibit great anger and strikes the victim with its bill until it is dead. In all probability the one killed is not its own offspring, for it seems impossible that any bird that exhibits the solicitude for its eggs and young that the Herring Gull does could become an infanticide. In 1902 Mr. Baily saw an old bird actually striking the head of a young bird about ten days old, while the helpless little fellow, with quivering wings, implored the old one to stop. But with only occasional pauses he continued the torture, just as a cat does before eating a mouse. Then he would strike his victim in the back pulling out its half-grown feathers. The blows came harder and harder, and when the poor thing collapsed, the old bird walked away a few feet and uttered the worst noise he was

capable of, but returned to finish his work at the sound of a last weak cry. A few minutes later another old bird faced the murderer, and they cursed one another for all they were worth, but no attempt was made to strike. What the relation was between the three parties could not be determined, nor could it be surmised why the real parent, or some neighbor, did not interfere and prevent the tragedy. However uncommon this occurrence, it was not unique, for at least six dead birds were found in various places, all of about the same age, which had been dealt with in a similar manner, their heads, backs and wings being bruised and blood-stained. Nothing deformed or unhealthy about these birds was noted and no solution can be suggested, unless it be that the young birds were lost and were put to death by old birds who objected to being pestered for something to eat by other people's children.

Great opportunities for the study of the habits of the adult gulls were offered on Duck Island and some interesting facts were observed; among these was evidence that both the male and female parents take part in the incubation of the eggs. On one occasion, while photographing gulls on nests, it was noted that the first bird that occupied the nest, after the camera was focussed, had a number of dark feathers on its breast; after it had left the nest a bird with a pure white breast occupied it. That this was a mated pair there is no reason for doubt, for they were together, and both exhibited the greatest solicitude for the nest and its contents. It was also observed that as the period of incubation neared its end the anxiety of the parents increased in a marked degree, so that it was easy to determine the stage of incubation by the actions of the parents. During the last few hours before the pipping or cracking of the egg the parent birds were so fearless that they would leave the nest only on a near approach, and while the camera was being focussed would remain within a few yards, perched either on the ground or a low tree or stump. Exposing the plate was always made with a bulb at a distance of forty to sixty feet, and before it could be reached one of the parent birds was sitting on the nest again. In such a case as this it was not necessary to cover the camera at all; on the other hand, if incubation had not advanced so far, it was neces-

sary to cover the camera in the most skillful manner or else wait for hours before the gull would return to the nest. On sunny days during the hours of greatest heat, say from 12 to 3 P. M., the nesting gulls were not so anxious to remain on the eggs, nor did the eggs cool enough to do them harm.

Mr. Baily, in 1902, built a blind of sticks, old ship trash, etc., about ten feet from a nest containing three eggs. While inside he seemed to be entirely forgotten by the birds, for in less than five minutes a bird alighted on top of the blind, which must have been placed near its favorite perch. In about ten minutes the owner of the nest was noted standing about thirty feet away, suspiciously eyeing the hut, but before long she cautiously but proudly marched to the nest. In her bill was a bunch of dry grass which she deposited on the side of the nest, which was placed in the green grass and clover against a small log. For several hours the nest was watched and on two occasions of the seven when the bird returned to the nest she turned the eggs slightly. They had previously all been marked with an arrow pointing in one direction, and it was found she had only turned one of the pipped eggs. She did not seem at any time to make any examination of the eggs, but turned them with her bill after she had nestled down into position. She always alighted some little distance from the nest, and after looking about to see if the coast was clear, walked rather deliberately to the nest, and carefully, tenderly sank into it, moving her body from side to side about six times, as if to work the feathers between the eggs; she then sat with her head erect, turning it to the right or left every second or two, watching all that was going on about her. Her mate was continually on guard about fifteen feet away, sitting on a fallen log.

A high temperature seemed to have a marked effect on the gulls, for it was noticed that they kept their mandibles open and the tongue raised as if in distress for air. This was observed both with the setting gulls and those that were perched about on the trees and rocks. The calls and cries of the adult were very varied and seemed to fit each occasion. On our entering one of the colonies, all the nearby birds would rise into the air, each one screaming *Kak-kak-kak* at the top of its voice. As the intruder advanced further into the colony the number of

screaming birds increased until there was a very babel of sounds and a whirling mass of birds in the air, flying in graceful evolutions. As the observer advanced further into the colony, those first disturbed gradually settled down and resumed their wonted occupations of nesting or watching. If a pause was made to examine or photograph a nest, and the observer bent low and remained still, nearly all of the excited gulls immediately dropped to the ground and resumed nesting or watching, and the colony became as quiet as when there was no intruder in it, excepting, of course, the very few birds that belonged to the immediate neighborhood of the nest under examination. The light-keepers insist that the gulls know all the regular residents of the island, some ten in number, and do not exhibit as much fear or excitement when they visit the colonies as when strangers do. They also believe that the gulls soon become used to persons; in other words, learn to recognize them, and consequently cease to fear them. They certainly exhibit a very pleasing confidence in the residents of the island, for nine nests were found in the light-house reservation not many yards from the dwellings of the keepers. The remarkable tameness of the gulls on Duck Island and No-Man's-Land was one of the most pleasing features of the visits to these colonies, and it can be accounted for only by attributing it to the protection given to the gulls on these islands: they certainly recognize the fact that they are not molested, and exhibit a charming confidence in man.

The breeding of these gulls in colonies shows the social side of their nature, which is very strongly marked. Their nests are placed very close together, in some instances, and quarreling among the setting birds seems to be unknown.

The gulls all have their favorite perching places near the nests, and if some other gull happens to alight upon it there is usually a slight skirmish, but the intruder has no chance to maintain his position. The perch is always upon such a small limb or point of a dead stump that the slightest push or even a strong gust of wind will cause a loss of balance, and a short flight has to be taken before the position can be resumed. When the usurper occupies such a perching place, the rightful owner has only to fly behind him and give a push with his breast and the perch is

vacated. There is rarely any resistance, this seeming to be the lawful method of dispossessing an intruder. The quality of bravery is not lacking in the character of the gulls, especially when they have young; they are then extremely solicitous and do not hesitate to make demonstrations of attack by assault. On one occasion Mr. Dutcher, after photographing a nest, sat down on a nearby stump to make some notes, not noticing that there was a nest with some young birds at the back of the stump. This action on his part seemed to excite the parents to an unusual degree, for they made repeated swoops at the intruder, passing within a short distance of his head each time. Gradually they became more angry, until finally one of the gulls struck his head a sharp blow with its wing.

The tameness and confidence in man displayed by the gulls on Duck Island and No-Man's-Land was not shown by the gulls on any of the other islands visited; this may be accounted for by the fact that the protection given was not so complete, and also that where the colonies are large the birds give each other courage; in other words, they appear to think "there is safety in numbers."

The gulls do not seem to be disturbed by mammals to any great degree. The sheep that feed on the islands sometimes wander among the nests, but the setting birds make no further demonstration than to rise on the nest and show a bold front to the sheep, which always turn away. On one occasion a low rock, almost awash, was seen on which some thirty or forty gulls were standing, and among them were five or six harbor seals. The rising tide reduced the surface of the rock rapidly, thus crowding the occupants together, but the utmost harmony prevailed.

In 1902 Mr. Baily observed some sheep approaching a nest; the setting bird watched them with considerable anxiety, and occasionally uttered a low *chuck*, which grew louder as the half-dozen sheep gradually and heedlessly neared the nest, nibbling the clover. When within about three feet she opened her mouth and uttered a strong protest, which caused the sheep to raise their heads in slight alarm, and finally, at her wits end, she raised up on her feet and invoked the aid of her attentive mate, who, screaming at the top of his lungs, dashed into the faces of the unsuspecting intruders and scattered them into a stampede up the slope. Not long

after, one of them, blindly following his nose, wandered into the same tracks, but when within a few feet of the nest his course was altered after a slight protest from the occupant of the nest.

The sanitary habits of the gulls are excellent; they are very fond of bathing, resorting to the ocean where it is smooth, outside the surf line. There numbers of them gather and rest on the water, dipping their heads under, and throwing it over them in showers. Then follows a period of dressing and preening the feathers. Among the thousands of birds seen this season, not a single individual was noted that showed the slightest stain on its beautiful white plumage.

The mortality among the adult gulls on the breeding grounds seems to be small. In 1901 only four dead ones were found; one of these had evidently been shot at from some passing vessel while off shore feeding and had strength enough left to fly to its home to die. The other three had died from some accidental cause. Capt. Stanley states that gulls are sometimes killed by flying against sharp pointed stubs, thus receiving a fatal wound, and on one occasion he had found the skeleton of one that had been caught by its leg in the crotch of a limb and had starved to death. In 1902 he reported 25 old birds killed, most of them being accidentally caught on trees. At daylight large numbers of gulls leave the island and go to sea for food; and the length of time they remain away is governed probably by the distance they have to go to find fish. Some days they return quite early and on others much later. The manner of flight when returning from one of these food trips is entirely different from that of the ordinary excursions made from the breeding grounds; it is made close to the surface of the water, very direct, one bird following another, and is quite rapid. Sometimes the birds show marked evidences of fatigue. Capt. Stanley states that the gulls are great gluttons when food happens to be very plenty, for he has seen them eat so much that it was impossible for them to fly but a short distance. They have the power of disgorging, both pellets and partially digested food: many of the former, composed of fish bones and scales, were found, and on more than one occasion the observers just escaped a shower of half digested fish that was disgorged by an overloaded or excited gull. They are very fond of codfish

livers and can be tolled up with them very close to a boat. Should a liver sink before it can be picked up by a gull while hovering, the bird will settle on the water and disappear under the surface in the effort to obtain the coveted tidbit.

The following special report was received from Capt. William F. Stanley, September 23, 1902.

"The first flight of Herring Gulls, about 800, arrived at Great Duck Island, March 12; their numbers steadily increased until the 20th of May. The first egg was found May 15, and the first completed set of three eggs on May 22. The last set of eggs hatched August 3-5. Fifteen nests were marked and watched in order to determine the time occupied in incubation, which proved to be as follows: 1 in 24 days; 2 in 25 days; 5 in 26 days; 4 in 27 days; 3 in 28 days. Young birds were about five weeks old when they began to fly. September 16 all the old birds left the island, leaving the young birds to care for themselves."

A NEW SUBSPECIES OF NIGHTHAWK FROM THE BAHAMA ISLANDS.¹

BY J. H. RILEY.

THE nighthawk of the Bahama Islands has generally been recorded as *Chordeiles minor*, but while collecting birds, in conjunction with Mr. S. H. Derickson, on the Geographical Society of Baltimore's Bahama Expedition, we managed to secure a small series of these birds. A comparison of this material with a series of *Chordeiles virginianus minor* from Cuba and the Isle of Pines, and with *Chordeiles virginianus chapmani* from Florida, proves the Bahaman bird to be a well-marked geographical race. As it is apparently without a name it may be known as:

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Chordeiles virginianus vicinus, subsp. nov.

Type, No. 189689, U. S. National Museum, ♂ ad., Long Island, Bahamas, July 16, 1903. Collected by J. H. Riley (Orig. No. 183).

Similar to *Chordeiles virginianus chapmani* but smaller, with the crissum and abdomen suffused with buff and the white patch on the primaries smaller.

Measurements of type; wing, 176.5; tail, 100.5 mm.

Female similar to the male but buff of abdomen and crissum deeper; white of throat less pure and more restricted; and the white terminal bar on the tail nearly if not quite obsolete.

Distribution.—Nighthawks were either taken or seen on the following islands by us: New Providence, Andros, Eleuthera, Watling's, and Long Island. They have also been recorded from Great Bahama, Abaco, Fortune Island, Acklin Island, and Great Inagua, and are probably found during the breeding season throughout the Bahama group of islands.

Remarks.—While in size the Bahaman Nighthawk is about equal to *C. v. minor*, in color it more nearly resembles *C. v. chapmani*, but whereas the latter has the crissum and abdomen nearly pure white barred with black in *C. v. vicinus* they are suffused with buff. *C. v. vicinus* differs from *C. v. minor* of Cuba in lacking the tawny mottling above and the ochraceous-buff below, the latter color being represented in *vicinus* by the buff wash on the abdomen and crissum. In fact, the Bahaman bird is intermediate in color between the form found in Cuba and the one in Florida, with a leaning towards the latter.

Three males of *C. v. chapmani* from Florida average: wing, 186; tail, 100.5 mm.

Four males of *C. v. vicinus* average: wing, 169; tail, 93.5 mm.

Six males of *C. v. minor* from Cuba and the Isle of Pines average: wing, 170; tail, 94.5 mm.

Habits.—These birds would come out early in the evening and hawk about for insects in the same manner as *C. v. virginianus* in the North, but it seems to be more of a day flyer than that form, as they could frequently be seen flying about in the heat of the mid-day sun, in this respect reminding one of *C. v. minor* of Cuba. The note resembles that of the latter bird also and it gets the native name of *pick-a-me-dick* from its call given while flying. They are said not to be permanent residents on the islands, but to come from the south in the latter part of April.

Dr. Coker gave me an egg, with incubation nearly complete, found by flushing the parent off the nest, July 11, on Watling's Island. He also showed me a nest on Long Island, July 17, containing one young in the down on which the feathers had just begun to grow. In both cases there was no nest other than a slight hollow in the little sand that had collected in the cavities of the rough coral rock of the beach.

The egg has a slight greenish-white ground color with larger and smaller spots and blotches, which run together at the larger end to form an indistinct wreath, of lighter and darker shades of plumbeous. Over this there are small streaky spots of raw umber, evenly distributed over the shell. It measures 23.4×12.5 mm. In color it is exactly intermediate between eggs of *C. v. minor* and *C. v. chapmani*.

GENERAL NOTES.

Sabine's Gull at Monterey, California.—While carrying out a line of work for the Field Columbian Museum, last April in the vicinity of Monterey, Cal., I came across a small bunch of Sabine's Gull (*Nema sabinii*) in perfect spring plumage. They came into the Bay with hundreds of Bonaparte Gulls and Red Phalaropes after a storm of a week's duration.—GEORGE F. BRENINGER, *Phoenix, Arizona*.

The Snowy Plover in the Bahamas.—Mr. S. H. Derickson shot a specimen of *Aegialitis nivosa* on Long Island, Bahamas, July 16, 1903. It was in the company of another of the same species, he tells me. This is the first record of this species, I believe, for the Bahamas. The specimen is now in the U. S. National Museum.—J. H. RILEY, *Washington, D. C.*

Richardson's Owl (*Nyctala tengmalmi richardsoni*) in Illinois.—In recording the second capture of this owl for the State, I mentioned¹ that another specimen had been reported, but that I was then unable to get

¹Auk, Vol. XX, p. 305.

any definite information as to locality and date. Through the kindness of Mr. Frederick C. Pierce of Chicago I am now enabled to record a third specimen which was taken in Cicero, in December, 1902, and is now in his possession.—RUTHVEN DEANE, *Chicago, Ill.*

Capture of the Barn Owl (*Strix pratincola*) on Long Island, New York.—This species is sufficiently rare on Long Island to make it worth while to record a specimen shot February 17, 1903, at Montauk Point. The bird was sent to me by Mr. Everett C. King, who wrote that it had been seen flying about for two or three days after a hard snow storm. He also stated that this bird and one shot two years ago are the only ones of the kind he has seen in eleven years.—JONATHAN DWIGHT, JR., M. D., *New York City.*

The Second Known Specimen of *Centurus nyeanus* Ridgway.—On landing at Cockburn Town, Watling's Island, Bahamas, July 11, 1903, in company with Mr. S. H. Derickson, being very desirous of obtaining reliable data as to the status of the above species (*cf.* Nye, Auk, XVI, July, 1899, 273), we struck out to find timber and arrived on the shores of the first lake about a mile back of the port. This lake and the large lake connected with it are surrounded with low hills, covered with a low growth of trees, where they have not been cleared for sisal planting. While standing talking with Mr. McDonald, the resident justice, concerning woodpeckers and being told that he had never seen one there during a six months' residence, we heard a note resembling the rolling call of the Belted Kingfisher and supposed it was that bird. In a little while the bird flashed across the road and lit in a rather thick clump of trees out of sight. On going back to shoot the supposed kingfisher what was my surprise to behold the very species I was looking for. It is now No. 189685, U. S. National Museum, ♂ ad. The specimen is in worn plumage and hardly comparable with the type. While the top of the head in the type is a brilliant scarlet-vermilion, my specimen has faded out to an orange-vermilion; the feathers covering the nostrils in my specimen are less extensively scarlet, and the lower parts so worn as not to be comparable. It measures: wing, 129; tail, 88; exposed culmen, 32 mm. We were told that these woodpeckers, while not at all common, came down from the hills during the winter and did considerable damage to the oranges by making a small opening in the side of the fruit and extracting the pulp. We were shown orange trees in which nearly all the ripe fruit was thus destroyed, some of it still hanging on the trees. Although we made special efforts to secure additional specimens, during our limited stay, we did not hear or see any more.—J. H. RILEY, *Washington, D. C.*

Nighthawk Migration in New Hampshire.—One of the most interesting regular migration movements that has come under my notice I have

observed at Lake Pasquaney, Bridgewater, N. H., for the past three years. On August 25, 1900, Mr. G. M. Allen noted in the records of Camp Pasquaney twelve Nighthawks (*Chordeiles virginianus*); the most seen on any date that summer. In 1901, on August 22 and 23, I recorded a large flock, over twenty-five birds each day, passing at sundown slowly to the southwest over the lake. On August 22, 1902, at dusk, a flock of fully three hundred were seen migrating in the same direction. Again this year, on August 22, 1903, in the forenoon, nearly a hundred birds were noted passing over to the southwest. Thus for four years a definite migratory movement of these birds in considerable numbers has been observed between August 21 and 25. This migration has been noticed in Saco Valley, and I take it the birds passing over Pasquaney are stragglers from the Pemigewasset Valley migration, which occurs regularly.—REGINALD HEBER HOWE, JR., *Concord, Mass.*

Nests and Eggs of *Cœligena clemenciæ*.—About July 7, in the Huachuca Mountains, Arizona, I discovered a Blue-throated Hummingbird beginning its nest on a shelving rock on the face of a cliff. On the 13th the first egg was laid and on the 15th I took the set of two eggs, nest, and female parent. A single small fern was the only vegetation growing within ten or twelve feet of the nest. The rocks above the nest projected well out from the nest, protecting it from the torrents of rain that falls at that time of the year. The nest was composed chiefly of down from the under side of sycamore leaves, some cocoons and green moss, all firmly bound together with spider webs. The female when started from the nest, instead of flying directly out from the nest and away, would fly straight up the face of the cliff and pass through a rift in the wall. A great fondness is shown by this species to associate itself with rugged places.

This set of eggs, so far as known, is the third in existence. E. W. Nelson speaks of a nest from which a single egg was secured, built in a shrub up on the side of the Vulcan de Tuluca, Mexico. Josiah H. Clark (*Auk*, XVII, July, 1900, p. 294) tells us of a set of eggs taken by himself in the state of Vera Cruz, Mexico. In 'The Osprey' for February, 1899, I described a nest with two eggs I took on May 31, 1897, in these same mountains, built in a clump of maiden-hair ferns growing from the side of a wall of rock—the side of a deep gorge. The set of eggs taken this year is now in the collections of the Field Columbian Museum.—GEORGE F. BRENINGER, *Phoenix, Arizona.*

Mortality of Purple Martins (*Progne purpurea*) at Brattleboro, Vt.—During the long rain in June, 1903, the nests in the bird house belonging to William C. Horton of Brattleboro, Vt., became completely water-soaked, and thirty young and two adult Purple Martins were found dead in their nests. The remaining members of the martin colony abandoned the

house, leaving twelve eggs unhatched. Occasionally a few return and fly about as if trying to catch a glimpse of the inside of their home but none have ventured to enter up to this date (July 17).—FRANCES B. HORTON, *Brattleboro, Vt.*

Sand Swallows (*Riparia riparia*) Nesting in Sawdust.—In the summer of 1902, while I was in Franconia, N. H., Mrs. Annie Trumbull Slosson pointed out to me a pile of sawdust, on the perpendicular face of which, earlier in the season, she had noticed what seemed to be entrances to Sand Swallow nests. The pile is constantly being shovelled away, and at the time of my visit no holes were visible.

This year (1903) Mrs. Slosson wrote me, under date of June 18, that she had been out to the place (on the Easton road) two days before, and seeing a hole in the vertical (newly dug down) side of the sawdust heap, had taken pains to investigate the matter.

"We sat in the carriage," she wrote, and watched the hole, and soon saw a swallow enter it and, immediately after, another. They came out, flew away, and returned, entering the hole again. Each time they went in little clouds of sawdust puffed out like smoke. I got out of the carriage and went up the mound to the hole. I put my hand and arm in as far as I could, but it was not far enough to reach eggs or young, and I was afraid of the mound's coming down upon me. After I returned to the carriage the birds came back, but were very shy of going into the disturbed hole, making several starts, vibrating their wings, then flying away. But in a few minutes they gained courage and again entered the hole. I think there is not the slightest doubt that it is their home. I could find no other hole, but have little question there were others which had been wrecked by the workmen, who had been digging down that side of the pile."

Some days later she wrote: "On Saturday we drove again by the sawdust heap. There were full twenty holes, and apparently all were occupied; swallows flying in and out all the time, a regular colony, just as you see them in a sand-bank. Poor simple creatures, I fear an earthquake—or dustquake—has even now destroyed their work."

I begged her to make absolutely sure of the species, if she had not already done so, though really there could be no reasonable doubt upon that point, and on June 25 she replied: "Well, the species is all right. I verified things yesterday. We went out to the mill, and I went up the steep, sliding mass to the holes, 'where the swallows dustward fly.' About half a dozen of the holes had disappeared, but there were fourteen left. The birds, came about me, and I easily identified them as Bank Swallows, with white throat and a dark band across the breast."

Whether the breeding of Sand Martins in sawdust heaps has ever been recorded I do not know, but the occurrence seems to me of considerable interest, especially because the Sand Martin is the one member of its

family, as seen in eastern North America, that I had supposed never to have altered its manner of life as a result of what we call civilization.—
BRADFORD TORREY, *Wellesley Hills, Mass.*

An Interesting Solitary Vireo (*Vireo solitarius*).—On April 28, 1903, a male Solitary Vireo appeared in our garden; this, although situated in a thickly settled part of Cambridge, more than a mile from the nearest woods, covers upwards of an acre of ground and contains, in addition to much dense shrubbery, a number of well-grown trees of various kinds, including a few pines, spruces and hemlocks. The bird evidently found the place to his liking, for he remained there during the whole of the following three months, spending most of his time in the garden but also ranging through the cultivated grounds which surround the houses of our nearer neighbors. So far as we could ascertain he had no mate, although it is possible that he built a nest, for on one occasion late in June he was seen tearing strips of loose bark from a birch and taking them into the trees on the opposite side of the street.

That so notorious a forest lover as the Solitary Vireo should ever choose for his summer home a city garden, however wild and primitive, is sufficiently remarkable, but a still more interesting characteristic of this particular bird was that he had two perfectly distinct songs, one typically that of his own species, the other absolutely indistinguishable from that of the Yellow-throated Vireo. These, although used with about equal frequency, were never confused or intermingled. He would sing one for minutes at a time and then take up the other for a longer or shorter period. Not once when I was listening to him did he interpolate any of the notes of either strain among those of the other, nor ever change from one to the other save after a well marked interval of silence. To the ear of the listener, in short, he was either a Solitary or a Yellow-throat, as the mood happened to serve, but never both in the same breath.

When rendering his own legitimate theme this bird was as typical and fine a singer as any Solitary that I have ever heard. Indeed, he appeared gifted to a really exceptional degree with the wild, ringing quality of voice, the generous repertory of varied, exquisitely modulated notes, and the (at times) rapid, ecstatic delivery which combine to make the song of the Solitary so delightful to all discriminating lovers of bird music. But when, on the other hand, he chose to play the rôle of his yellow-throated cousin he reproduced with equal fidelity and success the latter's characteristically slow, measured delivery and rich contralto voice. So perfect, indeed, was the imitation that when, as repeatedly happened, I had opportunity for directly comparing it with the song of a true Yellow-throated Vireo that also frequented the garden, I was unable to detect any differences whatever in the notes of the two birds.

It may be well to add in this connection that Mr. Walter Faxon has heard one Yellow-throated Vireo (in Waltham, Massachusetts) and I another (in Lancaster, Massachusetts) which sang almost exactly like a

Solitary Vireo; in both of these instances, however, the bird, unlike the Solitary above mentioned, appeared to use only the song which it had borrowed from its near relative and to have either lost or never acquired that of its own species.—WILLIAM BREWSTER, *Cambridge, Mass.*

Bell's Vireo (*Vireo bellii*) in Colorado. — It may be of interest to record that the writer shot a male Bell's Vireo, June 12, 1903, on Clear Creek, near Denver, Colorado. In his second appendix to the 'Birds of Colorado,' Prof. W. W. Cooke intimates the future discovery of the species in the State, and so far as I know this is the first taken in Colorado. The bird was first discovered by hearing its unfamiliar song, but I feel quite certain I have heard the same song in the city, on one or two occasions in previous years. The specimen is now in the collection of the State Historical and Natural History Society, Denver, Colo. — HORACE G. SMITH, *Asst. Curator, State Historical and Natural History Society, Denver, Colorado.*

Nest and Eggs of the Swainson's Warbler (*Helinaia swainsonii*).— June 1st and 8th were 'red-letter' days for me from an oölogical standpoint. Jumping on my wheel and riding two or three miles from this city, I came to a swamp I had never visited before; and while looking carefully among the thick cane-brake, I heard *chips* of a warbler. Birds were singing and darting all around, and the 'swamp-flies' were making my life miserable, when I perceived a bunch of cane-leaves near the top of a cane-bush seven feet above the ground. On going closer, I saw a warbler on the nest, which immediately flushed and feigned lameness, rolling and chirping on the ground among the cane. I at once recognized the bird as Swainson's Warbler, and on peering into the nest saw, to my great delight, three white, unmarked eggs of a slightly pinkish hue and rather globular in shape. The nest was a typical warbler's, being made of leaves of the elm, cane in layers, pine needles, and lined with fine rootlets and grasses. I at once packed the eggs with the enthusiasm of having found such a rare nest—the rarest eggs I have ever found in this locality. Having read that this specie of warbler nests in small colonies, I continued in the cane, stooping often to search the tops of the cane. I had not gone ten feet, when I came to another nest with a warbler on it, in a cane-bush situated five feet above the ground. The bird dropped and fluttered off. The nest was more compactly built and contained three fresh eggs, somewhat smaller than the eggs of the other set. Proceeding near the end of the cane-brake, I saw a warbler dart out from a clump of cane, and on investigating, I saw a neat little Hooded Warbler's (*Wilsonia mitrata*) nest with three creamy white eggs marked with specks and spots of chestnut and lilac gray wreaths. I found one uncompleted Swainson's Warbler's nest, and on visiting the same swamp again in a week, I located two more sets of three eggs each of this

warbler—the rarest of southern warblers.—Dr. M. T. CLECKLEY,
Augusta, Ga.

Springfield, Mass., Bird Notes.—*Branta bernicla*. On the 11th of April last a Brant was taken on the river near Northampton; this bird is rarely observed in this part of the Connecticut Valley.

Aquila chrysaëtos. In November, 1902, a Golden Eagle was captured alive in a steel trap at Belchertown by Edgar E. Mead; the bird is now in captivity in the city park in Springfield. There is no other record of the appearance of an individual of this species near here for more than twenty-five years, and there are only three instances recorded previous to that time.

Lanius ludovicianus migrans. A Migrant Shrike was taken at Longmeadow Dec. 19, 1901.

Podilymbus podiceps. In this section of the country the Pied-billed Grebe has been a rare breeder, usually locating its nest in remote places away from the habitations of man. In the spring of this year, a pair chose as their home a small pond in the suburbs of Springfield near a number of houses, and at a place which was a rendezvous for boys, and there nested and succeeded in raising two young.

Branta canadensis. For more than ten years Canada Geese have been successfully bred in the public park, in Springfield, and until last year, one of the wings of each of the young has been cut to prevent their flying, but last autumn about twenty-five individuals of those raised during 1902 were left uncut. In the early spring of this year these birds became very noisy and uneasy and beginning with short flights soon would go off for many hours. Several are known to have been killed, and others disappeared, probably joining migrating flocks. Although the path to the regular breeding grounds of its kind, to the north, was free for it to follow, one preferred to return to the park and there mated with one of those with a crippled wing, and the pair successfully raised a brood of young.—ROBERT O. MORRIS, *Springfield, Mass.*

Some New Records for Nova Scotia.—Among a small lot of bird skins sent to me from Sable Island, Nova Scotia, by Mr. Jas. McL. Boutcher, I find no less than five species that are new to the Province and two others whose presence is purely accidental although previously recorded. Almost without exception the birds are young of the year, which goes to prove that young birds are most frequently lost, and as all of them were captured in the fall, it is extremely probable that they were carried along far out of their bearings by autumnal storms. It is well established that most accidental visitors in the East are taken in the fall, and the movement of storm centres in a northeasterly track east of the Mississippi undoubtedly has a close bearing upon such captures.

Geothlypis formosa. KENTUCKY WARBLER.—A young male taken

September 1, 1902, is in first winter plumage as determined by softening the skin and examining the bones. The nearest point at which the species regularly breeds is New Jersey.

Chondestes grammacus. LARK SPARROW.—A young male taken September 4, 1902. This bird, still showing remains of the juvenal plumage, had wandered at least a thousand miles from where it was probably hatched in the Mississippi Valley.

Spiza americana. DICKCISSEL.—A young male in first winter plumage taken September 13, 1902. Another wanderer from the Mississippi Valley, perhaps.

Hydrochelidon nigra surinamensis. BLACK TERN.—A young male in juvenal plumage taken September 9, 1902. This species has been so often recorded along the New England coast that its occurrence at Sable Island is not unexpected.

Micropalama himantopus. STILT SANDPIPER.—An adult female, secured August 18, 1902, seems to establish a first record for Nova Scotia.

Icterus galbula. BALTIMORE ORIOLE.—A young male in first winter plumage, taken October 4, 1902, is the second only that has been recorded (see Auk, IV, 1887, p. 256, for earlier record) and Mr. Boucher comments that it "came during a heavy gale."

Mimus polyglottos. MOCKINGBIRD.—A young male in juvenal plumage was captured September 3, 1902, "hopping about a woodpile." It is the second from Sable Island (see Auk, XIII, 1896, p. 344) in this plumage.—JONATHAN DWIGHT, JR., M. D., *New York City*.

Formalin Fails as an Insecticide for *Dermestes*.—Wishing to test the efficacy of this chemical which has been advocated as a protection against 'moths,' I placed five larvæ of *Dermestes* and a couple of teaspoonfuls of Schering's formalin in a new nearly air-tight 'Cambridge bird-can' leaving it closed for twenty-four hours. On opening the can I found the formalin had not entirely evaporated while the larvæ were unharmed. They had run about freely in the can and quickly revived in the fresh air. Even a bath in the liquid produced no permanent ill-effects, so the next day they and five more of their brethren were again placed in the can and a teaspoonful of carbon disulphide poured in. When the can was opened at the end of only ten hours, the larvæ lay dead in the little tray in which they had been placed. Although extremely offensive to the nose and dangerous because volatile and inflammable, there is no surer insecticide than the disulphide. It is penetrating and destroys life even in the eggs of 'moths' of all kinds, and its bad odor is offset by its rapid evaporation. Formalin is constantly irritating to nose and eyes and if, as I have shown, it fails to promptly destroy one of the naturalist's greatest enemies its use even as an insectifuge is not to be encouraged.—JONATHAN DWIGHT, JR., M. D., *New York City*.

RECENT LITERATURE.

Macoun's 'Catalogue of Canadian Birds,' Part II.—The first part of this important work appeared in 1900, and its general character and scope were so fully indicated in this journal (Vol. XVII, Oct., 1900, pp. 394, 395), that it remains now only to chronicle the appearance and extent of Part II,¹ which includes the Raptores, and the succeeding families of the A. O. U. Check-List to and including the Icteridæ. As in Part I, we have a compendium of the previously published information regarding the range and breeding areas of the species known to occur in North America north of the United States, supplemented by a large amount of hitherto unpublished material gathered by the members of the Canadian Geological Survey, and contributions from a large number of trustworthy correspondents. The authority is given for each record, whether published or unpublished, thus explicitly designating the sources of the information here presented. In the case of published records, the place of publication is often, but not always, explicitly stated. The 'Catalogue' also includes a list of the specimens in the Government Museum at Ottawa, with full data as to their place and date of capture, etc.

It is announced that Part III, completing the work, is ready for the press, and that it will be published during the coming winter. It will include such information relating to species mentioned in Parts I and II as may have been received since their publication, as well as an index to the three parts, and a complete bibliography of the authorities consulted in the preparation of the work. The 'Catalogue' will thus be a work of great permanent value, and a most important contribution to our knowledge of the distribution of North American birds.—J. A. A.

Dresser's 'A Manual of Palæarctic Birds.'²—In a work of some 950 pages Mr. Dresser manages to treat the 1219 species and subspecies of the

¹ Geological Survey of Canada. | Robert Bell, M. D., Sc. D., (Cantab.), LL. D., F. R. S. | — | Catalogue | of | Canadian Birds. | — | Part II. | Birds of Prey, Woodpeckers, Fly-catchers, | Crows, Jays and Blackbirds. | Including the following orders: | Raptores, Coccyges, Pici, Macrochires, and Part | of the Passeres, | — | By | John Macoun, M. A., F. R. S. C., | Naturalist to the Geological Survey of Canada. | [Vignette.] Ottawa: | Printed by S. E. Dawson, Printer to the King's Most Excellent Majesty, | 1903.—8vo, pp. i-iv, + 11., pp. 219-413. Price, 10 cents.

² A Manual of | Palæarctic Birds | By H. E. Dresser, F. L. S., F. Z. S., etc. | Author of "The Birds of Europe" | [Vignette] London | Published by the Author at 3 Hanover Square, W.—8vo. Part I, 1902, pp. 1-498, and frontispiece; Part II, 1903, pp. i-vii, 499-922, 811. unpagged, and frontispiece. Price, 25 s. net; thin paper copies, 30 s. net.

Palæarctic ornithology, as here recognized. As stated in the preface, the work is "primarily intended for the use of field-naturalists and travellers." With their convenience in mind, the technicalities, including synonymy and references, have been reduced to small compass, and binomials are employed throughout, even for the forms included as "subspecies." All forms "described under trinomials" have been uniformly excluded as not entitled to any kind of recognition, for the reasons, first, that the author is "in principle a binomialist," and, second, because their recognition is difficult for even experts, and their admission "seems calculated rather to puzzle and discourage than to assist the beginner." For this and other reasons the 'Manual' can hardly be considered as a technical treatise, but as a popular handbook for the identification of the species and the more prominent "subspecies." The nomenclature is orthodox from the standpoint of ultra conservatism, through the non-recognition of Linnæan names proposed prior to 1766, in the rejection of specific names that have been adopted for genera, and in the use of emended forms of names instead of the original. To save space in the bibliographical citations, apparently, the name adopted in the text heads the list of references, regardless of whether the generic element of the name was used for the species by the authors cited or not; but when not so used the name of the author is enclosed in parenthesis, though there appears to be no explanation to this effect. It also seems a little strange to find a species ranged as a subspecies of some other species described many years later, as in the case of *Cinclus aquaticus*, with parallel cases elsewhere.

In the treatment of the species the English name is given first, then the systematic name, followed by references to the principal works treating of the species (or subspecies, as the case may be); then are given its vernacular names in the various countries it inhabits, followed by a short description (generally sufficient, apparently, for identification), a brief statement of its range, and a paragraph or two regarding its habits, including some account of the nest and eggs, the whole occupying about a page. Subspecies are formally distinguished as such by the prefix "subsp." and by use of different type for the name; they are usually disposed of, very properly, in a few lines, by comparison with the species to which they are most allied. The species follow each other in the systematic order of the same author's 'Birds of Europe,' but there are no divisions higher than genera to indicate the limits of families and orders — a feature that might well have been supplied in the interest of the non-scientific reader. The work, however, cannot fail to be of the greatest service to the class of users for which it is avowedly prepared, and also a handy reference book for ornithologists. Indeed, the author is entitled to great credit for having placed before the public such a concise and excellent manual of the birds of so vast an area as the Palæarctic Region. — J. A. A.

Huntington's 'Our Feathered Game.'¹—In a single volume of about 400 pages Mr. Huntington treats of all of the species of North American birds commonly hunted as game, among which are included the Bobolink and Mourning Dove, but not the Robin nor the Meadowlark. Of the former he says: "I have placed the Bobolink at the end of my list, a place most convenient to strike it off, and I hope before long the handsome song-bird of the meadows will not be an object of pursuit." In respect to the Mourning Dove he is less lenient, and although he mentions the States which have prohibited its shooting, he decidedly favors its continued treatment as a game bird.

This book is written by a sportsman, for sportsmen, and from the sportsman's point of view, and should prove welcome to such as care for a 'manual' of North American game birds in a single volume. The first chapter is introductory, treating of the changed conditions as regards the present scarcity of game birds, methods of hunting, stringent game laws, etc., in comparison with twenty-five years ago, when feathered game was abundant and the hunter could shoot whenever and wherever he pleased, with no limit to the bag. While the author manifests regret at the passing of these 'good old times,' he recognizes the necessity for stringent game protection. Chapters follow on 'Guns and Dogs,' and 'Game Clubs, Parks, and Preserves.' The rest of the book is divided into four sections and an appendix, treating respectively of (1) Gallinaceous Birds; (2) Wild-Fowl, or Swimmers; (3) Shore Birds or Waders; (4) Cranes, Rails, and Reed Birds, Wild Pigeons and Doves; (5) Appendix, giving brief descriptions of the species. The purpose and character of the book is well expressed in the author's closing paragraph of the introduction: "My observation of the birds is from the sportsman's blind, or as he sees them in a tramp across the field, with dog and gun; a sufficient description, however, being given in the notes at the end of the volume to enable the reader to identify the species. We do not go to the museums to compare skins with the naturalists in the hope of creating a subspecies, but to the fields to shoot over those still open, as well as on club-grounds and private preserves, making some inquiry by the way as to the natural history of our game, and the new methods of preservation and propagation." The eight full-page colored plates of shooting scenes are in the style of this author's well-known illustrations published in his 'In Brush, Sedge, and Stubble' (folio, 1899,) since republished as 'The True Game Birds,' while the 135 full-length 'bird portraits' are arranged in 29 half-tone plates at the end of the volume.—J. A. A.

¹Our Feathered Game | A Handbook of the | North American Game Birds | By | Dwight W. Huntington | With eight full-page shooting scenes in color | and one hundred and thirty-five bird portraits | Charles Scribner's Sons | New York, 1903—Crown 8vo, pp. xii + 396. 8 col. pll., 29 half-tone pll. Price, \$2.00; postage, 15 cts.

Degen on the "Perennial Moulting" in the Australian Piping Crow.—As shown by the title,¹ Mr. Degen's memoir is not merely an account of the moulting in one of the species of Australian Piping Crows, but an attempt to throw light upon "the archæornithic type from which the wing of the modern bird has been evolved. The main object of the paper is stated to be "to give additional evidence in support of the theory of the derivation of the feathering of the bird's wing." It was therefore found "necessary to ascertain the mode by which the perennial moulting of the individuals of a species of bird is made up from the earliest to the last stages of renewal; and, further, to what extent each feather participates in this annual process during the period of complete feather-change." The species chosen for this investigation is the *Gymnorhina tibicen*, in which the moulting of the flight-feathers is traced from the beginning to the completion of the moulting. The various stages, from the dropping of the first remex to the completed growth of the one last moulted, are described in detail and very clearly illustrated by numerous diagrams. Not only is the moulting in this species traced in the most minute detail, but the history and previous literature of the general subject of ecdysis is considered, mostly *passim*, and the recent papers by Mr. Witmer² Stone and Dr. J. Dwight are frequently cited, as well as those of earlier writers. Beyond the minutely detailed record of the conditions of feather-change in the Piping Crow, there is little that is new to the general subject, but a confirmation of the conclusion reached by others as to the order of shedding and replacement of the flight-feathers. The two distinctly different principles of shedding and renewal are, first, "the regular sequence of their renewal on the hand-portion from within outwards, though accelerated in certain places or retarded in others, in order to maintain the requisite balance for flight, by a system of approximate symmetry for the whole wing during this critical change. This is the principle which forms the rule for probably the entire order of the Passeres," but not for some of the Picariæ and many of the lower forms of birds. In the case of the cubital quills the moulting begins with the first outer remex and proceeds inward to the fourth, but in the next series of three the order of moulting is reversed, beginning with the seventh remex, then the sixth, and then the fifth.

"The renewal of the wing-coverts presents some notable deviations from that of the flight-feathers." While the latter assume their permanent order of renewal in the first moulting, the wing-coverts pass through transitional stages before attaining their permanent order of renewal. A

¹ Ecdysis, as Morphological Evidence of the Original Tetradactyle Feathering of the Bird's Fore-limb, based on the Perennial Moulting in *Gymnorhina tibicen*. By Edward Degen, F. Z. S. Trans. Zoöl. Soc. London, Vol. XVI, Part viii, pp. 347-412, pll. xxxvi-xxxviii. May, 1903.

² Erroneously spelled "Wittmer" throughout the memoir.

“marked transverse or vertical element” is found to enter into the conditions, and “this transverse arrangement is a survival, therefore.” according to the author, “of the phylogenetic affinities which link the present Class Aves to their Saurian ancestry.” The great importance of the wing-coverts in “helping to clear up outstanding questions connected with the evolution of the organ of flight” has been fully reorganized by Pycraft and Goodchild whose conclusions are here cited.

Under the head of ‘Conclusions’ is a long discussion of the evolution of the wing of the modern bird, with regard to the original point of origin of the flight-feathers. His final conclusions are expressed in the following

REVISED SCHEME FOR THE DERIVATION OF THE FLIGHT-FEATHERS
FROM THE TETRADACTYLE ANCESTRAL FORM OF BIRDS.

Proto-metacarpo-digitals = Flight feathers of Phalangeal Origin.	Hypo-metacarpo-digitals = Flight feathers of Metacarpal Origin.
	DIGIT I.
Suppressed (lost).	Present Pennæ pollicis IV-I.
	DIGIT II.
Present Metacarpo-digitals XI-VI.	Present intercalary row I-VI.
	DIGIT III.
Present Metacarpo-digitals V-I.	Present Cubital Group II, Secondary Remiges (o) I-IV.
	DIGIT IV.
Present Cubital Group III, Secondary Remiges V-VII.	Present Cubital Group I, Secondary Remiges VIII-X.—Cubiti veri XI-r.
	<i>Direction of Moul.</i>
	←-----→
	(Left Wing.)

“From the foregoing scheme it may be observed that there are no flight-feather equivalents allotted to the phalangeal portion of Digit I, in which part they figure as ‘suppressed’ . . . This tendency towards a part-suppression, if carried further, would have the effect of leading to total apoptilism. It, moreover, must have proceeded contemporaneously with the feathering of the forearm and was still in progress after, as is evidenced in the Passeres, where it has reached the present climax in the Oscines proper.

“Considering the genealogical relative shortness of Digit I, coupled with the fact of a still greater reduction of size in the present forms of birds to one compound element, there is strong probability existing that, during the course of the fusion of the phalangeal segments of this digit with its originally independent metacarpal bone, they were stripped off

one after the other as in the case of the 'remicle' and other diminutive coverts"

As to the question of 'diastaxy,' the author believes that the present inquiry "supplies proof that 'faulting' is not confined alone to diastatic wings, but takes place, though in inferior degree, in the short-armed eutaxic forms of birds, such as the Passeres."—J. A. A.

Weed's Bibliography of Economic Ornithology.—As the title states, this is only a "partial bibliography" of the subject to which it relates,¹ but as such it is disappointing as well in what it contains. Beginning with Wilson. 1808-14, we have listed a miscellaneous assortment of general works, as those of Bonaparte, Audubon, Nuttall, etc., and of special papers dealing often in only a slight or incidental way with the food habits of birds, while a number of 'reports' and papers treating especially of such matters are omitted. While a large part of the titles cited are more or less pertinent, we find no reference to several of the most important papers and reports that treat especially of the economic relations of Birds. In preparing the bibliography of such a subject, it is difficult to properly adjust the line of exclusion, but the omission of some of the most important titles seems to imply lack of care in compilation.—J. A. A.

Howe and Sturtevant's Revised List of the Birds of Rhode Island.²—This brochure of 24 pages "endeavors to bring up to date the present knowledge of Rhode Island avifauna, and to correct that work [the original list, published in 1899] both in misstatements and typographical errors." 'Part I,' of two pages, contains a note by Mr. James M. Southwick on the collection of Rhode Island birds presented to the Museum of Natural History at Roger Williams Park, Providence, by the late Charles H. Smith, which is stated to contain 292 species, represented by 480 specimens. Then follows 'Part II,' a 'Revised Annotated List of the Birds of Rhode Island,' numbering 283 species, besides 3 entered as "extirpated," and 8 as hypothetical. Several species of the original list are 'dropped', and five are now added. Mr. Howe needlessly proposes (p. 22, footnote) the new generic name *Paulomagnus* for the House Wren!—J. A. A.

¹A Partial Bibliography of the Economic Relations of North American Birds. By Clarence M. Weed. New Hampshire College Agricultural Experiment Station, Technical Bulletin No. 5. Durham, N. H., 1902. Svo, pp. 139-179.

²A Supplement to the Birds of Rhode Island. By Reginald Heber Howe, Junior, and Edward Sturtevant. Svo, pp. 24. Middletown, Rhode Island, 1903.

Stone on Birds of Southern New Mexico and Western Texas.—Messrs. Stone and Rehn have recently published a paper on the Terrestrial Vertebrates of portions of southern New Mexico and western Texas, Mr. Stone being responsible for the portions relating to the birds and reptiles and Mr. Rehn for that on the mammals,¹ based on collections made by Mr. Rehn and Mr. H. L. Viereck in the spring and early summer of 1902, in El Paso County, Texas, and Otero County, New Mexico, with some material from other sources. The list of birds numbers 41 species, of which 31 rest on specimens taken, and the other ten on field identifications of birds seen but not taken. The list is briefly annotated with the collector's field notes, and in some instances by remarks on the character or condition of the plumage. The range of *Spizella atrigularis* is extended considerably to the eastward of its former known distribution by the capture of a specimen in Dry Cañon, Otero Co., New Mexico.

The faunal relation of the localities visited in New Mexico "appears to be truly Lower Sonoran." This fauna seems to extend up the bottoms of the cañons, "while the slopes of the same and the foothills appear to possess more distinctly Upper Sonoran types." An arm of the Lower Sonoran appears to extend "off from the Rio Grande tract and runs up between the Organ and the Sacramento ranges, comprising the San Augustine plain."—J. A. A.

Oberholser on New Birds from Texas.—A vireo of the *bellii* type, intermediate between *Vireo bellii bellii* and *V. bellii pusillus* has been described² by Mr. Oberholser as *Vireo bellii medius*, from southwestern Texas and immediately adjacent portions of Mexico. He has also described³ a new Cliff Swallow from the same region, under the name *Petrochelidon lunifrons tachina*.

He has also shown⁴ that the name *Hylophilus*, heretofore in current use for a large group of Central American and South American vireos, is preoccupied by *Hylophila* for a genus of insects, so that the proper generic name for the vireo group is *Pachysylvia* Bonaparte, 1850.—J. A. A.

Bonhote's List of Birds collected in the Bahamas.⁵—Mr. Bonhote made an ornithological collecting trip to the Bahamas in the winter of 1901—

¹ On the Terrestrial Vertebrates of Portions of Southern New Mexico and Western Texas. By Witmer Stone and James A. G. Rehn. Proc. Acad. Nat. Sci. Phila., 1903, pp. 16-34. May 7, 1903.

² Description of a New Vireo. By Harry C. Oberholser. Proc. Biol. Soc. Washington, Vol. XVI, pp. 17, 18, Feb. 21, 1903.

³ A new Cliff Swallow from Texas. *Ibid.*, pp. 15, 16, Feb. 21, 1903.

⁴ *Ibid.*, p. 101, June 23, 1903.

⁵ On a Collection of Birds from the Northern Islands of the Bahama Group. By J. Lewis Bonhote, M. A., F. Z. S. The Ibis, July, 1903, pp. 273-312.

'02, which has furnished the basis for two papers, the first, entitled 'Field Notes on some Bahama Birds,' published recently in the 'Avicultural Magazine' (see Auk, *antea*, pp. 230, 231), and the second, here under notice, giving a formal list of the 104 species collected and notes on a few others observed but not taken.

A list of the specimens secured of each species is given, with the date and locality of capture, with, in some cases, quite extended notes on their habits and history as Bahama birds. There is some critical comment on a number of the species, particularly of the genus *Geothlypis*, but his remarks are not especially convincing to those who have reached opposite conclusions through better facilities for investigation. He claims to have added four species to the Bahama list, but one of them (*Nycticorax naevius*) was long since recorded by the late Dr. Northrop in an important paper on 'The Birds of Andros Island, Bahamas' (Auk, VIII, 1891, pp. 64-80), which Mr. Bonhote appears to have overlooked, as it is not cited in his references to previous authors. The paper contains much new and interesting information respecting the birds of the Bahamas and is thus a most welcome contribution to the subject.—J. A. A.

Sherborn's 'Index Animalium.'¹—Some ten or more years ago Mr. Sherborn entered upon the almost overwhelming task of compiling a list of the genera and species of animals, both living and extinct. An undertaking of such magnitude and importance quickly attracted the attention of prominent naturalists in England, and liberal support was received from the British Association, under whose auspices chiefly the work has been continued. The British Museum and other libraries, appreciating the exhaustive bibliographical researches involved, profited by Mr. Sherborn's knowledge of books in adding to their shelves many of the works not previously accessible in England. Through the intelligent coöperation of these libraries Mr. Sherborn has been enabled to consult practically all of the zoölogical literature from 1758 to 1800, his '*libri desiderati*' consisting mainly of unimportant works.

In view of the long time required to bring the list up to date, it was thought well to place a portion of it in the hands of zoölogists without delay, and to this end the part dealing with names published from 1758 to the close of the eighteenth century was issued late in 1902. This installment comprises a thick volume of over 1200 pages, containing nearly 60,000 entries, of which about one twelfth relate to birds.

¹ Index Animalium | sive | Index nominum quae ab A. D. MDCCLVIII | Generibus et Speciebus Animalium | imposita sunt | Societatibus eruditorum adiuvantibus | a | Carolo Davies Sherborn | confectus | sectio prima | a kalendis ianuariis, MDCCLVIII | usque ad finem Decembris, MDCCC | Cantabrigiae | E Typographio Academico | MDCCCXII—Roy. Svo, pp. i-lix; 1-1195. Price 25 s., net.

The general plan of the work is excellent, the arrangement of names being alphabetical throughout, with the genera distinguished from species by means of capital initials. At the end of the main list the species are again grouped alphabetically under genera, where one may find at once all of the specific names used in combination with each genus. Thus, under *Psittacus*, we find 265 specific names; under *Falco*, 220, etc. In the general list specific names are given as originally spelled, without emendation or correction, followed by their respective generic terms, together with a correct citation, with date of publication, of the work in which they first appeared. Where a specific name is not new, but used for the first time in combination with another generic name, this fact is indicated by citing the original genus at the end of the reference.

Preceding the general list is a bibliography, wherein are briefly listed the titles of 1300 or more works handled by Mr. Sherborn in the preparation of the present volume, with important notes (too short, in most cases!) indicating the character of each work, whether binomial, or otherwise, etc.

Referring to the short list of 'libri desiderati,' we may dismiss two of those mentioned by saying that Wagner, 'Abbild. Nat. Kab. Bayreuth,' is not binomial,¹ and no systematic names occur in the 'Nieuwe Magazijn.'

In a work such as the present it is quite natural that there should be some omissions and occasional errors. These are, fortunately, as far as they pertain to birds, of no great moment, as the names omitted are more or less commonly cited in ornithological literature.² Some names are, through oversight, stated to be *nomina nuda* when they are not so. The genera of mammals named by Link (*e. g.*, *Ondatra*, *Ochotona*, *Petaurista*), in his 'Beyträge' are thus indicated, but they are properly diagnosed on pp. 74-78, where typical species are also mentioned. The species names cited from Latham and Davies, 'Faunula Indica,' 1795, figure as *nomina nuda*, but most of them are based on the descriptions or plates of other writers, hence entitled to full standing.

On the other hand, a glance through Mr. Sherborn's list reveals many unfamiliar names, testifying to the care with which he has searched forgotten volumes. Especially to be mentioned are the specific names quoted from Vroeg, 'Catalogus Verzam. Vogelen,' 1764, and to the genera given in the 1758 edition of Moehring's 'Generum Avium' ('Geschlachten d. Vogelen'). The question of accepting Moehring's names at 1758 is one that may give rise to differences of opinion, but we are glad

¹ The mammal names *Armodillo* and *Tatu* occur in it.

² Among the omissions may be mentioned *Rallus ecaudatus* King, 1784; *Motacilla cyanea* Ellis, 1782; *Larus crepidatus* Banks, 1773; also the species of Hermann's *Tabula Affin. Anim.*, 1783, and those described by Gunnerus, in Leem's *Beskr. over Finmarkens Lapper*, 1767.

to see them in the 'Index'; it is better to include doubtful names than to omit them, as their disposition is a matter for the decision of the specialist.

In conclusion, we have only the highest praise to offer for Mr. Sherborn's work. It is to be hoped that workers in the various branches of zoölogy will coöperate with the compiler, with the object of gathering up the odds and ends overlooked in the present part, that they may be included in a later one, and we trust the undertaking will not lack the assistance and support necessary to bring it to a successful and early termination.—C. W. R.

The 'Index Zoologicus.'¹—This important supplement to the well-known 'Nomenclator Zoologicus' of Scudder is based largely upon the names recorded since 1879 in the yearly volumes of the 'Zoological Record,' but valuable references have been gathered from other sources, such as published lists of genera of special groups; from works overlooked by Agassiz, Marschall, and Scudder, as well as from manuscript lists submitted by various systematists. About 40,000 names are given in the 'Index,' nearly one fourth of which were instituted prior to 1880; the remainder represent the work of zoölogists during twenty years, an average of 1500 names per annum.

The new 'Index' will afford temporary relief to the zoölogist, but a new and thoroughly revised 'Nomenclator' is much needed. In the 'Index' we have a worthy complementary volume to the list prepared by Scudder, thus making accessible to workers a more complete catalogue of generic and subgeneric names than has hitherto been possible, but it is evident that the next edition will produce an additional large crop of forgotten terms,² and that perfection cannot be expected until zoölogical literature

¹ Index Zoologicus | an alphabetical list of names of genera and | subgenera proposed for use in Zoology | as recorded in the | "Zoological Record" 1880–1900 | together with | other names not included in the "Nomenclator | Zoologicus" of S. H. Scudder | compiled (for the Zoological Society of London) | by | Charles Owen Waterhouse | and edited by | David Sharp, M. A., F. R. S. | Editor of the "Zoological Record" | London | Printed for the Society | Sold at their house in Hanover Square | and by | Gurney & Jackson, Paternoster Row | MDCCCXII — 8vo, pp. i–xii; 1–421. Price, 20 s.

² The following are suggested, in the Class *Aves*: *Asturætos* Brehm, 1855; *Autruchon* Temm., 1840; *Budythanthus* David, 1867; *Calandrina* Blyth, 1855; *Chlorion* Temm., 1838; *Cinnamopteryx* Reichenow, 1886; *Corax* Kaup, 1854; *Cyphornis* Cope, 1894; *Falcator* Temm., 1821; *Gingala* Rafin., 1815; *Huhus* Rafin., 1815; *Kenopia* "Blyth, 1855"; *Melanopteryx* Reichenow, 1886; *Miserythrus* Newton, 1875; *Oxyporus* et al. Brookes, 1828; *Palconornis* Emmons, 1857; *Phacopharus* Madarász, 1900; *Pomarinus* Fischer, 1803; *Tupera* Thunberg, 1819; also names proposed by Bertoni (see Auk, 1902, pp. 414–416).

has been carefully sifted on the lines so well begun by Mr Sherborn in his 'Index Animalium.'

Some errors are apparent in the 'Index' that might have been avoided had it been practicable to circulate proof-sheets among specialists for correction. Among the bird names we note *Agropsa*, for *Agropsar*; *Arguata*, for *Arquata*; *Eubates*, for *Eribates*; *Megaquiscalis*, for *Meguquiscalis*; *Percnopterus*, for *Percnopterus*; and *Conuropsis* is credited to Hasbrouck, instead of Salvadori.— C. W. R.

Ornithological Magazines. 'The Osprey.'— With the number for January, 1902, 'The Osprey'¹ entered upon Volume I of its 'New Series' (Vol. VI of the whole series). Up to January, 1903, however, only six numbers had appeared; another has since been printed but apparently has not been issued. The January number contains: 'The California Jay (*Aphelocoma californica*); some of its habits and characteristics,' by D. A. Cohen; 'Random and Reminiscent Maine Bird Notes,' by W. C. Kendall (on the decrease of birds in Maine during the last twenty years, and advocating more stringent bird protection); 'August Birds of Stony Man Mountain, Virginia,' by William Palmer; 'Life and Ornithological Labors of Sir John Richardson,' compiled by Theodore Gill (with portrait of Richardson). Reviews of Lucas's 'Animals of the Past (illustrated)' and of Macoun's 'Catalogue of Canadian Birds' complete the regular text, to which is added, as a separately-paged supplement, 'General History of Birds,' Chapter I (pp. 1-4), treating of 'The English Names,' and 'The Birds' Place in Nature.'

The February number has: 'Notes on the Habits of the Broad-winged Hawk (*Buteo platypterus*) in the Vicinity of Washington, D. C.,' by J. H. Riley (nest illustrated); 'Rambles about my Old Home,' by Milton S. Ray (at San Mateo, Cal., contrasting present conditions with those of eighteen years ago); 'The Mocking Bird at Home,' by F. H. Knowlton; 'Reminiscent and Random Maine Bird Notes,' by W. C. Kendall (continued from Jan. number); 'Professor Alfred Newton, F. R. S.,' by Dr. R. W. Shufeldt (with portrait). Reviews of Ridgway's 'Birds of North and Middle America,' Part I, and Herrick's 'The Home Life of Wild Birds' (with sample illustrations), complete the regular text, with pp. 5-12 of 'The General History of Birds,' containing 'Characters of the

¹ The Osprey. An Illustrated Magazine of Ornithology. Published monthly. Edited by Theodore Gill and Paul Bartsch, in collaboration with Robert Ridgway, Leonhard Stejneger, Frederic A. Lucas, Charles W. Richmond, William Palmer, and Harry C. Oberholser of Washington, and Witmer Stone of Philadelphia. New Series, Vol. I, 1902, 4to, pp. 1— + 1— of 'General History of Birds.' The Osprey Company, Washington, D. C. Subscriptions in United States, Canada and Mexico, \$1.00 a year; single copies, 10 cents; foreign subscriptions, \$1.25 a year, postage paid.

Class,' the 'General Characters of Birds,' and the beginning of the 'Plumage of Birds,' the latter by Dr. Hubert Lyman Clark.

The March number contains: 'Notes on some Yellow-throated Vireo's Nests,' by William R. Maxon; 'The Birds of the Marianne Islands and their Vernacular Names.—I,' by W. E. Safford; 'Notes on McCown's Longspur in Montana,' by P. M. Silloway; 'The Carib Grassquit (*Euetheia bicolor omissa*),' by B. S. Bowditch; 'Board and Lodging for Birds'; 'An Albino Vesper Sparrow,' by R. W. Williams, Jr.; 'The Thick-billed Redwing, a new bird record for Iowa,' by [P.] Bartsch; 'Biographical Notice of John Cassin,' by Theodore Gill. Brief obituaries of Hugh Alexander Macpherson and Alpheus Hyatt complete the number, to which are added pp. 13, 14 of the 'General History of Birds.'

The April number has: 'The Feeding Habits of the Coot and other Water Birds,' by Barton Warren Evermann, and 'The Birds of the Marianne Islands and their Vernacular Names,' by W. E. Safford (continued from March number). Pages 15-20 of the 'General History of Birds' are added, treating of 'Moulting or Molting,' by William Palmer. A half-tone frontispiece gives portraits of John Cassin, Thomas Wilson (two views), and George A. McCall. There is a short note on each of the two latter on p. 96 of the June number, and a biographical notice of the first in the March number (pp. 50-53).

The May number contains: 'Winter Water Fowl of the Des Moines Rapids,' by Ed. S. Currier; 'The Destruction of Birds by Lighthouses,' by Bernard J. Bretherton; and 'The Porto Rican Pewee (*Blaticus blancoi*),' by B. S. Bowditch. There is a further installment (pp. 21-26) of the 'General History of Birds,' being the beginning of 'Chapter II, General Anatomy,' by Dr. R. W. Shufeldt.

The June number contains: 'The Mississippi Kite (*Ictinia mississippiensis*),' by Albert Franklin Ganier; 'Recent Views of the Sable Island or Ipswich Sparrow,' by W. E. Saunders; and 'Northern Parula Warbler,' by J. Merton Swain. Also pp. 27-34 of the 'General History of Birds,' continuing the chapter on 'General Anatomy.'

The July number (so far as we know not yet—Sept. 15, 1903—distributed to subscribers, although printed some months ago) contains 'Notes on Birds of the Pribilof Islands,' by Dr. D. W. Prentiss, Jr.; 'A Study of the Genus *Perisoreus*,' by Reginald Heber Howe, Jr.; 'The Cerulean Warbler, a Summer Resident near Washington,' by William R. Maxon; 'Notice of Dr. James G. Cooper,' by William H. Dall, copied from 'Science' (only part here published and marked 'to be continued'); and pp. 35-42 of the General History of Birds.' A frontispiece half-tone illustrates the 'Mississippi Kite and Nest,' and there is a portrait of the late Dr. J. G. Cooper.

'The Osprey,' never a model in promptness of publication, has of late fallen far below its usual standard, the last number bearing date July, 1902. We certainly hope this does not indicate its permanent demise, for it has always been a useful Journal and is already greatly missed.—J. A. A.

Chapman's 'The Economic Value of Birds to the State.'—By request of the New York State Forest, Fish, and Game Commission, Mr. Chapman has prepared a paper on 'The Economic Value of Birds to the State,'¹ of which advance copies have just been received. It forms a part of the Annual Report of the Commission for the year 1902, and consists of nearly seventy pages of text and twelve colored plates by Fuertes, drawn especially for the work, and effectively reproduced by Hoen & Company of Baltimore. They form one of the most beautiful series of bird plates yet published. The drawings are at Fuertes's best, and the reproduction merits high praise. The twelve plates illustrate twenty-four species of our common land birds, the leading types, from Hawks to Thrushes.

The text is well worthy of the beautiful plates. Although, as the case necessarily requires, the paper is largely a compilation, the selections are judiciously made, as regards sources of information and choice of matter, which is largely from special bulletins and reports on the food habits of birds published by the Biological Survey, under the auspices of the U. S. Department of Agriculture. The first twenty pages are devoted to a general discussion of the economic value of birds to the forester, the fruit-grower, the farmer, and the citizen, being a statement of 'What the bird does for the State,' followed by 'What the State does for the Bird,' and 'What the State should do for the Bird.' This is succeeded by 'Statistics of Food Habits' (pp. 23-63), in which the leading groups, and certain of the species, of land birds are treated in systematic sequence; and to this is added a bibliography of about seventy-five titles, listing the more important papers relating to the food of American birds.

The attitude of the author on the question of 'The Bird and the State' may be indicated by the following extract from his opening paragraph: "The bird is the property of the State. From this fundamental conception of the bird's legal status there can be no logical ground for dissent. If a certain species of bird is conclusively proven to be injurious to the agricultural or other interests of the State, no one would deny the State's right to destroy that species. If, on the contrary, a species is shown to be beneficial, then the State has a right to protect it. Indeed, we may go further and say it is not only the right, but the duty of the State to give its birds the treatment they deserve."

Mr. Chapman's paper is an excellent compendium of our present knowledge of the economic relations of our birds, and the New York State Forest, Fish, and Game Commission has shown an intelligent conception of its duties and functions in placing before the public so important a memoir in such an attractive form. — J. A. A.

¹State of New York | Forest, Fish and Game Commission | — | The Economic Value of Birds | to the State | By | Frank M. Chapman | Associate Curator of Mammalogy and Ornithology in the American | Museum of Natural History | [Seal] Albany | J. B. Lyon Company, Printers | 1903 — 4to, pp. 1-66, 12 colored plates. September, 1903.

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CORRESPONDENCE.

The Use of Trinomials.

EDITORS OF 'THE AUK':—

Dear Sirs :— While further discussion of trinomials is perhaps unnecessary I am tempted to comment upon some misleading statements in Mr. Loomis's article in the July issue of 'The Auk,' especially since his paper so thoroughly voices the popular outcry against the recognition of geographic races, and would seem to dispose of the difficulties in the case so easily.

(1) Mr. Loomis's parallel between the recognition in nomenclature of sexes and seasonal plumages on the one hand and geographic races on the other seems ill founded. It is true of course that we do not recognize plumages as distinct species when we have learned their real nature, but any one who has read Dr. Dwight's paper (Auk, 1902, p. 248) will surely admit that we have by no means abandoned a distinct nomenclature for plumages; indeed, the most flagrant trinomial must pale into insignificance beside the "compound juveno-non-nuptial plumage" !

(2) Mr. Loomis constantly speaks of "geographic variants" and "full fledged species" as if the two were readily distinguishable. If he can formulate any way by which we can separate species and subspecies except by individual opinion, he has indeed solved the problem. It seems to me that the one fact that is being inevitably forced upon us by modern systematic study is that the "geographic variants" are the fundamental elements which in any nomenclature must receive primary recognition. Many of our old-time "species" have been found utterly inadequate in their application and the independent recognition of their components and of allied forms unknown when the "species" were established is inevitable. To extend the limits of a "species" to include without further comment such diverse forms as the extremes of the Song Sparrow series would render systematic nomenclature absurd and well nigh useless.

Dr. Allen has to my mind put the matter very clearly when he claimed that we can be no more expected to keep our investigations in systematic zoölogy within the limits easily comprehended by the laity than the histologist can be expected to confine his labors to the same bounds.

Dr. Dwight's statement, after his exhaustive studies of plumages, that "the facts about plumages and moults do not lend themselves to simple explanation" and "will no doubt seem obscure and complicated" applies exactly and with added force to modern systematic researches.

That our present rules of nomenclature may have to be altered in some respects I will admit, but as I have already stated (Condor, 1903, p. 43) I regard the preservation of trinomials as of the greatest importance.

Very truly yours,

WITMER STONE.

NOTES AND NEWS.

THE TWENTY-FIRST ANNUAL CONGRESS of the American Ornithologists' Union will be held at the Academy of Natural Sciences, Philadelphia, beginning on the evening of Monday, November 16, 1903. The evening session will be for the election of officers and members and for the transaction of routine business. Tuesday and the following days the sessions will be for the presentation and discussion of scientific papers, and will be open to the public. Members intending to present communications are requested to forward the titles of their papers to the Secretary, Mr. John H. Sage, Portland, Conn., so as to reach him not later than November 13.

PROFESSOR WILBER CLINTON KNIGHT, an Associate of the American Ornithologists' Union, died at his home at Laramie, Wyoming, July 28, 1903, of peritonitis, after an illness of six days. Prof. Knight was born at Rochelle, Ills., Dec. 13, 1858. His boyhood days were passed upon the farm where daily communion with Nature exercised a marked influence upon his tastes, which were early indicated by his choice of books and the lines of study he pursued. With his people he moved to Nebraska where he obtained his education, graduating a Bachelor of Science from the State University in 1886. Immediately following his graduation he was appointed Assistant Territorial Geologist for Wyoming, and thereafter progress in his profession may be summed up as follows: The year 1887-88, Assayer at Cheyenne; Superintendent of mines in Colorado and Wyoming, 1888 to 1893; Professor of Mining, University of Wyoming, 1893 and 1894; Professor of Geology, Mining Engineering, Principal of the School of Mines, Geologist of the Wyoming Agricultural Experiment Station, and Curator of University Museum from 1894 to date of his death; State Geologist 1898-99.

Well earned post graduate degrees of M. A. and Ph. D. were conferred upon Prof. Knight by the University of Nebraska in 1893 and 1901, respectively.

Numerous publications from his pen, usually in the form of bulletins or magazine articles, have appeared from time to time, the most important of the former being as follows: Bulletin No. 1, 'The Petroleum of the Salt Creek Oil Field, its Technology and Geology,' 1896. Bulletin No. 2, 'The Petroleum Oil Fields of the Shoshone Anticlinal, Geology of the Popo Agie, Lander and Shoshone Oil Fields,' 1897. Bulletin No. 3, 'The Geology of the Oil Fields of Crook and Uinta Counties, Wyo.,' 1899. Bulletin No. 4, 'Geology of the Oil Fields of Natrona County, Excepting Salt Creek.' Bulletin No. 5, 'The Newcastle Oil Fields, Wyo.' Bulletin No. 6, 'The Bonanza, Cottonwood and Douglas Oil Fields,' 1903. Bulletin No. 14, 'Geology of the Wyoming Experiment Farms,' 1893. Special Bulletin, 'The Sweetwater Mining District.'

Bulletin 49, 'Alkali Lakes and Deposits'; and Bulletin No. 55, 'The Birds of Wyoming.'

A list of other publications which appeared in 'Science,' 'The Engineering and Mining Journal,' 'The American Manufacturer and Iron World,' 'Mineral Industry,' 'American Journal of Science,' 'National Geographic Magazine,' 'Journal of Geology,' 'Bulletin of the Geological Society of America,' Reports of the U. S. Geological Survey, and other periodicals of high standing, would include about forty titles, all of which were exploitations of the results of original research and painstaking investigation.

Of his bulletins, No. 55, 'The Birds of Wyoming,' is the only one devoted to the subject in which the readers of 'The Auk' have especial interest. While ornithology was a subject of secondary interest to Prof. Knight, the character of his bird work is in every way commendable. In his introductory to this bulletin the author says: "Being a geologist it may appear strange for me to pose as the author of a bird bulletin." One thing, however, was made plain; there was a great public demand for such a bulletin. It may be said, also, that such demand was supplied by this publication. It is interesting to note in this connection, that the demand for this publication shows that its popularity is greater than that of any other bulletin issued by authority of the Wyoming University. That extreme care and anxiety to be strictly accurate which marks all of the published works of Prof. Knight, is conspicuous here, the author's aim being to secure a correct list of Wyoming birds rather than a large one. A hypothetical list at the close of the bulletin supplied a place for species many less careful authors would have placed among the unquestioned birds of the State.

As a citizen and a man Prof. Knight stood in the first rank. He believed the interests of the community and of the State should command a reasonable share of the time and energy of the individual and he gave freely of both for the promotion of the general welfare. He died poor in worldly goods but rich in worthy accomplishments. His integrity, unassailable and unquestioned, often stood in the way of pecuniary advancement, but his record, now made up, is one his sons may emulate without fear of making a mistake. In his untimely death the American Ornithologists' Union loses an able and painstaking student and Associate.—F. B.

Dr. GUSTAV F. R. VON RADDE, a Corresponding Fellow of the American Ornithologists' Union, died early in the present year at Tiflis, Russia, in his 72d year. He was born at Danzig, November 27, 1831. From a short sketch of Dr. Radde's life published in 'The Ibis' (July, 1903, pp. 439, 440) we learn that he was the son of a schoolmaster, and early showed his predilection for Natural History. In 1852 and the following years he was employed in the Crimea as an assistant to the botanist Steven, and in 1854 published a memoir on the botany of the Tauric

Peninsula. In 1855 he was called to St. Petersburg by the Russian Geographical Society to join Schwartz's expedition to Amoorland, where he spent four years in exploration, the results of which were published in his well-known 'Reisen im Süden von Ost Sibirien,' in several quarto volumes with numerous plates, by the Russian Geographical Society in 1862-63. The second volume, entitled 'Die Festlands-Ornis des Südöstlichen Sibiriens,' is his most important ornithological publication, and through which he is well known to ornithologists. In 1864 "he took up his residence at Tiflis, where he founded a Natural History Museum and Library and remained actively engaged in their administration and on various kindred pursuits up to the time of his death. Next to the Siberian volume, Radde's 'Ornis Caucasica,' published at Cassel in 1884, is the one amongst his numerous scientific works and memoirs, illustrative of the Natural History of the Caucasus and of adjoining portions of the Russian dominions, by which he is best known to ornithologists." He was throughout his life an ardent traveller, and in recent years made voyages to Japan, India, and North Africa, with members of the Imperial family, with whom he seems to have been a favorite. "At the time of his death he was engaged in the preparation of an account of the collections of the Caucasian Museum, of which three volumes (out of six) have already appeared."

THE ANNUAL meeting of the British Ornithologists' Union was held at the meeting-room of the Zoölogical Society of London on the evening of May 13. Dr. F. DuCane Godman was reelected President and Mr. Howard Saunders Secretary. Twenty new Ordinary Members were elected, and Capt. F. W. Hutton, F. R. S., Col. W. Vincent Legge, F. Z. S., and Alfred J. North, were elected Colonial Members, and Dr. Giacinto Martorelli, of Milan, a Foreign Member. Mr. Robert Ridgway was transferred from the list of Foreign Members to that of Honorary Members—the only American on whom has been conferred this honor since the decease of Professor Baird. In this connection it may be mentioned that Mr. Frank M. Chapman was elected a Foreign Member at the annual meeting in 1902.

MAJOR EDGAR A. MEARNS, Medical Department U. S. Army, was ordered to the Philippines some months since, and sailed from San Francisco for his new post of duty about the end of last June.

DR. CHARLES C. ADAMS, curator of the University of Michigan Museum at Ann Arbor, has announced, in a recent number of 'Science' (Aug. 14, p. 217; see also Bull. Michigan Orn. Club, IV, p. 63) the discovery of the breeding area of Kirtland's Warbler (*Dendroica kirtlandi*). The capture of a specimen in June last in Oscoda County, Michigan, by Mr. E. H. Frothingham (see Bull. Michigan Orn. Club, IV, p. 47) led to

the sending of Mr. N. A. Wood, the taxidermist of the Museum, to make a thorough search for the nest and eggs of this rare species. The quest was successful, Mr. Wood securing "two nests with young and one egg, thus establishing beyond question the breeding area of this species," which had been heretofore wholly a matter of conjecture.

ACCORDING to a recently published report (P. Z. S., 1902, pp. 166-171) by the Secretary of the London Zoölogical Society, there were living in the Society's Gardens, in January, 1902, 147 specimens of Parrots, referable to 107 species, including several of great rarity. The oldest bird in the Parrot-house was a Cockatoo (*Cacatua gymnopsis*), which had been in the Society's possession for 33 years. The report is accompanied by a colored plate of *Eclectus westermanni*, showing the green male and the red, blue-breasted female, and also a plate of the rare *Platyercus masterianus*.

'OUR ANIMAL FRIENDS,' with the first number of Volume XXXI, appears in a new form and certainly has a very 'up to date' appearance. Its opening editorial presents "a retrospective glance at the progress of the work of animal protection during the past thirty years," briefly contrasting *now* with *then*. The change, as is stated, is due to *education*, in which the management of this magazine has taken so prominent a part. "The public conscience no longer tolerates cruelty, and to prove the fact of cruelty, however influentially supported, brings public opinion, in its ultimate form of legal enactment, when that is necessary, to the vindication of the rights of the weak against the inhumanity of the strong and the thoughtless." 'Our Animal Friends' has our highest respect and our best wishes, and we trust that its future career will be as influential and as successful in this great cause as it has been in the past.

MR. S. N. RHOADS is preparing a paper, to be presented at the next meeting of the A. O. U., to be held in Philadelphia in November, on the zoölogy of Delaware, with special reference to birds, and would be very glad to receive information—lists and specimens—bearing on the subject. Any assistance thus rendered will be duly accredited. Mr. Rhoads's present address is 121 S. 3rd St., Philadelphia, Pa.

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ERRATA.

- Page 69, line 16, for *phryothorus* read *Thryothorus*.
 Page 81, line 1, for Gadou read Gadow.
 Page 103, for Plate III read Plate IV.¹
 Page 109, footnote, for 1902 read 1901.
 Page 110, for Plate IV read Plate III.¹
 Page 172, line 9 from bottom, for *Oporonis* read *Oporornis*.
 Page 213, line 7, for *Psitacula* and *Psitacula* read, *Psittacula* and
Psittacula.
 Page 435, line 11 from bottom, for *purpurea* read *subis*.

¹ See p. 246, footnote, for fuller explanation.

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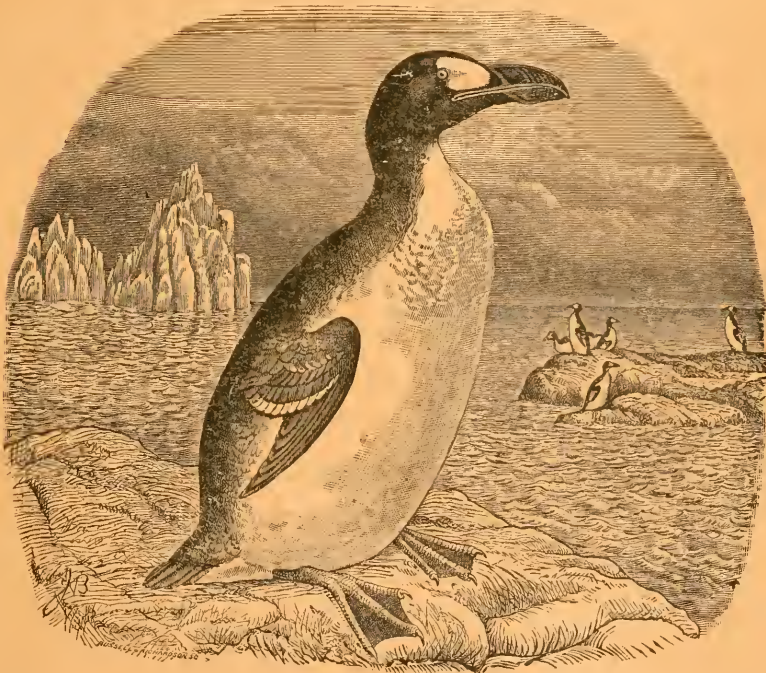
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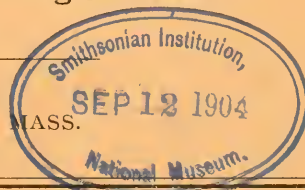
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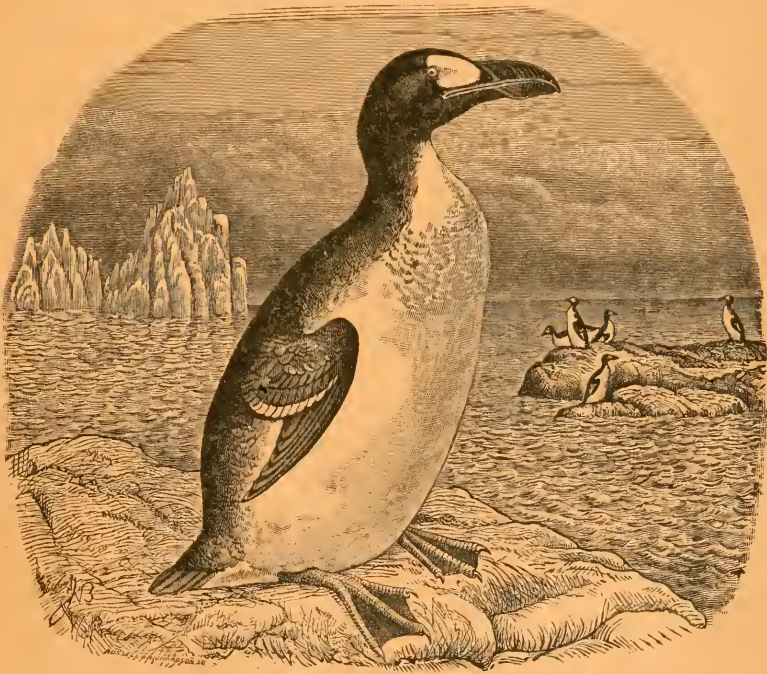
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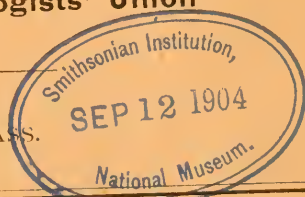
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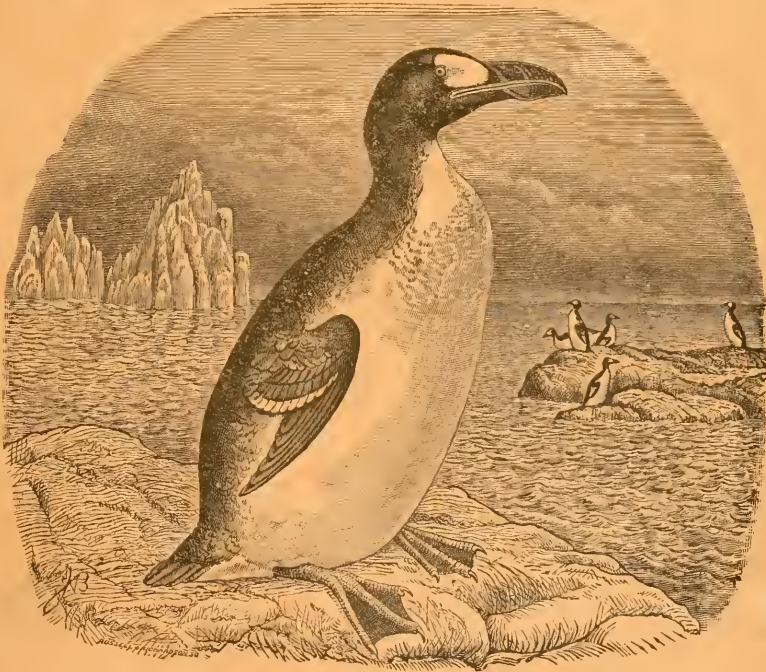
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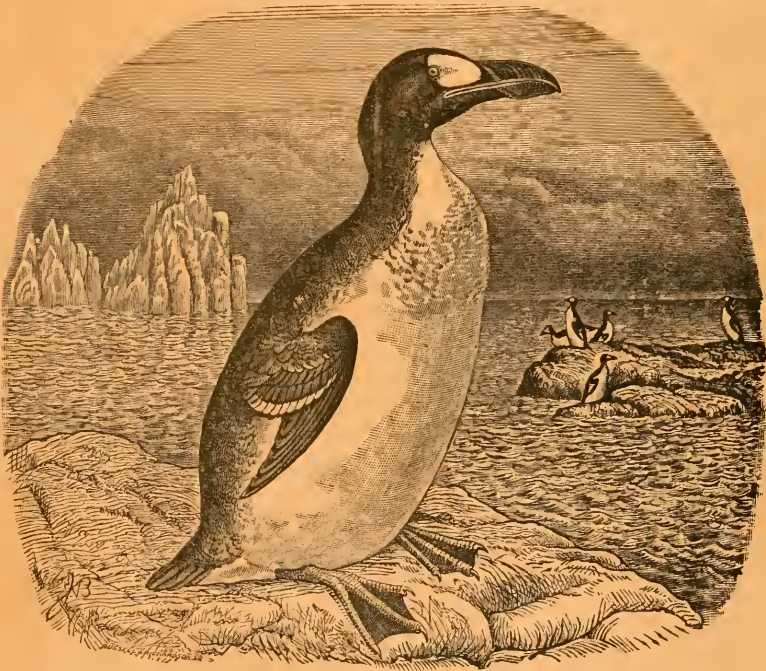
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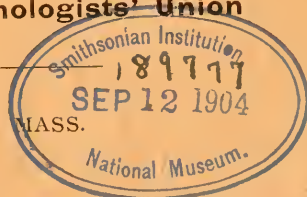
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