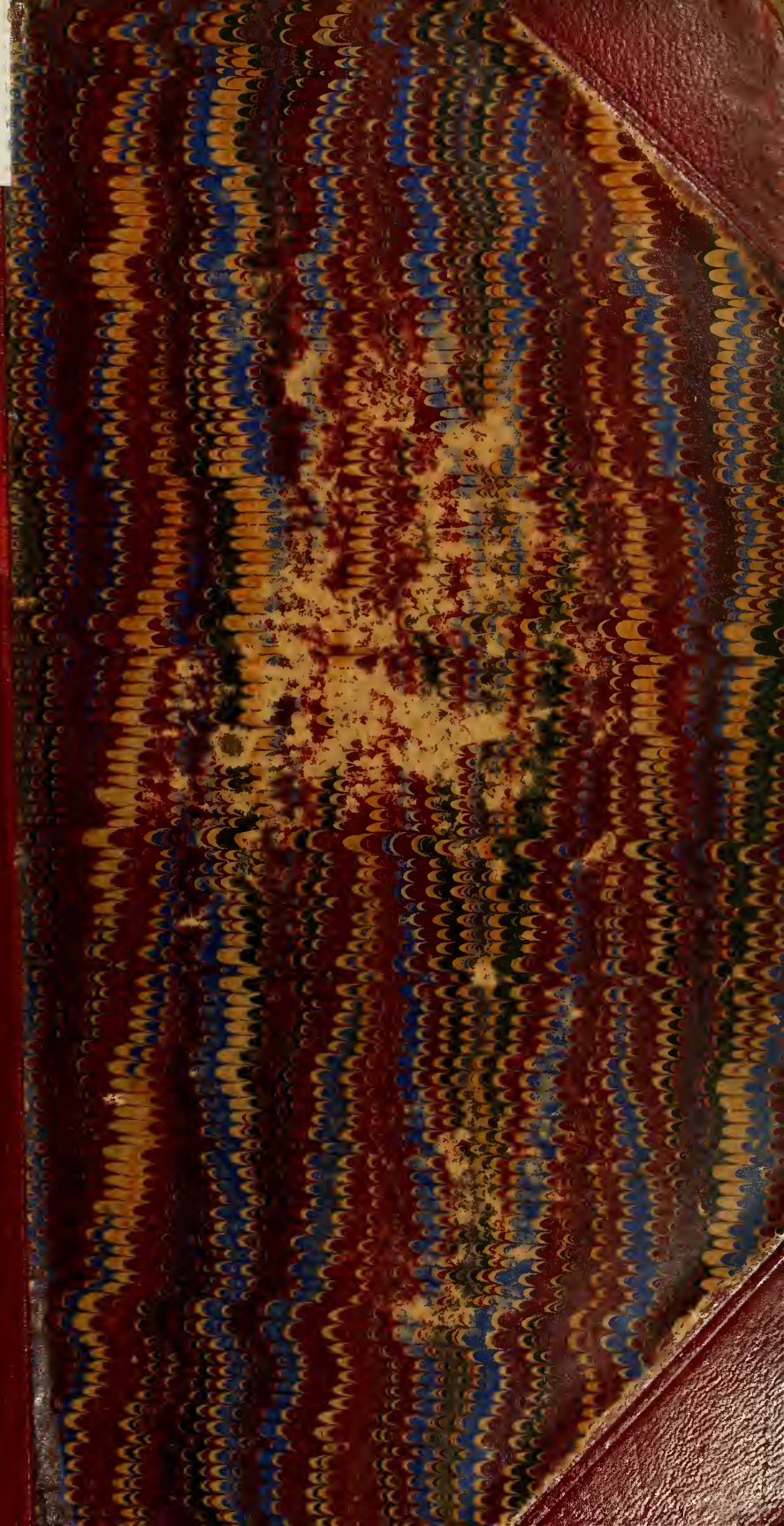


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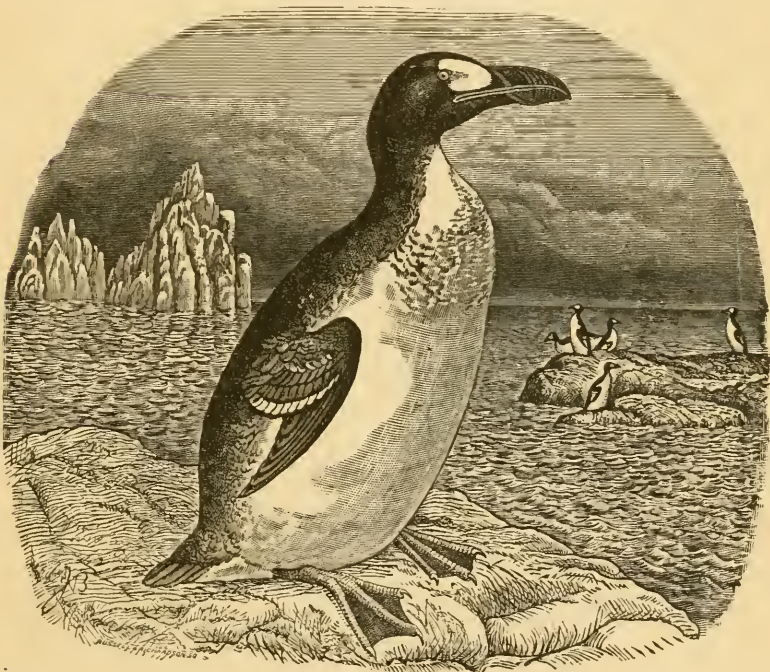
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HARTERT, ERNST, Zoölogical Museum, Tring, England.	1891
HARTING, JAMES EDMUND, Linnæan Society, Burlington House, Piccadilly, London.	1883
HARVIE-BROWN, JOHN A., Dunipace House, Larbert, Stirlingshire, Scotland.	1883
HAYEK, DR. GUSTAV VON, Vienna.	1884
HENSON, HARRY V., Yokohama.	1888
HUDSON, WILLIAM HENRY, Tower House, St. Luke's Road, Westbourne Park, London, W.	1895
KNUDSON, VALDEMAR, Kauai, Hawaiian Ids.	1888
KRUKENBERG, DR. E. F. W., Würzburg, Germany.	1884
KRÜPER, DR. THEOBALD J., University Museum, Athens, Greece.	1884
LEGGE, WILLIAM V., Cullenswood House, St. Mary's, Tasmania.	1891
LEVERKÜHN, PAUL, Sophia, Bulgaria.	1890
MACFARLANE, ROBERT, Winnipeg, Manitoba.	1886
MADARÁSZ, DR. JULIUS VON, National Museum, Budapest, Hungary.	1884
MENZBIER, DR. M., Imperial Society of Naturalists, Moscow.	1884
NAMIYE, M., Tokio.	1886
NICHOLSON, FRANCIS, 84 Major St., Manchester, England.	1884
OATES, EUGENE WILLIAM, 1 Carlton Gardens, Ealing, London, W.	1884
ODDI, COUNT E. ARRIGONI DEGLI, University of Padua, Italy.	1900
OUSTALET, DR. EMILE, Jardin des Plantes, 55 Rue de Buffon, Paris.	1888
PALMÉN, Prof. J. A., Helsingfors, Finland.	1883
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, Zoöl. Museum, Tring, England.	1898
SCHALOW, DR. HERMAN, 15 Schleswiger Ufer, Berlin, N. W.	1884
SHELLEY, 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, Count 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
ATTWATER, H. P., Houston, Texas.	1901
BAILEY, Mrs. VERNON, 1834 Kalorama Ave., Washington, D. C.	1901

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BAILY, WILLIAM L., 421 Chestnut St., Philadelphia, Pa.....	1901
BARLOW, CHESTER, Santa Clara, Cala.....	1901
BEYER, Prof. GEORGE E., Tulane Univ., New Orleans, La.....	1901
BOND, FRANK, 1412 15th St., N. W., Washington, D. C.....	1901
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 State House, Indianapolis, Ind.....	1901
CHERRIE, GEORGE K., 27 Fairview Place, Brooklyn, N. Y.....	1901
CLARK, JOHN N., Saybrook, Conn.....	1901
DAGGETT, FRANK S., 255 Ramona St., Pasadena, Cala.....	1901
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EVERMAN, Prof. BARTON W., U. S. Fish Comm., Washington, D. C.	1901
FANNIN, JOHN, Provincial Museum, Victoria, B. C.....	1901
FISHER, WALTER KENRICK, Stanford University, Cala.....	1901
FLEMING, JAMES H., 267 Rusholme Road, Toronto, Canada.....	1901
FUERTES, LOUIS AGASSIZ, 13 East Ave., Ithaca, N. Y.....	1901
HARDY, MANLY, Brewer, Maine.....	1901
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JEFFRIES, WM. AUGUSTUS, 78 Devonshire St., Boston, Mass.....	1901
JOB, Rev. HERBERT K., Kent, Conn.....	1901
JONES, LYNDS, College Museum, Oberlin, Ohio.....	1901
JORDAN, Pres. DAVID STARR, Stanford University, Cala.....	1901
JUDD, Dr. SYLVESTER D., Dept. of Agriculture, Washington, D. C.	1901
MACKAY, GEORGE H., 114 State St., Boston, Mass.....	1901
MAILLIARD, JOHN W., 307 Sansome St., San Francisco, Cala.....	1901
MAILLIARD, JOSEPH, San Geronimo, Cala.....	1901
MCGREGOR, RICHARD C., Philippine Museum, Manila, P. I.....	1901
MILLER, MRS. OLIVE THORNE, 827 De Kalb Ave., Brooklyn, N. Y....	1901
MURDOCH, JOHN, 195 Walnut Ave., Roxbury, Mass.....	1901
OBERHOLSER, HARRY C., Dept. of Agriculture, Washington, D. C.	1901
OSGOOD, WILFRED HUDSON, Dept. of Agriculture, Washington, D. C.	1901
PENNOCK, CHARLES J., Kennett Square, Pa.....	1901
PREBLE, EDWARD A., Dept. of Agriculture, Washington, D. C.....	1901
PRICE, WILLIAM W., Alta, Cala.....	1901
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RHOADS, SAMUEL N., Audubon, N. J.....	1901
RIVES, Dr. WILLIAM C., 1723 I St., Washington, D. C.....	1901
ROBINSON, Capt. WIRT, U. S. A., West Point, N. Y.....	1901
SETON, ERNEST THOMPSON, 80 W. 40th St., New York City.....	1901
SORNBORGER, JEWELL D., Cambridge, Mass.....	1901
STEPHENS, FRANK, cor. University and Fillmore Aves., San Diego, Cala.....	1901
THAYER, ABBOTT H., Monadnock, N. H.....	190

TODD, W. E. CLYDE, Beaver, Pa..... 1901
 TORREY, BRADFORD, Wellesley Hills, Mass..... 1901
 TOWNSEND, CHARLES H., U. S. Fish Comm., Washington, D. C..... 1901
 TROTTER, DR. SPENCER, Swarthmore College, Swarthmore, Pa..... 1901
 WRIGHT, Mrs. MABEL OSOOD, Fairfield, Conn..... 1901

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 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., 40 Scott St., Chicago, Ills..... 1899
 AIKEN, CHARLES EDWARD HOWARD, Colorado Springs, Colo..... 1898
 ALLEN, CLARENCE JONES, Milwaukee, Wis..... 1899
 ALLEN, GLOVER M., 68 Perkins Hall, Cambridge, Mass..... 1896
 ALLISON, ANDREW, Bay St. Louis, Miss..... 1897
 AMES, J. H., 96 Bay St., Toronto, Can..... 1895
 ANGELL, WALTER A., 354 Westminster St., Providence, R. I..... 1901
 ARCHER, W. C., Hackensack, N. J..... 1888
 ARMSTRONG, EDWARD HENRY, 140 Wood St., Providence, R. I..... 1897
 ARNOLD, EDWARD, 126 Van Buren St., Battle Creek, Mich..... 1894
 ATKINSON, DANIEL ARMSTRONG, Wilkingsburg, Pa..... 1899
 AVERELL, Miss ELIZABETH BUELL, 325 East Ave., Rochester, N. Y. 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, 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, Miss HELEN AUGUSTA, 43 Laurel St., Worcester, Mass..... 1893
 BANGS, EDWARD APPLETON, 22 Pemberton Sq., Boston, Mass..... 1884
 BARBER, CHARLES M., El Paso, Texas..... 1900
 BARBOUR, Prof. ERWIN H., Univ. of Neb., Lincoln, Nebraska..... 1892
 BARBOUR, Mrs. Wm. D., 235 Madison Ave., New York City..... 1901
 BARNARD, JOB, 1306 Rhode Island Av., Washington, D. C..... 1886
 BARNES, Hon. R. MAGOON, Lacon, Ill..... 1889
 BARROLL, Miss NINA LIVINGSTON, 684 Salem Av., Elizabeth, N. J... 1899
 BARRY, Miss AMY FRANCES, 53 Oakland St., Melrose, Mass..... 1898
 BARTSCH, PAUL, Smithsonian Institution, Washington, D. C..... 1896
 BASKETT, JAMES NEWTON, Box 704, Mexico, Mo..... 1892

BATES, MRS. ABBY FRANCES CALDWELL, Waterville, Maine.....	1894
BAXTER, GEORGE STRONG, Jr., 18 Wall 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.....	1867
BEERS, HENRY W., 91 Denver Ave., Bridgeport, Conn.....	1895
BENNETTS, WM. J., 154 U. St. N. W., Washington, D. C.....	1901
BENT, ARTHUR CLEVELAND, Taunton, Mass.....	1889
BERGTOLD, Dr. W. H., 1460 Clayton Av., Denver, Colo.....	1889
BERIER, DE LAGNEL, Port Chester, N. Y.....	1885
BIDDLE, Miss EMILY WILLIAMS, Lenox, Mass.....	1898
BIGELOW, EDWARD F., Stamford, Conn.....	1901
BIGELOW, HENRY BRYANT, 251 Commonwealth Av., Boston, Mass.....	1897
BIGELOW, JOSEPH SMITH, Jr., 251 Commonwealth Av., Boston, Mass.....	1896
BIGNELL, Mrs. EFFIE, 135 College Av., New Brunswick, N. J.....	1899
BLACKWELDER, ELIOT, Morgan Park, Cook Co., Ill.....	1895
BLAIN, ALEX. W., Jr., 131 Elmwood Ave., Detroit, Mich.....	1901
BLAKE, FRANCIS G., 471 Washington 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, Elizabethtown, New York.....	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 Av., New Orleans, La.....	1897
BRADFORD, MOSES B. L., 295 Beacon St., Boston, Mass.....	1889
BRAISLIN, Dr. WILLIAM C., 217 St. James Place, Brooklyn, N. Y.....	1894
BRANDRETH, FRANKLIN, Ossining-on-Hudson, N. Y.....	1889
BRENINGER, GEORGE FRANK, Phoenix, Arizona.....	1898
BREWSTER, EDWARD EVERETT, Iron Mountain, Mich.....	1893
BRIGGS, GUY H., Livermore, Maine.....	1901
BROCK, HENRY HERBERT, M. D., 662 Congress St., Portland, Me.....	1894
BROCKWAY, 'ARTHUR WILLIAM, Lyme, Conn.....	1898
BROOKS, Rev. EARLE AMOS, Charlestown, W. Va.....	1892
BROOKS, CLARENCE MORRISON, West Point, N. Y.....	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 II., Canton, Ohio.....	1889

BUMPUS, DR. HERMON C., Am. Mus. Natural History, New York City.....	1901
BUNNELL, ALEXANDER STERLING, Berkeley, Calif.....	1899
BURGESS, JOHN KINGSBURY, Dedham, Mass.....	1898
BURKE, WM. BARDWELL, 130 Spring St., Rochester, N. Y.....	1901
BURNETT, WILLIAM L., 359 Pine St., Fort Collins, Colo.....	1895
BURTIS, HENRY MOTT, Babylon, N. Y.....	1897
BURTON, H. C., 228 South St., New York City.....	1893
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, CHARLES KNAPP, Pecatonica, Ill.....	1894
CARROLL, JAMES J., Waco, Texas.....	1898
CARSON, ROBERT DUNCAN, 419 W. Rittenhouse St., Germantown, Philadelphia, Pa.....	1899
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 Av., Chicago, Ill.....	1896
CHILDS, JOHN LEWIS, Floral Park, N. Y.....	1900
CHRISTY. BAYARD H., 403 Frederick Ave., Sewickley, Pa.....	1901
CHUBB, SAMUEL H., 468 W. 153d St., New York City.....	1894
CLARK, AUSTIN HOBART, Newtonville, Mass.....	1899
CLARK, EDWARD B., 304 No. State St., Chicago, Ill.....	1900
CLARK, HUBERT LYMAN, Olivet College, Olivet, Mich.....	1886
CLARK, JOSIAH H., 238 Broadway, Paterson, N. J.....	1895
CLARKE, MISS HARRIET E., 9 Chestnut St., Worcester, Mass.....	1896
COALE, HENRY K., Highland Park, Ill.....	1883
COGGINS, HERBERT LEONARD, 5025 McKean Av., Germantown, Phila., Pa.....	1898
COLBURN, ALBERT E., 1233 G St., N. W., Washington, D. C.....	1891
COLLINS, JOHN ARTHUR, JR., Lawrence, Mass.....	1900
COLVIN, WALTER S., Osawatomie, Kansas.....	1896
COMEAU, NAPOLEON A., Godbout, P. Q.....	1885
COMY, ARTHUR C., 54 Concord Ave., Cambridge, Mass.....	1901
CONANT, MRS. MARTHA W., 841 No. Broad St., Elizabeth, N. J....	1901
COOK, MISS LILIAN GILLETTE, 165 W. 82d St., New York City....	1899
COPE, ALBAN, Butler Hospital, Providence, R. I.....	1885
COPE, FRANCIS R., JR., Cambridge, Mass.....	1892
COPELAND, DR. ERNEST, 141 Goldsmith Bldg., 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
CURRIE, ROLLA P., U. S. Nat. Mus., Washington, D. C.....	1895
CURRIER, EDMONDE SAMUEL, 909 Franklin St., Keokuk, Iowa.....	1894
DANIEL, JOHN W., Jr., 3146 Q St., N. W., Washington, D. C.....	1895
DART, LESLIE O., St. Barnabas Hospital, 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, Columbus, O.....	1895
DAY, CHESTER SESSIONS, 280 Newbury St., Boston, Mass.....	1897
DAY, FRANK MILES, Germantown, Phila., Pa.....	1901
DEAN, R. H., Lexington, Ky.....	1893
DEANE, GEORGE CLEMENT, 80 Sparks St., Cambridge, Mass.....	1899
DE HAVEN, ISAAC NORRIS, Ardmore, Pa.....	1893
DERBY, RICHARD, 13 Holworthy St., Cambridge, Mass.....	1898
DEWEY, Dr. CHARLES A., 53 So. Fitzhugh St., Rochester, N. Y.....	1900
DEWEY, Miss MARGARET, 168 Pearl St., Springfield, Mass.....	1892
DICKINSON, JOSEPH A., Gresham, Nebr.....	1894
DILLE, FREDERICK M., Altona, Boulder Co., Colo.....	1892
DIONNE, C. E., Laval Univ., Quebec, Can.....	1893
DIXON, FREDERICK J., Elm Av., Hackensack, N. J.....	1891
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., Vancouver Barracks, Wash.....	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., Care of Surgeon General's Office, Washington, D. C.....	1886
DYCHE, Prof. L. L., Lawrence, Kansas.....	1886
EASTMAN, HARRY D., Framingham, Mass.....	1891
EATON, ELON HOWARD, 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
ELFRIG, Rev. GUSTAVE, 232 N. Centre St., Cumberland, Md.....	1901
ELROD, Prof. M. J., Missoula, Montana.....	1892
ELY, Mrs. THEODORE N., Bryn Mawr, Pa.....	1901
EMBODY, GEORGE CHARLES, 78 Seymour St., Auburn, N. Y.....	1898
EMERSON, CHARLES J., Stoneham, Mass.....	1896

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 H., Townshend, Vt.....	1901
EVANS, ERNEST MERWYN, Awbury, Germantown, Philadelphia, Pa..	1897
EVANS, WILLIAM B., Moorestown, N. J.....	1897
FARLEY, JOHN A., 17 Russell St., Malden, Mass.....	1892
FARR, MARCUS S., 29 Vandeventer Ave., Princeton, N. J.....	1900
FARWELL, MRS. ELLEN DRUMMOND, Lake Forest, Ill.....	1896
FARWELL, MRS. FRANCIS COOLEY, Lake Forest, Ill.....	1898
FAY, Prof. CHAS. R., 1833 7th Ave., New York City.....	1901
FELGER, ALVA HOWARD, 2628 Clay St., Denver, Col.....	1898
FERNALD, ROBERT HEYWOOD, 296 Manhattan Av., New York City..	1890
FERRY, JOHN FARWELL, New Haven, Conn.....	1894
FIELD, EDWARD BRONSON, 981 Asylum Av., Hartford, Conn.....	1898
FIELD, EUGENE DWINELL, 68 Beacon St., Hartford, Conn.....	1899
FIELD, THERON R., 737 Clarkson St., 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, 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, FREDERICK HALL, Palo Alto, Calif.....	1892
FOWLER, HENRY W., Stanford Univ., Cala.....	1898
FOX, Dr. WILLIAM H., 1826 Jefferson Place, Washington, D. C.....	1883
FULLER, CHARLES ANTHONY, Sumner Road, Brookline, Mass.....	1894
GATH, JOHN, Torrington, Conn.....	
GAUT, JAMES H., 1407 6th St., N. W., Washington, D. C.....	1899
GERMANN, F. W., 214 S. Geneva St., Ithaca, N. Y.....	1901
GESNER, Rev. ANTHON T., Billings, Mont.....	1899
GILLET, LOUIS BLISS, 131 E. 76th St., New York City.....	1895
GILMAN, PHILIP KINGSWORTH, Stanford University, Cala	1897
GLEASON, Rev. HERBERT W., 31 Pinckney St., Boston, Mass.....	1894
GLENNAN, Dr. JAMES DENVER, U. S. A. Care of Surgeon General's Office, Washington, D. C.....	1898
GODDARD, F. N., 2 E. 35th St., New York City.....	1901
GOLDMAN, EDWARD ALPHONSO, Dept. of Agriculture, Washington. D. C.....	1897
GOODALE, Dr. JOSEPH LINCOLN, 397 Beacon St., Boston, Mass.....	1885
GOULD, HENRY, 648 Dundas St., London, Ontario.....	1899

GOULD, JOSEPH E., 519 Lookout 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., Syracuse, N. Y.....	1886
GREENOUGH, HENRY V., Martha's Vineyard, Mass.....	1901
GRIFFING, MOSES BOWDITCH, Shelter Island Heights, N. Y.....	1897
HALES, HENRY, Ridgewood, N. J.....	1890
HALL, GARDNER W., 122 Jackson Place, Baltimore, Md.....	1900
HALL, Miss MINNA B., Brookline, Mass.....	1900
HAM, JUDSON BAXTER, Johnson, Vt.....	1894
HAMFELDT, A., 305 Main St., Ottawa, Ill.....	1892
HAMLIN, GEORGE L., Bethel, 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., 113 Main St., Bradford, Pa.....	1899
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, Miss MARY PEACE, Peace Dale, R. I.....	1896
HAZARD, 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., 363 No. Winchester Ave., Chicago, Ill.....	1901
HEIMSTREET, Dr. T. B., 14 Division St., Troy, N. Y.....	1888
HELME, ARTHUR H., Millers Place, Suffolk Co., N. Y.....	1888
HENDRICKSON, W. F., 130 12th St., Long Island City, N. Y.....	1885
HENNINGER, Rev. WALTHER F., Tiffin, Ohio.....	1898
HENRY, Miss MARY CATHERINE, 28 Freeland St., Worcester, Mass...	1898
HIGBEE, HARRY G., Hyde Park, Mass.....	1900
HIGGINSON, ALEXANDER HENRY, 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 Av., Melrose, Mass.....	1896
HOLLAND, Dr. WILLIAM J., 5th and Bellefield Aves., Pittsburgh, Pa...	1899
HOLLISTER, NED, Delavan, Wis.....	1894
HOLLISTER, WARREN D., Care of Cont. Oil Co., Denver, Colo....	1901
HOLSTEIN, OTTO, 910 Ave. C, San Antonio, Texas.....	1898
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.	1898
HOWE, CARLTON D., McIndoe Falls, Vt.	1901
HOWE, REGINALD HEBER, Jr., Longwood, Brookline, Mass.	1895
HOWELL, ARTHUR H., Dept. of Agriculture, Washington, D. C.	1889
HUBBARD, GEORGE W., 94 Byers St., Springfield, Mass.	1900
HUBBARD, Miss MARGARET TUESDALE, Minneapolis, Minn.	1899
HUBBARD, Mrs. SARA A., 177 Woodruff Av., 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 Av., Plainfield, N. J.	1895
HUNTER, Miss SUSAN MORRISON, 51 Hunter Av., Newport, R. I.	1894
HUNTER, W. D., Victoria, Texas.	1899
INGALLS, CHARLES E., East Templeton, Mass.	1885
INGERSOLL, ALBERT M., StS 5th St., San Diego, Cala.	1885
IRVING, JOHN, 550 Park Av., New York City.	1894
IRWIN, HARDIN, Great Falls, 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
JAMES, Miss ANNIE A., Loveland, O.	1900
JANNEY, NATHANIEL E., 112 Drexel Bldg., Philadelphia, Pa.	1899
JESURUN, Dr. MORTIMER, Douglas, Wyoming.	1890
JOHNSON, EVERETT EDWIN, East Hebron, Me.	1896
JOHNSON, FRANK EDGAR, 747 Warburton Av., Yonkers, N. Y.	1888
JOHNSON, JAMES HOWARD, So. Sutton, N. H.	1894
JOHNSON, WALTER ADAMS, 137 W. 103d St., 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
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, FREDERICK HEDGE, Brookline, Mass.	1892
KEYSER, LEANDER S., D. D., 723 So. 5th Av., Atchison, Kan.	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 Av., Baltimore, Md.	1892
KNETSCH, ROBERT, Nunda, Ill.	1898
KNIGHT, ORA WILLIS, 84 Forest Av., Bangor, Me.	1893
KNOLHOFF, FERDINAND WILLIAM, 28 Winans St., East Orange, N. J.	1897
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.	1883
KNOX, JOHN C., 14 State St., Auburn, N. Y.	1897
KNOX, JOHN COWING, Jackson, Minn.	1899

KOBBE, WILLIAM H., Biltmore, N. C.....	1898
KOCH, Prof. AUGUST, Williamsport, Pa.....	1891
KOCH, FREDERIC W., Berkeley, Cala.....	1891
KOHN, GUSTAVE, 136 Carondelet St., New Orleans, La.....	1886
KOPMAN, HENRY HAZLITT, New Iberia, La.....	1899
KOUMLY, Rev. PIRMINÉ M., St. Benedict's College, Atchison, Kans ..	1892
KUMLIEN, LUDWIG, Milton, Wis.....	1895
LACEY, HOWARD GEORGE, Kerrville, Texas.....	1899
LADD, SAMUEL B., Westchester, Pa.....	1889
LANO, ALBERT, Aitkin, Minn.....	1890
LANTZ, Prof. DAVID ERNEST, Agl. Experiment Station, Manhattan, Kans.....	1885
LATIMER, Miss CAROLINE P., 63 Remsen St., Brooklyn, N. Y.....	1898
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, 1814 Belmont Ave., Washington, D. C.	1898
LEVERSON, Dr. MONTAGUE R., 81 Lafayette Ave., Brooklyn, N. Y...	1901
LIBBY, ORIN GRANT, 302 Murray St., Madison, Wis.....	1900
LLOYD, ANDREW JAMES, 310 Boylston St., Boston, Mass.....	1900
LONG, HORACE B., 14 Anna St., Worcester, Mass.....	1889
LOOMIS, JOHN A., Paint Rock, Concho Co., Texas.	1887
LORD, Rev. WM. R., 9 Park St., Boston, Mass.....	1901
LORING, J. ALDEN, Owego, New York.....	1889
LOWBER, Miss EMMA WORRELL, 2045 Locust St., Philadelphia, Pa...	1898
LOWE, WILLOUGHBY P., Okehampton, Devon, England.....	1893
LOWELL, RACHEL, Worcester, Mass.....	1901
LUDLAM, CHRISTOPHER, Ocean City, Md.....	1900
MACDOUGALL, GEORGE R., 131 W. 73rd St., New York City.....	1890
MAYNARD, HENRY W., 1407 15th St., N. W., Washington, D. C.....	1901
MADDOCK, Miss EMELINE, 2025 DeLancey Pl., Philadelphia, Pa.....	1897
MAIRES, Dr. WALTER W., 939 N. 12th St., Philadelphia, Pa.....	1899
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
McCLINTOCK, NORMAN, Amberson Av., Pittsburgh, Pa.	1900
McCOOK, PHILIP JAMES, 32 E. 45th St., New York City.....	1895
McCORMICK, Miss ELIZA, 101 No. Front St., Harrisburg, Pa.....	1900
McEWEN, DANIEL C., 160 Stirling Pl., Brooklyn, N. Y.....	1901
McHATTON, Dr. HENRY, Macon, Ga.....	1898
McLIHENNY, EDWARD AVERY, Avery's Island, La.....	1894
McKECHNIE, FREDERICK BRIDGHAM, Ponkapog, Mass.....	1900
McLAIN, ROBERT BAIRD, cor. Market & 12th Sts., Wheeling, W. Va..	1893
McNULTY, HENRY A., Gen. Theol. Seminary, Chelsea Sq., N. Y. City.	1900
MEARNS, LOUIS DI ZEREGA, Fort Yellowstone, Wyo.....	1899
MEEKER, JESSE C. A., 746 E. Main St., Bridgeport, Conn.....	1899

MERRILL, HARRY, Bangor, Maine.....	1883
MICKLE, THOMAS MCK., Charlotte, N. C.....	1900
MILLER, Frank M., 203 Hennen Bldg., New Orleans, La.....	1901
MILLER, GERRIT SMITH, Jr., U. S. Nat. Mus., Washington, D. C....	1886
MILLER, JAMES HENRY, Lowville, N. Y.....	1894
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., 1721 Mt. Vernon St., Philadelphia, Pa.....	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, Cala.....	1886
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....	1887
MORRIS, ROBERT O., Springfield, Mass.....	1888
MORSE, GEORGE W., Ashley, Ind.....	1898
MORTON, HOWARD McILVAIN, 316 Clifton Av., Minneapolis, Minn..	1900
MOSHER, FRANK H., 283 Pleasant St., Malden, Mass.....	1898
MYERS, Miss LUCY F., "Brookside," Poughkeepsie, N. Y.....	1898
NASH, HERMAN W., Pueblo, Colorado.....	1892
NELSON, JAMES ALLEN, 3818 Locust St., Philadelphia, Pa.....	1898
NEWMAN, STEPHEN M., D. D., 1818 M. St., N. W., Washington, D. C.	1898
NICHOLAS, ROSS, Portland, Oregon.....	1901
NICHOLS, JNO. TREADWELL, 26 Little's Block, Cambridge, Mass....	1901
NICHOLS, JOHN M., Portland, Me.....	1890
NICHOLSON, RICHARD R., Winnipeg, Manitoba.....	1900
NORRIS, Rev. JAMES AVERY, Glen Cove, N. Y.....	1894
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa.....	1886
NORTON, ARTHUR H., Westbrook, Maine.....	1890
NORTON, ARTHUR HENRY WHITELEY, San Antonio, Texas.....	1894
NORTON, Prof. RICHARD, "Shady Hill," Cambridge, Mass.....	1888
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
OLDS, HENRY WORTHINGTON, Dept. of Agriculture, Washington, D. C.	1896
OLCOTT, THEODORE F., 356 Union St., Brooklyn, N. Y.....	1901
OLIVER, HENRY KEMBLE, 2 Newbury St., Boston, Mass.....	1900
O'NEIL, EDWARD, Sewickley, Allegheny Co., Pa.....	1893
OSBORN, CHASE SALMON, Sault Ste. Marie, Mich.....	1893
OSBURN, RAYMOND CARROLL, Fargo College, Fargo, N. D.....	1899
OSBURN, Rev. WILLIAM, Belmont Av., 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
PAINE, AUGUSTUS G., Jr., 311 W. 74th St., New York City.....	1886
PALMER, SAMUEL COPELAND, Swarthmore, Pa.....	1899
PARKER, WENDELL PHILIPS, 28 Freeland St., Worcester, Mass.....	1897
PATTEN, Mrs. JEANIE MAWRY, 2212 R St., N. W., Washington, D. C.....	1900
PEABODY, WILLIAM RODMAN, 13 Kirkland St., Cambridge, Mass.....	1890
PEARSON, T. GILBERT, Greensboro, N. C.....	1891
PERKINS, CHARLES E., Box 854, Hartford, Conn.....	1888
PETERSON, Prof. J. P., West Denmark, Polk Co., Wis.....	1885
PHELPS, Mrs. ANNA BARDWELL, Box 36, Northfield, Mass.....	1899
PHILLIPS, ALEX. 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
POTTER, RAYMOND B., Box 491, Nyack, N. Y.....	1895
PRAEGER, WILLIAM E., Streator, Ill.....	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
RATHBUN, SAMUEL F., 217 14th Ave., N., Seattle, Washington.....	1901
RAWSON, CALVIN LUTHER, Box 33, Norwich, Conn.....	1885
READ, ALBERT M., 1140 15th St., N. W., Washington, D. C.....	1895
READY, GEORGE HENRY, Santa Cruz, Cala.....	1900
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
REYNOLDS, Mrs. JNO. R., Poughkeepsie, N. Y.....	1901
RHOADS, CHARLES J., Bryn Mawr, Pa.....	1895
RICHARDS, Miss HARRIET E., Brookline, Mass.....	1900
RICHARDS, JOHN BION, Fall River, Mass.....	1888
RICHARDSON, JOHN KENDALL, Wellesley Hills, Mass.....	1896
RICKER, EVERETT WILDER, 263 Chestnut Ave., Jamaica Plains, Mass.....	1894
RIDGWAY, JOHN L., U. S. Geol. Surv., Washington, D. C.....	1890
RIKER, CLARENCE B., Maplewood, N. J.....	1885
RILEY, JOSEPH H., Falls Church, Va.....	1897
RITCHEE, 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, Miss ETHEL DANE, 78 Pittsburg Av., Wooster, Ohio	1899
ROBERTSON, HOWARD, Station A, Los Angeles, Cal.	1901
RODDY, Prof. H. JUSTIN, State Normal School, Millersville, Pa.	1891
ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.	1896
ROOSEVELT, Hon. THEODORE, White House, Washington, D. C.	1888
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, 921 No. Monroe St., Stockton, Cal.	1897
SARGENT, HARRY CLEVELAND, Chocorua, N. H.	1900
SAVAGE, JAMES, 134 Abbott St., Buffalo, N. Y.	1895
SAVAGE, WALTER GILES, Jasper City, Mo.	1898
SCHALER, JOHN, Stamford, Conn.	1893
SCHMITT, Dr. JOS., Laval Univ., Quebec, Canada.	1901
SCHOENEBECK, AUGUST JOHN, Kelley Brook, Wis.	1898
SCHRAFFT, NELSON, Union Ave., Irvington, N. J.	1901
SCHURR, Prof. THEODORE A., 14 Lake 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
SHATTUCK, EDWIN HAROLD, Granby, Conn.	1898
SHATTUCK, GEORGE CHEEVER, 135 Marlboro St., Boston, Mass.	1896
SHAW, HOLTON A., Grand Forks, No. Dakota	1898
SHAW, LOUIS AGASSIZ, Chestnut Hill, Mass.	1901
SHIELDON, CHARLES, Apartado 46, Chihuahua, Mexico	1898
SHEPARD, MARSHALL, 134 W. 73d St., New York City	1899
SHEPPARD, EDWIN, Acad. Nat. Sci., Philadelphia, Pa.	1892
SHERRILL, W. E., Haskell, Texas	1896
SHIELDS, ALEXANDER M., Crocker Bldg., San Francisco, Cal.	1896
SHIELDS, GEORGE O., 23 W. 24th St., New York City	1897
SHOEMAKER, FRANK H., Omaha, Neb.	1895
SHOVE, ELLEN MARIAN, Fall River, Mass.	1900
SHROSBREE, GEORGE, 321 14th St., Milwaukee, Wis.	1899
SHRYOCK, WILLIAM A., 21 N. 7th St., Philadelphia, Pa.	1893
SILLOWAY; PERLEY MILTON, Lewiston, Mont.	1896
SLEVIN, THOMAS EDWARDS, 2413 Sacramento St., San Francisco, Cal.	1900
SMITH, CHARLES PIPER, 246 So. Grant St., West Lafayette, Ind.	1898
SMITH, HORACE G., 2918 Lafayette St., Denver, Colo.	1888
SMITH, Dr. HUGH M., 1248 New Jersey Ave., 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
SMITH, S. SIDNEY, 59 Wall St., New York City.....	1888
SMYTH, Prof. ELLISON A., Jr., Polytechnic Inst., Blacksburg, Va.....	1892
SNYDER, WILL EDWIN, Beaver Dam, Wis.....	1895
SOUTHWICK, JAMES M., Mus. Nat. Hist., Providence, R. I.....	1896
SPAUD, Prof. ARTHUR R., 1819 Delaware Ave., Wilmington, Del.....	1901
SPAUDING, FRED B., Lancaster, N. H.....	1894
SPINNEY, HERBERT L., Popham Beach, Me.....	1900
STACK, FREDERICK WILLIAM, Plainfield, N. J.....	1900
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....	1883
STEPHENSON, MRS. LOUISE MCGOWN, Helena, Ark.....	1894
STONE, CLAYTON ELBERT, Lunenburg, Mass.....	1899
STONE, DWIGHT D., Lansing, N. Y.....	1891
STRONG, REUBEN M., Haverford, Pa.....	1889
STURTEVANT, EDWARD, St. George School, Newport, R. I.....	1896
SWAIN, JOHN MERTON, 319 Commercial St., Portland, Me.....	1899
SWARTH, HARRY S., 512 Coronado St., Los Angeles, Cal.....	1900
SWEZEY, GEORGE, 66 Jackson St., Newark, N. J.....	1901
TALLEY, Prof. THOMAS WASHINGTON, Tuskegee, Ala.....	1896
TAYLOR, ALEXANDER O'DRISCOLL, 124 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., Germantown, Philadelphia, Pa.....	1900
TODD, LOUIS M., Calais Me.....	1887
TOPPAN, GEORGE L., 321 Main St., Racine, Wis.....	1886
TOWNSEND, Dr. CHAS. WENDELL, 76 Marlborough St., Boston, Mass.....	1901
TOWNSEND, WILMOT, 3d Av. and 75th St., Bay Ridge, N. Y.....	1894
TREAT, WILLARD E., Silver Lane, Conn.....	1885
TROTTER, WILLIAM HENRY, 36 No. Front St., Philadelphia, Pa.....	1899
TUTTLE, Dr. CARL, Berlin Heights, Ohio.....	1890
UNDERWOOD, WILLIAM LYMAN, Mass. Inst. Technology, Boston, Mass.....	1900
VAN CORTLANDT, Miss ANNE S., Croton-on-Hudson, N. Y.....	1885
VAN DENBURGH, Dr. JOHN, Los Gatos, Cal.....	1893
VAN NAME, WILLARD GIBBS, 121 High St., New Haven, Conn.....	1900
VAN NORDEN, WARNER MONTAGNIE, Rye, New York.....	1899
VAN SANT, Miss ELIZABETH, Omaha, Neb.....	1896
VARICK, MRS. JOHN B., Manchester, N. H.....	1900
VETTER, Dr. CHARLES, Jr., 152 Second St., New York City.....	1898
WALCOTT, ROBERT, 11 Waterhouse St., Cambridge, Mass.....	1893
WALES, EDWARD H., Hyde Park, N. Y.....	1896
WALKER, Dr. R. L., 94 Main St., Carnegie, Pa.....	1888
WALTER, HERBERT E., 435 Belden Ave., Chicago, Ill.....	1901
WARREN, Dr. B. H., Box 245, Westchester, Pa.....	1885
WATERMAN, WILLIAM, Bigelow, Minn.....	1896
WATERS, EDWARD STANLEY, Water Power Co., Holyoke, Mass.....	1894

WATSON, Miss SARAH R., 5128 Wayne St., Germantown, Phil., Pa.	1900
WATTERS, ROBINSON CATOR, 9 W. Baltimore St., Baltimore, Md.	1900
WEBSTER, MRS. ELLEN EMELINE, Franklin Falls, N. H.	1898
WEBSTER, MRS. MARY P., 1025 5th St., S. E. Minneapolis, Minn.	1900
WEIR, J. ALDEN, 11 E. 12th St., New York City	1899
WENTWORTH, IRVING H., Matehuala E. de S. L. P., Mexico	1900
WEST, LEWIS H., Roslyn, Nassau Co., N. Y.	1887
WETHERILL, WM. H., 126 So. 30th St., Philadelphia, Pa.	1901
WHEELER, EDMUND JACOB, 95 Jefferson Av., New London, Conn.	1898
WHEELER, JOHN B., East Templeton, Mass.	1897
WHITCOMB, MRS. ANNABELL C., 721 Franklin St., Milwaukee, Wis.	1897
WHITE, FRANCIS BEACH, 6 Phillips Place, Cambridge, Mass.	1891
WHITMAN, Prof. CHARLES OTIS, Univ. of Chicago, Chicago, Ill.	1896
WICKS, M. L., Jr., 221 W. 2d St., Los Angeles, Cal.	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., Camden, N. J.	1893
WILLIAMS, J. BICKERTON, 15 Wellington St. E., Toronto, Can.	1889
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, 217 Murray St., Madison, Wis.	1900
WOLCOTT, Dr. ROBERT H., Univ. of Neb., Lincoln, Nebraska	1901
WOLFE, WILLIAM EDWARD, Florence, Colo.	1900
WOOD, Dr. HOWARD L., Groton, Conn.	1901
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, Miss NORA GIRALDA, 387 Plainfield St., Olneyville, R. I.	1896
WRIGHT, SAM, Conshohocken, Pa.	1895
YORKE, Dr. F. HENRY, Foolsland, 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
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 H.....	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

Deceased Members.

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HAAST, JULIUS VON.....	Aug. 15, 1887
HARGITT, EDWARD.....	March 19, 1895
HOLUB, EMIL.....	Feb. 21, 1902
HOMYER, E. F. VON.....	May 31, 1889
LAYARD, EDGAR LEOPOLD.....	Jan. 1, 1900
LONGSCHAMPS, EDMOND DE SELYS.....	Dec. 11, 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
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WOOD, WILLIAM.....	Aug. 9, 1885
YOUNG, CURTIS C.....	July 30, 1902



John Andrew & Son, Boston.

AMERICAN HERRING GULL (*LARUS ARGENTATUS SMITHSONIANUS*).

Photographed at the protected colony on Great Duck Island, Maine.

Photographic.

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No. 1.

NESTING HABITS OF THE ANATIDÆ IN NORTH DAKOTA.

BY A. C. BENT.

Plates II-IV.

(Continued from Vol. XVIII, p. 336.)

Nettion carolinensis Gmel. GREEN-WINGED TEAL.

THIS handsome little duck is probably the rarest of the Anatidæ breeding in North Dakota. We did not see a single individual which we could identify as of this species, so I have nothing to add to its life history from personal experience. In the extreme northern portions of the State it is probably more often found breeding. Mr. Job met with it there, on his previous visit in 1898, and I quote from his notes in regard to it, as follows: "On June 20, near Rolla, I was exploring a small pond with rushes around the edges. While wading at the outer edge of the rushes, I heard some pattering sounds, and from almost at my feet eight tiny ducklings followed one another in a line out into the open water. In a moment the mother was on hand, and flapped and dragged herself about, almost within arm's reach of me. The young swam into the rushes again, and the old bird kept up the performance as long as I staid there, flying off and coming back to renew her protestations."

Querquedula discors *Lim.* BLUE-WINGED TEAL.

This little duck is one of the commonest ducks in North Dakota, possibly the commonest, rivaling in this respect the Pintail and Shoveller, both of which are very abundant.

It is a widely and evenly distributed species, being equally abundant in all parts of the region we visited; we met with it around the shores of all the larger lakes, and could always count on starting one or more pairs from every slough or pond hole that we visited, even the very smallest ones, though they were nowhere congregated in colonies of any size, as were many of the other species. But, in spite of their universal abundance, we were remarkably unsuccessful in finding their nests. Though we spent considerable time hunting for them in suitable localities we succeeded in finding only one nest.

Mr. Job, however, in 1898, found more nests of this species than any other species of duck, and I cannot account for our failure to find them unless possibly we were too early for them. Most of the birds we saw were swimming about or flying about in pairs, which would seem to indicate that incubation had not yet begun, as, after the females begin to incubate, the males usually desert them and congregate in small flocks by themselves.

The nests of the Blue-winged Teal are generally well concealed in the long prairie grass growing around the borders of the sloughs and small pond holes, almost always on dry ground, not far from the water, but sometimes in moist meadows bordering such places, where the grass grows long and thick enough to conceal them. They also nest sparingly on the islands in the large lakes with the Baldpates and Lesser Scaup Ducks.

On June 12, while hunting through some extensive wet meadows near the source of the Goose River in Steel County, not over twenty yards from the river, I flushed a Blue-winged Teal from her nest in a clump of rather tall grass, in an open place, where the dead grass had been beaten down quite flat; the nest was well concealed from view, made of dead grass mingled with a little down, and contained ten perfectly fresh eggs. Undoubtedly, more down would have been added to the nest as incubation advanced, as this is the almost invariable rule with all the ducks,

and as incubated sets of this species are generally plentifully supplied with down, which is sometimes sufficient to conceal the eggs completely.

The ten eggs in this set are fairly typical of the species, of a dull, light cream color, considerably nest-stained. ovate to elliptical ovate in shape, and exhibiting the following measurements: length, 1.95 to 1.86; breadth, 1.43 to 1.38; average, 1.89 by 1.41.

Spatula clypeata (Linn.). SHOVELLER.

The first duck that I saw in North Dakota was a Shoveller flushed from a small slough near the railroad track as we entered the State, and from that time on we saw Shovellers every day in all parts of the region we visited. It is one of the commonest ducks, and is evenly distributed everywhere. The brilliant, striking plumage of the male and the long, broad bill of the female serve to distinguish them at a glance from other species of ducks. They frequent the same localities as the Blue-winged Teal, are equally tame, and probably lay their eggs at about the same time as this species. We found only two nests of the Shoveller, in spite of their universal abundance. From the fact that we frequently saw them flying about in pairs, I inferred that many of them do not complete their sets before June 15, which would make this one of the later laying species. After the sets are completed the males associate with the Mallards and Pintails in the smaller ponds and open sloughs. Nearly every slough, meadow, or pond hole that we visited contained one or more pairs of these handsome little ducks. The charm of collecting and studying birds in this highly favored region is greatly enhanced by constantly flushing this and the other numerous species of ducks from every favorable locality. We were kept in a constant state of delightful expectancy, and were seldom disappointed.

The nesting ground of the Shoveller is the broad expanse of virgin prairie, often far away from the nearest water, sometimes on high, dry ground and sometimes in moist meadow land or near a slough or pond. The first nest that we found was in the center of a hollow in the prairie between two knolls, where the ground was moist but not actually wet, and where the grass grew thick

and luxuriantly. The nest was well hidden in the thick, green grass, so that we never should have found it if we had not flushed the bird within ten feet of us. It was merely a depression in the ground, well lined with dry grasses, and sparingly lined with gray down around the eggs; more down would probably have been added as incubation advanced. The ten eggs which it contained were perfectly fresh when collected on June 3.

The second nest was found on June 7 while driving across the prairie in Nelson County. We had stopped to explore an extensive tract of low 'badger brush,' looking for the nest of a pair of Short-eared Owls which were flying about, as if interested in the locality. We were apparently a long distance from any water, and, while returning to our wagon over a high, dry knoll, flushed the duck from her nest, which was only partially concealed in the short prairie grass. The slight hollow in the ground was lined with dead grasses and a plentiful supply of down. It contained eleven eggs which were too far advanced in incubation to save. I photographed this nest, which is shown in Plate II, Fig. 1. The eggs of the Shoveller are quite similar in color to either the Mallard's or the Pintail's, being very pale olive buff or very pale greenish gray, and having smooth, thin shells with very little lustre; they are, however, decidedly smaller than those of either of the above species; in shape they are nearly elliptical ovate. The eggs of these three species are very much alike in color and texture, but they can generally be distinguished by the shape and size.

The measurements of the first set described above are as follows: length 2.17 to 1.95; breadth, 1.44 to 1.40; average, 2.03 by 1.42.

Dafila acuta (Linn.). PINTAIL.

Judging from our experience, I should call the Pintail the most universally abundant duck in North Dakota, although the Blue-winged Teal, the Shoveller, and, possibly, the Mallard, are close rivals in this respect.

All four of these species are evenly distributed throughout the prairie regions, and are almost sure to be met with in nearly every

lake, pond or slough of any size. We certainly saw Pintails everywhere in both Nelson and Steele Counties, and often found the males congregated in flocks, together with Mallards and Shovellers, in the open sloughs or small ponds, from which they would rise at long range, as we approached, and fly off high up in the air.

The Pintail is an early breeder, beginning to lay early in May; and probably the majority of the broods are hatched by the first week in June. We came across several females with broods of young, and saw some remarkable examples of parental devotion and solicitude, which are very strongly developed in this species.

On June 3 we visited a small slough, in Nelson County, with open water in the centre, from which we started quite a flock of Mallards and Pintails as we approached, and, as we waded out into the marsh, a female Pintail flew towards us, dropped into the water near us, and began splashing about in a state of great excitement. The young ducks were probably well hidden among the reeds, though we could not see or hear them. During all the time, for an hour or more, that we were wading around the little slough that Pintail watched us and followed us closely, flying about our heads and back and forth over the slough, frequently splashing down into the water near us in the most reckless manner, swimming about in small circles or splashing along the surface of the water, as if wounded, and often near enough for us to have hit her with a stick, quacking excitedly all the time. I never saw a finer exhibition of parental devotion than was shown by her total disregard of her own safety, which did not cease until we left the locality entirely. We had a somewhat similar experience near a small slough in Steele County, which resulted in our finding one of the young ducks hidden in the long, thick prairie grass.

The nests of the Pintail are placed almost any where on dry ground, sometimes near the edge of a slough or pond, sometimes on the islands in the lakes, but more often in the prairies, and sometimes a half a mile or more from the nearest water. The young are probably led to the nearest body of water as soon as they are hatched.

The nest is generally poorly concealed, and often in plain sight. A deep hollow is scooped out in the ground, which is sparingly lined with bits of straw and stubble, and a scanty lining

of down is deposited around the eggs. The eggs, which are usually from eight to ten in number, are quite similar to the Mallard's but are usually somewhat smaller, more elongated, and a little more glossy. The color is a pale olive green or a pale olive buff, and the shape an elliptical ovate.

The measurements of the only set before me are as follows: length, 2.36 to 2.13; breadth, 1.57 to 1.49; average, 2.28 by 1.53.

The first nest we found, on May 31, was concealed in rather tall prairie grass on the highest part of a small island in one of the larger lakes. We flushed the bird from almost under our feet, and easily identified her, as she flew away, by the long slender neck, uniformly light mottled upper parts and inconspicuous dark speculum. The absence of the conspicuous white-bordered purple speculum and the small size of the bill serve to separate it from the Mallard and the Shoveller, for which the eggs might possibly be mistaken, though the eggs of the latter are smaller. The nest was well lined with down and contained six eggs, apparently nearly fresh. We visited this nest again on June 15, and found the bird still incubating, no more eggs having been laid.

On June 15 we found another Pintail nest in an open situation among rather sparse but tall prairie grass, which was in plain sight, the eggs being beautifully concealed by a thick covering of down. Another nest was shown to us by some farmers who were ploughing up an extensive tract of prairie, and had flushed the bird as they passed within a few feet of the nest. This was fully half a mile from the nearest water. They left a narrow strip, containing the nest, unploughed, but something destroyed the eggs a few days afterwards.

The only set I was able to photograph or collect was found in Steele County, on June 10, and is shown in the accompanying photograph (Pl. II, Fig. 2).

While walking along the edge of a cultivated wheat field, close to the crest of a steep embankment sloping down into a large slough, we flushed a female Pintail from almost under our feet. The nest was a deep hollow in the bottom of a furrow, 7 inches wide by 4 inches deep, lined with bits of straw and weed stubble, with a moderate supply of down surrounding the eggs. It was very poorly concealed by the scanty growth of weeds around it.

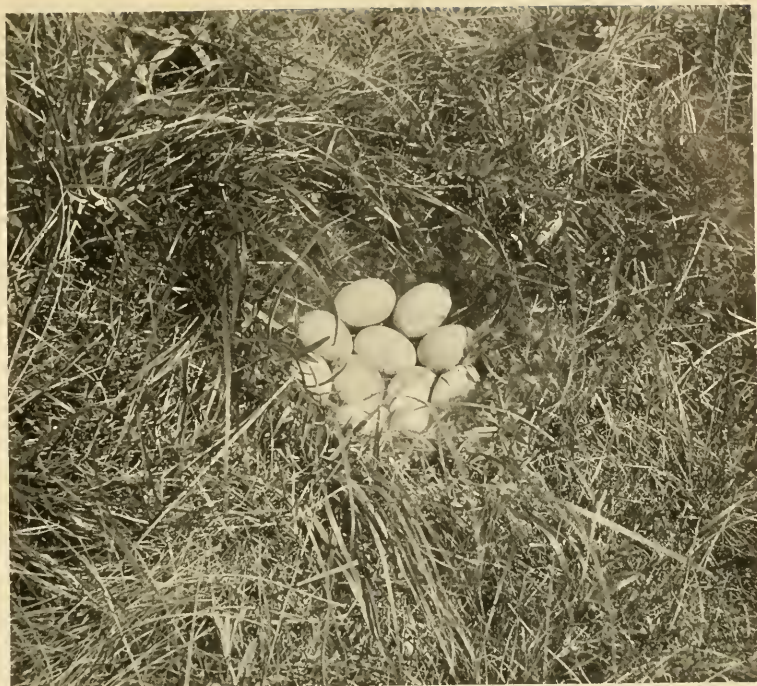


FIG. 1. NEST AND EGGS SHOVELLER



FIG. 2. NEST AND EGGS OF PINTAIL.

The eight eggs which it contained proved to be heavily incubated.

The eggs are fairly typical of the species, and measure as follows: length, 2.36 to 2.13; breadth, 1.57 to 1.49; average, 2.28 by 1.53.

The bird was quite demonstrative and solicitous, which seems to be characteristic of the species.

Aythya americana (Eyt.). REDHEAD.

We now come to the subfamily of sea ducks, three species of which, the Redhead, the Canvasback, and the Ruddy Duck, are exclusively slough breeders. The Redhead is by far the commonest of these three species, and probably far outnumbers any other species of this subfamily in North Dakota.

It is very common in all the larger sloughs, but was not found by us in any of the smaller sloughs, and was not, as far as I can remember, seen in any of the larger lakes, where it certainly does not breed.

We first met with it on June 3 in a large slough in Nelson County, where the water was not over knee deep, except in a few scattered open spaces, and where the reeds and flags were somewhat scattered and open. A pair of Canada Geese nested in this slough and two pairs of Marsh Hawks, but it was chiefly tenanted by Yellow-headed Blackbirds, Coots, and Long-billed Marsh Wrens. The Blackbirds fairly swarmed in this slough, and the constant din of their voices was almost bewildering, especially whenever one of the Marsh Hawks sailed out over the slough, which sent them all up into the air at once, cackling and squeaking, hovering and circling about for a few moments, and then settling down into the reeds again. Redheads were flying back and forth across the slough, Killdeers, Willets, and Wilson Phalaropes were flying about the shores, and Long-billed Marsh Wrens were singing among the flags on all sides. While wading along a shallow ditch through a small patch of last year's flags, a big brown duck sprang into the air from a clump of tall reeds, and, after a short search, I found my first nest of the Redhead, well concealed among the reeds. It was a handsome nest, well made of dead reeds, deeply hollowed and lined with broken pieces of the reeds mingled with consider-

able white down, especially around the upper rim ; it measured 16 inches in diameter outside and 8 inches inside, the upper part of the rim being about 10 inches above the water ; it rested on a bulky mass of dead reeds built up out of the shallow water, the whole structure being firmly held in place by the live growing reeds about it. It held eleven handsome eggs, in which incubation had just begun. I could not photograph this nest, as it was raining hard, but I collected the nest and eggs, which are now in my cabinet.

We found two more nests of the Redhead in this slough, one of which, found by Mr. Job, contained the unusually large number of twenty-two eggs, which were nearly ready to hatch. Large sets of this species are not uncommon, so that probably these eggs were all laid by the same bird. The third nest was similarly located, but not so well made as the first one. I flushed the bird from it in an area of rather open reeds where the water was not very deep. She flew back and forth across the slough several times, and was soon joined by her mate ; the pair then circled about in the vicinity as long as I remained near the nest, showing more solicitude than is customary with this species. The nest was a large one, measuring 18 inches in diameter ; it was a bulky mass of dead reeds built up out of the shallow water to a height of about 6 inches, and hollowed in the centre about 4 inches ; there was very little down used in its construction. The rim of the nest had been broken down on one side, probably by the hasty departure of the duck, so that several of the eggs had rolled out into the water. There were fifteen eggs in the set, which proved to be perfectly fresh.

We found the Redheads breeding in two large, deep sloughs in Steele County. One of these, in which we found four nests of the Redhead, is illustrated in the photograph (Pl. III, Fig. 1). In the open part of this slough, shown in the foreground, the water was too deep to wade, but, in the southern end of the slough, shown in the background, the water was seldom deeper than the tops of our hip boots, and in many places quite shallow. The principal growth was the tall slough reeds, quite thick in some places, and often as high as our heads, with numerous thick patches of tall cat-tail flags and several patches of the 'queen of the prairie'



FIG. 1. NESTING SITE OF CANVASBACKS AND REDHEADS.

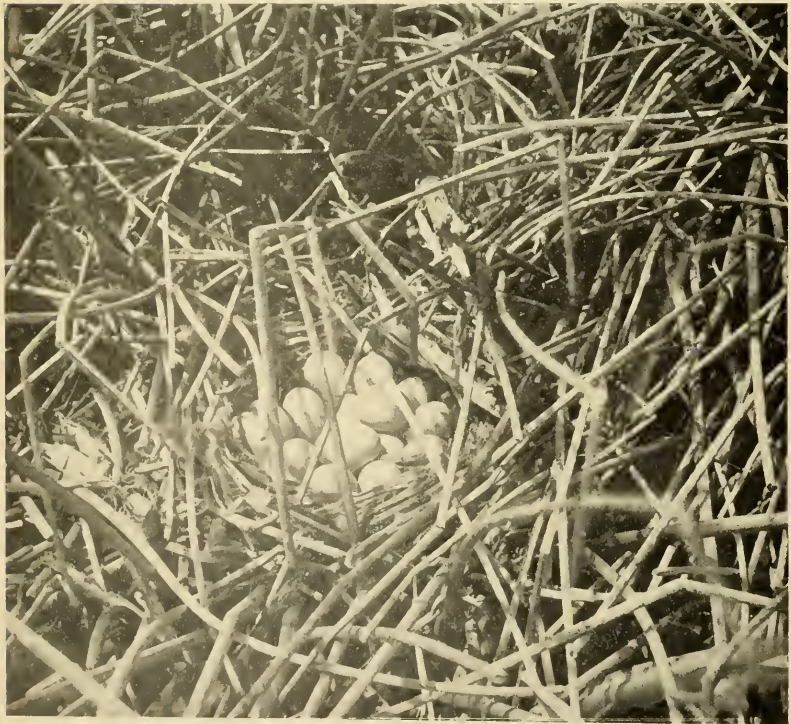


FIG. 2. NEST AND EGGS OF REDHEAD.

reeds growing in the drier portions. The Redheads' nests were all located in the shallower parts of the slough where the reeds and flags were growing less thickly.

Pied-billed Grebes, Canvasbacks and Ruddy Ducks were nesting in this slough, as well as hundreds of Yellow-headed Blackbirds and Coots.

The Redheads' nests found here on June 10 contained six, ten, fourteen, and sixteen eggs respectively, none of which were collected. The latter of these is shown in the photograph (Pl. III, Fig. 2); it was located in the centre of a tangled mass of broken down dead flags, in a nearly dry, open space, near the edge of the slough, well concealed from view by the arching over of the dead flags above it. The bird proved to be a close sitter, as we twice flushed her from the nest. We tested one of the eggs and found it far advanced in incubation.

The Redhead seems to be particularly careless about laying its eggs in other ducks' nests. We found one of its eggs in a Ruddy Duck's nest in this slough, and in three cases found from three to four of its eggs in nests of the Canvasback, on which the latter duck was incubating; but we never found the eggs of any other species in the Redheads' nests.

The eggs of the Redhead can generally be distinguished from those of any other species, as they are usually quite different in color, size and texture. The shell is extremely hard and flinty, with a smooth, slightly glossy surface, and quite thick; it will dull the cutting edges of the best drills in a short time. In shape they vary from a somewhat rounded to a considerably elongated elliptical ovate, sometimes nearly oval.

In color they vary from a light olive buff, matching almost exactly certain types of Mallard's eggs, to a light cream buff. The eggs are larger than the Mallard's eggs, and the nest is entirely different, being made of dead reeds and lined with white down. The eggs are entirely different in color from those of the Canvasback, which builds a somewhat similar nest and in similar situations, but lines it with gray down.

The measurements of twenty-six eggs in my collection show the following figures: length, 2.63 to 2.31; breadth, 1.79 to 1.68; average, 2.45 by 1.72.

***Aythya vallisneria* (Wils.). CANVASBACK.**

The Canvasback is not one of the commonest species in North Dakota, and is restricted, during the breeding season at least, to certain favorable localities. The settlement of the country and the demands of agriculture have led to the draining and drying up of many of the large deep water sloughs, which tends to restrict the distribution of this species. A fine, large slough in Nelson County, where Mr. Job found the Canvasback breeding abundantly in 1898, is now entirely dried up, the birds having disappeared from that locality. I believe Dr. Bishop failed to find any nests of this species on his previous visit to Towner County, North Dakota, though several pairs of the birds were seen, and a local collector of considerable experience told me that he had never seen the nest of the Canvasback.

Our experience with this species was confined to two large deep sloughs in Steele County, where we found them breeding in fair numbers. I understand that there are some large sloughs in Eddy County where the Canvasbacks breed, and I have no doubt they can be found in suitable sloughs throughout all the northern portions of the State.

The principal object of our visit to the sloughs in Steele County was to study the breeding habits of the Canvasbacks, so, soon after our arrival here, late in the afternoon of June 7, we put on our hip boots and started in to explore the northern end of the big slough, shown in the photograph (Pl. III, Fig. 1), and referred to under my remarks on the Redhead. In the large area of open water we could see several male Canvasbacks and a few Redheads swimming about, well out of gun range. Wading out through the narrow strip of reeds surrounding the open water, and working along the outer edge of these, we explored first the small isolated patches of reeds shown in the foreground of the picture. The water here was more than knee deep, and in some places we had to be extremely careful not to go in over the tops of our boots, so that progress was quite slow. We had hardly been wading over ten minutes when, as I approached one of these reed patches, I heard a great splashing, and out rushed a large, light brown duck which, as she circled past me, showed very plainly the long sloping head and pointed bill of the Canvasback.

A short search in the thick clump of tall reeds soon revealed the nest with its eleven eggs, eight large, dark-colored eggs of the Canvasback and three smaller and lighter eggs of the Redhead. It was a large nest built upon a bulky mass of wet dead reeds, measuring 18 inches by 20 inches in outside diameter, the rim being built up 6 inches above the water, the inner cavity being about 8 inches across by 4 inches deep. It was lined with smaller pieces of dead reeds and a little gray down. The small patch of reeds was completely surrounded by open water about knee deep, and the nest was so well concealed in the center of it as to be invisible from the outside. The eggs were also collected on that day, and proved to be very much advanced in incubation.

The other nests of the Canvasback that we found were located in another slough, about half a mile distant, which was really an arm of a small lake separated from the main body of the lake by an artificial dyke or roadway with a narrow strip of reeds and flags on either side of it. In the large area thus enclosed the water was not much more than knee deep, except in a few open spaces where it was too deep to wade.

In another section of the slough, among open, scattered reeds, the Pied-billed Grebes were breeding abundantly. A few pairs of Ruddy Ducks had their nests well concealed among the tall thick reeds. Coots and Yellow-headed Blackbirds were there in almost countless numbers, Long-billed Marsh Wrens were constantly heard among the tall thick flags, Red-winged Blackbirds, Soras and Virginia Rails were nesting abundantly in the short grass around the edges. Marbled Godwits and Western Willets were frequently seen flying back and forth over the marshes, acting as if their nests were not far away, and clamorously protesting at our intrusion; Killdeers and Wilson Phalaropes hovered about us along the shores. Such is the home of the Canvasback, an ornithological paradise, a rich field indeed for the naturalist, fairly teeming with bird life. Our time was well occupied during our visit to this interesting locality, and the days were only too short and too few to study the many interesting phases of bird life before us, but we devoted considerable time to the Canvasback, and, after much tiresome wading, succeeded in finding three more nests in this slough.

The first of these was found on June 8, while wading through a

thick patch of very tall flags, higher than our heads; we flushed the female from the nest and had a good look at her head as she flew out across a little open space. The nest was well concealed among the flags, but not far from the edge. It was well built of dead flags and reeds, in water not quite knee deep, and was sparingly lined with gray down. This nest contained eleven eggs, seven of the Canvasback and four of the Redhead, which were collected on June 13 and found to be just on the point of hatching. A photograph of this nest is shown herewith (Pl. IV, Fig. 1).

Another nest, found on June 8, was located in a small, isolated clump of reeds, surrounded by water over knee deep, on the edge of a large pond-like opening in the center of the slough, as is admirably illustrated in the photograph (Pl. IV, Fig. 2), kindly loaned me by Mr. Job.

The nest was beautifully made of dead and green reeds firmly interwoven, held in place by the growing reeds about it, and sparingly lined with gray down. It was built up out of the water, which was about 10 inches deep, so that the rim was about 5 inches above the surface of the water; the external diameter was about 14 inches and the inner cavity measured 7 inches across by 4 inches deep. The nest and eggs, now in my collection, were taken on June 11, at which time incubation was only just begun; it contained eight eggs of the Canvasback and one of the Ruddy Duck. All the Canvasbacks' nests that we found contained one or more eggs of the Ruddy Duck or Redhead, but we never found the eggs of the Canvasback in the nest of any other species. The Canvasbacks are close sitters, generally flushing within ten feet of us, so that we had no difficulty in identifying them by the peculiar shape of the head; in general appearance they resemble the Redheads very closely, except that the female Canvasback is lighter colored above. The eggs can be readily distinguished by their color, which is a rich grayish olive or greenish drab of a darker shade than that usually seen in the eggs of the other species.

The gray down in the nest will also serve to distinguish it from the Redhead's nest, which is generally more profusely lined with white down. In shape they are between ovate and elliptical ovate; the measurements of fifteen eggs show the following figures: length, 2.57 to 2.36; breadth 1.80 to 1.68; average, 2.48 by 1.75.



FIG. 1. NEST AND EGGS OF CANVASBACK.



FIG. 2. NEST AND EGGS OF CANVASBACK.

THE WHITE-WINGED CROSSBILL IN CAPTIVITY.

BY JAMES HAYNES HILL.

THE ornithologists of Connecticut will long remember the winter of 1899-1900, that brought to them the rare avian visitors from the North, the Red Crossbills and, rarer still, the White-winged Crossbills (*Loxia leucoptera*).

While many of the Red Crossbills extended their wanderings as far south as Washington, the White-wings were content to abide in the old Nutmeg State, and were frequently reported, feeding and otherwise, in company with the Red Crossbills, staying as late as February 27, according to Mr. H. W. Beers's field notes taken at Bridgeport (and to whom I am greatly indebted for the use of the fine series of Crossbills loaned me for comparison and examination), and later still, to March 1, at which date the captives, the subject of my sketch, were taken.

It was a few days after their capture that a lady friend, Mrs. Albert Beebe, of New London, Conn., sent word that she had a pair of strange, red colored, wild birds, with criss-cross bills and white patches on the wings. They were indeed the *rara avis*, the White-winged Crossbill and in perfect plumage — male and female birds.

Upon inquiry I learned that several had been easily enticed into a bird cage, baited with bird seed, this pair selected, and the others liberated. She also said at least fifteen or twenty birds (some without the white-wing patches, evidently the Red Crossbills), were often seen, during the winter, feeding on the spruce and Scotch larch cones in the groves, growing in the vicinity, that they had become quite tame, but were not seen after March 1.

The captives were quite tame, in fact tamer than some of her pet canaries, and they were daily allowed their liberty and would fly about the room, the male at times singing his queer little song. They are now very fond of their mistress, who has taken great pains to make their captivity as light as possible.

They bathe, drink, and are fed on the same food as the canaries, and take kindly to the little dainties provided — chickweed and bits of fruit or vegetables, and I write with truth that "Mi-lord"

Crossbill is always ungallant and "wants the first serving and the second joint."

They can pick up bird seed as deftly as any canary, though if the seed is on the bottom of the cage, they turn their heads a little on one side, seemingly to give their bills a better chance, but if the seed cup is full they have no trouble and always get their full share, being quicker than the other birds in their movements. But it is when a handful of larch or pine cones are given them that the crossed mandibles come into play; if the cones are small they fly to their perches with them, and holding them under their feet deftly extract the seeds. Should the cones be too large, they will roll them over and over until every seed is extracted, cheeping the while; if the cones are left on the branch they will hang head downward, if need be, in order that they may the more easily get at the seeds, of which they are very fond.

I was particularly interested in noting closely the moulting of the birds—especially the male—to again verify, if possible, the observations of Mr. Ora W. Knight of Bangor, Maine, who has so minutely described the moult of the Pine Grosbeak in captivity, in 'The Auk' (Vol. XIII, p. 21-24), viz.: "the red plumage changing to orange yellow—at the first moult."

Observations on the Crossbills show that in the last week of August the male ceases singing, and by the middle of September he has lost most of his large flight feathers, which are replaced by the first week of November; then the smaller body feathers are gradually replaced by orange hued feathers, slightly marked with dusky on the head and body, the rump being bright canary instead of the rich, rosy red hues that adorn them in their wild state; thus showing that not only the Pine Grosbeak but the White-winged Crossbill also loses the characteristic bright colors in the first moult in captivity, rose turning to orange yellow. The bills and feet are also light colored, viz.: the olive green in the female is less pronounced. By December the moult is complete, but the male bird does not find voice till January to sing his low, sweet song, so much resembling the Goldfinch's, and with which our pet Crossbill ushers in the day and repeats at intervals.

These birds at this writing (Nov. 11, 1901) are in perfect health, and the only annoyance is that the bill and feet grow so hooked

that they have to be trimmed to avoid accidental hanging while climbing the wires of their cage, like diminutive parrots.

The mysteries of nest building, housekeeping and the cares of nidification, are mysteries still. In the spring of 1900 the birds showed no signs of mating, and it was ascribed to their new surroundings. But during the last week of February, 1901, the female wished to go to housekeeping and materials were given them, fine twigs, fine birch bark and a little *Usnea* moss. But the male bird treated his mate with disdain, quarreling with her and driving her from perch to perch. Whether he resented the matchmaking because it was 'Hobson's choice,' or remembered the soft, sweet voice of the former partner of his joys and sorrows, the only "Mrs. Leucoptera" whom he had sworn to love and cherish till death part. and was loyal, I know not. Perhaps it was in grief, a memory of the blissful days in that far off northern home, among "The murmuring pines and the hemlocks, bearded with moss." Perhaps his tale of love was ended, "in Acadie, home of the happy."

SUMMER BIRDS OF THE GREAT DISMAL SWAMP.

BY JOHN W. DANIEL, JR.

DURING the middle of June, 1897, the writer, in company with Mr. William Palmer and Mr. Paul Bartsch, spent a week collecting birds in the Lake Drummond region of the Great Dismal Swamp. As is well known, this great morass occupies a billowy plain, some forty miles long by twenty-five miles across, extending from Suffolk, Va., to Albemarle Sound, N. C. Its entire western boundary is determined by a sharply defined escarpment, formed by the sea when the continent was about twenty-eight feet below its present level.

Its eastern boundary is marked by a series of low elevations, dune-like in nature, extending from Norfolk, Va., to Elizabeth City, N. C. The character of the swamp land is continuously undulating, the elevations rising and falling at slight intervals.

They are not, however, great and average only a few feet. The trees are principally cypress (*Taxodium*), black gum, beech and juniper, and there is a luxuriant growth of ferns and aquatic plants. Cane grows in profusion. The swamp comes within the Austro-riparian sub-province and contains several tropical genera of the smaller mammals and many semi-tropical plants. As regards birds, it is not especially rich with respect to species, although there is an abundance of individuals of certain forms.

Lake Drummond, in the northeastern part, is the only body of water of any size within the limits of the swamp. It is a beautiful sheet of water, of an oval contour, six miles long and three miles wide. During our visit, the country immediately adjacent to the lake was fairly well worked over, most of our collecting being done along the margins of the lake and its several small inlets.

Owing to the swampy conditions, much of the country is inaccessible, and travel on foot is possible only in the more elevated parts. Most of our travel was effected by means of small boats,—the characteristic 'dugout' of the region. In some parts, however, there are roads constructed of logs by the lumbermen, and these afford access to the country several miles back from the lake.

I append, with short annotations, a list of the birds observed during our visit.

1. *Phalacrocorax dilophus*. DOUBLE-CRESTED CORMORANT.—Accidental. A single individual taken on the lake near the southeastern shore.

2. *Ardea herodias*. GREAT BLUE HERON.—Fairly abundant on the lake shore. Several noticed on the inlets. One taken on "Jericho Ditch," near Suffolk.

3. *Ardea virescens*. GREEN HERON.—Common. Many seen on the inlets.

4. *Philohela minor*. AMERICAN WOODCOCK.—Several noticed at twilight feeding near camp at junction of 'Washington' and 'Jericho' districts.

5. *Cathartes aura*. TURKEY VULTURE.—Not very common. A few noticed.

6. *Buteo lineatus*. RED-SHOULDERED HAWK.—Quite abundant. A number observed in the timber near the southeastern shore of the lake.

7. *Syrnium nebulosum*. BARRED OWL.—Fairly abundant. Its hooting often heard at night. Frequents timber along the lake shore.

8. *Bubo virginianus*. GREAT HORNED OWL.—Not very common. Several heard hooting at night.

9. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—A few seen.

10. *Dryobates pubescens*.—DOWNY WOODPECKER.—Fairly common in woods of elevated parts.

11. *Dryobates villosus*. HAIRY WOODPECKER.—Fairly abundant in the heavy timber along the lake.

12. *Ceophlœus pileatus*. PILEATED WOODPECKER.—A few were seen in the heavy timber at the southeastern end of the lake.

13. *Melanerpes carolinus*. RED-BELLIED WOODPECKER.—Fairly abundant in the timber. Mr. Palmer took two specimens.

14. *Colaptes auratus*. FLICKER.—Not uncommon in the woods of the higher grounds.

15. *Chætura pelagica*. CHIMNEY SWIFT.—Quite abundant. We had the good fortune to observe a very interesting fact regarding these birds. Along the southeastern shore, growing in the lake some distance out from the shore line, are a number of large hollow cypresses. The roots or 'knees' of these trees extend upward and outward from the surface of the water, curving inward some distance up, and in most of them, between the water and base of the tree proper, there are openings large enough for a canoe to enter. By pushing our canoe in these intervals between the roots, we were able to examine the interiors of the hollow trees. In these we found the swifts nesting in their primitive fashion, the nests being fastened to the interior walls about midway down. Mr. Bartsch secured a nest containing eggs thus situated.

16. *Myiarchus crinitus*. CRESTED FLYCATCHER.—Quite abundant in timber near the lake shore.

17. *Contopus virens*. WOOD PEWEE.—Common in woods along the shore of the lake.

18. *Empidonax virescens*. GREEN-CRESTED FLYCATCHER.—Not uncommon along the margins of the inlets, notably where the foliage forms a canopy over the water. A nest containing eggs was found on a limb overhanging an inlet.

19. *Corvus americanus*. AMERICAN CROW.—Fairly common.

20. *Pipilo erythrophthalmus*. TOWHEE.—Abundant.

21. *Cardinalis cardinalis*. CARDINAL.—A few seen.

22. *Piranga rubra*. SUMMER TANAGER.—Fairly abundant in the woods along the southeastern lake shore.

23. *Vireo olivaceus*. RED-EYED VIREO.—Fairly abundant in the thick woods along the shore of the lake.

24. *Vireo noveboracensis*. WHITE-EYED VIREO.—Fairly common among the bushes and trees along the margin of the lake.

25. *Mniotilta varia*. BLACK AND WHITE WARBLER.—Not very common. Frequents the woods of the higher ground.

26. *Protonotaria citrea*. PROTHONOTARY WARBLER.—Decidedly the most abundant bird of the swamp. Everywhere common. Its beautiful plumage and odd song add a charm to the region, it being seen and heard in all kinds of weather and at all times of the day. Several nests in cavities of decayed trees, at slight height from the ground, were examined.

27. *Helinaia swainsonii*. SWAINSON'S WARBLER. — Rare. Frequents the cane brakes and dense growth of aquatic vegetation. Mr. Palmer took one and I captured a juvenile.

28. *Helmitherus vermivorus*. WORM-EATING WARBLER. — Abundant. Frequents the wooded parts along the shore of the lake.

29. *Compothlypis americana*. PARULA WARBLER. — Quite abundant. Nests in the hanging Spanish moss (*Usnea*) with which many of the cypresses were festooned.

30. *Dendroica vigosii*. PINE WARBLER. — Not common.

31. *Dendroica discolor*. PRAIRIE WARBLER. — Not very common. A few seen in the clearings near the lake shore at the northern end of the lake.

32. *Seiurus motacilla*. LOUISIANA WATER THRUSH. Fairly common.

33. *Geothlypis trichas*. MARYLAND YELLOW-THROAT. — Very abundant along the shore of the lake and among the aquatic plants and bushes that fringe the inlets. Noticed it as especially common along the edges of a log road at the northern end of the lake.

34. *Sylvania mitrata*. HOODED WARBLER. — Very abundant. Ranks second with *P. citrea* as the commonest species of the district. Several nests, one containing young, were examined. They were placed in the canebrake along the margins of one of the ditches.

35. *Setophaga ruticilla*. AMERICAN REDSTART. — Abundant.

36. *Galeoscoptes carolinensis*. CATBIRD. — Very abundant.

37. *Thryothorus ludovicianus*. CAROLINA WREN. — Not common. A few heard singing.

38. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH. — Fairly abundant in the woods at the southeastern shore of the lake.

39. *Parus bicolor*. TUFTED TITMOUSE. — Abundant.

40. *Parus carolinensis*. CAROLINA CHICKADEE. — Abundant.

41. *Turdus mustelinus*. WOOD THRUSH. — Common. Observed in the woods at the southeastern end of the lake.

THE STATUS OF CERTAIN SUPPOSED SPECIES OF
THE GENUS *LARUS*.

BY WILLIAM H. KOBBE.

THE genus *Larus* is one of the five or six genera into which the subfamily Larinæ is divided. This subfamily, together with the subfamily Sterninæ (which we may almost call artificial divisions) constitute the family Laridæ, or the Gulls and Terns, of which the Larinæ are the Gulls and the Sterninæ the Terns. This is by far the largest of the three families constituting the order Longipennes or long-winged swimmers. The genus *Larus* contains about twenty-one American species, which show a great variability in size and coloration of certain parts, so connected, however, by intermediate forms that systematists are unable to base generic distinctions upon these differences. So the many species still comprise one genus, in which the specific value of the birds and their complicated changes of plumage demand much further study.

In speaking of Gulls it may be well to recall the words of Dr. Coues: "Several circumstances conspire to render the study of these birds difficult. With some exceptions, they are almost identical in form; while in size they show an unbroken series. Individual variability in size is high; northerly birds are usually appreciably larger than those of the same species hatched further south; the ♂ exceeds the ♀ a little (usually); very old birds are likely to be larger, with especially stouter bill, than young or middle-aged ones. There is, besides, a certain plasticity of organization, or ready susceptibility to modifying influences, so marked that the individuals hatched at a particular spot may be appreciably different in some slight points from others reared but a few miles away. One pattern of coloration runs through nearly all the species; they are *white*, with a darker mantle (*stragulum*), and in most cases with black crossing the primaries near the end, the tips of the quills white. The shade of the mantle is very variable in the same species, according to climate, action of the sun, friction, and other causes; the pattern of the black on the quills is still more so, since it is *continually* changing with age, at least until a final stage is reached. Incredible as it may appear,

species and even genera have been based upon such shadowy characters. One group of species has the head enveloped in a dark hood in the breeding season, the under parts tinted with peach-blossom hue. The sexes are always alike; the moult appears to be twice a year, so that a winter plumage more or less different from that of summer results; while the young are never like the old. The change is slow, generally requiring 2-3 years; in the interim, birds are found in every stage. They are always *darker* than the old, often quite dusky; usually with black or flesh-colored bill; and if with black on the primaries when adult, the young usually have these quills all black. There being no peculiar extra-limital species, those of our country give a perfect idea of the whole group. Some 75 species are current; there are certainly not over 50 good ones.”¹

From a large number of birds freshly killed and a series of skins, I have come to the conclusion that specific distinction does not exist between *Larus argentatus* (Brünn.) and *Larus vegæ* (Palmén). In attempting to prove this we must first clearly separate the American bird, *Larus vegæ* (Palmén), and the European *Larus cachinnans* (Pall.), which American ornithologists seem unable to do satisfactorily.

Dr. Coues, in describing *Larus vegæ* under the name of *cachinnans*, says: “Size, proportions of parts, pattern of primaries, etc., as in a common Herring Gull. Feet yellow (not flesh-color); ring around eye in the breeding season orange-red (not yellow). Mantle *dark bluish* and *much* darker than that of *argentatus*, yet not slate-colored as in *occidentalis*.”²

Mr. Ridgway in his ‘Manual’ describes *Larus vegæ* as follows: “Mantle plumbeous-gray, or very deep pearl-gray; eyelids (in life) orange-red, and feet yellow.”

These descriptions suit the European bird *Larus cachinnans*, but all American publications which I have examined describe *Larus vegæ* as having yellow feet, which according to the original description it has not. Dr. L. Stejneger noted this point in referring to the original description of *Larus vegæ* by Professor Palmén. In ‘The Auk,’ Vol. V, page 310, he says: “On page 370

¹ Key to N. Am. Birds, pp. 740, 741.

² *Op. cit.*, p. 744.

Prof. Palmén describes a new subspecies of the Herring Gull as *Larus argentatus* var. *vegæ*, 'characterized by a particularly dark gull-gray mantle and flesh-colored legs,' from the countries bordering on Bering Sea and adjacent waters. There is no doubt in my mind that this is the bird which North American ornithologists (including A. O. U. Check-List) call *Larus cachinnans* 'Pallas,' and I have always had a suspicion that the color of the feet of this bird as given in North American publications was erroneous, it being in most cases stated to be yellow, and my suspicion has been confirmed by the fact that Mr. P. L. Jouy in his MS. catalogue gives the color of the feet of two specimens from Japan (Jouy, Nos. 1030, 1031) otherwise indistinguishable from *L. cachinnans* Auct. Amer. as 'very pale flesh-color.' The Mediterranean bird, on the other hand, is known to have yellow feet, and as Pallas describes his *L. cachinnans* as having 'pedes pallide flavescentes' (Zoogr. Ross. As., II, p. 319), with the principal habitat 'Mare Caspium,' while he does not mention it as occurring in the Pacific, it seems as if Palmén were right in giving the form from the North Pacific a new name. I am not prepared, however, to accept as yet a trinominal appellation, as the true status and relationship of the present Gull are not well established, and propose to recognize it as *Larus vegæ* (Palmén)."

My own observations on freshly killed birds have always shown them to possess flesh-colored and not yellow legs. *Larus cachinnans* of Europe has yellow feet, as is seen not only in the original description, but in 'Notes on Avifauna of Italy' by Henry H. Giglioli, which appeared in 'The Ibis' for April, 1881, p. 219, where he says: "The adults in all seasons have the head and neck pure white without any trace of brown specks, and legs and feet of a bright yellow."

From the foregoing facts we must conclude that *Larus vegæ* has flesh-colored feet and *Larus cachinnans* yellow feet, which characters separate them at once.

The British Museum Catalogue gives the following descriptions of the two birds. In speaking of *Larus cachinnans* on page 268 of Vol. XXV, it says: "Adult in breeding plumage very similar to the preceding, from which, in fact, it differs only in the following particulars:—The ring round the eye is bright orange-red, the gape

is the same colour, the yellow and red of the bill are much brighter, the tarsi and toes are brilliant yellow; the mantle is, as a rule, decidedly darker, while the black and gray on the primaries show a deeper tone, and the middle toe with the nail is usually rather shorter than the tarsus.

"The *female* is smaller than the male as a rule.

"*Adult in winter.* As in summer; the usual greyish striations being absent, or so faint as to be practically invisible.

"*Immature, Young, and Nestling.* As in *L. argentatus*. The tarsi and toes are at first flesh-coloured, but they soon begin to show a yellowish tint in the live bird, though this is of course, lost in preserved specimens.

"*Hab.* Southern Europe, from the Gulf of Gascony downwards; Madeira (probably the Azores), the Canaries, and the opposite coast of Africa; the entire basin of the Mediterranean, the Black sea, the Aral, the Caspian and eastward to Lake Baikal (breeding). In winter to India, from the bay of Bengal to Bombay; the Mekran coast; Persia; the Red sea; and down the west side of Africa, apparently to Angola."

The description of *Larus vegæ* which is found in Vol. XXV, pp. 270-271, and which in my opinion gives the bird one of its true characters is as follows: "*Adult male in breeding-plumage.* Differs from *L. cachinnans* in the colour of its tarsi and toes, which are pale flesh-colour, and the mantle is, perhaps, of a darker and bluer grey.

"*Obs.* It will be seen that *L. argentatus*, *L. cachinnans* and *L. vegæ* are very closely allied. There appears however, to be a somewhat important break of continuity; *L. argentatus* stopping at the White Sea, and no large Gull with black-patterned primaries being found to the eastward, till the Taimyr peninsula is reached."

From my own observations and the foregoing descriptions we may clearly separate *Larus cachinnans* and *Larus vegæ* by the difference in color of the feet; the former having bright yellow feet and the latter flesh-colored. But in doing this we invalidate one of the supposed specific distinctions existing between *Larus vegæ* and *Larus argentatus*, since both are now seen to possess flesh-colored legs. There now remain but two characters said to separate these birds; the color of the mantle and the color of the orbital ring.

The color of the mantle is said to be of a lighter shade in *Larus argentatus* than in *Larus vegæ*. The orbital ring of *Larus argentatus* is said to be yellow, while that of *Larus vegæ* is orange-red. Are these not very indefinite and variable characters on which to base a separation of species in a genus which is known to possess individuals easily influenced by external conditions giving rise to many shades of color in the same bird?

In the series of the California Academy of Sciences the mantles of these birds show every intermediate shade from the darkest to the lightest. My birds likewise have many intermediate shades which cannot be called either light *argentatus* or dark *vegæ*. We cannot therefore separate the two by so variable a character as the shade assumed by the mantle, and the only remaining difference exists in the color of the orbital rings.

From the colors noted on freshly killed adult birds collected by me during the months of December, January, March, and April, 1900-01, I find that the color of the orbital ring is not to be relied upon, as it is seldom the same, being generally black or flesh-colored. This series of birds was collected on San Francisco Bay, from their arrival to their departure. During March and April, just before their departure, the birds assumed their breeding dress, but this circumstance does not enable one to separate the two, as the color of the orbital rings does not change. The feet also remain flesh-colored.

Of the many birds shot (the colors being noted) I preserved fourteen specimens and these, together with the series of the California Academy of Sciences of about twenty adult birds, formed an excellent basis for the study of variability in coloration and the constancy of ascribed characters.

The following table gives the colors as noted in the freshly killed birds now in my collection.

Locality.	Date and Sex.	Color of Feet.	Color of Orbital Ring.
San Francisco Bay	Dec. 7, 1900 ♂	Flesh color	Flesh-color.
" " "	Dec. 9, 1900 ♀	"	Dusky orange-red. Blackish
" " "	Dec. 18, 1900 ♀	"	Reddish flesh-color.
" " "	Dec. 27, 1900 ♀	"	Not taken.
" " "	" " "	"	Blackish.
" " "	" " "	"	Flesh-color.
" " "	" " "	"	"
" " "	Jan. 18, 1901 ♀	"	Very pale and indefinite color.
" " "	" " "	"	Reddish flesh-color.
" " "	Jan. 19, 1901 ♀	"	Dusky flesh-color.
" " "	Feb. 2, 1901 ♀	"	Flesh-color.
" " "	Feb. 8, 1901 ♀	"	"
" " "	" " "	"	"
" " "	April 8, 1901	"	Dusky flesh-color.
" " "	April 17, 1901	"	Flesh-color.

In the light of these facts it appears that *Larus vegæ* is indistinguishable from *Larus argentatus*, and as the latter has the priority I propose that *Larus vegæ* be dropped from our nomenclature.

BIRDS OF THE NORTHEASTERN COAST OF LABRADOR.

BROWN-HARVARD EXPEDITION OF 1900, UNDER THE LEADERSHIP
OF PROFESSOR DELABARRE.

BY HENRY B. BIGELOW.

THE OBSERVATIONS noted in the following list were made on the Brown-Harvard Labrador expedition of 1900. The area embraced was that portion of the eastern coast from Belle Isle, Lat. 51° 53', to Nachvak Fiord, Lat. 59°. The birds noted are strictly those of the immediate coast region, for we did not penetrate much farther into the interior than the heads of the bays.

The coast fauna combines both arctic and sub-arctic forms, comprising such arctic species as the polar bear, arctic wolf, white fox, Hudson Bay lemming, barren ground caribou, and at the same localities the black bear and the red fox. Among the birds the same combination can be noted. It will be seen at once that the list does not contain many species given by Turner as occurring at Ungava. This is explained by the fact that the eastern coast is absolutely cut off from the interior by the range of mountains which follows the shore. This range, which attains an extreme height of perhaps six or seven thousand feet, rises abruptly from the water's edge, so that the coast region proper is restricted to a narrow strip, merging at once into the barren hillsides and boulder slopes of the uplands. This ridge is an insurmountable barrier to the wanderings of most of the small birds. The hilltops were inhabited only by a few Titlarks, Snow Buntings, Longspurs, and Rough-legged Hawks.

The vegetation of the coast region, especially of the islands, is very scanty. The timber line, for the immediate seacoast, is near Hamilton Inlet. About the heads of the bays we found timber as far north as Nain, beyond which the trees dwindled to scrub spruces, and dwarf willows and birches along the lower water courses. Most of the barren country is covered with caribou moss, with blueberries and Labrador tea growing profusely in the boggy places.

The climate is cold, the mean temperature for the year being about 29° Fahrenheit. During the summer it ranged from 29° to about 55°. Twice we got temperature of 70°, but this was only in very sheltered spots, and for an hour or two at a time.

1. *Urinator imber*. LOON. — Fairly common along the coast, particularly in the deeper fiords and on the larger lakes. Breeding locally. The skins from the necks of adult loons are much used by the Eskimo for ornamental work.

2. *Urinator lumme*. RED-THROATED LOON; WABBY. — Nests in small ponds inland. Appears on the coast after the young are able to fly, when it is rather common, particularly in September. One which I examined had the stomach filled with caplin.

3. *Fratercula arctica*. PUFFIN; SEA PARROT. Abundant all along the coast. Still breeds in comparative abundance on many of the outlying islands. The young were fully fledged and in the water by the 25th of

August. Though highly esteemed by the natives, we could not consider them a delicacy. Drawings which I made of bills of young just fledged show a great resemblance to those of Brünnich's Murre and the common Murre.

4. *Cepphus grylle*. BLACK GUILLEMOT; PIGEON.—The Black Guillemots were, with one exception, the most numerous of all the sea fowl. They still breed in great abundance on almost all the suitable islands, and are killed in great numbers for food. I was unable to discover any trace whatever of Mandt's Guillemot, although Turner reports it "abundant" on the east coast.

5. *Uria troile*. MURRE.—We found the Murres fairly common to Hamilton Inlet, north of which we saw very few. A large colony was reported to us, however, at Eclipse Harbor. Probably no bird has suffered more from the depredations of the eggers than this, which is in merely a remnant of its former numbers.

6. *Uria lomvia*. BRÜNNICH'S MURRE.—Of about the same occurrence as the Murre, — perhaps even less common.

7. *Alca torda*. RAZOR-BILLED AUK; TINKER.—Although subject to the same persecution as the Murres, the Razor-billed Auk seems to have stood it better, and is still abundant all along the coast. We found them in July in considerable numbers in the lanes in the floe ice. They breed in company with the Murres.

8. *Alle alle*. DOVEKIE; BULL BIRD.—Reported as very common in winter. I observed only one, off Cape Harrison, on September 18.

9. *Stercorarius pomarinus*. POMARINE JAEGER.—Rather rare; much less common than the other jaegers.

10. *Stercorarius parasiticus*. PARASITIC JAEGER.

11. *Stercorarius longicaudus*. LONG-TAILED JAEGER.—These two jaegers were rather common, usually two or three following each flock of Kittiwakes. They went together indiscriminately, and their habits seemed to be identical.

12. *Rissa tridactyla*. KITTIWAKE.—By far the most abundant of all the sea fowl. We met them continually in large flocks. After the young left the nest, they assembled together in enormous numbers to pursue the caplin, and, in company with the other gulls, made a deafening uproar. We found the young ones very good eating.

13. *Larus glaucus*. BURGOMASTER.—We found Burgomasters common north of Cape Harrison, though they seldom gathered in large flocks. At Port Manvers they were particularly abundant. We could find no evidence of their nesting, though young birds appeared in great numbers about the end of August.

14. *Larus marinus*. BLACK-BACKED GULL.—Common; rather less so than the Burgomasters. Breeding commonly. Two young, kept in captivity, had enormous appetites and became very tame. They were ready to fly by August 15.

15. *Larus argentatus smithsonianus*. HERRING GULL.—Common all along the coast.

16. *Larus delawarensis*. RING-BILLED GULL.—I took one young specimen at Port Manvers, Sept. 6.
17. *Larus philadelphia*. BONAPARTE'S GULL.—Common south of Hamilton Inlet in September, particularly about the Straits of Belle Isle. There is no indication of its breeding anywhere on the coast.
18. *Sterna paradisæa*. ARCTIC TERN.—We saw a few about Belle Isle in July and again in September.
19. *Fulmarus glacialis*. FULMAR; NODDY.—We found the Noddies rather common offshore among the flocks of shearwaters. Almost all were in the light phase. Many that we saw were so gorged that they could not rise from the water.
20. *Puffinus major*. GREATER SHEARWATER; HAGDON.—Common in large flocks offshore. We occasionally ran into great flocks of these birds a good way offshore. They were very tame and would hardly take wing before the schooner ran them down.
21. *Puffinus stricklandi*. SOOTY SHEARWATER.—Common, among the Greater Shearwaters. The shearwaters were the only sea fowl which proved to be totally inedible.
22. *Oceanodroma leucorhoa*. LEACH'S PETREL.—Very common locally south of Hamilton Inlet. North of that they were rare. We visited several islets where the turf was riddled with their holes, and the air reeked with their sharp musky odor.
23. *Sula bassana*. GANNET.—We saw three or four near Belle Isle on the way north, but no more anywhere along the coast.
24. *Phalacrocorax carbo*.—CORMORANT; SHAG.
25. *Phalacrocorax dilophus*. DOUBLE-CRESTED CORMORANT.—We saw a few near Belle Isle, but no others. They seem to breed altogether along the southern coast.
26. *Merganser serrator*. RED-BREASTED MERGANSER.—Locally common; very widely distributed.
27. *Anas obscura*. BLACK DUCK.—Rather rare. We saw very few Black Ducks, and of those few most were south of Hamilton Inlet. Apparently restricted to the inland ponds.
28. *Aythya marila*. GREATER SCAUP.—I received one from Dr. Grenfell. It was shot near Nain in October, 1899. So far as I can find out this is the only record from the east coast.
29. *Glaucionetta clangula americana*. GOLDEN-EYE.—Reported common in late autumn. I saw only one specimen, near Port Manvers, August 11.
30. *Somateria borealis*. NORTHERN EIDER.—Abundant north of Hamilton Inlet. The eiders were usually in small flocks, males and females separate. They breed commonly near most of the fiords.
31. *Somateria dresseri*. AMERICAN EIDER.—Abundant south of Hamilton Inlet, where it takes the place occupied by *S. borealis* in the north. An important article of food for the settlers. The Eskimo make tobacco pouches from the skins of the young ducks.

32. *Oidemia americana*. BLACK SCOTER.—Common; less so than the other scoters.

33. *Oidemia deglandi*.—VELVET SCOTER.

34. *Oidemia perspicillata*. SURF SCOTER.—Abundant, in about equal numbers, and often flocking together. They came down to the coast late in August, and were soon very numerous in the fiords. Known as 'Black Ducks.'

35. *Anser albifrons gambelli*. AMERICAN WHITE-FRONTED GOOSE.—I received one specimen, an adult male, from Dr. Heltasche. It was shot near Hopedale, May, 1900. So far as I can learn, it is the only record.

36. *Branta canadensis*. CANADA GOOSE.—Abundant in spring. Common in fall after August 1. Breeds mostly in the interior.

37. *Branta bernicla*. BRANT.—Reported as very rare. One specimen from Dr. Grenfell, Nain, October, 1899.

38. *Botaurus lentiginosus*. AMERICAN BITTERN; MARSH HEN.—I saw two or three at Cape St. Francis, on the way south. This was just north of Belle Isle.

39. *Crymophilus fulcarius*. RED PHALAROPE.—Rather rare. Seen several times in small flocks offshore.

40. *Phalaropus lobatus*. NORTHERN PHALAROPE.—Common. Breeding in almost all the suitable marshes; occasionally very abundant offshore.

41. *Gallinago delicata*. WILSON'S SNIPE.—Three or four near Cape St. Francis.

42. *Tringa maculata*. PECTORAL SANDPIPER.—Very common all along the coast after the middle of August. Particularly abundant about the Hopedale Mission, where they were almost as tame as English Sparrows.

43. *Tringa minutilla*. LEAST SANDPIPER. Abundant. Breeds commonly all along the coast.

44. *Tringa alpina pacifica*. RED-BACKED SANDPIPER.—A few at Port Manvers in early September.

45. *Tringa fuscicollis*. WHITE-RUMPED SANDPIPER.—Very abundant at Port Manvers after August 10. On the way south we met them wherever there were beaches.

46. *Ereunetes pusillus*. SEMIPALMATED SANDPIPER.—Common, breeding locally. I took the downy young at Seal Island, and as I cannot find that it has been described, I shall insert a brief description here:

Downy young, a few feathers just appearing. Above dark gray, mixed with rufous, giving a peculiar spotted appearance. A dark line over the eye and along the side of the head. Top of the head with feathers just beginning to show. These feathers slaty tipped with white, giving a hoary appearance. Below downy, the belly white, the breast and fore-neck washed with rufous, entirely unstreaked. Legs and feet black, without any sign of webs whatever.

47. *Calidris arenaria*. SANDERLING.—Rather rare; apparently not breeding.

48. *Totanus melanoleucus*. YELLOW-LEGS. — Uncommon; a few late in September at Port Manvers.

49. *Actitis macularia*. SPOTTED SANDPIPER. — Very abundant; breeds everywhere along the coast.

50. *Numenius borealis*. ESKIMO CURLEW. — The Eskimo Curlew are hardly a remnant of their former numbers. I made careful inquiries among the settlers, and obtained the following rather interesting information: (1) The curlew remained in all their former numbers, in spite of the persecution to which they were subjected, until eight years ago. (2) They then appeared no more. I heard of only about a dozen, which were seen on the coast this fall. Of these I saw five.

52. *Charadrius dominicus*. GOLDEN PLOVER. — Not common. I saw several flocks after August 22, mostly young birds, probably mere stragglers.

53. *Ægialitis semipalmata*. SEMIPALMATED PLOVER. — Very common; almost as much so as the Spotted Sandpipers. Nesting all along the coast.

54. *Lagopus albus*. WILLOW PTARMIGAN. — Rather common north to Nain, beyond which point we did not see it. In some places abundant.

55. *Lagopus rupestris*. ROCK PTARMIGAN. — Common from Hamilton Inlet northward. Beyond Okak the Rock Ptarmigan probably belong to the race *reinhardti*. We found the ptarmigan very acceptable additions to the larder.

56. *Archibuteo lagopus sancti-johannis*. ROUGH-LEGGED HAWK. — Very common almost everywhere, nesting on cliffs some distance from the sea. Different pairs of hawks seemed to hold definite tracts of country, from which they drove all intruders.

57. *Falco rusticolus obsoletus*. LABRADOR GYRFALCON. — Rare. One at Port Manvers, September 4.

58. *Falco peregrinus anatum*. DUCK HAWK. — Fairly common, especially wherever the sandpipers were flocking.

59. *Asio accipitrinus*. SHORT-EARED OWL. — Rather common at Port Manvers and Nachvak, in September.

60. *Otocoris alpestris*. HORNED LARK. — Abundant everywhere on the bleakest and most exposed hillsides. So far as I could determine, all the Horned Larks observed belonged to this race.

61. *Perisoreus canadensis nigricapillus*. LABRADOR JAY. — Locally common, even abundant as far north as Port Manvers.

62. *Corvus corax principalis*. RAVEN. — Locally common, especially so at Port Manvers.

63. *Pinicola enucleator*. PINE GROSBEAK. — Common in the spruce woods north of Aillik, beyond which the spruces dwindled into low bushes.

64. *Acanthis linaria*. COMMON REDPOLL. — Very common everywhere. Apparently all the Redpolls belong to this race.

65. *Spinus pinus*. PINE SISKIN. — Rather rare. Occasionally I noticed a few with the Redpolls before we passed the tree line.

66. *Plectrophenax nivalis*. SNOW BUNTING. — SNOW Buntings appeared at Port Manvers about the 10th of August, after which they were abundant.

67. *Calcarius lapponicus*. LAPLAND LONGSPUR. — Common after August 3. Breed about Nachvak and northward to Hudson Straits. South of Nachvak they occur only as migrants.

68. *Passerculus sandwichensis labradorius*. LABRADOR SAVANNA SPARROW. — The new subspecies of *Passerculus sandwichensis* recently separated by R. H. Howe, Jr., seems to rest on good foundation, but ranges much farther north than he supposed (Lance and Loup), for I found it fairly common at Port Manvers (Lat. 57°) during last half of August and the first week of September.

69. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW. — The most abundant land bird, common wherever there was any spruce scrub.

70. *Spizella monticola*. TREE SPARROW. — Rather uncommon, but widely distributed. I observed a good many at Port Manvers.

71. *Junco hyemalis*. JUNCO. — Locally common as far as the tree line, particularly at Aillik.

72. *Melospiza lincolni*. LINCOLN'S SPARROW. — Common. A characteristic bird of the wooded parts of the coast, as far north as Hamilton Inlet.

73. *Passerella iliaca*. FOX SPARROW. — Common along the southern part of the coast. We found a few as far north as Aillik.

74. *Dendroica coronata*. MYRTLE WARBLER. — Rather common on the southern half of the coast.

75. *Dendroica striata*. BLACK-POLL WARBLER. — A very abundant and characteristic bird, as far north as the limit of timber near Cape Aillik.

76. *Seiurus noveboracensis*. WATER THRUSH. — Locally common as far north as Aillik.

77. *Sylvania pusilla*. WILSON'S WARBLER.

78. *Sylvania canadensis*. CANADIAN WARBLER. — These two warblers were noticed only in the extreme south, so that they have very little claim to places in this list.

79. *Anthus pensilvanicus*. TITLARK. — One of the most abundant birds. Characteristic, with the Horned Lark, of the most barren and wind-swept hilltops. Breeds very commonly.

80. *Parus atricapillus*. CHICKADEE. — Locally common in timbered regions.

81. *Regulus satrapa*. GOLDEN-CROWNED KINGLET. — Fairly common in patches of spruce timber, as far as Aillik.

82, 83. *Turdus ustulatus swainsoni*. OLIVE-BACKED THRUSH; *Turdus aliciae*. GRAY-CHEEKED THRUSH. — One or the other of these thrushes was common as far north as Aillik. I supposed they were all the Olive-backed, but one which I took at Battle Harbor proved to be a Gray-checked which leaves me somewhat in doubt as to the identity of the others.

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84. *Merula migratoria*. ROBIN.—Locally common. Several large flocks appeared at Port Manvers on September 6, apparently from the North.

85. *Saxicola œnanthe*. WHEATEAR.—Nests near Nachvak, for the Hudson Bay Company factor there had nests which he had taken. I did not observe the bird.

REPORT OF THE COMMITTEE ON THE PROTECTION OF NORTH AMERICAN BIRDS.

DURING the past year bird protective work in America has been more effectively systematized than ever before and the results have been correspondingly definite and far-reaching. The vigorous and efficient enforcement of the Lacey Act, by the Division of the Biological Survey of the U. S. Department of Agriculture, under the personal direction of Dr. T. S. Palmer, has gone far toward suppressing the trade in sea birds for millinery purposes and has spread consternation among illicit game dealers throughout the country. The firm backing thus furnished by the Federal government has spurred on the State Game Protective Societies to renewed efforts and stimulated game protection all along the line. In this connection we cannot too highly praise the several 'Bulletins' prepared by Dr. Palmer and Mr. H. W. Olds, and issued by the U. S. Dept. of Agriculture, giving concise abstracts of the game and bird laws of the several States.

The operations under the Thayer Fund for the protection of Gulls and Terns have been, as heretofore, under the able direction of Mr. William Dutcher. The protection afforded the sea birds of our Atlantic Coast last year has been continued and extended with gratifying results.

In addition Mr. Dutcher and Dr. Palmer have personally appeared before the legislatures of most of the States from Maine to Florida in the interests of better State bird laws, and in every instance their efforts were crowned with success.

The work of the Audubon Societies has continued on the same lines as heretofore and has been reported upon from time to time

in 'Bird-Lore,' the official organ of the Societies. Several new societies have been organized during the year, and at the last session of the A. O. U. at Cambridge, the first step was taken towards an affiliation of the State societies. Delegates from nine State organizations took part in the conference, and it was decided to establish the Conference as a regular feature of the A. O. U. Congress.

The work of the Audubon Societies I find is not fully appreciated by the public at large and many persons noting the continuance of the feather fashion hastily conclude that they have failed in their object. This however is not so. Like most other reforms the suppression of the feather fashion cannot be accomplished all at once; it is a gradual work, and the portion already accomplished must not be lost sight of. It is the widespread popular interest in birds which has rendered possible the passage of the many improved bird laws and the establishment and maintenance of the Thayer Fund, and for this popular interest the Audubon Societies are directly responsible.

We should therefore use every effort to encourage those who are active in conducting the work of these societies and give them every possible assistance, for only by keeping alive and spreading the present interest can we permanently stamp out the feather trade.

In this connection your chairman would suggest to the Audubon Societies the importance of discouraging the use of any feathers except those of the ostrich and domestic rooster, which can be easily identified.

All secretaries have doubtless been assailed by numerous inquiries whether this or that feather is admissible, and too many members are content with the assurance of the milliners that various quills, sprays and tufts of feathers now so largely replacing entire birds are manufactured from the plumage of domestic fowls.

Your chairman recently examined a large series of sample feathers from one of the leading milliners in Philadelphia and found that fully nine tenths of the material was *not* the plumage of domestic fowls. Part of the dyed, trimmed and bespangled feathers defied more accurate determination, but the plumage of the Indian Vulture, Nicobar Pigeon, Great Bustard, Baikal Teal, Indian

Pheasant, Impeyan Pheasant, and Gull, were positively identified. Though not American birds, to be sure, all of them are wild birds.

Turning to the immediate work of your Committee for the past year, it should, in the first place, be stated that for the purpose of making our body still more representative and effective, ten additional members have been appointed, namely, Mr. A. H. Thayer, New York; J. Merton Swain, Maine; James H. Hill, Connecticut; F. C. Kirkwood, Maryland; M. J. Elrod, Montana; George E. Beyer, Louisiana; R. W. Williams, Jr., Florida; Frank Bond, Wyoming; W. L. Baily, Pennsylvania; W. O. Emerson, California.

As already explained, the most important work of the year has been accomplished by the Lacey Act, the Thayer Fund, and the Audubon Societies, but since all of these are in whole or in part the outgrowth of this Committee and as our members are all active in one or other of these lines, their work naturally forms part of your Committee's report.

As most of the details of this work will be reported on by Mr. Dutcher and Dr. Palmer, it remains for your chairman to briefly summarize such other matter as is contained in the reports submitted by the members of the Committee.

The universal feeling seems to be that there is a great increase of sentiment throughout the country in favor of bird protection on the part of all classes. In every State where bird laws failed of passage, at the last legislature, redoubled efforts will be made at the next session. Newspapers are not only willing to print reports and circulars on bird protection but in many cases apply to members of the Committee for such matter. Farmers and landowners show an increasing desire to assist in the work by posting notices and enforcing the law.

From Illinois Mr. Deane reports the failure of an effort to place Meadowlarks on the game list, and the practical suppression of the trade in American cage birds in Chicago.

From California Mr. Emerson reports the failure of the Cooper Ornithological Club's bird law after getting it through both branches of the legislature, but hopes for better success at the next session. He states that so far as he knows, no birds are now collected in California for the millinery trade, but the Italian fishermen still net small birds for the San Francisco market. As many

as 1000 are sometimes caught in one setting of the net, largely Song Sparrows and Yellow-throats.

In Arkansas Mrs. Stephenson and Mrs. Sara T. Thomas have been very active in distributing bird protection posters to the sheriffs, school superintendents, mill owners, etc., a work that cannot fail of good results. Mrs. Florence Merriam Bailey urges the same plan of action among the ranches of the southwest. She found at Carlsbad, New Mexico, great flocks of wading birds of all sorts in the irrigated fields, and to anyone in search of either plumes or game, wholesale slaughter would be an easy matter. "The indifference and ignorance," she says, "of the ranchmen in regard to birds makes them largely careless of their destruction and the question suggests itself: Should more effort be made to reach the ranchmen and farmers with bird protective literature? This might perhaps be done in the East through the granges and in the West through agricultural journals."

On the whole, the present status of our work is most encouraging, and in closing I can only urge those who are aiding us to continue their support, feeling sure that the results amply justify our efforts.

WITMER STONE,

*Chairman A. O. U. Committee on the Protection
of North American Birds.*

RESULTS OF SPECIAL PROTECTION TO GULLS AND TERNs OBTAINED THROUGH THE THAYER FUND.

Plate I.

"I will not kill or hurt any living creature needlessly, nor destroy any beautiful thing, but will strive and comfort all gentle life and guard and perfect all natural beauty on earth."—From JOHN RUSKIN'S '*Declaration.*'

THE SECOND year of the special work of the Committee entrusted with the administration of the Thayer Fund has passed,

and the results obtained during that period, it is felt, are very encouraging and fully warrant continued efforts. As the work progresses, the field of operation enlarges greatly, and consequently demands a rapidly increasing expenditure of thought, time, and money by the Committee.

Before entering into the details of the work it again becomes necessary to speak in the highest terms of the part that has been assumed by Mr. Abbott H. Thayer. The fact that he has collected all of the money that has been expended speaks for itself. It is the most thankless portion of the work, and that portion of it that needs the most delicate handling, and had he not succeeded the whole plan of operation must necessarily have been abandoned. The burden of soliciting funds for the proper carrying on of protection work will soon become too great to be borne by one person.

Every year immense sums of money are given by philanthropic persons to Humane Societies, and to Societies for the Prevention of Cruelty to Animals. The American Ornithologists' Union is an incorporated society, national in its territorial scope, and capable of wisely administering any donations of funds or any legacies directed to be paid to its permanent endowment, which has already been commenced. This endowment fund is to be maintained in perpetuity and the interest alone is to be used for the protection of *North American Birds*. It is unnecessary at this time to speak of the very great economic and æsthetic value of the birds; it is a fact too patent to need further comment. An appeal is made to the generous American public to contribute to the permanent endowment fund of the American Ornithologists' Union so that the birds of the country may always have given them the protection they so much need.

Two general lines of work have been followed by the Committee, both of them of great importance, but of widely different character, which may be designated as follows: Legislative Work, and Protection by Wardens.

LEGISLATIVE WORK.

Prior to 1901 only five States had laws for the protection of non-game birds that were at all satisfactory; these were:

Indiana,	statute dated	March 5,	1891.
Vermont,	“	“	Nov. 22, 1892.
Arkansas,	“	“	March 15, 1897.
Illinois,	“	“	April 24, 1899.
Rhode Island,	statute dated	May 4,	1900.

The laws of Indiana and Illinois are substantially the form of statute recommended by the American Ornithologists' Union, while the others follow it so closely that the non-game birds receive ample protection when the law is enforced.

In this connection it will be of interest to note that the passage of the law in the State of Arkansas was the result of the efforts of a member of the Union, Mrs. Louise McGown Stephenson, who, unaided, was able to accomplish the much needed reform. In addition to this great work, Mrs. Stephenson insists that the law shall be respected by the citizens of her State, and more than one law breaker has reason to remember that the birds of Arkansas have good laws and good friends to protect them.

In the report submitted by this Committee one year ago, the work done by the wardens employed was found to have resulted in a large increase in the sea birds breeding from Virginia northward to Maine. These wardens, however, were only employed during the breeding season, as in none of the States where they were located were there any laws to protect the birds after the breeding season was over. Inquiry later in the year disclosed the fact that the plume hunters resumed their work in the fall and winter season, notably in New York, Massachusetts, and Maine, when many hundreds of gulls and terns were killed.

Your Committee therefore decided to make a systematic and determined effort to improve the bird laws of as many States as possible, especially those along the Atlantic seaboard.

Before attempting to amend the laws of a State, it is necessary to make a thorough study of its existing statutes relating to game

and non-game birds, and also to review the legal decisions made by the courts of the State.

While the Committee always uses the A. O. U. model law as a basis, yet it is found that certain modifications have to be made; this work has always devolved upon Dr. T. S. Palmer, and to his clear and judicial insight in such matters the Union is very largely indebted for the many perfect laws that were passed during the year 1901.

A complete new law, or much needed amendments to existing laws, were enacted during the present year in eleven States, as follows:

Maine,	Feb. 15, 1901.	Delaware,	March 9, 1901.
New Hampshire,	March 25, 1901.	District of Columbia,	March 3, 1901.
Massachusetts,	March 21, 1901.	Florida,	June 4, 1901.
Connecticut,	Aug. 1, 1901.	Wisconsin,	April 9, 1901.
New York,	March 12, 1901.	Wyoming,	Feb. 14, 1901.
New Jersey,	March 20, 1901:		

In a number of instances it was necessary for either Dr. Palmer or the writer, or both, to visit the legislature where our bill was under consideration. It is, however, but a plain statement of facts to say that whenever a carefully prepared argument was presented to a legislative game committee, or to the members at large, showing the great economic value of non-game birds, and how inadequately they were then protected, that willing and attentive listeners were found, and in most cases the desired law was enacted without any delay further than that required by parliamentary practice, which always varies in different States. In every State certain modifications have to be conceded to meet the experience or preconceived ideas of its citizens; for instance, the Bobolink (*Dolichonyx oryzivorus*) of New England, which is there prized as a bird of great economic and æsthetic value, and is always protected, in the South Atlantic States, by reason of its change in habits, becomes a pest to the rice grower and is classed with the English sparrow as an outlaw.

To give the members of the Union and the generous contributors to the Thayer Fund some idea of the amount of labor required, and the number of persons directly interested in the passage of

the eleven new laws, a very brief seriatim statement is herewith submitted:

MAINE. — A member of the Maine Ornithological Society was fortunately also a member of the legislature, and he introduced a bill at the request of his Society. Dr. Palmer and the writer visited the State capital in January and addressed a joint committee of both houses in the Hall of Representatives. The President and Secretary of the Maine Ornithological Society also presented the claims of the birds, and certain wealthy and influential citizens of the State retained an attorney to appear in behalf of the bill. The plume hunting interests were represented by one person, who wisely refrained from making any statement in view of the very strong array of sentiment developed in behalf of the birds. In the evening an illustrated talk on birds was given in the Hall of Representatives, to a large and enthusiastic audience. The result of the day's work in behalf of the birds created such a decided interest that the bill passed the House in a few days, and on the following day was passed in the Senate, and on the third day received the signature of the Governor.

The Thayer Fund furnished 1600 large linen and manila warning notices giving a brief outline of the law and the penalties, which were distributed to every post office in the State by the Maine Ornithological Society; they were also liberally posted on and about all the breeding grounds on the coast.

NEW HAMPSHIRE. — In this State the introduction of the bill and its subsequent enactment into law was entirely the work of the Audubon Society, aided by a few suggestions from the Committee.

The Thayer Fund furnished 850 warning notices, which were distributed throughout the state by the Audubon Society. The Secretary of this Society is now actively engaged in seeing that the provisions of the new law are being carried out, especially along the line of preventing the sale of the plumage of all wild birds that are protected.

MASSACHUSETTS. — By the unaided work of Mr. George H. Mackay, a much needed amendment to the existing laws was carried through the legislature, to wit: that Terns and all Gulls excepting Herring Gulls (*Larus argentatus smithsonianus*) and

Great Black-backed Gulls (*Larus marinus*) are protected at all times. This amendment is certainly a great gain, but it is very unfortunate that the Herring Gull is not protected, especially in the winter months when they are so common on the coast. If the Audubon Society will aid Mr. Mackay during the next legislative session to have the law still further amended, so that protection will be given the two excepted species of gulls, it will close up the only gap in the protection of these birds in the coast-wise States from Maine to Virginia.

In the spring of the present year a detective was sent to ascertain whether illegal shooting was going on, but none was discovered; evidence, however, was obtained that a number of gulls and terns had been shipped to a dealer in New York during the close season in the latter State, and suit was brought against the New York dealer, which is still in court. If a conviction is obtained the fines will amount to over \$1500.

Later in the year our fellow member, Mr. Howe, made two special trips along the Massachusetts coast to ascertain whether the law was being observed, and he reported, after a very careful inquiry, that he could not find any persons shooting illegally.

CONNECTICUT.—In this State an entirely new and very radical game law was enacted through the united work and influence of the Audubon Society, the local branch of the League of American Sportsmen, and our fellow member and committeeman, Mr. J. H. Hill. One section of the law was devoted to the non-game birds and is practically the A. O. U. model. Immediately after the law went into effect the Audubon Society distributed large numbers of warning notices printed on linen. In this connection it is a pleasure to call attention to the very valuable aid given to the advocates of the new law by the Hon. A. B. Calkins, Chairman of the Game Committee of the House of Representatives.

NEW YORK.—The writer, immediately after the opening of the legislature, visited Albany, and by the courtesy of the Hon. Wm. M. McKinney introduced a bill to amend certain sections of the game law by substituting the words, "ducks, geese, brant and swan" for the words "web-footed wild fowl," wherever used. The bill successfully passed both houses of the legislature and received the Governor's signature. The effect of the amendment

was to transfer all of the web-footed birds, except ducks, geese, brant and swan, to the wild bird section, for which there is no open season. The amendment also removed by a special clause the grebes and bitterns to the protected class. The Thayer Fund distributed large numbers of linen warning notices in the coastwise counties of the State.

The writer, accompanied by a State game warden, visited all of the cage-bird dealers in New York City. Many of them were found with protected birds in their possession and suits were at once commenced. In every case but one the dealers paid the fines rather than defend the suit. It most effectually broke up the trade in native birds, the dealers now being content to traffic in canaries or imported wild birds. A visit was also made early in October to Wantaugh, Long Island, and a taxidermist's shop was examined. Fifty-nine gulls (*Larus delawarensis* and *L. argentatus smithsonianus*) were found, some still in the flesh and others in various stages of preparation for millinery ornaments. Suit for the sum of \$1510, fines, was at once commenced by the attorney for the State.

Large numbers of the retail milliners and large department stores in New York City have been visited by the writer and a notice calling attention to the law has been served. In many instances the retail dealers returned to the wholesale dealers stock lately purchased, on the ground that it was illegal to have the same in possession for sale, and they were unwilling to take any risks of prosecution. It is believed that only a few of the smaller wholesale houses still traffic to any extent in gulls and terns, and some of these claim that the stock they are now trying to dispose of was procured before the law went into effect. If this is the case, the dealers are trying to work off upon the women of the State some material that is old and out of date. It is proper to say in this connection that there are many wholesale millinery houses in this city that will not handle, under any circumstances, the plumage of any wild North American birds, notably the members of the Wholesale Millinery Protective Association.

NEW JERSEY.—The A. O. U. model law was introduced as a bill by Senator Joseph Cross at the request of the Audubon Society. Dr. Palmer and the writer appeared before the Senate Game

Committee and made an argument in favor of the bill, with the result that a favorable report was secured. Later the bill passed both houses and became a law by the signature of the Governor. Unfortunately two days later the Governor signed a general game law which conflicted with the A. O. U. law in that it makes an open season for two months (September and October) for such an extremely valuable insectivorous bird as the Highholder (*Colaptes auratus luteus*). The State of New Jersey now has two laws in force, in one of which the Highholder or Flicker is classed as a game bird and in the other as an insectivorous bird. An effort will be made at the next session of the legislature to have this unfortunate contradiction corrected. This incident very forcibly shows how absolutely necessary it is that some person or committee with time, money, and interest in the work, shall always be on the watch to prevent changes in the non-game bird laws after they have been made satisfactory. The only absolutely sure method of prevention is to arrange to see copies of all game or bird bills introduced at every session of all the legislative bodies in the United States. This of course will necessitate a large amount of correspondence, a very considerable expenditure of money, and in case adverse bills are introduced, a fight to prevent passage.

DELAWARE.—The Audubon Society, in conjunction with the Delaware Game Protective Association, had the A. O. U. model law presented as a bill in the legislature, where it was, as usual, referred to the game committee who made an adverse report and recommended that "the bill do not pass." This necessitated a visit to Dover, Delaware, by your committee, accompanied by a delegation from both of the societies that had the bill introduced. The result was that the recommendation of the game committee was reconsidered, the bill was recommitted to the committee, who, after hearing our arguments in favor of bird protection, thus getting a clear idea of its merits made a unanimous recommendation "that the bill do pass." It was passed in the very last hours of the session and became a law March 9, 1901, by the approval of the Governor. An additional section was included in the law, at the request of the Audubon Society, to the effect that the Governor be authorized to set apart each year, by proclamation, a day

to be designated as "arbor and bird day," and to request its observance in all public schools, private schools, colleges and other educational institutions by the planting of trees and the adornment of the school and other public grounds, and by suitable exercises, having for their object the promotion of arboriculture, and the protection of birds and trees.

DISTRICT OF COLUMBIA. — The vital portions of the A. O. U. model law were embodied as a part of a new law for the protection of birds, game, and fish, passed by Congress, and approved March 3, 1901. The whole law was due to the united efforts and earnest work of Dr. Palmer of our Committee and the District Audubon Society.

Very recently Dr. Palmer, accompanied by a police officer assigned as his aid, visited every millinery establishment in the District and served a printed notice consisting of extracts from the law. This action resulted in the return to New York, and other wholesale centers of a large amount of illegal millinery ornaments, *i. e.*, plumage of wild birds. It is thought by the Committee that this is one of the best methods for breaking up the trade in wild bird plumage; if the retailers will not handle it because they fear arrest and fines, the wholesale dealers will have no market and consequently will cease to employ plume hunters along the coast.

FLORIDA. — In this State the A. O. U. model law was submitted as a bill through the influence of Mr. Robert W. Williams, Jr., a member of this Union and also a member of its Bird Protection Committee. It is largely due to the persistent, unflagging and earnest work of Mr. Williams that the state of Florida now has such an excellent bird law. Notwithstanding all that was done and said by Mr. Williams, the bill at first received an adverse report, and it became necessary for your committee to start on telegraphic notice for Tallahassee. The bill was recommitted, and after it had been thoroughly explained to the committee of both houses, and some slight amendments added to make it conform to local necessities, it received favorable report and was subsequently passed and became an operative law in sixty days, the statutory limit. While in Tallahassee the visiting members of this Committee took the occasion to give a bird talk to a large audience, among whom were the Governor and many members of the legislature.

The Thayer Fund furnished 1800 large linen warning notices, which were distributed throughout the State by different channels; subsequently the Audubon Society had a second edition of 500 printed. It is believed, on very satisfactory evidence, that the new law has stopped to a large degree the disgraceful practice of shooting 'bull bats' or Nighthawks (*Chordeiles virginianus*) for sport. No more valuable bird exists, and the passage of the law was worth all the labor it cost if it had no other result than the prevention of such acts of wanton cruelty and wastefulness.

WISCONSIN. — The passage of a new law was due entirely to the energetic work of the Audubon Society, aided by the public sentiment that had been fostered by that body.

WYOMING. — The A. O. U. model law was enacted largely by the work of our fellow member and committeeman, Mr. Frank Bond, who had a powerful auxiliary in the newspaper which he edits. Mr. Bond is actively engaged in interesting the people of his State in bird protection.

During the present legislative year (1901-02) only a few States will have legislative sessions, namely, Virginia, Georgia, Mississippi, Louisiana, Kentucky, Ohio, and Iowa; and it is the purpose of your Committee to endeavor to secure the passage of the A. O. U. model law in each State. Already Dr. Palmer and the writer have visited Georgia and have had introduced in both houses bills for the protection of the non-game birds. The bills were referred to the General Agricultural Committee in both houses, and your representatives appeared before each committee and made earnest appeals for the passage of the bill, on the ground that as Georgia was the largest fruit growing State in the South, it was extremely important that the wild birds should be protected as aids to the agricultural and horticultural interests of the State. The bill is receiving the strong support of the State Agricultural and Entomological Departments, and has already received a favorable report from the House committee to whom it was referred, has had its second reading in the House, and unless some very unexpected opposition is developed will become a law.

During the visit of your Committee it was discovered that already there was in Georgia a very considerable and growing interest in the subject of bird protection and bird study. One noble

and enthusiastic woman and bird lover, Mrs. Julius L. Brown, of Atlanta, had, unaided, secured the pledges of over 3000 of the best women of her State that they would not in the future use the plumage of wild birds as millinery ornaments. Besides this, through her efforts, over 2500 of the school children of Atlanta were subscribers to a pledge not to harm or annoy wild birds. Mrs. Brown is also a regular contributor to the Georgia press of articles relating to the preservation of bird life. The noble example of this woman is commended to the women of other sections of the country, with the earnest hope that many more may be found who will do what they can in this most laudable and important work.

PROTECTION BY WARDENS.

Probably by far the most interesting part of protection work, to the public, is the results obtained through the actual guarding of the birds during the breeding season, by wardens.

During the present year some changes were made in the personnel of the wardens, owing to a better understanding of the actual needs in each locality, that were developed by the inspections made during the season of 1900.

All of the wardens were required to make full and detailed reports in writing, on blanks furnished by the Committee, and from these the following interesting details of the results of the year's work by wardens is submitted :

MAINE. — Ten wardens were employed, each of whom protected from one to five islands which were the homes of gulls, terns or other sea birds.

L. E. Wright, of the Cross Island Life Saving Station, was in charge of Old Man, Doubleheaded Shot, Inner Libby, and The Brothers Islands; the distance from the most eastern to the most western island being about fifteen miles. He reports that he failed to see or hear of any Herring Gulls or Terns being killed on the breeding places, nor afterward. He is sure there is double the number of young gulls this autumn that he has seen any previous year.

O. B. Hall, keeper of the Crumple Island Light, was in charge of Stevens and Sand Islands, Egg and Freeman's Rocks; two of

these islands are wooded and two are simply masses of granite. The birds breeding were Herring Gulls (*Larus argentatus smithsonianus*), Terns (*Sterna hirundo et paradisæa*), Black Ducks (*Anas obscura*), Black Guillemots (*Cephus grylle*), and Spotted Sandpipers (*Actitis macularia*). As these islands are a long distance from the mainland, very little trouble was experienced in protecting the birds and their eggs, and the warden reports that no old or young birds were killed, nor were any eggs taken.

Capt. Hall estimates that the number of young birds raised during the present season was as follows: Herring Gulls, 3000; Terns, 4000; Black Ducks, 50; Black Guillemots, 50.

Chas. Holt, keeper of the Nash Island Light, had charge of the breeding colony of Herring Gulls on Cone Island, some 800 in number. Unfortunately there was an increase of only about 100 birds; the reason for this being that the owners of the island, a mother and three daughters, seriously object to having the birds use the island as a home. They keep a large flock of sheep on the island during the whole year, in fact too many for the island to maintain. It is claimed by the owners that the gulls destroy the grass, or render it unfit for the sheep to eat, and they have used every means to drive the birds away, even going so far as to place upon the island four foxes, just before the breeding season, hoping they would destroy the eggs and young birds. This result may obtain during some sixty days in the year, but it is anticipated that next spring the foxes will destroy many newly born lambs. As a matter of fact, the gulls are probably of great benefit to the island, as the deposits of guano serve to enrich the land, and even though the grass is temporarily rendered distasteful to the sheep, during the breeding season, yet the fall rains will wash and sweeten the grass and carry the fertilizing properties to the roots.

Wm. C. Gott, keeper of the Pond Island Light, protected a large colony of Black-crowned Night Herons (*Nycticorax nycticorax naevius*) on the Douglas Islands; he states that there was a normal increase, as the birds were not disturbed, owing to the fact that he thoroughly posted the island with warning notices.

Wm. D. Upton, keeper of the Petit Manan Light, had charge of a small island called Egg Rock, on which a few terns bred; these were not disturbed at all and the increase was normal.

Great Duck Island was in charge of the owner, Dennis Driscoll, and of Wm. F. Stanley, keeper of the lighthouse located at the south end of the island. This probably is the largest colony of Herring Gulls in the United States. On the adjoining island, Little Duck, there is also a colony of a few hundred Herring Gulls. Both of these islands were thoroughly watched and the wardens report that the increase was absolutely normal. It is estimated that on the two islands, at least 2500 to 3000 young birds matured.

The birds that breed on this island are the ones that are seen about Bar Harbor and the other summer resorts on Mount Desert Island, and it will be of interest to quote from a letter accompanying a contribution from Mrs. Kennedy: "There was a perceptible increase in the numbers of sea gulls seen about Bar Harbor last summer over the year before. Much of the pleasure in sailing about Frenchman's Bay is derived from watching the various sea birds flying about, and if these can be protected and increased in numbers, I consider it a privilege to help on the good work."

The colony at No-mans-land is in charge of the owner of the island, Mark Young of Matinicus Island; this colony is probably but very little smaller than the one on Duck Island. The birds were thoroughly protected, and there is no doubt that at least 2500 young birds were matured at this station. Mr. Young, in his report, gives a very interesting incident; about the time the young gulls were full grown, flocks of them visited the grass and potato fields and ate immense numbers of grasshoppers and Colorado beetles. If the gulls, besides their work as scavengers, are also insectivorous, there is greater reason than ever why they should be protected.

James E. Hall, keeper of the light on Matinicus Rock, reports that the Terns (*Sterna hirundo et paradisæa*) and Sea Pigeons (*Cephus grylle*) breeding there were again thoroughly protected, and consequently the increase was normal. He reports as an interesting ornithological fact that two pairs of Puffins (*Fratercula arctica*) raised young upon the island during the past season, and also that the colony of Black Guillemots was increased by at least 100 birds.

Mr. Geo. D. Pottle had charge of Shark, Egg and Western Rocks, near Friendship; he reports that the Terns (*Sterna hirundo*

et paradisæa) that bred upon the islands in his charge were molested somewhat by summer boarders and young men who shoot on Sundays; however, there was considerable increase in the number of birds in his district.

Mr. Geo. E. Cushman was in charge of Stratton and Bluff Islands, which maintained a colony of about 600 terns; he estimates that some five or six hundred young were matured; he did not see nor hear anyone shooting terns in his vicinity during the season nor experience any trouble with people seeking eggs; he adds that the prosecution that he instituted in the summer of 1900 taught the people a lesson which has not yet been forgotten.

The writer of this report visited nearly all of the colonies on the Maine coast during the height of the breeding season, occupying nearly thirty days in the work, and it is with great pleasure that he is able to report that he found all of the wardens thoroughly conscientious and very active in their duties. It is believed that the estimates of increase made by the wardens are very conservative and well within the actual facts; many more young birds in the dark plumage were seen than during the season of 1900; further, on most of the islands the breeding birds were very gentle, thus showing that they had not been disturbed to any great extent.

MASSACHUSETTS.—As usual the terns on the Muskegets were protected by our fellow-member, Mr. G. H. Mackay, and those on Penekese Island by the owners, the Messrs. Homer. These two colonies are probably as thoroughly guarded as any in the United States. A few extracts from the report of our member, Mr. R. H. Howe, Jr., who made two special trips to the Massachusetts coast, will be of interest.

“September 19. Arrived at Yarmouth and have been investigating the birds here and gaining information in regard to their being shot. Was told on every hand that but little shooting was done here now outside of that done by the boys about town and by visiting gunners; these did but little and in season only. I was told that H. Lovell and Jamieson, the lighthouse keepers at Sandy Neck, Barnstable, two years ago used to do a great deal of gull shooting for New York parties, but since laws have been passed against it they have stopped entirely, having been instructed by the New York dealers not to ship any more birds, as they could not

sell them. These two men made \$10 to \$15 a day in former years, shooting birds for the milliners.

"It would please you, I am sure, and all members of the A. O. U., to see the thousands of gulls and terns feeding off here in the harbor. From my investigations this day I feel quite confident no serious work is being carried on against the birds protected by law in this region.

"October 9. — I have returned from North Truro and report as follows: There is very little shooting being done in the region of North Truro and Provincetown at this time. I saw Small, who now does little else but shoot; but he is practically the only man who does. He is apparently a law-abiding fellow, who shoots a great deal in season and kills many birds. Last year on October 1, he told me, when the close season ended for gulls, he shot 375 birds that day, and about the same number through the rest of the week. He shipped the birds to a New York market, having been promised $12\frac{1}{2}$ cents each, but from the bottom falling out of the market, as he expressed it, probably due to the A. O. U. and Audubon work, and because of the great supply, for he says every gunner on the Cape shipped birds, he never received any pay, and his loss was great on ammunition. He said he guessed shooting birds for hats was over."

NEW YORK. — The colonies of Common and Roseate Terns on Flat Hammock, Wicopesset, Little Pine, and South Dumpling Islands, near Fishers Island, were in charge of J. S. Casey to June 20, when he was taken sick and had to give up the work. Subsequently Mr. J. T. Fowler, keeper of the North Dumpling Light, assumed charge.

Mr. James H. Hill, our fellow member, who has charge of these breeding grounds reports as follows:

"I have discovered a small colony of Wilson's Terns (*Sterna hirundo*), five pairs on Goose Rock near Niantic Bay, Conn. This is a new nesting site.

"Mr. Philip J. McCook, an associate member, writes me in regard to the two small colonies of terns on the islands in Niantic Bay. The terns again used Waterford and Two-Tree Islands this year; he reports noting 12 to 13 pairs nesting on Waterford Island the last week in June, and on Two-Tree Island in first week of

July he counted about 35 terns there, but found only seven nests containing from one to three eggs each. He thinks the squatting on the island by people of the mainland to secure a title to it, the digging out and cleaning the well, and the planting and cultivation of a small potato patch has had the tendency to drive away most of the terns from their last year's breeding grounds.

"Mr. Frank Palmer, resident of Stonington, nearest Liddy Island, told me that the terns nested on the island this year, he noting 5 nests, and, further, that he had seen a pair nesting on Rocky Island, a short distance from Liddy Island; nest contained three eggs. The last is also a new nesting site.

"Flat Hammock. It was my intention, and I had made all arrangements to fully protect the breeding birds, having received, through the kindness of Mr. Charles W. Gordon, the Superintendent, and the courtesy of the Messrs. E. M. and W. Fergusons, the owners of both Flat Hammock and South Dumpling Islands, full permission to erect a shanty on South Dumpling, for the shelter of the warden, and I here wish to acknowledge their kindness and co-operation, but owing to the bad weather the latter part of May, and the inability to land materials on the island on account of rough water, and the subsequent sickness of Mr. Casey, our first warden, the middle of June, I was unable to carry out my plans. I therefore reappointed Capt. Fowler, our warden of last year, who cared for the birds the rest of the season.

"Capt. Fowler estimates that we raised, at the lowest calculation, over 1200 birds, counting Wicopesset, Flat Hammock, South Dumpling and Little Pine Island, and I think he is correct as he wrote he counted on June 20, on Flat Hammock, 663 eggs, mostly Wilson's Terns, and a few Roseates.

"Mr. Casey, our first warden, advised me in early June that a few terns were nesting on South Dumpling where we had intended to build a shanty. I found on my visit, June 20, 16 pairs nesting on an open space on the west slope of the island, so that after all we gained something by not building the shanty.

"South Hammock or South Dumpling is a short distance from Flat Hammock, about four acres in area, and rises quite abruptly from the water fifteen to sixteen feet, with not much beach. The top of the island is flat, grassy, with some bushes, and if the terns

get to using it regularly it will be a less exposed nesting place than Flat Hammock. A cabin boat for the use of the warden, anchored midway between the islands, would help to give full protection to the breeding birds, as we now have a new difficulty to contend with, *viz.*: many of the lobster and fishing boats and pleasure launches are now provided with small gasoline motors, and it has happened several times that boats of this character have run up to and made a landing on Flat Hammock and gone away before the warden could launch his boat to warn them off.

"Capt. James Smith, of the steamer 'Manhansett,' who makes daily trips to Greenport, Long Island, and whose route is through the 'Race,' tells me that he has noted a larger number of terns or mackerel gulls this year than usual, a thousand at a time, and this is the report of all the fishermen, lobstermen and blue fishing parties this season, and also of the soldiers on Great Gull Island, the former home of the terns. My own observations during my trips of inspection make me positive that no birds have been shot by plume hunters in my vicinity.

"There is not the least shadow of a doubt but that the terns are steadily increasing in numbers on Long Island Sound through the special protection given them in the breeding season, and under the wise and beneficent A. O. U. laws enacted for their protection in the different States.

"I said last year 'You may count me in as a champion of the gulls, terns and ospreys in this locality, and I shall use every means in my power to protect them,' and I shall try to place them in the protected list. The A. O. U. model is now a law of Connecticut, thanks to an intelligent legislature, the majority of whom were farmer representatives, and a Governor who did his duty, together with the hearty coöperation of the Hon. A. B. Calkins, Chairman of the Committee on Fisheries and Game. Now all wild birds are protected except hawks (Fish Hawks not included), Great Horned Owls (*Bubo virginianus*), Crows (*Corvus americanus*), and English Sparrows. Surely Connecticut is in line with her sister States in the enactment of just laws for the protection of birds."

The two colonies of terns (*Sterna hirundo et dougalli*) on Gardiners Island were in charge of the same wardens who cared for

them during the season of 1900, *viz.*, Mr. C. W. Rackett at the north end and Mr. Hiram S. Miller at the south end. Both report that they had very little trouble protecting the birds this year, owing to the fact that the inhabitants and the summer boarders are becoming acquainted with the fact that it is illegal to disturb the birds in any way, and further, because the warning notices are conspicuously placed in all parts of the breeding grounds. A very large number of young birds were matured, a conservative estimate being from 4000 to 5000.

NEW JERSEY. — Our fellow member, Mr. W. L. Baily, who had charge of the work on the New Jersey coast, made a trip to Stone Harbor and Peck's Beach July 20 "and found almost twice as many Black-headed Gulls (*Larus atricilla*) as last year. Every nest and egg was washed away by a high tide on June 17 and 18. Afterward the gulls scattered all over the meadows wherever they could find trash and suitable spots and commenced to lay again. The second nests have been undisturbed and the eggs were just hatching July 21; no young gulls were found over one day old. The eggs of the tern colony on Little Gull Island, Stone Harbor, were entirely swept away by the high tide referred to above. I saw the terns but could not find any nests."

R. S. Ludlam was the warden in charge of about four miles of beach and marsh near Stone Harbor. He reports that he protected all kinds of birds that breed in his district; a colony of 800 Black-headed Gulls (*Larus atricilla*), some Terns (*Sterna hirundo*), Fish Hawks (*Pandion haliaëtus carolinensis*), Clapper Rails (*Rallus crepitans*), and several species of land birds. He estimates that 1000 gulls were raised. He reports that he had the most trouble to keep summer boarders from shooting the birds, as they want sport and will shoot at anything. The hard storm of June 15 to 18 destroyed thousands of eggs about to hatch. He says: "I found Clapper Rails along the beach by hundreds where they had been drowned on their nests, together with their young. Many eggs had been destroyed by the tide. The survivors laid again and hatched in July.

"September 10 I saw hundreds of Black-headed Gulls catching flying ants; this had never been noticed before. There were millions of the ants about forty feet up in the air, and the gulls

were flying about among them with open mouths. The ants are here for two days about the same date each year. It is a common thing to see the terns catch the ants, also mosquitoes and grasshoppers."

Mr. J. B. Rider had charge of a small colony of terns, about 150 pairs, on the beach and marsh near Little Egg Harbor. He thinks that nearly 300 young were raised. By using the linen posters freely along the beach and watching the summer boarder with a gun, he succeeded in saving the birds.

MARYLAND.—Mr. S. B. Harman cares for the beaches and marshes near Cedar Town on which the Mackerel Gull (tern) breeds; he says "the number of birds that can be seen at one time is sufficient proof that the efforts of your society have been a great success."

VIRGINIA.—John B. Whealton, of the Wallops Beach Life Saving Station, estimates in his territory, a district of beach and marsh seven miles long, the following increase in birds; Mud Hens (*Rallus crepitans*) and Willet (*Symphemia semipalmata*), large number; Black-headed Gull (*Larus atricilla*), 2000; Strikers (*Sterna hirundo*, *S. forsteri*, and *S. antillarum*), 3000.

He had some difficulty in stopping eggng, even after the close season commenced. He thinks that the law should be changed so that eggng should not be permitted at any time.

Mr. N. B. Rich, of Assateague Beach Life Saving Station, protects a territory seven miles long by three wide. It is both sand beach and high salt meadow and was formerly an island. Birds protected were Willet, Mud Hens, Laughing Gulls, Terns and some Snipe. He estimates a large increase in the birds. He reports two cases where summer boarders killed a few terns, but promised never to do so again if not prosecuted for the first offense. "Boats used to come from New Jersey and North Carolina for the purpose of killing gulls and terns for millinery purposes but have stopped since I have been looking for them."

Mr. L. F. Taylor, of the Metomkin Beach Life Saving Station, cared for a district seven miles long, sand beach and marsh. Birds protected were Marsh Hens, Laughing Gulls, Willets, and Big and Little Strikers (*Sterna*). A normal increase took place, as on one occasion only did he have to stop illegal shooting.

Mr. J. A. D. Savage, of Wachapreague Life Saving Station, protected a territory composed of beach and marsh about three miles by two; he estimates that at least 3000 Marsh Hens, 500 Laughing Gulls, 600 Flood Gulls (*Rynchops nigra*), and 200 Terns were raised during the season. He states that so far as he knows, no birds were killed and but few eggs were taken, and he adds: "For the encouragement of your society I would say that before the efforts to protect the birds were put forth some of the species were nearly extinct, but have now increased to considerable numbers."

Mr. J. W. Richardson, of Parramores Beach Life Saving Station, cares for seven square miles of beach and marsh, principally the latter; he estimates the following increase in birds: Laughing Gulls (*Larus atricilla*), about 600; Willet, 800; Little Strikers (*Sterna antillarum*), 100; Big Strikers (*Sterna hirundo et forsteri*), 300; Mud Hens, 1000.

He adds: "There are more Black-headed Gulls this season than usual. I have walked and sailed through our marshes many times this summer, and have talked with boatmen and others, advocating the cause of birds in my own way, and I found many responsive hearers in sympathy with our work." He suggests that the Virginia law should be changed and made much more strict in order to successfully protect game and other wild birds.

Mr. John E. Johnson, of the Hog Island Life Saving Station, was in charge of about eight miles of marsh and beach on which bred: Common Tern, Gull-billed Tern (*Gelochelidon nilotica*), Laughing Gull, Black Skimmer, Willet, Wilson's Plover (*Aegialitis wilsonia*), and American Oyster-catcher (*Haematopus palliatus*).

He estimates the young as follows: Common Tern, 2000; Gull-billed Tern, 200; Laughing Gull, 2000; Black Skimmer, 1000; Willet, 100; Wilson's Plover, 50; American Oyster-catcher, 100. "I do not think that any birds were killed illegally, as the residents know that the law is being strictly enforced. I have a very good opportunity of knowing, as I am going through the marshes two or three times a week during the breeding season."

Mr. J. R. Andrews, of the Cobbs Island Life Saving Station, protected about six miles of beach and marsh, and also two large marsh islands of about 800 acres in area. The birds in his dis-

tract were carefully watched over, and he estimates that the increase was as follows: Black-headed Gulls (*Larus atricilla*), about 4000; Black Skimmers (*Rynchops nigra*) about 4000; Terns (*Sterna hirundo et forsteri*), about 600; Gull-billed Terns (*Gelochelidon nilotica*), about 300; Oyster-catchers (*Hæmatopus palliatus*), about 4; Willets (*Symphemia semipalmata*), 4; Wilson's Plover (*Ægialitis wilsonia*), 2; Marsh Hens (*Rallus crepitans*), about 2,000.

He reports that about 1000 gulls' eggs, 300 terns' eggs, and 1000 marsh hens' eggs were taken by fishermen and others before the close season commenced. After that date none were taken; "I did not have as much trouble," he says, "this year as last. I think the Black-headed Gulls, Skimmers, Common Terns, and Gull-billed Terns have doubled in number since last year. The day after Mr. Kirkwood left I caught three men very neatly. I was in my lookout and saw a boat coming, and as I was satisfied I knew what they were after, I went up the beach and hid in the grass where I thought they would land. As soon as they landed I rose up with my gun right in front of them and asked them what they were after. At first they said 'nothing,' but I soon made them own up that they had come for young birds. They promised if I would let them off that they would never come again. I have not seen a man on the beach since. A great many boatmen like to eat the young Skimmers."

Mr. G. D. Hitchens, of the Smiths Island Life Saving Station, was in charge of a district about twelve miles long by from one hundred yards to one and one half miles wide, consisting of beach, marsh, and islands. The increase in the birds in his charge, as near as he can estimate, was as follows: Common Tern (*Sterna hirundo*), about 1,000; Laughing Gull (*Larus atricilla*), about 1,000; American Oyster-catcher (*Hæmatopus palliatus*), about 20; Wilson's Plover (*Ægialitis wilsonia*), about 6; Clapper Rail (*Rallus crepitans*), about 5,000; Willet (*Symphemia semipalmata*), about 75; Royal Tern (*Sterna maxima*), about 100; Black Skimmer (*Rynchops nigra*), about 200.

"No eggs were taken on Smiths Island, but on the Isaacs all the eggs were taken until the last of July. I could not catch the one who did it but was told he was the caretaker of the United

States Quarantine Station on Fishermans Island, which is very close to the Isaacs, while they are about three miles away from me. I think it would be a good idea to ask the Marine Hospital service to send an order to their caretaker regarding this matter; there should have been several thousand birds raised whereas there were only a few hundred. There have been no eggs taken nor birds killed on Smiths Island while I have been warden, and there are more birds now than I have seen in fifteen years."

All of the wardens in Maryland and Virginia were visited very early in August by our fellow-members, Messrs. William H. Fisher and Frank C. Kirkwood, the latter of whom made a long and detailed report, from which the following interesting items are extracted:

"I have just returned from the inspection trip and the results are most satisfactory, and, allowing for the difference of season, I think a 50 per cent increase over last year is a conservative average. At some points it was more, at some less.

"With the waders, however, it was different; they were scarce. The Willet, which breeds all along this shore, was nearly absent and comparatively few Clapper Rails were heard; this may be accounted for by the storms in May which put very high tides over the marshes.

"All the men report that no shooting was done and but very little, if any, egging.

"I am greatly pleased with the wardens; they all greeted me by name, and said they thought I had died, as the last they had heard of me after the trip of 1900 was that I was very sick. They are all very enthusiastic over the increase in the birds. Mr. Fisher secured a number of excellent photographs, and we had some peculiar experiences, one of which was a sudden storm which overtook us; for fierceness of wind, rain, hail, thunder and lightning it surpassed anything I ever saw, and within five minutes our temperature changed from a dripping perspiration to a chill. That night, instead of reaching our destination, we were compelled at 10.30 P. M. to break into an oyster watch-house in the bay and remain there until daylight. One night the heat and mosquitoes were so bad that we climbed to the platform under the lantern of the old lighthouse on Smiths Island, 150 feet up, where we passed

the night and enjoyed a fine breeze and perfect freedom from the insect pests. What delighted me more than anything else during the trip was to discover that there was some increase in the numbers of Least Terns (*Sterna antillarum*) which may in time restock the entire coast. It is hoped that before the time for another report is reached, the Commonwealth of Virginia will have upon its statute books a law that will prevent the taking of wild birds' eggs at any time. It is a practice that there is no reason for, and is only indulged in by a few lawless persons who think that all wild things may be taken at any and all times. The great majority of the citizens of Virginia, it is believed, are heartily in favor of stopping this wasteful practice."

LOUISIANA.—As the fund collected by Mr. Thayer this year fully warranted the expenditure, the territory covered by wardens was enlarged to embrace the coast of Louisiana, which was formerly the home of immense numbers of sea birds. Owing to the depredations of plume hunters, a great many of the outlying islands and sand bars that had formerly been used as breeding places had been deserted; however, on investigation it was found that on Timbalier Island there still remained a very considerable number of birds. The laws of Louisiana afford no protection for birds, and it was found necessary to ascertain the ownership of this island, which is some fifteen miles long and is located in the parish of Terrebonne. At first it was supposed to be still State property, but on investigation it was found to be owned by the Terrebonne Land Company, one of the managers of which, Mr. J. M. Dresser, wrote as follows:

"We are perfectly willing to turn over to your society any rights that we have, to use for the purpose that you require them, the protecting of the sea birds. We think they ought not to be disturbed during the nesting season. We are in full sympathy with the purposes of your society and you can depend upon us to cooperate with you. If you will write an article and send it to the 'Times Democrat,' the most influential paper in this city, they will publish it and gladly aid in bringing the matter before the people, and try to create a sentiment which will result in a law being passed by the next legislature to protect the birds."

The details of the protection work in Louisiana were referred to

our fellow member, Mr. George E. Beyer, who kindly and generously gave largely of his time in its prosecution. He obtained from Mr. Dresser full power of attorney, attested and sworn to before a notary. On April 6, Mr. Beyer returned from a trip to Timbalier Island, an account of which is here appended :

“Last night I returned from the seacoast and the islands, whither I had gone to see what could be done for the protection of the sea birds, and how many still remained to be protected. In regard to the latter, unfortunately but few remain. I left New Orleans for Houma on the 26th of March. Immediately upon my arrival I tried to find out the sentiment of the people in regard to the proposed protection, and was rejoiced to find not a single instance of disfavor; on the contrary, people seemed to be glad that I was about to take steps for the preservation of the sea birds. My presence in Houma and its object spread like wildfire, and quite a number of men whom I met published notices of trespass. In Houma I engaged the services of a small sailing vessel, and left the town on the 28th of March. I reached the first island on the evening of the 29th, and the following morning I proceeded to Timbalier Island. I spent an entire day in a thorough investigation of this piece of land, but only the east end or Racoon Shoals has a colony of breeding birds. This colony is at once the largest and the only one of any consequence left on a stretch of seacoast of about 150 miles. In Houma I had been informed by the sheriff of Terrebonne Parish, that the man living on the island, Ferdinand Desiré, would be about the most reliable, strict, and altogether most suitable one for our purpose. I found that the man came up to every requirement, and also that he was well informed as to the species and number and strength of the remaining colonies. Becoming, in the meantime, familiar with the conditions around, I engaged him for a period of four months, his term of duty to commence on April 15. He was notified by the sheriff to come to Houma to be sworn in as deputy sheriff, and be invested with every authority the parish can possibly grant him. At this man's suggestion, I visited quite a number of other islands, but as he knew, and told me before hand, no birds are left. I enclose a map, published by Wisner and Dresser, upon which I have designated my route, and also the breeding grounds, pointed

out by Desiré, our warden, and verified by myself with the two exceptions on the mainland.

"As far as the trip is concerned I am more than satisfied. I firmly believe we will have no trouble on that section of the coast. The only weak point is this: hunters may be stopped from shooting the birds on land, but possibly could not be prevented from doing so on the water, unless I could get the authority of the United States Government to enforce the law on the three mile limit. I believe the A. O. U. might secure that for me under the Lacey Act. I think it would be well for you to look into this matter at once and do what you can. It will certainly help to make our undertaking a completely successful one."

Later on Mr. Beyer received the following letter from warden Ferdinand Desiré:

July 13, 1901.

Terrebonne Parish, Timbalier Island.

DEAR SIR:

On the 8th and 9th the wind blew very strong and the tide was very high, in fact, washed over the different islands and destroyed the eggs and young birds. There are only a few eggs and young birds left, but the old birds are still left on Racoon Pass and will very soon lay again. The same of the cranes; their nests were blown down, but the old birds are there still. Timbalier beach has suffered the same; nests and birds destroyed by the tide.

I could not leave this place as often as I would have liked; the Chinamen and fishermen were here and I had to watch to keep them from getting the eggs around Timbalier and Racoon Islands. They are all gone, the fishermen leaving on the 10th. Will make a round as often as possible and report accordingly.

Yours truly,

FERDINAND DESIRÉ.

The following letter from Mr. Beyer gives the result of the effort to protect the birds of Louisiana. It very forcibly shows how necessary it is that the birds should not be subjected to the wasteful methods of mankind when they have to contend with such natural forces as storms and tides.

"Your fears were only too well grounded, as you may perceive from the reports sent me by Desiré. Just before the storm I made an attempt to go to the islands, but could only get as far as Houma. While it is deplorable that we have lost two entire

broods, through no fault of ours, we have at least the satisfaction of having preserved the adults, and by next year I am positive we will have the State laws on our side. I am quietly working now and I think we will experience no opposition or difficulty to gain all our points."

In the several localities where the warden system was employed the results fully warrant the outlay of funds made, and a continuance and extension of the system. It has been thought advisable to append to this report a copy of the model law advocated by the A. O. U., in order that the press and the public may be able to examine it, and, it is hoped, advocate its passage in Commonwealths where the present bird laws are insufficient to give absolute protection to the non-game birds.

LEGISLATION FOR THE PROTECTION OF BIRDS.

ACT PROPOSED BY THE AMERICAN ORNITHOLOGISTS' UNION.

An Act for the Protection of Birds and their Nests and Eggs.

Section 1. No person shall, within the State of —, kill or catch or have in his or her possession, living or dead, any wild bird other than a game bird, or purchase, offer, or expose for sale, transport, or ship within or without the State, any such wild bird after it has been killed or caught. No part of the plumage, skin, or body of any bird protected by this section shall be sold or had in possession for sale except as permitted by this act. For the purposes of this act the following only shall be considered game birds: The Anatidæ, commonly known as swans, geese, brant, and river and sea ducks; the Rallidæ, commonly known as rails, coots, mudhens and gallinules; the Limicolæ, commonly known as shore birds, plovers, surf birds, snipe, woodcock, sandpipers, tattlers, and curlews; the Gallinæ, commonly known as wild turkeys, grouse, prairie chickens, pheasants, partridges, and quails.

Sec. 2. No person shall, within the State of —, take or needlessly destroy the nest or the eggs of any wild bird other than a game bird, or have such nest or eggs in his or her possession except as permitted by this act.

Sec. 3. Any person who violates any of the provisions of this act shall be guilty of a misdemeanor, and shall be liable to a fine of — dollars for each bird, living or dead, or part of bird, or nest, or set of eggs, or part thereof, possessed in violation of this act, or to imprisonment for ten days, or both, at the discretion of the court.

Sec. 4. Sections 1, 2, and 3 of this act shall not apply to any person holding a certificate giving the right to take birds, their nests, or eggs for scientific purposes, as provided for in section 5 of this act.

Sec. 5. Certificates may be granted by [here follow the names of the persons], if any, duly authorized by this act to grant such certificates, or by any incorporated society of natural history in the State, through such persons or officers as said society may designate, to any properly accredited person of the age of fifteen years or upward, permitting the holder thereof to collect birds, their nests or eggs, for strictly scientific purposes only. In order to obtain such certificate the applicant for the same must present to the person or persons having the power to grant said certificate written testimonials from two well-known scientific men, certifying to the good character and fitness of said applicant to be intrusted with such privilege; must pay to said persons or officers one dollar to defray the necessary expenses attending the granting of such certificates; and must file with said persons or officers a properly executed bond, in the sum of two hundred dollars, signed by two responsible citizens of the State as sureties. On proof that the holder of such a certificate has killed any bird, or taken the nest or eggs of any bird, for other than scientific purposes his bond shall be forfeited to the State, and the certificate become void, and he shall be further subject for each such offense to the penalties provided therefor in section 3 of this act.

Sec. 6. The certificates authorized by this act shall be in force for one year only from the date of their issue, and shall not be transferable.

Sec. 7.¹ The English or European house sparrow (*Passer domesticus*) is not included among the birds protected by this act.

Sec. 8. All acts or parts of acts, heretofore passed, inconsistent with or contrary to the provisions of this act, are hereby repealed.

Sec. 9. This act shall take effect upon its passage.

THE THAYER FUND.

The treasurer of the fund attaches a statement showing the subscriptions and disbursements during the year ending November 1, 1901, the correctness of which he certifies to.

¹ Where it is absolutely necessary to exclude any birds from protection they may be added to Section 7, so as not to alter the main text.

NEW YORK, NOV. 1, 1901.

WILLIAM DUTCHER, *Treasurer.*

IN ACCOUNT WITH THAYER FUND.

Balance brought forward from 1900 \$449.98

SUBSCRIPTIONS.

J. M. Sears	\$200.00	D. C. McEwen	\$10.00
C. L. Freer	150.00	Jno. D. Hicks	10.00
Ellen R. Pickman	150.00	R. C. Robbins	10.00
A. Hemenway	100.00	W. S. Peele	10.00
Louisa L. Kane	100.00	C. E. Norton	5.00
Mrs. A. Hemenway	100.00	Wm. Amory	5.00
Wm. Brewster	100.00	Misses Merriman	5.00
Ellen J. Stone	50.00	Miss A. C. Gelpcke	5.00
Mary Lionberger	30.00	Miss Jean Ricketts	5.00
H. Y. S. Hunnewell	25.00	Jno. Donaldson	5.00
S. O. Metcalf	25.00	Emily Howland	5.25
Mrs. J. S. Kennedy	25.00	W. H. Aspinwall	5.00
Miss E. L. O.	25.00	Mrs. Z. Chaffee	5.00
Edith C. Macy	25.00	Frank M. Day	5.00
Frank J. Heckel	25.00	S. Brooks	5.00
A. A. Lawrence	25.00	Mrs. F. T. Gray	5.00
H. S. Hunnewell	25.00	Mrs. R. M. Lawrence	5.00
Walter Hunnewell	25.00	Miss Lucy H. Baird	5.00
Dean Sage	20.00	Mary I. Corning	5.00
Col. O. H. Payne	20.00	H. H. White	5.00
H. M. Hanna	20.00	Miss Cowper Lord	5.00
W. B. Dickerman	20.00	M. Benj. Nicoll	5.00
Conn. Audubon Society	20.00	W. G. Van Name	5.00
Miss Mary A. Greene	20.00	F. R. Bangs	5.00
Mrs. R. G. Shaw	20.00	Jno. L. Cox	5.00
Mrs. T. M. Brewer	20.00	Ralph W. Trine	5.00
Mr. & Mrs. W. M. Smith	15.00	Etta F. Miles	.
Caroline P. Latimer	15.00	(Six children's clubs)	3.75
Miss Fannie Dwight	10.00	Miss Anna D. Ludlow	3.00
S. H. Wheeler	10.00	Helen P. Haskell	3.00
Rev. G. F. Weld and wife	10.00	Elizabeth Christian	3.00
Mary L. Parsons	10.00	Miss E. A. Dana	3.00
Ellen D. Sharp	10.00	Annie M. Archer	3.00
Mrs. Lowell	10.00	Royal E. Robbins, 2nd	3.00
Ellen Collins and sister	10.00	29 contributions from \$2.00 to	
Cash	10.00	10 cents each	32.65
			\$1679.65
			\$2129.63

EXPENDITURES.

Virginia.

F. C. Kirkwood, Trav. expenses	\$40.00	
8 wardens	<u>140.00</u>	\$180.00

Maryland.

F. C. Kirkwood, Trav. expenses	4.35	
1 warden	<u>25.00</u>	29.35

New Jersey.

W. L. Baily, Trav. expenses — Inspection	4.00	
W. Dutcher, “ “ to Legislature	3.25	
Dr. Palmer, “ “ “ “	8.25	
W. D. W. Miller, “ “	3.00	
Telegram and sundries . . . . .	.75	
Copy of law	2.00	
2 wardens	<u>40.00</u>	
Maps . . . . .	.50	
Warning notices	<u>13.00</u>	74.75

New York.

W. Dutcher, Trav. expenses to Legislature	32.54	
E. Hicks, “ “	12.19	
Copies of law	5.00	
Advertising	3.00	
Telegrams and telephone	7.55	
3 wardens	<u>60.00</u>	
Warning notices	<u>13.00</u>	133.28

Connecticut.

One warden	<u>20.50</u>	20.50
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Maine.

W. Dutcher, Trav. expenses to Legislature	38.82	
Dr. Palmer, “ “ “ “	44.00	
Advertising law	6.50	
Express	1.05	
Copies of law	4.00	
Posting notices on islands	5.00	
Telegrams	1.16	
Postage on notices	9.00	
Warning notices	18.40	
11 wardens	<u>353.30</u>	481.23

Delaware.

W. Dutcher, Trav. expenses to Legislature	10.03	
W. Stone, “ “ “ “	<u>6.00</u>	16.03

Louisiana.

G. E. Beyer, Trav. expenses	39.25	
1 warden	<u>160.00</u>	199.25

Texas.

Birds used in evidence (case won)	<u>10.10</u>	10.10
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Massachusetts.

R. H. Howe, Jr., Trav. expenses	8.33	
1 detective, 1 month, salary & trav. exp.	<u>146.89</u>	155.22

Florida.

Dr. Palmer, Trav. expenses to Legislature	25.70	
W. Dutcher, " " " "	88.04	
R. W. Williams, Jr., sundries	5.00	
Warning notices	<u>32.05</u>	150.79

New Hampshire.

Warning notices	<u>10.00</u>	10.00
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Georgia.

W. Dutcher, Trav. expenses to Legislature	98.24	
Dr. Palmer, " " " "	<u>17.25</u>	115.49

GENERAL EXPENSES OF COMMITTEE.

Postage	86.00		
Printing	50.83		
Clerical work	31.30		
Letter cases	1.50		
Clasp envelopes for mailing reports	11.25		
Exchange . . . . .	.20		
Copies of state laws	5.00		
Protection Committee reports	39.00		
Reports of Ill. and Mass. Aud. Societies	3.34		
W. D., Trav. exp. to Washington	14.25		
Telegrams . . . . .	.72		
Sundries	<u>8.65</u>	<u>252.04</u>	<u>683.54</u>
			\$1828.03
Balance forwarded to 1902			<u>301.60</u>
			<u>\$2129.63</u>

The above report and financial statement are

Respectfully submitted for the Committee,

WILLIAM DUTCHER.

New York City, November 1, 1901.

PROTECTION COMMITTEE FOR 1902.

WILLIAM DUTCHER, *Chairman*, 525 Manhattan Ave., New York, N. Y.

ABBOTT H. THAYER, Monadnock, New Hampshire.

JOHN M. SWAIN, Portland, Maine.

RALPH HOFFMANN, Belmont, Mass.

JAMES H. HILL, New London, Conn.

WILLIAM L. BAILY, Ardmore, Pa.

FRANK C. KIRKWOOD, Baltimore, Md.

ROBERT W. WILLIAMS, JR., Tallahassee, Florida.

PROF. GEO. E. BEYER, New Orleans, La.

FRANK BOND, Cheyenne, Wyoming.

MRS. FLORENCE MERRIAM BAILEY, Washington, D. C.

EDWARD B. CLARK, Chicago, Ill.

MRS. LOUISE MCGOWN STEPHENSON, Helena, Ark.

A. W. ANTHONY, Portland, Oregon.

Sub-Committee on Laws.

T. S. PALMER, M. D., Washington, D. C.

NINETEENTH CONGRESS OF THE AMERICAN
ORNITHOLOGISTS' UNION.

THE NINETEENTH CONGRESS of the American Ornithologists' Union convened in New York City Monday evening, November 11, 1901. The meetings were held at the American Museum of Natural History, the public sessions commencing Tuesday, November 12, and lasting three days.

BUSINESS SESSION.—The meeting was called to order by the President, Dr. C. Hart Merriam. Sixteen Active Members were present. The Secretary's report gave the membership of the Union at the opening of the present Congress as 738, constituted as follows: Active, 44; Honorary, 16; Corresponding, 62; Associate, 616.

During the year the Union lost seventy-seven members—eleven by death, twenty-four by resignation, and forty-two were dropped for non-payment of dues. The deceased members include one Honorary, four Corresponding and six Associate members, as follows: Dr. Gustav Hartlaub,¹ an Honorary Member, who died November 20, 1900, in the 87th year of his age; Dr. C. A. Altum, a Corresponding Member, who died January 1, 1900; Dr. John Anderson,² a Corresponding Member, who died August 15, 1900, aged 66 years; the Abbé Armand David,² a Corresponding Member, who died November 19, 1900, aged 74 years; Baron Edmond de Sélys Longschamps,³ a Corresponding Member, who died December 11, 1900, at the age of 87; George A. Boardman,⁴ an Associate Member, who died at Calais, Maine, January 11, 1901, aged 83; Capt. John Clifford Brown,⁵ an Associate Member, who died at Los Angeles, Cal., January 16, 1901, aged 29; Newton Dexter,⁷ who died at Seaconnet Point, R. I., July 27, 1901; James MacKinlay,⁶ an Associate Member, who died in Pictou, Nova Scotia, November 30, 1899, aged 81; Francis J. Birtwell,⁷ an Associate Member, who died at Willis, N. M., June 28, 1901, aged 21 years; and Rev. George S. Mead, an Associate Member, who died in Guatemala, June 19, 1900.

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

Certain amendments to the By-Laws, proposed at the last Congress of the Union, were adopted, whereby the former class of

¹ For an obituary notice, see *Auk*, XVIII, p. 219.

² For an obituary notice, see *Ibid.*, XIX, p. 118.

³ For an obituary notice, see *Ibid.*, XVIII, pp. 292.

⁴ For an obituary notice, see *Ibid.*, pp. 219.

⁵ For an obituary notice, see *Ibid.*, pp. 220.

⁶ For an obituary notice, see *Ibid.*, p. 221.

⁷ For an obituary notice, see *Ibid.*, pp. 413.

Active Members became Fellows, and Associate Members became Associates. A class of membership was established, intermediate between Fellows and Associates, to be known as Members, limited in number to seventy-five. The nomination of Members must be made by the Council to the Union, and the affirmative votes of three fourths of the Fellows present will be necessary to a choice. The membership of the Union now consists of the following classes: Fellows, Honorary Fellows, Corresponding Fellows, Members, Associates, and Patrons.

Outram Bangs, of Boston; Joseph Grinnell, of Palo Alto, Cal.; Dr. T. S. Palmer and Prof. F. E. L. Beal, of Washington, D. C., and Dr. Louis B. Bishop, of New Haven, Conn., were elected Fellows. Montague Chamberlain, of Boston, on resignation from the Active list, was elected a Corresponding Fellow. Eighty-three new Associates were elected, and the following fifty-five persons were elected to the new class of Members, namely: Francis H. Allen,¹ H. P. Attwater, Mrs. Florence Merriam Bailey, Vernon Bailey, William L. Baily, Chester Barlow, Prof. George E. Beyer, Frank Bond, Clement S. Brimley, Herbert Brown, Prof. Lawrence Bruner, William A. Bryan, Frank L. Burns, Amos W. Butler, George K. Cherrie, John N. Clark, Frank S. Daggett, Walter Deane, Prof. Barton W. Everman, John Fannin, Walter K. Fisher, James H. Fleming, Louis Agassiz Fuertes, Manly Hardy, Ralph Hoffmann, William A. Jeffries, Rev. Herbert K. Job, Lynds Jones, Prof. David Starr Jordan, Dr. Sylvester D. Judd, George H. Mackay, John W. Mailliard, Joseph Mailliard, Richard C. McGregor, Gerrit Smith Miller, Jr., Mrs. Olive Thorne Miller, John Murdoch, Harry C. Oberholser, Wilfred H. Osgood, Charles J. Pennock, Edward A. Preble, William W. Price, Dr. William L. Ralph, Samuel N. Rhoads, Dr. William C. Rives, Capt. Wirt Robinson, U. S. A., Jewell D. Sornborger, Frank Stephens, Abbott H. Thayer, Ernest Thompson Seton, W. E. Clyde Todd, Bradford Torrey, Charles H. Townsend, Dr. Spencer Trotter, Mrs. Mabel Osgood Wright.

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

¹ The addresses of the new Members-elect may be found by reference to the Membership List published in 'The Auk' for October, 1901.

PUBLIC SESSION. *First Day.* The meeting was called to order by the President, Dr. Merriam. An address of welcome was made by Prof. H. C. Bumpus on behalf of the President and Trustees of the American Museum of Natural History, to which a fitting response was made by the Chair.

The scientific proceedings began with a paper by Dr. J. A. Allen, entitled 'The Present Outlook for Stability in Nomenclature.' Remarks followed by the Chair.

Next came 'The Plumages of the American Goldfinch (*Spinus tristis*),' by Dr. Jonathan Dwight, Jr. Remarks followed by Messrs. Chapman, Oberholser and Batchelder, and Dr. Allen.

The third title was 'On Methods in Museum Bird Exhibits,' by Mr. Frank M. Chapman. In this connection Dr. Merriam called attention to the numerous fine groups of birds forming a part of the ornithological exhibit of the American Museum of Natural History, especially to a late addition representing the colony of breeding sea birds at Bird Rock, in the Gulf of St. Lawrence.

The opening paper of the afternoon session was by James H. Hill, entitled 'The White-winged Crossbill in Captivity.' Remarks followed by Mr. Chapman.

The second title was 'Some Impressions of Texas Birds,' by Louis Agassiz Fuertes and H. C. Oberholser. Remarks followed by Mr. Brewster and Mr. Oberholser.

'Ornithological Notes from Northern New Hampshire,' by Judge John N. Clark, was the title of the third paper. Remarks followed by Messrs. Brewster and Stone.

The concluding paper of the day was 'Routes of Bird Migration across the Gulf of Mexico,' by Prof. W. W. Cooke. In the absence of the author, it was read by Dr. T. S. Palmer. Remarks followed by the Chair, Drs. Palmer and Mearns, and Messrs. Chapman and Nelson.

Second Day.—The meeting was called to order by the President. The first paper, by Dr. J. A. Allen, was entitled 'The American and European Herring Gulls.' Remarks followed by Dr. Dwight and Mr. Oberholser.

The second paper was entitled 'Auduboniana,' by Ruthven Deane, accompanied by an exhibition of books, manuscripts, etc., formerly belonging to Audubon.

The third paper was 'The Moults and Plumages of the North American Ducks (Anatidæ),' by Dr. Jonathan Dwight, Jr. Remarks followed by Mr. Stone and the author.

The concluding paper of the morning, 'Remarks on Seven Birds from the Southern United States,' was by Dr. E. A. Mearns.

The afternoon session, held in the large Lecture Hall of the Museum, was devoted to the following papers, all being illustrated by lantern slides, viz.: 'A Naturalist in Yucatan,' by E. W. Nelson; 'Photography in North Dakota Bird Colonies,' by the Rev. H. K. Job; and 'A Reconnaissance in Manitoba and the Northwest,' by Frank M. Chapman.

Third Day.—The meeting was called to order by the President, Dr. Merriam. The first and second papers of the morning, 'Are Hummingbirds Cypseloid or Caprimulgoid?' by Hubert Lyman Clark, and a 'List of Birds of Wequetonsing, Mich.,' by Otto Widmann, were read by title. The third paper, 'Notes on the Ornithological Observations of Peter Kalm,' by Dr. Spencer Trotter, was read, in the absence of the author, by Dr. Allen.

Resolutions were adopted thanking the Trustees of the American Museum of Natural History for a place of meeting and for other courtesies tendered to the Union; to the Linnæan Society of New York for generous hospitalities extended to the Union during its Nineteenth Congress; and to the Zoölogical Society of New York for its kind invitation to visit the Society's Zoölogical Gardens.

The afternoon session, held in the large Lecture Hall of the Museum, was a joint meeting of the Union and the Audubon Societies of the United States.

Mr. Ruthven Deane called attention to certain paintings by Audubon which were on exhibition in the Hall.

Mr. Witmer Stone, Chairman of the Committee on Protection of North American Birds, read the report of his Committee for the previous year. Mr. William Dutcher followed, giving 'Results of Special Protection to Gulls and Terns obtained through the Thayer Fund,' and Dr. T. S. Palmer gave an address on 'National Bird Protection — Its Opportunities and Limitations.'

The concluding papers were illustrated by lantern slides, viz: 'Gulls of the Maine Coast, and Miscellaneous Notes,' by Wil-

liam Dutcher and Wm. L. Baily; 'Some Results of Bird Protection,' by Frank M. Chapman.

The Congress then adjourned, to meet in Washington, D. C., November 17, 1902.

JNO. H. SAGE,
Secretary.

DESCRIPTIONS OF THREE NEW BIRDS OF THE
FAMILIES MNIOTILTIDÆ AND CORVIDÆ.

BY ROBERT RIDGWAY.

(By permission of the Secretary of the Smithsonian Institution.)

Compothlypis pitiayumi speciosa.—CHIRIQUI PARULA WARBLER.

Similar to *C. p. pitiayumi* and other South American subspecies, but darker and bluer above, and middle wing-coverts without white tips; similar in last character to *C. p. inornata*, of Guatemala, but much more richly colored.

Nicaragua to Chiriqui.

Type, no. 177411, coll. U. S. Nat. Mus., Boquete, Chiriqui, March 7, 1901; W. W. Brown, Jr., collector; received from Outram Bangs.

Dendroica vigorsii abacoensis.—ABACO PINE WARBLER.

Similar to *D. v. vigorsii* but decidedly larger and with relatively shorter wing; differing from *D. vigorsii achrustera* (Bangs), of New Providence Island, in being decidedly larger and in brighter yellow of under parts.

Adult male: Wing, 70 mm.; tail, 57; exposed culmen, 13.5; depth of bill at nostrils, 5; tarsus, 20; middle toe, 13.5.

Island of Abaco, Bahamas.

Type, no. 108479, coll. U. S. Nat. Mus., Abaco Island, Bahamas, April 1886; Willard Nye.

Aphelocoma texana.—TEXAN JAY.

Similar to *A. cyanotis* but white superciliary streak more distinct, under parts much paler and browner gray, the lower throat and chest without blue streaks (obsoletely streaked with pale grayish). Differing from *A. woodhouseii* in obsolete streaking of chest and lower throat, much paler and browner gray of breast, etc., and pure white under tail-coverts.

Southwestern Texas, from Concho and Kerr Counties west to the Davis Mts. (Alpine, Ft. Davis, Paisano, etc.).

Type, no. 150507, coll. U. S. Nat. Mus., adult female, near head of Nueces R., Edwards, Co., Texas, Dec. 1, 1894; H. P. Attwater.

TWO SUBSPECIES WHICH SHOULD BE ADDED TO
THE CHECK-LIST OF NORTH AMERICAN BIRDS.

BY EDGAR A. MEARNS.

Mimus polyglottos leucopterus (Vigors).

WESTERN MOCKINGBIRD.

Orpheus leucopterus VIGORS, Zool. Beechey's Voyage of 'Blossom,' 1839, p. 18 (Pacific coast of North America).

Mimus leucopterus BAIRD, Stansbury's Report, Great Salt Lake, 1852, p. 328.

Geographical Distribution.—Southwestern United States, from the Gulf of Mexico (Texas) to the Pacific Ocean, and southward into Mexico, including all of Lower California; resident in the southern and lower portions of its range, migratory in the northern and higher portions.

Characters.—Similar to but larger than *Mimus polyglottos polyglottos*, with tail relatively rather short (measuring about the same), wings 5 to 10 mm. longer, feet stouter, bill slightly longer and more slender. General color paler than in *polyglottos*, less grayish (more drab), and with the underparts more washed with clay-color; white markings, especially those of the wings, more extended; wing-quills all tipped with white; tertials edged with grayish or brownish white. The greater extent of white on the bases of the primaries is conspicuous during flight; and the two white bands caused by the white tips of the wing-coverts are much broader.

Remarks.— Under the appropriate name of *leucopterus*, the Western Mockingbird was described by Vigors, from specimens collected during the voyage of the 'Blossom,' which visited various ports on the west coast of Mexico and California. He states that none of his specimens were labelled with the exact locality.

Professor Spencer F. Baird next recognized the peculiarities of the Mockingbird of California, which he described,¹ remarking: "It is probably this variety that Vigors had in view when describing *Orpheus leucopterus* from the west coast of America (Zool. Beechey, 1839, 18), although this has the wing 5.75 inches long, instead of 4.50. Should further researches substantiate a specific distinction from both the *polyglottus* and Vigors's bird, the name of *Mimus canadatus* [typographical error for *caudatus*, which name appears on pages xxxv (*sic*) and 987 of the same work] would be very appropriate, in view of the lengthened tail." Baird's name *caudatus* was applied to the Mockingbird of the West by numerous writers, including Xantus, Cooper, Coues, and Ridgway, and was more or less in current usage for about twenty years, after which it was dropped even as a subspecific term, because of the discovery that the tail-pattern could be matched on comparison of eastern with western birds, and that the Mockingbird of Florida possesses a longer tail than that of California. Again, in 1888, Doctor J. A. Allen² gave the true characters of the Western Mockingbird, based on specimens in the Scott collection, from Arizona, where the race has acquired its maximum differentiation.

The characters which I have given are based on an examination of all the specimens in the collections of the United States National Museum and the American Museum of Natural History, in New York. I have also tabulated the measurements of seventy-five specimens of both forms, taken by myself from fresh specimens, collected in the region extending from Georgia and Florida to the coasts of California and Mexico. All of the Texan specimens examined were the western form, not extreme, but easily separated from *polyglottus* by the larger amount of white on the bases of the primaries, and the paler and more drab coloration. Its range, as

¹ U. S. Pacific Railroad Rep., IX, Birds, 1858, p. 345.

² 'The Auk,' Vol. V, April, 1888, p. 160.

shown by specimens in the United States National Museum, extends from old Fort Cobb, Indian Territory, south to Monterey and over the tableland of Mexico to Mazatlan, and even to Tehuantepec City, in the State of Oaxaca, on the west coast of Mexico (specimen No. 59673, U. S. N. M.).

Tyrannus tyrannus vexator Bangs.

FLORIDA KINGBIRD.

Tyrannus tyrannus vexator BANGS, Auk, XV, April, 1898, p. 178 (Merriitt's Island, Indian River, Florida).

Geographical Distribution.—Southern Florida.

Characters.—A series of breeding specimens of this form, collected by the writer during April and May, 1901, in the Kissimmee Valley, southern Florida, emphasizes the characters assigned to it by Mr. Bangs in the original description. The form may be recognized by its stout bill (about 2 mm. broader than that of typical *tyrannus*) short tarsus, robust feet, and the darker and more uniform coloration of the upper surfaces.

Measurements.—Average of three adult males from the Kissimmee Valley, Florida: Length, 219 mm.; alar expanse, 383; wing, 122; tail, 94; culmen (chord), 18; bill, measured from nostril, 15; tarsus, 18.7; middle toe with claw, 20.8. Average of four adult females from the Kissimmee Valley, Florida: Length, 217; alar expanse, 369; wing, 116; tail, 90; culmen, 18.9; bill from nostril, 14.6; tarsus, 19.4; middle toe with claw, 21.

Nest and eggs.—Set A/3, with both parents (Nos. 12585 and 12586 Mearns collection; all in the U. S. National Museum collection). The nest was placed about 6 meters above the ground, on a side branch of a persimmon-tree which stood beside an 'old river' connecting lakes Cypress and Tohopekaliga, in Osceola County, Florida. It was composed, outwardly, of small sticks and plant-stems, and lined with the wool of sheep. On May 3, 1901, it contained three eggs, similar to those of the common Kingbird, and measuring, respectively, 24.2 by 18.3 mm., 25 by 18.4, and 25 by 18.

Remarks.—This subspecies breeds abundantly in southern Florida where it is known only as the 'Bee Martin.'

DESCRIPTION OF A HYBRID BETWEEN THE BARN
AND CLIFF SWALLOWS.

BY EDGAR A. MEARNS.

IN THE 'Bulletin of the Nuttall Ornithological Club,' Vol. III, No. 3, July, 1878, page 135, Doctor Spencer Trotter described a hybrid between *Hirundo erythrogaster* Boddaert and *Petrochelidon lunifrons* (Say). The specimen was taken at Linwood, Delaware County, Pennsylvania, May 22, 1878, by C. D. Wood. "Unfortunately he [Wood] did not carefully determine its sex by dissection, though he believed it to have been a male."

On June 14, 1893, at Fort Hancock, El Paso County, Texas, I found a pair of swallows which were mated, and had almost completed a nest attached to a rafter of an old building, in a situation too difficult for me to reach. As I recall it, the nest was similar to that of the Barn Swallow, having the entrance at the top. Both birds were shot. The male (No. 134,420, U. S. National Museum) was a typical Barn Swallow; but the female (No. 134,421, U. S. National Museum), which was about to lay eggs, was a hybrid between *Hirundo erythrogaster* and *Petrochelidon lunifrons*.¹ It may be described as follows: Length, 149 mm.; alar expanse, 296; wing, 107; tail, 59; culmen (chord), 8; tarsus, 12; middle toe with claw, 15.8.² The characters are, in general, intermediate between those of the two genera — *Hirundo* and *Petrochelidon* — and species. As regards the form of the bill and the form and

¹ The resident Cliff Swallow of the Rio Grande Valley is *Petrochelidon lunifrons*, not *P. melanogaster*, which latter occurs on the Mexican boundary line to the westward, from the San Luis Mountains to Nogales (monuments 65 to 122 of the latest survey). See Proc. Biol. Soc. Washington, Vol. XIV, September 25, 1901, p. 177.

² Its mate, a typical male of *Hirundo erythrogaster*, measures: Length, 169; alar expanse, 308; wing, 114; tail, 82; culmen, 6.9; tarsus, 11; middle toe with claw, 16.2.

An adult female of *Petrochelidon lunifrons* (No. 163,687, U. S. National Museum), taken at Fort Clark, Kinney County, Texas, April 28, 1898, measures: Length, 145; alar expanse, 300; wing, 106; tail, 53; culmen, 7.7; tarsus, 14.5; middle toe with claw, 16.

position of the nostrils this is precisely the case. The wing is but slightly longer than that of the Cliff Swallow. The tail is forked, and of intermediate length. The feet are intermediate, but most resemble those of the Cliff Swallow. The colors of the iris, bill, and feet, were noted at the time of capture as indistinguishable from those of its mate—a Barn Swallow. In coloration, the wings and tail are intermediate between those of the two species, which are brown in the Cliff Swallow and blue in the Barn Swallow. The forehead is ferruginous, as in the Barn Swallow; but the sides of the head and neck, behind the eye, where blue in the Barn Swallow and ferruginous in the Cliff Swallow, are an intimate mixture of the two. On the back, the buffy-white edging of the feathers is apparent, but not so plainly indicated as in the Cliff Swallow (the whole upper surface, except the ferruginous frontal band, is uniform steel-blue in the Barn Swallow). The rump and upper tail-coverts differ from those of either species, although the pattern is that of the Cliff Swallow; the color instead of tawny-ochraceous is cream-buff, lightly and irregularly spotted with blue, the longest coverts being purplish brown. The under parts most closely resemble those of the Barn Swallow; chin and throat hazel, darker than the Barn Swallow and lighter than the Cliff Swallow, from which latter it differs in having the hazel color more extended posteriorly, and in lacking the black pectoral spot. The whole underparts, including the under tail-coverts, are washed with ferruginous, but less strongly so than in the Barn Swallow. The under wing-coverts are intermediate. Two outer rectrices are spotted with grayish white on the inner webs, these being immaculate in the Cliff Swallow, spotted in the Barn Swallow.

GENERAL NOTES.

Franklin's Gull in the Virginia Mountains.—I desire to place upon record the capture by myself of a stray specimen of Franklin's Rosy Gull (*Larus franklinii*) at Blacksburg, Montgomery Co., Virginia (No. 757, coll. E. A. S.). This is a first record for the State; and I have as yet seen no other record for the Eastern States. On the 24th of October, 1898, I was

returning from a tramp with two students, and as I neared the College ice pond, a gull flew over my head from behind me; for a second I hesitated, thinking it was Bonaparte's Gull, which I have taken here in the mountains on several occasions; I fired, however, and killed the bird, and was surprised on picking it up to find it was not what I had supposed, nor did I recognize it. A momentary suspicion that it was a Kittiwake — the only likely bird I could otherwise think of — was dispelled by noticing the dark carmine bill, which, as the specimen was adult, eliminated the Kittiwake. On reaching home, Ridgway's 'Manual' and Coues's 'Key' readily ran it out to Franklin's Rosy Gull, there being no mistaking the two descriptions, and I have since amply verified the identification. The Gull was an adult ♀ and the under parts were quite rosy and the plumage unworn. A trace of the rosy color still remains. This is not quite as remarkable as my capture here of the Black-capped Petrel in 1893 (see Auk, Vol. X, p. 361), for Franklin's Gulls breed in Iowa: Blacksburg, Va., is only a few miles from New River, a tributary of the Ohio. I suppose the bird may have followed the Mississippi to the Ohio and so up to this remote locality. Sea and shore birds are found here with more or less regularity. Ducks come every spring, and I have shot the Black-head; the Horned Grebe is occasionally found, and Geese occur at intervals in their season. On May 7 last, I had a fine fresh Canada Goose, ♀, brought to me, still warm, one of three that were killed on New River that day. This is very late for geese.—ELLISON A. SMYTH, Jr., *Virginia Polytechnic Institute, Blacksburg, Va.*

Remarkable Flight of Gulls at Cumberland, Md.—On Sunday, April 26, 1901, the people of Cumberland were astonished to find a flock of about 50 gulls flying over and around the city, especially about the confluence of Will's Creek with the Potomac. There had been excessive rains for three days previous, and high winds, which no doubt account for this large flight. For while occasionally a few stray up here, there had never so many been seen together. Most of them went away after having been here a day; some, however, stayed around till the middle of the week. The greater part were Bonaparte's Gull (*Larus philadelphia*), the rest, three to five, American Herring Gulls (*Larus argentatus smithsonianus*). A few of the former were shot by hunters and brought to me. They were in perfect nuptial plumage. They all had large black beetles and some bits of offal in their stomach.

At the same time two specimens of *Larus philadelphia* were sent to me from Accident, Garrett Co., Md., where they had been shot by the owner of a small fish pond, near the same. These two, however, had still a few white feathers on their heads. Also in that week I received one American Herring Gull and one Bonaparte's Gull from Confluence, Somerset Co., Pa. This, according to my mind, goes to show that the atmospheric disturbances accompanied by great floods in these parts had the effect of making many gulls temporarily leave their usual homes.—G. EIFRIG, *Cumberland, Md.*

A Supposed New Colony of Least Terns on Marthas Vineyard. — In July, 1901, while on a visit to Katama Bay and the eastern end of Marthas Vineyard with a collecting party from the U. S. Fish Commission Station at Woods Hole, I found a young Least Tern (*Sterna antillarum*) running on the shore near a marshy strip on the edge of the bay. An inspection of the marsh showed it to be a breeding place for this species, as a number of eggs were observed in a hasty examination, although it appeared that most of the eggs must have hatched. Several adults came within close range of the collecting party seining on the shore. On each of several other visits to the bay in July, August and September, a few Least Terns were noticed, but it was not until about the first of October that the birds were observed in flocks and some idea could be formed of their number. Two separate flocks were found on the beach one day, and it was the estimate of Mr. V. N. Edwards, of the Fish Commission, and myself that each flock contained about 500 old and young birds.

I have been visiting Katama Bay in summer and fall for three or four years, and have not previously observed Least Terns there. Mr. Edwards, who has been very familiar with the region for more than thirty years and knows the birds very intimately, does not remember to have found the birds in such numbers before. — HUGH M. SMITH, *Washington, D. C.*

The European Widgeon in North Carolina. — I found not long ago in the collection of Mr. Louis Agassiz Shaw (No. 101) of Chestnut Hill, Mass., a male *Marca penelope* taken by Mr. L. C. Fenno on Currituck Sound, on November 23, 1900. The bird is a fine, well stuffed specimen, and is I think the first to be recorded from the State. It will eventually be presented to the Museum of Comparative Zoölogy. — REGINALD HEBER HOWE, Jr., *Longwood, Mass.*

Northern Phalarope and Black Tern at Cumberland, Md. — On May 23, 1901, a friend brought me, beside Sora Rail, Bartramian Sandpiper and Solitary Sandpiper, a fine male specimen of *Phalaropus lobatus*. He had seen a pair of these birds on a large meadow along the West Virginia bank of the Potomac, and shot one. At this place, called Swamp Ponds, the Potomac makes a rather short bend into Maryland from west to east, so that this locality in West Virginia is surrounded on three sides by Maryland, so that any bird found there must be counted for Maryland as well as West Virginia, for whether birds have come from north or south to these Swamp Ponds, they had to come from Maryland.

On May 30, while with a friend at the same place, we saw a strange bird, large in appearance, majestically sailing in wide circles over the swamp, often over the river into Maryland, but always returning. Sometimes it would interrupt its slow circles by seemingly strange antics. After much waiting it sat down on a post in the swamp. My friend carefully stalked up to it and took it, and it proved to be a female Black Tern (*Hydrochelidon nigra surinamensis*). There was, however, no sign of eggs

to be seen. It had about six large dragon flies in its stomach. This tern and the phalarope are now in my collection.—G. EIRIG, *Cumberland, Md.*

Second Record of the Purple Gallinule (*Ionornis martinica*) in Illinois.—I am indebted to Mr. Marvin Hughitt, Jr., for information regarding the capture of a specimen which is rare for this State. The bird was killed by Mr. T. G. Winders while snipe shooting near Coal City, Grundy Co., Ill., on April 24, 1900. It is mounted and now in possession of Mr. Hughitt. The only previous record for the State, that I am aware of, was given by Mr. E. W. Nelson in his 'Birds of Northeastern Illinois' (Bull. Essex Inst., VIII, April, 1877, pp. 90-155), based on a specimen taken by Mr. C. N. Holden, Jr., near Chicago. Mr. Holden has recently informed me that this bird was taken by Mr. R. Borchardt of Lake View, a suburb of Chicago.—RUTHVEN DEANE, *Chicago, Ill.*

Cory's Bittern.—Since the publication of 'The Standing of *Ardetta neoxena*,' by Mr. Frank M. Chapman, in 'The Auk,' Vol. XIII (pp. 11-19), nine more specimens, six of which are unrecorded, have been taken at Toronto; and Mr. Ames and myself have recorded the finding of the eggs (Auk, Vol. XVIII, p. 106). I believe Toronto still remains the only Canadian place of record for this very interesting bird, and as seven Toronto birds had been recorded when Mr. Chapman published his paper, I have numbered the records given in the following table from eight onwards:

TORONTO RECORDS OF *Ardetta neoxena*, 1896-1900.

No.	Collection of	Locality.	Sex.	Date.	Collector.
8	W. Rothschild	Toronto	♂ ad.	Aug. 17, 1896	A. Dey
9	J. H. Ames ⁽¹⁾	"	♂ ad.	May 14, 1897	Geo. Pierce
10	Geo. Pierce ⁽¹⁾	"	♀ ad.	June 30, 1897	" "
11	Manly Hardy	"	♂ ad.	June 8, 1898	A. Dey
12	J. H. Fleming ⁽²⁾	"	♀ ad.	June 15, 1898	Geo. Pierce
13	C. K. Rogers	"	♂ im.	Aug. 3, 1898	C. K. Rogers
14	Prov. Mus., Toronto	"	♂ ad.	Aug. 7, 1899	A. Dey
15	" " "	"	♂ im.	Aug. 14, 1899	A. Dey
16	J. H. Fleming ⁽³⁾	"	♂ ad.	Sept. 8, 1899	J. Tymon

Nos. 8 and 11 were sexed by the same man, and as both were for some time in my keeping I was able to compare them with others in my own collection, and saw no reason to doubt that they were adult males. No. 8 belonged to Mr. O. Spanner, and I was able to secure it for the Hon.

¹ Recorded by Mr. Ames in Auk, Vol. XIV, p. 411.

² Recorded by Mr. Ames and myself in Auk, Vol. XVIII, p. 106.

³ Now in coll. of British Museum.

Walter Rothschild, in whose museum it now is, at Tring. No. 11 belonged to Mr. G. F. Dippie, and was sold to Mr. Manly Hardy of Brewer, Maine.

Nos. 14 and 15 were sexed by Mr. J. Maughan; No. 14 is an adult male in remarkably high plumage; the abdominal region and breast are largely black, slightly tinged with chestnut, the left tibia has a few white feathers on the inner side; there is a clearly-marked black line running from the gape almost to the back of the head, on both sides, but not reaching the black of the lower crest-feathers, though it nearly divides the chestnut on the sides of the head.

No. 15 is a young male. It has a number of white feathers on the left tibia, and a small patch on the abdomen; the feathers of the head and the secondary coverts have the downy neossoptiles attached. The bird is in a more advanced stage than the young one belonging to Mr. Ames, taken Aug. 24, 1894. The coloring of the feet was peculiar, and Mr. Maughan assures me he has copied it correctly; the green of the tarsus and toes is curiously mottled and blotched with reddish brown; No. 13 and my young male (taken Aug. 17, 1894), were in this respect colored like mature birds, but both are in a more advanced plumage, and it may prove that the feet and legs of the nestlings are not colored as in the adult.

While in England in the spring of 1896, I found that Dr. Bowdler Sharpe, who was then preparing the manuscript of the Herodiones for the 'Catalogue of Birds,' had not seen a specimen of Cory's Bittern, and considered it a color phase of *Ardetta exilis*. I had the adult female No. 1328 (Toronto, May 20, 1893) sent him for examination; this is the bird whose description is given as an adult male on page 233, Vol. XXVI of the 'Catalogue of Birds.' Dr. Sharpe also admitted *Ardetta neoxena* into his list of the Ardeidæ printed in the Bulletin of the British Ornithologists' Club, December, 1895.

This bird is the one referred to by Mr. Chapman on page 13 of his paper as having been examined by Mr. Brewster. I eventually sent it in exchange to the museum at Liverpool, where it now is. — J. H. FLEMING, *Toronto, Canada.*

A Killdeer (*Ægialitis vocifera*) in the vicinity of Cambridge, Mass.— On the 19th of October, 1901, we identified a Killdeer (*Ægialitis vocifera*) in a large ploughed field in Belmont, Massachusetts. Although we had no means of securing the specimen its identification is certain since we flushed it three times at close range, getting good views of the rufous tail-coverts. We also saw clearly the marks on the breast and heard the call-note.

According to Messrs. Howe and Allen's 'Birds of Massachusetts' there are only two previous records in the vicinity of Cambridge, both of which were in September. — HOWARD M. TURNER, RICHARD S. EUSTIS, *Cambridge, Mass.*

American Avocet and American Three-toed Woodpecker at Toronto.—An Avocet (*Recurvirostra americana*) was shot on the eastern sandbar, Toronto, by Mr. C. K. Rogers, September 19, 1901. The bird was noticed feeding among a flock of plovers. It proved to be a male, and is the second Toronto record, the first being of a bird taken about fifteen years ago.

The American Three-toed Woodpecker (*Picoides americanus*) was shot on Wells Hill, Toronto, November 16, 1901. It was seen in the company of another, probably its mate. The bird is a male, and is now in my collection. This is the first recorded specimen from Toronto, and a most unexpected occurrence so far away from the Muskoka District, into which it comes occasionally in the winter from further north, but, unlike *Picoides arcticus*, which has been recorded a number of times from the vicinity of Toronto, it does not seem ever to leave the shelter of the forest, and once suited will stay all winter within a very limited area, in isolated pairs. — J. H. FLEMING, *Toronto, Can.*

Capture of the Mexican Jacana in Florida.— Captain B. F. Hall, of the steamboat 'Naoma No. 3,' showed me the skin of a *Jacana spinosa* (Linn.), killed in October, 1899, on Pelican Bay, Lake Okechobee, Florida. — EDGAR A. MEARNS, *Fort Adams, Newport, R. I.*

Note on the Name Colinus.—Dr. Stejneger has recently called my attention to the use of the name *Colinus* by Goldfuss, whose reference has several years' priority over that of Lesson. The proper citation for this genus would appear to be: Goldfuss, *Handbuch der Zoologie*, II, 1820, 220; the type is '*Perdix mexicana*, Caille de la Louisiana, Pl. Enl. 149,' which is synonymized with *Tetrao virginianus* Linn.—CHAS. W. RICHMOND, *Washington, D. C.*

Aquila chrysaëtos.—The date of this combination is given in the A. O. U. 'Cheek-List' as Dumont, 1816, but I have met with several earlier references, the first being *Aquila chrysaëtos* Sprüngli, in *Andræ's 'Briefe aus der Schweiz,'* 1776, 196. — CHAS. W. RICHMOND, *Washington, D. C.*

Occurrence of the Barn Owl in Canada.—In the Bryant Collection in the Museum of Comparative Zoölogy there is an American Barn Owl (*Strix pratincola*) taken by Mr. Louis Cabot at Long Point, Ontario, in early November, 1899. The specimen (No. 1482) was secured for the collection by Mr. H. B. Bigelow. — REGINALD HEBER HOWE, JR., *Longwood, Mass.*

Strix lapponica.—The Lapp Owl was first described by Thunberg, K. Vet. Akad. nya Handl., XIX, 1798, 184, instead of by Retzius. — CHAS. W. RICHMOND, *Washington, D. C.*

Snowy Owl and Golden Eagle at Plymouth, Michigan.—A Snowy Owl (*Nyctea nyctea*) was shot at Plymouth, Michigan, on December 4, 1901. It was a male bird, and its stomach contained no food.

Recently a Golden Eagle (*Aquila chrysaetos canadensis*) was caught near here—the second one observed at this place. These birds are becoming quite rare in southern Michigan, and a law should be enacted for their protection, and not only for them but for several other species of our hawks and owls.—JAMES B. PURDY, *Plymouth, Mich.*

The Hawk Owl in Massachusetts.—I found lately in the Bryant Collection in the Museum of Comparative Zoölogy two specimens of *Surnia ulula caparoch*. The label on one reads "Massachusetts, December 30, ♂." (No. 1524); on the other, "Massachusetts, ♂," (No. 1525). As no Massachusetts specimen has been recorded as taken on December 30, this bird is evidently unrecorded, and makes the thirteenth record for the State. The other specimen may be one of those already recorded of which we have no other data as to the capture.—REGINALD HEBER HOWE, Jr., *Longwood, Mass.*

The Elf Owl as a California Bird.—So far as I am aware the chief, if not the only, claim *Micropallas whitneyi* has in the literature to the rank of a California bird rests upon the type specimen. The paper (Proc. Calif. Acad. Nat. Sci., Vol. II, p. 118) containing the original description of this specimen is entitled 'New Californian Animals', but the locality given for the specimen is Fort Mojave, which was on the Arizona side of the Colorado River. Positive evidence of the occurrence of this owl in California has recently come to my knowledge in an example (now No. 18298, Calif. Acad. Sci.) obtained April 20, 1898, by Mr. J. A. Kusche in San Bernardino County, the precise locality being about ten miles from San Bernardino on the old Toll Road, altitude about 2000 feet.—LEVERETT M. LOOMIS, *California Academy of Sciences, San Francisco.*

Unusual Abundance of Lewis's Woodpecker near Tucson, Arizona, in 1884.—During the fall of 1884 Lewis's Woodpecker (*Asyndesmus torquatus*) appeared in large numbers in the Santa Cruz Valley, opposite Tucson, Arizona. Although I have been a resident of the place for about twenty-four years it was the only time I ever saw them in that neighborhood. The following concerning them is from my note-book of that date.

September 28. To-day I saw what appeared to be a large black woodpecker in the pomegranate groves west of town. It was wild and unapproachable. It kept much among the small trees.

September 29. To-day I fortunately secured the black woodpecker I saw yesterday. It proves to be a young female of *A. torquatus*. The cervical collar is entirely wanting. So far as I can remember it is the only one I ever met with in southern Arizona.

September 30. I counted 10 Lewis's Woodpeckers in the pomegranate groves to-day and secured 7 of them. They are surely beautiful birds. Evidently they are young as all but three lack the cervical collar, and in the three the collar, although well defined, is much narrower than those commonly met with in the adult bird. A few white spots are apparent in the necks of two, and two others are marked by a narrow line of dirty looking gray. They were in company with some five or six Sparrow Hawks and appeared to be on the most friendly terms with them. If disturbed they flew together and invariably settled on the same bush or tree. The woodpeckers did not cling to the boles of the trees, but sat on the limbs after the manner common to all perchers. They were mostly feeding on pomegranate fruit. They first cut a hole through the hard skin of the fruit and then extract the pulp, leaving nothing but an empty shell. I saw them repeatedly dart from their perches, generally on some topmost limb, far into the air, apparently catch something and then return to their starting point.

The day was cloudy and the wind blowing hard, but from no particular direction although the clouds were drifting westwardly.

October 4. This afternoon I saw but two Lewis's Woodpeckers. Towards night, however, probably a dozen gathered to a central point where the bushes were more dense.

October 8. The Tanagers and Orioles have finally disappeared. The same may be said of the female Blue Grosbeaks, as I have not seen one for the past week. Lewis's Woodpecker was not in evidence to-day.

October 11. Yesterday it stormed hard. Towards evening it cleared and to-day the weather is fine. I found Lewis's Woodpeckers very abundant. To-day I particularly noted their habits which, as a whole, are very unlike those of the Picidæ. In flight they have little or none of that laborious undulating movement so common to its kind, but in action and flight they seem possessed of peculiarities supposed to belong to birds of a totally different family. To-day not less than fifty of them were circling through the air, at an elevation of about 500 feet, with all the ease and grace of the Falconidæ. Not a stroke of the wing was apparent. I saw those in the trees leave their perches with the regularity of flycatchers, dart after insects, pause momentarily in the air and then return directly to the spot they had just left. I was under a tree when I saw one so leave and return with a dragon fly in its mouth. It was not more than twenty feet above me and in full view. It appeared to be anxious for others of its family as it repeatedly uttered a peculiar *chee, chee, chee*. That, at least, was the most I could make of it. They are also on the ground much of the time, but unfortunately the weeds are so thick that I cannot see what they do or how they act. When disturbed on the ground they fly to the neighboring trees and sit in rows like so many overgrown blackbirds. To-day, for the first time, I saw one sticking against the shaft of a mulberry tree beneath which I was standing. It was pretty well up towards the top and tapping it very lightly. Several others were sitting on the

limbs of the same tree and although I was not more than twenty feet below them they paid no attention to me. I slapped the tree with my hands, but instead of flying they merely turned their heads sideways, watched me for a few moments and then took no further notice of me. They were thick as blackbirds all over the valley and the Chinese gardeners were shooting them for food.

October 13. I cannot reconcile myself to the amazing flight and fly-catching peculiarities of Lewis's Woodpecker. It is difficult to believe such things possible without having really seen them as it has been my good fortune to do. To-day was but a repetition of what I saw them do two days since. From a tree top they will shoot through the air a hundred feet, at any angle or in any direction, stop short and then return to their starting place without a perceptible beat of the wing. Those high in the air were sailing in great circles. They kept it up indefinitely and had the appearance of being so many miniature crows. When sailing they appear to open their wings to the fullest extent possible. At times, however, there is no mistaking the woodpecker flight. I saw it to-day for the first time, not much, but it was woodpecker all the same. In the trees they sit motionless, leaving them only to dash after some passing insect. Those on the bodies of the trees, of which there were quite a number to-day, would occasionally make a short move up, but not often. Now that the pomegranate crop has been destroyed they have commenced to eat the quinces, of which there are large quantities. On the tops of some of the bushes I noticed that every quince had been eaten into, one side of the fruit being generally eaten away. The weather to-day was cloudy and warm.

October 15. Lewis's Woodpeckers have suddenly left the valley. In a tramp of about three hours I did not see more than a dozen.

October 17. I saw, I think, the same bunch of Lewis's Woodpeckers I did two days ago. They were about the same in number and were in the same locality. They occupied what might be called a 'headquarters' tree from which they refused to be driven. This is the third instance of the kind I have seen.

October 19. The blackbirds have come but the black woodpeckers have gone. I did not see one of these wonderful birds to-day.

October 21. Lewis's Woodpeckers are again here in their old time numbers, but I did not observe anything more than usual in their movements to-day.

October 22. There appears to be no diminution in the number of Lewis's Woodpeckers. Many were flying high, gyrating through the air like crows over a dead carcass. The day was windy and warm.

October 25. Lewis's Woodpeckers are still here in their usual numbers. They are in beautiful plumage. If wounded they are very pugnacious and will bite and claw the hands if opportunity is given. It seems to me that they have an unusually large amount of blood in them.

October 26. Lewis's Woodpeckers are still here, but far less numerous than they were yesterday.

October 28. Lewis's Woodpeckers have become quite scarce. Because of their handsome plumage I hoped to collect a few more, but succeeded in getting but two.

My last notation of them was made November 16, and is as follows: "Lewis's Woodpeckers are entirely gone." Although I find I was in the field ten times between Oct. 28 and Nov. 16 that is the only entry made of them. I cannot say with certainty whence they came or whither they went, but I always thought that they came from the north and went south, still I have nothing to prove it by. I surely found them to be an unusually interesting bird, — HERBERT BROWN, *Yuma, Arizona*.

The Rivoli Hummingbird in Southern California.—A male *Eugenes fulgens* was taken by Mr. J. A. Kusche in the San Gorgonio Pass, Riverside County, California, July 15, 1899. Mr. Kusche made the bird into a fine skin, which is now No. 17394 of the study series of birds in the California Academy of Sciences. I do not recall any previous instance of the capture of this Hummingbird in California.—LEVERETT M. LOOMIS, *California Academy of Sciences, San Francisco*.

Vestipedes vs. Eriocnemis.—*Eriocnemis* Reichenbach (*Avium Syst.*, 1849, pl. xl), is antedated by *Vestipedes* Lesson (*Écho du monde savant*, sér. 2, VIII, Oct. 22, 1843, 756). Lesson's name is equivalent to *Eriocnemis* and should be used in place of it.—CHAS. W. RICHMOND, *Washington, D. C.*

Note on 'Delatiria henrici.'—This species, named *Ornismya henrica* by Lesson and Delattre in 1839, was first described by Swainson as *Lampornis amethystinus* (*Philos. Mag.*, n. s. I, June, 1827, 442). Although given in a well-known paper, Swainson's name has been entirely ignored—an unfortunate state of affairs, since *L. amethystinus* becomes the type of *Lampornis* through the delayed publication of his 'Zoological Journal' paper (*Zool. Journ.*, III, Dec. 1827, 358). *Lampornis amethystinus* will thus become the proper name of the bird now known as *Delatiria henrici*, as well as the type of the genus *Lampornis*. The genus long known as *Lampornis* will probably have to be called *Anthracothorax* Boie.—CHAS. W. RICHMOND, *Washington, D. C.*

Lark Sparrow and Olive-sided Flycatcher in Western Maryland.—According to a long cherished desire on my part and a wish of Mr. F. C. Kirkwood, I went, on July 16 last, to the highest part of Maryland, to Accident, Garrett Co., for ornithological research. The elevation of Accident and contiguous territory is 2600–3000 feet. I had with me Preble's List of Summer Birds of Western Maryland, of which mention was made in the last volume of 'The Auk,' p. 208. I desired to, if possible, extend this list of 100 species. I found very near all the species at

or near this one locality, which Mr. Preble observed in the six or seven different places he visited. Besides these I found some which he did not find, *e. g.*, Pigeon Hawk, Rusty Blackbird, Olive-sided Flycatcher and Lark Sparrow. The Olive-sided Flycatcher (*Contopus borealis*) I found Aug. 19 in the middle of woods, calling or whistling with a clear tone: *Du-ee, du-ee*, just like the name Dewey.

The Lark Sparrow (*Chondestes grammacus*) I found to the number of about 50-75 specimens while riding from Accident to Cove, five miles away. After passing through innumerable Vesper, Grasshopper, Field and Chipping Sparrows, I was suddenly astonished to see the Lark Sparrow, with which I was familiar from a long stay in Indiana. I got off the wagon and tried to get a few. But they were very shy. They flew ahead of me, along the fences, into bushes, and into an occasional tree, and when they got to what seemed to be the end of their domain—about five rods along the road—they flew into the fields, and in a half circle back to where I had started to chase them up. This they did several times, never going beyond that certain limit, and I almost gave up my chase after them, when I succeeded in getting an adult female. This was July 24. Taking in addition to this that there were many males, females and young, there is no doubt in my mind that this colony had bred there when found. Although I went over many miles of road round about Accident, I saw no more Lark Sparrows.—G. EIFRIG, *Cumberland, Md.*

The Song-Notes of the Alder Flycatcher.—Mr. J. A. Farley, in his very interesting article on 'The Alder Flycatcher (*Empidonax traillii alnorum*) as a Summer Resident of Eastern Massachusetts' (Auk, Oct., 1901, pp. 347-355), says that the characteristic song of the species when heard at a distance of a few feet "is found in reality to consist of but one harsh explosive syllable." This statement is so much at variance with my own experience that I cannot forbear taking exceptions to it as a general statement, though of course it may apply to individuals of the species. First I must admit that my acquaintance with the Alder Flycatcher is not as intimate as Mr. Farley's. I have never been fortunate enough to find a nest, and I have never watched the bird for any considerable length of time. I am not, however, entirely unfamiliar with it, having made its acquaintance nearly seventeen years ago, *viz.*, in July, 1885, and having met with it in every successive summer since then, with a single exception, and in various places in Maine, New Hampshire, Vermont, Massachusetts, and Nova Scotia. In all this time I have never suspected the song to consist of a single syllable, and I have often been quite near the bird when he uttered it. It would, therefore, not be easy to convince me that the *characteristic song* of the species is not composed of two or three syllables, though I am aware that the bird has an emphatic one-syllabled note which is not to be confounded either with the insignificant *pep* or with what is known as the song. Let me quote two passages from my journal bearing on this

point. Under date of June 25, 1895 (Londonderry, Vt.), I find: "In Chapman's new 'Handbook of the Birds of Eastern North America,' Dr. Dwight gives $\bar{v}\bar{e}\bar{e}\text{-z}\bar{v}\bar{e}\bar{e}\text{-}\bar{u}\bar{p}$ as the song of *E. traillii* [= *E. t. alnorum*]. Hearing the song at a distance this summer I preferred Mr. Brewster's rendering *ké-wing*, but, getting nearer to-day, I find Dr. Dwight's a pretty exact rendering, though I myself should put it $w\bar{v}\bar{e}\bar{e}\text{-z}\bar{v}\bar{e}\bar{e}\text{-}u\bar{p}$, the *u* very faint." (If it were not superfluous, I should like to compliment Dr. Dwight on the felicity of his descriptions and syllabifications of bird-songs.)

The other passage is dated at Willoughby Lake, Vt., June 18, 1896: "In a swampy place southeast of the house I saw two *Empidonax traillii alnorum*, one of which, perhaps the male, had an emphatic *k'weet* which was new to me." I may add that I was no nearer this bird than I have often been, both before and since, to others uttering the familiar two-syllabled song-note, and the difference between the two notes was so marked that there could have been no confusing them.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

The Correct Name for the Canadian Pine Grosbeak.—*Canadensis* (Brehm, 1831), as the subspecific name for the eastern Pine Grosbeak is long antedated by *Loxia leucura* of Müller (Volls. Natursyst. Suppl.-und Register-Band, 1776, 150), whose name, based on Buffon's Pl. Enl. 135, fig. 1, will have to be recognized. This form should properly be called *Pinicola enucleator leucura* (Müller). — CHAS. W. RICHMOND, *Washington, D. C.*

The Labrador Savanna Sparrow.—I have, since describing *Passerculus savanna labradorius*, learned more from various sources of its range, habits, and migrations which seem of interest to present.

The species inhabits Labrador as far north certainly as Port Manvers, and probably further—though the bird is apparently most common on the southern Labrador. It is known as the 'Chipbird,' as are most of the small sparrows in the north, and is mentioned by all, I think, of the writers on the Labrador avifauna. I have examined nearly a hundred or more specimens of *Passerculus s. savanna* from Newfoundland and southward since describing the race, with the result that I find Newfoundland and Cape Breton birds approach most closely the Labrador race in measurements, as would be expected, one bird in particular from Cape Breton measuring, wing 2.87, bill .39 × .24, which slightly overlaps the smallest Labrador bird measured. Two other specimens from Labrador have also been sent me from Bowdoin College, taken on the expedition to Labrador in 1891. Both birds, one a male, and one unsexed, were taken at Chateau Bay on July 14 and are in very worn breeding plumage. The male measures, wing 2.86, tail 1.83, tarsus .83, bill .42 × .25. The other, wing 2.75, tail 1.87, tarsus .80, bill .41 × .24. On the migrations an occasionally very large Savanna Sparrow has been noticed by observers and collectors, which are referable to this form, and I have in my collection

five such birds, two from Massachusetts (♀, Brookline, April 26, 1895, wing 2.88; ♀, April 28, 1894, wing 2.90), evidently late northern migrants; two from Rhode Island, wintering birds (♂, Middletown, Dec. 22, 1900, wing 2.89, ♂, wing 2.86), and one from Florida (♂, Kissimmee, Dec. 5, 1892, wing 2.88).

In the collections there will probably be found many specimens referable to this race, which, though I am adverse to naming slight natural and to be expected differences, are widely different enough to deserve a name, *if* the present accepted races of *sandwichensis* are to be recognized.—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

The Cardinal in Cambridge, Mass.—On Wednesday, November 27, 1901, I saw and identified a male Cardinal (*Cardinalis cardinalis*) near my house in Cambridge. It had already been seen on the 19th of the month about a quarter of a mile away, and it seems probable that it will winter about Cambridge. It does not seem likely that it is an escaped cage-bird, because males of many species of birds are known to often wander north after the breeding season; also because it very rarely occurs that cage-birds escape or are released, and such infrequent occurrences certainly cannot account for the dozen or more records of the Cardinal in Massachusetts. The fact that most of these records are of males seems to be explained by the tendency of male birds to go north after breeding, and also by their brilliant plumage causing them to be more often noticed than the olive-gray female.

In this connection I should also like to make a correction in my record of the Hooded Warbler (*Wilsonia mitrata*), which appeared in the October number of 'The Auk' (XVIII, p. 397), in which I stated that I knew of no other record of this bird for Massachusetts. On investigating the matter, however, I find that there are four previous records. Therefore the present status of this bird in Massachusetts is as follows: (1) Brookline, one taken June 25, 1879; (2) Taunton, two birds noted May 8, 1888; (3) Provincetown, a male taken June 25, 1888; (4) Framingham, a male taken October 15, 1893; (5) Cambridge, a male noted September 5, 1901. It is also said to have formerly bred about Pittsfield in the western part of the State.—ARTHUR C. COMEY, *Cambridge, Mass.*

The Cardinal Breeding at Sioux City, Iowa.—On October 2, 1901, I wrote to Mr. R. Ridgway, Washington, D. C., as follows: "In this connection permit me to report that three weeks ago last Sunday, I saw an adult male *C. virginianus* [= *Cardinalis cardinalis*] at Riverside, a park where the timber and underbrush is almost in its original state, five miles from this [Sioux] city along the Sioux River. I learned from the superintendent of the park that he had seen within the past two years something like a dozen of these birds, old and young. I have frequently made visits to these almost primitive woods for many years, about thirty, and never before saw anything of them. Last Sunday, however, I observed a 'young-

of-the-year' of this same species showing every indication of a male bird, and he was flying towards that part of the park where the superintendent claims that they have been breeding for two or three years. None have been seen here after the general migration of the birds from this section."

In answer to my letter of Oct. 2, Mr. Ridgway stated that he regretted that the note could not be made use of in his new work. Later I received another letter from him in which he states: "It being now too late to utilize your note concerning the Cardinal, I would suggest that you send it to Dr. Allen for publication in 'The Auk'."

As supplementary to the above note, permit me to state that a gentleman here by the name of Dr. Rich, who is making something of a study of ornithology, reported to me that he had for the first time seen the Cardinal, adult male and female together, some ten days ago within about half a mile of where I saw the birds as above stated. To me this is very interesting, and particularly the information received from so accurate an observer as the superintendent of the park, that these birds had been breeding in the park, and across the Sioux River in Dakota, within the past two years. The superintendent has lived in the park for about twelve years, and it is only during the past two or three years that he has observed them.—D. H. TALBOT, *Sioux City, Iowa.*

Tiaris instead of Euetheia.—According to the strict law of priority *Tiaris* will have to take the place of *Euetheia*. Swainson expected his diagnosis of the genus *Tiaris* (*Zool. Journ.*, III, Dec. 1827, 354), to precede his description of *Tiaris pusillus* (*Philos. Mag.*, n. s., I, June, 1827, 438), but owing to delayed publication of the 'Zoological Journal' article the description of *T. pusillus* was first to appear, and hence constitutes the type of the genus. *Tiaris* will therefore apply to the genus we now know as *Euetheia*, and our species will stand as *Tiaris bicolor* and *Tiaris caura*.—CHAS. W. RICHMOND, *Washington, D. C.*

An Addition to the Avifauna of the United States.—The resident White-eyed Vireo of the Rio Grande Valley, Texas, proves to be the *Vireo noveboracensis micrus* Nelson, described in 'The Auk,' Vol. XVI, No. 1, January, 1899, p. 30, from Victoria, in the State of Tamaulipas, Mexico. Mr. Nelson agrees with me that the resident Texan bird is the Tamaulipan form—*micrus*. Its characters are: "Similar to *V. noveboracensis*, but smaller and duller colored, with a paler wash of yellow on flanks. Wing, 58; tail, 50; culmen, 10; tarsus, 20." Its breeding range, in Texas, extends from Kinney and Uvalde Counties to the Gulf of Mexico. Of thirteen Texan specimens in the United States National Museum series, eight have the wing shorter than that of the type of *micrus*; the remaining five having the wing equal to or longer than in the type of *micrus*. Although some Texan specimens (migrants) are referable to the northern form, all are smaller than the average typical bird of New York.—EDGAR A. MEARNs, *Fort Adams, Newport, R. I.*

The Philadelphia Vireo in Vermont.—On the 19th of September, 1900, I secured a Philadelphia Vireo (*Vireo philadelphia*) at Bread Loaf, Addison Co., Vermont, 1500 feet above the sea. It is an adult male in perfect plumage. In looking over the 'Bulletin' of the Nuttall Club and 'The Auk' I find this is the second record for the State, the first having been taken August 11, 1889, by Mr. F. H. Hitchcock, at Pittsford, about twenty-five miles south of Bread Loaf.—C. B. ISHAM, *New York City*.

The Yellow Vireo in Sinaloa.—The collection of the California Academy of Sciences contains a female example of *Vireo hypochryseus* from Rosario, Sinaloa; it was shot April 21, 1897, by Mr. P. O. Simons. This species, I believe, has not been previously reported north of the Tres Marias Islands.—LEVERETT M. LOOMIS, *California Academy of Sciences, San Francisco*.

Nesting of the Tennessee Warbler in British Columbia.—I have lately come into possession of a nest and four eggs of the Tennessee Warbler (*Helminthophila peregrina*) which, owing to their rarity, seem worthy of a description in 'The Auk.'

This set was taken on June 15, 1901, at Carpenter Mountain, Cariboo, British Columbia, and the female was shot off the nest by Mr. Allan Brooks, who writes me as follows: "You ask for a short account of Tennessee Warbler's nesting. The birds made their first appearance on the 22nd of May, and were common the same day. From that time I heard their song in almost every clump of trees. A great number drew off to the northward but a good many remained. They generally frequented the clumps of aspen trees and Norway pines, where the ground was covered with a thick growth of dry pine grass.

"As I saw no female nor evidence of nesting I gave the birds three weeks and started out to look for their nests on the 15th of June. Luckily I soon found a female off her nest, and after an hour's watching, during which time I suffered torments from the mosquitoes, she at last dropped down to her nest. On walking up she fluttered out, and flew off some distance, returning shortly with two others of the same species, when I put her off and shot her.

"A hundred yards further on I came across another female, probably one of the two that returned with the first one. I took up a good position and waited twenty minutes, when she darted down to the ground and disappeared, I went up and was just going to kill her with my little .38 caliber collecting pistol as she fluttered off, when out of the tail of my eye I saw the nest contained newly hatched young.

"I found another nest the same day by carefully quartering a likely piece of ground, and found several the next week, with young also.

"The nests were always on the ground, sometimes at the foot of a small service berry bush or twig. They were all arched over by the dry pine

grass of the preceding year; this year's growth having just well commenced."

The eggs seem to differ in appearance from any of the same genus that I have seen, and may be thus described: Creamy white, finely speckled all over the surface with reddish brown, and also marked with larger spots of the same color, more heavily at the larger ends. There are also a number of spots of light lilac, which are not conspicuous. They measure $.57 \times .48$; $.65 \times .46$; $.59 \times .47$; $.61 \times .46$.

The nest is small and loosely constructed, being quite flat. It is composed outwardly of a few leaves, a little moss and a good deal of fine grass, lined only with the latter material.

The nest was situated on the ground in and arched over with dry grass, and no bush or twigs were near. The eggs contained small embryos.—J. PARKER NORRIS, JR., *Philadelphia, Pa.*

Connecticut Warbler and Philadelphia Vireo at Shelter Island, N. Y.—On Sept. 12, 1901, I took a specimen of the Connecticut Warbler (*Geothlypis agilis*) and on the 18th another, and on the same day a specimen of the Philadelphia Vireo (*Vireo philadelphia*); the first one taken here in over twenty years' collecting, and a new record, I believe for eastern Long Island. This bird was feeding in a young growth of wild cherry trees in an old overgrown field in company with some Red-eyed and White-eyed Vireos—a sort of family gathering.—W. W. WORTHINGTON, *Shelter Island Heights, N. Y.*

Toxostoma vs. *Harporynchus*.—*Toxostoma* was first used by Rafinesque (Amer. Monthly Mag., IV, p. 107) in 1818, for a genus of shells. The name occurs in a mere list of shells as "TOXOSTOMA, N. G. 1 species," and is a pure *nomen nudum*. It remained in this state until Nov., 1831 (Enumeration and Account of Some Remarkable Natural Objects in the Cabinet of Professor Rafinesque in Philadelphia, p. 2), when the species was described. Shortly before this, however (Isis, May, 1831, 528), Wagler used the term for a genus of birds (type: *Toxostoma vetula* Wagler, = *Orpheus curvirostris* Swainson), and there seems to be no valid reason why *Toxostoma* should not replace *Harporynchus*, the latter given in 1847 by Cabanis, on the supposition that *Toxostoma* was preoccupied. Our Thrashers should stand as follows: *Toxostoma rufa* (Linn.), *Toxostoma longirostris sennetti* (Ridgw.), *Toxostoma curvirostris* (Swains.), *Toxostoma curvirostris palmeri* (Coues), *Toxostoma bendirei* (Coues), *Toxostoma cinerea* (Xantus), *Toxostoma cinerea mearnsi* (Anthony), *Toxostoma rediviva* (Gamb.), *Toxostoma rediviva pasadenensis* (Grinnell), *Toxostoma lecontei* Lawr., *Toxostoma lecontei arenicola* (Anthony), and *Toxostoma crissalis* Henry.—CHAS. W. RICHMOND, *Washington, D. C.*

Hylemathrous vs. *Troglodytes* for the House Wren.—In 'The Birds of Massachusetts' (p. 92) Mr. G. M. Allen and I used *Hylemathrous* for the

generic name of the House Wren for reasons then in our estimation out of place to explain. In its adoption, however, we followed the accepted methods of scientific nomenclature.

Vieillot was first to separate Wrens from Warblers when he in 1807 (*Hist. Naturelle des Oiseaux*, p. 52) restricted the name *Troglodytes* to the true Wrens, including the European Wren (*Troglodytes parvulus*) as well as our American species *aëdon*, which is the only one he deals with in full, for the reason he was writing only on North American birds. He specified no type, and if he had not stated the inclusion of the European bird the mere fact that he took the specific name of the European species for his generic term would imply that he included it. In 1816 in his 'Analyse' (p. 45) he restricted *Thryothorus*, and made the type *arundinaceus*. Rennie in 1831 (*Montagu's Dict. British Birds*, 2nd. ed., p. 570), considering *Troglodytes*, a word meaning a cave dweller, not applicable to the Wrens called them *Anorthura*. This simple name *substitution* to suit Rennie's taste of course does not affect the type, and he made no restrictions whatever. We have then next to go to Prince Maximilian (*Beitr. Naturg. Bras.*, III, 1830, p. 742), who suggested *Hylemathrous* for a South American species, *T. furvus*, our House Wren *aëdon*, and also included in his separation *Thryothorus arundinaceus* of Vieillot, which he considered = to *Cistothorus palustris*, and not as now understood, *T. ludoviciana*. This name *Hylemathrous* was also in 1860 accepted and restricted by Cabanis (*Jour. für Ornith.*, VIII, p. 406, 407).

Hylemathrous then being used for the House Wren leaves *Troglodytes* by elimination for the European Wren and our Winter Wren, which is congeneric with the European species.

Prof. Newton in his 'Dictionary' (p. 1051) in discussing this case says: "A few, who ignore not only common sense but also the accepted rules of scientific nomenclature, by a mistaken view of Vieillot's intention in establishing the genus *Troglodytes*, reserve that term for some American species—which can hardly be generically separated from the European form.—and have attempted to fix on the latter the generic term *Anorthura*, which is its strict equivalent, and was proposed by Rennie on grounds that are inadmissible."—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

Nesting of the Great Carolina Wren in Connecticut.—"Come up here to-morrow morning and I will show you a bird's nest such as you never saw before in the State of Connecticut"—such was the tenor of the message which the mail brought me from Chester, Conn., last 15th of July, under the hand of Mr. C. H. Watrous, that stirred my oölogical instincts. I have a list of one hundred species whose nidification has fallen under my observation in Connecticut, and here was an offer to introduce to me No. 101. Of course I went, a passenger of the first morning train on the Valley Road, which left me on the station platform of that enterprising town which lies on the west shore of the Connecticut River, about ten miles from its mouth. It was not in the wild woods, as I expected, but

out in the back yard, not fifteen rods from the house, that I was escorted to an open shed, some dozen feet square, with roof of rough slabs laid double and supported by four corner posts, and with three open sides and one, the east, a rock. It was occupied by a small portable forge and anvil and the usual tools of a smithy, evidently long out of use. The end of one of the slabs of the roof, by the forces of decay, had fallen away from its support several inches, and on the shelf so formed between it and the slab above was the nest I had come to see; chiefly composed of decayed leaves, weed stems, fine rootlets, and rubbish, outwardly, and nearly filling the space, lined with stems of maple seed, horse-hair, and pieces of snake-skin. There was no tenant and neither welcome nor remonstrance greeted our intrusion, and the only bird note the cheery song of a Red-eyed Vireo in the tree that spread its shading arms over our heads. Finding seats we waited quietly and patiently the greeting and salutation anticipated as unwelcome guests intruding upon the family affairs of a stranger. Ten minutes of quiet and a little bird flitted from the thicket near, to a branch some fifteen feet away; for five minutes she remained quiet, motionless as a statue, and watched the invaders of her domain; she then descended to the water pool near, took a drink and began chasing the insects around the pool a few moments; then by short flights and leaps she drew near to her visitors till she reached a perch on a small stone not three feet away from us and watched us and our every motion, first with one eye and then with the other, till some slight motion on our part sent her scurrying into the thicket. It was a fine typical specimen of the Great Carolina Wren (*Thryothorus ludovicianus*), and her nest contained five eggs typical of the species, as found in the usual Carolina haunts. Mr. Watrous tells me that he has observed the birds in that vicinity for several years; that he saw the nest and young reared near the same place in a brush heap last year, and he has heard their inimitable song ringing out every month and every week of the year! The birds were perfectly quiet throughout our interview, no song of transport and no note of displeasure once met our ears. This is the first proof I have ever received that this bird was a permanent resident of Connecticut, and I believe this to be the first record of its nidification in the State. — JOHN N. CLARK, *Saybrook, Conn.*

The Blue-gray Gnatcatcher in New York City.—A Blue-gray Gnatcatcher (*Polioptila caerulea*) was seen in Central Park, New York City, and positively identified, on May 22, 1901. — C. B. ISHAM, *New York City.*

Various Massachusetts Notes of Interest.—*Sterna caspia*—A young female was shot out of a flock of five on September 6, 1901, by Mr. B. C. Tower at Ipswich. These birds seem to appear on our coast very irregularly, but often in fair numbers.

Lanius ludovicianus migrans.—On September 19, 1901, at Yarmouth-port on Cape Cod I observed a single bird of this species, which from its wariness I was unable to secure. In the house where I boarded there was another specimen of the Migrant Shrike, taken near Lowell a number of autumns ago. These two records make the tenth and eleventh for the State.

Hylocichla fuscescens fuliginosa.—In this same house I discovered a specimen of the Newfoundland Thrush, taken also near Lowell, a number of autumns ago. This is the second record for the State.—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

Necessary Generic Changes in Nomenclature.—*Helotarsus* Smith (S. African Quart. Journ., I, No. II, Jan.–Apr., 1830, 110), the commonly accepted generic name for the *Bateleur*, is slightly antedated by *Terathopius*, of Lesson (Traité, livr. i, Feb., 1830), whose name should be used.

Polyboroides Smith (S. Afr. Journ., I, Apr. 1830, 106), is a similar case, and should give way to *Gymnogenys* Lesson (Traité, livr. i, Feb. 1830, 64).

Cyphorhinus Cabanis (Archiv f. Naturgesch. X, i, 1844, 282), for a genus of Wrens, is preoccupied by *Cyphorhina* Lesson (Écho du monde savant, sér. 2, VII, June 15, 1843, 1068—type, *Podargus papuensis* (Q. & G.). *Leucolepia* Reichenbach should supersede *Cyphorhinus*.

Perissornis Oberholser (Proc. Acad. Nat. Sci. Phil., 1899, 216), a new name for *Dilophus* Vieillot, preoccupied, was long ago called *Creatophora* by Lesson (Compl. Œuvres Buffon, ed. Lévêque, XX, 1847, 308), whose name should be accepted for *Gracula carunculata* Gmelin.

Lessonia Swainson (Fauna Boreali-Americana, II, Feb. 1832, 490), should be used in place of *Centrites*, which was proposed by Cabanis (Archiv f. Naturgesch., 1847, I, 256), on the ground that *Lessonia* was preoccupied in botany.

Dendrophila Swainson (Classif. Birds, II, July, 1837, 318), is preoccupied by *Dendrophila* Hodgson (Madras Journ., V, No. 15, April, 1837, 432). *Calisitta* Reichenbach is available for the small group of Nuthatches to which Swainson applied the above name.

Docimastes Gould (Monogr. Trochil., IV, 1849, pl. 233), is antedated by *Ensifera* Lesson (Écho du monde savant, sér. 2, VIII, Oct. 19, 1843, 734). The Sword-billed Hummingbird should therefore be known as *Ensifera ensifera*.

Metallura Gould (P. Z. S., 1847, 94), was earlier named *Laticauda* by Lesson (Écho du monde savant, sér. 2, VIII, Oct. 22, 1843, 758—type, *Trochilus tyrianthinus* Loddiges), whose name should be used.—CHAS. W. RICHMOND, *Washington, D. C.*

Northern Visitants to Oregon.—Mr. B. J. Bretherton has recently sent me some birds from Lincoln County, Oregon, three of which are of particular interest.

Cryptoglaux (= *Nyctala*) *acadica*, ♀, Newport, Oregon, December 14, 1896. This specimen does not appear to belong to the recently described humid Northwest Coast form, *Cryptoglaux acadica scotæa* (Osgood). It seems not distinguishable from examples from Ontario, Connecticut, Minnesota, and California. Perhaps it was a winter visitant from the less humid interior somewhere.

Calcarius lapponicus alascensis, ♂, October 2; ♀, September 14, 1899; both taken at Cape Foulweather, Oregon. As far as I can judge these are exactly like fall specimens from Kotzebue Sound, Alaska.

Spizella monticola ochracea, ♂, Newport, Oregon, April 9, 1901. This specimen is somewhat larger than Kowak River breeding birds; the interscapulars are more narrowly black-streaked, with edgings of buffy white; hind neck and rump also paler. These characters point toward a more arid summer habitat, possibly among the northern Rocky Mountains of British Columbia. — JOSEPH GRINNELL, *Palo Alto, Calif.*

Connecticut Bird Notes. — This spring (1901) Mr. J. B. Canfield of Bridgeport, Conn., reports that three pairs of Rough-winged Swallows (*Stelgidopteryx serripennis*) nested in this vicinity. Judge John N. Clark, of Saybrook, notes another pair in that locality; and while en route on his trip to New Hampshire he noted a pair at White River Junction. Mr. R. Heber Howe, Jr., reports a pair at Gales Ferry. Mr. Calvin Rawson ('J. M. W.') of Norwich, Conn., also reports two pairs of Rough-wings, one nesting under the Laurel Hill bridge, and the other in the new coal pocket.

I wish to record the nesting of three pairs of Rough-winged Swallows, one pair at Millstone Point, a short distance south of New London, first noticed May 12; a pair in Groton, opposite New London, June 10; and a pair still further east in Poquonnoc, also on June 10, about ten miles from the Rhode Island border.

Rough-winged Swallows are evidently extending their breeding range farther and farther eastward, and are more numerous than generally supposed, and the A. O. U. Check-List should include Connecticut as within its breeding range. This is the verdict of Judge John N. Clark of Saybrook, Conn., one of our most careful observers, with long years of experience in ornithological field work.

On May 12, 1901, I was fortunate enough to find a small colony of Fish Crows (*Corvus ossifragus*) nesting on one of the headlands jutting into Long Island Sound, in the vicinity of New London and within sight of the Watch Hill summer hotel, on the Rhode Island border. On further investigation I found 2 nests containing 5 eggs each; 1 nest containing 4 eggs; 1 nest containing 3 eggs; 1 nest containing 4 young (a day or two old).

On Nov. 10, I noted five individuals of the colony and shall observe if they winter so far east of their usual range. Mr. J. B. Canfield of Bridgeport, speaks of a small colony in his vicinity also.

I also wish to record the capture of a Black Vulture at Black Point, East Lyme, on July 6, 1901, by Mr. Robert Payne. The bird was seen to alight in a pig-pen and feed with the pigs. It was secured and is now in my mounted collection of birds. No others were seen.—JAMES H. HILL, *New London, Conn.*

Ontario Bird Notes.—A Dovekie (*Alle alle*) was shot Nov. 18, 1901, by H. Macdonald, a fisherman, two miles out in the lake from Toronto, Ontario. Mr. John Maughn, a taxidermist, now has it in his possession. I was present when he opened the stomach, which was empty except for a few small fish bones. It was a female and evidently a young bird, as there was no white on the secondaries and the back was slaty instead of a black.

A pair of Little Blue Herons (*Ardea caerulca*) was taken by J. W. Anderson at Aylmer, Ont., a small inland town about nine miles north of Lake Erie, August 15, 1901. Two more were shot within a few miles of this place some time ago; all four were in the white plumage, with the primaries tipped with slate color.

A Canada Jay (*Perisoreus canadensis*) was also taken by J. W. Anderson, at Aylmer on Nov. 9, 1901.

A specimen of the Pine Grosbeak (*Pinicola enucleator*) was taken at Whitby, Ont., Nov. 18, 1901, from a number that had been in that vicinity for some time, and was sent to me by a friend.—J. H. AMES, *Toronto, Ontario.*

Solution of the 'Ornithological Mystery.'—I was much pleased to read Mr. Brewster's article, 'An Ornithological Mystery,' in the October number of 'The Auk,' as I feel certain I can help to solve it, as I myself had a bird which answers exactly to the description of the Yellow Rail (*Porzana noveboracensis*).

On Sept. 13, 1900, while in Mr. Hope's bird store, Queen St., Toronto, he told me he had a live rail for me, and when I saw it I was delighted to find it was a Yellow Rail, which had been taken by a man on the Humber River (particulars unknown). I had a cage made for him, 2½ by 1½ feet, with a metal bottom, in which I kept sand and about half an inch of water, with some aquatic plants, which I thought would be suitable for my new friend.

The little fellow became very tame, and I let him out occasionally, but he made no attempt at flying. Mr. Brewster speaks of 'the Mystery' as the 'Kicker,' while the female portion of my household christened my bird 'the Scold.' I kept the cage on the kitchen floor and he would invariably scold the first person who went into the room in the morning, and if any of their skirts brushed up against the cage he would be sure to scold them with his familiar call *kik-kik-kik-kik-queah*. If we went into the room at night and lighted the gas and surprised him he would use the longer call, *kik-kik-kik-kik-kik-kik-kik-kik-ki-queah*; and on two occasions, when he was at ease he uttered a note exactly like the Indigo Bunting's *chip*.

I fed him on boiled eggs and prepared mockingbird food, and a few meal worms.

One evening about the last week in December, 1900, while I was watching him bathe, evening being his favorite time for bathing, the poor little fellow's head dropped over the side of the bath, and after a few convulsive twitches he was dead. I had not time to make him into a skin, so sent him to a taxidermist, who unfortunately did not take the sex.—J. H. AMES, *Toronto, Ontario.*

Clark on the Classification of Birds.—Mr. Clark's most able and interesting article on the classification of birds, in 'The Auk' for October (XVIII, pp. 370-381) while showing the great value of pterylography, is one more example of the danger of attempting to base a system of classification on one character. Also it is a warning not to use external characters for the definition of great groups, but rather to rest them on the firmer foundation of characters afforded by the skeleton. This remark is naturally aimed at the combination of Tinamous and fowls to form one of the "old, worn-out 'orders'" complained of by the author at the commencement of his paper.

Mr. Clark assumes that changes of habit are *soon* (italics mine) followed by changes of structure, and although nothing is brought forward to sustain this statement, it may be freely admitted that many features of a bird's skeleton are at least adaptive, as in all other vertebrates, and that one of the stumbling blocks in the path of "the avian taxonomist" is the extent to which morphological structure may be obscured by adaptation. Nevertheless, this modification does not extend to the more important features, and particular objection must be made to the assertion that the skull is specially liable to adaptive changes. For while the external shape may be influenced the fundamental structure of the skull is unchanged, and although a passerine bird, for example, may have the slender bill of a honey creeper or the wide and short beak of a swallow, the skull is built on the same plan. Again, no feature is more characteristic of the Passeres than the structure of the hypotarsus, and while pterylosis may unite "Passeres and Picarians," the upper end of the tarsus shows at a glance whether or not, from Wren to Raven, a bird is a member of the upper 6000 of avian society. That the so-called picarian birds seem to, and do, form a heterogeneous assemblage is believed by many ornithologists to be due to the fact that they represent what may be called Nature's attempts to construct a passerine bird, being so many stages in the line of evolution, on the one hand reaching towards the higher type of birds, on the other retaining traces of their ancestry and of their affinity to other forms, while over all is the mantle of specialization along certain lines.

But if Mr. Clark thinks that modifications of the skeleton are adaptive and due to mechanical causes, what does he think of the main features of the pterylosis? If these be not due to adaptation, then there is no such

thing; this at least is my own view, and no better example could be brought forward to sustain it than that of the Hummingbirds which Mr. Clark cites as examples of the primitive pattern of pterylosis. Some years ago I wrote: "The pterylosis of all birds is more or less adaptive, having some direct relation to their habits, and this adaptation is well shown in hummingbirds. The bare tracts on the nape and along the throat allow the neck to readily lie against the middle of the back, or to bend downward over the point of the breast bone, while the bare spaces under the wing and along the sides of the body permit the wings to be easily closed and applied to the body, the side spaces conforming almost exactly to the curve of the edge of the folded wing. The large bare space on the under side, found in nearly all birds save water fowl, is mainly to allow the warmth of the body to be directly applied to the eggs during incubation, and in birds like ducks and penguins (also auks) which are densely or completely feathered beneath, a bare spot is present during the breeding season." Thus the pterylosis of the hummingbird is primitive because it shows few or no modifications of its purely adaptive features.

It is interesting to note that the pterylosis of the great struthious birds bears out the two theories that these birds are descended from ancestral forms which flew, and that the apteria are due to mechanical causes. For while it is commonly stated that these birds are evenly covered with feathers, yet, according to that careful observer, Mr. Pycraft, they have well-defined, if small, apteria, and these bare places are best defined in *Rhea*, the genus which has the largest wings.

Finally, while hoping that Mr. Clark may continue those careful pterylographical studies which are yielding such good results, and granting the great value of the pterylosis as an *aid* to classification, I must confess that it seems rank heresy to hold that primary, fundamental structural characters are more susceptible to modification than are secondary external characters. — F. A. LUCAS, *Washington, D. C.*

RECENT LITERATURE.

Ridgway's 'Birds of North and Middle America.' Part I.¹—Doubtless no recent work on American birds will receive a more cordial welcome than this 'Part I' of Mr. Ridgway's long projected treatise on the 'Birds of North and Middle America.' Some idea of the amount of labor involved in treating the 3000 species embraced in this wide area can be obtained by an examination of the present volume—the first of a contemplated series of eight—which includes only the single family Fringillidæ, numbering 389 species and subspecies. As stated in the author's preface: "Although preparations for the present work have been more or less actively conducted for some twenty years past, as time and opportunity permitted, the actual work of putting together the vast amount of material accumulated during that period was not begun until September, 1894, when the author was directed by Dr. G. Brown Goode, Assistant Secretary of the Smithsonian Institution, in charge of the National Museum, to consider of paramount importance among his official duties the task of 'making available, through publication, the results of the ornithological work of the Government, as represented in the collections of the Smithsonian Institution.' The labor of collating references pertaining to more than 3000 species of birds, verifying citations of original descriptions, measuring many thousands of specimens, and other time-consuming details connected with the preparation of such a work has necessarily delayed the beginning of its publication; but most of this drudgery having been disposed of, it is hoped that future progress may be more rapid."

As to the scope of the work, the author says: "In the following pages the attempt is made to describe every species and subspecies, or definable form, of bird found on the continent of North America, from the arctic districts to the eastern end of the Isthmus of Panama, together with those of the West Indies and other islands of the Caribbean Sea (except Trinidad and Tobago), and the Galapagos Archipelago; introduced and naturalized species being included, as well as accidental or casual visitors."

"The classification presented," it is stated, "is essentially that of the most recent and advanced authorities, with such minor modifications as

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 I. Family Fringillidæ—the Finches. — Washington: Government Printing Office. 1901= Bulletin of the United States National Museum. No. 50.—Svo. pp. i-xxxii, + 11. = errata, + pp. 1-715, pll. i-xx.

in the judgment of the present author seem desirable." Considerable space is given to a statement of the principles which have been adopted as the author's guide in matters of classification, as regards not only the higher groups but also in respect to species and subspecies, which seem in the main both commendable and sound. As regards nomenclatural rules, those of the American Ornithologists' Union "have been strictly adhered to in all respects," but he does not feel bound to adhere to the decisions of its Committee in respect to the status of species and subspecies, or other groups, when his investigations lead to other results, which is of course proper and natural, although, as he admits, such questions are often merely a matter of opinion, and depend upon, among other things, "one's ability to discern differences and estimate the degree of their constancy." That Mr. Ridgway is, *par excellence*, an expert in such matters, no one will question; yet it is possible for even experts to differ as to "the degree of difference which should be recognized in nomenclature."

In respect to the citation of references in making up the synonymies, Mr. Ridgway has taken the trouble to be scrupulously exact, for which he cannot be too highly commended. Apropos of this he says: "The correction of an author's orthographical errors is a pernicious practice, though much in vogue; 'science is not literature,' neither has it any concern with what an author should have done or meant to do, but only with what he actually did."

The material on which Mr. Ridgway's work is based is of course primarily that of the U. S. National Museum, but this has been supplemented by that of all the other principal museums in the United States, so far as it seemed necessary to the work in hand.

Respecting his beginning his work with the Finches, the author says: "The necessity for beginning this work with the highest instead of the lowest forms is to be regretted, and may be explained by briefly stating that owing to inadequate facilities for properly arranging the larger birds in the National Museum collections these are not available for study, and consequently it became necessary either to begin with the smaller birds, already systematically arranged, or else postpone the work indefinitely." This unfortunate condition of the National Museum collection has not only been a hindrance for many years to the curator in his own official work, but a great detriment to other specialists having need to consult this part of the collection, and hence to the progress of science. It is a condition, however, for which neither the curator nor any officers of the Museum are responsible, but is due to a short-sighted and niggardly Congress that for so long a time has turned a deaf ear to the need of a building suitable to properly house and render accessible the scientific material belonging to the National Government.

The author's definition of the term ornithology (p. 1) is followed by an unfortunate classification of the different kinds of ornithology. He says: "There are two essentially different kinds of ornithology: *systema-*

tic or *scientific*, and *popular*. The former deals with the structure and classification of birds, their synonymies and technical descriptions. The latter treats of their habits, songs, nesting, and other facts pertaining to their life-histories. . . . Popular ornithology is the more entertaining, with its savor of wildwood, green fields, the riverside and seashore, bird songs, and the many fascinating things connected with out-of-door Nature. But systematic ornithology, being a component part of biology—the science of life—is the more instructive and therefore more important.” In this hasty generalization an important field of research has not only been disregarded but, by inference at least, ruled out as not only not scientific, but as not falling within the author’s definition of biology. This is, in a broad sense, the life-histories, including the relation of the animal to its environment, and the many problems of evolution that depend for their solution upon the study of the living creature.

Mr. Ridgway considers at some length the general subject of the classification of birds, giving diagnoses of the higher groups, with keys to the subclasses, orders, suborders, and families, so far as they come within the scope of his work. The recent classifications of birds are critically examined and compared, and the synonymy of the higher groups, and copious references to authorities, are given in footnotes. Mr. Ridgway’s own classification as adopted for his work may be presented as follows :

Class AVES.

Subclasses. Saururæ (= Archæopteryx). Ornithuræ.

Orders of the ORNITHURÆ.

Odontolcæ.	Colymbiformes.	Galliformes.
Odontotormæ.	Procellariiformes.	Gruiformes.
Struthioniformes.	Ciconiiformes.	Charadriiformes.
Rheiformes.	Anseriformes.	Cuculiformes.
Casuariiformes.	Falconiiformes.	Coraciiformes.
Apterygiiformes.	Crypturiformes.	Passeriformes.
Sphenisciformes.		

Suborders of PASSERES.

Desmodactyli. Eleutherodactyli.

Superfamilies of the ELEUTHERODACTYLI.

Clamatores (chiefly American),
Pseudoscines (confined to Australia).
Oscines.

Families of OSCINES.

Catamblyrhynchidæ. ¹	Corvidæ.
Fringillidæ.	Paridæ.
Tanagridæ.	Sittidæ.
Icteridæ.	Certhiidæ.
Cærebidæ.	Troglodytidæ.
Mniotiltidæ.	Cinclidæ.
Motacillidæ.	Chamæidæ.
Hirundinidæ.	Sylviidæ.
Vireonidæ.	Turdidæ.
Ampelidæ.	Mimidæ.
Ptiliogonatidæ.	Sturnidæ.
Dulidæ.	Ploceidæ.
Laniidæ.	Alaudidæ.

Of the 26 families here given two are represented only by introduced species, namely, the Ploceidæ and Sturnidæ. The position of several groups of doubtful affinities is briefly considered, and reasons given for their present allocation. On comparison with the A. O. U. Check-List, it will be noted that the Nuthatches and the Wren-tits have been separated from the Titmice, each group forming a distinct family. The Thrashers and their allies are separated from the Wrens, forming a family Mimidæ, to which is referred the much classified genus *Poliophtila*, which seems to find a new resting place with each 'revision' of its affinities; and *Phainopepla* is severed from the Ampelidæ and referred to a family Ptiliogonatidæ. With most of these changes we are in hearty sympathy.

Coming now to the family Fringillidæ, the subject of the present volume, it is to be noted that several genera heretofore associated with the Tanagridæ, and admittedly of doubtful affinities, are referred to the Fringillidæ, as the finch-like genera *Buarremon*, *Arremon*, *Pitylus* and *Saltator*. In fact, the line between the Tanagridæ and Fringillidæ is still confessedly artificial and arbitrary. Also, Mr. Ridgway admits his inability to satisfactorily separate the family into subfamilies, and his criticism of Mr. Sharpe's 'subfamilies' seems quite justified. He, however, considers it expedient to separate the 69 genera treated in the present volume into 18 groups, as follows:

¹ Consists of the single species *Catamblyrhynchus diademata* Lafr., of the northern Andes (Colombia to Peru), usually placed in the Fringillidæ, but raised to family rank by Mr. Ridgway.

Coccothraustea.	Zonotrichia.
Loxia.	Geospiza.
Pyrrhula,	Haplospiza.
Fringilla.	Sporophila.
Calcariae.	Cyanospiza.
Calamospiza.	Oryzobora.
Spiza.	Guiraca.
Chondestea,	Cardinalia.
Ammodrabi.	Pitylea.

Mr. Ridgway's treatment is entirely technical, consisting, in addition to the definitions of the higher groups and the 'keys,' of a description of the external characters of each species and subspecies, including measurements (in millimeters), and the differences due to age and sex; to which is added a concise statement of the geographical range, but nothing relating to the nests and eggs or the life histories. This descriptive matter is followed by the synonymies and bibliographical citations, which are often very extended and make up by far the greater part of the text. They have evidently been compiled with the utmost care, and embrace all that seem likely to serve any useful purpose. Type localities are specified when known; and likewise the location of type specimens.

The citations have been given with extreme exactness, in order to show just how the names were employed, even to the precise orthography of the writer; and "when the locality to which a citation refers can be ascertained it has been given," with obvious advantages. "Anyone," says the author, "who has had occasion to verify citations must know that the amount of inaccuracy and misrepresentation in current synonymies, even the most authoritative and elaborate, is simply astounding. They abound with names which do not even exist in the works cited, with those which do not correspond with the originals in orthography, and others which have no meaning or use whatever." Such a standard as is here set should prove a reprimand to those guilty of such loose methods and an incentive to accuracy to future workers. But there is one point we note with some surprise, namely, that the author of a manuscript name is given as the authority for the name instead of the author who first published it. In citation due credit is given by citing such names in the following manner, to take an actual case as an illustration, namely: *Leucosticte taphrocotis*, var. *australis* Ridgway (ex Allen MS.) etc., and Ridgway and not Allen should stand as the authority for the name *australis*; and so in all similar cases. Thus the form in question, now properly recognized as a full species, should stand as *Leucosticte australis* (Ridgway) — not *Leucosticte australis* (Allen), as seems to be Mr. Ridgway's rule for this class of cases. This criticism relates of course only to manuscript names on museum labels, or to manuscript names merely, and not to inedited manuscripts published as such by another author.

The number of species treated in the present volume is 221, with 168 additional subspecies, or a total of 389 forms, of which about one half come within the scope of the A. O. U. Check-List, the rest being extralimital. In preparing the present volume the author has had far more material, and given a far greater amount of time to the subject than any of his predecessors, and in justice to him it is but fair to give here his own statement of how the investigation has been conducted: "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 can not be complete until all is known." 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 judgment in dwelling upon minute details, which tend thereby to assume exaggerated importance.

In comparing the present work with the A. O. U. Check-List, so far as they cover the same field, it is to be noticed that in a few instances forms admitted by the A. O. U. Committee have been rejected by Mr. Ridgway, while on the other hand a larger number that have been rejected, or held in abeyance by the Committee, are here recognized. Probably neither can be assumed to be always in the right, and that in some cases the last word has yet to be said.

The volume bears on every page the stamp of patient and conscientious labor and that thoroughness of research which characterizes all its author's work. When the 'Birds of North and Middle America' is completed we shall have for the first time a treatise including the whole North American avifauna down to the Isthmus of Panama, together with that of the West Indies and the Galapagos Archipelago, for which students of ornithology the world over cannot be too grateful. It is to be hoped that strength and health will enable the author to complete the herculean task already so well advanced. — J. A. A.

Scott on the Song of Baltimore Orioles in Captivity.¹— The observations here detailed are of remarkable interest as tending to throw light on the question of how birds acquire their distinctive songs and call notes. It is, indeed, not too much to say that this is one of the most interesting and important series of observations as yet contributed to the subject.

¹ Data on Song in Birds. Observations on the Song of Baltimore Orioles in Captivity. By William E. D. Scott. Science, N. S., Vol. XIV, No. 353, pp. 522-526, Oct. 4, 1901.

They relate to two young Baltimore Orioles (*Icterus galbula*) taken from the nest when about five days old, reared by hand, and kept isolated from all other birds, so that they did not hear any other birds sing, nor any person sing or whistle. When about a month old "they had a single call note very like that of wild birds, but with a slightly different quality difficult to define, more abrupt, musical and much louder. They also had the peculiar rattling chatter associated with orioles. These were all their notes and were uttered rarely." The birds were both females, and were under observation for five years, when they died, apparently of old age.

When nearly eight months old, in February, after a partial spring moult, they began to sing. "The intervals between the singing was sometimes several days, and only a very few minutes in each day were devoted to song. This song was very low and soft, and more or less broken, reminding one of the song of the White-throated Sparrow (*Z. albicollis*) as it is heard during the fall and early spring migrations." The song of both birds "increased in volume and frequency all through the month of March, and during April and the first half of May while daylight lasted, the song was incessant in both birds. It was now a loud clear series of notes of great brilliancy, and poured forth in such rapid succession as to be like that of the House Wren (*T. ædon*) in the intervals, and lasting about as long as the warble of that bird. Except for the 'rattle' which was now and then a part of the repertoire, this song had nothing in it that reminded one of the song of the Baltimore Oriole as heard in New York, Massachusetts or at any other point where the birds occur. Through the second week in May, the song of both birds gradually diminished."

The moult occurred in June, and in early July both were in full plumage. "After the moult there was a secondary song season of short duration. The song was of the same character, but not so prolonged or elaborate." The succeeding years were but repetitions of the first, with slight variations.

Two years later a second brood of orioles was taken, and "were reared in the same way as the others had been, except that they had the *society of, and were closely associated during their earlier lives with*, the two older Orioles." In the following year, the birds of this later brood, one by one, joined in the song of the older birds, "and in a month all were singing a song not to be distinguished from that of the two older birds." They outlived the older birds a year or more "and always sang," says Mr. Scott, "as I believe they had been taught by older birds of their own kind. In short, only six orioles have ever sung this song, for I pursued the experiment no farther, other matters interfering."

Mr. Scott's conclusion is as follows: "My conclusion is that two birds, *isolated from their own kind and from all birds*, but with a strong inherited tendency to sing, originated a novel method of song, and that four birds, *isolated from wild representatives of their own kind, and associated with these two who had invented a new song* learned it from them and never sang in any other way."

This is important testimony, and so far as it goes, seems to favor the presumption that young birds must learn their songs through association with older members of their own species. Yet before this can be assumed as satisfactorily proven, and that the characteristic songs of birds are not innate, further experiments of like nature, and with other species, are desirable. It is a field of great interest and well worthy of careful and persistent investigation. — J. A. A.

Barlow's List of the Land Birds of Placerville, California.¹—The area to which the present paper relates appears to be a narrow belt of country along the old Lake Tahoe stage road, from Placerville to Tallac, 62 miles from Placerville and on the eastern slope of the Sierra. Placerville is situated at an altitude of 1800 feet, the route thence rising for the next 50 miles to Summit, with an altitude of 7000 feet, and thence 12 miles down the eastern slope to Tallac at an altitude of 6200 feet. The first eight pages of this very interesting and important paper contain a general description of the country through which the route passes, with numerous half-tone illustrations from photographs, an account of the 'life zones' of the region, and of the recent explorations on which the paper is based, followed by an extensively annotated list of the land birds, numbering about 130 species.

Placerville is situated at "the lower limit of the Transition zone, which extends up to about 5000 feet"; this is followed by the Canadian zone, extending from 5000 feet up to 7500, with the Hudsonian above, extending "from about 8000 feet upward on the slopes of the higher peaks." Mention is made of the characteristic birds and trees of these several zones.

The list is based on observations made by various observers during the breeding season for the last nine years, notably upon those of Mr. W. W. Price, who "made his first investigations in the summer of 1893 and has since devoted three months of each year to the exploration of the country contiguous to the stage road. His twenty-seven months' experience has made him familiar with even the more remote portions of the region so that the addition of his notes [included in brackets and designated by the initials 'W. W. P.'] to the present list insures its reasonable completeness." Mr. Barlow went over the entire route in 1901, and had previously spent short periods, at various points, in company with other observers, to whom he acknowledges valued assistance. These include Messrs. W. H. Osgood, R. H. Beck, L. E. Taylor, H. W. Carriger, John M. Welch, Wm. L. Anderson, and others. The list thus naturally deals

¹ A List of the Land Birds of Placerville-Lake Tahoe Stage Road. Central Sierra Nevada Mountains, Cal. By Chester Barlow. With Supplementary Notes by W. W. Price. The Condor, Vol. III, No. 6, pp. 151-184, Nov. 16, 1901.

with only the summer birds of the region, leaving unrecorded many of the winter visitants, while "no attempt has been made to list the water birds."

The region here treated is faunally one of great interest, and the information thus brought together adds greatly to our knowledge of the vertical range of a large number of species in the Central Sierra region of California. The paper also includes a large amount of new information respecting the nesting habits of many previously little-known birds, and contains also numerous photographic illustrations of their nests and eggs.—J. A. A.

Pearson's 'Stories of Bird Life.'¹—Professor Pearson's attractive little book, while intended for general reading, "is especially designed for use in schools as a supplementary reader, beginning with the fourth grade." It consists of twenty chapters or 'stories', written in a popular vein and appropriately illustrated, with two appendices, the first giving descriptions of the 27 birds mentioned more or less prominently in the 'stories', and the second containing 'Suggestions for Bird Study', but there is no index nor list of illustrations. The following selection of titles indicates the scope and general character of the stories: 'The Arredondo Sparrow Hawk,' 'Our Chimney Dwellers,' 'The Childhood of Bib-Neck,' 'Robin Redbreast,' 'An Old Barred Owl,' 'The Birds of Cobb's Island, Virginia,' 'A Pair of Eagles,' 'Bird Key,' 'The Mocking Bird,' 'A Bobwhite Family,' 'The city of the Longlegs,' 'A Quartet of Woodland Drummers,' etc. The author tells us: "These stories are not fanciful, but are true to bird life. The Arredondo Sparrow Hawk, Ruffle-Breast and Socrates were particular birds well known to others as to me. In the case of the Bob-white family, Bib-neck, the Plover, I have combined into the lives of a few birds incidents I have known to occur to many. The accounts of visits to birds' nests, bird colonies and the like are given as they occurred."

Prof. Pearson is an earnest bird lover and a sympathetic and entertaining writer, and his 'stories' tend not only to instruct, but to inspire an intelligent appreciation of the economic value, as well as the aesthetic interest, of birds to man. The book is attractively printed in large type, and merits a hearty welcome to the list of popular bird books.—J. A. A.

Sharpe's 'Hand List of the Genera and Species of Birds,' Volume III.²—Volume III of this great work follows with commendable prompt-

¹ Stories of Bird Life | By | J. Gilbert Pearson | Professor of Biology and Geology in the State Normal and Industrial College, | Greensboro, North Carolina | [Design] With Illustrations by and under the Supervision | of | John L. Ridgway | — | Richmond | B. F. Johnson Publishing Company | 1901—12mo, cloth, pp. 1-236, colored frontispiece, 7 half-tone plates, and numerous illustrations. Price, 60 cents.

² London, 1901, 8vo, pp. i-xii + 1-367.

ness Volumes I and II, considering the magnitude and great labor of the undertaking. Having already noticed at some length the scope and character of the 'Hand List' it is necessary here merely to call attention to the contents of the present volume,¹ which includes Dr. Sharpe's Orders XXXIV, XXXV, and a part of order XXXVI, or the Eurylamidae, the Menuridae, and the Mesomyodian and Acromyodian Passeres. These groups embrace 19 families, represented, in round numbers, by 400 genera and 3000 species, about equally divided between the Old World and New World. The numerically leading families are the Muscicapidae, with 696 species; the Tyrannidae, with 562; the Dendrocolaptidae, with 393; the Formicariidae, with 348; the Pycnonotidae, with 245; the Campophagidae, with 159; the Cotingidae, with 145; and the Hirundinidae, with 116. Among the larger genera are *Rhipidura* with 99 species, *Thamnophilus* with 72, *Pitta* with 51, *Synallaxis* with 49, *Grallaria* with 42, *Siptornis* and *Piezorhynchus* each with 41, and *Hirundo* with 40; while as many more genera include from 30 to 40 species each. It should, however, be understood that 'species' in this connection means nameable forms, no nomenclatural distinction being made in the 'Hand List' between species and subspecies.

Dr. Sharpe has brought the subject down to about the end of the year 1900, and in some cases well into 1901, although the date of the preface is July 10, 1901. Note is duly made of the many generic changes pointed out as necessary by Oberholser and Richmond during the last two or three years, and most of them receive Dr. Sharpe's approval. *Formicivora*, however, we are glad to see, holds its place as against *Drymophila*, which latter now replaces *Myrmeciza*.

The American genus *Polioptila*, it may be noted, now finds a resting place in the Old World family Muscicapidae!

The excellent character of the work, mentioned in our notices of previous volumes, is well sustained, and the same care has been taken to secure revision of the proofsheets by leading authorities, which include seven ornithologists of England, six of the most prominent European ornithologists, and six in America. — J. A. A.

Stark's 'Birds of South Africa.' Vol. II.² — The second volume of 'The Birds of South Africa,' has been prepared by Mr. W. L. Sclater, Director of the South African Museum, from manuscripts left by the late Dr.

¹ For a notice of Vol. I see this Journal, XVII, Jan. 1900, pp. 79-81, and of Vol. II, *ibid.*, XVIII, Jan. 1901, pp. 120, 121.

² The | Birds of South Africa | By | Arthur C. Stark, M. B. | Completed by W. L. Sclater, M. A., F. Z. S. | Director of the South African Museum, Cape Town | Vol. II | with a Portrait, Map and Illustrations | London | R. H. Porter | 7 Princes Street, Cavendish Square, W. | 1901. — Svo, pp. i-xiv + 1-323, frontispiece, 83 text cuts.

Arthur C. Stark, who was killed at Ladysmith just after passing the sheets of the first volume through the press, as stated in our review of Volume I (Auk, XVII, April, 1900, pp. 189, 190). Mr. Sclater states: "The manuscript of this volume was found partly stored at Durban and partly along with the author's papers in Ladysmith, and by the desire of his executors has been entrusted to me for completion and publication. A good deal of revision and addition has been necessary to complete this volume, which I trust may be found as satisfactory as the first, for which Dr. Stark was alone responsible." Mr. Sclater further says: "It is my wish and hope to be able, with the help of Dr. Stark's note-books and papers, to prepare, very shortly, the two final volumes on South African birds necessary to complete this work." This is a very pleasant assurance, as this work, when completed, will form a most useful hand-book of South African ornithology. The two volumes on the Mammals, also by Mr. Sclater, have already been issued, and form a most welcome and valuable contribution to the series of volumes forming 'The Fauna of South Africa,' of which Mr. Sclater is the editor and Mr. R. H. Porter the enterprising publisher.

In scope and method of treatment the present volume compares favorably with the first, already described at some length in this journal (*l. c.*); the numerous illustrations, prepared especially for this work by Mr. H. Grönvold, are satisfactory and well chosen.

The present volume covers the Passerine families Laniidæ, Crateropodidæ, Turdidæ, Muscipidæ, Dieruridæ, Campophagidæ, Hirundinidæ, and Pittidæ, and treats of 199 species—Nos. 183–381. In addition to the text cuts illustrating structural details are several half-tone illustrations of birds with their nests.

The nomenclature is conservative, and not quite up to date, if we take Dr. Sharpe's 'Hand List of Genera and Species' as the standard, it conforming more nearly with that of the British Museum 'Catalogue of Birds.'—J. A. A.

Nelson on New Birds from Mexico.¹—The new species and subspecies here described were mostly collected by Mr. Nelson and Mr. Goldman during their recent trip to Yucatan, and are as follows: (1) *Crypturus sallei goldmani*, (2) *Crax chapmani*, (3) *Nyctidromus albicollis yucatanensis*, (4) *Attila mexicanus*, (5) *Myiopagis yucatanensis*, (6) *Pachyrhamphus major itzensis*, (7) *Icterus cucullatus duplexus*, (8) *Icterus cucullatus cozumelæ*, (9) *Stelgidopteryx ridgwayi*, (10) *Troglodytes peninsularis*, (11) *Merula plebeia differens*. A new genus, *Nyctagreus*, is proposed, with *Caprimulgus yucatanensis* Hartert as the type.—J. A. A.

¹Descriptions of a new Genus and eleven new Species and Subspecies of Birds from Mexico. By E. W. Nelson. Proc. Biol. Soc. Washington, Vol. XIV, pp. 169–175. Sept. 25, 1901.

Robinson and Richmond on Birds from La Guaira, Venezuela.¹—This annotated list of 83 species is based on collections made by Captain Robinson in 1895 and 1900. The "identifications, descriptions of new species, and critical notes" are by Dr. Richmond and the field notes by Captain Robinson. One species, *Microcerculus pectoralis*, is described as new, and there are a few corrections of nomenclature. The proper generic name of *Falco uncinatus* Temm. (= *Regerhinus uncinatus* auct.) is given as *Chondrohierax* Lesson, 1843.—J. A. A.

Embodys 'Birds of Madison County, New York.'²—This list was presented as a thesis for the degree of Master of Science at Colgate University, and forms a brochure of 36 pages. It "is not supposed to be complete," being based mostly on the observations of the writer during the period 1895-1901, and includes for the most part only species actually taken by him, "whose object has been to put forth an accurate list rather than one great in numbers." The list proper, judiciously annotated, numbers 191 species, with a supplementary 'Hypothetical List' of 16 species. The paper is a welcome contribution to faunal literature.—J. A. A.

Osgood's Contributions to the Natural History of the Queen Charlotte Islands and the Cook Inlet Region of Alaska.³—During the field season of 1901 Mr. Osgood, with Mr. Edmund Heller as assistant, was sent to explore the Queen Charlotte Islands, British Columbia, and the Cook Inlet Region of Alaska, in the interest of the Biological Survey. A little over a month, June 13 to July 18, was devoted to the Queen Charlotte Islands, the three largest of the group. Graham, Moresby, and Prevost being visited. The weather proved very unfavorable, yet the results of the trip greatly increase our knowledge of these previously little known islands. A brief account is given of their discovery and previous slight exploration, of their physiography, flora, fauna, and life zones, and a bibliography of previous references of their natural history. An extensively annotated

¹An Annotated List of Birds collected in the vicinity of La Guaira, Venezuela. By Wirt Robinson, Captain, U. S. Army, and Charles W. Richmond, Assistant Curator of Birds, [U. S. National Museum]. Proc. U. S. Nat. Mus., Vol. XXIV, No. 1247, pp. 163-178, 1901.

²Birds of Madison County, New York. By George Charles Embodys, B. S. Bull. Depart. Geol. and Nat. Hist., Colgate University. 8vo, pp. 36, Hamilton, N. Y., 1901.

³Natural History of the Queen Charlotte Islands, British Columbia. Natural History of the Cook Inlet Region, Alaska. By Wilfred H. Osgood, Assistant, Biological Survey. Prepared under the direction of Dr. C. Hart Merriam, Chief of Division of Biological Survey. North American Fauna, No. 21, Sept. 26, 1901. Pp. 87, map, and 5 half-tone pl.

list of the mammals, with descriptions of several new species, follows, succeeded by a briefly annotated list of 98 species of birds (pp. 38-50). About one third of these are given on the authority of Rev. J. H. Keen, an observant missionary long resident at Massett, Graham Island, and other authorities, while about one sixth are recorded as 'seen' or 'heard,' and in too many instances for a creditable hard-and-fast list, as "supposed" or "thought to be" this or that species. Of course, in so short a time, large collections could not be made, and it would seem better to be content with a smaller list based on positive information than to increase it at the cost of many weak or uncertain records, however great the probabilities in their favor. Yet much valuable ornithological material was obtained, on which are based several new forms, here for the first time described, namely: (1) *Nyctalu acadica scotæa*, (2) *Dryobates picoides*, (3) *Cyanocitta stelleri carlottæ*; to which should be added (4) *Sphyrapicus ruber flaviventris* (Vieillot), by which name Mr. Osgood proposes to recognize the northern Red-breasted Sapsucker of Vancouver Island and the mainland of British Columbia.

The Cook Inlet country was reached August 21, and work was carried on till September 28. This was "the only general district of consequence on the Pacific coast of Alaska that had not been recently visited by naturalists," and the results obtained there by Messrs. Osgood and Heller are therefore of unusual importance. The region is treated in this paper after the same general plan as the Queen Charlotte Islands, namely, a statement is given of the itinerary, an account of the physiography, flora, and fauna, including an annotated list of the trees and woody plants, as well as of the mammals and birds. The annotated list of birds (pp. 72-81) numbers 78 species, of which about 30 are based on specimens in the U. S. National Museum taken by Ferdinand Bischoff at Fort Kanai in 1869, or by Bean, Townsend and Evermann during brief visits to Cook Inlet in the Fish Commission steamer 'Fish-hawk.' As no account of the Bischoff Collection, aside from casual references to individual specimens, has been published, Mr. Osgood's record of this material is a most welcome addition to his list, which contains much valuable information based on his own observations.

Respecting the Cook Inlet region in general, Mr. Osgood states that "the plant and animal life of Cook Inlet is very closely similar to that of the Yukon Valley, or in more general terms, to that of the interior of Alaska. This condition is the more noteworthy, since the fauna and the flora of the same coast south of Cook Inlet are in marked contrast to those of the interior in the same latitude. Since coast influences are usually conducive to life that is relatively more boreal than that of the interior, large faunal regions of the interior seldom extend to the actual coast, except with considerable modification."

The half-tone plates contain eight views of the characteristic vegetation and scenery of the two regions visited, and six figures illustrate the skulls of new species of mammals described from the Queen Charlotte Islands.

The paper as a whole is a most important contribution to our knowledge of the natural history of two previously very little known areas. — J. A. A.

Verrill's 'The Story of the Cahow.'¹—When the Bermudas were first visited by Europeans, about three hundred years ago (1593 and later), they were without human inhabitants, but were the resort of immense numbers of seabirds, notably of Terns and Shearwaters, doubtless several species of each, and, among other birds, by the 'Cahow,' of which we have only the imperfect accounts left us by the first visitors to these islands. These, quoted at length by Professor Verrill, fail to give us a very satisfactory description of the bird, but sufficient to show that it could not be any species known to science. It was a migratory bird, which came to the islands in October in great abundance, and left in June, depositing its single large white egg in a burrow in the sand, in December and January. Its flesh was described as excellent, "and for that reason it was captured at night in large numbers, while its eggs were constantly gathered for food." From these facts Professor Verrill argues that it could not have been a shearwater, with which some writers have identified it, as these birds do not breed till March or April, even in the West Indies, and their flesh is oily and nauseating, and their eggs musky and inedible. Nor could it be any species of gull or tern, which also breed late and lay spotted eggs. It is described as of the size of a pigeon, with a strong hooked bill, a russet brown back, white belly, and russet and white wing-quills. Concerning its affinities Verrill says: "There is no known living bird that agrees with it in these several characters. Most certainly it could not have been a shearwater, nor any member of the petrel family, all of which have such a disagreeable flavor that neither their flesh nor their eggs are edible. It seems to me far more probable that it was allied to the auks (*Alcidæ*), many of which burrow in the ground and lay white, edible eggs. The northern auks have also edible flesh and often a strong hooked bill. But no existing species breeds so far south, nor do they breed in winter. The Cahow may have spent the summer in the southern hemisphere, but possibly it was an arctic bird that produced a southern brood in winter. Or it may possibly have been a localized pelagic species, coming to the land only for breeding purposes."

So many of the birds and their eggs were gathered for food that as early as 1616 they had declined so greatly in numbers that a law was passed, "but overlate," "against the spoyle and havock of the cahowes, and other birds, which were almost all of them killed and scared away very improvidently by fire, diggeinge, stoneinge, and all kinds of murderings." Doubtless the cahows were not long after wholly exterminated.

¹ The Story of the Cahow. The Mysterious Extinct Bird of the Bermudas. By Professor A. E. Verrill, Yale University. Popular Science Monthly, Vol. LX, Nov., 1901, pp. 22-30.

Professor Verrill has located, from these early narratives, some of the breeding places—on some of the smaller outlying islands of the group,—but lack of time prevented any very thorough search for their bones, which he thinks may be found on Castle Island, Southampton Island, and Cooper Island, the latter being in his opinion the most favorable site for such discovery. Here then is another 'ornithological mystery' worthy of further investigation.—J. A. A.

Palmer and Old's 'Digest of Game Laws for 1901.'¹—This important 'bulletin' presents in convenient form the provisions of the Federal, State and Provincial laws now in force for the protection of game and birds, including the amendments enacted by the various legislatures in 1901. It consists, first (pp. 11-68) of a 'general discussion of game laws,' including restrictions as to time, methods, and purposes of killing game, and the manner of its shipment; and, second (pp. 69-148), abstracts of the laws, with special reference to the shipment and sale of game. "The opening year of the new century has witnessed an unprecedented interest in game protection. Nearly four-fifths of the States and Territories have enacted some amendments to their game laws. . . . Changes in dates for opening or closing the seasons have been very general, but restrictions on methods of capture, on sale, shipment and storage, have also been numerous. In many instances the laws have necessarily become more complex, but there has been a strong tendency toward extending protection to more kinds of game, shortening seasons, limiting bags, and throwing greater restrictions about the trade in game." It is therefore of the highest importance to have for handy reference a practically complete digest of all the laws relating to the capture, shipment, and sale of game, in the interest not only of sportsmen, but of the increasing number of persons who take an interest in game protection. The importance of the subject is rapidly becoming more and more recognized by the general public, which in itself gives great encouragement to the promoters of intelligent protection for both game and non-game birds.—J. A. A.

Judd's 'The Relation of Sparrows to Agriculture.'²—The results are here given of a very detailed and thoroughly scientific investigation of the food habits of the native sparrows of eastern North America, with

¹Digest of Game Laws for 1901. By T. S. Palmer and H. W. Olds, Assistants, Biological Survey. Prepared under the direction of Dr. C. Hart Merriam, Chief of Biological Survey. Bull. No. 16, U. S. Depart. Agric., Division of Biological Survey, 1901. Pp. 152. and 8 maps and diagrams.

²The Relation of Sparrows to Agriculture. By Sylvester D. Judd, Ph. D., Assistant, Biological Survey. Prepared under the direction of Dr. C. Hart Merriam, Chief of Biological Survey. Bull. No. 15, U. S. Dept. Agric., Division of Biological Survey, 1901. 8vo, pp. 98, pll. 4, and 19 text figures.

the verdict strongly in favor of the sparrows as an important natural check upon the growth of noxious weeds. Says Dr. Judd: "When the food of the native sparrows is divided into the three classes . . . the neutral part proves to be small, not exceeding a third of all that is eaten; the injurious part very small; and the beneficial part much larger than that of most birds, and from five to ten times as great as the injurious part. We may therefore safely conclude that, as a class, these small birds are well worthy of our protection." The greater part of the first fifty pages of this important and very interesting paper are devoted to an account of the author's methods of investigation, and the general subject of the food of sparrows and its effect on agriculture, while some forty pages treat of the food of the species individually. Several pages are given to the European House Sparrow, with the conclusion that there is little to be said in its favor. "Its insectivorous habits are creditable, as far as they go, but they are insignificant, because the diet is almost exclusively vegetable; and while it is in the vegetable fare that the value of most sparrows consists, yet in the case of the English Sparrow the damage to grain far overbalances the benefit of weed-seed destruction. Adding to this the injury it causes to buildings and statues in cities, there is no escape from the conclusion that the bird is a serious pest the extermination of which would be an unmixed blessing."

It is to be hoped that Dr. Judd's convincing report on the economic value of our native sparrows will have a wide distribution.—J. A. A.

Bonhote's 'On the Evolution of Pattern in Feathers.'¹—Mr. Bonhote's paper is highly speculative and not easy to comprehend, nor does he himself appear to be very clear as to just what points he believes he has even tentatively established. Toward the close of the paper he says: "My object has rather been to show that all the many and diverse markings on the feathers of birds are in the main variations of one type, namely: a longitudinal stripe with great tendency towards lateral expansions into transverse stripes, and that on modifications of this, by suppressing one portion or increasing another, all the various patterns have been built up. . . . The main question that now remains to be answered is that relating to the method in which the pigment groups itself to form these markings, but that is a matter which I hope to be able to investigate when dealing with the question of colour-change. . . . To sum up . . . it should be noted that the most exposed portions of a bird, generally the upper parts, undergo a further evolution than those less conspicuously situated, and if there be any difference between the sexes, the male shows the higher form."

He takes, primarily, in illustrating his theme, the European Sparrow Hawk (*Accipiter nisus*), his plate (pl. xix) giving "diagrammatic" but

¹ On the Evolution of Pattern in feathers. By J. L. Bonhote, M. A., F. Z. S. Proc. Zool. Soc. London, 1901, pp. 316-326, pll. xix, xx.

“accurate representations of actual feathers” from this bird, taken, however, in each case, he says, “from different birds, and that I have no proof of the pattern on any individual feather being changed as some writers (cf. R. B. Sharpe, P. Z. S. 1873, p. 44) have suggested: it may be so, or it may not, but that contingency has not been taken into account in this paper.”

He sets out with the hypothesis that “the most primitive feathers were entirely colourless, or of a dull dingy grey, the first trace of a pattern being a longitudinal stripe of colour down the rachis. Possibly the feathers of some species become self-coloured without undergoing any pattern stage, but this is doubtful; and in the majority of self-coloured birds, even when white, the self-colouration has been subsequently assumed. The self-coloured feathers are those in which it is most difficult to fix the period of evolution. . . .” There is much more in this line, but Mr. Bonhote fails to tell us how we are to distinguish ‘self-coloured feathers,’ or in what the process of ‘self-colouring’ consists, whereby, apparently, a striped or barred feather may become white, or of some uniform dark shade. Evidently he still believes in the increase, or decrease, or entire rearrangement of pigment within the grown feather; but even from this point of view we fail to see how he has thrown any real light on the evolution of the pattern of feathers.

The facts in the case are: in birds which undergo a series of changes in color, in passing from first to mature plumage, there is often, or usually, a color pattern in the young bird very different from that of the adult, with sometimes intermediate stages different from either. If the *same feathers* were worn throughout these changes there would be some basis for a theory of “evolution of pattern in feathers”; or rather, there would be no need of any theory at all, for the evolution would be a matter of simple and easy observation. As a matter of fact, however, such an evolution of pattern is impossible; the juvenal plumage of a bird, with its particular pattern of markings, is one thing; the postjuvenal, with a different pattern is another; and so on with subsequent plumages till the mature pattern is reached. Each moult may give a different pattern from that of the plumage which preceded it. How then can we say that a barred type of feather, or a whole-colored feather is ‘evolved’ from a longitudinally striped one, with any regard to the strict meaning of the term?

On the other hand, in certain birds of varied plumage, it is possible to select feathers from different parts of the body of the same individual which will show not only wholly distinct patterns, but also every intermediate stage connecting the two, feathers of a certain type or pattern always being characteristic of a certain part of the pterylosis and other types or patterns of other parts of the pterylosis. Furthermore, these different types or patterns are not successional but are all developed at the same time, each in its respective position in the pterylosis. Yet, in certain instances, a series may be plucked from different parts of the same bird, some of which will have simply a narrow stripe along the

rachis, others in which the stripe is much broader, perhaps with a tendency to break into bars, then others distinctly barred, with still other stages between these and wholly colored feathers. It is rare of course to find such a variety of intergrading patterns in a single bird, but a strong approach to such a condition is by no means rare. So long as these different patterns cannot be demonstrated to be *successional stages in the same feather*, it seems idle to consider them in any strict sense evolutionary stages, or to refer to them as illustrating the evolution of color pattern, evolution implying the evolving of one thing by direct outgrowth from another; and in like manner the term 'self-coloured' in such a connection is clearly inadmissible and misleading. In other words the implied genetic connection does not exist; the relation is simply incidental.

Feathers are classified as striped, barred, etc., in accordance with their pattern of marking, and the markings themselves are indicated by a variety of descriptive terms; and, as almost every conceivable style is represented, there is necessarily a gradation of one form into another, so that all may be considered arbitrarily or theoretically as modifications of the simplest type of all, the longitudinally streaked feather, which seems to be the main conclusion of Mr. Bonhote's paper.

That evolution has played a prominent part in the development of the different styles of coloration that characterize particular groups of birds is beyond question, adapting them to their varied environments and different modes of life, but we do not see how Mr. Bonhote's paper bears especially upon this phase of the question; nor, in fact does he appear to claim that it has such bearing. — J. A. A.

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CORRESPONDENCE.

A Biographical and Autobiographical Letter.

EDITORS OF 'THE AUK':—

Dear Sirs:—The following letter, by Colonel Bernard J. D. Irwin, Surgeon, U. S. Army (retired), throws so much light upon the least-known period of the lives of two of America's distinguished naturalists that I take pleasure in presenting it to the readers of 'The Auk.'

EDGAR A. MEARNS.

COBOURG, CANADA.

Sept. 21, 1901.

Dear Major Mearns:—

In response to your request it affords me pleasure to answer your queries in regard to the late Major Charles E. Bendire, U. S. A. Yes, your assumption is correct, it was I who initiated in him the taste for natural

history which he cultivated with so much zeal and advantage as a naturalist.

Fort Buchanan, Arizona, was situated at the Hot or Monkey Springs, the head waters of the Senorita Creek, a branch of the Santa Cruz, about eight miles from the international boundary and ten miles from the Mexican town of Santa Cruz. I was stationed there from December, 1857, until July, 1861. When our troops withdrew from the Territory in the latter year, that post was abandoned, but when the volunteer troops from California resumed possession of that region the station was re-established at and thereafter known as 'Camp Crittenden.'

In those days we had no hospital corps, hospital attendants — stewards, nurses, cooks and orderlies — were detailed from the line at the request of the medical officers. While on duty there I had the late Hospital Steward Louis Othon Faringhy detailed as acting steward, taught him the routine duties of the position, and he served with me off and on during many years at West Point, Fort Riley, &c. I found him the best and most reliable non-commissioned soldier and man that I ever met. As he belonged to 'D' troop, 1st Dragoons — Bendire's company — I believe it was at his suggestion or through the First Sergeant of the troop — R. F. Bernard, now Brevet Brigadier-General U. S. Army, retired — that I had Private Charles Bendire detailed as hospital attendant, sometime in 1858. He was then comparatively young, an active efficient soldier, quiet and of modest, retiring disposition. At that time I was collecting specimens of Natural History and seeing my work he would from time to time bring me specimens of one kind or another which he supposed desirable for my collection.

His troop having been ordered to California my impression is that he accompanied it to that State and was stationed at Fort Tejon, in the San Bernardino Valley, where he commenced collecting birds' nests and birds' eggs.

In 1864 he called to see me at Memphis, Tennessee, having been commissioned a lieutenant in the regular army after having served as non-commissioned officer — including hospital steward — some years after his service under me. The collection of reptiles mentioned in your letter, was made by me for the Smithsonian Institute at Fort Buchanan and vicinity in 1858-60. I was in frequent correspondence with Professor Spencer F. Baird and through him and Professor Joseph Henry I presented the 'Irwin Meteorite' to the institution. Bendire was not with me in the affair at Apache Pass in 1861. As this is written from memory I regret that I cannot give details in satisfactory form, but trust the résumé may aid you in the proposed paper.

With kind regards believe me,

Yours very truly,

B. J. D. IRWIN.

NOTES AND NEWS.

DR. JOHN ANDERSON, a Corresponding Member of the American Ornithologists' Union, died at Buxton, England, August 15, 1900, at the age of 66 years. He was born in Edinburgh in 1833, and was graduated a Doctor of Medicine from the Edinburgh University in 1861. In 1864 he went to India, and the following year was made Superintendent of the Calcutta Museum. A few years later he was also appointed to the Chair of Comparative Anatomy in the Medical College of that city, and Calcutta became his principal headquarters during his long residence in India. He made, however, several important scientific expeditions to remote parts of India, the results being published in part in 'Zoölogical Results of the Two Expeditions to Western Yunnan' (2 vols., 4to, 1878).

"In 1887, after twenty-three years' service under the Indian Government, Dr. Anderson returned home, and settled in South Kensington, where he devoted himself entirely to zoölogical work, and was a well-known attendant at the Royal, Geographical, Linnean, and Zoölogical Societies. Of the last named — he was for many years one of the Vice-Presidents. Being in delicate health, Dr. Anderson usually passed his winters in Egypt, and devoted his energies mainly to the exploration of the fauna of that country. In 1898, he published a splendid volume on its Herpetology, and up to the time of his death was busily engaged on a corresponding work on Egyptian Mammals. . . . Besides the works above mentioned, he published in 1876, an excellent essay on the osteology and pterylosis of the Spoon-billed Sandpiper (*Eurynorhynchus pygmaeus*)." (*Ibis*, Jan. 1901, p. 160.)

THE ABBÉ ARMAND DAVID, a Corresponding Member of the American Ornithologists' Union, died in Paris November 10, 1900, at the age of 74 years. Born at Espalette in the Province of the Basses Pyrénées in 1826, and educated for the priesthood, in 1862 he was placed in charge of the Lazarist missionary school in Peking, China. Shortly after his arrival he began transmitting valuable natural history collections to the Paris Museum, and later made a number of successful expeditions into the interior of China, under the patronage of the authorities of the Paris Museum. His last expedition was made in 1872, to Shansi and the Hoang-ho, which, with previous exposure and hardships, so impaired his health that he was obliged to return to France, and where, with partially restored health, he passed his remaining years. From 1870 to 1875 he published a number of important papers on the birds of China, based on his collections and field work. In 1877, in collaboration with M. E. Oustalet, he published his 'Les Oiseaux de la Chine,' the text and atlas making two octavo volumes, and forming a work of great value. Although primarily an ornithologist, he made important collections in other departments of zoölogy,

and also in botany, and these collections elaborated by various authorities, added greatly to the world's knowledge of the natural history of the interior of China.

WE LEARN with great regret of the death of Mr. Lionel William Wigglesworth at Suva, Fiji, on June 7, 1901. Mr. Wigglesworth was well-known as the author of the 'Aves Polynesiae' (1891), and as joint author, with Dr. A. B. Meyer, of 'The Birds of Celebes' (see this journal, XVIII, pp. 399-401). He left England in November, 1900, via Australia and New Zealand, for a long tour of ornithological exploration among the lesser known islands of Polynesia, for which work he had ample preparation, and to which he had long eagerly looked forward. Mr. Wigglesworth, we learn from 'The Ibis' (Oct. 1901, p. 751), was born Feb. 13, 1865, in the county of Buckingham, England, the second son of the late Rev. James L. Wigglesworth, curate of Hanslope-with-Castlethorpe. After being educated at Trinity School, Old Stratford, his ardent interest in birds led him to take up seriously their study, and in 1889 he went to Braunschweig, Germany, and for two years was a pupil of Professor Wilhelm Blasius; he then proceeded to Dresden and became a volunteer assistant at the Dresden Museum under Dr. Meyer. He died of dysentery soon after his arrival at the Fijis. His sad death is a serious loss to science, as well as to his many friends.

THE FIRST Honorary Degree of Doctor of Science given by the University of Oxford was conferred in June last upon Dr. P. L. Sclater, the senior editor of 'The Ibis,' and is a well-merited recognition of his eminent services to science, and especially to ornithology.

MESSRS. HOUGHTON, MIFFLIN & Co. announce their intention of soon publishing a facsimile edition, in four volumes, large crown octavo, of 'Audubon's Birds of America' (1840-44), provided sufficient interest is shown in the project by ornithologists and others. This proposed Library Edition will contain Audubon's complete text reproduced by photographic process, which will secure, of course, absolute fidelity to the original. The original pagination will be preserved, so that the volumes will be in all respects as available for reference as the rare and expensive seven-volume edition of 1840-44. The plates will not be reproduced, since the attendant expense would defeat the purpose of editor and publishers to bring Audubon's text within the reach of all ornithologists and bird students.

The first volume will contain a portrait of Audubon and a sketch of his life by his grand-daughter, Miss Maria R. Audubon. The editor's notes, which will be printed at the end of each volume, will give the present nomenclature and the general range of each species as now known, besides studying the probabilities in the case of the few problematic species described by Audubon, and performing other similar

editorial functions, but no attempt will be made to fill gaps in the life histories or in any general sense to bring Audubon up to date. At the end of the fourth volume there will be a complete bibliography of Audubon's works.

The work will contain over twenty-two hundred pages. The volumes will be tastefully bound in cloth, and the price to persons subscribing before publication will be \$8.00, net, for the set of four volumes. The publication price will be \$10.00, net.

THE INITIAL number (Vol. I, No. 1) of 'The Emu, Official Organ of the Australasian Ornithologists' Union,' bears date October, 1901. Its first article is an account of 'The Australasian Ornithologists' Union,' giving a history of its origin, discussing the work before it, and the name of its journal, 'The Emu,' giving reasons for the orthography adopted, as against 'Emeu,' etc. The first number, of 32 pages, contains a variety of short papers and notes, reviews, and extracts from other magazines relating to Australasian ornithology. The 'Aust. O. U.' has plenty of work and a free field before it, and is not lacking in vigorous workers in its ranks. It recognizes in Bird Protection a great task, and it is planning aggressive and prompt action. The office-bearers are: President, Colonel W. V. Legge; Vice-Presidents, C. W. De Vis and A. Zeitz; Hon. Treasurer, Robert Hall; Hon. Secretary, D. LeSouëf; Hon. Editors of 'The Emu,' A. J. Campbell and H. Kendall.

THE EXECUTIVE COMMITTEE of the Yorkshire Naturalists' Union invites subscriptions for the publication of 'The Birds of Yorkshire, an Account of the Avifauna of the County,' by Mr. Thomas H. Nelson. It will be based on an exceptionally complete mass of material, both published and unpublished, and will include "succinct accounts of the distribution, faunistic status, migration, nidification, variation, vernacular nomenclature and folk-lore" of each species, with illustrations of "noted bird-sites or haunts." The subscription price is one guinea. Orders may be addressed to the Hon. Secretaries, Yorkshire Naturalists' Union, 259 Hyde Park Road, Leeds, England.

BEGINNING with the February number Mr. Herbert K. Job will publish in 'Everybody's Magazine' a series of articles upon Raptores and Water Birds, based on his own observations, and profusely illustrated from the photographs shown by him at the last two meetings of the A. O. U.

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IN SEARCH OF A NEW TURKEY IN ARIZONA.

BY E. A. GOLDMAN.

IN DECEMBER, 1899, I was directed to make a trip into the Mogollon Mountains of northern Arizona to secure a series of Wild Turkeys for the Biological Survey of the United States Department of Agriculture. The first of January, 1900, found me outfitting at Winslow, on the Santa Fé Pacific Railway. After some talk with local hunters I decided to go to the Clear Creek country on the north slope of the mountains, chiefly because, as far as I could learn, no one had hunted in that section during the season, while numerous parties had been out in every other direction, and the flocks were said to be scattered and the birds very wild. The services of a local hunter and a camp man were secured and a late start made with a light but strong wagon, and horses which were trained for packing and work under the saddle as well as for driving. Provisions for two weeks were taken, and as we expected to see some snow our outfit included a shelter tent.

The weather had been bright and clear, and the winter so far an open one with little or no snow, but the first day of the new year was raw and cloudy and I was cheered by the prospect of a storm, knowing that after a fresh snowfall it would be comparatively easy to track and overtake the turkeys.

From the railway the road led off to the southwest, across the gray, wind-swept desert, ascending slowly but steadily to Sunset Pass — a gap among some bare, sterile hills which rise a few

hundred feet above the plain as outlying foothills of the Mogollons. A few miles beyond the pass, camp was made for the night at a waterhole among the cedars which clothe the lower slopes of the range.

This section of the Mogollon Mountains is of peculiar formation. It has a northwest and southeast trend and forms here the southern rim of the Colorado Plateau by connecting the San Francisco group with the White Mountains of eastern Arizona. The summit is known locally as the 'rim,' and marks the point from which precipitous 'breaks' lead down on the south into Tonto Basin. Toward the north the slopes are so gradual that in ascending one scarcely realizes that he is entering mountains, and streams heading near the rim, flow northward in parallel courses through deep and often inaccessible box cañons until they emerge on the desert and enter the Little Colorado.

On the second day we continued up the long easy slope along the ridge separating Clear Creek Cañon and some of the upper branches of Cañon Diablo. The weather was beautifully clear and all our hopes for an early storm were gone. As we gradually increased our altitude the panorama of the Little Colorado Valley widened below us, while far away in the northwest, San Francisco Peak, the great landmark of the whole region, rose abruptly into cloudland.

The first turkey tracks were seen in spots of soft soil among the piñons soon after noon and others were crossed at intervals along the road. Late in the afternoon, when near the upper edge of the piñon belt, we entered what was evidently the feeding ground of a large flock, for many tracks were seen crossing the wagon road in several places. This encouraged us to camp near here, and when we came to a trail leading down into Clear Creek Cañon and indicating accessible water, we did so. After a few hasty preparations for the night the camp man was sent to the bottom of the cañon, over a mile away, to water the horses and fill casks for camp use, while the hunter and I started out in opposite directions to look for turkeys. I walked slowly and as quietly as possible through fairly open pine and piñon woods, following a half circular course in order to avoid going too far from camp so late in the day. Many tracks were seen, but none of

them had been made that day. At the end of an hour or so I came to the head of a small side cañon about a mile from camp. The sun had just set and all nature seemed to have gone to sleep. Not a sound broke the stillness except the slight, unavoidable rustling of my own footsteps among the dry leaves. I stopped a moment to listen and had about decided to cut across to camp when suddenly from down the cañon came faint but unmistakable turkey notes which started me on a run in that direction. A few minutes later I cautiously approached the place where probably over 150 turkeys, all females and young of the year, were noisily trying to settle themselves for the night. They occupied the tops of tall pines for about 200 yards along one of the steep walls of the cañon. In many of the trees there were only two or three turkeys, but some of the larger ones, and especially those with many dead branches, contained from five to ten birds. Many of them sat as closely together as possible and constantly craned their necks about, squawking, crowding each other and struggling for places. They flew frequently from tree to tree and sometimes a bird, alighting clumsily on a crowded branch would knock off one or two others and all would fly off noisily to other places. At first the disorder seemed to be general and most of the birds were crowding or being crowded and were uttering loud cries of "quit, quit, quit," with many modulations depending apparently upon the degree of excitement. They rapidly became quieter, however, until by the time it was dark they were settled for the night. When all was still I rose from the cover where I had been hiding and after carefully noting the locality, left the birds undisturbed and picked my way across several small cañons into camp. The hunter came in soon afterward and a comparison of notes showed that we had located the same roost, he having come up the cañon while I went down, and each had decided to watch the birds until dark and not to begin firing without the other. About 9 o'clock we returned to the place. The first few shots, fired rapidly, created a great commotion, and the air seemed to be filled with turkeys flying heavily off in all directions, but there were no outcries and in a few minutes all was quiet, and no more birds could be found. I was satisfied, however, that we had secured as many as necessary for specimens though we did not know the exact number, for some of

them went thumping down to the bottom of the cañon, and others fell at some distance.

At daylight next morning we were again on the ground and found the flock broken up into small parties, which soon left their roosts and went off in various directions. On leaving the trees, the turkeys usually flew two or three hundred yards and then ran rapidly until out of sight. During the following days it became evident that all the tracks seen for several miles about our camp had been made by this flock. No more fresh ones were found in the vicinity, showing that the frightened birds had left the locality at once.

Our lucky night hunt having given us a fine series of females and young of the year we then devoted our attention entirely to the old gobblers. We hunted steadily, day after day, covering the country for miles in all directions without seeing any of the old fellows, but they were in the country and it could only be a question of time until we found them. From the tracks of the different flocks it appeared that the old males were living apart from the females and young. Females and young were seen several times but were not molested. Evidently these birds wander far and wide, for tracks a day or two old were often found along some ridge and no fresh ones were seen in the vicinity for days. It did not appear that the birds returned regularly to the same roosting place. Several old roosts were found, usually among tall pines near the head or along the walls of some side cañon, which were evidently occupied occasionally. None appeared to have been used very long, and at least two had only been occupied once. The birds spent the day wandering over the broad and gently sloping ridges between the cañons and as evening approached worked toward one of the cañons and roosted wherever night overtook them.

Finally on the ninth day, soon after noon I came upon some big gobbler tracks which were evidently only two or three hours old, and decided at once to follow them. There were about fifteen of the old fellows, and in crossing patches of soft soil they left a broad trail which became very indistinct or disappeared altogether on rocky ground. I had gone only a short distance when my hunter, whom I supposed far away, came up. He had found my moccasin tracks following the turkey trail and quickly overtook me.

I was very glad to see him, for it was difficult work, and even with our combined skill in trailing we made slow progress. Sometimes we had no trouble for several hundred yards, then suddenly we came to places where the birds had paused to feed and found they had wandered about in all directions scratching among the leaves. At such places the trail became so involved that it was difficult to find the direction taken when the birds left. When we came to hard or stony places a few misplaced leaves or an overturned stone or stick were the only things to guide us. Where the trail became dim one of us usually went a trifle to the right and the other to the left so that unless the flock changed its course abruptly one or the other was pretty sure to find some signs every few yards. Occasionally we lost the trail altogether and had to go ahead and 'cut for tracks' in softer ground. For awhile the course followed was very crooked and several times it even doubled back and crossed itself, but late in the afternoon it became evident that the flock was working toward a branch of Clear Creek Cañon. Shortly before sunset the trail became so fresh that we kept a sharper lookout ahead, expecting to sight the flock at every moment. It was still proceeding in a leisurely manner, as was plainly shown by the number of places where birds had paused to scratch out deep pits in search for food. At sunset we were quite close to the cañon and I began to fear they would be able to roost before we could overtake them. With the idea that I could hear for a considerable distance the heavy wing strokes they would make in rising to the roost, I decided to go ahead and listen, leaving my companion to follow the trail as best he could. I had only advanced about two hundred yards to some higher ground when I suddenly saw the flock only about forty yards to my left. The birds had not seen me and were walking quietly along in single file, following a course directly parallel to the one I had taken. They presented a fine sight and I was strongly tempted to shoot, but on second thought decided to follow them until they roosted. Moving quickly out of sight into a small arroyo, I ran back a short distance and gave a low whistle, when my companion soon overtook me. Together we followed the birds, using great care not to show ourselves. Food had ceased to interest them, and they were evidently looking for a place to roost. They continued

in single file, pausing occasionally to look warily about, until they reached some high ground overlooking a small cañon along the slopes of which stood several tall dead pines. The leader, a fine old fellow of unusual size, stopped and the rest of the flock came trailing up and gathered in a group, facing the cañon. Several low, tremulous signal notes — *quir-r-r-rt, quir-r-r-rt, quir-r-r-rt*, — were uttered and suddenly they took wing altogether and flew almost horizontally out to the branches of the dead trees. After leaving the ground no sound was heard except the heavy flapping of wings. A few moved into the tops of live trees a short distance farther down, but most of them remained in the dead ones. Their behavior was in marked contrast to that of the females and young. There was no crowding and no confusion, and in a remarkably short time they were settled for the night and all was quiet. From where I was lying their bodies appeared in the gathering darkness like enormous black fruits, outlined sharply against the glowing western sky.

When it had become thoroughly dark, we cautiously approached the trees and I took a stand almost under one containing several birds. They were perched two or three feet apart so that only one could be shot at a time. As we knew the old fellows were very wary we held our guns in readiness as soon as we came within range and prepared to shoot at the first sign of alarm. I sent my companion to the next tree and told him to give a low whistle when he was ready. I held my ten-bore gun leveled at one of the birds, and it began to feel very heavy before the signal was given. When it finally came I fired both barrels in quick succession and was much gratified an instant later to hear a crashing noise among the branches as two fine old gobblers came tumbling down, landing before me with a loud thump. Instantly heavy wing strokes could be heard in all directions as the frightened birds left their perches. My companion had also made successful right and left shots into his tree. After some search we each located and killed another turkey, after which no more could be found. We then gathered the big birds together, swung them well out of reach of prowling coyotes or mountain lions and started for camp. When about a quarter of a mile from the roost I saw by the dim moonlight a dark form among the branches of a big pine. A chance shot was made

at it and I was more than half surprised when another big turkey came crashing down. To reach camp we had several deep, dark cañons to cross without trails, and floundered about finding the usual obstacles, which are unconsciously avoided in daytime but are always encountered at night. We were in a cheerful frame of mind however, and above noticing small bruises and other mishaps. The next forenoon was spent taking pack horses to the roost, by a circuitous route, and bringing our game to camp. In the afternoon we started on our return to the railroad and camped among the piñons. The snowstorm we hoped for until it could no longer serve us, came during the night, and morning found everything white and cold outside our tent. We made a hurried breakfast and after a long drive reached Winslow in the afternoon.

The result of the trip was a series of 13 specimens, including adults of both sexes and the young of the year. When the specimens reached Washington, Mr. Nelson found they represented an undescribed subspecies which he named *Meleagris gallopavo merriami* (Auk, Vol. XVII, pp. 120-123, April, 1900).

Merriam's Turkey ranges in summer over the higher slopes of the Mogollon Mountains. In winter, and especially when snow lies over the summits, the birds move down into the piñon belt where food is abundant. I found them feeding largely on the nuts of the piñon (*Pinus edulis*). According to some of the old hunters they also eat the berries of the cedar (*Juniperus utahensis*), but none were found in the stomachs examined, although the turkeys, just before being killed, had been wandering through the upper edge of the cedars, where the ripe berries were excessively abundant.

GEOGRAPHICAL VARIATION IN ABRASION.

BY JOSEPH GRINNELL.

A STUDY of pertinent material has led me to formulate the following generalizations: (1) That fading of plumage colors proceeds more rapidly in direct sunlight than in the less intense reflected or interrupted light; in other words, that color changes due to fading are far greater in birds of a region of much average daily sunshine, than in one with an extreme proportion of cloudy weather. (2) That abrasion of feathers progresses more rapidly in a dry atmosphere than in a humid atmosphere; for extreme dryness seems to make the finer structures of the feather more brittle. Abrasion in general is from two causes: the attrition of feathers, one against another; and the wear produced by contact with foreign objects. Proposition number two apparently holds good in both cases.

To illustrate, a series of *Cyanocitta stelleri* from the cloudy, humid Sitkan District taken in June and July show but slight traces of wear; while specimens of *Cyanocitta stelleri frontalis* from the arid Sierra Madre Mountains of Southern California taken at the same season are so ragged and faded as to almost completely destroy the fresh fall coloration. Several parallel cases present the same relative conditions; examples at hand from the same two regions are *Junco*, *Empidonax*, *Regulus*, *Certhia*, *Dryobates*, *Melospiza*, and *Hylocichla*.

I am well aware that in the case of birds which live in dense vegetation the nature of the foliage with which they come in contact has much to do with the rate of abrasion, for I have at hand two lots of Song Sparrows taken within three days of each other in June, one from a tule swamp, and the other from a saw-grass swale. The birds from the tules are but moderately worn, while the others are so much abraded on the breast, sides, wings, and tail, as to have lost much of their distinctive coloration. But differences in vegetation, if any exist to such a degree, do not seem to me accountable in the cases cited above; surely not with the Thrushes, Jays and in particular the Flycatchers.

At any rate, however variation in wear is brought about, its

bearing upon the study of subspecies should not be underrated, since differences due to such a factor may be found correlated with different areas in the habitat of a species. The disposition now is to grasp at any perceptible character common to a series of specimens from one locality and to use it to distinguish a 'new' subspecies. I believe the discrimination of even the slightest differences to be of importance. But I would urge that a character which is purely adventitious and due to external causes cannot serve to characterize a *subspecies*; for I believe that a subspecies is an incipient species, and that only what we can judge to be incipient species should be called subspecies. Direct mutilations from external sources must not be confused with innate manifestations, developed from individual variations by natural selection and perpetuated through inheritance. The latter constitute subspecies and species.

I have suggested that variation in abrasion may exist, and that such variation should be discriminated against by those who seek minute color characters. But I do not believe there has so far been much error on that score. Fortunately, color characters are usually accompanied by differences in extent of markings, proportions of measurements, etc. It might be advisable, however, hereafter to use as types of detailed color descriptions, especially in the case of geographical races, specimens having newly-acquired plumages. Colorations at other stages of feather wear might then be intelligibly explained in comparison.

I wish to call attention to one case to which the above remarks seem to apply. A subspecies of the Russet-backed Thrush has been distinguished (*Hylocichla ustulata ædica*), the habitat of which is given as "California, excepting the northern coast; north in the interior to southern Oregon"; etc. The habitat of *Hylocichla ustulata ustulata* is thus restricted to the "Northwest Coast region." I have before me 32 specimens of the Russet-backed Thrush from the Pacific Coast, all collected by myself, as follows: Pasadena (10), Pacific Grove (2), Palo Alto (11), Seattle (1), Sitka (8). These represent habitats of the two alleged subspecies, as defined, by 23 specimens, and 9 specimens, respectively. Turning to the original description of *ædica* (Auk, XVI, Jan. 1899, pp. 23-25), we find it characterized as being similar to *ustulata*,

but with flanks and upper parts paler and less rufescent. It is further explained to be "usually paler than *ustulata*, and has very much less of rufous tinge to the upper surface, including both wings and tail; the sides and flanks are more grayish; the buff of jugulum somewhat paler. Although most of these characters are not entirely constant, typical specimens may be without difficulty discriminated" (!). There is admittedly "no material difference in size"; so here we have to do with color differences only.

In carefully examining my series, as above enumerated, I find that the darkest Sitkan example (No. 1188, June 26) is slightly more rufescent than any from California, while another example from Sitka (No. 1119, June 11) is paler and more olivaceous than any California specimen taken before June 1. The rest of the Sitkan skins (June and July) are all easily matched by as many of the breeding birds taken at Palo Alto in May. The most olivaceous skins I have are Nos. 4748 (June 22) and 4794 (July 10), taken at Pacific Grove, and No. 4277 (June 1), taken at Palo Alto. These are much paler than any from Sitka (except No. 1119), and are correspondingly far more worn. If the Sitkan series is representative of the "Northwest Coast region," I fail to see that they are any darker than California breeding birds at the same stage of abrasion. The greater rate of fading to which California birds seem to be subject, must also come into play, causing a generally paler effect in a large series of summer birds from California. At any rate, judging from my own material I see no evidence of a race '*ædica*.'

Hylocichla ustulata ustulata of the Pacific Coast, *H. u. almæ* from the Great Basin and Rockies northward, and *H. u. swainsoni* of the Eastern province, each possesses distinguishing color characters. Each occupies a separate region in summer, and each seems to follow a separate north-and-south migration route. The conditions governing *H. ustulata*, and *H. aonalaschkæ* (of many recognizable races) seem to consist in a different extent of migration. The former has a long migration route, sweeping south into Mexico early in the fall, and back again late in the spring. The *H. aonalaschkæ* group have a much shorter migration route, some of the races not going south of the United States; and in winter occupying areas nearly as circumscribed as in summer. The less

migratory a species is, the more 'plastic' it seems to be; that is, the more opportunity there is for the peculiarities of faunal areas to become operative factors in evolution.

A LIST OF THE LAND BIRDS OF SEATTLE, WASHINGTON, AND VICINITY.

BY SAMUEL F. RATHBUN.

THE topography of Seattle and the surrounding country is peculiar in many respects, and beyond doubt exerts more or less influence on the birds of the region, particularly in causing many of them to be to a great degree locally restricted.

The city, situated on the shore of Puget Sound, is built on a series of irregular benches, generally trending north and south, which attain a maximum altitude, as shown by the Government survey, of 250 feet above tide water. It is bounded on the east by Lake Washington, a body of fresh water some twenty-four miles in length with an average width of two miles; from this lake eastward the lower foothills of the Cascade Mountains begin. North of and within the city limits are two small fresh water lakes, surrounded by country of a similar character, which continues indefinitely northward. South of the city is a broad expanse of tide flats, lying at the mouth of the Duwamish River, which are now being rapidly reclaimed; a beautiful, fertile and cultivated valley extends up this river for many miles.

Originally the rougher country was clothed with a heavy growth of evergreen timber, principally firs of various kinds interspersed with cedar; many of the former attained a height of 200 to 300 feet. In the bottoms and wetter portions the western maple, elm and alder, with a heavy undergrowth intertwined with vines, thrived luxuriantly, in many places presenting an almost tropical exuberance. As the country has become settled this growth has been cleared away. The change has necessarily influenced the habits of

many species of birds, and in the case of the more social kinds, has increased their numbers.

The climate is mild, with no extreme changes of temperature. I am indebted to the kindness of Mr. G. N. Salisbury, section director of the Weather Bureau at Seattle, for the following report, which shows the general climatic conditions for a period of ten years, from 1890 to 1900.

MEAN TEMPERATURE.

(Fahrenheit.)

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
40.8°	41.6°	45.0°	49.9°	55.3°	60.0°	64.3°	64.2°	58.5°	51.4°	45.4°	43.1°

Mean Annual temperature, 51.6°.

Mean Summer temperature, 62.8°.

Mean Winter temperature, 41.8°.

Highest recorded temperature, 94°.

Lowest recorded temperature, 3°.

AVERAGE PRECIPITATION, 1890 to 1900.

(Inches and hundredths.)

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
4.37	3.70	3.12	3.21	2.37	1.58	0.66	0.54	1.78	2.98	5.66	6.24

Average Annual, 37.17.

PREVAILING DIRECTION OF THE WIND.

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
S. E.	S.	S.	S. E.	S. E.	S.	N. W.	N. W.	S. E.	S. E.	S. E.	S.

These statistics readily show why so many of the species found here remain to a greater or less extent during the winter season. In the case of a few, the number of individuals representing the species is quite large.

The following list of species has been compiled from notes taken by the writer during a period of over eleven years. It represents many days of field work, and nothing has been assumed. The sole aim has been to prepare an accurate list, as far as possible, of the land birds, and although the author is aware that the list may be

increased to some extent, only those species have been enumerated of which there is indisputable evidence of their presence.

The nomenclature used is that of the A. O. U. Check-List of North American Birds. The author desires in this connection to acknowledge the kindness shown him by Dr. A. K. Fisher of the Biological Survey, U. S. Department of Agriculture, for information regarding some of the recent changes in nomenclature.

1. *Colinus virginianus*. BOB-WHITE. — An introduced species. Moderately common and breeds. Resident.

2. *Oreortyx pictus*. MOUNTAIN PARTRIDGE. — Also introduced. Resident, quite common and breeds.

3. *Lophortyx californicus*. CALIFORNIA PARTRIDGE. — Another introduced species, resident and breeding. Common.

These three partridges are mostly restricted in their range to favorable localities, and have rapidly increased since their introduction, having been well protected by suitable legislation.

4. *Dendragapus obscurus fuliginosus*. SOOTY GROUSE. — Common resident; breeds.

5. *Bonasa umbellus sabinii*. OREGON RUFFED GROUSE. — Common resident; breeds.

6. *Columba fasciata*. BAND-TAILED PIGEON. — Common, but not as abundant as formerly. Arrives from the south early in May, breeds, and departs early in October. Unless protected by legislation it must eventually become rare, as it is hunted incessantly during its residence here.

7. *Zenaidura macroura*. MOURNING DOVE. — Not an uncommon summer resident in the cultivated valley south of the city. Breeds.

8. *Cathartes aura*. TURKEY VULTURE. — A rather rare summer resident, but of seemingly regular occurrence in the open river valleys and along the sound. Possibly breeds, as it has been observed from May to September.

9. *Circus hudsonius*. MARSII HAWK. — Where the rivers from the Cascade Mountains empty into Puget Sound extensive marshes are formed. Here this species is found moderately common from April to October. Breeds.

10. *Accipiter velox*. SHARP-SHINNED HAWK. — Regular spring and fall migrant.

11. *Buteo borealis calurus*. WESTERN RED-TAIL. — Not uncommon during the migrations; a few pairs remain and breed.

12. *Buteo swainsoni*. SWAINSON'S HAWK. — On March 7, 1892, I saw one of this species sitting in a small tree on the east shore of Lake Washington. It allowed an approach sufficiently near to identify it.

13. *Aquila chrysaetos*. GOLDEN EAGLE. — In the Cascade Mountains, and east from Seattle 25 miles, I have observed this eagle a number of times.

14. *Haliaeetus leucocephalus*. BALD EAGLE.— Not uncommon along the sound and the larger of our inland lakes. Resident; breeds.
15. *Falco peregrinus anatum*. DUCK HAWK.— Rare, but observed a number of times during spring and fall. (This may possibly be the subspecies *F. p. pealei* Ridgw.)
16. *Falco columbarius suckleyi*. BLACK MERLIN.— On rare occasions I have seen this very dark form of the Pigeon Hawk. Along Lake Washington, on a brushy hillside, interspersed with dead firs, I have observed this bird on the following dates: May 4, 1893; May, 1894; and on several occasions during March, April and May, 1899. On July 10, 1899, I watched one flying about near the business portion of the city, evidently hunting for food. With this exception, my observations were confined to the district above noted, which furnishes a most admirable locality for these birds, and one within which a pair might possibly breed.
17. *Falco sparverius deserticolus*. DESERT SPARROW HAWK.— Abundant from April to October, and restricted to no particular locality. Breeds. Often seen during the winter months.
18. *Pandion haliaetus carolinensis*. AMERICAN OSPREY.— Fairly common summer resident, April to October. Breeds. Not so abundant as formerly.
19. *Asio accipitrinus*. SHORT-EARED OWL.— Rather common during spring and fall around the salt and partially fresh water marshes bordering the sound, especially the river deltas. Observed during summer, and possibly breeds.
20. *Scotiaptex cinerea*. GREAT GRAY OWL.— Rare. Have a skin of an adult female taken within the city limits, Nov. 19, 1899. Another specimen was shot five miles south of the city Nov. 21, 1899. These are the only records I know of this species for this locality.
21. *Nyctala acadica*. SAW-WHET OWL.— Not common. A fine specimen, an adult female, was brought me for identification on Oct. 17, 1901; it had been taken two days previously.
22. *Megascops asio kennicottii*. KENNICOTT'S SCREECH OWL.— Moderately common resident; breeds.
23. *Bubo virginianus saturatus*. DUSKY HORNED OWL.— Resident; breeds.
24. *Nyctea nyctea*. SNOWY OWL.— Rare visitant. A flight of this species invaded the Puget Sound country during November and December, 1896, when a large number of individuals were taken and many more reported as seen.
25. *Glaucidium gnoma californicum*. CALIFORNIA PYGMY OWL.— A not uncommon resident, but seems to be locally restricted. Easily escapes observation.
26. *Coccyzus americanus occidentalis*. CALIFORNIA CUCKOO.— A rare but regular summer resident.
27. *Ceryle alcyon*. BELTED KINGFISHER.— Common resident, but less so during winter. Breeds.

28. *Dryobates villosus harrisii*. HARRIS'S WOODPECKER.—Rather common resident; breeds.

29. *Dryobates pubescens*. DOWNY WOODPECKER.—On Feb. 20, 1892, I took a perfectly typical specimen of this species near the city,—an adult female.

30. *Dryobates pubescens gairdnerii*. GAIRDNER'S WOODPECKER.—Common resident and breeds.

31. *Sphyrapicus ruber flaviventris*. NORTHERN RED-BREASTED SAP-SUCKER.—Not uncommon. Have observed this species during every month of the year except January. Found a pair nesting May 9, 1891.

32. *Ceophlæus pileatus*. PILEATED WOODPECKER.—Resident throughout the year in the heavily wooded tracts. Not so common as formerly.

33. *Melanerpes torquatus*. LEWIS'S WOODPECKER.—This characteristic species is a moderately common summer resident, and breeds. Evinces a partiality for the burned-over tracts where some dead timber remains standing, and appears to be quite generally and not locally distributed.

34. *Colaptes cafer saturator*. NORTHWESTERN FLICKER.—Resident and breeds. More common from March to November.

35. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—An abundant summer resident. Breeds.

36. *Cypseloides niger borealis*. BLACK SWIFT.—This species is a common summer resident, but seems to be locally restricted. The last migrant to arrive in the spring, seldom appearing before May 20, and departing from September 10 to 19, the latter date the latest I have noted. A most interesting species, never seen alone or in pairs, but always a number together, hunting their insect food. Union Bay, Lake Washington, on the outskirts of the city, seems to be a favorite feeding ground, and one can be reasonably sure of seeing them there almost any day during June and early July.

On many occasions I have watched these birds circling about above the city, sometimes appearing as mere specks among the lower clouds, and, with the exception of the dark lowery days with rain threatening, they rarely descend below an altitude of 300 to 500 feet.

37. *Chætura vauxii*. VAUX'S SWIFT.—In certain localities common as a summer resident but not evenly distributed. Breeds. Evince a partiality for the streams along which may be found numerous tall dead firs and cedars.

38. *Selasphorus rufus*. RUFOUS HUMMINGBIRD.—Common summer resident, arriving the latter part of March. One of the first of the smaller species to breed, nesting during April and again late in June.

39. *Selasphorus alleni*. ALLEN'S HUMMINGBIRD.—Rather rare summer resident and undoubtedly breeds.

40. *Tyrannus tyrannus*. KINGBIRD.—Rare summer resident and breeds. I found a nest June 14, 1893, and am familiar with two localities where a pair may generally be found throughout the summer.

41. *Contopus borealis*. OLIVE-SIDED FLYCATCHER.—A rather common and evenly distributed summer resident from the Sound to well into the Cascade Mountains. Breeds. Arrives in May, departs in September.
42. *Contopus richardsonii*. WESTERN WOOD PEWEE.—Common summer resident; breeds.
43. *Empidonax difficilis*. WESTERN FLYCATCHER.—A not uncommon summer resident; breeds.
44. *Empidonax traillii*. TRAILL'S FLYCATCHER.—The most common of our Flycatchers, being an abundant summer resident and breeding.
45. *Empidonax hammondi*. HAMMOND'S FLYCATCHER.—A not common but regular summer resident. Have found two nests of this species.
46. *Otocoris alpestris strigatus*. STREAKED HORNED LARK.—Have observed this species on the tide flats south of the city; 30 miles farther south, on the prairie near Tacoma, it is a summer resident, breeding. One riding across that gravelly prairie can commonly hear its peculiar note.
47. *Pica pica hudsonica*. AMERICAN MAGPIE.—Often seen during February, March and April, along the eastern shore of Lake Washington and back to the foothills of the Cascade Mountains, here not far distant. I have never observed it along the west side of the lake, but have seen it in the river valley south of the city.
48. *Cyanocitta stelleri*. STELLER'S JAY.—Common resident throughout the year. Breeds.
49. *Perisoreus obscurus*. OREGON JAY.—Not uncommon during the fall and winter months, evidently moving down from the mountains east of the city, where it is more or less common during the summer.
50. *Corvus americanus*. AMERICAN CROW.—Locally distributed, and not uncommon.
51. *Corvus caurinus*. NORTHWEST CROW.—A common resident along the sound throughout the year. Breeds.
52. *Agelaius phœniceus*. RED-WINGED BLACKBIRD.—Resident throughout the year, but more common from February to December. Breeds.
53. *Sturnella magna neglecta*. WESTERN MEADOWLARK.—This delightful species is resident to some extent throughout the year, but is especially abundant in the river valleys on the fields and pastures, where it is so common as to impress one with its numbers. As yet it is practically undisturbed, consequently very tame, and seems to be increasing. From February to July a trip to these valleys is a pleasure on account of the number of these birds, all in full song. Its notes are far superior to those of its eastern relatives; one of our finest song birds.
54. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD.—Common spring and fall migrant, some remaining during the winter months.
55. *Coccythraustes vespertinus montanus*. WESTERN EVENING GROSBEAK.—Occasional visitant during winter and early spring. Previous to the winter and spring of 1901, I had met with this species but once near

Seattle, and that record was of only two individuals some six years prior. During the months of February, March and April, 1901, this locality was, however, favored with a visit from this beautiful bird, which appeared in small flocks. The first were noted February 22, and thereafter a number of small flocks were observed throughout the city, up to April 19. I saw them on six different occasions; the bulk of the individuals appeared to be males, some of them being very highly colored; they were in every case tamè and unsuspecting.

56. *Carpodacus purpureus californicus*. CALIFORNIA PURPLE FINCH. — Moderately common summer resident and breeds. Arrives in February, departs in November.

57. *Loxia curvirostra minor*. AMERICAN CROSSBILL. — Irregular winter visitant in this immediate locality. In the Cascade Mountains, east of the city, however, from an elevation of 1000 feet upwards, I find this species of common occurrence during the summer months.

58. *Acanthis linaria*. REDPOLL. — An irregular winter visitant.

59. *Astragalinus tristis salicamans*. WILLOW GOLDFINCH. — Not an uncommon summer resident. Breeds. More common of late years.

60. *Spinus pinus*. PINE SISKIN. — A common winter resident, especially abundant during the spring months; have observed them up to the middle of June. By the actions of a few pairs, I am inclined to think that they may have nested.

61. *Poœcetes gramineus confinis*. WESTERN VESPER SPARROW. — Have observed this species on several occasions during the summer in the settled and cultivated valleys near the city and on the meadows and pasture lands.

62. *Ammodramus sandwichensis alaudinus*. WESTERN SAVANNA SPARROW. — Rather common throughout the summer in the same localities as *P. g. confinis*, noted above; have a specimen taken near Seattle in April, 1894, along the shore of Lake Washington.

63. *Zonotrichia leucophrys nuttalli*. GAMBEL'S SPARROW. — One of the commonest and most characteristic of our birds, always arriving in the spring between the 2nd and 8th of April, and is soon scattered throughout the city. Breeds in almost any suitable location; departs in the fall during October.

64. *Zonotrichia coronata*. GOLDEN-CROWNED SPARROW. — A regular spring and fall migrant but not very commonly observed.

65. *Spizella socialis arizonæ*. WESTERN CHIPPING SPARROW. — Rather common summer resident and breeds. April to October.

66. *Junco hyemalis oregonus*. OREGON JUNCO. — Common winter resident.

67. *Junco hyemalis connectens*. SHUFELDT'S JUNCO. — Common summer resident. Breeds abundantly.

68. *Melospiza melodia morphna*. RUSTY SONG SPARROW. — An abundant resident throughout the year. Breeds.

69. *Passerella iliaca unalaschcensis*. TOWNSEND'S SPARROW. — Mod-

erately common spring and fall migrant, the first individuals arriving in February.

70. *Pipilo maculatus oregonus*. OREGON TOWHEE. — Resident throughout the year but more abundant from March to November. Breeds.

71. *Zamelodia melanocephala*. BLACK-HEADED GROSBEAK. — Rather common summer resident, arriving early in May; departs last of September. Breeds.

72. *Cyanospiza amœna*. LAZULI BUNTING. — Not uncommon summer resident. Breeds. More common than formerly.

73. *Piranga ludoviciana*. LOUISIANA Tanager. — Common summer resident and breeds.

74. *Progne subis*. PURPLE MARTIN. — Common about the business portion of the city from April to September, nesting in the cornices of the buildings and wherever it can find a suitable place.

I have called this *P. subis*, which I believe it to be; it may, however, be *P. s. hesperia*, but specimens are very hard to obtain, as the birds are only found about the business part of the city.

75. *Petrochelidon lunifrons*. CLIFF SWALLOW. — Rather common summer resident; breeds.

76. *Hirundo erythrogastra*. BARN SWALLOW. — Common summer resident; breeds.

77. *Tachycineta bicolor*. TREE SWALLOW. — An abundant resident from early March to October. Breeds.

78. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW. — A rather common summer resident. Breeds.

79. *Ampelis cedrorum*. CEDAR WAXWING. — More or less resident throughout the year. Breeds.

80. *Lanius borealis*. NORTHERN SHRIKE. — An irregular winter and early spring visitant. Was noted frequently during February to April, 1900.

81. *Vireo gilvus swainsoni*. WESTERN WARBLING VIREO. — Common summer resident.

82. *Vireo solitarius cassinii*. CASSIN'S VIREO. — A regular and not uncommon summer resident and breeds.

83. *Vireo huttoni obscurus*. ANTHONY'S VIREO. — Rare. Am aware of only one record for this locality, an adult male taken by myself May 14, 1895, this being, I believe, the first recorded specimen for this State. Dr. A. K. Fisher, however, informs me that a pair, male and female, with nest and eggs, were secured near Tacoma in the early summer of 1896.

84. *Helminthophila celata lutescens*. LUTESCENT WARBLER. — Common summer resident, arriving early in April and departing in October. Breeds.

85. *Dendroica æstiva*. YELLOW WARBLER. — An abundant summer resident. Breeds.

86. *Dendroica coronata*. MYRTLE WARBLER.—A regular and not uncommon spring migrant, associating with *D. auduboni*. Have no fall record.

87. *Dendroica auduboni*. AUDUBON'S WARBLER.—An abundant resident from March until November. Breeds. I have records of this species for every month of the year except January.

88. *Dendroica nigrescens*. BLACK-THROATED GRAY WARBLER.—Common resident from middle of April until October. Breeds.

89. *Dendroica townsendi*. TOWNSEND'S WARBLER.—Rather rare. A fine adult male taken June 4, 1893, and single individuals seen on two other occasions, are the only records I know of for this locality.

90. *Geothlypis tolmiei*. MACGILLIVRAY'S WARBLER.—Common summer resident, arriving early in May; departs in late September. Breeds.

91. *Geothlypis trichas arizela*. PACIFIC YELLOW-THROAT.—Rather common summer resident. Breeds.

92. *Wilsonia pusilla pileolata*. PILEOLATED WARBLER.—Common summer resident and breeds, arriving early in May and departing the latter part of September.

93. *Anthus pensilvanicus*. AMERICAN PIPIT.—Common spring and autumn migrant.

94. *Cinclus mexicanus*. AMERICAN DIPPER.—Common resident along the mountain streams of the Cascade Mountains, from the foothills east of the city almost to the summits. More abundant from March to December.

95. *Thryomanes bewickii calophonus*. NORTHWEST WREN.—Common resident throughout the year. Breeds. On any pleasant day during the winter the song of this species may be heard.

96. *Troglodytes aëdon parkmanii*. PARKMAN'S WREN.—Common summer resident; breeds.

97. *Anorthura hiemalis pacifica*. WESTERN WINTER WREN.—Abundant resident, but more common from October to May. Breeds.

Am inclined to think that this species raises its first brood during April, in the Sound country, and that then the bulk of the individuals retire to the mountains and nest a second time; but its beautiful song may be heard in the low dense woods throughout the summer.

98. *Cistothorus palustris paludicola*. TULÉ WREN.—Common resident from March to November, but quite a number remain during the winter. Breeds.

99. *Certhia familiaris occidentalis*. CALIFORNIA CREEPER.—Observed throughout the year, but most common during spring and autumn. Breeds.

100. *Sitta carolinensis aculeata*. SLENDER-BILLED NUTHATCH.—Have noted this species a number of times, but it is apparently not very common.

101. *Sitta canadensis*. RED-BREASTED NUTHATCH.—Common from September until May. Possibly breeds, as I have noted it during the summer months.

102. *Parus atricapillus occidentalis*. OREGON CHICADEE.—An abundant resident. Breeds.

103. *Parus rufescens*. CHESTNUT-BACKED CHICADEE.—Rather common from October until May. A few remain and breed. I found a nest of this species June 3, 1894, containing almost full-fledged young, and on three other occasions have seen young with the parent birds in June and July.

104. *Psaltriparus minimus*. BUSH-TIT.—Common from March to November, and individuals can always be found throughout the winter. Breeds.

105. *Regulus satrapa olivaceus*. WESTERN GOLDEN-CROWNED KINGLET.—Common spring and autumn migrant, and many remain during the winter.

106. *Regulus calendula*. RUBY-CROWNED KINGLET.—A common migrant during the spring and fall.

107. *Myadestes townsendii*. TOWNSEND'S SOLITAIRE.—One record of the occurrence of this species for this locality is all I have. On December 25, 1894, I observed one of these birds perched in a small tree in the yard adjoining a house in the residence district of the city. The soft warbling notes of the bird first attracted my attention, and a close approach, within twenty feet, enabled a full identification of the species.

108. *Hylocichla ustulata*. RUSSET-BACKED THRUSH.—An abundant resident from May until early October, breeding commonly in almost any suitable locality. The sweet notes of this bird are heard frequently throughout the less settled parts of the city during its sojourn here.

109. *Hylocichla aonalaschkæ*. DWARF HERMIT THRUSH.—A not uncommon and regular spring and fall migrant.

110. *Merula migratoria propinqua*. WESTERN ROBIN.—Abundant from February until November, and many remain during the winter.

111. *Hesperocichla nævia*. VARIED THRUSH.—Common from October until the end of April. During March and April, 1899, there was an unusual migration of these birds. They appeared to be almost everywhere scattered about the city, running on the lawns and evincing the same fearlessness as the Western Robin. This species may possibly breed sparingly in the Cascade Mountains. On July 30, 1901, while climbing the trail running up the middle fork of the Snoqualmie River, and distant due east from Seattle about thirty miles, hearing the familiar note of this bird, I saw, not twenty-five feet distant, a fine plumaged male, and near by the female. This was not far from the stream. Later the same day, about a mile from this place, I saw another male.

112. *Sialia mexicana occidentalis*. WESTERN BLUEBIRD.—A common species, arriving early in February and departing in November. Breeds abundantly about the city in any suitable locality. This bird has apparently increased in numbers during the past few years.

Passer domesticus. ENGLISH SPARROW.—Prior to the spring of 1897 I had never seen this species in Seattle, but in June of that year I noted

a pair. The following season I saw fourteen; in 1899 this number had increased to about seventy, associating in small flocks. The year 1900 showed an increase, and this season, 1901, it appears scattered about the business part of the city, and although as yet not in such numbers as in the eastern cities, the time seems not far distant when it may be.

THE CACTUS WRENS OF THE UNITED STATES.¹

BY EDGAR A. MEARNS.

WITHIN the United States are three forms of the Cactus Wren, all subspecies of the Mexican *Heleodytes brunneicapillus* (Lafresnaye), occupying, respectively, the coastal region of California, the Texan region, and the arid interior region of the Southwest; and a fourth race is confined to southern Lower California.

Heleodytes brunneicapillus brunneicapillus, first described by Lafresnaye (Mag. de Zool., 1835, p. 61, pl. 47), was supposed to have come from California; but, as the Cactus Wren of the portion of California west of the Coast Range Mountains is different from that east of them, it became necessary to determine with certainty to which form of *Heleodytes* Lafresnaye's name *brunneicapillus* pertains. At my request, in the year 1897 the authorities of the Boston Society of Natural History kindly forwarded the type of *Picolaptes brunneicapillus* Lafresnaye to Mr. Robert Ridgway, at the Smithsonian Institution, and the following are his conclusions respecting it:

"The type of *Picolaptes brunneicapillus* Lafresnaye, which I have been able to compare with an extensive series of specimens from the southwestern border of the United States, does not agree with any specimens from north of the Mexican boundary-line, and certainly is not from California, as alleged. It is much deeper colored beneath than any United States specimen, the sides, flanks and abdomen being deep ochraceous-buff. In this respect it

¹These, the largest of our Wrens, are about the size of the Scarlet Tanager, and in the United States are confined to the tier of States and Territories bordering on Mexico, and to portions of Utah and Nevada.

agrees exactly with a specimen from Guaymas, Sonora (No. 89908, U. S. Nat. Mus., Dec. 11, 1882, L. Belding), and in the coloration of the under parts in general it is practically identical with four specimens from the same locality, though three of these being obtained late in March and therefore in worn plumage have the ochraceous-buff color somewhat paler. The coloration of the upper parts is not materially different from that of another Guaymas specimen (No. 90081, March 26), and far more like it than any two of the Guaymas specimens resemble one another. On the whole, I have very little doubt that Lafresnaye's type came from some part of northwestern Mexico, perhaps from Guaymas.

"Measurements of the type and the four Guaymas specimens are as follows:—

"MEASUREMENTS.

Museum No.	Collection.	Sex and Age.	Locality.	Date.	Wing.	Tail.	Culmen. ¹	Gonyx.	Tarsus.	Middle toe.
2600	Lafr.	—ad.	"California"	—	3.32	3.10	.90	.55	1.09	.72
89908	U. S. Nat. Mus.	"	Guaymas, Sonora.	Dec. 4.	3.20	3.02	.89	.53	1.04	.69
90079	"	♂	"	Mch. 11.	3.48	3.20	.88	.50	1.09	.72
90082	"	♀	"	"	3.40	3.28	.91	.56	1.05	.71
90081	"	♀	"	"	3.30	3.08	.87	.52	1.05	.72

It appears from the foregoing that Lafresnaye's *brunneicapillus* is a Mexican form, which, subspecifically restricted, does not enter the United States. The forms pertaining to the region covered by the A. O. U. Check-List should stand as follows:—

Heleodytes brunneicapillus affinis (*Xantus*).

ST. LUCAS CACTUS WREN.

Campylorhynchus affinis XANTUS, Proc. Acad. Nat. Sci. Phila., 1859 p. 298.

Heleodytes brunneicapillus affinis ANTHONY, Auk, Vol. XII, No. 3, July, 1895, p. 280.

Geographical distribution.—Southern Lower California.

¹"The tip of the maxilla is broken off in Lafresnaye's type; consequently I have substituted for length of culmen in all the specimens the length of the mandible measured from tip to malar apex."

***Heleodytes brunneicapillus bryanti* Anthony.**

BRYANT CACTUS WREN.

Heleodytes brunneicapillus bryanti ANTHONY, Auk, Vol. XI, No. 3, July, 1894, p. 212.

Geographical distribution.—Northern Lower California and southern California, west of the Coast Range.

***Heleodytes brunneicapillus couesi* (Sharpe).**

TEXAN CACTUS WREN.

Campylorhynchus couesi SHARPE, Catal. Birds Brit. Mus., Vol. VI, 1881, p. 196.

Geographical distribution.—Rio Grande region of Texas and adjoining Mexican States, west to the Eastern Desert Tract,¹ south over the Mexican tableland.

***Heleodytes brunneicapillus anthonyi*, subsp. nov.²**

DESERT CACTUS WREN.

Geographical distribution.—Interior deserts of the southwestern United States, south into the Mexican States of Chihuahua, Sonora, and northeastern Lower California (east of the Coast Range).

Type.—No. 132804, U. S. National Museum. Adult male from Adonde Siding, Southern Pacific Railroad, Arizona. Collected February 27, 1894, by Edgar A. Mearns and Frank X. Holzner. (Original number, 10306.)

Characters.—Back and wings pale drab striped and barred with black, the last bars interrupted; intermediate rectrices, except the subterminal white bar, nearly all black. Under surface of body white anteriorly, pale ochraceous-buff posteriorly; chin immaculate; throat and fore part of breast sparsely marked with crescentic black spots; those on flanks, chest, and abdomen small (sometimes obsolete), and more or less linear in the median area.

Measurements of type (adult male).—Length, 220 mm.; alar expanse, 300; wing, 93; tail, 90; chord of culmen, 23; tarsus, 29; middle toe with claw, 26. (Measured fresh by the author.)

¹ For description of the Differentiation 'Tracts' of the Mexican boundary region, see Proc. U. S. Nat. Mus., Vol. XIX, No. 1103, December 21, 1896. (Advance sheets of this paper were published May 25, 1896.)

² Named in honor of Mr. Alfred W. Anthony, to whom ornithologists are indebted for most of the knowledge respecting geographic variation in this species.

Comparisons. — This race is readily distinguishable from the subspecies *brunneicapillus* and *bryanti* by its pallid coloration and mostly black tail. The black spots on the throat are much smaller, and much less numerous; those on the belly and flanks are also fewer. The white striping of the upper surface is much less pronounced; and the crown lacks the rusty tinge.

Compared with the *Heleodytes brunneicapillus couesi* of Texas,¹ the throat has still less of the black spotting, and the general pallor is even more striking, though the pattern of the tail markings is quite similar, except that the upper surface of the middle rectrices is much more conspicuously barred with black, owing to the pale drab coloring of the interspaces, which are narrower and darker than in *Heleodytes brunneicapillus couesi*.

This race needs no close comparison with the subspecies *affinis*.

Remarks. — The Cactus Wrens collected along the lowest part of the Colorado River and on the deserts east and west of it are all typically of the present subspecies, which also occupies the lower two-thirds of the desert slopes of the Coast Range Mountains adjacent to the Mexican border. Slightly different phases of *anthonyi* inhabit the Eastern Desert Tract, and the Elevated Central Tract between the two desert areas on the Mexican line; but all of the Cactus Wrens of the interior region — western Texas to eastern California — are considered as belonging to the present race. Those of the Elevated Central Tract are connectants between the subspecies *anthonyi* and *couesi*.²

Our forms may be distinguished by means of the following

KEY TO THE CACTUS WRENS OF THE UNITED STATES.

- a. Throat white, slightly spotted; under surface of body faintly ochraceous-buff posteriorly. . . . *Heleodytes brunneicapillus affinis*.

¹ The type, an adult female from Laredo, Texas, was collected February 28, 1867, by Doctor H. B. Butcher, and received by the British Museum from the Smithsonian Institution.

² *Heleodytes brunneicapillus obscurus* Nelson (Proc. Biol. Soc. Washington, Vol. XII, March 24, 1898), from the Tableland of Mexico, closely resembles *couesi*, which latter is the most strongly colored form.

- aa. Throat mostly black; under surface of body strongly ochraceous-buff posteriorly.
- b. Coloration pallid; underparts slightly spotted with black
Heleodytes brunneicapillus anthonyi.
- bb. Coloration dark; underparts heavily spotted with black.
- c. Back broadly striped with white; intermediate rectrices plainly barred with white. . . . *Heleodytes brunneicapillus bryanti.*
- cc. Back narrowly striped with white, the stripes being broken up into spots; intermediate rectrices nearly all black, or slightly spotted with white *Heleodytes brunneicapillus couesi.*
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NOTES CONCERNING CERTAIN BIRDS OF LONG ISLAND.

BY WILLIAM C. BRAISLIN, M. D.

Nettion crecca. A number of years has passed since the publication of any record of the European Teal on Long Island. This species is included in Lawrence's 'List' (1866), but is not mentioned by Giraud in his 'Birds of Long Island' (1844). I am able to record two additional specimens for Long Island. These, together with one American Green-winged Teal, were shot by Mr. Sherman Smith of Merrick, on a small fresh-water pond at that place, about a week before Christmas, 1900. These birds were mounted by Mr. Albert Lott, a taxidermist of Freeport; one of them I found recently in Mr. Willis's shop at the latter place and traced the history of the specimens as related, finding the second specimen at Mr. Lott's house. Both are males in fine plumage. They are now in my collection of Long Island birds.

Ardea egretta. Through the courtesy of Capt. James G. Scott, keeper of the Montauk Point Light, I am enabled to record the second specimen of the American Egret which has come under my observation from Long Island (*Auk*, XVII, 1900, p. 67). Capt. Scott informs me that he shot the bird on July 23, 1900, on Oyster Pond Beach (Montauk). The mounted skin is now in the possession of Capt. Jesse B. Edwards, keeper of the Amagansett Life Saving Station, to whom I am indebted for measurements and other particulars concerning the bird. The following data are noted: Length, 39½ inches (dry skin); length of bill, 4½ inches.

Ardea cœrulea, not *A. candidissima*: A Correction. In 'The Auk,' Vol. XVII, Jan., 1900, p. 69, I recorded *Ardea candidissima* from Long Island. The record was due to an error in identification, and should refer to *A. cœrulea*. The two birds to which reference was made were imma-

ture specimens in captivity; and a subsequent spring moult (in March) to the blue plumage, of which I have been fortunately informed by their possessor, Mr. Daniel De Mott of East Rockaway, renders them unquestionably referable to *Ardea carulea*.

From the present instance, as well as that of their occurrence in the summer of 1900, on Long Island, later referred to, it appears that these birds are apt to occur with us in summer and early autumn in flocks composed entirely of white, or immature, birds. This fact should prevent a hasty inference that any flock of small white herons must be *Ardea candidissima*. Furthermore, unless the conditions for observation were extremely favorable, the dark blue at the tips of the primaries of *A. carulea* would not be visible. For example, I may cite the fact that in both instances of the occurrence of this species, as related above, the birds secured were described to me by their respective captors as being altogether white, without other color, except as to their feet and bills. I should therefore be unwilling to trust to the color of the wing tips as a field mark. I mention these details in order that they may possibly be of advantage to other observers.

The occurrence of the Little Blue Heron on Long Island in the summer of 1900 is recorded on account of finding an immature (white) bird of this species in the shop of Mr. Willis of Freeport, which had been shot, together with others, on Hempstead Bay. Mr. Albert Lott of Freeport mounted this bird and confirmed the history of it. Mr. Lott thought the bird was brought to him in August, but of the exact date he was uncertain. The gunner who secured this bird stated that there were no darker birds in the flock; that all were white birds.

Botaurus lentiginosus. A Bittern, shot at Rockaway Beach, Nov. 10, 1900, was found on dissection to have been in life a veritable mouser. The stomach contained the remains of at least two meadow-mice, besides other large pellets of fur, in all respects similar to those one finds in the stomachs of owls. In consideration of the fact that the Bittern receives no protection under the laws of our State, this seems worthy of mention.

Tringa maritima. A specimen was shot on Great South Bay by Andrew Chichester, a gunner of Amityville, on Nov. 23, 1899, and sent to me. It was alone, on a bank of sea-weed drift. It is rare on this part of the coast, where the shore is altogether sandy, with an entire absence of the rocks among which it ordinarily seeks its food.

Strix pratincola. I am enabled, through the courtesy of Capt. J. G. Scott, to record an additional specimen of the Barn Owl from Long Island, taken at a point near the locality at which the one I previously noted was secured (Auk, XVII, 1900, p. 70). The present record is that of a specimen shot by Capt. Scott at Oyster Pond, Montauk, Sept. 25, 1900. I have not examined the bird; but his graphic description of the 'Monkey-faced Owl' in question leaves no doubt as to its identity.

Contopus borealis. An additional record for the Olive-sided Flycatcher, rather later than any of the four specimens which I have previously re-

corded (Auk, XIV, p. 99, and Auk, XVI, p. 192), is one taken at Jamaica South, Sept. 26, 1900. This specimen is now in the collection of the Brooklyn Institute of Arts and Sciences.

Quiscalus quiscula æneus. The Bronzed Grackle is rare on Long Island. Its spring and autumnal migrations are ordinarily completed without crossing the island. Extraordinary conditions, high north-westerly winds, for example, may drive it from its regular course. It is not improbable that grackles, sometimes seen here in November, are this form. On Nov. 17, 1900, a flock of six or eight grackles was seen at Jamaica South, feeding in company with many robins, in recently cultivated fields. They were shy, and but one specimen was secured. It proved to be a typical *Q. quiscula æneus*. I know of but one other specimen of this variety from Long Island. Mr. W. W. Worthington of Shelter Island killed a grackle on June 16, 1886, which was of the same variety. These birds were identified by Mr. Chapman. Almost all varieties of intermediates occur on Long Island, all the breeding birds being intermediates. See paper by Mr. Chapman entitled 'Preliminary Study of the Grackles,' Bull. Am. Mus. Nat. Hist., Vol. IV, 1892, pp. 1-20.

Loxia leucoptera. During the extensive migratory excursions of crossbills down to, and south of, this latitude in January, 1900, White-winged Crossbills were observed at several stations on Long Island. They were seen by the writer in Prospect Park between and including the dates Jan. 11 and Jan. 18. They chiefly frequented the hemlocks. Both dull and brightly colored birds of this species, and also mixed with them some individuals of *Loxia curvirostra minor*, were seen.

Piranga rubra. The Summer Tanager has been taken on Long Island, as recorded in 'The Auk', during the past seventeen years as follows:—At Sag Harbor, Apr. 7; at Bridgehampton, May 1; at Merrick, May 14; (Dutcher, Auk, III, 1886, p. 442); at Manor in April; at Promised Land in April (Dutcher, Auk, V, 1888, p. 18), and at Long Island City, May 15, (Hendrickson, Auk, I, 1884, p. 290). I here record an additional specimen, which was picked up on the beach at Ditch Plain, April 8, 1901. Capt. Scott of the Montauk Point Light secured it from the finder and sent it to me. The stomach was empty except for a little discolored sand. It is remarkable that of the seven specimens, five were from stations at the eastern end of the Island, where migration is normally a week later for land-bird migrants than the western end. The eastern extremity, however, stretches well to sea and is more advantageously situated as a haven for birds driven out over the ocean by storms and seeking land.

The occurrence of this bird on Long Island, instead of a normal extension of the vernal migratory movement, seems to be more the result of weather conditions. They are isolated survivors of coast storms.

On sending the specimen above recorded, Capt. Scott writes me: "It was found on the shore at Ditch Plain on the 8th inst., chilled with cold, after this last south storm."

The early dates on which the birds have been recorded lead one more

readily to conceive that a cause other than a normal migratory movement is responsible for their presence. Of the seven instances, four were recorded in April; two as early as the 7th and 8th respectively. In Chapman's 'Birds of Eastern North America' (1895), p. 317, we find that the Summer Tanager arrives in Florida early in April, and that at Washington, D. C., the first recorded date of arrival is April 28. In 'The Auk', Vol. XVII, 1900, p. 297 (Allison) it is stated that the first recorded date at which this bird has been seen by the writer in spring at New Orleans, La., is April 2. The specimens of the Summer Tanager which have reached Long Island early in April are birds which must have been driven off the coast at points far to the south of the point of arrival; not impossibly while crossing the Gulf, between the West Indian Islands and the Mainland.

Vireo gilvus. Since recording the Warbling Vireo on Long Island, Sept. 16, 1895 (Auk, Vol. XIII, 1896, p. 87), I have observed it every spring and summer near the same locality, namely, just south of Prospect Park near the Ocean Parkway. It probably nested here continuously, and in 1900 I observed the nest, which was in plain sight from the driveway. Not only the nest but the bird upon it could be seen from the ground, and I repeatedly heard the bird and saw the articulating movements of the head and bill as it sang from the nest *while brooding*. The nesting terminated successfully as far as I could determine, though later in the season I failed to visit the locality for a considerable interval. During the summer of 1901, no birds of this species occupied the locality referred to.

Dendroica palmarum. The Palm Warbler was common in the vicinity of Brooklyn in the autumn of 1895. They were noted Sept. 25 to Oct. 7, and several specimens were secured on and between these dates. In habits, these warblers impressed me as being birds more strictly of the open than *D. palmarum hypochrysea*. For example, I did not see them in the woods at any time, while *hypochrysea* is found in such localities at times. I found the Palm Warblers in open pasture fields, in hedges, in isolated trees and on fence posts. Mr. William Dutcher mentions in 'The Auk', Vol. VI, p. 182, a specimen received from Fire Island Light, Sept. 23, 1887. I do not find any other records of this western species on Long Island.

Parus bicolor. The Tufted Titmouse is observed so infrequently on Long Island that it is considered proper to place the following note of its occurrence on record. I heard and saw an individual of this species at Sheephead Bay on March 14 and 15, 1898. A thick grove of cedars, almost impenetrable in many places by reason of thick underbrush and cat-briar, stands, or then stood, on the edge of the salt-meadows at that place. Here, on the date first mentioned I saw Crows, Goldfinches, White-throated and Song Sparrows, Robins, Purple Grackles, one Red-winged Blackbird, Myrtle Warblers and one Golden-winged Woodpecker. My attention was attracted by the clear, whistled note of what I at once

recognized as the Tufted Titmouse. I heard intermittently for about a quarter of an hour the series of notes, which sound like *pêtel-you, pêtel-you, pêtel-you*, but did not succeed in getting sight of the singer. Wishing to confirm what I considered a rare find for Long Island, I returned the next day. The bird was still there and singing, and without much trouble, by imitating the song, I coaxed him out of the thicket into plain sight. No doubt existed in my mind as to the identification, as I am familiar with the songs of the bird and its appearance in life. Giraud in his 'Birds of Long Island' (1844), wrote as though *Parus bicolor* were common at that time. It is also included in Lawrence's 'List.' But one specimen, bearing no date, is extant in the Long Island Historical Society's collection (Dutcher, Auk, X, 1893, p. 277). I consider it a very rare straggler on Long Island.

INDIVIDUAL, SEASONAL, AND GEOGRAPHICAL
VARIATIONS OF THE AMERICAN GOLD-
FINCH (*ASTRAGALINUS TRISTIS*).

BY JONATHAN DWIGHT, JR., M. D.

LINES of least resistance are those most naturally followed, and there is perhaps no line of ornithological investigation easier than discovering differences of color and size that can always be seen in series of skins laid out before our eyes. But, heretofore, the tendency has been to look for geographical variations, and consequently almost every North American species has been gradually split up into geographical races as fast as enough specimens from one part of the country have been gathered for comparison with those from another. Major differences have already been recognized and we now seem to be fast approaching a point where individual variation is likely to prove greater than the minor differences, that pass as subspecific characters. When these consist only of slight variations in depth of color and millimeter differences in dimension, it is indeed a wise describer that knows his own race when the labels of locality are removed. My contention is that unless these geographical variations are appreciably greater than those common to the species there is small reason for 'splitting,' however much this may redound to the describer. I believe, too,

that a better understanding of individual and seasonal variation in recognized species will do much to remedy a growing evil that, whatever its cause, is greatly to be deplored. If, eventually it becomes both necessary and proper to recognize by a name every minor variation due to environment, it seems desirable, first of all, to learn how much of it is individual and how much seasonal, so that the value of the geographical element remaining may be better characterized. This is no simple matter, but one involving more tedious comparisons of plumages and measurements than are required in the mere naming of races.

In order to show how great may be the variation in a single species, I have selected the American Goldfinch (*Astragalinus tristis*) as being peculiarly suitable for the purpose. It is widely distributed over North America, and being to a certain extent resident wherever found, its races, of which two have been described, ought to show marked characters, while individual variation ought to be very little. This does not seem to be the case, for the subspecific characters are slight, while individuals differ widely in both color and size. The seasonal variation in plumage is considerable, there being no less than six plumages easily recognizable in the male, and although most of the feathers are renewed by moult twice in the year they are subject to a large amount of fading and actual loss of substance.

The two geographical forms are *pallidus*, a large pale bird from Arizona described by Dr. Mearns (Auk, VII, 1890, p. 244), and *salicamans*, a small dark bird from southern California described by Mr. Grinnell (Auk, XIV, 1897, p. 397). A small series of *pallidus*, including the type, has been available at the American Museum of Natural History and Mr. Grinnell has kindly loaned me a series of eighty specimens of *salicamans*. These have been compared, plumage by plumage, with over one hundred specimens of *tristis* in my own collection. The variations in dimensions have been tabulated, and those of color may be found under the different plumages, which I have designated in numerical sequence.

Several new facts are brought to light by the study of this material. It appears that adults have, on an average, appreciably longer wings and tails than young birds and that each loses in the course of a year through wear an appreciable amount of this

length, the loss being greatest in young birds. These facts are true of other species than the Goldfinch, and their importance is obvious if races are to be established on minute differences of dimension; for if by any chance a series of young birds, for instance, should be compared with adults of a supposed new form, the differences in the new form would be magnified out of proportion to their value. Furthermore the element of wear complicates the question unless absolutely comparable series of equally worn birds are available. True, these differences are extremely small and only to be made out by average measurements of series, but it is on just such small variations that races are now founded, hence the need for a better understanding of seasonal variation in dimension.

Seasonal variation in color is due to moult and subsequent fading of the plumage. Probably no colors are more susceptible to fading than the browns and the buffs, and therefore the Goldfinch, particularly in winter dress, varies between wide extremes on the Atlantic coast, but fades less on the Pacific. Specimens show that *tristis* and *salicamans* are equally brown after the postnuptial moult, the drier, brighter climate in the East fading *tristis* quite rapidly in the subsequent months, while *salicamans* remains dark. This may well raise the interesting question whether geographical races may be separated on mere fading. It seems to me they should be independent of accidents of moisture and sunlight, otherwise an unusually wet or dry season anywhere would produce temporarily a dark or a light race, as the case might be. The evidences of climatic influences ought to be found in fresh plumages if they are to be of any value. It is unfortunate that the type of *salicamans*, taken December 21, should be a more or less faded winter bird, for individual differences in plumage are greater in the brown winter dress than in the more stable yellow of the summer months.

The earlier moult of western birds is a matter that has never been considered in its possible bearing upon the fading of plumage. The series of *salicamans* shows that the moults of the California bird take place a month or two earlier than in eastern *tristis*. Comparable birds in fresh plumage are therefore naturally September *salicamans* with November *tristis* and, except for the evidences of fading which survive the prenuptial moult, average March *sali-*

camans with *May tristis*. Another interesting fact in connection with the feather changes of *salicamans* is the more limited prenuptial moult. While in *tristis* this involves almost the entire body plumage, in *salicamans* it frequently stops short of the renewal of feathers at a number of points, so that the persistent old feathers, especially in females, tend to produce a brownness that is lacking in the yellower eastern birds.

Having thus briefly reviewed some of the salient features that should be considered in studying variation, we may now examine at some length the details of plumage and the plumage changes in the Goldfinch.

1. *Natal Plumage.*—This ephemeral first stage of plumage is largely acquired before the chick is hatched and consists of a few long downy filaments known as neossoptiles. It would be interesting to make comparison of geographical races at this early period, but material of this sort is sadly lacking. The neossoptiles are in direct continuity with the feathers of the next generation and are lost, even before the nest is deserted, through the post-natal moult.

2. *Juvenal Plumage.*—This is commonly known as the nestling or 'first' plumage. It develops rapidly; the chin and sides of head being the last areas to be clothed, and the body feathers are worn but a short time before they are replaced through the postjuvenal moult. The feathers of this second stage have been called mesoptiles, in distinction to those of later generations which are known as teleoptiles. In males of *tristis* the upper parts are uniformly bistre, shaded with deep wood-brown, and generally there is a faint greenish or yellowish tinge. The abdomen is primrose-yellow; breast, sides, and crissum washed with ochraceous-buff. The chin, throat and supraloral region are pale olive-yellow of varying intensity and extent. The wings and tail are black; the wing-coverts, tertiaries and secondaries broadly edged with ochraceous-buff or clay-color, the edgings forming two wing bands at tips of greater and median coverts, the distal feathers being whiter. Several primaries are basally white, the spot showing beyond the primary coverts. The terminal third of each rectrix is dull white on the inner web.

Aside from variation in the original depth of the browns and

buffs, the shade of these colors depends much upon the length of time the plumage has been worn. In the vicinity of New York birds are not on the wing before August or September, depending upon the hatching of the individual, and this plumage is worn until the end of October or the beginning of November. The female is similar to the male, but the wings and tail are of a duller black, the tail blotches brownish white and in no contrast to the dark parts of the webs, and the yellow tinge of the lower surface is less distinct, restricted to the chin or lacking. A few deep-colored females cannot be distinguished from the duller males. In matters of dimension, the tarsi and toes quickly reach their full size, followed by the wings and tail, while the bill is of slower growth. The average dimensions are somewhat smaller than in adults a year or more older.

I have seen no specimens of *pallidus* in this plumage.

The young of both sexes of *salicamans* in this plumage are not darker than eastern birds at a corresponding stage, but they are usually more suffused with yellow, especially below. Specimens from the end of May to the end of August, are comparable with September to November *tristis*, on account of the difference in the hatching season of eastern and western birds. The wing-edgings of *salicamans* are scarcely, if any, broader on an average than are those of *tristis*, and their color is identical. Females of course average duller than males. Individual variation and fading are, however, responsible for greater differences than may be satisfactorily established between the two races, for when eastern and western specimens are mixed together it is impossible to separate even a majority of them without looking at their labels.

3. *First Winter Plumage.*—In *tristis* a partial postjuvinal moult, confined to the body and the lesser (rarely the median) wing-coverts, takes place during September or October. The wings and tail are not renewed and their edgings, through rapid fading, become a pale buff even before the moult is completed.

In males the new brown of the upper parts is deeper than that of the juvenal plumage and strongly suffused with olive-yellow on the head, often faintly tinged elsewhere, and there is a grayish collar visible on the neck; the upper tail-coverts are smoky gray with wood-brown edgings; sometimes the rump is tinged with

yellow and sometimes not. Above, the plumage, although much darker, resembles the juvenal, while below it is much paler than the juvenal, the abdomen and crissum being dull white, the breast a brownish olive-gray and the sides and flanks strongly washed with wood-brown, while the yellow of the throat is brighter and more extended. Some specimens, however, are everywhere suffused with yellow, which extends further on the breast, and are hardly to be distinguished from adults, except by the lesser coverts, which are dull black with olive-yellow or greenish edgings. In adults these coverts are chiefly canary-yellow.

The browns and buffs fade so rapidly that in a few months the upper surface usually changes from a deep sepia to a pale hair-brown, the unprotected wing-edgings bleach nearly to white, and the wash on the sides becomes scarcely perceptible. The wing-edgings pale earlier than the back or sides where the feathers are newer, usually becoming white, often by the end of January, while the brown of the back does not become decidedly grayish until April. A few resistant April birds are found, however, that are almost as brown as November specimens, and birds taken on the same day during the winter months will vary widely in tone, owing no doubt both to the different periods at which their plumages were assumed and to individual variation in original color and in resistance to exposure.

This plumage is worn for about five or six months, and although the beginning of the prenuptial moult is seen sometimes as early as the end of January, it is usually the end of March or beginning of April before the feather-tracts show much activity. The gradual creeping in of new feathers is perhaps most conspicuous on the head, but it occurs at all of the customary points of outbreak as outlined in my earlier papers on moult.

In the female of *tristis* a partial postjuvenal moult takes place, as in the male, from which the female is distinguishable chiefly by the retained dull wings and tail of the juvenal dress. The yellow of the new feathers on the chin is duller than in the male and restricted to a smaller area, less often suffusing the head or adjacent parts. The browns are a trifle duller. The lesser wing-coverts often remain brown or assume only a faint greenish tinge. Otherwise females resemble males during the winter, their pre-

nuptial moult occurring somewhat later than in males and being as a rule less extensive.

The series of *salicamans* contains no bird in freshly acquired winter plumage although some end of August specimens, still in juvenal dress, show a few new feathers. This indicates an earlier postjuvenal moult in the California bird, just as a specimen of January 9 indicates an earlier prenuptial moult. This bird is already yellowish from an admixture of new nuptial feathers and has lost much of the buff of the wing-edgings through fading. Six specimens of the equivocal date "3/1/97" have also begun the prenuptial moult but are grayer and more worn, a good part of the edgings having disappeared. Specimens of February 6 and March 23, scarcely differ from the January bird except that the nuptial black and yellow is well advanced. The January bird is absolutely indistinguishable from the yellower January specimens of *tristis*, and the March *salicamans* are the counterparts of the browner March and April specimens of *tristis*. Comparable specimens of *tristis*, owing to the later moults, ought to be those of a month or two later than specimens of *salicamans*, if both forms faded at the same rate. This does not seem to be the case, for *salicamans* from January to March appears to fade very little, whereas *tristis* usually becomes much grayer in a like time. Still it is perfectly possible to pick out a light and a dark series of *tristis* in any winter month that will show more constant average differences than winter *salicamans* does from *tristis*. It might be said a first winter *salicamans*, on account of yellowishness, most resembles a second winter *tristis*, but there are many exceptions, and the differences are really extremely slender. Females show these variations as well as males, *salicamans*, between December and March, fading less than *tristis* in like period, and the difference is noticeable chiefly in the browner sides and flanks of *salicamans*. Eastern and western birds therefore may be said to acquire at the time of moult plumages of the same color which vary later through fading alone. It is unfortunate that a male taken December 21, should have been selected as the type of *salicamans*. The bird is probably like the January 9 specimen, a faded first winter plumage, because the lesser coverts are described as 'olive-green.' Types ought to be fresh-plumaged birds.

A few specimens of *pallidus*, chiefly females, do not permit of very definite conclusions.

4. *First Nuptial Plumage.* — In *tristis* the prenuptial moult of males is generally completed early in May, being confined to the body feathers. The new plumage is canary-yellow with a black cap. The wings and tail are left over from the juvenal stage, while a few tail-coverts, abdominal and crural feathers, together with the lesser wing-coverts (sometimes however renewed at this moult), remain of the first winter dress. Thus, the first nuptial is really made up of parts of three plumages. It is worn four or five months and only towards the end of this period do the ravages of feather disintegration or abrasion become very marked. The edgings of the juvenal feathers gradually disappear leaving the wings and tail black except for the white tips of the secondaries. The remiges and rectrices themselves become more or less ragged; those of young birds being less resistant to wear than those of adults. The tables of measurements show that wings and tail through a year's wear lose about 3% or 4% in their length. As the actual breeding season, in July and August, advances, the yellow plumage acquires a greenish or citron-yellow tint, due in part apparently to the exposure of some of the grayish basal portions of the feathers. The yellow itself fades little if any.

In the female of *tristis* the prenuptial moult is not as extensive as in the male, less often extending to the abdomen and rump, and occurring a few days later in the spring. There is no black cap, and the lower parts, with sides of head and rump, are citron-yellow, brownish tinged on the sides, and becoming a brown tinged olive-green on the back.

The prenuptial moult of *salicamans* differs from that of *tristis* in two important particulars. In the first place, it occurs earlier by fully a month or more, and in the second, it is on an average much less extensive. As a result of the limited moult males often retain the brownish feathers of the winter dress, at points where they are completely renewed by yellow ones in *tristis*, while females retain many more old feathers than do the males. Consequently the yellow of males is obscured, especially on the nape, scapulars, rump and flanks, by the mixture of old and new feathers that give a dark or greenish effect, while in females the much

greater number of old feathers retained makes them appear darker and browner than eastern *tristis*. The less faded sides also enhance the dark effect. A large series of both sexes shows this clearly, and on account of the preponderance of old feathers in females they suffer far more from wear than do females of *tristis*. Both males and females of *salicamans* therefore usually become more worn than *tristis* in summer or breeding dress; and furthermore, in comparing specimens, allowance must be made for the earlier acquisition of this plumage in *salicamans*. Consequently a series of *salicamans* taken late in May are comparable to July or August birds from the East. The prenuptial moult in each form is practically completed a couple of months earlier than these respective dates, although the moult lags in the California bird, as it is wont to do in birds of a warm climate. There seems to be no real difference in the yellow of the two races except that possibly on an average there is a shade more of depth in *salicamans*, just as there is a yellower tone in other plumages. It is *salicamans* that has the yellower and *tristis* the greener tinge when perceptible, but the shade of difference is so slight and so inconstant that only in large series is it possible to recognize it. The black cap in *salicamans* seems to average smaller and is more variable in extent. Two specimens have only a few black feathers, the rest of the head being yellow, a condition not contingent on the extent of the moult, which evidently has been fairly complete. No *tristis* approaches these birds, although the black cap is diminished in size through wear.

I have seen no specimens of *pallidus* in first nuptial dress.

5. *Second Winter Plumage.* — Both sexes in all forms of the Goldfinch undergo a complete postnuptial moult which in *tristis* occurs in September or October. The first signs may appear in males as early as the second week in September, and it is usually completed by the middle of October or first of November. The whole plumage averages richer in color than that of the first winter, with a yellower suffusion, especially of the head and rump, the browns are deeper, and the wings and tail blacker. The outer greater coverts are whiter and the white spot at the base of the primaries, if present at all, is much reduced, not showing beyond the primary coverts. But the only constant differential plumage

character by which adult males may be distinguished from young males is found in the lesser coverts or 'shoulders' which with the median coverts are bright canary-yellow. In some specimens the lesser coverts are greenish tinged, being dusky basally, and there is much white in the median coverts. Such birds usually show a white spot on the primaries, while the yellower-shouldered birds do not, but whether they represent the second winter and the others the third or later winter plumages, I cannot say. Osteological characters show that none of these are of the first winter, although some resemble very closely bright colored young birds. The same influences of wear produce the same effects in adults as in young birds, bleaching them rapidly during the winter months. There is great variation in winter specimens, whether of the first or later winters, also there are age variations from winter to winter, and the individual resistance to fading varies, but all these variations so overlap that it is hardly possible even with large series to establish which of them has been most potent in any given case. At about the same time as in young birds, or usually a little earlier, the second winter dress begins to be replaced by the second nuptial.

The postnuptial moult in the female occurs a little later than in the male who is not occupied so long in caring for the brood. The differences between first and second or later winter plumages are relative, and, although the colors appear to average deeper with age, the age of a specimen may only be told with certainty by osteological characters. The lesser wing-coverts are more frequently greenish in adult females.

The postnuptial moult of *salicamans* begins fully a month or two earlier than that of *tristis*. Two ragged males of August 12, evidently passing from first nuptial plumage, have acquired three new primaries, a few tertiaries and wing-coverts and some of the body plumage, while a specimen of August 27 (probably a year or more older than the much worn birds just mentioned) is further advanced, having six new primaries, and four pairs of rectrices and much of the new body plumage and coverts. Comparing these birds with September or October specimens of *tristis* just completing the moult, I find that the browns are equally dark and apparently the two forms indistinguishable at this stage. As in *tristis*,

the California bird wears this plumage for three or four months before the second prenuptial moult begins. September, October and November are unfortunately not represented in the series of *salicamans* except by one bird of November 27, already showing evidences of the nuptial dress by a few black feathers on the crown and yellow ones elsewhere. Just as in *tristis*, the California bird of the second winter has the wings and tail slightly longer and the plumage somewhat richer than that of the first, and with the yellow of the lesser wing-coverts in males the distinguishing character. The bird of November 27 and two of December 5 have lost the buff of the wing edgings, and have faded somewhat on the back and sides, but the incoming of the yellow nuptial feathers already obscures the winter colors and many black feathers of the crown have appeared. I think that some of them have come in at the postnuptial moult, as this sometimes occurs in eastern birds. Specimens of February and March are, as a rule, so little paler than those of December, that the winter fading must be less than in *tristis*, presumably comparable *tristis* of March and April being nearly all of them grayer. A number of April *tristis* with new yellow and black feathers mixed with the winter dress are, however, absolutely indistinguishable from *salicamans* at like stage of the moult, and the variation between winter specimens of *tristis* is so great that it is easier to sort out on like dates a light and a dark race than to distinguish even a majority of *salicamans* as markedly different. Similar conditions prevail among the females. Both sexes do appear to be darker at the beginning of the prenuptial moult than *tristis*, but apparently only because they have faded less and show a yellower tinge in their plumage.

The male winter type of *pallidus* (Amer. Museum No. 52667, January 20) is of course a faded bird, but it seems to be large and pale with very broad edgings. A few December birds resemble it and a bird of March 6 has begun the prenuptial moult. Several females, apparently adults, are not so much paler than *tristis* as might be expected, but the material available is altogether too scanty to arrive at very satisfactory conclusions.

6. *Second Nuptial Plumage.*—The second prenuptial moult of *tristis*, like the first, is partial, affecting only the body plumage. There seems to be little or no appreciable difference in the inten-

sity of the yellow of successive nuptial plumages of males, although the depth of color varies somewhat according to the individual. There are lighter and darker first nuptial plumages and similar second or later nuptial plumages, but the variation in shade of color between deep canary and pale lemon-yellow is surprisingly small. The lesser wing-coverts serve to distinguish young breeding birds from adults.

The second prenuptial moult of *salicamans* probably averages more extensive than the first. A grayish collar on the nape is usually the last relic of the winter dress, but the yellow may be considerably obscured by old feathers elsewhere. The end of March usually finds *salicamans* in nuptial dress, although there is evidently great individual variation in its time of completion. If the growth of plumage continues into the breeding season as observed by Mr. Grinnell, it is a condition that is not found in *tristis* although not without a parallel in other species of birds. April is not represented in the series examined, but the birds of late May seem to have completed their moult a good while before.

The type of *pallidus* (Amer. Museum No. 52666, ♂, May 3) is a bird of the second summer or older. It is large, with a long tail, and shows much white edging, but I do not consider it of a paler yellow than *tristis*, and it would be hard to pick it out of a series of *tristis*.

The measurements in Table I show variations in dimensions due to sex, to age, and to season, *tristis* being contrasted with *salicamans*. As all the measurements are mine they are strictly comparable. The wing is measured with dividers from the proximal end of the carpo-metacarpus to the tip of the longest primary, *i. e.*, the eighth enumerating from the wrist outward; the tail from the point of insertion of the middle pair of rectrices into the skin to the tip of the longest, *i. e.*, the outer pair; the tarsus and middle toe along their greatest anterior length; and the bill along the chord of the culmen and also its greatest depth.

TABLE I.

MALES.

Specimens	Plumage	Wing		Tail		Tarsus		Middle Toe		Claw of Middle Toe		Bill (exposed culmen)		Bill (depth at base)	
		Aver. mm.	Max. Min. mm.	Aver. mm.	Max. Min. mm.	Aver. mm.	Max. Min. mm.	Aver. mm.	Max. Min. mm.	Aver. mm.	Max. Min. mm.	Aver. mm.	Max. Min. mm.	Aver. mm.	Max. Min. mm.
5 tristis	Juvenal	66.8	70.9 68.6	47.5	48.3 46.2	12.9	13.5 12.2	10.2	10.7 9.4	4.6	5.3 3.8	8.1	8.9 7.4	5.8	6.1 5.3
5 salicamans	"	67.6	69.3 65.0	45.7	48.8 41.1	13.2	13.7 12.7	10.7	11.2 10.2	4.3	4.8 4.3	8.9	9.6 8.1	6.1	6.3 5.8
24 tristis	1st Winter	70.1	73.7 66.5	48.3	49.8 44.4	13.2	13.7 12.7	10.5	11.2 9.9	4.6	5.3 3.8	9.1	9.9 8.4	6.1	6.6 5.8
9 salicamans	"	67.8	69.1 66.8	46.5	49.8 47.7	13.2	13.7 12.7	10.7	11.2 10.2	4.6	4.8 4.3	9.1	9.9 8.4	6.3	6.9 5.8
13 tristis	1st Nuptial	69.1	71.1 66.3	46.7	50.3 44.4	13.2	13.7 12.7	10.7	10.9 10.2	4.6	5.1 3.8	9.4	9.6 8.6	6.1	6.3 5.8
20 salicamans	"	67.3	69.1 65.5	46.0	47.2 43.2	13.2	14.2 12.7	10.4	11.2 10.2	4.6	5.1 4.1	9.4	10.7 8.6	6.3	6.9 6.1
16 tristis	2d Winter	71.6	73.7 69.6	50.0	52.1 48.3	13.4	14.2 12.7	10.4	11.2 10.2	4.8	5.6 4.1	9.4	9.6 8.6	6.1	6.6 5.8
14 salicamans	"	69.8	72.6 67.6	48.8	50.3 46.2	13.2	13.7 12.7	10.4	10.9 9.6	4.8	5.3 4.1	9.6	10.2 8.9	6.3	6.6 5.6
8 tristis	2d Nuptial	70.6	72.6 68.6	47.7	50.8 44.7	13.5	14.0 12.7	10.4	10.7 10.2	4.8	5.3 4.3	9.4	10.2 8.9	6.2	6.6 5.6
6 salicamans	"	67.8	69.1 66.5	47.0	49.0 43.9	13.2	13.7 13.0	10.5	10.9 10.2	4.8	5.1 4.1	9.1	9.6 8.6	6.3	6.6 6.1
66 tristis		70.2	73.7 66.3	48.0	52.1 44.4	13.2	14.2 12.2	10.5	11.2 9.4	4.7	5.6 3.8	9.1	10.2 7.4	6.3	6.6 5.3
54 salicamans		68.1	72.6 65.0	46.8	50.3 41.1	13.2	14.2 12.7	10.5	11.2 9.6	4.6	5.3 4.1	9.2	10.7 8.1	6.1	6.9 5.6

FEMALES.

5 tristis	Juvenal	68.8	70.6 67.6	47.5	49.3 44.2	12.9	13.7 12.7	10.2	10.7 10.2	4.8	5.1 4.6	8.6	9.1 7.6	5.6	5.8 5.6
5 salicamans	"	65.8	67.1 65.3	45.2	46.2 44.4	12.7	13.2 11.7	10.4	10.9 10.2	4.6	4.8 4.6	8.6	9.1 8.1	6.1	6.6 5.8
22 tristis	1st Winter	68.1	70.1 66.0	47.7	50.3 44.7	12.9	13.5 12.2	10.4	10.9 10.2	4.6	5.3 4.1	8.6	9.1 7.9	5.8	6.1 5.3
5 salicamans	"	65.5	66.8 63.5	45.2	47.7 43.4	12.7	12.9 12.4	10.2	10.7 9.6	4.6	5.1 4.3	9.4	9.6 8.4	6.3	6.6 6.1
9 tristis	1st Nuptial	67.8	68.6 66.5	46.7	48.3 45.2	13.2	13.7 12.7	10.4	10.9 10.2	4.8	5.1 4.3	8.9	9.6 8.4	6.1	6.6 5.8
11 salicamans	"	64.8	67.8 62.2	43.9	46.7 40.6	12.7	13.2 12.2	10.2	10.4 10.2	4.6	4.8 3.6	9.1	9.6 8.6	6.3	6.6 5.8
4 tristis	2d Winter	68.6	69.6 67.8	48.5	49.5 46.5	13.2	13.5 13.2	10.2	10.7 10.2	4.6	5.1 4.1	9.0	9.1 8.9	6.1	6.3 5.8
3 salicamans	"	65.3	66.3 64.5	46.0	47.7 45.2	12.7	12.7 12.4	10.3	10.2 10.2	4.3	5.1 4.3	9.6	9.6 9.4	6.3	6.6 6.1
7 tristis	2d Nuptial	68.3	71.1 66.0	47.7	49.8 45.7	12.9	13.5 12.2	10.4	10.9 10.2	4.6	5.6 3.8	9.1	9.9 8.6	6.1	6.3 6.1
2 salicamans	"	65.3	65.5 65.0	44.4	45.7 43.2	12.4	12.7 12.2	10.3	10.4 10.2	4.1	4.8 3.3	9.2	9.4 9.1	6.0	6.1 5.8
47 tristis		66.9	71.1 66.5	47.6	50.3 44.2	13.0	13.7 12.2	10.3	10.9 10.2	4.7	5.6 3.8	8.8	9.9 7.6	6.0	6.6 5.3
26 salicamans		65.3	67.8 62.2	44.9	47.7 40.6	12.6	13.2 11.7	10.3	10.9 9.6	4.4	5.1 3.3	9.2	9.6 8.1	6.2	6.6 5.8

The remiges and retrices being worn for a twelvemonth, it is obviously unfair to contrast a series that might be chiefly worn birds with one consisting of fresh-plumaged specimens, so I have prepared the following table which contrasts fresh with worn birds.

TABLE II.

MALES.				Wing.	Tail.
14 tristis,	before 1st midwinter	. . .	} Fresh	. 70.4	48.3
5 salicamans	" " "	. . .		. 68.1	47.2
8 tristis	" 2nd "	. . .		. 71.9	50.0
8 salicamans	" " "	. . .		. 70.4	49.0
8 tristis,	after 1st midsummer	. . .		. 68.1	46.0
20 salicamans	" " "	. . .	} Worn	. 67.3	46.0
7 tristis	" 2nd "	. . .		. 70.9	47.2
5 salicamans	" " "	. . .		. 68.1	46.7
FEMALES.					
9 tristis,	before 1st midwinter	. . .	} Fresh	. 68.3	47.0
6 salicamans	" " "	. . .		. 66.0	45.5
3 tristis	" 2nd "	. . .		. 68.3	48.3
3 salicamans	" " "	. . .	} Worn	. 65.3	46.0
3 tristis,	after 1st midsummer	. . .		. 67.6	46.7
11 salicamans	" " "	. . .		. 64.8	43.9
2 tristis	" 2nd "	. . .		. 69.8	46.2
2 salicamans	" " "	. . .	. 65.3	44.4	

The two tables indicate that adults average a little larger than young birds and suffer more from wear, both losing between periods of moult an appreciable amount of the ends of the wings and tail. It further appears that *salicamans* averages slightly smaller in wings and tail and slightly larger in bill, but the smallness of all of these average differences is apparent if we analyze the figures. I have carried them to tenths of a millimeter in order to be able to show the differences and there is such an overlapping of dimensions in individuals that the ruler gives slight information as to the age, season or race to which a specimen may belong. The average difference in length of wings and tail between *tristis* and *salicamans* is about *two* millimeters, a like difference existing between first and second year birds of either race, and a similar amount of wing and tail length being lost through wear in each race. It is obvious that we are dealing with extremely small vari-

ations whatever way we look at them, and there is still another factor in the matter with which we must reckon. This is the personal factor, and by it I mean that no two students are likely to measure the same series of birds alike. The subjoined table, compiled from published records, shows variations quite as great as any of which I have already spoken, and illustrates individual variation in the measurer rather than in the measured.

TABLE III.

	Wing	Tail	Tarsus	Toe	Culmen	Depth
<i>tristis</i> , males.						
Grinnell, 15 specimens . . .	72.9	52.1	—	—	9.1	6.3
Mearns, 26 " . . .	72.4	50.8	13.7	10.9	10.2	—
Ridgway, 18 " . . .	72.6	47.0	13.7	10.7	10.2	7.4
Dwight, 66 " . . .	70.2	48.0	13.2	10.5	9.1	6.3
<i>tristis</i> , females.						
Grinnell,	—	—	—	—	—	—
Mearns, 7 specimens . . .	70.4	49.5	14.0	10.2	10.2	—
Ridgway, 13 " . . .	68.6	43.4	14.0	10.7	9.9	7.4
Dwight, 47 " . . .	66.9	47.6	13.0	10.3	8.8	6.0
<i>pallidus</i> , males.						
Mearns, 10 specimens . . .	78.0	56.0	13.8	12.0	10.9	—
Ridgway, 17 " . . .	74.9	50.3	14.2	10.7	10.4	7.2
Dwight, 7 " . . .	74.9	54.1	13.5	10.4	9.4	6.3
<i>pallidus</i> , females.						
Mearns, 11 specimens . . .	75.0	54.0	14.0	10.0	10.7	—
Ridgway, 13 " . . .	72.4	46.7	13.9	10.7	10.4	7.1 ¹
Dwight, 8 " . . .	72.1	51.0	13.5	10.7	9.5	6.1
<i>salicamans</i> , males.						
Grinnell, 15 specimens . . .	70.1	50.0	—	—	9.9	6.9
Ridgway, 9 " . . .	70.1	44.4	13.7	10.7	10.2	7.6
Dwight, 54 " . . .	68.1	46.8	13.2	10.5	9.2	6.1
<i>salicamans</i> , females.						
Grinnell,	—	—	—	—	—	—
Ridgway, 3 specimens . . .	68.3	44.2	13.2	10.7	10.2	7.6
Dwight, 26 " . . .	65.3	44.9	12.6	10.3	9.2	6.2

The most obvious fact to be deduced from the foregoing table

¹ Five specimens.

is that niceties in dimension mean very little unless the measurements are taken by one person. It is equally true that small variations in color cannot be described so as to be understood by anyone but the describer. So it comes about that the geographical race of to-day, depending on minor variations, cannot be recognized by its published description, but rests upon characters which may only be made out by studious comparison, not of single skins, but of series of them. It may be said that the individual and seasonal variations to which I have called attention are trivial. That may be true, but they are quite as real as recognized geographical differences.

While I am ready to admit that *pallidus* and *salicamans* are perhaps quite as good races as others that pass current, I must confess I fail to see the scientific value of naming variations so equaled and overlapped by individual and seasonal differences that only a small percentage of specimens in hand can be identified without first knowing the locality from which they come. Identification of the specimen is, of course, only a secondary matter in proving variation by averages, but, it seems to me, unless variations wide enough to be recognized by other students are established, the naming of a race becomes a mere matter of personal opinion or personal vanity.





FIG. 1. NEST AND EGGS OF LESSER SCAUP DUCK.



FIG. 2. NEST OF AMERICAN GOLDEN-EYE.

NESTING HABITS OF THE ANATIDÆ IN NORTH
DAKOTA.

BY A. C. BENT.

*Plates V and VI.**(Concluded from p. 12.)****Aythya affinis* (Eyt.). LESSER SCAUP DUCK.**

Although not universally abundant the Lesser Scaup Duck can undoubtedly be found during the breeding season in the immediate vicinity of all the larger lakes, and in certain localities is so very abundant as to form what might be regarded as breeding colonies. The centre of its abundance seems to be the Devils Lake region, but we also met with it occasionally elsewhere in Nelson County and on Fullers Lake in Steele County. Its larger relative, the American Scaup Duck, probably breeds sparingly in North Dakota, but I have no evidence to prove it and am inclined to think that if it occurs there at all it is extremely rare. The difficulty in distinguishing the two species in the field might, however, lead one to overlook the rarer species in many cases. These two Scaups can of course be easily separated from all other ducks in the field by the conspicuous white speculum which shows very plainly in flight, and by the short stout build of the bird. The eggs can also be easily identified by their darker and richer color, which I should describe as a rich olive buff; the lightest types approach somewhat the darkest types of the Mallard's eggs, and the darkest types are rich dark buff or deep coffee-colored. The measurements of 26 eggs before me show the following figures: length, 2.36 to 2.10; breadth, 1.64 to 1.53, and average 2.26 by 1.59.

The nests we found were all placed on dry ground but never more than fifty yards from the water. They were generally rather poorly concealed in the prairie grass but in some cases, where the grass grew thick and high, they were fairly well hidden. The nest consisted of a hollow scooped in the ground, profusely lined with very dark colored, almost black down, mingled with a little

dry grass and occasionally a white feather from the breast of the bird. (Pl. V, Fig. 1.)

The principal breeding grounds of this species are the two small islands described under my notes on the Gadwall and Baldpate, where we found all three species nesting abundantly. The Scaups are late breeders, the majority of their eggs being laid during the second week in June or later. On our visit to these islands on May 31, we found only one set of 9 fresh eggs, while on June 15 we found no less than 12 nests; on the larger island, which we explored quite thoroughly, we found three nests of 11 eggs, two nests of 10 eggs, two nests of 9 eggs, and one nest of 5 eggs; on the smaller island, where we made only a hurried search during a driving rain storm, we found only four nests, one of which contained the unusually large number of 15 eggs.

All of these eggs that we collected, three or four sets, proved to be fresh or nearly so. The nests were almost invariably concealed in the taller prairie grass, but one nest was located under a small rose bush and one was placed against the side of a small rock surrounded by tall grass. The Scaup Ducks are close sitters, as we always flushed the bird within ten feet of us or less, and when once flushed they seem to show no further interest in our proceedings. They lay occasionally in other ducks' nests; we found one of their eggs in a Gadwall's nest and one in a White-winged Scoter's nest; but we found no evidence that other ducks ever lay in the Scaup's nests.

The males apparently desert the females after incubation is begun and flock by themselves or with other ducks in the sloughs or small ponds.

Aythya collaris (*Donov.*). RING-NECKED DUCK.

This being one of the rarer ducks in North Dakota during the breeding season, I have very little of value to add to its life history from personal experience. It breeds quite commonly throughout the State of Minnesota, where it is one of the commonest ducks, and in North Dakota is probably more often found breeding in the valley of the Red River of the North, in the

eastern portion of the State, and in the Turtle Mountain region, than elsewhere; it is certainly rare in the prairie region and the Devils Lake region visited by us. My field experience with the Ring-necked Duck was very limited and was based on very unsatisfactory evidence, but I will give it for what it is worth.

On June 12, while exploring some extensive wet meadows about the sources of a branch of the Goose River in Steele County, I flushed a strange duck from her nest; she flew away at first for a hundred yards or so and then returned circling past me two or three times within gunshot, so that I had a fairly good look at her; I judged from her appearance and gait that she was a Scaup, but could not see that she possessed the conspicuous white speculum so characteristic of both the American and the Lesser Scaup. Not being satisfied with the identification I made two subsequent visits to the nest, intending to shoot the bird, but she was too quick for me the first time, and was not there the second time. The following day we all visited the nest and attempted to creep up cautiously and shoot the bird, but she rose before we were near enough to stop her.

The eggs were unmistakably Scaup's and, as we could not identify the bird as either of the other species, we concluded that they must belong to the Ring-necked Duck. The nest was well concealed in thick grass in a rather open place in the meadow about ten yards from the river; it was made of bits of dry grass and thickly lined with very dark gray down. The ten eggs which it contained were nearly fresh, and are not separable in size, shape or color from those of the Lesser Scaup.

Mr. Job found a nest of the Ring-necked Duck in the Turtle Mountains, where he started a female from her nest on June 14, 1898. I quote from his notes in 'The Auk' for April, 1899, as follows: "It was in a reedy, boggy bayou, or arm of a lake, which was full of Bitterns, Black Terns, and Bronzed, Red-winged and Yellow-headed Blackbirds. I was on my way out to photograph a Bittern's nest already found, and was struggling along more than up to my knees in mud and water, when a smallish Duck flushed almost at my feet from some thick dead rushes, disclosing twelve buffy eggs, nearly fresh. The clear view within a yard of the pearl gray speculum and the total absence of white on the

wing told the story. She alighted nearby in open water, and gave me and my companion such fine opportunity to study her with the glass and note every detail of her plumage, both as she sat and as she flew back and forth before us, that it was not necessary to sacrifice her for identification. Nothing was seen of the male."

Dr. Bishop also flushed two or three ducks from their nests, in Nelson County in 1901, which he supposed to be Ring-necked Ducks, but he did not positively identify the bird in either case.

***Clangula clangula americana* (Faxon). AMERICAN GOLDEN-EYE.**

In the heavily timbered regions about the shores of the larger lakes the Golden-eyes may be found breeding quite commonly, even abundantly in certain localities where the conditions are favorable. Along the shores of these lakes the heavy timber grows in narrow belts, except on the points or promontories, which are often entirely covered with trees, forming a forest of considerable extent. The largest trees are elms which sometimes tower above the rest of the woods to a height of 50 or 60 feet. The swamp oaks grow to a considerable size and approach the elms very closely in height. Cottonwoods and box elders form a large part of the timber but do not equal the first two species in size. The woods thus formed are usually rather open and the large trees somewhat scattered, giving an opportunity for smaller trees and underbrush to grow beneath them. The timbered areas of the State being restricted to these narrow strips, which form such a small part of the total area, has led to overcrowding of the woodland species of birds until the woods are fairly alive with them. Bronzed Grackles fairly swarm here in almost countless numbers, and the smaller trees, as well as many of the larger ones are filled with their nests. The soft cooing of Mourning Doves is heard on all sides. The clamorous cries of the Arkansas Kingbirds are constantly ringing in one's ears. The woods are full of Western House Wrens flitting nervously about and pouring out their joyous, bubbling notes. Purple Martins are sailing about overhead, or

building their nests in the hollows in the treetops. Baltimore Orioles, Rose-breasted Grosbeaks, Clay-colored Sparrows, Red-eyed and Warbling Vireos and Yellow Warblers help to swell the chorus and keep the air constantly full of song. I have never seen such an abundance of bird life, not even in the height of the migrations, as is to be found in these narrow belts of timber. Besides all these small birds the Golden-eyes have for their companions numerous pairs of Swainson's Hawks and occasional pairs of Ferruginous Rough-legs and Krider's Hawks, nesting in the tops of the taller trees.

The Golden-eyes choose for their nesting sites the numerous natural cavities which occur in many of the larger trees. They seem to show no preference as to the kind of tree and not much preference as to the size of the cavity, any cavity which is large enough to conceal them being satisfactory.

The occupied cavity can usually be easily recognized by the presence of one or two pieces of white down clinging to its edges; sometimes considerable of the down is also scattered about on the nearest branches. The first nest that we found, on May 30, was in an exceedingly small cavity in a dead branch of a small elm, about 10 feet from the ground. We heard a great scrambling and scratching going on inside as the duck climbed up to the small opening, through which she wriggled out with some difficulty and flew away. I measured the opening carefully and found it only 3 inches wide by $4\frac{1}{2}$ inches high; the cavity was about 3 feet deep and measured 6 inches by 7 inches at the bottom. The 8 fresh eggs which it contained were lying on the bare chips at the bottom of the cavity, surrounded by a little white down.

On June 1 we explored a large tract of heavy timber on a promontory extending out into the lake for about half a mile, where we located five nests of the American Golden-eye.

The first nest was about 20 feet up in the cavity in the trunk of a large swamp oak and contained four eggs, apparently fresh. The second was in the trunk of a large elm and held only one egg, evidently a last year's egg. The third, which held five eggs, was in an open cavity in an elm stub about 12 feet from the ground. None of these eggs were taken and doubtless the sets were incomplete.

While climbing to a Krider's Hawk's nest I noticed an elm stub

near by with a large open cavity in the top, which on closer investigation was found to contain a Golden-eye's nest with 10 eggs buried in a mass of white down. The stub was about 10 feet high and the cavity about two feet deep; the bird was not on the nest but the eggs proved to have been incubated about one week.

This nest is shown in the accompanying photograph (Plate V, fig. 2), which also shows the Krider's Hawk's nest in the elm in the background. A pair of Western House Wrens also had a nest in the dead branch above the cavity.

The fifth and last nest was found while walking along the shore, by seeing the Golden-eye fly out over our heads from a small swamp oak on the edge of the woods. I could almost reach the large open cavity from the ground; the opening was well decorated with the tell-tale down, and at the bottom of the cavity, two feet deep, was a set of 14 eggs, in which incubation had begun, and one addled last year's egg, completely buried in a profusion of some white down, so well matted together that it could be lifted from the eggs without falling apart, like a soft warm blanket.

The eggs of the American Golden-eye are entirely different in color from any other ducks' eggs to be found in this region, which varies from a clear pale malachite green in the lighter specimens to a more olivaceous or pale chromium green in the darker specimens.

The measurements of 17 eggs in my collection are as follows: length, 2.58 to 2.37; breadth, 1.77 to 1.66; and average 2.46 by 1.71.

Oidemia deglandi Bonap. WHITE-WINGED SCOTER.

Although generally considered to be very rare during the breeding season in North Dakota, we found the White-winged Scoters nesting in fair numbers in certain restricted localities in the Devils Lake region, which probably forms the extreme southern limit of its breeding range. We saw isolated pairs occasionally flying or swimming about in the large lakes, where it breeds in small colonies on the islands with the Gadwalls, Baldpates and Lesser Scaups, or on the shores of the lakes not far from the water. The nests are

admirably concealed from view in thick clumps of small bushes, almost invariably wild rose bushes, which at this time are in full bloom. It is no easy matter hunting for the nests among these stout, thorny bushes, and as the eggs are generally buried under the down, and a mass of rubbish scraped over them, we undoubtedly overlooked a number of them.

The Scoters are very late breeders, the latest of all the ducks, very few of their eggs being laid before June 15, and the majority of them not before the last week in June. We visited two of the islands where they breed on May 31, but did not find a single egg. On June 15 we again explored the same islands quite carefully, finding only one incomplete set of 5 eggs, cold and fresh. This nest was in the centre of a small patch of rose bushes, where a hollow had been scraped in the ground and the eggs buried under a lot of dry leaves, sticks, soil and rubbish, so as to be completely concealed from view; no attempt had been made to line the nest with down which is generally added after the set is complete. The scattered clumps of rose bushes on these islands, particularly on the smaller islands where they grow tall and thick among a mass of large boulders, form excellent nesting sites for the Scoters and doubtless concealed several nests. One nest we certainly overlooked, which on June 22 was found to contain 12 eggs.

Mr. Job visited these islands on June 27, 1898, and found eight nests of the White-winged Scoter containing "14, 13, 10, 10, 7, 6, 1 and 0 eggs respectively" (see *Auk*, April, 1899, p. 163), which proves conclusively that these birds are late breeders, as all of these eggs were fresh.

The eggs of the White-winged Scoter are much larger than those of the other ducks in this region, and are entirely different in color, which is a pale salmon buff or flesh color.

The measurements of my five eggs are as follows: length, 2.71 to 2.58; breadth, 1.94 to 1.89; average, 2.65 by 1.90.

The eggs of the Scoters are occasionally found in other ducks' nests; we found one in a Baldpate's nest, two in a Lesser Scaup's nest, and one in another Baldpate's nest.

Erismatura jamaicensis (Gmel.). RUDDY DUCK.

We must return again to the innermost recesses of the deep water sloughs, the home of the Canvas-back and the Yellow-headed Black-bird, to study the habits of this handsome little duck, where we are almost sure to find them in every suitable slough. The male, in his full nuptial plumage, is a striking and showy bird as he swims in and out among the reeds or floats about in the open water at a safe distance with the male Canvas-backs and Redheads. He is easily distinguished by his short stout body, his tail pointed upwards or even forwards, his white cheeks and the rich deep red on his back. The female is very shy, the shiest of all the ducks, is seldom seen, and skulks away from her nest when she hears anyone coming; we never were able to flush one from the nest and never even saw one near her nest; nor did we ever see any evidence of parental devotion or anxiety.

In the large deep water sloughs of Steele County there are extensive tracts of tall reeds, often higher than our heads, growing so thickly and closely that nothing can be seen through them at a little distance. In these excellent hiding places the Ruddy Duck conceals its nest, and so well is this done that even after the nest has been once found it is extremely difficult to locate it again. The nests are well made of reeds, closely interwoven, built up out of the water, held in place by the growing reeds, well concealed from view and generally with the live reeds arched over them; they were, as a rule, very sparingly lined with a little dull whitish down, but, as all the eggs we examined were fresh, possibly more down would have been added later. We found in all five nests of the Ruddy Duck in these two sloughs in Steele County; a description of two of them will give a fair idea of them all.

A nest found on June 10 was located among some rather open tall reeds in water knee deep, and was made of dry reeds and a little down; the rim of the nest was about 7 inches above the water and it measured about 7 inches across, the cavity being about 4 inches deep. The 10 eggs which it contained were nearly fresh. This nest is shown in the photograph (Pl. VI, Fig. 1).

Another nest, found on June 11 and collected two days later,



FIG. 1. NEST AND EGGS OF RUDDY DUCK.



FIG. 2. NEST AND EGGS OF CANADIAN GOOSE.

was admirably concealed in the middle of a large area of tall thick reeds where the water was about a foot deep. It was beautifully made of dead and green reeds, artistically interwoven and firmly attached to the growing reeds about it. The dimensions were practically the same as the foregoing nest. It contained 6 eggs, which proved to be almost fresh. The photograph [not here reproduced] gives but a faint idea of the beauty of this nest, and the artistic manner in which the green reeds were arched over above it, forming an effective and a picturesque screen for the pure white eggs.

All our records tend to prove that the Ruddy Duck is one of the later breeders, as all the sets we found during the second week in June were either incomplete or fresh.

That the Ruddy Duck occasionally lays in other duck's nests was proven by our finding one of their eggs in a nest of the Canvas-back. The eggs of the Ruddy Duck are always unmistakable; they are extremely large for the size of the bird, more rounded than the other ducks' eggs, pure dull white in color, and have a rough granular shell peculiar to this species. They vary somewhat in shape from short ovate to elongate ovate.

The 15 eggs before me measure as follows: length, 2.67 to 2.38; breadth, 1.87 to 1.70; average, 2.49 by 1.80.

Branta canadensis (Linn.). CANADA GOOSE.

There are still quite a number of Canada Geese breeding within the limits of North Dakota, but they are apparently not as abundant as formerly and will undoubtedly be driven further west and north as the country becomes more thickly settled. We found several of their nests, but for some unaccountable reason we did not see a single Goose. It is not likely that we could have overlooked such a conspicuous and well marked bird, but, as the nests we found were all deserted, it is probable that the birds had all moved off with their broods to other sections where we could not find them.

They nest on the islands in the larger lakes and in the sloughs, building two entirely different types of nest in the two localities.

They are very early breeders, laying their eggs early in May, and hatching out their young generally before the first of June. One of their nests, found on a small island inhabited by a colony of Double-crested Cormorants, Ring-billed Gulls and a few ducks, was merely a depression in the bare ground among scattered large stones, lined with a few sticks and straws and a quantity of down. This nest, on May 31, had apparently been deserted for some time.

In a large slough in Nelson County, on June 2, we found a deserted nest containing three eggs, the broken shells of those that had hatched being scattered about the nest. It was in a shallow portion of the slough where the dead flags had been beaten down flat for a space fifty feet square, and not far from a Redhead's nest. The nest was a bulky mass of dead flags, three feet in diameter and but slightly hollowed in the center.

A similarly located nest was found in a slough in Steele County on June 10 (shown in Pl. VI, Fig. 2). This contained only one egg which had failed to hatch and was, like the other nest, within a few yards of a Redhead's nest. The proximity of these two Redheads' nests to the nests of the Geese may have been merely a coincidence, but it suggests the possibility that it was done to gain the protection of the larger bird. This suggestion was somewhat strengthened when I saw a skunk foraging in the vicinity; undoubtedly these animals find an abundant food supply in the numerous nests of ducks and coots in these sloughs.

The eggs of the Canada Goose are a dull dirty white, and the 3 eggs in my collection give the following measurements: 3.60 by 2.40, 3.61 by 2.41, and 3.50 by 2.37.



FIG. 1. GULL CLIFF, ANTICOSTI ISLAND.



FIG. 2. GULL CLIFF, ANTICOSTI ISLAND.

A SYNOPSIS OF THE GENUS COMMONLY CALLED
ANORTHURA.

BY HARRY C. OBERHOLSER.

THE group of birds that among others includes the common European Wren and the American Winter Wren is apparently well worthy of generic segregation. To this genus, when recognized in nomenclature, the name *Anorthura* has been applied, although quite erroneously, as has been shown by Professor Newton,¹ and still more recently by Mr. Howe.² The term *Anorthura* is a strict equivalent of *Troglodytes*, as the following quotation conclusively proves:

"I have thought it expedient to substitute a new name [*Anorthura*] for this genus, instead of the received one, *Troglodytes*, which is taken from a false notion that the Wrens live in caverns, as the ancient people named *Troglodyta*, are recorded to have done."³

That this state of affairs should have remained so long unnoticed is due probably to the overlooking of the original description which occurs on page 6, instead of page 570 as apparently always quoted. Even Mr. Howe gives only the latter.

In seeking a name for the short-tailed wrens thus bereft of their commonly accepted designation, Mr. Howe arrives at the conclusion that they must be called *Troglodytes*, and the group now known by that name must pass as *Hylemathrous*; his reasons for which may be ascertained by consulting his note.⁴ This, however, does not seem to be the best way out of the difficulty. While Vieillot proposed the generic term *Troglodytes*⁵ evidently for all the wrens then known, he actually included but three species, — *Troglodytes aëdon* Vieillot, *Motacilla fulva* Gmelin (= *Trog-*

¹ Dictionary of Birds, 1896, p. 1051.

² Auk, XIX, 1902, p. 89.

³ Rennie, Montagu's Ornith. Dict. Brit. Birds, ed. 2, 1831, p. 6.

⁴ Auk, XIX, 1902, pp. 89, 90.

⁵ Hist. Nat. Ois. Am. Sept., II, 1807, p. 52.

lodytes furvus auct.¹) and *Troglodytes arundinaceus* Vieillot (= *Thryothorus ludovicianus* auct.), the European wren being mentioned in only the most incidental manner; and since we are not so much concerned with what he intended as with what he actually did, it follows that one of the three species he treats must be considered the type of the genus. Vieillot himself soon afterward removed *Troglodytes arundinaceus* to form the type of *Thryothorus*,² leaving two congeneric forms, the first of which, *aëdon*, has more and better claims to be treated as the type of *Troglodytes*.

Although with this view of the matter the name *Hylemathrous* Maximilian³ is of course untenable, it may not be out of place to mention that it can in no case enter into the equation, for it is a name of character exactly similar to *Anorthura*, and is a pure synonym of *Thryothorus*, not of *Troglodytes*! It is proposed in the following fashion: "Vieillot belegt diese Familie mit der Benennung Binsenspringer (*Tryothorus*) [err. typ.], die aber nicht vollkommen auf die Lebensart der von mir beobachteten Vögel passt, da ich sie nur in dichten Gebüsch und nicht am Wasser gesehen habe. Man könnte sie eher *Hylemathrous* (der im Busche ruft) nennen."⁴

Maximilian furthermore does not mention the name except in this one place, preferring after all to use *Thryothorus* of Vieillot. Aside from the four species which he here formally refers to *Thryothorus* and which, by the way, now belong to as many different genera, he adds in his general discussion of the genus: "Hierhin gehören noch mehrere andere Vögel, z. B. *Troglodytes furvus*, *aëdon* Vieill., *Sylvia caroliniana* Wilson [= *Thryothorus ludovicianus* auct.], welche zum Theil auf der Gränze zwischen *Troglodytes* und *Thryothorus* stehen."⁵

With *aëdon* the type of *Troglodytes*, and *Anorthura* a synonym, the short-tailed wrens of Europe and America are left without a generic name, for *Elachura* Oates, instituted for *Troglodytes punctatus* Blyth (*nec* Brehm), is apparently entitled to separation.

¹ The description and accompanying notes all point to this identification, so that "*fulva*" is evidently a typographical error or *lapsus calami* for "*furva*."

² Analyse, 1816, p. 45.

³ Beiträg. Naturg. Bras., III, 1830, p. 742.

⁴ Maximilian, Beiträg. Naturg. Bras., III, 1830, pp. 741, 742.

⁵ Maximilian, *l. c.*, p. 741.

Olbiorchilus,¹ gen. nov.

Troglodytes CUVIER, 1817, *nec* VIEILLOT, 1807.

Anorthura AUCT., *nec* RENNIE, 1831.

Type, *Motacilla troglodytes* Linnæus.

Range. — Asia, excepting the southeastern corner, and central and western Siberia; Europe; extreme northwestern Africa; and nearly all of North America.

Olbiorchilus fumigatus fumigatus (*Temminck*).

Troglodytes fumigatus TEMMINCK, Man. d' Ornith. III, 1835, p. 161.

Troglodytes fucatus BREHM, Naumannia, 1855, p. 285.

Type locality. — Japan.

Geographical distribution. — Japan.

Olbiorchilus fumigatus kurilensis (*Stejneger*).

Troglodytes fumigatus kurilensis STEJNEGER, Proc. U. S. Nat. Mus. XI, 1889, p. 548.

Type locality. — Shiashkotan Island, Kuril Islands.

Geographical distribution. — Kuril Islands, Japan.

Closely allied to true *fumigatus*, but a recognizable race.

Olbiorchilus fumigatus dauricus (*Dybowski & Taczanowski*).

Troglodytes dauricus DYBOWSKI & TACZANOWSKI, Bull. Soc. Zool. de France, IX, 1884, p. 155.

Type locality. — Dauria, southern Siberia.

Geographical distribution. — Northeastern Asia, from northern China to Mongolia and eastern Siberia.

Appears to be distinguishable from true *fumigatus* by larger size, and less rufescent color on the upper surface. Although its range can not be fully worked out from the scanty material available, this form probably represents *fumigatus* on the mainland of Asia, thus restricting the latter to the islands of Japan.

Olbiorchilus fumigatus nipalensis (*Blyth*).

Troglodytes nipalensis BLYTH, Journ. As. Soc. Bengal, XIV, pt. 2, 1845, p. 589 (ex Hodgson MS.).

¹ ὄλβιος, felix; ὄρχιλος, regulus.

Troglodytes subhemalichanus HODGSON, in Gray's Zool. Misc., 1844, p. 82.

Type locality.—Nepal.

Geographical distribution.—Himalaya Mountains, from southern Cashmere to Sikhim; northeast to southern Shen See, China.

This is apparently but a subspecies of *fumigatus*, though a well-marked one.

Olbiorchilus fumigatus neglectus (Brooks).

Troglodytes neglectus BROOKS, Journ. As. Soc. Bengal, 1872, p. 328.

Type locality.—Cashmere.

Geographical distribution.—Cashmere to Gilgit, Central Asia.

Olbiorchilus pallescens (Ridgway).

Anorthura pallescens RIDGWAY, Proc. U. S. Nat. Mus. VI, 1883, p. 93 (ex Stejneger MS.).

Type locality.—Bering Island, Commander Islands.

Geographical distribution.—Commander Islands, North Pacific Ocean.

Olbiorchilus meligerus (Oberholser).

Anorthura meligera OBERHOLSER, Auk, XVII, 1900, p. 25.

Type locality.—Attu Island, Alaska.

Geographical distribution.—Western Aleutian Islands, Alaska.

Olbiorchilus alascensis (Baird).

Troglodytes alascensis BAIRD, Trans. Chicago Acad. Sci. I, pt. ii, 1869, p. 315, pl. xxx, fig. 3.

Type Locality.—Saint George Island, Pribilof Islands.

Geographical distribution.—Pribilof and eastern Aleutian Islands, Alaska.

Olbiorchilus hiemalis hiemalis (Vieillot).

Troglodytes hiemalis VIEILLOT, Nouv. Dict. d'Hist. Nat. XXXIV, 1819, p. 514.

Troglodytes parvulus var. *americanus* NAUMANN, Naturg. Vög. Deutschl., III, 1823, p. 724 (table).

Type locality.—Nova Scotia.

Geographical distribution.—Eastern North America; breeding southward to the northern part of the United States, and along the Alleghany Mountains to North Carolina.

Olbiorchilus hiemalis helleri (Osgood).

Anorthura hiemalis helleri OSGOOD, Auk, XVIII, 1901, p. 181.

Type locality.—English Bay, near Kadiak, Kadiak Island, Alaska.

Geographical distribution.—Kadiak Island, Alaska.

Apparently inclining slightly toward *alascensis*, though not sufficiently intermediate to indicate subspecific relationship.

Olbiorchilus hiemalis pacificus (Baird).

Troglodytes hyemalis var. *pacificus* BAIRD, Rev. Amer. Birds, I, 1864, p. 145.

Type locality.—Simiahmoo, Washington, U. S. A.

Geographical distribution.—Pacific coast region of North America, from southern Alaska to southern California, and east to the Rocky Mountains; in winter south to western Mexico.

Olbiorchilus troglodytes troglodytes (Linnaeus).

Motacilla troglodytes LINNÆUS, Syst. Nat. I, 1758, p. 188.

Troglodytes europea VIEILLOT, Nouv. Dict. d'Hist. Nat. XXXIV, 1819, p. 511.

Troglodytes punctatus BREHM, Naturg. Europ. Vögel, I, 1823, p. 318.

Troglodytes parvulus KOCH, Syst. bairn. Zool. I, 1816, p. 161.

Troglodytes vulgaris FLEMING, Brit. Anim. 1828, p. 73.

Troglodytes regulus MEYER, Zusätze Taschenb. deutschl. Vög., 1822, p. 96.

Troglodytes domesticus BREHM, Handb. Vög. Deutschl. 1831, p. 454 (nec Wilson).

Troglodytes sylvestris BREHM, Handb. Vög. Deutschl. 1831, p. 455.

Anorthura communis RENNIE, in Montagu's Orn. Dict. 2nd ed. 1831, p. 570.

Troglodytes tenuirostris BREHM, Vogelfang, 1855, p. 238.

Troglodytes naumanni BREHM, Vogelfang, 1855, p. 238.

Troglodytes verus BURMEISTER, Syst. Uebers. Thier. Bras. III, 1856, p. 137 (*nomen nudum*).

Troglodytes linnei MALM, Göteb. u. Bohusl. Fauna, 1877, p. 169.

Troglodytes hirtensis SEEBOHM, Zoologist, 1884, p. 333.

Type locality.—Europe.

Geographical distribution.—Nearly the whole of Europe; extreme northern Africa, west of Egypt; northern Palestine and Asia Minor to Persia.

Specimens from St. Kilda, which form the basis of Mr. Seebohm's *hirtensis* we have not seen, but they are apparently the same as

birds from the British Isles.¹ There is a surprisingly small amount of geographical variation in this species, considering its extensive range.

Olbiorchilus troglodytes bergensis (Stejneger).

Troglodytes parvulus bergensis, STEJNEGER, Zeitschr. Gesam. Orn. I, 1884, pp. 9, 10.

Type locality.—Bergen, Norway.

Geographical distribution.—Norway and probably Sweden.

This race is closely allied to true *troglodytes*, though apparently separable on the *average* characters of more distinct dark barring on back and rump and duller, less rufescent color of the upper parts. The type is extreme in these respects, and is by no means equalled by any of the several other specimens examined.

Olbiorchilus troglodytes borealis (Fischer).

Troglodytes borealis FISCHER, Journ. f. Orn. 1861, p. 14, pl. i.

Type locality.—Faeroe Islands.

Geographical distribution.—The Faeroe Islands and Iceland.

This form is so closely connected with true *troglodytes*, by individual variation of both color and markings, that notwithstanding its island home, a trinomial better expresses its relationship. There seems to be no difference in size.

Olbiorchilus troglodytes pallidus (Hume).

Troglodytes pallidus HUME, Stray Feathers, 1875, p. 219, note.

Type locality.—Kashgar, Eastern Turkestan.

Geographical distribution.—Western part of eastern Turkestan, with probably the adjoining region of central Asia.

A perfectly good form, though apparently but subspecifically distinct from true *troglodytes*.

Elachura Oates.

Elachura OATES, Faun. Brit. India, I, 1889, p. 339.

Type.—*Troglodytes punctatus* Blyth.

Range.—Cachar and vicinity of Darjeeling, northeastern India.

¹ Cf. Dresser, Ibis, 1886, p. 43.

Elachura formosa (Walden).

Troglodytes punctatus BLYTH, Journ. As. Soc. Bengal, XIV, 1845, pt. 2, p. 589 (*nec* Brehm).

Troglodytes formosus WALDEN, Ibis, 1874, p. 91.

Type locality.—Darjeeling, India.

Geographical distribution.—Neighborhood of Darjeeling, northeastern India.

The name *punctata* is untenable for this bird, being preoccupied by *Troglodytes punctatus* Brehm,¹ a synonym of *Olbiorchilus troglodytes*. Dr. Sharpe long ago called attention to this fact,² but the term *punctata* unfortunately has been adopted by some later writers.

Elachura haplonota Baker.

Elachura haplonota BAKER, Ibis, 1892, p. 62, pl. ii.

Type locality.—Hungrum Peak, North Cachar Hills, India.

Geographical distribution.—North Cachar Hills, northeastern India.

Seemingly a very distinct species.

A SUMMER COLONY AT ANTICOSTI.

BY JOSEPH SCHMITT, M. D.

Plate VII.

ANTICOSTI ISLAND, in the Gulf of St. Lawrence, where I have lived for some years as medical doctor in the service of the proprietor, Mr. Henri Menier, offers for study many very interesting subjects of natural history. In respect to birds, I will now call attention to a summer colony of sea-birds, which, while not having the importance of several famous bird rocks, as those at Percé, nevertheless deserves special mention. Here in a bay is Gull Cliff, facing northeast, which, from May until September is the resort

¹ Naturg. Europ. Vögel, I, 1823, p. 318.

² Cat. Birds Brit. Mus., VI, 1881, p. 279.

of numerous birds which come here to breed. The steamer 'Savoy,' in visiting the different places around the island, is sometimes obliged in stormy weather to seek shelter in this harbor. It was while the 'Savoy' was at anchor that I chanced to have the opportunity of observing the birds of Gull Cliff.

When a mile out in the offing we could perceive with a telescope about these abrupt rocks an incessant stream going and coming, like an immense swarm of bees near a gigantic hive, usually forming two parallel but opposite currents. On approaching we could better determine these objects, and little by little could distinguish the birds. Even some of them, going in pursuit of fish, would pass near the steamer so that we could recognize the species. At last, the depth of the sea being sufficient, the 'Savoy' came to anchor very near the shore. The approach of the boat disquieted the colony, and it was all in confusion, as when the anchor is let go the sound of the chain is echoed from the cliff. Then from every jutting point of the rocks numberless birds fly off, but they soon return again. If we land with the ship's boat there is a new disquiet in the colony, but the birds quickly compose themselves and soon begin again their continuous going and coming as if nothing had happened.

At low water it is possible to land at the foot of this rock, where is light rubble, which is covered again at high water. This cliff, cut perpendicularly and nearly 200 feet high, is composed of layers of rock which offer numerous projections, every one of which contains a nest. The jutting point is often so small that the bird has just room enough to lay its eggs, and it often happens that the young as they increase in size, a few days after birth, in spite of wondrous equilibrium, cannot maintain themselves in the rudimental nest, and fall down the cliff where they are quickly drowned.

On carefully observing these birds, we find that the greatest number are Kittiwakes (*Rissa tridactyla*) which occupy the rock from the inferior third nearly to the summit.

Among them we find grouped several families of Murres (*Uria troile*) and, especially on the southern portion, some Puffins (*Fratercula arctica*). Also here and there some Bonaparte Gulls (*Larus philadelphia*) and above these and always near the top of the rock several nests of Cormorants (*Phalacrocorax dilophus*).

Near the anchored steamer were many Terns (*Sterna hirundo*), but I could not tell whether or not they live on the cliff.

The length of the cliff inhabited by the birds is about one mile. By counting the birds on a section of the cliff, we estimated the number of birds at not less than 60,000. The photographs (Pl. VII) were taken under very unfavorable circumstances, owing to foggy weather, but may help to give some idea of the abundance of the birds.

AN UNDESCRIBED FORM OF THE BLACK DUCK (*ANAS OBSCURA*).

BY WILLIAM BREWSTER.

IT is a matter of common belief among our more intelligent and observing wild-fowl gunners that two kinds of Black Ducks are found in New England, and certain of the characters by which they are thought to be separable have been mentioned, as well as briefly discussed, by writers on ornithology or field sports. To one, a comparatively small, dark race having a dusky or olivaceous bill and brownish legs, all our local or breeding birds are supposed to belong; the other, a larger, lighter-colored form with clear yellow bill and bright red legs, is known to occur only during migration or in winter. I have often been struck by these and certain other differences which will be mentioned later, and for the purpose of testing their value and significance I have brought together, with the kind assistance of several of my friends, a large series of specimens most of which were obtained in New England in autumn, winter or early spring. Among them are a dozen or more collected in late August and early September at Lake Umbagog, which almost certainly represent the form resident in summer throughout New England although I have none from any locality south of the Gulf of St. Lawrence which were taken at the *height* of the breeding season. Some of my specimens were weighed before being skinned and many of them are accompanied by notes

relating to the original coloring of their bills, legs and feet. As the more brilliant tints of these 'soft parts' fade soon after death, and eventually nearly or quite disappear, they are not available in comparisons of dried skins unless recorded by the collector soon after his birds are killed.

A careful study of this material has convinced me that the large, red-legged bird differs sufficiently from true *obscura* to stand as a distinct subspecies, which may be briefly characterized as follows:

***Anas obscura rubripes*, new subspecies. RED-LEGGED
BLACK DUCK.**

Subspecific characters.—Similar to *A. obscura* but larger; the feathers of the pileum conspicuously edged with grayish or fulvous; the dark markings on the fore neck and the sides of the head coarser, blacker and more sharply defined; the entire throat usually streaked or spotted with blackish; the tarsi and toes bright red; the bill yellow.

Type, No. 30252, ♂ ad. Collection of William Brewster, Lake Umbagog (New Hampshire shore), October 8, 1889; W. Brewster.

Habitat.—Occurring during migration or in winter on or near the Atlantic Coast from Newfoundland to Virginia (Cobbs Island); in the interior as far to the south and west as Arkansas. Summer range not definitely known but breeding specimens examined from Northern Labrador, James Bay and the west shore of Hudson Bay.

MEASUREMENTS.

		Wing.	Tarsus.	Middle toe without nail.	Culmen from base (chord).	Culmen from nostril.
<i>Anas obscura</i>	average of 7 males	10.52+	1.65—	2.20—	2.05—	1.58—
<i>A. o. rubripes</i>	“ “ 21 “	10.99+	1.68—	2.26+	2.13—	1.66—
<i>Anas obscura</i>	average of 15 females	10.14+	1.61—	2.09—	1.93—	1.52+
<i>A. o. rubripes</i>	“ “ 19 “	10.47+	1.60+	2.15+	2.03+	1.60—

I have had repeated opportunities for comparing the two forms when living or immediately after death. They are sufficiently unlike in respect to size and proportions, as well as in coloring, to be distinguished, under favorable conditions, at more than gunshot distance when flying, and when freshly killed and placed side by side they may be separated at a glance. The larger bird usually has the entire bill (excepting the nail) yellow, varying from

chrome to canary or sulphur yellow, the legs and toes bright red, varying from light scarlet to deep orange, the dark feathers of the pileum and nape conspicuously margined with gray or fulvous, and the throat (as well as sometimes the chin, also) profusely spotted or streaked with blackish. All the dark markings on the cheeks, throat and neck are broader, blacker and more sharply defined than in true *obscura* and they often take the form of coarse, rounded spots which are seldom if ever present on the head or neck of the smaller bird.

In typical examples of *obscura* the bill is greenish black, dusky olive, or olive green, the legs are olivaceous brown with, at most, only a tinge of reddish, the pileum and nape nearly or quite uniformly dark, the throat and chin immaculate, the markings on the neck and sides of the head fine, linear, and dusky rather than blackish. In respect to these characteristics *obscura* does not seem to vary with age or season for my series includes several young not sufficiently large and fully feathered to have been able to fly which are colored and marked precisely like specimens killed in late autumn, while breeding birds are distinguishable from the latter only by the more worn and faded appearance of their plumage. The males of both forms, however, are almost invariably larger than the females as well as more richly colored and heavily marked, especially on the head and neck; a fact which should be borne carefully in mind when specimens of the two are compared.

Both races are evidently subject to a good deal of individual or geographical variation which tends to connect them by a series of intergrading specimens. Thus I have small birds with grayish crowns or streaked throats and even one or two which, in life, apparently had yellow bills and red legs, while several of the large ones have plain black crowns or immaculate throats. I have yet to see a specimen of *obscura*, however, which possesses the coarse, rounded, deep black spots that are usually present in greater or less numbers on the neck, as well as often on the throat, of *rubripes*.

The existence of a small percentage of non-typical examples, like those just mentioned, does not necessarily affect the diagnostic value of the characters to which I have called attention.

Indeed it would be possible to contend that these aberrant or intermediate specimens are really hybrids, for in the series before me they do not exceed in number the birds (no less than nine) *which show unmistakable traces of an infusion of Mallard blood.* Since two species so obviously distinct as are the Mallard and Black Duck are connected by intergrades *known* to be hybrids, why should we not assume that the scarcely more numerous intergrades between the red-legged and brown-legged Black Ducks are also hybrids? Not that I am disposed to seriously press this argument for, however plausible it may seem, my present impression is that the forms of the Black Duck here considered are only sub-specifically distinct.

There can be no reasonable doubt that the smaller of the two is the original *Anas obscura*. This name has remained unchanged in form and uncoupled with any synonym ever since it was instituted, more than one hundred years ago, by Gmelin (Syst. Nat. I, part ii, 1788, 541), who based it on the "Dusky Duck" of Pennant. This is described (Arct. Zool., II, 564) as coming "from the province of New York" and having "a long and narrow dusky bill, tinged with blue: chin white: neck pale brown, streaked downwards with dusky lines." Pennant adds that the legs in one of his birds were "dusky, in another yellow"; but as the specimens which he examined were evidently dried skins (in the Blasius Museum) this statement, as well as that relating to the color of the bill, loses much of its apparent importance.

At Lake Umbagog, where the Black Duck breeds rather plentifully, I have not cared to incur the odium of breaking the game laws and the reproaches of my own conscience by killing birds which were sitting on their eggs or in charge of broods of tender young, but I have shot a few specimens in late August and very many during the month of September. Among these I have found only one example of *rubripes*, a nearly typical female taken on September 28, 1889. With this single exception I have never met with the red-legged form at this locality before October 8. Soon after that date it becomes common, remaining until the waters of the lake are closed by ice.

In Massachusetts, also, the locally bred birds or early migrants from the north, which we kill during September and the first half

of October, are, as far as I have observed, invariably *obscura*. Most of the representatives of this race evidently pass further southward to spend the winter, but I have three typical specimens which were shot on our seacoast (at Ipswich and Chatham) during the latter half of February, 1901.

Until very recently I had supposed that the Black Ducks which breed about the Gulf of St. Lawrence and to the northward along the eastern coast of Labrador would prove to belong to the red-legged form, but Mr. C. F. Batchelder has shown me seven specimens (all but one adult) which were collected for him in Newfoundland in June and July and which, although slightly larger than our New-England-breeding birds, are precisely similar to the latter in color and markings. A female in Mr. O. Bang's collection taken in the Straits of Belle Isle on April 25, 1900, must also be referred to *obscura*. Another, belonging to Mr. J. D. Sornborger, which, with her brood of ducklings, was captured on July 8, 1896, at Okak, on the northeastern coast of Labrador, is intermediate in certain respects between *obscura* and *rubripes*, but on the whole perhaps nearer the former.

To the red-legged race I can unhesitatingly refer only four of the breeding Black Ducks which I have examined. One of these (a female) was taken by Mr. L. M. Turner on July 1, 1884, at Ungava, Northern Labrador; another (unsexed and without date) by Mr. John McKensie at Moose Factory on James Bay; a third (represented by only the head and wing and bearing no sex mark but evidently a female, for it was "with young") by Mr. C. Drexler, on June 19, 1860, at Cape Hope, Severn River; the fourth (a male) by Mr. E. A. Preble, on July 28, 1900, at Fort Churchill;—the two localities last named being on the western shores of Hudson Bay. Mr. Preble's specimen is in the collection of the Biological Survey while the others belong to the National Museum. All four of these birds are in poor condition for comparison. Two of them were moulting, and the plumage of the other two is worn and faded, while that of the Moose Factory skin is also strongly tinged with rusty chestnut—a mere superficial stain, apparently. Nevertheless they show satisfactorily most of the essential characters of *rubripes*. In respect to size and the character and distribution of the black markings on the

head and neck they are quite typical of that form. The original coloring of the soft parts is not noted on any of the labels, but that of the legs in the three specimens which still possess these appendages was apparently bright red. As would be expected, the light edging on the feathers of the pileum is much narrower and less conspicuous than in birds in fresh winter plumage.

From this evidence it seems reasonably safe to assume that the breeding range of true *obscura* extends, coastwise, to the north and east at least as far as Newfoundland and Southern Labrador and that throughout this maritime belt, as well as in New England and to the southward, *rubripes* occurs only during migration or in winter. The summer distribution of the latter remains to be definitely ascertained, but besides occupying the shores of Hudson Bay and those of northern Labrador it probably frequents more or less of the vast interior region lying between the points just mentioned and the St. Lawrence River. The frequency of its occurrence in late autumn at Lake Umbagog indicates that a good many of the birds which breed about Hudson Bay or to the southward take the shortest possible route to their winter quarters on the coast of New England. Others, no doubt, move directly southward for there is a typical red-legged bird in the Museum of Comparative Zoölogy which was taken in Mississippi County, Arkansas, on Nov. 5, 1887.¹ Those which pass their summers in northern Labrador probably follow the Atlantic coast line during migration for Mr. Batchelder has a specimen of *rubripes* which was shot at Custlett, Newfoundland, on November 6, 1890.

It is interesting to note that in respect to one of the more essential of its distinguishing characters — viz., the immaculate buffy throat — the more southern of the forms just considered shows a slight but significant approach to the Black Duck of Florida (*Anas fulvigula*) which has not only the entire throat, but also the jugulum and the greater part of the cheeks, entirely free from markings.

¹ It is probable that a large proportion of the birds which occur in autumn or winter in the Mississippi Valley and about the Great Lakes belong to the form *rubripes* but the only Black Duck of any kind that I have seen from this region is the one above mentioned.

A PLAN FOR RECORDING IN A CONDENSED FORM
THE LIFE-HISTORY NOTES OF BIRDS.

BY A. H. FELGER.

IN THE study of ornithology there is perhaps no field so neglected as that of careful and systematic observing and note-taking on the life-histories of birds. With the average collector the tendency is to make collections of skins, nests, and eggs with records of dates, localities, and numbers found, without pausing to record notes of greater importance. While the writer recognizes the necessity of making collections of skins, nests, and eggs, he realizes at the same time that such collections, unless supplemented by complete and carefully prepared notes, are emphatically inadequate in the determination of life-histories — the ultimate purpose of ornithology.

There are numerous factors lending their influence in favor of collecting, and against the work here referred to, among the most prominent being: (1) the inherent desire to collect per se; (2) the greater interestingness of collecting; (3) the tediousness of waiting and watching in note-taking; (4) the uncertainty and slowness of results in the latter; (5) the non-attractive clerical labor thereafter involved. To minimize this clerical labor is the purpose of this article.

In entering upon a discussion of this subject it is necessary in the outset to determine what character of notes should be recorded. By common consent, we take it, the following will be included: general locality, temperature, condition of the weather, direction and force of the wind, amount of rainfall or snowfall, advance of vegetation, new insects abroad, environments, number of birds seen or heard, number of indications of mating, number of indications of nest-building, number of nests found containing eggs, number of nests found containing nestlings, number of young seen on the wing, condition of plumage, stage of moult, food and food habits. To these the following should be added: time out, exact locality, prevailing wind of locality, species searched for but not found, number of birds seen in flocks, number of birds seen in migration flight. The direction and force of the prevailing wind

are unquestionably more important factors in the distribution of birds over certain areas than the direction and force of the wind during any one day.

It has been suggested that one should record the specialty that he is engaged in during the day under consideration. Although we recognize the fact that one will not make as many observations on bird habits while collecting birds, nests, or eggs, and that allowance might be made if one did not observe certain expected birds while engaged in such other pursuits, yet, a personal element is hereby introduced that should be avoided. This personal element being variable in different persons, and variable in the same person, depending on his physical and mental condition on the day specified, renders such record more or less invaluable. After all, it is the positive and not the negative records that are most important. If an observation be made and recorded, in respect to our fellow scientist we assume the record to be accurate. Should the same person, whoever he be, fail to make an expected observation, we could not rightly conclude that such observation was impossible.

It has also been suggested that a record be kept of the method of travel on expeditions of observation. Aside from having the conviction that such records would lack value on account of the introduction of the personal element just referred to, we are reminded that any unimportant detail included in our plan will tend to make it cumbersome and thus defeat its object.

In order that the reader may the more readily comprehend the subject-matter that we recommend to be recorded, it is outlined below with a convenient abbreviation placed after each subdivision. Care has been taken in the selection of subdivision names that none of those closely associated would begin with the same letter, a condition that would render their natural abbreviations confusing.

OUTLINE OF HEADLINE NOTES.

1. General Locality (*e. g.*, Platte River, Denver, Colo.).
2. Time Out (*e. g.*, 9:30-5:15).
3. Average Temperature during the Day (*e. g.*, 50°).
4. Weather { Sunny (S).
Fair (F).
Cloudy (C).

5. Prevailing Wind of Locality { Direction (*e. g.*, N. E.).
Force { Low (L.).
Moderate (M.).
High (H.).
6. Wind of the Day (outlined as above).
- Rainfall { Light (R. L., or S. L.).
or { Moderate (R. M., or S. M.).
7. Snowfall { Heavy (R. H., or S. H.).
8. Advance of Vegetation { New Leaf-buds Out (B.....).
New Leaves Out (L.....).
New Flowers Out (F.....).
New Seeds Ripe (S.....).
9. New Insects Abroad.
10. Remarks.

OUTLINE OF SECTIONAL NOTES.

1. Exact Locality by Range, Township, Section, and Quarter (*e. g.*, 67 W., 1 N., 6, 3).
2. Environments.
3. Number of Birds Seen or Heard { Exact { ♂ (*e. g.*, 6 ♂).
♀ (*e. g.*, 5 ♀).
Approximate { ♂ (*e. g.*, .50 ♂).
♀ (*e. g.*, .25 ♀).
4. Species Searched For but Not Found (*e. g.*, 0).
5. Number of Indications of Mating (*e. g.*, 12 M.).
6. Nests and Young { Number of Indications of Nest-building (*e. g.*, 4 B.).
Number of Nests with Eggs (*e. g.*, 3 E.).
Number of Nests with Nestlings (*e. g.*, 5 N.).
Number of Young on the Wing (*e. g.*, 15 W.).
7. Indications of Migration { Number in Flocks { Exact { ♂ (*e. g.*, 46 ♂ F.).
♀ (*e. g.*, 30 ♀ F.).
Approximate { ♂ (*e. g.*, .50 ♂ F.).
♀ (*e. g.*, .50 ♀ F.).
Number in Migration Flight { Exact { ♂ (*e. g.*, 46 ♂ M.).
♀ (*e. g.*, 30 ♀ M.).
Approximate { ♂ (*e. g.*, .50 ♂ M.).
♀ (*e. g.*, .50 ♀ M.). or (*e. g.*, .100 F. M.).
8. Plumage.
9. Moult.
10. Food { Of Young { In Nest (*e. g.*, F. Y. N.).
On Wing (*e. g.*, F. Y. W.).
Of Adults (*e. g.*, F. A.).
11. Reference to Photograph taken of this Species on this Day.
12. Reference to Drawing made of this Species on this Day.
13. Reference to Additional Notes taken on this Species on this Day.
14. Reference to Résumé of Notes taken on this Species.

The heading 'Number of Indications of Mating' might receive numerous subdivisions like the following: singing, calling, cooing, drumming, strutting, scraping, etc.; but it is deemed inadvisable to burden the sectional notes with these. All notes in regard to the method of wooing should be recorded on the back of the form, or in a book containing more extended field notes, to which reference may be made in the manner hereinafter suggested.

The form herein given and recommended for these records is somewhat similar to that proposed by Chapman, though it is much more complete. For convenience in discussion we will divide the form into three parts: headline spaces, marginal divisions, sections. The headline spaces are respectively 5 mm., 7 mm., and 14 mm. wide. The marginal divisions are 25 mm. long by 24 mm. wide. The sections are 24 mm. long by 20 mm. wide, each being ruled horizontally with fine lines 2 mm. apart, the sixth, seventh, and eighth of the spaces thus made being divided vertically into three parts.

The first vertical column of the headline spaces should contain, in the order named, the following: year, general locality, time out, weather and temperature, prevailing wind, wind of the day, rainfall or snowfall, advance of vegetation, new insects abroad, remarks. The spaces to the right of the year should contain the days of the month, the month itself being written above the upper headline. The remaining headline spaces should contain notes on the heading found in their respective marginal spaces, such notes, if desirable, being written in the abbreviated form suggested in the outline.

In the marginal divisions should be placed the names of the species in the order observed. In the sections should be placed the notes on such of these species as are observed during the day indicated at the top of the vertical row. Each section will, therefore, contain as many of those notes found in the 'Outline of Sectional Notes' as are taken on any one species. The divisions of each section are reserved for the following notes: the first, for the exact locality; the second and third, for the environments; the fourth, for the plumage; the fifth, for the moult; the ninth and tenth, for the food of the young; the eleventh and twelfth, for the food of the adults. The area included in the middle spaces of divisions six, seven, and eight is reserved for the 'Number of

The form consists of a large grid with 10 columns and 10 rows. Each cell in the grid contains a small, repeating pattern of vertical lines, resembling a barcode or a series of tick marks. To the left of the grid, there are five small circles, one in each of the first five rows. To the right of the grid, there are five horizontal lines, one in each of the first five rows. Below the main grid, there is a smaller grid with 10 columns and 5 rows, which is also empty.

FORM OF SHEETS FOR RECORDING LIFE HISTORY NOTES OF BIRDS
($\frac{3}{8}$ th Nat. Size).

Birds Seen or Heard,' or 'Species Searched For but Not Found.' It will be observed upon close comparison of the subdivisions included under the three captions 'Number of Indications of Mating,' 'Nests and Young,' and 'Indications of Migration,' that notes on no more than five of these subdivisions are probable on one species during one day. For these notes the first spaces of divisions six, seven, and eight, and the third spaces of divisions six and seven are reserved. In the remaining division space—the third space of the eighth division—may be placed the page references to photographs, drawings, additional notes, and résumé. Should this space be needed for another record, the page references to photographs, drawings, additional notes, and résumé may be placed respectively in the upper left, upper right, lower left, and lower right corners of the section. If desirable, any note may be given more prominence by writing it in differently colored ink. In arranging the notes for the above sections we have endeavored to congest them into as small a space as possible, but have found it impractical to confine them to sections smaller than those designated.

In looking down the vertical columns of this form one may note at a glance all the species observed during each day. In looking across the horizontal columns one may note the different days upon which the same species was observed, the different localities that it frequented, the various environments in which it was found, etc.

Each sheet may be made to cover as many spaces in width or length as desirable in each individual case. However large it may be made, it is improbable that the marginal divisions of one sheet will contain all the species observed during the days represented. Other sheets must, therefore, be added of a size equal to the body of this sheet (*i. e.*, with the headline area omitted) and ruled in the same way. These sheets should be made up in tablet form and neatly perforated at the points indicated. Covers should be made a trifle larger than the form, both of which should be hinged with leather or canvas and perforated in the same manner as the sheets, each perforation being provided with an eyelet. The covers and sheets are laced together with an ordinary shoe-lace, thus making it possible to remove the sheets at any time and arrange them

beside each other for study. A key to all abbreviations used is very essential, not only for the observer himself, but especially for those who may in future years have access to his records. A convenient place to put this key is on the inside of the front cover. After enough sheets are completed an index should be made and all laced into one volume.

GENERAL NOTES.

✓ Occurrence of the Arctic Tern (*Sterna paradisæa*) in the Hawaiian Islands.—A weary and wayworn individual of this species was discovered on the beach at Hilo, Island of Hawaii, May 9, 1891. The bird boarded a schooner when four days off port, being evidently much exhausted, but disappeared three days afterwards, having evidently sighted land. It was next seen on the beach by some boys, but was hardly able to fly, and was captured by hand after a short chase. It came into the possession of Mr. R. T. Guardé, but died the next day from hunger and exhaustion. Mr. Guardé had the bird mounted, and very generously presented it to the writer. The bird was assuming the full nuptial dress, and presumably was on its way to Alaskan breeding grounds when it was lost or blown to sea. After a brave struggle with fate it reached distant Hawaii only to fall a victim to the consequences of its protracted flight.

So far as the writer is aware this is the first American tern to be reported from the Hawaiian Islands, though American gulls are not of very rare occurrence.—H. W. HENSHAW, *Hilo, Hawaii.*

Note on the Name of Audubon's Shearwater.—Lesson in the 'Revue Zoologique' for April, 1839, p. 102, describes a shearwater as follows: "*Puffinus* [sic] *Lherminieri*, Less.—Corpore supra nigro, infra albo, rostro et pedibus nigro.—Long. ; 12 poll.—Hab. ad ripas Antillarum." Finsch, in the P. Z. S. 1872, p. 111, renames this species *Puffinus auduboni*, being led astray by believing Bonaparte's citation of Lesson's name referred to the 'Traité,' in which work it is not to be found. In view of the above facts this species should stand in the Check-List as *Puffinus lherminieri* Lesson—J. H. RILEY, *U. S. National Museum, Washington, D. C.*

European Widgeon (*Mareca penelope*) on Long Island, N. Y.—It gives me great pleasure to record the capture of an unusually fine adult male English Widgeon at Bostwicks Pond, Gardiners Island, Suffolk County,

N. Y., on Wednesday, November 27, 1901. This duck, which was brought to me for identification, was killed by my friend, Mr. Thomas Newbold Rhinelander, while shooting over decoys from an island in Bostwicks Pond. The bird was entirely alone, rather wild and a little shy of the decoys.

On Saturday night and all of Sunday preceding there had been a heavy northeast storm followed on Monday and Tuesday by high northwest wind with clearing weather, and on Wednesday (the day the duck was shot) very high northwest wind, freezing hard. There was an unusually large flight of American Widgeon (*Mareca americana*) during the two days immediately following the storm, many flocks numbering over one hundred birds. A number of American Widgeon were killed. An old resident of Gardiners Island informed Mr. Rhinelander that every year the Widgeon came to the Pond in large numbers but usually later in the winter. The other ducks noted in great numbers were Black Duck (*Anas obscura*) and Red-breasted Merganser (*Merganser serrator*). A great many Black Ducks were also killed. — NEWBOLD T. LAWRENCE, *New York City*.

The Masked Duck in Vermont. — Since the publication of my 'Review of Prof. Perkins's Vermont Birds,' Mr. Samuel Henshaw has called my attention to the fact that the specimen of *Nomonyx dominicus* (No. 482) in the collection of the Boston Society of Natural History has its right wing clipped, and was thus probably not a wild straggler in Vermont, but an escaped tame bird. This evidence is, I think, enough to expunge this record, which has held a place in North American faunal literature since 1858. — REGINALD HIEBER HOWE, JR., *Longwood, Mass.*

Rare Ducks in Massachusetts. — While looking over recently an interesting local collection of birds, belonging to Mr. Arthur C. Dyke of Bridgewater, Mass., consisting of birds taken within the limits of that town, I came across two very rare species of ducks for this locality.

Chaulelasmus streperus. GADWALL. — There were two well-marked specimens of this species, in immature plumage, both of which were taken by Mr. Harry Sturtevant, on Oct. 18, 1901, at Nippenicket Pond in Bridge water. They came in to live decoys at a gunning stand on this pond, controlled by Mr. Joseph E. Bassett and Mr. Sturtevant. The Gadwall is a very rare or accidental visitor in this State. So far as I know there is only one other record.

Somateria spectabilis. KING EIDER. — A young male of this species, in Mr. Dyke's collection, was taken by Mr. Joseph E. Bassett at his gunning stand, at Nippenicket Pond, on Oct. 21, 1899. The King Eider is taken occasionally on our coast where it occurs as a rare winter visitor, but has, I believe, never been taken in an inland pond. — A. C. BENT, *Taunton, Mass.*

The Wilson Plover in California.—Mr. A. M. Ingersoll of San Diego has recently sent me a specimen of *Ægialitis wilsonia* taken by him at Pacific Beach, San Diego County, June 29, 1894. The circumstances of its capture were given by Mr. Ingersoll in a brief but interesting article in the 'Nidologist,' Vol. II, Feb., 1895, p. 87. The skin, now before me, is that of a male in worn nuptial plumage. The dorsal surface is particularly worn and faded, the tertials and wing-coverts presenting a truly thread-bare appearance. The measurements are: wing, 108 mm.; tail, 48; culmen, 21.5; tarsus, 29.5; middle toe with claw, 23. As far as I know, this specimen furnishes the only record of *Ægialitis wilsonia* for California.—JOSEPH GRINNELL, *Palo Alto, Cali.*

The Yellow Rail (*Porzana noveboracensis*) in Wisconsin.—Between October 6 and 13, 1901, four Yellow Rails were seen on different marshes near Delavan, Wis., and one specimen was taken October 11. This bird was captured by a pointer and brought to me alive by the dog's owner. It proved to be a male and is an exceptionally beautiful individual. On October 13 I flushed one myself at my feet and carefully marked it down on the scantily grassed, dry marsh not four rods away, but the efforts of two men and two very good bird dogs were insufficient to start it again by the time the shells were changed in my gun, although it was not over a minute before we were hunting him and worked diligently for nearly an hour.—N. HOLLISTER, *Delavan, Wis.*

An Abnormal Specimen of the Bob-white (*Colinus virginianus*).—I shot near Mount Pleasant, S. C., on February 4, 1902, an adult male Bob-white which has nearly the whole throat ochraceous-buff encircled with white. Among the thousands of these birds I have killed, this specimen is the first I have ever seen marked in this manner.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

↓ *Buteo solitarius* off the Coast of Hawaii.—My friend Mr. W. K. Andrews was a recent passenger on a sailing ship from San Francisco to Hilo, and he reports the following interesting occurrence. When 400 miles off the southern point of Hawaii, a hawk boarded the ship, and perched on the top of the mizzen-mast. In a few moments it flew away, and presently returned with a bird in its claws. Mr. Andrews is well acquainted with the Hawaiian Hawk, but wishing to make sure of the identity of this particular individual, he shot the bird. Unfortunately it fell dead just over the side of the ship allowing, however, a good glimpse ere it was swept astern.

Mr. Andrews considers his identification of the hawk certain, and is pretty confident that the hawk's quarry was a plover, it being in plain sight on the water as it drifted past.

Readers of 'The Auk' may remember the report of a somewhat similar case made by the writer in this Journal for April, 1891. That particular

hawk boarded an outward bound ship, and kept with it till the California coast was sighted when it flew to land. During the voyage it lived on small birds which it left the ship to catch.

Can it be that the Hawaiian Hawk has learned of the spring and fall flights of plover, akekeke and other birds that migrate to and from the islands, and that it deliberately makes excursions to sea to capture them? Or are these two cases merely coincidences?

The writer has studied the flight of the Hawaiian Hawk on many occasions, and he does not for one moment believe in its ability to capture flying quarry. If the bird the hawk was eating when shot was actually a plover it must have been seized when on the water—evidence, so far as it goes, tending to prove that the plover sometimes rests on the ocean in its passages between the American and the Hawaiian coasts.

That the ducks occasionally rest on the ocean in their migrations, Mr. Andrews is able to state positively, as he saw a pair settle contentedly on the ocean a thousand miles from land as if for a long rest.—H. W. HENSHAW, *Hilo, Hawaii*.

Unusual Nesting Date of the Barn Owl (*Strix pratincola*).—During the fall and early winter of 1900 several Barn Owls established a residence in two or three large red oaks in our back yard. These trees were peculiarly fitted for such birds, as the ravages of time and the elements had produced several very large cavities in each tree. I had watched the birds, as best I could, with much interest. They were active only after nightfall. I expected to find a set of eggs in February. The nights were made hideous with their stentorian notes and I began to regard them as something of a nuisance but bore in mind the probability of a set of eggs entirely new to my collection, so I suffered the birds to remain unmolested. We have a number of domestic pigeons and their houses stood very close to the trees mentioned, but experience had shown the owls to be perfectly harmless and I had nothing to fear from this source. However, a pair of pigeons had nested for some months in a large cavity in one of the trees, from which they were driven by a pair of owls. This circumstance led me to look with more confident hope for a set in February. But my hopes were blasted. So I then thought it necessary to remove the trees; their dying condition demanded this course. They were cut on the 10th day of December, 1900, and on the 12th the woodmen while cutting the trees into sections found five eggs in the cavity heretofore referred to as the erst-while home of the pair of pigeons. Three of the eggs were irremediably cracked, the others badly so. They must have totally perished but for the mass of decayed vegetation, the accumulation of years, in the bottom of the hollow. This cavity was upwards of eighteen feet from the ground, about two feet in circumference, with a depth of three feet, and was on the north side of the tree, which stood directly south of the back porch and not more than thirty feet therefrom. One egg was fresh, two were infertile, and two were slightly incubated. I

preserved three, which present the following measurements: 1.80×1.35 , 1.71×1.36 , 1.74×1.36 . — R. W. WILLIAMS, JR., *Tallahussee, Florida*.

Nyctea nyctea on Long Island, New York. — Snowy Owls have visited Long Island in considerable numbers during the past winter. I have heard of their being either seen or killed at several different places and four fresh birds have been sent to me from Montauk Point, obtained on the following dates: December 31, 1901, January 6, 1902, January 21, 1902, and February 6, 1902. It is several years since these northern visitors have been so abundant. — JONATHAN DWIGHT, JR., M. D., *New York City*.

√ *Belted Kingfisher* in the Island of Hawaii. — Early in November of 1901 Mr. Harry Patten of Hakelau informed me that a pair of Belted Kingfishers (*Ceryle alcyon*) had appeared in Hakelau Gulch, some fifteen miles north of Hilo. On the 27th of the month, Mr. W. K. Andrews of Honomou visited the locality, and, finding only the female, secured her, kindly presenting the specimen to the writer. The other bird in the meantime had disappeared, having probably been killed.

As the second bird is reported to have been somewhat differently colored it was probably the male. It is hardly likely that the pair would ever have found their way back to the mainland and, had a kinder fate directed them to a more solitary spot, they might have survived and reared young to populate the islands. Most of the island streams contain small fish and shrimps, and there would seem to be no reason why the kingfisher should not thrive here, although its field would be limited.

So far as the writer is aware this is the first occurrence in the group of this or, indeed, of any kingfisher. Evidently the pair drifted down here from the mainland coast during the fall migration, and their occurrence here, like that of so many other American species, is purely accidental. Yet it is through just such accidents that the islands have received, from several sources, their avian inhabitants. — H. W. HENSHAW, *Hilo, Hawaii*.

A Winter Record for the Flicker (*Colaptes auratus luteus*) in Berkshire County. — In 'The Birds of Berkshire County,' by Dr. W. Faxon and Mr. R. Hoffmann, the latest autumn date for this species is given as October 24, and the earliest spring record as April 10. We observed at Williamstown on December 12, 1900, a single bird which may have been wintering, and on April 6, 1901, the first Flicker arrived. — FRANCIS G. AND MAURICE C. BLAKE, *Brookline, Mass.*

The Winter Fringillidæ of New Brunswick. — The list of birds given below includes the members of the Finch and Sparrow family which occur in New Brunswick during the months of December, January, and February. During these three months migration is as nearly at a standstill as at any time during the year. This family is represented by more species than

any other family of birds, eleven species occurring here during the winter months, in greater or lesser numbers, being sometimes plentiful and even abundant and in other years rare.

The year 1901 has brought several surprises, the regular winter birds having been rather scarce, while two species which do not ordinarily occur here till late in March, and another not till mid May, have been more plentiful than any of the regular winter birds, except probably the Black-capped Chickadee and Red-breasted Nuthatch.

Pinicola enucleator. PINE GROSBEEK. — This is a rare summer resident as far south as Fredericton, N. B. They come south in autumn in flocks varying in number from three or four to fifty. By people little acquainted with birds they are often mistaken for the Robin. In fact, they have been called 'Winter Robins' by some ornithologists.

Their habit of living in summer in coniferous forests, generally far from the haunts of man, causes them to have little fear of him when they come south, and one may approach quite closely to examine them. When they are feeding one may often get quite up to the tree in which they are resting.

Their food in winter consists of almost any of the persistent fruits. A favorite food is the seeds of the ground ash, which they pick from the trees and even from the ground where they have been blown by heavy winds. This winged fruit they dissect, taking only the meat. Small apples are also eaten. At times the pulp is cast away and only the seeds eaten, and again their crops have been found to contain the pulp.

They also feed upon the fruit of the sumach. Their never failing diet is the tips of fir twigs, the buds which produce the next season's growth. These are bitten off, and to reach them the birds at times hang nearly up side down, as the lithe limbs bend with the weight of the birds. When this food has been eaten the bill is covered with balsam. Elm buds also are eaten after they begin to swell in spring.

The flight of the Pine Grosbeak is slightly undulating, and when on the wing they often give forth a soft loud whistle by imitating which they may be induced to alight nearby.

Some ornithologists claim that this species nests far north, and so early in spring that the eggs are laid before the snow has gone. This may be true, but it is also true that they breed in New Brunswick in the month of July.

Carpodacus purpureus. PURPLE FINCH. — This species is in appearance a small edition of the Pine Grosbeak. The males very much resemble each other in color, but the females and young of the Purple Finch lack the yellowish breast and rump of the Pine Grosbeak. The earliest record the writer has for the arrival of this species from the south is February 5, 1901, which is fully seven weeks earlier than is usual for the spring migrants to arrive. Even at this early date they were singing, but the song lacked the energy that is given it during the nuptial season. The song of the young male is not so rich as that of the adult, consisting of a

few short notes in place of the long flowing song of the full plumaged adult male.

Their food, after arriving in spring, is buds of various trees, the favorite being the poplar and the balsamy buds of the fir; later insects are added to the bill of fare. Although arriving early from the south the nesting season is deferred till after the middle of June.

Passer domesticus. ENGLISH SPARROW.—This species lives in winter in towns and villages, the families which are raised throughout the country in summer flocking to their winter quarters during October.

Loxia leucoptera. WHITE-WINGED CROSSBILL.—This species may be termed a rare winter visitor in the vicinity of Fredericton, yet they are known to live in summer in the northern highlands of this province. They feed upon the seeds of spruce, black alder and birch. The song, which is much like the song of the Purple Finch, is poured forth while the bird is on the wing, and also while the bird is at rest. During the winter of 1899-1900 this species was common here.

Acanthis hornemannii exilipes. HOARY REDPOLL.—This species has been taken at Peticodiac, in the eastern corner of New Brunswick, and is considered very rare.

Acanthis linaria. REDPOLL.—Both sexes of the Redpoll are much alike, the males being distinguished by the pink tinge on the feathers of the breast. They are very lively little birds, and seem to be cheerful in sunshine or storm. They feed on weed seeds as long as any weeds remain above the snow. The seeds of various trees are also eaten, such as those of the black alder and yellow birch. The writer has had the experience of watching Redpolls feed on seeds put out for them. They would feed for several hours daily, and would take fifty seeds per minute. So erratic are these birds in their choice of a winter home, that one winter they may be abundant with us and not be seen again for years, or they may appear in autumn, pass on, and not be here again till the next winter.

Spinus tristis. AMERICAN GOLDFINCH.—During the winter of 1900-01 Goldfinches were observed here February 15, a very unusual occurrence, the general time of arrival being in the month of May.

Spinus pinus. PINE FINCH.—This species, like the Redpolls, is so erratic in movements, that one can never know whether or not it will occur during the winter season, yet it is during the winter that we are most sure of its presence. They feed largely upon the fruit of the yellow birch and cedar.

Plectrophenax nivalis. SNOW BUNTING.—This is the most easily recognized of any of our Fringillidæ of either summer or winter. Their food consists of seeds of weeds and grasses, of which they get an abundant supply on haystacks. They are most abundant along river valleys. It has been alleged by some writers that Snow Buntings never perch on trees, but it is not uncommon to see them resting on trees when not feeding.

Spizella monticola. TREE SPARROW.—This is our only winter sparrow,

that does not congregate in flocks while with us, they being seldom seen in companies of more than two or three. They are not common during winter and are only found at that season along river valley roads that are fringed with coniferous bushes.

Junco hyemalis. SLATE-COLORED JUNCO.—This season (1901) is the only time the writer has observed this species here so late in the year, one being observed December 4, during a heavy snowstorm. It seemed as happy as if it had just arrived from the south in April.—W. H. MOORE, *Fredericton, N. B.*

The Occurrence of the Lapland Longspur (*Calcarius lapponicus*) in Mid-winter in Massachusetts.—On January 12, 1902, the writer, with Mr. H. M. Spelman and Mr. R. S. Eustis, found between forty and fifty of these birds at Ipswich. Four or five were on a hillside about half a mile from the beach, and the remainder among the sand-dunes by the sea. The day was stormy and cold, the fine snow blowing and drifting so that the beach grass on which they were feeding was more or less covered. Perhaps on this account the birds were tamer than usual and allowed a close approach. The Longspurs were alone, and also associated with Horned Larks and Snow Buntings. Three Ipswich Sparrows were seen with them.

It is not uncommon to find the Longspurs in the early part of December in Ipswich. Thus I have records for December 10, 1898, and December 8, 1901.—CHARLES W. TOWNSEND, *Boston, Mass.*

The Lapland Longspur Wintering in Massachusetts.—In our 'Birds of Massachusetts' (1901), Mr. Reginald Heber Howe, Junior, and the undersigned, gave, as the only instance known to us of the wintering of the Lapland Longspur in the State, the record of one from Ipswich, Jan. 6, 1877. This specimen with above date on the label, is preserved in the mounted collection of the Boston Society of Natural History. By a mere chance the fact came out that this specimen, which was presented by Messrs. E. A. & O. Bangs, was probably from the same lot of birds, bought at the Boston Market, from which came the McCown's Longspur, credited by Mr. C. J. Maynard to Massachusetts. It appears that the market-man of whom the specimens were obtained, when asked if they came from Ipswich, replied, as he naturally would, in the affirmative, and it seems reasonable to believe that these two birds were in reality from the West, and that there are no actual winter records for the State. Lately, however, Mr. Howe, in company with Mr. Louis Agassiz Shaw, while at Ipswich on the 18th of January, 1902, took one, and saw at least five others, so that we are now able to give the species unquestioned standing as of at least occasional occurrence in Massachusetts in winter.

While on three trips to Ipswich during the autumn of 1901 (Oct. 22, Nov. 9 and 28) Mr. Howe found Longspurs in unusual abundance, and apparently, as this season has been comparatively mild, a proportion have

remained to winter with the Snow Buntings and Horned Larks.—GLOVER M. ALLEN, *Cambridge, Mass.*

The Savana Sparrow Wintering in Massachusetts.—On January 18, 1902, with Mr. Louis Agassiz Shaw, I took a male *Passerculus sandwichensis savanna* at Ipswich, Mass. The bird was entirely alone when shot, in the belt of beach grass which separates the dunes from the beach. This is the third wintering record for the State, it having been previously recorded from Sandwich and Longmeadow.—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

The Ipswich Sparrow (*Ammodramus princeps*) on the Coast of South Carolina.—It is with much pleasure that I am at last able to record this interesting bird as a winter resident for South Carolina. Having searched for this sparrow most diligently every winter for the past thirteen years upon all the coast islands from Charleston to Bulls Bay and having failed to discover the bird, I became convinced that the coast islands were not to its liking and that the proper place to look for the bird with success would be a 'Key' or the farthest point of land out in the ocean. Eight years ago I sent a stuffed specimen of this bird, together with some ammunition, to the lighthouse keeper at Cape Romain, S. C., but he was unsuccessful in obtaining or seeing the bird. On January 20, of this year I sent a skin of the Ipswich Sparrow, together with ammunition, to Mr. D. L. Taylor and wrote him when to search for the bird. On February 6, he sent me in the flesh, three beautiful specimens which he secured the day before at Keys Inlet, Bulls Bay, S. C. In his letter dated February 6, Mr. Taylor writes as follows: "Enclosed in box you will find some birds; *three* of them I am sure are the right ones, but they were all together. I have been hunting them, but the only place I found these was at Keys Inlet. They are very scarce—there were only a few." Of the three birds sent me one was a male and the others females. This bird can only be classed as a very rare winter visitor.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Ipswich Sparrow (*Ammodramus princeps*) on the Mainland of South Carolina.—I shot an adult female of this sparrow on March 4, 1902, from the top of a bush, on the edge of an oat field, near a sandy spot. I suspected that the bird was a very pale-colored Savanna Sparrow, and to make the identification absolute I fired and wounded the bird which proved to be the long sought for Ipswich Sparrow. The specimen was taken within less than 100 yards of the spot where I shot the specimen of *Anthus spragueii* on November 17, 1900, and seven miles from the ocean. If I have read the records of this bird correctly, this specimen makes the third which has been taken "out of sight and sound of the sea."—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

A Remarkable Specimen of Bachman's Sparrow (*Peucaea aestivalis bachmani*).—I shot on February 5, 1902, an adult female of Bachman's Finch which has *thirteen* rectrices. The bird may have had more, but upon closely examining the ground where it fell I failed to discover any more tail feathers. In the family Fringillidae the rectrices always number *twelve*, but this specimen, taken near Mount Pleasant, S. C., is indeed an anomaly.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Henslow's Sparrow on Shelter Island, N. Y.—On November 20, 1901, as I was crossing a rather barren, hilly pasture field, with a somewhat sparse covering of grass, I was much surprised on flushing a small brown sparrow, on which I had almost placed my foot in taking a step, which I at once recognized by the peculiar corkscrew flight as *Ammodramus henslowi*, having observed and taken numbers of them in the Southern States. A snap shot at long range (my astonishment at seeing the species so unexpectedly having banished at first all thought of shooting) wounded, but failed to kill, and the bird dropped flutteringly into another bunch of grass, and was out of sight in an instant. Knowing their habits, I thought the specimen lost to me, but rushing to the spot and stamping quickly about, thanks to the scanty grass, the specimen was flushed again, and finally secured, making the first record for eastern Long Island. The bird was a female, and in good condition. I took an Ipswich Sparrow on the same day, and another Nov. 22, and on December 18 a Lapland Longspur.—W. W. WORTHINGTON, *Shelter Island Heights, New York.*

The Field Sparrow in Arlington, Mass., in Winter.—On February 14, 1902, I saw a small sparrow on the Arlington Heights which I am confident was a Field Sparrow (*Spizella pusilla*). I watched him at close range through my glass for fifteen or twenty minutes, and got all his markings, including the peculiar color of his bill. In size he was distinctly smaller than a Junco with which he was feeding, while the Tree Sparrow, the only other bird I know with which I could have confused him, is larger.

I have also seen, off and on all winter, two Red-winged Blackbirds (*Agelaius phoeniceus*), four or five Swamp Sparrows (*Melospiza georgiana*), and one Long-billed Marsh Wren (*Cistothorus palustris*) in the Fresh Pond Marshes, Cambridge, Mass.—RICHARD S. EUSTIS, *Cambridge, Mass.*

The Length of Life of the Chipping Sparrow and Robin.—It is so rarely that one gets a chance to estimate the length of life of many of our birds that this bit of information may be worth presenting. The late Prof. Alpheus Hyatt has kindly sent me the following note on the Chipping Sparrow (*Spizella socialis*) from a friend of his, Mrs. H. S. Parsons, who lives in Annisquam, Mass. "The bird you wish to know about," she writes, "came to notice first in the door yard. It seemed quite tame and

would not fly when crumbs were thrown out. Then I began to feed it from my hand, and it soon became so tame that it would fly to meet me, and would come in at the open door or window. I would call it to me at any time if it was within sound of my voice. It went away in October and returned the last of April. It would come to the doorstep all ready for crumbs and would light on my hand and peck a piece of cake. I would have known it from its manner, but it had lost a joint of one toe, which I thought a sure mark. It would always bring its young to the door, and sometimes into the house, and they, too, would be very tame. One summer it brought with its own a young bunting and fed it, a much larger bird than the sparrow. The chippy came *nine* summers and the last one one morning after a cold rain storm the last of May, came to the window seeming weak and sick. We fed it but it grew weaker and in a few hours it died." I have a like story reported to me from Milton, Mass., where a Robin returned for four years.—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

The Cardinal an Established Resident of Ontario.—In September I spent four days, 17th to 21st, in company with my cousin, Mr. H. H. Keays at Point Pelee, collecting. Nearly every evening of our stay the fishermen gathered around our camp fire, apparently much interested in us as strangers and in our work; after telling us of the strange birds they had seen on the point (their descriptions of which were usually too complicated for us to make more than a guess at the species) one of them asked us of a bird that made its appearance about four years ago and had since been quite common, stating that it was a splendid whistler, and that an old lady in the vicinity had caught a number of them and sold them for cage birds, catching them in a cage trap and using the first one taken as a decoy for more. From his description we concluded it must be the Cardinal (*Cardinalis cardinalis*), and sure enough, on the following day we secured one, a young male in moulting plumage. Twice afterwards we heard near our camp, just at dawn, the call note of what we decided must have been this bird.

Without doubt the Cardinal has come to stay at Point Pelee, nor could they select a more suitable place, the cape being quite plentifully covered with red cedar, and the weather remaining mild in fall longer than on the mainland, on account of its proximity to the lake, as is evident by our having no frost during our stay, while on our return we noted the corn well bleached on the mainland.

It is to be hoped, however, that it will not restrict its range to the point nor to the shores of lake Erie in Ontario, as this bright plumaged bird will make an acceptable addition to our fauna.

Dr. McCallum says a few of this species are seen along the lake shore every summer near Dunnville (McIllwraith 'Birds of Ontario'). Inland we have but few records of stragglers, which in the vicinity of London

are as follows: One shot at St. Thomas, spring of 1890, by Mr. O. Foster; one taken in a cedar swamp a mile from London, Nov. 30, 1896, this being the first record for Middlesex County, and which is made complete, as far as I am able to ascertain, by a second taken at Kilworth by Mr. John Thompson, Nov. 17, 1899, both these birds being males. The Rev. C. L. Scott reports one shot near Aylmer, Elgin County, about October, 1900. From Guelph one is reported by Mr. F. N. Beattie as spending the winter of 1899 around his place. Other reports come from Chatham and Rond Eau, all of single specimens and apparently stragglers.—J. E. KEAYS, *London, Ont.*

The Philadelphia Vireo in Western Pennsylvania.—I took a Philadelphia Vireo (*Vireo philadelphicus*) near Shields, Pa., on September 6, 1901. This bird occurs as a rare migrant in Allegheny Co., Pa., where I took the specimen mentioned above. The only other record of its capture in this county that I am aware of, is a specimen taken by Mr. G. A. Link at Pittsburg, May 15, 1900. Another was taken near Industry, Beaver Co., an adjoining county, in 1891, by Mr. W. E. Clyde Todd.—D. LEET OLIVER, *Concord, N. H.*

Observations of a Pair of Mockingbirds seen during the Summer of 1901 in Solebury Township, Bucks Co., Pennsylvania.—The following notes on a pair of Mockingbirds were made by Mr. Wm. Ely Roberts of New Hope, Bucks Co., Penna. Mr. Roberts is at present a student in Swarthmore College and is a very reliable observer.

"This pair of Mockingbirds was first seen by myself on June 17, 1901, in Solebury Township, Bucks Co., Pa., about my home, which is two and a half miles west from New Hope and a mile in a direct line from the Delaware River. I was on my way from college and noticed the pair fly out from an osage hedge that extended past my home. I had never seen any birds around that were marked similar to these. Upon looking them up in a Warren's 'Birds of Pennsylvania' I found that their markings corresponded to those given by Warren for the Mockingbird. My brother had seen them two days previous and my father had also seen them several days before that. The road marks a divide between two creek valleys. It is possible that the birds followed one or the other of the streams and found things so to their liking here that they stayed to nest. The birds seemed tame, flew about our yard among the pines, and were undisturbed by the wagons on the road.

"As I was at work on a farm during the birds' stay, I had chance to observe them only in the early morning or evening and at such other times when in the fields adjoining the house. This accounts for the lack of several important dates. I do not know when the nest-building was begun. I thought, however, from the actions of the birds that it must be going on. So on July 7, at my first opportunity for search, I found the nest about thirty yards from the house, on the north side of the low

hedge. It then had the full complement of eggs (four) and was about four feet from the ground and probably six inches down in the hedge. Sticks lined with horse-hair composed the nest. There was no difficulty in discovering its location, for the male himself showed where it was by flying to a particular place and remaining there just long enough to have given something to the female and then flying back again to his perch. I could not tell whether he did actually feed the mate or not, but his actions so indicated. Pie cherries were ripe just at this time, on a tree close by, and seemed to be their principal food.

"The male could mimic to perfection the notes of the Killdeer, the Bluebird, and the Bluejay. I noticed five others in his repertoire, those of the Orchard Oriole, the Catbird, the Flicker, the Plover [Grass Plover, *Bartramia longicauda*], and the Robin. I saw the old birds no more after the last week in July and the young not at all."

The Mockingbird was formerly much more abundant in the northern portion of its range than it is to-day. In the time of Alexander Wilson it appears to have been a more or less common bird in the vicinity of Philadelphia, as the following extracts from the 'American Ornithology' (Vol. II, pp. 13-24) attest:

"They are, however, much more numerous in those States south, than in those north, of the river Delaware; being generally migratory in the latter, and resident (at least many of them) in the former." The following remark bears on this point: "Though rather a shy bird in the northern states, . . ." Again, on page 14 ". . . Neither the Brown Thrush, nor Mockingbird were observed, even in the lower parts of Pennsylvania, until the 20th of April. . . In the lower parts of Georgia he commences building early in April; but in Pennsylvania rarely before the tenth of May; and in New York, and the states of New England, still later." In another place the following statement occurs: "A person called on me a few days ago with twenty-nine of these birds, old and young, which he had carried about the fields with him for several days, for the convenience of feeding them while engaged in trapping others. He carried them thirty miles, and intended carrying them ninety-six miles further, *viz.* to New York; . . . The eagerness with which the nest of the Mockingbird is sought after in the neighborhood of Philadelphia, has rendered this bird extremely scarce for an extent of several miles around the city. In the country around Wilmington and Newcastle they are very numerous, from whence they are frequently brought here for sale."

Wilmington and Newcastle are in the State of Delaware and situated on the river about thirty miles south of Philadelphia. In a letter from William Bartram, which Wilson quotes, is the following statement in regard to the wintering of this species in the neighborhood of Philadelphia: ". . . formerly, say thirty or forty years ago, they were numerous, and often staid all winter with us, or the year through, . . ." Bartram says further: ". . . many would feed and lodge during the winter [in a European ivy on his house, the famous Bartram Mansion built by the

elder Bartram in 1731 and still standing, on the western bank of the Schuylkill, now within the limits of Philadelphia] and in very severe cold weather sit on the top of the chimney to warm themselves."

From these statements two facts are obvious. First, that the Mockingbird was abundant in the Lower Delaware Valley, in the early part of the last century, and like other Carolinian species was more or less resident throughout the year on the northern limits of its range. Second, that the persistent trapping of the bird tended, without doubt, as Wilson suggests, to increase its scarcity in these districts. Nothing appears so to diminish the number of individuals of a bird species as the untiring zeal of nest-hunters, especially with the object of solid cash in view. This, and the rapid and widespread clearing of land in the coastal plain region of the Middle States, has undoubtedly driven this enchanting songster from its former haunts. But some it would seem have a memory and are of a mind to come back. I have heard of a few others besides Mr. Roberts's pair; one pair that nested in Chester Co., Penna., a few years ago, and then there is the pair reported by Mr. Chapman, from Englewood, N. J. ('Auk', 1889, Vol. VI, p. 304). We shall be interested to hear from Mr. Roberts after next summer, and all of us will entertain the hope that these stragglers are spies sent out to view the land and that the prince of song may again enlarge his borders.—SPENCER TROTTER, *Swarthmore College, Penna.*

The Catbird (*Galeoscoptes carolinensis*) in Massachusetts in Winter.—Just below my house in the northern part of this city is an old pasture grown up with huckleberry, sheep laurel and other bushes, and at the further end is a birch thicket with a tangle of briars and some sumach. While passing this birch thicket about 2 P. M. on January 11 last, I heard a note much like the mew of a Catbird, but uttered in an excited, continuous manner, more like the notes of that bird when suddenly finding an intruder near its nest. On approaching over the two inches of snow, I was much interested to see a Catbird jump up into one of the bushes about fifteen yards away from me. I at once made the identification sure by using my glasses. The bird was in sight several minutes, passing by short flights to a thicket across the street. While in sight it uttered its mewing note not over two or three times. This was a fine spring-like day with a light southwest wind.—OWEN DURFEE, *Fall River, Mass.*

The Catbird Wintering at Concord, N. H.—On Dec. 3, 1901, while walking through an extensive wood near Concord, N. H., consisting principally of scrub pine, I was very much surprised to see a Catbird (*Galeoscoptes carolinensis*) hop out of a small scrub-pine, and perch directly in front of me in a bare bush within ten feet of my face. He uttered no note, but flirited up his tail, giving me a view of his brown under tail-coverts, and was gone. I did not have a gun with me at the time so I had no means of securing him, nevertheless there can be no doubt as to

his identity. He was undoubtedly wintering where I saw him in the sheltered scrub-pine wood. The afternoon that I saw him there were several inches of snow on the ground and the thermometer was way below freezing.—D. LEET OLIVER, *Concord, N. H.*

The Carolina Wren at Lake Forest, Illinois.—On the morning of August 13, 1900, I was awakened at five o'clock by the loud, ringing whistle of this bird (*Thryothorus ludovicianus*) just outside my window. It is a curious fact that the songs of our familiar birds do not rouse me when I am asleep but a strange voice will waken me at once. The Carolina Wren I had known well in the Southern States, but never here in Lake Forest, on Lake Michigan, thirty miles north of Chicago.

From August to October 10 I had heard his loud, scolding, *cack, cack*, and his whistled *chee-o-kee chee-o-kee chee-o-kee* at intervals, but did not see the bird till that day, when I had a fine view of him. I heard him up to October 13 that year. June 27, 1901, he was here again, or perhaps it was another, but I think it was the same one. August 9 my notes say: "He has been here at frequent intervals since June 27, and several times I have seen two birds." Whether they were a pair or not I do not know. November 24 he was whistling again, and this morning December 17, his scolding note was heard just outside my door, where he was sitting on our woodbine, jerking his tail, and scolding at the bitter cold with his usual animation. At times, however, he would sit on his feet to keep them warm, for it was only 1° above zero, and it had been —13° two days before. He stayed on the woodbine about ten minutes, and seemed to be stripping a little bark off of it to eat. There were no berries where he was. It looks as if he were going to winter here and next summer I shall be on the watch for a nest.—ELLEN DRUMMOND FARWELL, *Lake Forest, Ill.*

Eastern Bluebird at Cheyenne, Wyo.—I was greatly surprised at early dawn on Nov. 14 last, to hear the well-known notes of the Eastern Bluebird (*Sialia sialis*) which I had neither seen nor heard for many years. I discovered the author of them sitting upon the electric light wire not more than twenty feet from my house. The bird proved to be a male in typical winter plumage. On Nov. 24, ten days later, I secured another male. Both of these birds had been eating the blue berries of the woodbine which covers the front of my home. These two specimens are the first actual captures of the bird by me in Wyoming, and may be the first records for the State.—FRANK BOND, *Cheyenne, Wyo.*

Michigan Bird Notes, 1901.—*Pandion haliaëtus carolinensis*. AMERICAN OSPREY. —On Sept. 18, 1901, I received in the flesh a female, young-of-the-year, of this species. It was shot by Mr. Edwin Avery at Waterford, Oakland County. Although a common bird in certain parts of Michigan, this is, I believe, the first record for Oakland County.

Aquila chrysaetos. GOLDEN EAGLE.—An adult male of this species was shot in Eton County on August 12. Although not a new bird for this locality, it is so rare that I believe it worth recording. This specimen is in the collection of Mr. Charles Freiburger of this city.

Strix pratincola. AMERICAN BARN OWL.—This species is exceedingly rare in all parts of Michigan. I have, however, two records which have never been given before, one of a female shot near the marshes at the lower end of the Detroit River, now in the possession of Mr. C. R. Champion, a taxidermist. The other is a male in the possession of Mr. L. J. Eppinger of this city, also a taxidermist. The latter specimen was shot at Port Mouillee on Oct. 29.

Nyctala acadia. SAW-WHET OWL.—An adult male of this species was shot and given to me by a farmer in Grosse Point Township on Dec. 26. As I can find no previous record of this species I believe it new for Wayne County, the nearest record which I can find being a set of eggs recorded by Dr. W. C. Brownell (O. & O., Vol. XVI, p. 22) taken in Oakland County by W. A. Davison of this city. This skin is in my collection.

Nyctea nyctea. SNOWY OWL.—This rare owl has been commoner in southern Michigan this winter than it has been in the past ten years, local taxidermists having received about fifteen.—ALEX. W. BLAIN, JR., *Detroit, Mich.*

Bird Notes from Long Island, N. Y.—*Seiurus motacilla*. At Cold Spring Harbor, April 13, 1901, I secured a fine male Louisiana Water Thrush. The specimen is now in the collection of the Museum of the Brooklyn Institute.

Seiurus noveboracensis. A pair of Water Thrushes made their home during the past summer about the lower pond at Cold Spring Harbor. I saw them every week or two for the entire summer but cannot be positive that they nested there, although on one occasion (June 15) I felt sure that I saw them carrying nesting material. They were at all times very shy and wild.

Vireo philadelphicus. September 14, 1900, I secured a specimen of this rare bird (for Long Island). It was one of the hurrying throng of thousands of migrants seen on that morning and was not recognized until later in the day when it was made up into a skin. The specimen is now in the collection of the Museum of the Brooklyn Institute.

Geothlypis agilis. The Connecticut Warbler was unusually abundant during the latter part of September, 1900, in the vicinity of Jamaica South. Ten specimens were taken by the writer and many were seen.—GEO. K. CHERRIE, *Museum of the Brooklyn Institute, Brooklyn, N. Y.*

Winter Notes from Louisiana.—Observation during the winter months at New Iberia, Louisiana, has shown that there are some substantial differences between the winter avifauna there and that at New Orleans. New Iberia is 125 miles west of New Orleans, and is in a section of the

State where several kinds of country blend, the prairies of the western part, the rolling country of the upper part, the swampy or level woodland of the eastern parts of the State.

Judged from the standard of the winter bird life about New Orleans, the conditions here are rather contradictory; the Gnatcatcher, which is unusual as a winter bird at New Orleans, is regular here as a winter resident and might be called almost common; on the other hand, the Brown Creeper has appeared in some numbers in a live oak grove; at New Orleans it is a rare bird. So New Iberia appears to combine the advantages of both a lower and a higher latitude than New Orleans.

The Orange-crowned Warbler has been present in as large numbers as it is common to find it at New Orleans. The first was noted on November 19; at about this time (the end of February) the last are being heard. But much commoner than it is ever known at New Orleans is the Pine Warbler; like several other of the winter birds this bird is fond of the live oak groves; there it mixes freely with the Kinglets, Orange-crowned Warblers, Titmice, and Brown Creepers. Pine Warblers are fearless, and may be observed as they feed on the ground. Dull colored individuals are the commonest, but now and then a male in good plumage may be noticed among the little flocks; as the only yellow-breasted bird of winter he is conspicuous. Myrtle Warblers have been scarce through most of the winter, but the appearance of transients was noted February 13. The first transients of this species always appear about the middle of February in southern Louisiana.

Particularly since Christmas, Rusty Grackles have been very abundant; many Bronzed Grackles have been with them; that species is evidently the regular winter resident here; at New Orleans it is practically unknown at all times of the year, the Florida Grackle being the regular form there.

Goldfinches were the last winter residents to come; the first were noted not in cold weather, but on an Indian summer day that was one of the warmest of the late fall, November 26.

The remainder of the winter birds are the ordinary ones in this part of the country: White-throated Sparrow (in great abundance), Swamp Sparrow, Savana Sparrow, Phœbe, Robin, Winter Wren, Cedarbird, and American Pipit. The assemblage of these species is swelled of course, by the presence of various common residents: Cardinal, Towhee, Thrasher, Blue Jay, Red-headed Woodpecker, Carolina Wren, etc.—HENRY H. KOPMAN, *Covington, La.*

Northern Birds at Cumberland, Md.—On December 6, last, I took a walk along the Potomac, at a place where the banks are wooded, between the river and the old Chesapeake and Ohio Canal. I had at former occasions, but much later in winter, seen flocks of Purple Finches (*Carpodacus purpureus*) and other northern birds there feeding on the sycamore apples. On this day also there were Purple Finches about, and their clear notes could be heard at different places. When I came to a small

water course, coming through an adjoining field into the river, the sides of which are covered by bushes, vines and several trees, up came from the ground, where they had been feeding among the bushes and weeds, a flock of about eight Redpolls (*Acanthis linaria*). They perched on a little sapling, closely together, about twenty feet from me and I eyed them intently through a glass, but after a few moments they flew up into a tree, about fifty feet high, and thence, after a few moments, away and did not alight again as far as I could see. I saw their crimson caps plainly, they fairly glowed in the bright light of this clear, frosty day.

On February 5, last, I saw at the same locality a flock of about eight American Crossbills (*Loxia curvirostra minor*). They were not feeding just then and were shy. They allowed me to take one good and longing look at them and immediately departed for regions unknown. This was the first week of the long, cold spell we had this winter, lasting through the whole of February.

Some more northern visitors were here this winter, which I had never before seen. On November 16, last, while walking over a common or old meadow at the base of Wills Mountain, I flushed a fine Snowflake (*Plectrophenax nivalis*). It was not at all shy and allowed of close approach. It was not cold that day, about 32°, and there had been no storms or snow before. It must have become separated from its companions by mistake, for I could see no more that day. On February 8, however, at the same place, right near houses, I saw three more Snowflakes, their feathers more soiled than those of the one seen in November. At this time also it was very cold with much snow on the ground and at times stormy.

It may also be worthy of mention, that during this cold spell, at which the proverbial 'oldest' resident was surprised, there were hundreds of Prairie Horned Larks (*Otocoris alpestris praticola*) about the city, even, on account of the snow covering all fields and hills, coming into the streets of the city and sharing with the English Sparrows their usual delicacies of this and other seasons. They usually are here somewhat later and are then found first on the bare spots on the hillsides, where the snow has melted.—G. EFRIG, *Cumberland, Md.*

February Water Birds of Elsinore Lake, California.—*Colymbus holboëlli*. HOLBELL'S GREBE.—We had hardly expected to find this grebe on Lake Elsinore, but were pleasantly surprised by finding a dead specimen on the shore. It was much decomposed but was plainly an immature bird just getting the adult plumage.

Podilymbus podiceps. PIED-BILLED GREBE.—It seems rather strange that we should not have seen either of the typical Californian Grebes, although of course they might have been there without our knowledge. The pied-billed variety was common all over the lake, keeping well out from shore, however, as they were much shot at.

Larus occidentalis. WESTERN GULL.—These gulls, as well as all others, were very rare on the lake: the result of much persecution. We saw but two or three during our stay.

Sterna maxima. ROYAL TERN. — There was but one flock of these on the lake, numbering about fifteen. They appeared to feed on the rotting vegetation along the lake shore; a rather unusual thing for a tern. I should think.

Pelecanus trachyrhynchus. WHITE PELICAN. — These birds have hitherto been one of the commoner birds of Elsinore Lake, but this year (1902) there has been but one flock of five. It is a fine sight to see a flock of these pelicans rise from the water, with slow beats of their great black-tipped wings.

Merganser americanus. AMERICAN MERGANSER. — I saw but one of these ducks, although they are said to be fairly abundant. It was a drake in full summer plumage and, being quite close, I easily identified him.

Anas boschas. MALLARD DUCK. — Although supposedly common, we saw but three or four of these, and attributed their scarcity to the lateness of the season.

Anas americana. WIDGEON. — Widgeons abounded in all parts of the lake and their shrill yet mellow whistle, sounding like the syllables *hue, hue, hue*, with a strong accent on the second, was to be heard from every side.

Nettion carolinensis. GREEN-WINGED TEAL. — This beautiful little duck was common, though scattered over all the shallower parts of the lake. They seemed to spend over half their time on land, sunning themselves on the flats.

Spatula clypeata. SHOVELLER. — These handsome birds were the most in evidence of all the ducks. Their rattling cries were deafening when a flock rose, mingled with the quack of Mallard and Teal, and the whistle of Widgeon. The Shovellers were much tamer than the other species of duck, sometimes allowing approach to within twenty or thirty yards.

Dafila acuta. PINTAIL. — The Pintails were rather rarer than most of the other ducks. The long, pointed tail of the drake and graceful, swan-like neck of the female, made identification easy.

Aythya vallisneria. CANVASBACK. — This was by far the rarest duck on the lake, being only of casual occurrence. I got quite close to an old male of this species, and easily identified him. There are few finer ducks than this, the sportsman's favorite and the epicure's delight.

Erismatura dominicensis. RUDDY DUCK. — This curious little duck, so unlike the other members of the Anatidæ, shared, with the Shoveller, the honor of being the most abundant duck on the lake. No doubt there were far more Ruddies than Shovellers, but the small size and diving habits of the former render them inconspicuous.

Anser albifrons gambelii. AMERICAN WHITE-FRONTED GOOSE. — There was a large flock of these geese on the lake, numbering over a hundred. They made four regular flights daily, never varying more than fifteen minutes. It was a sight worth seeing to witness the long strings of great birds leave the lake and fly to the grain fields, ten miles away.

Chen hyperborea. SNOW GOOSE.—Although they do not spend the winter there, as do the other geese, the Snow Goose often stops for a few days on the lake. Two years ago I witnessed the alighting of a flock of these geese, that, at the lowest estimate of several persons present, numbered three or four thousand.

Branta canadensis. CANADA GOOSE.—The Canada Goose, the finest of all American waterfowl, is well represented on Elsinore Lake. At the time of my stay there was a flock of seventeen, making the same regular flights, and behaving exactly as the other geese did.

Ardea herodias. GREAT BLUE HERON.—We saw three or four of these birds during our stay, some fishing in the shallows, others soaring in great circles in the air. They were unusually wild, doubtless having been much shot at.

Recurvirostra americana. AMERICAN AVOCET.—One flock of five of these birds was observed feeding on the mud-flats. These were the only ones we saw, although given to understand that they were by no means rare.

Limosa fedoa. MARBLED GODWIT.—Our observations of this bird were confined to one specimen found dead and partly decomposed. Its long, slightly upcurved bill and brown mottled plumage at once identified it.

Tringa minutilla. LEAST SANDPIPER.—These interesting little birds were common on the shores of the lake, their shrill, piping cries and tiny bodies being in evidence everywhere.

Ægialitis vocifera. KILLDEER PLOVER.—The Killdeer were common on the south side of the lake, although I saw none on the other side. This is hard to account for, and the only reason I can give is that the south side is clean sand, instead of mud, and shelves off steeply.

Fulica americana. AMERICAN COOT.—This bird was by far the commonest on the lake, there being scarcely a hundred yards of shore without scores of 'Mud-hens,' as they are called. At some points their numbers were incredible, fairly blackening the water.—CHAS. B. NORDHOFF, *Redlands, Calif.*

RECENT LITERATURE.

Proceedings of the Nebraska Ornithologists' Union.—The Proceedings of the Second Annual Meeting of the Nebraska Ornithologists' Union, held at Omaha, Jan. 12, 1901, makes an octavo pamphlet of about one hundred pages, published at Lincoln, Nebraska, October, 1901, and forms an interesting and valuable contribution to ornithological literature. There is first an 'Abstract of Minutes' of the meeting, followed by the 'Constitution and By-laws' of the Union, and a list of its members, which number: Honorary, 4; Active, 63; Associate, 13-101, and are illustrated by 10 half-tone plates and several cuts in the text. The first paper is the President's address, by G. S. Trostler, on the 'History of Ornithology in Nebraska, and of State Ornithological Societies in General.' Concise statements are given of the founding and present status of seven State ornithological societies, including that of Nebraska, based on authentic information evidently gathered at no little trouble. This is followed by some twenty papers, mostly short, besides several pages of 'Miscellaneous Notes.' The longer papers include 'Birds in their Relation to Agriculture,' by Lawrence Bruner (pp. 18-29); 'A Late Nest of the Ruby-throated Hummingbird,' by Frank H. Shoemaker (pp. 34-38, with 3 plates); 'Young Rose-breasted Grosbeaks,' by Elizabeth Van Sant (pp. 38-42, with 5 plates); 'Birds that nest in Nebraska,' by Lawrence Bruner (pp. 48-61), a briefly annotated list of 203 species and subspecies known to breed, with a list (also annotated) of 40 others that very probably nest in the State, and a nominal list of 60 other "possible breeders." A short but very interesting paper on 'A Peculiar Disease of Birds' Feet observed in Central Nebraska' (pp. 61-63, 1 plate) is by Erwin H. Barbour. The disease especially affects the Blackbirds, and is supposed to be caused by a mite (*Sarcoptes* sp.), akin to that which produces horny excrescences about the lips and nose of wild rabbits of the same part of the State. 'Internal Parasites of Nebraska Birds,' by Henry B. Ward (pp. 63-70), is a brief discussion of the general subject, and a statement of the results of the author's investigations. Several short papers give observations on the birds of particular localities, the results of collecting trips, migration and breeding records, etc. The 'Proceedings' are, in short, made up of excellent material, well presented, and carefully edited, giving ample evidence of ability, earnestness, and enthusiasm on the part of the members of the Nebraska Ornithologists' Union. The absence of an index is the only point that seems open to criticism. —J. A. A.

Reed's 'American Ornithology.'—Mr. Chas. K. Reed's 'American Ornithology, for the Home and School'—a magazine devoted wholly to Birds'

has completed its first year¹ and reaches us as a bound volume of 246 pages, well-filled with half-tone illustrations and popular bird matter. Says the editor: "Our magazine is entirely different from anything hitherto published, in that we propose to give the life history of four or five birds each month, the illustrations of the birds being of sufficient size to be of value, and the eggs of each bird illustrated *full size*" (p. 28). The illustrations occupy usually a full page for each species, and are from original and very creditable drawings, mostly by C. K. Reed, with generally a page and a half to two pages of text, giving the bird's range, a brief description of its external characters, nest and eggs, and habits. The other matter of each number of the magazine is made up of short contributions from various writers, all of a popular character, well suited to the tastes of the beginner and the general reader, illustrated often with half-tone reproductions of photographs of birds' nests and eggs, and young birds. Many of the bird biographies are contributed articles, signed by the authors, those unsigned being doubtless by the editor. The magazine is well printed and the general make-up pleasing and attractive. It appears to be making its way in the world, and is well-deserving of favorable reception on the part of the public. — J. A. A.

Silloway's 'Summer Birds of Flathead Lake.'² — This is a well annotated list of 128 species observed in the Flathead Lake region of northern Montana, from June 14 to August 30, 1900, and in June and July, 1901. Of this number 120 species are thought to breed in this region, the other eight being presumably migrants from further north. The list proper is preceded (pp. 3-8) by a description of the topography of the region, which includes Sin-Yale-a-min Lake and McDonald Lake, in the Mission Mountains, as well as Flathead Lake; and also by 'Oölogical Notes from Flathead Lake' (pp. 9-36). These relate to 24 species found nesting in greater or less abundance at Flathead Lake, June 14 to July 5, 1900, and in many cases their nesting habits are described at considerable length. Under the heading 'Summary and Conclusions,' the author notes that the range of the long-tailed Chat (*Icteria virens longicauda*) has been traced to "beyond the middle line of the State" of Montana. He also refers to the abundance of the Western Evening Grosbeak in the immedi-

¹American Ornithology. For the Home and School. Edited by C. Albert Reed. Vol. I. Worcester, Mass. Chas. K. Reed, publisher. 1901. —8vo. pp. 246, copiously illustrated with half tone plates and text cuts.

²Summer Birds of Flathead Lake. By P. M. Silloway, Fergus County High School, author of 'Some Common Birds.' Prepared at the University of Montana Biological Station, under direction of Morton J. Elrod, University of Montana, Missoula, Montana, 1901. 8vo pp. 1-83, pll. i-xvi=Bulletin of the University of Montana, No. 3, Biological Series No. 1.

ate vicinity of the Biological Station, at Flathead Lake; although not found nesting, "the parent birds were generally observed feeding young of the year in the trees near the station," after about the middle of July, leading to the conclusion that the species nests later than is generally supposed. Of the sixteen half-tone plates, two illustrate the scenic features of the country at the Biological Station, near the upper end of Flathead Lake, and fourteen represent nests and eggs, including three styles of the nest of Wright's Flycatcher. The paper is a highly creditable and very welcome contribution to our knowledge of the birds of northern Montana. — J. A. A.

Shufeldt on the Osteology of Flamingoes.¹— The skeleton of *Phaenicopterus ruber* is described in detail and comparisons are made of its principal osteological characters with those of the ducks, geese, storks, ibises and herons. The conclusion is reached that the Flamingoes form "an independent group, or suborder, for which the name *Odontoglossæ* may be retained." The six plates illustrate a skeleton of *Phaenicopterus antiquorum* and the skull and other parts of the skeleton of *P. ruber*. — J. A. A.

Oberholser on a Collection of Hummingbirds from Ecuador and Colombia.²— This collection, numbering 1136 specimens, representing 109 species and subspecies, was "gathered by Messrs. Claud Hamilton and Walter Goodfellow during their trip to Ecuador and Colombia in 1898 and 1899," and is now in the possession of the U. S. National Museum. The annotations include descriptions of some of the rarer forms, and the elucidation of many questions of nomenclature, and also important field notes furnished by Mr. Goodfellow. Mr. Oberholser states that with possibly one exception, this is the finest single collection of Hummingbirds ever made. Besides containing several species of great rarity, Mr. Oberholser finds in the collection one new species and three new subspecies. He also introduces several innovations in nomenclature. — J. A. A.

Bangs on a Second Collection of Birds from Chiriqui.³— In this paper Mr. Bangs continues his account of Mr. Brown's work in Chiriqui,⁴ and

¹ Osteology of the Flamingoes. By R. W. Shufeldt, C. M. Z. S. Ann. Carnegie Museum, Vol. I, 1901, pp. 295-324, pll. ix-xiv.

² Catalogue of a Collection of Hummingbirds from Ecuador and Colombia. By Harry C. Oberholser, Assistant Ornithologist, Department of Agriculture. Proc. U. S. Nat. Mus., Vol. XXIV, pp. 309-342, No. 1258, 1902.

³ On a Second Collection of Birds made in Chiriqui, by W. W. Brown, Jr. By Outram Bangs. Proc. New Engl. Zool. Club, Vol. III, pp. 15-70. Jan. 30, 1902.

⁴ For a report on the first collection see Auk, XVIII, Oct. 1901, pp. 355-370.

covers the period from January to August, 1901. This large collection numbers about 260 species and subspecies, 12 of which are here characterized as new. "A large proportion of the mountain species," says Mr. Bangs, "are not different from the birds of the high Costa Rica mountains, although there are some striking exceptions; and the Volcan de Chiriqui is probably too near to have a mountain fauna wholly its own. Those birds that do differ usually have larger bills than their Costa Rica representatives." Although for the most part the list is a record merely of the specimens contained in the collection, with dates and localities of capture, without field notes, here and there Mr. Bangs adds technical comment on the nomenclature and relationships of some of the forms. The paper is, of course, an important addition to our knowledge of the bird fauna of this very interesting region, and great credit is due Mr. Brown for his intelligent and energetic work in gathering the material which Mr. Bangs has so discriminatingly elaborated. — J. A. A.

Seale on the Avifauna of Guam.¹ — Mr. Seale was sent to the island of Guam, one of the Mariana or Ladrone Islands, by the Bishop Museum of Honolulu to make collections of its fauna. Volume I of the 'Occasional Papers' of this Museum contains reports by Mr. Seale on the birds and fishes. The island of Guam, says Mr. Seale, "is densely wooded, except in the northwest, where there is a small range of low mountains reaching to an elevation of 1800 feet." The island is thirty-two miles long by twelve miles broad, and has a general altitude of from fifty to seventy-five feet; it has "a few small fresh water ponds and marshes, and perhaps eight to ten small streams." Mr. Seale's paper on the birds is not merely a list of the species, but is constructed on the plan of a 'hand-book,' with keys to the genera and species, as well as to the higher groups, and descriptions of the species and bibliographical references. It is intended to include all of the species known from the island, and apparently to make sure of this a few are included of doubtful or probable occurrence. Some of these have been recorded from other islands of the Mariana group, but others from points not nearer than the Samoan Islands, or merely as from "intertropical seas." In several instances included species are stated to be "not known from Guam."

The number of species formally included is 58, of which about one half appear to have been obtained by Mr. Seale, many of them in good series. There are also interesting observations on the habits of many species, and illustrations of the nests and eggs of several of them. A new species of Heron is described as *Ardetta bryani*.

The paper will doubtless prove of great use to ornithologically inclined

¹ Report of a Mission to Guam. By Alvin Seale. Part I.—Avifauna. Occas. Papers of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History, Vol. I, No. 3, 1901, pp. 17-60, pll., and 6 text figures.

persons living on the island, besides forming a valuable contribution to ornithology. — J. A. A.

Mrs. Miller's 'The Second Book of Birds'.¹— Mrs. Miller's 'Second Book of Birds'² treats briefly of twenty-eight families of the land birds of North America, beginning with the Thrushes and ending with the Vultures. Generally several typical members of each family are treated at greater or less length, their leading traits being sketched in simple language, without technicalities, the accounts being pleasantly enlivened with anecdotes of particular birds, or pairs of birds, that have come under the writer's personal observation, or derived from authentic sources. The book is thus well adapted to interest beginners in the study of ornithology, and especially to help the younger aspirants to secure some knowledge of birds and bird ways. Its influence will be eminently healthful in stimulating interest in the living bird and its welfare.

In an appendix of eight pages the characters by which the families may be distinguished are briefly given, including a few remarks on their food and habits. The twenty-four full-page plates, eight of which are colored, after designs by Mr. Fuertes, give full-length portraits of some representative species of nearly all of the families treated. Altogether the book is well designed to fill its intended rôle. — J. A. A.

Lord's *Birds of Oregon and Washington*.¹— Mr. Lord's little book on the birds of Oregon and Washington is a 'first book' in a double sense, it being the first formal treatise on the birds of these two States, and also a 'first book' in the sense that it is especially intended for beginners. It treats of about one hundred and fifty species, mostly the commoner land birds, excluding, however, the game birds. "The book is also limited," says the author, "in that it seeks mainly to help one to become acquainted with the birds by sight and song, leaving, for the most part, a treatment of the habits of birds, their nesting, etc., for later study." The book was prompted by the difficulties the author himself experienced in trying to

¹ The Second Book | of Birds | Bird Families | By Olive Thorne Miller | With eight colored plates from designs | by Louis Agassiz Fuertes, | and sixteen other full-page | illustrations | [Vignette] Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1901. — Sq. 12mo. pp. viii+210, pl. 24. Price \$1.00.

² For a notice of the 'First Book' see *Auk* XVI, 1899, p. 368.

³ A First Book upon the Birds of Oregon and Washington. A Pocket Guide and Pupil's Assistant in a study of the more common Land Birds and a few of the Shore and Water Birds of these States. By William Rogers Lord. Revised and enlarged edition, 1902. William Rogers Lord, Office of the J. K. Gill Company, Portland, Oregon. — 16mo, pp. 1-304 + i-iv, with 20 full-page half-tone plates. Price 75 cents.

become acquainted, in the absence of any such aid, with the birds of Oregon on first visiting the State a few years since.

The subject matter is arranged under seven chapter headings, with supplemental matter in the form of keys for identification, etc. Chapter V, 'How to name the Birds,' occupies about two thirds of the book, and contains brief 'general descriptions' of the species treated, consisting of a short summary of the external characters of each and a brief notice of its song and leading personal traits, followed by a more detailed or 'particular description' of its external appearance. The species are arranged in heterogeneous order, on the principle "mainly . . . of interest and discovery rather than the one of artificial classification"; but some offset to this disorder is furnished by the list of the species at the end of the book, where they are enumerated in the order of the A. O. U. Check-List.

This 'First Book' will undoubtedly prove a great help to those for whom it has been especially prepared, and the issue of a second "corrected and enlarged edition" within three weeks of the publication of the first, indicates that it is meeting with a cordial welcome from the bird-loving portion of the public in the States to which it relates. — J. A. A.

Witherby's 'Bird Hunting on the White Nile.'¹ — Mr. Witherby's little book is an interesting narrative of his experiences during a collecting trip to the Soudan in 1900, including an account of the country and the people as well as of the birds and mammals. The chapter on 'Camping and Collecting,' as well as that entitled 'Birds,' is especially instructive and entertaining. At the end of the book a nominal list is given of the birds collected or observed, and another of the mammals. A more extended and formal report on the birds was published in 'The Ibis' for 1901 (pp. 237-278). The chapters composing the present work were published serially in the journal 'Knowledge' during 1901, but their interest well warrants their republication in a more convenient and permanent form. — J. A. A.

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¹ Bird Hunting | on the | White Nile | a Naturalist's Experiences in the | Soudan. | By | Harry F. Witherby, | Fellow of the Zoölogical Society; Member of | the British Ornithological Union; Author of "Two Months on the Guadalquivir," etc. | London: | The Office of "Knowledge," | 326 High Holborn, 1902. — 8vo, pp. 117, with numerous half-tone illustrations. Price, 2s 6d.

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NOTES AND NEWS.

REV. GEORGE S. MEAD, an Associate Member of the American Ornithologists' Union, died June 18, 1901, at Antigua, Guatemala, at the age of 52 years. Mr. Mead was born in Racine, Wisconsin, and received his education at Racine College, graduating in 1867. After leaving college

he spent some time in traveling in the Eastern States. Afterwards he returned to his alma mater as a teacher, remaining until 1874 or 1875, when he took charge of St. Paul's school for boys in Baltimore. Later he returned to Racine College as master of the grammar school. Here he remained until the winter of 1881, when he first visited California. At intervals during fifteen years he was head-master of Trinity School of San Francisco, and in 1899 became rector of the school.

Mr. Mead had great love for travel, which he had ample opportunity to gratify. Besides visiting Europe a number of times, he made trips to Canada, Mexico, Central America, Alaska, Hawaiian Islands, and the South Seas, and at the time of his death was spending his vacation in Guatemala.

Mr. Mead was a deacon in the Episcopal Church and a member of the California Academy of Sciences and its Section of Ornithology. While he published but little on birds, he was well informed in the literature of ornithology, and had made a special study of the Birds-of-Paradise. He was also particularly interested in the birds of New Guinea.

Mr. Mead was a just man, a man of deep sympathy, of high intellectual attainments, a successful teacher.—L. M. L.

THE ANNUAL MEETING of the Delaware Valley Ornithological Club was held at the Academy of Natural Sciences, Philadelphia, January 2, 1902. The officers for the ensuing year were elected as follows: President, Charles J. Pennock; Vice-President, William A. Shryock; Secretary, William B. Evans; Treasurer, Stewardson Brown. During the year 1901 the average attendance was twenty-one, while forty-eight members were present at one or more meetings.

Among the papers presented were 'Economic Value of Hawks and Owls,' Samuel N. Rhoads; 'The Yellow-winged Sparrow in Eastern Pennsylvania,' Samuel Wright; 'Distribution of the Red-headed Woodpecker, Dr. Spencer Trotter; 'Observations on Summer Birds of Clinton and Potter County, Pa.' F. R. Cope, Jr.; 'Birds of the New Jersey Palisades,' S. N. Rhoads and W. B. Evans; 'Adirondack Notes,' C. J. Pennock; and 'Breeding of the Mockingbird in Eastern Pennsylvania,' W. E. Hannum and W. E. Roberts.

THE Sixth Annual Meeting of the Maine Ornithological Society was held at Augusta, Maine, November 29-30, 1901. The following officers were elected for the ensuing year: President, William L. Flower; Vice-President, H. L. Spinney; Secretary-Treasurer, A. H. Norton; Editor, J. Merton Swain; Councillors, A. L. Lane and Ora W. Knight. Besides the transaction of business, and the presentation of the President's Address, a number of papers were read, with numerous stereopticon illustrations. The Society voted to issue a new List of Maine Birds, to be prepared by Mr. O. W. Knight, and to include a map showing the faunal areas of the State. The Seventh Annual Meeting will be held at Portland, Maine, on "the Friday and Saturday following Thanksgiving, 1902."

WITH the number for January, 1902, 'The Osprey' entered upon its "new series," considerably altered in appearance and typographical make-up. The January number gives a biographical sketch, with portrait, of Sir John Richardson, the Arctic explorer and naturalist, by Dr. Gill, in addition to other papers of interest and several pages of reviews. In this number the editor, Dr. Gill, begins a 'General History of Birds,' forming a separately paged 'Supplement,' to be continued in monthly installments. The January installment consists of four pages, the February installment of eight pages, part of which, that relating to the "plumage of birds and their feathers," being contributed by Dr. Hubert Lyman Clark. The February number contains a portrait and a biographical sketch of Professor Alfred Newton.

'THE CONDOR' has also donned a new dress, appearing in a new cover design, "typifying the land of the setting sun and its lordly condor"! The usual high character of its contents is well sustained, as regards not only its abundant and excellent half-tone illustrations, but the text of each number forms an important addition to current ornithological literature.

THE SECOND edition of Dr. T. S. Palmer's 'Legislation for the Protection of Birds other than Game Birds,' forming 'Bulletin No. 12, U. S. Department of Agriculture, Division of Biological Survey,' and originally published in June, 1900, covers the changes due to legislation during 1901, and brings the subject down to January 1, 1902. The general character of this 'Bulletin No. 12,' was set forth in some detail at the time of its first appearance (*cf.* Auk, XVII, July, 1901, pp. 314-315); in the present edition the arrangement and general scope is the same, but the changes in the laws due to new enactments have not only been duly incorporated, but a special chapter has been added on possession and sale of birds, in which references are given to the more important recent decisions regarding the constitutionality of laws restricting the sale within a State of birds captured in other States. The supreme court of the State of California has declared that "the wild game within a State belongs to the people in their collective sovereign capacity. It is not the subject of private ownership except in so far as the people may elect to make it so, and they may if they see fit, absolutely prohibit the taking of it, or traffic and commerce in it if it is deemed necessary for the protection or preservation of the public good." The same principle has been upheld in other States, and lies at the very foundation of game and bird protection. The State hence has the right to regulate the seasons during which birds may be taken and possessed, and hence may declare contraband and confiscate birds taken contrary to law; and in such case, according to the courts, the owner "*has lost nothing that belongs to him*, and there has been no taking of property without due process of law or without just compensation."

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THE ELEPAIO OF HAWAII.

BY H. W. HENSHAW.

THE ELEPAIO, as the natives call the several members of the genus *Chasiempis*, is one of the most beautiful, as it is one of the most interesting, of all Hawaiian birds. Clad in modest but pleasing colors, confiding to a degree, graceful in motion and interesting in habits, it is the best known, as it is one of the most abundant, of the Island species.

In the three islands the bird inhabits, it is widely diffused, frequenting the forest almost down to the sea, where the forest reaches so far, and yet ranging far upwards towards the timber limit. The Elepaio does not migrate from place to place in search of food, but inhabits the same locality year in and year out, being apparently the last bird to forsake a tract of forest when, as often happens, encroachments of any kind have caused its abandonment by other and more sensitive species. Thus sedentary, the bird is more continuously subject to environmental influences than some other Hawaiian birds which move about more or less in search of food, and hence might be expected to differentiate into varietal forms. This, as we shall see later, is the case.

The insular distribution of the Elepaio is peculiar. Few if any of the endemic species would seem to be so well adapted to wide dispersal in the group as this little flycatcher. Its habits are a combination of the wren and flycatcher, the former decidedly predominating. The Elepaio would thus seem to be quite capable of

securing a permanent foothold, and of securing a livelihood, under conditions that might prove fatal to a flycatcher of more specialized habits.

Yet, as a matter of fact, the Elepaio occupies but three islands of the group, viz. Kauai, Oahu and Hawaii, the two oldest and the most northern of the group, and the youngest and the southernmost member. The bird is thus absent on the three middle islands, two of which, at least, are well adapted to its habits. A flight of twenty miles would carry the bird from Hawaii to Maui, and the absence of the bird from this latter island, and from Molokai, is a puzzling and interesting fact in bird distribution.

It is difficult to understand, indeed, how the bird originally reached the island of Hawaii from Oahu, the two islands being about one hundred miles apart, unless by way of the nearer and intermediate islands of Molokai, Lauai and Maui. Upon the other hand it does not seem at all probable that the bird once occupied either, or all three, of the intermediate islands, and either voluntarily abandoned them, or became extinct there.

However if final extinction was known to have followed the bird's occupancy of either one, or all three, of the above islands, it would add but one more instance to the several already known where birds seem to have found their way to, or have originated upon, the islands, to have gained a more or less firm foothold, and then to have perished off the face of the earth from no determinable cause.

That the Hawaii Elepaio is a direct derivative from the Oahu form (*gayi*) rather than from that of Kauai (*scilateri*) is highly probable. Not only is Oahu much nearer to Hawaii, but the Oahu form much more nearly resembles birds from Hawaii than does the form from Kauai. As to which of the two islands, Oahu or Kauai, was first reached by *Chasiempis* from its original home far to the southward, there seems to be no evidence, although, as Kauai is much the older island, it is permissible to infer that the bird's first foothold was there.

From the time when first described down to a comparatively recent period, the members of the genus have been the cause of much confusion to writers. This is due chiefly to the fact that the juvenile plumage differs markedly from the adult dress and,

as the bird breeds in its juvenile and transitional plumages, *i.e.*, before it is a year old, the young and the old more than once have been described as different species.

The writer is not aware that the habit of such precocious breeding is paralleled among American birds of the temperate zone, but it is common enough among Hawaiian birds and, probably, elsewhere in the subtropics and the tropics. Not only do the juveniles of the genus *Chasiempis* breed, mating with each other though perhaps more often with older birds, but the same habit is observable, though perhaps not so commonly, in the genera *Psittirostra*, *Heterorynchus* and *Phæornis*. In fact it is probable that all Hawaiian birds begin to breed at a rather precocious age as compared with their kind in the temperate zones.

With the knowledge that the juvenile and adult states of *Chasiempis* were stages of but one species, and that the change of plumage was uniform in the three members of the genus — first elucidated by Messrs. Palmer, Wilson and Perkins — the chief cause of confusion in the group was eliminated. The sequence of change from the juvenile through the transition stage to the final adult plumage is now pretty well understood, though the length of time necessary to the assumption of the final dress is not yet made out. It also remains to consider the status of the bird found upon the island of Hawaii, which is the main object of the present paper.

The island of Hawaii is divisible roughly into two parts on the basis of its rainfall, much of the windward side having a rainfall of from over 100 to nearly 200 inches a year; while the fall on most of the leeward side runs from 18 to less than 100 inches.

With such marked differences of rainfall, accompanied by corresponding differences of climate and vegetation, the ornithologist, familiar with the results of climatic variation upon American birds, will naturally expect to find similar variation among island species. The effects of lesser rainfall and of climatic changes upon the latter appear, however, to be much less noticeable than might be expected from the above bare statement of the facts.

Moreover they are probably somewhat less apparent to-day than formerly, when the forest extended nearer, though in most parts rarely perhaps, to the sea. For it is in the lowlands that the rain-

fall is comparatively small, is more irregular and varies most widely locally. This shore belt is now, and for many years has been, practically barren of native birds owing to its deforestation, the birds being chiefly confined to the middle and heavily forested region, from 1500 to 4000 feet altitude, where the rainfall and other conditions are more uniform than below.

Moreover, as above stated, several of the species move about in search of food, and although such movements are by no means the equivalent of migration as the term is usually understood, the effect is similar in diminishing, or altogether preventing, the results of continued residence the year round under similar conditions of environment. The islands, too, for the most part are so small, and the local conditions vary so widely, that a bird must be local indeed to permit of geographical variation.

In comparing series of several island species from regions of comparatively small rainfall with others having a maximum amount the difference in depth of coloration, if any, appears to be very slight. Specimens of *Chlorodrepanis virens* from the leeward side of the island seem to average somewhat paler than those from the windward side. The same may prove to be true of *Phæornis obscurus*, though at present the writer has a sufficient series of this species only from the windward side. In neither case, however, do the differences seem to be sufficient for the recognition of geographical races. It is otherwise in the case of the Elepaio.

Of this bird there are two distinct forms the habitats of which seem to conform in the main to regions of greater and lesser rainfall. On the windward side of the island, from just south of the Volcano of Kilauea to the neighborhood of Ookala, a distance of some eighty miles or more (embracing many thousand acres of deep forest) is found the form described by Dr. Stejneger as *C. ridgwayi*, the earlier described *sandwichensis* apparently inhabiting the remainder of the island.

Descriptions of the two forms are given below, but it may be briefly stated that *ridgwayi* is characterized by a rich, dark brown above, almost a chestnut, with chestnut face markings; while *sandwichensis* is of a much lighter brown above, with more white on the tail, and the chestnut face markings are mostly replaced by pure white.

In the deep forests of windward Hawaii the Elepaio is particularly abundant and, in addition to over one hundred specimens in hand, the writer has examined in the course of his field studies probably upwards of a thousand individuals; for the bird is so tame and so curious that it may be called up close to the observer and every marking may be discerned. In all the number that have come under observation, in the field and in the closet, but three individuals have been found from the region above mentioned that show traces of a white loreal stripe indicative of the other form.

Near the above named points however, Ookala on the north and the Volcano on the south, the two forms come together, and here intermediate specimens abound, not a few, indeed, being assignable with difficulty. As it is at these points that the rainfall begins markedly to lessen, the cause of the change from one form to the other, with the presence of intermediate specimens, is obvious enough.

As indicative of the part rainfall, with its accompanying changes, plays in the development of the two forms it may be mentioned that in the region above Kealekekua Bay, Kona on the leeward and dry side of the island, where the rainfall rises to over one hundred inches, perhaps ten percent of the Elepaios were found to be intermediate in coloration, the remainder being of the *sandwichensis* type.

That the chestnut-faced bird is not simply a stage of plumage of the white-faced form is sufficiently attested by the fact that it is the final adult state of all the birds in the extensive region above named, where the white-faced form does not occur at all, and is only indicated in highly exceptional cases.

A word may be added as to the names of the two forms. The description of Gmelin's *sandwichensis* was based upon Latham's 'Sandwich Flycatcher,' and seems to have been that of a young bird, or at least not of an adult, as appears from the non-mention of a white rump, always present in the adult, and the stated yellowish base of the bill, always so in the juvenile bird, never in the adult. The feet of no form of *Chasiempis* are 'black,' but always are blue, lighter blue in the juvenile stage than in the adult.

All things considered, however, it seems better to overlook the shortcomings and inaccuracies of Gmelin's description, and accept

his name, *sandwichensis*, for the white-faced form. Latham's specimen almost certainly came from the region about Kealekekua Bay, if it came from the island of Hawaii at all, as there is a reasonable degree of probability that it did.

Of the applicability of the name *ridgwayi* to the chestnut-faced form there is, of course, not the slightest doubt, although at the time he described the bird Dr. Stejneger appears to have been under the impression that this was the only form upon the island of Hawaii. For this error he is excusable enough, since the author lived more than five years on Hawaii before he saw a specimen of the other form. Indeed it would be possible for a collector to range the forests included in the rainy side of Hawaii a lifetime without making the acquaintance of the white-faced form.

Under the name of *sandwichensis* Mr. Rothschild has described both forms, he appearing to consider the chestnut-faced form an intermediate phase, of which the white-faced form is the final plumage. His figures of *sandwichensis* (opp. p. 71) afford an excellent idea of that form; while his figure of *sandwichensis* 'Fere adult' (opp. p. 75) is a fair representation of *ridgwayi*, though about the head inclining towards the intermediate stage.

As the two birds have been minutely described more than once, though never as related but distinct forms, the descriptions below are purposely made brief, though sufficient for their discrimination.

Chasiempis sandwichensis (Gm.). WHITE-FACED ELEPAIO.

Adult male.—Above olive brown, with white streakings on hind neck and middle back; forehead, lores, superciliary stripe and rump pure white; cheeks more or less blackish; wings and tail dark brown; wing-coverts black tipped with white, forming a bar across the greater coverts; under parts as in next form; less chestnut along sides of body and across breast in interrupted patches; all but middle pair of tail feathers tipped with white, the outer ones more broadly; legs and feet blue; upper mandible black with a bluish cast, cutting edge blue; lower mandible blue.

Adult female.—Similar to male but generally with less white about the head, and with whiter throat.

Juvenile.—Similar to the like state of *ridgwayi* but lighter throughout, and with the frontal and superciliary lines plainly indicated.

C. sandwichensis ridgwayi (Stej.). CHESTNUT-FACED ELEPAIO.

Adult male. — Color above dark brown with chestnut shade; forehead, lores, a line above eye and sides of head chestnut, the cheeks showing more or less black; wings and tail blackish brown; greater wing-coverts black, tipped with white, thus forming a white wing-bar; middle coverts black-tipped, interrupted with white; chin always, and sometimes most of throat, black; feathers of lower throat for a variable distance tipped with white, which color meets the chestnut of sides of head; breast, sides and flanks light chestnut; belly and under tail-coverts white; three outer tail feathers tipped with white, outer ones more broadly; legs and feet and lower mandible (save tip) blue; upper mandible black with bluish cast; cutting edge blue.

Adult female. — Above lighter brown, with chestnut tinge; all the feathers of throat usually white tipped, though, not rarely, chin black; otherwise like male.

Juvenile. — Above ochraceous brown; bright ochraceous on rump and browner on head; wings and tail dark brown; wing-coverts tipped with ochraceous; below drab gray, passing into white on abdomen; legs and feet light bluish; lower mandible, extreme tip dark brown; upper mandible brownish black.

Adult males of both forms occasionally have the entire throat black (feathers of head and throat of all adults are black at base), with perhaps a few white-tipped feathers on its lower edge. Females may usually be distinguished by the white throats, but occasionally the chin is black and, as some males that have not quite reached the final stage (it is possible that some never assume the highest stage of plumage) are similarly colored, this test is not always reliable.

In some individuals of *sandwichensis* the white on sides of neck meets the white markings on the hind neck, and thus tends to form a nearly complete white collar.

The general tints of the typical *sandwichensis* are lighter than the corresponding plumages of *ridgwayi*. Frequently there is so much white about the head of adult male *sandwichensis* that they can be distinguished as far as seen, they appearing to be white-headed.

At all seasons of the year individuals of both forms are to be found in an intermediate stage of plumage, and, as they breed in this condition, the plumage might almost be described as a definite

phase. However no two individuals are alike. The ochraceous of the rump in this phase is mixed with white, as, also, are the ochraceous wing-bars; the gray of breast and sides is brownish, or even chestnut, while the throat shows white feathers, with more or less black if a male.

In the juvenile phase there is considerable variation in the amount of ochraceous below, some having scarcely any while others are strongly tinged with it.

LIST OF BIRDS OBSERVED IN THE NEIGHBORHOOD OF WEQUETONSING, EMMET CO., MICH.,
JULY 9 TO JULY 23, 1901.

BY O. WIDMANN.

WEQUETONSING — an Indian name meaning Harbor of Rest — is a reputed summer resort in the northwestern part of Lower Michigan under latitude $45^{\circ} 30'$, thus corresponding to that of central Maine. It is one of several similar resorts clustered in a half circle around Little Traverse Bay, among them, Harbor Point and Harbor Springs on one side, Roaring Brook, Bayview and Petoskey on the other.

As the region has apparently never been examined by any recorder of birds, it is of some interest to learn what the bird fauna consists of during the breeding season. The woods, parts of which are yet in an almost primitive condition, are composed of a variety of deciduous trees with a strong admixture of pines, hemlocks and balsams. Thickets of white cedar are growing along the shore and tamaracks in a swampy place back of Harbor Springs. Not much farming is done in the immediate vicinity of the resorts except at Petoskey, which is quite a town with a considerable permanent population, while the other places are more or less deserted from the latter part of September to the middle of June.

Though under the same latitude as northern Italy and southern France the summers at Wequetonsing are very pleasantly tempered by comfortable winds from Lake Michigan with lovely evenings and cool nights. The place is also reputed for its abundance of pure and cold artesian well water. A railroad, with trains every half hour and many stopping places, connects the resorts from Harbor Springs to Petoskey, a distance of eight miles, and facilitates research very much in so far as it enables one to visit a number of points with little loss of time. Mrs. L. M. Stephenson, our esteemed associate member from Helena, Ark., has a cottage at Wequetonsing, and with her husband, the honorable Judge Marshall Stephenson, kindly helped me in the search for birds, the acquaintance of which they had opportunity to make during a number of seasons.

The list of 73 species is not only interesting for what it contains, but also for what it does not contain, since a good many southern species which might be expected are not represented, while others said to be common in northern Michigan are equally absent from the list.

1. *Larus argentatus smithsonianus*. AMERICAN HERRING GULL.—Herring Gulls in adult and juvenile plumages could daily be seen plying over the bay with headquarters on stakes in the bay outside of Harbor Point where seventeen were counted July 18, mostly in immature dress.

2. *Ardea herodias*. GREAT BLUE HERON.—Only once seen; an early morning visitor to the bay, 3.45 A. M., July 10.

3. *Actitis macularia*. SPOTTED SANDPIPER.—At least a dozen were scattered along the beach with headquarters on the sandbar at the Harbor Point lighthouse.

4. *Ægialitis vocifera*. KILLDEER.—Parties of 4 and 7 were frequenting the meadow and pasture between Weque and Roaring Brook.

5. *Bonasa umbellus*. RUFFED GROUSE.—A hen with chicks in wood near the Indian village, July 13.

6. *Circus hudsonius*. MARSH HAWK.—A female flying over baseball grounds at Weque, July 10.

7. *Accipiter cooperii*. COOPER'S HAWK.—Only once seen, July 9.

8. *Buteo platypterus*. BROAD-WINGED HAWK.—Nest in wood near golf links, where its piercing *re'ee* could be heard whenever somebody approached its nest.

9. *Pandion haliaëtus carolinensis*. AMERICAN OSPREY.—Repeatedly visited the bay flying up and down near shore in early morning.

10. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.—Seen in two places, carrying food in bill.

11. *Ceryle alcyon*. BELTED KINGFISHER. — Daily seen along bay, but never more than one individual.
12. *Dryobates villosus*. HAIRY WOODPECKER. — In two places only; large birds.
13. *Dryobates pubescens medianus*. DOWNY WOODPECKER. — Very few individuals met with.
14. *Sphyrapicus varius*. YELLOW-BELLIED SAPSUCKER. — Only one family met with; Walloon Lake, July 17.
15. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER. — Only one adult bird seen, West Weque.
16. *Colaptes auratus*. FLICKER. — The only common and generally distributed woodpecker.
17. *Cordeiles virginianus*. NIGHTHAWK. — A few every evening and sometimes in the morning.
18. *Chætura pelagica*. CHIMNEY SWIFT. — Not very numerous, but generally distributed, often singly or in twos, young ones not on wing yet.
19. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD. — Single individuals seen in different localities.
20. *Tyrannus tyrannus*. KINGBIRD. — One of the common birds.
21. *Myiarchus crinitus*. CRESTED FLYCATCHER. — Only two pairs, in deadenings.
22. *Sayornis phæbe*. PHEBE. — In four places.
23. *Contopus borealis*. OLIVE-SIDED FLYCATCHER. — In two places; in tamarack swamp and between Wequetonsing and Harbor Springs.
24. *Contopus virens*. WOOD PEWEE. — One of the common birds in all woods; feeding fledged or nearly fledged young.
25. *Empidonax traillii alnorum*. ALDER FLYCATCHER. — In three places. Weque, Harbor Springs and Walloon Lake.
26. *Empidonax minimus*. LEAST FLYCATCHER. — Once only; on cultivated land north of Weque.
27. *Otocoris alpestris praticola*. PRAIRIE HORNED LARK. — On field north of Harbor Springs.
28. *Cyanocitta cristata*. BLUE JAY. — Quite common.
29. *Corvus americanus*. AMERICAN CROW. — Common.
30. *Molothrus ater*. COWBIRD. — Common in small troops, mostly young birds feeding in the streets with the House Sparrows; also young out of nest fed by foster parents (Chestnut-sided Warbler at Roaring Brook and Weque; Redstart at Emmet Beach).
31. *Agelaius phœniceus*. RED-WINGED BLACKBIRD. — Noticed but once at Menonaqua Beach.
32. *Sturnella magna*. MEADOWLARK. — Only a few in two or three places.
33. *Quiscalus quiscula æneus*. BRONZED GRACKLE. — A few came to the shore at West Weque, Harbor Springs and Kegomic to gather and carry away food.

34. *Carpodacus purpureus*. PURPLE FINCH. — Its beautiful song heard and several pairs located in immediate vicinity of cottages in several of the resorts, but not a common bird.

35. *Passer domesticus*. HOUSE SPARROW. — Common except at Weque where no nuisances are tolerated. (Neither horse, cattle, dog or cat are allowed to be kept on the association grounds.)

36. *Astragalinus tristis*. AMERICAN GOLDFINCH. — The most conspicuous species during my stay, being everywhere heard and seen, singing, mating, flying, building.

37. *Poœcetes gramineus*. VESPER SPARROW. — Common on farmland, singing much, especially morning and evening; feeding fledged young on fence, also newly hatched in nest by roadside.

38. *Ammodramus sandwichensis savanna*. SAVANNA SPARROW. — One pair (male singing) at Petoskey near water reservoir.

39. *Zonotrichia albicollis*. WHITE-THROATED SPARROW. — One of the common birds on low ground, singing much.

40. *Spizella socialis*. CHIPPING SPARROW. — Numerous around cottages in all resorts; grown young.

41. *Junco hyemalis*. SLATE-COLORED JUNCO. — Pretty common; nesting near dwellings as well as in open woods; had fully grown young and busy with second brood. Occurring on same ground as Chippy, their songs can here be easily compared. Mr. Stephenson found three nests, each one containing only two incubated eggs or newly hatched young.

42. *Melospiza melodia*. SONG SPARROW. — An abundant and prominent songster in and out of towns; seen and heard at all hours of the day. Nest with three small young in lawn only a few yards from occupied dwelling, July 14.

43. *Pipilo erythrophthalmus*. TOWHEE. — Apparently not common. Only a few noticed.

44. *Cyanospiza cyanea*. INDIGO BUNTING. — One of the common and generally distributed songsters.

45. *Piranga erythromelas*. SCARLET Tanager. — Fairly common and a prominent songster during my stay.

46. *Progne subis*. PURPLE MARTIN. — A small colony at Harbor Springs and a larger one at Petoskey.

47. *Hirundo erythrogaster*. BARN SWALLOW. — Conspicuous about the piers at Weque and Petoskey, and especially numerous at Harbor Springs where they were still feeding young in nests under the piers, while the young of the first brood were fully grown, flying about or resting on roofs and wires. Four nearly grown young in a nest less than 12 feet from ground under the roof of the platform at the Petoskey R. R. station were constantly fed by the parents in the presence of scores of persons waiting for the trains. July 22.

48. *Tachycineta bicolor*. TREE SWALLOW. — Two among the other swallows at Harbor Springs, July 19.

49. *Clivicola riparia*. BANK SWALLOW. — Hunting in small troops

over the bay with headquarters at Harbor Springs, where sometimes over a hundred swallows congregated on the wires at the steamboat landing.

50. *Ampelis cedrorum*. CEDAR WAXWING. — Next to the Goldfinch the most restless bird of the region at this particular time, frequenting treetops for flycatching; small parties dissolve into pairs; nest building July 10.

51. *Vireo olivaceus*. RED-EYED VIREO. — Locally called the Preacher; the most industrious songster of all the woods adjoining the resorts, heard at all hours of the day.

52. *Mniotilta varia*. BLACK AND WHITE WARBLER. — Fairly common in the woods; still in song; had grown young.

53. *Helminthophila rubricapilla*. — NASHVILLE WARBLER. — Found in three places along tamarack swamp; singing yet.

54. *Dendroica aestiva*. YELLOW WARBLER. — None at Weque, but fairly common and in song at Kegomic, Bayview and Petoskey.

55. *Dendroica caerulescens*. BLACK-THROATED BLUE WARBLER. — Pretty common in all woods, where its song was heard at all times of the day and the singing male could be easily detected; female seen but twice; fully grown young July 19.

56. *Dendroica maculosa*. MAGNOLIA WARBLER. — Only one pair located at edge of tamarack swamp, where male was still in song July 22.

57. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER. — Fairly common and in song, though feeding grown young out of nest; also feeding grown Cowbird at Weque and Roaring Brook.

58. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER. — Found wherever hemlocks occur; song repeatedly heard and parents seen feeding grown young in treetops.

59. *Dendroica virens*. BLACK-THROATED GREEN WARBLER. — Common in all the woods, occurring together with the Black-throated Blue Warbler and both songs were generally heard together. Fully grown young fed by both parents July 11.

60. *Seiurus aurocapillus*. OVENBIRD. — The Ovenbird, by some called the Teacher, together with the Preacher (*Vireo olivaceus*), filled the woods with song in the early morning hours. It is one of the commonest woodland birds and fed grown young July 14.

61. *Wilsonia canadensis*. CANADIAN WARBLER. — Only in one place, Roaring Brook, feeding young July 20.

62. *Setophaga ruticilla*. AMERICAN REDSTART. — Fairly common songster; most numerous near Emmet Beach, where old males are unusually dark and have a peculiarly shrill song. Old male feeding grown Cowbird July 14.

63. *Galeoscoptes carolinensis*. CATBIRD. — Generally distributed, but not very numerous and song seldom heard.

64. *Harporhynchus rufus*. BROWN THRASHER. — Somewhat more numerous than the Catbird, but song heard only a few times; both species fond of service berries.

65. *Troglodytes aëdon*. HOUSE WREN. — One of the most familiar and, next to the Robin, the best known bird of the resorts, especially at Wequetonsing, where it is held in undeserved esteem, being the rascal who, unsuspected, destroys other birds' eggs from sheer wantonness.

66. *Anorthura hyemalis*. WINTER WREN. — A fairly common inhabitant of all the woods, but much oftener heard than seen, his shrill, unmusical song reaching far through the quiet woods. Had fully grown young.

67. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH. — Only a few individuals were noticed, occurring on same ground as the Red-breasted Nuthatch.

68. *Sitta canadensis*. RED-BREASTED NUTHATCH. — Met with in several places near Harbor Springs and at Roaring Brook; leading grown young July 12.

69. *Parus atricapillus*. CHICKADEE. — Pretty common; moving in family groups.

70. *Hylocichla fuscescens*. WILSON'S THRUSH. — Quite common and song often heard in early morning.

71. *Hylocichla aonalaschkæ pallasii*. HERMIT THRUSH. — Common and in full song, though feeding fledged young.

72. *Merula migratoria*. AMERICAN ROBIN. — The most conspicuous and best liked bird of the resorts, remarkably abundant and confiding, building nests on porches. Begins to sing at 3.45 A. M. with the House Wren, Song and Chipping Sparrows.

73. *Sialia sialis*. BLUEBIRD. — Fairly common on the farmland adjoining the resorts.

BIRDS OF THE ISLAND OF CARRIACOU.

BY JOHN GRANT WELLS.

Part I. Water Birds.

CARRIACOU, a dependency of the Island of Grenada, is situated about twenty miles north of that island. It is mountainous, the highest peak, High North, being 980 feet, and next in height comes Chapcau Carré, to the southward, 960 feet. There are several natural harbors, notably Tyrell Bay, from which extends a deep lagoon where ships are docked for repairs, and where delicious oysters are obtained from the roots of the mangrove

trees on its borders. The hills have been much denuded of trees for the purpose of shipbuilding, many small craft, of from five to fifty tons, being continually built here. The island has an area of about thirteen square miles, and a population of 7000. There are no running streams in the island, the water supply being derived from a few natural springs and wells; rain water is also collected in tanks and ponds.

The following account of Carriacou, written in the year 1774, may prove of interest:—

“Cariouacou (its Carib name), about 20 miles in compass, and by those who should be best acquainted with it, represented as one of the fairest and finest spots in this part of America, enjoying a climate equally wholesome and pleasant, a soil wonderfully fertile, abounding with valuable timber, as well as fine fruit trees. But what distinguishes it most, and which induced more than one recommendation to the French Court, is its having a harbor as safe, as spacious, and as commodious as any that this part of the world can boast, and communicating by a narrow, though a deep channel, with a Lagune, in which, without any assistance from art, ships may careen very conveniently.”

Owing to the absence of forests in Carriacou, many of the birds found in the neighboring islands of St. Vincent and Grenada are not represented, but on the other hand, there being a large area of swamps and marshes, numbers of the aquatic and wading varieties are to be found, and the extensive pastures on the coast tempt many of the migratory species to visit the island, some stragglers of which remain all the year round. The low, scrubby ‘bush’ of the hillsides and the cultivated fields of pigeon peas and Indian corn, afford food and shelter to most of the resident birds, whilst the cliffs on the southern and southwestern sides of the island, as also the rocky islets off the coast, are the homes of numerous waterfowl.

From observations extending over a period of six years, I find that there are 39 resident birds and 33 migratory, or “partial residents,” thus comparing favorably with the larger island of Barbados, from which 82 species are recorded, of which only 15 are resident.

1. *Podilymbus podiceps* (*Linu.*). GREBE; DIVER.—This bird is not numerous; one or two may occasionally be found in the Lauriston and Union Swamps. It is very shy, and will dive immediately on the approach of any one, and as it is capable of remaining a considerable time under water, and has the habit of rising and just keeping its bill above the surface, it can easily evade notice.

2. *Larus atricilla* *Linu.* LAUGHING GULL; MAUVE.—This gull is a familiar figure all round the coast of the island; large flocks may often be seen sitting on the water, or attending the flocks of Pelicans and demanding their share of each bird's catch, which they often take from the mouth of the pelican, uttering their laughing cry all the while, which the fishermen declare to be *half, half, half*. As these gulls cannot dive, they have to depend for their food on the shoals of sprats and fry that come up to the surface, and they have been known to take large bites from the backs of a fish called corvally which swims near the surface in large numbers. After heavy falls of rain, when the pastures are covered with numerous rain pools, these gulls resort to them in numbers and feed on the earth worms which swarm in the pools; this may often be seen, especially in the Beausejour pasture. The birds are very fearless and tame and will allow any one to approach them quite closely; if one of the birds should be shot and wounded, others will hover over and around it, with cries of distress. They breed on the islets, Isle-de-large being a favorite one, in the months of May and June. No nest is made, the eggs, three to four, being laid on the bare rocks in little depressions, and occasionally in a tuft of grass. The nests are sometimes so numerous and close together that one can hardly walk about without treading on the eggs. When the young are hatched the parent birds go out at an early hour, with much noise, to their feeding places; about 5 A. M. they commence to fly in large numbers from Isle-de-large over Hermitage to the bays on the western side, and from 4 P. M. to dusk they keep returning, laughing and calling to each other all the while. They sometimes fly so low across the yard that they might be caught with the hand or struck with a stick.

The eggs, generally three and occasionally four in number, are dark buff with splashes of brown, sometimes forming a ring round the larger end; they measure 2.30×1.85 , 2.15×1.70 , 2.45×1.75 .

3. *Sterna maxima* *Bodd.* ROYAL TERN.—This beautiful bird is not numerous; seldom more than four or five are seen at a time, fishing and uttering occasionally a harsh grating note. They are fond of perching on buoys or floating bits of wood, the little logs which serve to mark the fish-pots being a favorite roost for them. They breed on the rocks; but I have hitherto been unsuccessful in procuring their eggs. As I write there are a few of them fishing in Hermitage Bay; it is interesting to watch their quick plunges at the fish.

4. *Sterna dougalli* *Montag.* ROSEATE TERN; CARRECT.—A few years ago these birds used to frequent Jack-a-dan Island, off the Port of

Hillsborough, in large numbers; they also used to breed there, but for some reason they have now deserted it, and seem to have made Frigate Island and Rose Rock their nesting places. I have taken their eggs there in May.

The habits of this bird are peculiar. It is most amusing to see them drop down perpendicularly into the sea and plunge under the surface and up again immediately with a small fish. They fish in flocks, and generally roost on the rocks about midday for a rest. Their note is a kind of screech.

The eggs are two in number, generally laid on the bare ground, but sometimes in a grass tuft.

5. *Sterna fuliginosa* *Gmel.* SOOTY TERN; TWAR-OO.—This bird is not abundant in Carriacou, though it breeds in numbers on the islets between this island and Grenada; a few may be seen at Bonaparte Rocks and Isle-de-large.

6. *Sterna anæthetus* *Scop.* BRIDLED TERN.—Numerous at all the little islands, notably at Rose Rock where they nest in colonies during the month of May, where I have taken several clutches of eggs. It is a graceful bird, swift of wing, and is sometimes met with far out at sea fishing, and occasionally sitting on the water in flocks like the Laughing Gull. Like the other members of the same family, they make hardly any nest, a tuft of grass, or a depression in the rock serving as a place for depositing its eggs. These are two in number, light grayish buff with dark brown spots and blotches. They measure 2.12×1.37 , 2.00×1.37 .

7. *Anous stolidus* *Lin.* NODDY TERN; MWEN.—These birds are to be met with all around the island, they nest at Isle-de-large, Rose Rock and White Island. At the eastern end of White Island is a conical hill where the Noddy congregates in large numbers. The hill is honey-combed and is just the place for it to deposit its eggs. I have taken several sets of eggs at Rose Rock and Isle-de-large in May; the colony at White Island is inaccessible.

The Noddy is not quite so stupid a bird as he has been described by some writers; it is true that he seems and looks very foolish whilst sitting on his nest, and one would imagine he could be taken by the hand, but just as you expect to hold him he will administer a sharp peck to your hand and fly away, leaving his nest to be despoiled.

The eggs are usually placed in a hole or depression in the rock, and contain from two to three eggs, of a pale gray, thickly spotted with brown.

8. *Puffinus auduboni* *Finsch.* DIABLOTIN.—Though not often seen, as it seldom leaves its hole in the daytime, this bird is very numerous, and lives in holes and under the rocks on most of our little islets, issuing forth at dusk to fish and returning at dawn. They make a most unearthly noise when leaving and returning to their nests, hence the name given to them by the fishermen, which literally means 'little devil.' Bonaparte Rocks are a favourite abode of these birds. When the young arrive at a certain stage they become simply a ball of fat enclosed in down; it is

then that the fishermen take them in large numbers and after salting and drying them, they are taken to the different markets in Grenada where they are readily bought and appear to be much relished by certain people. The following account of my discovery of this bird on Labaye Rock in April, 1888, will give a good description of it and its breeding habits.

About eight years ago numbers of dried birds used to be brought into the market at Grenville for sale; they were young birds and very fat. The men who sold them said they were the young of the Diablotin, and were caught in holes, on a small island to the eastward called Mouchoir Quarre. I endeavored to procure a live one but without avail, and in fact so many improbable stories were told concerning this bird, that I looked upon the 'Diablotin' as a myth, and concluded that the dried birds were the young of some species of gull. My interest in the matter has, however, been recently revived. On Easter Monday, 2nd April, 1888, I paid a visit to a small islet called Labaye Rock, about a mile off the Port of Grenville, a place where I had been on many previous occasions. On exploring the Rock, a young bird was discovered in a hole under a stone; it was covered with down, in fact it seemed like a ball of fat enclosed in down. One of the boatmen pronounced it to be a young Diablotin. This caused me to make a thorough search, with the happy result that I found an adult bird with a young one in one hole, and a full-grown female and one egg in another. The birds on being brought out into the light appeared to be quite foolish, and beyond a feeble attempt to bite seemed to make no effort to escape. I kept them alive for some days; they would take no food during the day, remaining perfectly quiet, but at night they fed on scraps of fish, and at intervals uttered a peculiar cry resembling a cat-howl. They evidently lay but one egg, as only one young was found in each nest, and the egg which I got was highly incubated; it is of a dull white color and measures 2.00×1.37 .

Col. Feilden discovered this bird breeding in Barbados about the same time, and Dr. Bryant's account of its breeding in the Bahamas, including size of egg, agrees closely with my account of the same.

9. *Oceanites oceanicus* (*Kuhl*). MOTHER CAREY'S CHICKEN.—This bird, which never appears to rest at all, is sometimes seen following in the wake of a sloop, especially if the winds are high, and a stormy sea running; it skims the tops of the waves, then sails down the hollow to mount the next, being quite at home 'on the ocean wave.'

Its breeding habits have not been determined owing to its rarity, and the fact of its not being seen to roost anywhere.

10. *Phaëthon æthereus* *Linnaeus*. TROPIC BIRD; PAILLE-EN-QUEUE; BOAT-SWAIN.—This is a bold, strong bird, and it takes long flights, being met with many miles out at sea. It is remarkable for the long tail feathers, which have earned for it one of its local names, Paille-en-queue, or straw-in-tail. It frequents Frigate Island and Rose Rock, from which I have taken its eggs. It lays but one egg, placed in a deep hole. The bird is often taken alive whilst sitting, as it has no means of escape if the hand

is thrust into the hole, though it can administer a severe peck with its powerful beak, as I know from personal experience.

The egg is a large one, of a dull purple brown thickly scribbled and spotted with dark purple and brown.

11. *Sula sula* (Linn.). BOOBY; FOU.—This bird is not numerous in Carriacou, though large numbers of them inhabit Kik-en-jenny, a rock about ten miles distant; a few of them are seen in the bays around the coast. They are magnificent divers, plunging into the sea like a wedge and emerging a short distance off like a flash, and it is seldom that they miss their prey. They lay one egg only, on the bare ground; the egg is white.

12. *Pelecanus fuscus* Linn. BROWN PELICAN; GRAND-GORGE.—Very numerous all around the coast, in flocks of 5 to 50, sometimes sitting quietly on the water, or hovering over a shoal of sprats and diving one after the other with loud splashes. They turn right over when they dive, and on emerging from the water they elevate their bills and shake the fish from the pouch down their throats. It is whilst doing this that the Laughing Gull steals any little fish that shows from the pelican's bill, often perching on the pelican's head to enable it to reach the fish easier. I was under the impression that they nested on some of the outlying rocks, but have now determined that they resort to the coast of Florida to breed, during the months of February, March, and April. In May and June they begin to return in numbers, and the young of the year are easily distinguished by the lighter gray color and yellow 'down' on the head. They are 'early birds' at their fishing; from about 5 A. M. they may be seen diving, and some remain fishing until dusk. They roost both on trees and on the rocks. The flesh of the young birds is not to be despised as food, but the old birds are too fishy, though I have seen them eaten with avidity, after being skinned, by the people in the small islands. The skin of the breast is beautiful and makes elegant little mats for the table, and I have seen them made into caps; the pouch can be made into bags for tobacco and has been used to cover a small drum or tambourine.

13. *Fregata aquila* (Linn.). MAN-O'-WAR BIRD; FRIGATE.—This remarkable bird is a familiar figure; two or three may often be seen sailing majestically over the land, sometimes so high as to appear like black specks. They often hover over the sea and dart down to pick up fish near the surface (as they do not dive), or watch the Boobys fishing, ready to rob them of their prey. It is astonishing how quick this large bird is in its movements; it will pounce upon a booby that has secured a fish and is flying off with it, cause it to disgorge, and the fish will fall, but long before it can reach the water the Man-o'-war Bird has caught it. They may frequently be seen fighting in the air, particularly the old males, which are easily distinguished by the scarlet gular pouch; they fight desperately, opening and shutting the long forked tail like a pair of shears and uttering a grating cry.

They nest in colonies at Kick-en-jenny. They build a large platform of sticks on the figeur trees, and lay but one egg.

14. *Anas boschas* Linn. MALLARD.—A rare migrant that visits the island occasionally; I have shot one at Lauristan swamp, the only one seen.

15. *Nettion carolinensis* (Gmel.). GREEN-WINGED TEAL.—Numbers of these ducks arrive here in October and frequent the swamps and ponds; some of them remain till March when they become quite fat and are excellent for the table. They afford fine sport; I have shot numbers of them at Lauriston Pond, from January to March. A straggler or two may remain, but they generally leave before the middle of April.

16. *Querquedula discors* (Linn.). BLUE-WINGED TEAL; CERCELLE.—This little duck arrives in September and October, and flocks of 10 to 20 may be seen in the mangrove swamps; they also frequent the rain pools in the pastures and some of the ponds; they afford good sport and are in fine condition in the months of February and March. A few of them remain all the year, but I have no authentic account of their breeding here, though they do breed at Isle-de-Rhoude.

17. *Eristatura jamaicensis* (Gmel.). RUDDY DUCK; RED DIVER.—This duck is a resident, and breeds in Lauriston Pond. I have taken their eggs in January. The bright blue bill and chestnut plumage of the male bird make it conspicuous. They are very difficult to shoot, as at the least motion of the sportsman they will disappear under water, just sinking down as they sit, not diving like other ducks; they remain down a long while and will come to the surface a long way off, quietly appearing to rise up in the same manner as they sunk out of sight; and they will sink again immediately if they see anything suspicious. The female is of a sober mottled brown color.

18. *Ardea herodias* Linn. LARGE HERON; CRABIER MONTAIGNE.—This bird is not a resident; seldom more than one is seen at a time, though in October, 1896, after heavy rains and strong south winds, I saw eight of them in Harvey Vale pasture, which was then covered with water. They appeared to be young birds and to have alighted here owing to the stormy weather, as they had disappeared on the next day when the weather was clear. I shot a fine specimen at Frigate Island in May.

19. *Ardea candidissima* Gmel. WHITE GAULIN.—This bird is not common in Carriacou. I have observed but a few of them, and have not, of course, succeeded in procuring their eggs.

'White' Gaulins are numerous at certain seasons, but they are the young of the Blue Gaulin.

20. *Ardea cærulea* Linn. BLUE GAULIN.—A common bird wherever swamps or rain pools occur. They nest on the small islets; several nests are occasionally placed on the same tree. The nest is only a platform of dry sticks, through which the eggs can be seen from below. Their eggs are two and sometimes three or four in number, of a beautiful bluish green, and measure 1.66×1.32 .

The young are pure white, and attain full size before the change of plumage takes place; then they may be observed in all stages of the transition, from a few blue feathers to a few white, until the pure blue slate of the adult is reached.

21. *Ardea virescens* *Linn.* HYALLEE; LITTLE CRABIER.—Numerous about the swamps. It is a prettily marked bird, and the deep orange color of the legs makes it conspicuous as it takes wing on being flushed.

Nest, a few dry sticks, in which are laid two blue-green eggs, measuring 1.42×1.10 to 1.32×1.02 .

22. *Nycticorax violaceus* (*Linn.*). CRABIER; NIGHT HERON.—This bird is numerous in Carriacou; bold and fearless, he is found all round the coast, and at night its loud *quok* is rather startling to the timid traveler.

It nests in the mangroves, laying three blue-green eggs, measuring 2.10×1.48 to 2.12×1.50 .

23. *Porzana carolina* (*Linn.*). SORA RAIL.—This bird is a migrant, but a straggler or two may remain during the year. It is a lively little bird, generally found on the borders of the ponds and rain pools; its habit of flicking up its tail attracts attention to it.

24. *Ionornis martinica* (*Linn.*). PURPLE GALLINULE; HASCAMIOL.—Very numerous at Isle-de-large and Saline Island; a few seen about the ponds at Carriacou. They are caught in fish-pots baited with corn, and also by dogs. They are smartly colored birds, their purple, green and brown plumage, red bill and bright yellow legs, making them conspicuous. They do damage to the Indian corn, as they climb up the stalks and eat the ears; they also climb and eat plantains and bananas.

25. *Gallinula galeata* (*Licht.*). RED-HEAD WATERFOWL.—The large extent of mangrove swamps in Carriacou, the natural home of this bird, makes it very abundant; its note may be heard from morn to eve as one rides along the road between Lauriston and Hillsborough. On entering the swamp numbers may be seen, some with a brood of six or eight chicks swimming behind her; they all make for cover amongst the roots of the mangroves at the least alarm.

The bright red frontal shield of this bird, and the white feathers under the tail, which it keeps flicking up whilst it swims, are conspicuous.

The eggs, from 4 to 6 in number, are light buff splashed with brown.

26. *Fulica americana* *Gmel.* COOT; WHITE-HEAD WATER-FOWL.—This bird is excessively shy, and will dive on the least alarm, and continue diving until security is reached in the rushes or roots on the borders of the swamps, which are its home. I have seen as many as fifty of these birds in Lauriston swamp during the dry season, when only a small quantity of water remains in the deepest pool; here they congregate and may be shot in numbers, by creeping to the borders before sunrise. As a rule they dive at the report of the gun, but many will skim along the surface of the water leaving a wake behind, and occasionally one will rise, on the wing. They build a thick nest of water weeds, the bottom often resting on the water; the eggs number from six to eight.

27. *Gallinago delicata* (Ord). WILSON'S SNIPE.—Rare migrant, seen during September and October.

28. *Micropalama himantopus* (Bonap.). STILT SANDPIPER.—A few arrive during migration.

29. *Tringa maculata* Vieill. PECTORAL SANDPIPER; GRASS BIRD.—Arrive in considerable numbers at the end of September and during October; they frequent the pastures, become very fat, and are excellent eating.

30. *Tringa minutilla* Vieill. LEAST SANDPIPER.—A few visit the island in September.

31. *Tringa ferruginea* Brünn. CURLEW SANDPIPER.—Small numbers arrive in September and October.

32. *Ereunetes pusillus* (Linn.). SEMPALMATED SANDPIPER.—Large numbers arrive from August to October; frequent the mud flats and sea-shore; stragglers may be seen up to May.

33. *Calidris arenaria* (Linn.). SANDERLING.—A few visit the island during migration.

34. *Limosa fedoa* (Linn.). MARBLED GODWIT.—A rare migrant; one or two arrive with the first flight of Yellow-legs.

35. *Totanus melanoleucus* (Gmel.). LARGE YELLOW-LEGS; PIKER.—Large flocks arrive in September and October; they afford good sport, and are relished at the table.

36. *Totanus flavipes* (Gmel.). SMALL YELLOW-LEGS.—Large numbers at usual migration season; stragglers may be seen all the year through.

37. *Symphemia semipalmata* (Gmel.). WILLET.—An occasional visitor during migration.

38. *Bartramia longicauda* (Bechst.). COTTON-TREE PLOVER.—Small numbers arrive during September and October; they are very shy, and run along the ground very fast; they afford good sport and are excellent for the table.

39. *Actitis macularia* (Linn.). SPOTTED SANDPIPER.—Arrive from August to October; a few stragglers remain all the year round; frequent the sea shore, and mud pools.

40. *Numenius hudsonicus* Lath. LARGE CURLEW.—A few of these visit the island during migration; have shot them at Grand Anse swamp.

41. *Numenius borealis* (Forst.). CURLEW.—Comes in with the Plovers, but remains for only a few days.

24. *Charadrius squatarola* (Linn.). GRAY PLOVER.—Small numbers arrive in September and October.

43. *Charadrius dominicus* Müll. GOLDEN PLOVER.—Large numbers of this game bird used to visit the island, but now that the pastures are being neglected and allowed to be overgrown with accacia, they are becoming fewer every year, and will probably cease to alight here in future. They afford fine sport, and after a few weeks become very fat and are considered a great delicacy.

44. *Ægialitis vocifera* (Linn.). KILLDEER PLOVER.—A rare migrant, seldom more than one seen.

45. *Ægialitis semipalmata* (Bonap.). RING-NECK PLOVER.—This pretty little bird arrives in August and September; it frequents the sand-beach in flocks of three to six, and runs along at considerable speed, uttering its plaintive call note.

46. *Arenaria interpres* (Linn.). TURNSTONE.—Numbers arrive at the migration season; they frequent the seashore, and may be found amongst the débris cast up by the sea. A few remain all the year. I have seen them on the sands of Dumfries and Belvue South at all seasons, and also on the mud flats at Grand Anse. I observed one at the lagoon perched on the mangrove roots eating small oysters.

(To be concluded.)

NOTES ON THE SPECIALIZED USE OF THE BASTARD WING.

BY WM. HUBBELL FISHER.

Plate VIII.

IN A book entitled 'The Structure and Life of Birds,' by F. M. Headley, M. A., F. Z. S., published by Macmillan & Co., London and New York, 1895, the author states that he saw a pigeon "when checking his speed in air, lift the bastard wing so that daylight was visible between it and the long feathers, this petty appendage jutting out and impudently spoiling the beautiful line of the front margin of the wing from tip to tip." He further says that "this curious phenomenon may be seen if you stand at the British Museum (the Antiquarian Department at Bloomsbury), as the pigeons which are usually feeding in large numbers in the front fly up and settle overhead on the pediment." He adds that "in Muybridge's photographs of the Cockatoo, on the wing, both bastard wings may be seen to be slightly raised, for what purpose it is hard to say. In the pigeon, they project during a vigorous stroke, but I have seen no other bird use them either for stopping or striking." On page 254 of his work, figure 65, Mr. Headley

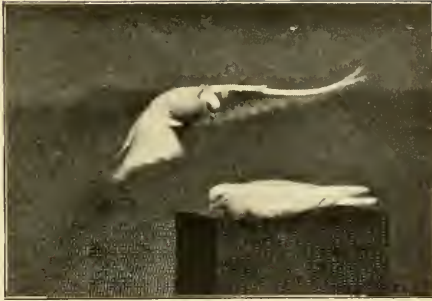


FIG. 1. PIGEON SHOWING BASTARD WING IN FLIGHT.



FIG. 2. STORK SHOWING BASTARD WING IN FLIGHT.

furnishes a drawing from a photograph of Ottomar Anschutz, showing the bastard wing extending during a down stroke.

While in Europe last summer, at Munich, I procured a number of instantaneous photographs of pigeons in flight, and also a number of instantaneous photographs of storks (*Ciconia alba*) in flight. All of these were taken by Ottomar Anschutz. One of these photographs of pigeons shows a bird descending. This photograph appears to be a different one from that which is proffered by Mr. Headley, but the pigeon clearly shows the bastard wing raised and projecting forward. The pigeon is evidently about to alight on what appears to be a box, and is checking his flight either by his outstretched wings held rigidly, or the wings are used to back air, as an oarsman backs water. From my observations of pigeons, in alighting, I am of the opinion that the bird is no doubt bringing his wings rapidly forward at the moment when photographed, as he is too near the perch to deem it likely that he was using the soaring position. I here submit the figure. (Plate VIII, Fig. 1.)

Among the photographs of the stork which I procured, was one of a stork descending to its nest. In this (Plate VIII, Fig. 2) the stork's wings are extended and spread to their full capacity.

One interesting feature of the picture is the bastard wings, each of which is extended forward away from the rest of the wing and spread to the full extent of its capacity. I am not positive whether the wings were in motion when this photograph was taken, or whether the wings were being held stationary. That the wing is not being raised is evident, because the tips of the primary feathers are bent backward. It is very interesting to note that in at least two different orders of birds, namely: Columbæ and Herodiones (and Psittaci?), we find pronounced and emphatic use of the bastard wing, and in the same or allied phases of flight, namely: in that or those which belong to the descent, and at that part of the descent when the bird is very near the place upon which it is to alight.

PLUMAGE-CYCLES AND THE RELATION BETWEEN
PLUMAGES AND MOULTS.

BY JONATHAN DWIGHT JR., M. D.

THE plumage-cycle of a species is the series of successive plumages that are peculiar to the species, or it may be said that the several plumages of the young bird together with those of the adult, make up a plumage-cycle. If plumages are viewed in the natural sequence in which they succeed one another, it will be found that plumage-cycles of species vary in many details difficult to put into words, for with broadening knowledge of the subject we find that many familiar terms are inadequate. They have lost definiteness of meaning through careless use, or they have outgrown their early significance or they have been paraphrased into a host of synonyms, in any or all of these ways occasioning much confusion of ideas. Ornithology seems to be lagging behind other branches of zoölogy in the slow movement towards exactness of statement and of language, and many of the vague ideas that prevail regarding the relation of plumage to moult need to be reduced to exact terms. Some steps have already been taken in this direction, and perhaps many more need to be taken before we shall reach a firm foundation on which to build an adequate system of plumages and moults, but it seems to me the time has arrived when the prominent facts admit of a more accurate grouping than has hitherto been attempted.

Most of us are so committed to the old idea of seasonal plumages and seasonal periods of moult, that it is in the nature of a shock to realize that the seasonal idea fits neither birds of the tropics nor those of temperate regions. We are accustomed to think of the 'summer' and 'winter' dress of birds as if they all changed their feathers twice in the year. While these adjectives of season may apply to birds that actually do moult twice in the year, we are at present without a suitable word to express the plumage of birds that, wearing the same dress throughout the year, moult only once. Nor is it safe, if we wish to be accurate, to speak as we do of 'spring' and 'fall' moults, because the moulting periods vary so with species and with age that no

seasonal line may be drawn, even in countries that have springs and falls. Then again it has been customary to class as 'immature' several different stages of plumage now too well understood to permit of such lax classification. The fact is, plumages and moults have outgrown their nomenclature, as the various terms of writers clearly indicate, and while I have been in good company in sticking to the seasonal idea, I have long felt that we must come to a wider view.

We may not all agree as to what constitutes a plumage and what a moult, but we know that plumage is made up of successive generations or crops of feathers that, with the exception of the first, grow at periods of moult, and that the feathers remain, even though sadly altered by wear, until the next moult. A complete moult can only result in a simple plumage, all the feathers of the generation being of about the same age, but if the moult be partial the resulting plumage will be compound and made up of new feathers more or less mixed, according to circumstances, with those of an earlier generation. Now, it seems to me, there are three great and distinct epochs of plumage in the life-cycle of the bird corresponding in a measure to infancy, youth and manhood in the human being, and three adjectives are applicable to them, viz. natal (Lat. *natalis*), juvenal (Lat. *juvenalis*), and nuptial (Lat. *nuptialis*). The natal plumage consists of the down-like feathers of the first generation known as neossophtiles, the juvenal plumage consists of feathers of the second generation, and the nuptial includes the later generations. But as a matter of fact such simplicity of plumages is rarely found; the natal plumage may be lacking, the juvenal is worn wholly or in part as a first nuptial, and the nuptial is supplemented by non-nuptial and protective stages.

From time immemorial, the adult plumage of the breeding season has been accepted as the one most typical of the species, and the moult by which it is entirely swept away forms a fixed point in every plumage-cycle. The plumage may well be called the nuptial and the moult the postnuptial. Some species at the postnuptial moult acquire an annual plumage lasting through the whole year until the next postnuptial period; other species acquire a distinctly non-nuptial plumage which, at the prenuptial moult prior

to the breeding season, becomes a true nuptial plumage, simple or compound according as the moult is complete or incomplete. It is therefore obvious that there are three plumages belonging especially to adult birds, instead of the two usually recognized if adherence be given to the seasonal idea. The three are the annual (possibly *annuo-nuptial* would express it better), the nuptial and the non-nuptial. As for the special protective plumages of the Ducks and Ptarmigans, they might be called tutelar (Lat. *tut-claris*), and they seem to be the result of a complete postnuptial moult, on the heels of which follows so quickly the always incomplete posttutelar, that the latter seems to be a continuation of the former. The Ducks, however, pass most of the year in the compound annual plumage, resulting from the two moults, while the Ptarmigans on the other hand acquire a compound non-nuptial dress that is further compounded for the breeding season by a prenuptial moult lacking in the Ducks. These then are the plumages and moults peculiar to birds in their second or later years, that is after the first postnuptial moult, and it will now be easier to understand those of the young bird that at each successive moult approaches more nearly to the ultimate adult plumage.

The first plumage of the young bird is the natal, a name applicable to the rudimentary feathers of the first generation known as neossoptiles or neoptiles. The Megapodiidæ are said to lose this plumage before the bird leaves the egg, while its growth both before and after hatching may be observed in many familiar species. Most water birds, like the Pygopodes, the Anatidæ or the Limicolæ, and among land birds the Gallinæ, are thickly covered with this down-like plumage, while its scantiness is marked in most land birds like the Passeres or Columbæ. In some families like the Picidæ or Trochilidæ it is absent. At most, the natal plumage is worn for only a brief period and is completely lost by what may be considered as a postnatal moult, although this consists chiefly of loss by abrasion of the neossoptiles from the tips of the succeeding feathers to which they are attached. There is no cessation of feather growth as after an ordinary moult, but the calamus of the neossoptile is continued into the tip of the definitive feather or teleoptile which follows. There is, however, feather loss of the first generation and feather gain of the second, the two essential constituents of a moult.

The second plumage of a young bird may be appropriately called the juvenal rather than 'juvenile,' which word has a less exact meaning, like other terms that have been in use for this plumage. The current expression 'first plumage' is entirely inappropriate for a distinctly second stage or second generation of feathers. These have been called 'mesoptiles' to distinguish them from other teleoptiles but the distinction is often not very obvious, although some of them in some species and all of them in others are weaker and softer in structure than adult feathers, and also lack, as a rule, the adult patterns and colors. The order of their growth, the types of feathers, and the areas covered, need not concern us in the present connection, although it is important to note that the remiges of the juvenal dress of land birds like the Passeres or Gallinæ, grow in advance of the body plumage, while water-birds like the Pygopodes or Anatidæ acquire most of the body plumage first. Among many of the smaller species of birds the juvenal plumage is discarded within a few weeks. There are many other species, however, both large and small that retain at least a portion of it, usually the wings and tail, for an entire year.

The postjuvenal moult is an extremely important point in every plumage-cycle and varies both in its completeness and in the time of its occurrence, even among closely related species. It has often been confused with the prenuptial moult which in some species and in some individuals it overlaps in point of time. In fact, we often find this moult so long drawn out, that in some species having also a prenuptial moult, both moults may be found in progress on the same specimen, as may be seen among some of the Longipennes, Anatidæ and Passeres. But irrespective of time of occurrence and extent of feather areas involved, two plumages result from a postjuvenal moult, the first annual (juveno-annual) or the first non-nuptial (juveno-non-nuptial) either of which may be simple or compound as the moult is complete or incomplete. The simple first annual plumage is illustrated by the English Sparrow (*Passer domesticus*), the compound by the American Robin (*Merula migratoria*), the simple non-nuptial plumage by the Horned Lark (*Otocoris alpestris*), the compound by the Black Guillemot (*Cephus grylle*), and there are many species in many families of birds that follow one or the other of these types.

of moult. The first annual (a simple or compound juveno-annual) plumage is retained until the first postnuptial moult, but the non-nuptial may be either obliterated by a complete prenuptial moult or more frequently further compounded by the new feathers of a partial renewal. The first non-nuptial therefore is succeeded by a simple first nuptial (juveno-nuptial) as seems to be the case with the Sterninæ, the Bobolink (*Dolichonyx oryzivorus*) and other Passeres, or a compound first nuptial as seen in many widely differing species like the Lapland Longspur (*Calcarius lapponicus*), Bonaparte's Gull (*Larus philadelphia*) or Ruddy Duck (*Erismatura jamaicensis*). This last plumage is perhaps the commonest of the 'immature' plumages, and they are not difficult to understand if we learn their origin. Fortunately for the student most of them are replaced, not later than the first post-nuptial moult by the adult or very nearly adult plumage. Some of the larger Longipennes, Anatidæ and others pass a second year in an 'immature' plumage wholly new at the first post-nuptial moult, but their relative numbers are so small that in some species it is possible they represent birds of deficient vitality, a portion at least seeming to assume adult dress. at a considerably earlier period than is generally supposed.

Much of what I have written will, no doubt, seem obscure and complicated, for the facts about plumages and moults do not readily lend themselves to simple explanation, but in summing up the following systematic arrangement of plumages and moults may perhaps help to make the whole subject clearer.

DERIVATION OF PLUMAGES.

Natal.	Natal.
<i>Postnatal moult, complete.</i>	
Juvenal.	Juvenal.
<i>Postjuvenal moult, if complete.</i>	
Annual (simple).	1st Annual or simple juveno-annual.
Non-nuptial (simple).	1st Non-nuptial or simple juveno-non-nuptial.
<i>Postjuvenal moult, if partial.</i>	
Annual (compound).	1st Annual or compound juveno-annual.

[<i>Lagopus</i> assumes a special protective plumage and by <i>posttutelar moult</i> a compound non-nuptial plumage.]	1st Protective or juveno-tutelar.
Non-nuptial (compound).	1st Non-nuptial or compound juveno-nuptial.
<i>Pre-nuptial moult, if complete.</i>	1st Nuptial or simple juveno-nuptial.
<i>Pre-nuptial moult, if partial.</i>	1st Nuptial or compound juveno-nuptial.
Nuptial.	
<i>Post-nuptial moult complete.</i>	
Annual (simple).	2d or adult Annual or simple annuo-nuptial.
[Some Anatidæ assume a special protective plumage and by <i>post-tutelar moult</i> a compound annual plumage.]	2d or adult protective or tutelar.
Non-nuptial (simple)	2d or adult Non-nuptial.
<i>Pre-nuptial moult if complete.</i>	2d or simple adult Nuptial.
<i>Pre-nuptial moult, if partial.</i>	2d or compound adult Nuptial.

According to this arrangement of plumages, the old indefinite terms are replaced by exact ones, and instead of 'downy young' we have *natal*, instead of 'first (!)' or 'nestling plumage' we have *juvenal*, and instead of 'autumnal,' 'winter,' 'non-breeding,' 'nuptial' or 'immature' plumages we have the several *annual* or *nuptial* plumages exactly indicated. It is therefore possible to represent the plumage-cycle of a species with considerable accuracy, the following being a few examples.

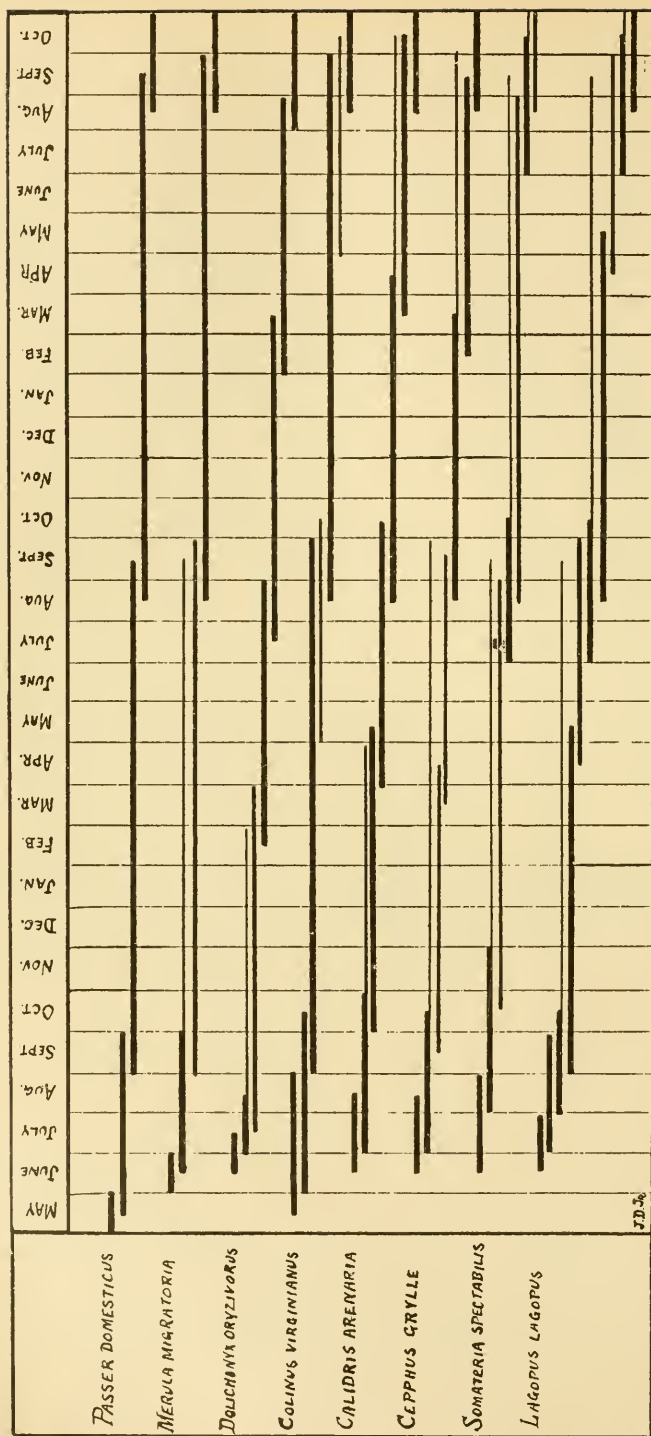
Passer domesticus. Natal, juvenal, simple annual.

Merula migratoria. Natal, juvenal, compound annual.

Carpodacus purpureus. Natal, juvenal, compound first annual, simple adult annual.

Colinus virginianus. Natal, juvenal, simple first non-nuptial, compound nuptial, simple adult non-nuptial.

Dolichonyx oryzivorus. Natal, juvenal, compound first non-nuptial, simple nuptial, simple adult non-nuptial.



A GRAPHIC METHOD OF REPRESENTING PLUMAGES AND MOULTS.

Each line represents a plumage, its beginning, the beginning of the moult by which the plumage is acquired, its end, the end of the moult by which it is lost.

Calidris arenaria. Natal, juvenal, compound first non-nuptial, simple first nuptial, simple second non-nuptial, compound adult nuptial.

Cephus grylle. Natal, juvenal, compound first non-nuptial, compound nuptial, simple adult non-nuptial.

Somateria spectabilis. Natal, juvenal, compound annual, protective (or tutelar.)

Lagopus lagopus. Natal, juvenal, first protective, compound non-nuptial, compound nuptial, adult protective.

Finally I have prepared a table (p. 254) showing by the graphic method, the plumage-cycles of several species, which differ in the number of plumages worn in equal lengths of time. I have represented the average length of time each plumage is worn and the average time of the beginning of the moults but individuals delayed in moult or deficient in vitality will vary much from the average. To-day the average is none too well known even among the commonest species.

ON THE FINDING OF THE BONES OF THE GREAT AUK (*PLAUTUS IMPENNIS*) IN FLORIDA.

BY O. P. HAY.

ABOUT the beginning of the present year the writer received, for identification, from Prof. W. S. Blatchley, State Geologist of Indiana, a small collection of bones which he had made from an Indian shell heap at Ormond, Florida. In looking over this lot of bones, which in general are those of species living to-day in that region, attention was attracted by a strongly flattened bird humerus. It soon became evident that it belonged to some member of the Alcidæ, but was larger than the humerus of any species now living along our coast. On the suggestion of Mr. F. M. Chapman, it was compared with humeri of the Great Auk which had been collected by Prof. F. A. Lucas on Funk Island, and the comparison showed that it agreed with those in every particular. This result

was so surprising that careful inquiry was made of Prof. Blatchley to ascertain the possibility of an intrusion of the bone from some other collection. Assurances were received from that gentleman that he had collected the bone himself at the locality mentioned. Shortly after this an account of the discovery was published in the New York 'Sun'; and this being copied into some of the Florida papers, reached the eyes of Prof. C. H. Hitchcock of Dartmouth College, who was then sojourning at Ormond. He wrote at once making inquiry as to the position of the mound. At the same time I was anxiously looking for some one to continue excavation with a view of finding other bones of this interesting bird; hence the information was at once furnished. Prof. Hitchcock immediately went to work and it was not long before he reported the finding of another humerus. On his return north he stopped at Washington, where he showed the bone to Prof. F. A. Lucas, of the National Museum. Afterward this bone and specimens of the other vertebrates that he had collected at Ormond were turned over to the writer by Prof. Hitchcock for identification.

According to Prof. Blatchley's account, this shell heap is situated on the west bank of the Halifax River, about one mile north of Ormond. The mound was originally 1136 feet long, 213 feet wide where widest, and about ten feet high where highest. A portion of it more than a hundred feet long has been removed for use on the streets of Ormond. The whole is a refuse heap which was made by the Indians, and consists of shells, bones, pottery, etc. The great bulk of the materials is composed of the shells of the little mollusk, *Donax variabilis*, which is very abundant at this locality, the animal of which appears to have been relished by the aborigines. It seems very plain, however, that they were ready to make use of almost any animal, salt water, fresh water, or terrestrial.

Where Prof. Blatchley's excavations were made there are six layers of shells, varying from five inches to three feet in thickness, and five of mold or decaying vegetation, ranging in thickness from two inches to a foot. The surface soil is a foot thick, and in this are growing trees of considerable size. These data give us some idea of the great age of at least the older portions of the mound. The bone of the Great Auk secured by Prof. Blatchley was taken

from the lower two-thirds of the heap. Prof. Hitchcock's excavations were made about twenty feet distant from those of Prof. Blatchley, and the bone which he secured was taken at the very bottom of the heap and beneath eight feet of shells. It may be added that the two humeri belong to the same side, the left.

Much has been written about the distribution of the Great Auk. Its existence on the coast of New England since the time of occupation by white men appears to have been held in some doubt. Prof. F. W. Putnam (*Amer. Naturalist*, III, 1869, p. 540) informs us that its bones have been found in great numbers in the shell heaps of Massachusetts as far south as Marblehead, Ipswich, and Plum Island. He also presents some evidence to show that it had occurred at Ipswich within perhaps a hundred years. Orton states (*Amer. Naturalist*, III, p. 539) that Audubon wrote that it had once been plentiful at Nahant. Alfred Newton, who has made a most careful study of the history of the bird says (*Ibis*, 1861, p. 397) that in comparatively modern times its range extended to Cape Cod. F. P. Hardy in a very interesting paper (*Auk*, V, 1888, p. 383) quotes a passage from Archer's 'Account of Gosnold's voyage to Cape Cod' showing that among other birds seen there by these voyagers in the spring and summer of 1602 were "penguins," a name in those times often applied to the Great Auk. Hardy concludes that these birds must have been breeding there at that season. This writer also refers to Brereton's 'Account of the voyage of Gosnold to Virginia,' in which it is stated that "penguins" had been observed in that region. At what season they were seen we cannot perhaps determine.

Mr. Symington Grieve, of Edinburgh, who has written various papers on the Great Auk, has, through Prof. Lucas, called my attention to a passage found in Catesby's 'Natural History of Carolina,' published in 1754. The passage is found in the appendix to the second volume, p. xxxvi. Catesby gives there various lists of animals observed by him. One of these lists is entitled "European water-fowls which I have observed to be also inhabitants of America, which tho' they abide the winter in Carolina, most of them return north in the spring to breed." In this list occurs again the name "penguin." Although no considerable importance has hitherto been attached to these statements regard-

ing the great southward range of the Great Auk, statements not corroborated and apparently rather improbable; nevertheless, in the light of the discovery of the bones of this bird in Florida, they seem to gain considerable claim to respect.

That the Great Auk was a permanent resident in Florida is very doubtful. We can hardly argue with respect to the shell heaps of Florida, as Hardy has maintained in the case of the New England heaps, that they were built up during the summer, and that hence the bones are those of auks which were captured at that season. On the other hand, Ormond is a thousand miles distant in a straight line from Cape Cod, and eighteen hundred from Newfoundland; and either of these distances would be a long trip for a wingless bird to make and repeat in half a year, even though his swimming powers were very great.

We shall probably yet learn that the Great Auk was a permanent resident along our coast considerably further south than Cape Cod. For the further elucidation of this subject, search ought to be made in shell heaps all along the coast. Additional information may possibly be obtained from the early writers on the history, civil and natural, of our country.

THE BIRDS OF MARGARITA ISLAND, VENEZUELA.

BY AUSTIN H. CLARK.

THE observations, from which this list is compiled, were taken during a stay on the island of a little over three weeks, from July 2 to July 25, 1901. Specimens were obtained of all the land birds seen except the two Vultures, the Amazonian Parrot, and the South American Nighthawk. Although the conditions in the main agree with those reported by Capt. Wirt Robinson (Proc. U. S. Nat. Mus., Vol. XVIII, pp. 649-685) still there are some important differences, both in the distribution of species, and in the occurrence of forms not found by him.

This season (1901) was exceptionally dry, the rains having to

a great extent failed, which may in a measure account for some of the differences in distribution, as in the case of the Crested Quail (*Eupsychortyx*) and the Cardinal (*Cardinalis*).

The island of Margarita lies off the Venezuelan coast, directly north of Cumaná, from which it is distant about twenty miles. It is forty-two miles long, and is made up of two parts, each with a high central peak, connected by a narrow neck. The eastern part is the larger and contains all the principal towns; the western is practically barren.

The island has three well defined life zones; first, the flat and hot coast region, sandy, and with scant vegetation, consisting of post and melon cacti, with the dreaded 'tuna' and thorn-trees. This extends all around the island, and occupies a strip averaging about three miles in width, in which the Burrowing Owl (*Speotyto*) is exclusively found, while the Troupial (*Icterus*), Scaled Dove (*Scardafella*), Buzzard (*Buteo*), and Parrakeet (*Conurus*) prefer it to any other region. The chief towns of the island, Asunción, Juangriego, and Porlamar, are situated here. Next comes the intermediate region, of rough, hilly country, with a large amount of scrubby growth, and many varieties of cactus, forming the home of the Tawny Cuckoo (*Diplopterus*), the Spinetail (*Synallaxis*), and the Honey Creeper (*Cereba*). The interior of the eastern part of the island is a heavily wooded mountain, with its summit 3240 feet above the sea level, and always hidden by clouds. Here occur such forms as the Yellow-billed Thrush (*Platycichla*), Manakin (*Chiroxiphia*), Guan (*Ortalis*) and Parrot (*Amazona*).

Some birds, such as the Creeper (*Dendroplex*) and the Antshrike (*Thamnophilus*), occur everywhere.

Several streams flow down the mountain and one, the most important, attains a considerable size in the rainy season, flowing from high up on the mountain to the sea which it meets a little east of Porlamar. In the valley of this stream, at the base of the mountain, is situated the little town of El Valle, in a large grove of cocoanut palms. It was in this village that most of the work was done, as it was a good place in which to live, and was within easy reach of the mountain forest, and of the hot coast plain.

1. *Larus atricilla* Linn. LAUGHING GULL.—Common along the beaches of the island and of the adjacent mainland.
2. *Rynchops nigra* Linn. BLACK SKIMMER.—A few seen, out in the channel between the island and the main land.
3. *Oceanites oceanicus* (Kuhl). WILSON'S PETREL.—On July 2 a flock of about two dozen of these birds came about the boat in which I was crossing over from the mainland. They appeared about sunset, and approached very near, within a few feet of the stern.
4. *Phalacrocorax* sp. CORMORANT.—I found a small, dark-colored cormorant common at Margarita, and abundant about Carúpano, on the mainland, occurring either singly or in small companies just outside the surf. In the harbor at Carúpano they were especially common, and very tame, coming up to within a few yards of the wharves. They never mingled with the great flocks of other sea birds, but always kept by themselves.
5. *Sula* sp. GANNET.—Midway between the mainland and the island a few small white gannets, probably *Sula piscator* Vieillot, appeared.
6. *Sula* sp. BOOBY.—Abundant all along the coast from LaGuaira to Trinidad, but especially so in the channel between Margarita and the mainland. Here they were to be met with at all times, flying about in small companies, or sitting on the water. In flying they alternately flap and sail, a whole flock acting in unison, like pelicans. At Carúpano, where they were very common, they would mingle with the large flocks of pelicans, and feed together with them, acting like them in every way. Often a solitary pelican could be seen feeding, attended by one of these gannets, which acted like the larger bird in every way, diving at the same time, and always keeping near it while in the air. This species was doubtless *Sula sula* (Linn.).
7. *Pelecanus fuscus* Linn. BROWN PELICAN.—Very common about the island, and along the mainland, especially in and about the harbor of Carúpano. Here they collected by hundreds to fish, accompanied by boobies and frigate birds.
8. *Fregata aquila* (Linn.). MAN-O'-WAR BIRD.—Common along the beaches, sailing about high in air. At Carúpano there would be sometimes over fifty in sight at once, but they were not so common at the island. They often wander inland, and may often be seen circling about two or three miles from the sea.
9. *Garzetta candidissima* (Gmel). SNOWY HERON.—Common about the mangrove-bordered lagoons, and on the beaches.
10. *Arenaria interpres* (Linn.). TURNSTONE.—Common in large flocks about the lagoons and along the beaches.
11. *Eupychortyx pallidus* Richmond. MARGARITAN CRESTED QUAIL.—Common along the bases of the hills, and in the scrub on their lower slopes. Although reported by Capt. Robinson as being "abundant in the thorny thickets near the coast," I found none there, although I searched carefully for them. On the lower declivities of the hills, however, their

call, exactly the same as that of our common Bob-white, could be heard at any time.

12. *Ortalis ruficauda* *Jard.* CHACHALACA. — The natives told me that this bird was common on the mountain, but I did not succeed in getting any there, although I found several nests which my guide attributed to this species. They were all about twenty-five or thirty feet from the ground, and were large and bulky. One contained a fresh egg (July 9) which was unfortunately broken in being brought from the nest to the ground.

13. *Leptotila insularis* *Richmond.* MARGARITAN DOVE. — This dove was not rare, although shy and retiring, living on the wooded mountain slopes where it was difficult to approach.

14. *Columbigallina passerina* (*Linn.*). GROUND DOVE. — Abundant everywhere except in the forest. I found several nests of this species constructed in the post-cacti, one containing nearly full grown young (July 17).

15. *Columbigallina rufipennis* (*Bonap.*). RUFIOUS GROUND DOVE. — Not very common, occurring mostly on the hill sides about El Valle.

16. *Scardafella ridgwayi* *Richmond.* RIDGWAY'S SCALED DOVE. — Abundant everywhere, except in the forest. In the coast region this was the commonest bird, and could be seen everywhere, running along the ground or perched on some low eminence. When startled their wings emit a peculiar rattle instead of a whistle. About El Valle they were abundant on the barren mountain sides, and in the coconut groves. Their cheerful *ph-to-co* was, perhaps, the most characteristic sound on the island, and could be heard at any time coming from some post-cactus, thorn-tree, or other suitable elevation.

17. *Cathartes aura* (*Linn.*). TURKEY VULTURE. — Fairly common about El Valle.

18. *Catharista urubu* (*Vieill.*). BLACK VULTURE. — Abundant, especially about Porlamar and the neighboring beaches.

19. *Buteo albicaudatus* *Vieill.* WHITE-TAILED HAWK. — Fairly common on the hot coast plain west of Porlamar, but rare in the interior. I obtained one specimen, an immature female, and found the remains of an adult nailed to a tree on the mountain side above El Valle. The people at El Valle told me that it was rare there, and when I brought one home, every one came over to have a look at it. This buzzard behaves much like our common Red-tail, but is less shy.

20. *Falco sparverius* *Linn.* SPARROW HAWK. — Although I searched carefully, I saw none of these birds, but a man who had been out hunting quail brought one in which he had shot in an open field near the house. Capt. Robinson records the bird as "abundant" (in 1895).

21. *Gampsonyx swainsoni* *Vigors.* PEARL KITE. — This pretty little kite was very common about El Valle. My first example was shot from an inaccessible nest in the topmost branches of a very tall tree. These birds could be seen almost any time perched on some bare twig on the

lookout for food, or sailing over the cocoanut groves. The stomachs of almost all contained the remains of lizards.

This bird appears to have in some way changed places with the preceding. Although in 1895 Capt. Robinson found the Sparrow Hawk abundant, he did not secure a single specimen of the Pearl Kite: while in the past summer (1901) the Kite was almost abundant, and the other was very rare.

22. *Megascops brasiliensis* (Gmel.). BRAZILIAN SCREECH OWL. — An immature owl of this species was brought to me by a boy who lived high up on the mountain side.

23. *Speotyto brachyptera* Richmond. SHORT-WINGED BURROWING OWL. — These owls were fairly common on the hot coast plain wherever the vegetation was scantier than usual. Near a large shallow lagoon, where there was practically no plant life, there was a colony of them. They are unsuspecting birds, and may be approached very closely before taking wing. They fly but a short distance, alighting with a series of bounds, as if their legs were supplied with springs.

24. *Glaucidium phalænoides* (Daud.). FERRUGINOUS PYGMY OWL. — Only one specimen was secured.

25. *Conurus æruginosus* (Linn.). RUSTY PARRAKEET. — Very common in the flat coast region, and also in the cassava fields on the mountain sides. On the coast by Porlamar, where it was much more abundant than anywhere else, its loud screeching could be heard on all sides as the flocks flew about searching for food. When in the trees, however, they were very quiet; a whole flock would seem to disappear on alighting, every member becoming instantly still, and, for a time, motionless; but, on being startled, the whole flock would screech louder than ever, and fly swiftly away.

While in Porlamar I noticed many flocks of these birds flying very high in air over the town, toward the mainland. As none were seen to fly back again, I judged it to be a migration. Possibly the birds resorted to the island to breed, and were now leaving, as the breeding season was about over.

This bird is very popular as a pet, but not so much so as is the following species. I saw one belonging to a friend in Trinidad which would imitate any word or short sentence said to it, immediately, even copying emphatic noddings of the head.

All the wild parrakeets were in wretched plumage.

26. *Amazona amazonica* (Linn.). AMAZONIAN PARROT. — Occurs in the forest in flocks of various sizes. It is a very noisy bird, but on the approach of a hunter becomes quiet, until its limit of endurance is reached, when it flies screeching off over the tree tops. It is a very popular cage bird with the natives, who call it 'Loro' from its cry.

27. *Crotophaga ani* Linn. ANI. — Common in small companies, rarely over a dozen or fourteen, in and about cocoanut groves, and in open places.

28. *Diplopterus nœvius* (Linn.). TAWNY CUCKOO. Not very common ; I only found it in the thickets on a hillside east of El Valle.

29. *Bucco bicinctus* (Gould). TWO-BANDED PUFF-BIRD. — Common about El Valle, especially about the ravines and dry water courses. It is very unsuspecting, and the boys of the village killed two or three for me with stones.

30. *Melanerpes subelegans* (Bonap.). BONAPARTE'S WOODPECKER. — Abundant everywhere, except in the thick forest. They have a harsh rattling cry, unlike that of any other bird on the island.

31. *Stenopsis cayennensis* Gmel. CAYENNE GOATSUCKER. — One specimen secured on the coast west of Porlamar, and two others seen the same day. This species was not found by Capt. Robinson.

32. *Chordeiles acutipennis* (Bodd.). SOUTH AMERICAN NIGHTHAWK. — A few seen at dusk about the streets of Porlamar, and also at El Valle.

33. *Doleromyia pallida* Richmond. BUFF-BREADED HUMMINGBIRD. — This species was described in 'The Auk' (Vol. XII, p. 369, 1895) by Dr. C. W. Richmond who separated it from *D. fallax* on account of its being much paler below, and having the "metallic green of the upper parts less brilliant and less brassy." The nineteen specimens collected by Capt. Robinson (1895) were all uniformly paler than the specimens of the *D. fallax* with which they were compared, and could readily be distinguished. In the summer of 1900, Capt. Robinson secured at San Julián, near La Guaira, an example of true *D. fallax*, which is interesting as being in the same condition of plumage as those taken on Margarita, whereas the specimens of *D. fallax* with which the Margaritan examples had been previously compared were in fresh condition. The characters given for the Margaritan form hold good, and "*pallida* can readily be distinguished from *fallax*" (Proc. U. S. Nat. Mus., Vol. XXIV, p. 172, 1901).

This bird is common, except in the forest. It is very noisy, especially just before sundown, and may readily be located by tracing up its song, when it will be found perched upon some bare twig or other suitable eminence.

34. *Amazilia aliciae* Richmond. ALICE'S HUMMINGBIRD. — Abundant on the higher parts of the mountain, becoming less common toward the foot. About El Valle they were rather rare, while I saw none at all nearer the sea.

35. *Chlorostilbon caribbæa* Lawr. ATALA'S EMERALD. — Common about El Valle and on the lower slopes of the mountain.

36. *Chiroxiphia lanceolata* (Wagler). LANCE-TAILED MANAKIN. — Common in the forest on the mountain. Although it is difficult to procure specimens by following them through the thick undergrowth, they are, especially the females, readily attracted by imitating the call-note.

37. *Tyrannus dominicensis* (Gmel.). GRAY KINGBIRD. — Fairly common except on the mountain.

38. *Tyrannus melancholius satrapa* (Licht.). CROWNED KINGBIRD. — Occurs about El Valle.

39. *Myiarchus tyrannulus* (Müller). BLACK-BILLED PETCHARY.—Common everywhere on the island.

40. *Sublegatus arenarum* (Salvin). VENEZUELAN FLYCATCHER.—Common, except in the mountains. Two specimens from the island have wing measurements 65 mm. for a ♀, and 66 mm. for a ♂. Six specimens from Panama have the following measurements for the wing: ♀ 71 mm., ♂ 70, 69, 72, 73, 71 mm. The tail measurements of both the Panama and Margaritan examples are identical, and the color is the same.

41. *Thamnophilus doliatus* (Linn.). BARRED ANT SHRIKE.—Common at all points on the island. One of its notes is much like the caw of our common Crow (*Corvus americanus*).

42. *Formicivora intermedia* (Cab.). INTERMEDIATE ANT WREN.—Common about El Valle, and along the bases of the hills, in the scrub.

43. *Dendroplex longirostris* Richmond. MARGARITAN CREEPER.—Abundant at all points on the island. They are oftenest found, however, about the post-cactus. Their cry is much like that of the Belted Kingfisher (*Ceryle alcyon*) but harsher, and more grating.

44. *Synallaxis albescens nesiotis*¹ new subspecies.

MARGARITAN SPINE-TAIL.

Common in the scrub about El Valle.

Type.—Male adult; No. 2723, collection of E. A. and O. Bangs.

The underparts can be closely matched by specimens from the mainland, but the upperside is paler and more gray, with the patch on the head, and the wing-coverts of a more yellow shade, serving at once to distinguish it from the true *S. a. albescens*. The greatest difference is seen in the under wing-coverts, which in this form are cream-color, while in *S. a. albescens* they are buff. The under tail-coverts are also paler. The measurements are as follows.

	Wing.	Tail.
	mm.	mm.
<i>Synallaxis albescens nesiotis</i> ♂ Margarita Island.	53	76
“ “ <i>albescens</i> ♂ Colombia . . .	58	78
“ “ “	58	84
“ “ “	56	79
“ “ “	55	80
“ “ “	57	80

45. *Icterus icterus* (Linn.). TROUPIAL.—Abundant in the coast region, common about El Valle, but rare farther up the mountain.

¹ Nesiotis, from *νεσιώτης*, an islander.

46. *Icterus xanthornus helioeides*,¹ new subspecies.

MARGARITAN ORIOLE.

Type.—Male, adult, No. 2690 collection of E. A. and O. Bangs.

This oriole differs from the mainland form in being larger, with smaller feet, and a thicker, heavier bill, having the culmen more nearly straight than in continental examples. The Margaritan bird is also somewhat brighter in color, and more strongly tinged with orange, while the black patch on the throat is more extensive.

It differs from *I. x. curasöensis* in having the bill shorter, but stouter and less arched, and in being larger, with more black on the throat, and generally brighter in color.

Common everywhere except in the forest, being much more abundant about El Valle than the Troupial. The notes of these two birds are almost identical, except that that of the Troupial is much louder.

Measurements.

	Wing.	Tail.	Exposed culmen.	Tarsus.	Width of bill behind nostril.	Extent of beak on throat.
	mm.	mm.	mm.	mm.	mm.	mm.
<i>I. xanthornus helioeides</i> ♂	101	103	23	24	8	52
“	99	102	22	25	8	55
“	94	99	23	25	8	53
“	92	91	24	24	8	50
“	88	96	22	25	8	52
<i>I. xanthornus curasöensis</i>	94	91	26	27	6	42
“	87	88	25	25	6	—
<i>I. x. xanthornus</i>	88	87	20	26	6½	34
“	94	89	20	27	—	41
“	91	92	21	27	6½	39
“	94	88	21	28	6½	38
“	89	87	21	27	6½	40
“	88	87	20	27	6	37
“	82	81	20	27	7	31

47. *Quiscalus insularis Richmond*. MARGARITAN GRACKLE. — Abundant both at Porlamar and at El Valle, in the yards of houses and in cocoanut groves.

48. *Cardinalis robinsoni Richmond*. ROBINSON'S CARDINAL. — Not common: I saw perhaps a dozen around El Valle, and saw none at all in the coast region. Capt. Robinson found this bird “common in the coast region.”

¹ From ἥλιος, bright.

49. *Euethia bicolor omissa* (*Jard.*). CARIBBEAN GRASSQUIT. — Common about El Valle and on the coast.

50. *Tachyphonus melaleucus* (*Sparman*). BLACK-AND-WHITE TANAGER. — I saw none of these birds, but my companion told me that he saw a black and white bird while collecting plants on the mountain, which was undoubtedly this species.

51. *Tanagra palmarum melanoptera* (*Hartl.*). BLACK-WINGED PALM TANAGER. — The only example from the island is larger than any one of a large series of continental birds with which it was compared, and has a longer and more slender bill.

Measurements of Tanagra palmarum melanoptera.

		Wing.	Tail.	Culmen.	Width of beak be- hind nostril.
		mm.	mm.	mm.	mm.
Margarita Island	♂	97	81	16	8
Colombia	♂	89	75	13	9
"	♂	94	72	11	9
"	♂	88	70	12	9
"	♂	93	73	12	9

52. *Tanagra glaucocalpa* (*Cab.*). GLAUCCOUS BLUE-WINGED TANAGER. — Abundant about El Valle, occurring in the thick trees, especially the mangoes.

53. *Progne chalybea* (*Gmel.*). STEELY-BACKED MARTIN. — There were two colonies of this bird, one nesting in the crevices of the church at El Valle, and the other under the roofing tiles in Porlamar.

54. *Hylophilus griseipes* *Richmond*. GRAY-FOOTED HYLOPHILUS. — Common about the road-sides and in the scrub around El Valle.

55. *Cœreba luteola* (*Cab.*). VENEZUELAN HONEY CREEPER. — Common, except in the forests: especially so about El Valle.

56. *Mimus gilvus* (*Vieill.*). GRACEFUL MOCKINGBIRD. — Abundant, except in the forest. On the 13th of July two full grown young were brought to me, and after that date I often saw them running about the hillsides.

57. *Poliophtila plumbeiceps* *Lawr.* LAWRENCE'S GNATCATCHER. — Common at all points of the island. On the 12th of July I found a nest of this species in a scrubby bush, about three feet from the ground. It was much like the nest of the Yellow Warbler (*Dendroica œstiva*), and contained two eggs, white, thickly sprinkled with reddish dots. One of the eggs was addled, and the other was well incubated.

ADDITIONAL BIRDS OBTAINED BY CAPT. ROBINSON IN THE SUMMER
OF 1895.

- Phaethusa magnirostris* (Licht.). Large-billed Tern.
Sterna curvignatha Saunders. Red-billed Tern.
Sterna antillarum (Lesson). Least Tern.
Butorides robinsoni Richmond. Margaritan Green Heron.
Ercunetes occidentalis Lawr. Western Sandpiper.
Calidris arenaria (Linn.). Sanderling.
Edicnemus bistriatus (Wagler). American Thick-knee.
Ægialitis wilsonia rufinucha Ridgw. Rufous-naped Plover.
Ægialitis semipalmata Bonap. Ring-necked Plover.
Ægialitis nivosa Cass. Snowy Plover.
Ægialitis collaris Vieill. Azara's Ring Plover.
Columba gymnophthalma Temm. Bare-faced Pigeon.
Zenaida vinaceo-rufa Ridgw. Vinaceous Dove.
Chætura cinereiventris lawrencei Ridgw. Lawrence's Swift.
Mitvulus tyrannus (Linn.). Fork-tailed Flycatcher.
Volatinia jacarini splendens (Vieill.). Glossy Grassquit.
Virco chivi agilis (Licht.). Agile Vireo.
Arbelorhina cyanea eximia (Cab.). Venezuelan Guit-Guit.
Platycichla carbonaria (Licht.). Yellow-billed Thrush.
About the lagoons I saw several herons, two terns (*Anous stolidus?*
and *Sterna* sp.) and two shore-birds not given in either of the above lists.

THE IPSWICH SPARROW IN ITS SUMMER HOME.

BY W. E. SAUNDERS.

OWING to a happy combination of circumstances I had the pleasure of visiting Sable Island recently, arriving on May 16, 1901, and leaving on the 23d. Ever since reading Dr. Dwight's delightful monograph of the Ipswich Sparrow I have longed to visit this bird at home but with little hope that my desire would ever be realized, and it was therefore an unexpected delight when a feasible opportunity occurred. It will be remembered that not only is Sable Island the only breeding ground of this Sparrow, but also that the Sparrow is the only land bird which breeds there,

a fact which seems curious when one considers the migrants which remain for days in both spring and fall. The total number of summer residents is ten, including two Ducks, two Plovers, two Sandpipers, three Terns, and the Ipswich Sparrow.

During my stay, I was in every way highly favored, for not only was the season much farther advanced than at the time of Dr. Dwight's visit, without which I could have been able to see nothing of the nesting season, but on three of our eight days we saw the sun, and though many trifling rains were encountered, there were none that made one desire shelter, so that the whole of all the eight days were available for bird study, when other duties would permit.

The Sparrows were found in increased numbers and their song could be heard at all hours of the day.

The song resembles very closely that of the Savanna Sparrow, but instead of ending with *dzss* as does that species, the concluding note is a weak imitation of the call of the terns which, as Dr. Dwight truly remarked, can be heard at all hours of the day and night. He has well described this note by the syllables *prēē-a* and they are delivered rapidly and abruptly, almost as much so as one can articulate while giving the letters their full sound.

The birds were not found to be very shy, but their color is eminently protective, and they appear to realize this thoroughly and would often remain motionless and allow a fairly close approach before flying. There was seldom any difficulty in approaching to within comfortable range of the few that I shot.

While I was too early for most nests to have eggs, I arrived at the most favorable time to find them, because the first step in nestbuilding is the excavation of the nest cavity which usually results in the exposure of some black soil, the patch of dark color being easily seen among the dried grass stems which cover the site. A few days later, when these holes were covered with grasses, detection became very difficult indeed.

Three nests were found in the enclosure surrounding the Superintendent's house, and nearly 30 were found altogether, most of them being, of course, incomplete. Of those containing complete sets, four contained 5 eggs, and four contained 4 only, part of one set being hatched. All the nests but five were placed among long

grass where the bleached stems of last year had fallen over, thus increasing the shelter, the exceptions being placed, one in a clump of crowberry (*Empetrum nigrum*), one among dark green rushes, and three in a field of clover, of the most vivid green, surrounding the Superintendent's house. The former was said to be a favorite situation, but such cover was rare on most of the ground where I hunted, and only the one was seen, so situated. The nests are large, deep and thick, sometimes being heavily lined with horse-hair, and always placed in an excavation of one-half to one inch in the ground. A few of the incomplete nests were placed in holes in hillsides, just such positions as the Junco frequently uses, a projecting piece of sod partly sheltering the nest from above.

The chief ingredient in the construction of all the nests is fine, dry grasses; and frequently these compose the whole of the bottom of the nest, there being only a slight difference in the fineness of those placed on the ground and those on which the eggs are laid. The upper edge of the nest is covered with coarser grasses, with a very few weed stems, but the latter increase in number as the ground is approached, and at the ground level the weed stems predominate. Eel grass is often added and sometimes moss, but the centre of the nest against the ground shows from three to six square inches of fine grass only.

The measurements of the nests average as follows:

	Average.	Extremes.	
Diameter inside	$2\frac{1}{2}$ inches	$2\frac{1}{4}$ inches	$2\frac{3}{4}$ inches
“ outside	5 “	$4\frac{1}{2}$ “	$5\frac{1}{4}$ “
Depth inside	2 “	$1\frac{1}{2}$ “	2 “
“ outside	3 “	$2\frac{1}{2}$ “	$3\frac{1}{2}$ “

The thickness of the walls is thus shown to vary from one-half to two inches.

The nest in *Empetrum* was the smallest, all the minimum measurements belonging to it, the reason probably being that this plant grows so thick that the site selected was too small to hold a much larger nest, and the birds have not the art of embracing twigs in it, but place it as a rule entirely free from its surroundings.

The only nest of the Savanna Sparrow to which I have access just now, measures $2\frac{1}{8} \times 4\frac{1}{2}$ in diameter against $2\frac{1}{2} \times 5$, average for the Ipswich, and in depth $1\frac{3}{4} \times 2\frac{1}{2}$ against 2×3 for the Ips-

wich. These figures utterly fail to give any idea of the enormous difference in the quantity of material present in the nests of the Ipswich Sparrow, which are very thick-walled and substantial; therefore I have weighed them and find that while two ordinary nests of the Ipswich Sparrow average 300 grains each, the nest of the Savanna weighs but 110 grains.

Since returning from the island, a letter from the Superintendent informs me that they had (in July I think) a gale of 60 miles an hour! Such occurrences, coupled with a spring temperature which may be characterized as moderate to cool, explain the absolute necessity that these birds are under to build a heavy and compact nest.

Dry localities were almost invariably selected as nesting sites, only two exceptions to this rule being noted, both on May 20 when I obtained a set of 4 eggs from a nest in low damp ground under long wiry rushes; and found another nest near water but on drier ground among long grass, containing one addled egg, one egg almost hatched, and two newly hatched young.

The birds were seldom close sitters, some of them leaving the nest as soon as an intruder was seen, judging from the fact that the eggs were so often found uncovered. Others would be seen to leave when I was still 15 to 20 yards distant and only the one that had built in the damp locality dared to remain till I got within 2 or 3 feet. Even the mother of the newly hatched young flew when I was 15 yards away but in that instance I was running, and I came over an eminence and down a grade towards her nest which was situated on a slight upward slope facing me and directly in my line of passage, and she could hardly be expected to await such an attack. It must be remembered that all upright objects appear disproportionately large on Sable Island from the lack of trees or other upright growths of any size.

The eggs vary considerably both in size, shape and color. The two largest measure $.81 \times .64$ and $.84 \times .59$ in. and the two smallest $.75 \times .57$ and $.73 \times .63$, the average of the eggs in the six sets in my possession being $.79 \times .60$.

But the variation in color is more surprising to me, perhaps because my limited series of Savanna's show so little variation. Two sets resemble a common phase of the Vesper Sparrow, one

with bright, well defined streaks and blotches of light brown on a greenish ground, the other with a more cloudy effect. Two other sets are almost exactly like some of the Savanna, thickly dotted with fine brown spots so as to hide the ground color; the fifth bears a striking resemblance to some eggs I have seen of the Bobolink, being clouded and washed with dull brown on a dirty greenish white ground, while in the sixth set, 3 eggs are almost exactly like the ordinary type of the Prairie Horned Lark, with the buffy tint of the latter replaced by greenish, and the ground color being sparingly dotted with light brown; the other egg in this set resembling a light colored Savanna's, thickly dotted with brown spots, so as to nearly hide the ground color. I had no time to take a description of the seventh nest, which was taken by Col. Gourdeau, Deputy Minister of Marine and Fisheries, to the Museum of his Department at Ottawa.

Mr. James Boutillier, who seemed to know where nearly every pair nested annually, assured me that pure white eggs were seen in the nests occasionally, perhaps one egg in two years.

UNUSUAL ABUNDANCE OF THE SNOWY OWL
(*NYCTEA NYCTEA*) IN NEW ENGLAND
AND CANADA.

BY RUTHVEN DEANE.

UNDER a somewhat similar title I published a short article in the 'Bulletin' of the Nuttall Ornithological Club¹ in January, 1877. For two months prior to that date there had been a large migration of these owls through various parts of New England, though largely restricted to the seacoast. I have received information from different localities that another large incursion of Snowy Owls appeared this past winter, though the migration commenced considerably earlier than usual, the first being seen in October. While these owls are not regarded as rare visitors to

¹ Bulletin Nuttall Ornithological Club, Vol. II, No. 1, 1877.

the New England coast and along the shores of some of the Great Lakes, they have this season been found in greater numbers than usual some distance back in the interior.

These large flights seem to occur at intervals of every ten to fifteen years. About ten years previous to my records of 1876 there was a large New England flight, and many correspondents advise me that an unusual number were seen and shot in the winter of 1892-93.

As to the causes which influence these large and erratic migrations various opinions are expressed. Some observers attribute it to a scarcity of their accustomed food, others believe they follow in the wake of an unusual abundance of the regular migratory species on which they prey.

I have corresponded quite extensively with many observers and I gladly take this occasion to express my thanks to all for their courteous replies and interesting information, and take pleasure in quoting from their letters.

NEWFOUNDLAND.

Judge Prowse of St. Johns, Newfoundland, writes under date of March 25, 1902: "The Snowy Owl is a constant visitor in winter, but not very numerous about this part of the island. On the northeast coast, near the Straits of Belle Isle, they have been very numerous this winter; a great many have been shot and the fishermen have been living on them."

NOVA SCOTIA.

Mr. Harry Piers of Halifax, N. S., advises me under date of March 21, 1902, that the Snowy Owls had not been reported as abundant around Halifax, and he had known of only about ten specimens having been received by the taxidermists.

NEW BRUNSWICK.

Mr. George Y. Dalzell, keeper of the Swallowtail Light Station at Grand Manan, N. B., writes me under date of February 22,

1902: "Since receiving your letter about the Snowy Owls I have made enquiry concerning their movements on the island, and find there have been fourteen killed here since the middle of December. Mr. John Moses, the taxidermist, informs me that they were late in coming this year, and that their stay was longer than in former years. They frequent the Three Islands, the Two Islands, and the Duck Islands, small islands to the south of Grand Manan. They live on sea gulls, ducks, rabbits, mice and partridges, as portions and feathers of the above were found in them. I know they eat rabbits as I lost two myself."

Mr. Turner Ingalls, Jr., keeper Southwest Harbor Light Station, Grand Manan, N. B., writes under the date of February 12, 1902: "I first noticed the Snowy Owls on January 4 after a heavy northerly gale, and they remained until about the middle of the present month. I have seen eight or ten of the owls, though only three have been killed."

MAINE.

Mr. Lewis M. Todd of Calais, Me., writing under date of February 23, 1902, states that the local taxidermist has had six or seven Snowy Owls sent to him for mounting, and that six more had been observed in a radius of some twenty miles.

Mr. Homer R. Dill, State taxidermist at Gardiner, Me., reports nineteen specimens of the Snowy Owl received up to February 18, 1902.

Mr. Manly Hardy of Brewer, Me., reports, under date of February 17, 1902, that a good many Snowy Owls have been shot and seen over quite an extent of country, one being seen some thirty miles north of Brewer. He also reports three other specimens which were shot at Biddeford Pool, Me.

Capt. H. L. Spinney, Popham Beach, Me., writes me under date of February 22, 1902, that while he had handled but three specimens himself he had learned of between thirty or forty which had been taken in the State. He speaks of the late date of their arrival on the coast of Sagadahoc County, as they were first observed about the middle of January, and his records of the past fifteen years show that they usually arrive early in November and are seldom seen after the first of December. He also states that the flight

this winter extended further back from the coast than former records would show. Regarding their food, Capt. Spinney writes that they feed largely on small rodents. In November, 1897, one killed and ate one of his live decoy ducks, which at that time was close to the house.

Mr. John A. Lord, taxidermist at Portland, Me., writing under date of February 14, 1902, informs me that he had received thirty specimens between November 21, 1901, and February 5, 1902, and knew of about ten others being killed in the vicinity. Examinations of the stomachs showed about seventy-five per cent to be empty. Others contained mice, moles and shrews.

Mr. Leander White, keeper of the Cape Elizabeth Light Station, Me., reports, under date of February 27, 1902, that several of these owls had been killed in his neighborhood, the first being seen about the 27th of January, 1902.

Mr. J. Merton Swain writes under date of February 18, 1902, from Waterville, Me., that a great many Snowy Owls had been seen and the larger part were reported from the interior; that eight had been seen in Waterville and Fairfield. Mr. Swain states they were first seen about the middle of January, though Mrs. H. B. Bates, of Waterville, Me., sends me a record of a specimen that was shot there on January 2, 1902.

Prof. Leslie A. Lee of Brunswick, Me., writing under date of February 26, 1902, informs me that Mr. John Thompson, the local taxidermist, had reported the killing of five specimens within a few days of February 1, and another was also taken at North Anson, Me. on February 21, 1902.

Mr. Arthur H. Norton of Westbrook, Me., in writing under date of February 24, 1902, and in referring to a few specimens which came to hand, states that two adults shot at Westbrook were extremely fat but their stomachs were entirely empty. One bird weighed four and a half pounds, the other one ounce less; and that a large dark female shot on January 31, 1902, also very fat, contained two *Microtus pennsylvanicus*, swallowed whole; a very light colored male, shot at Gorham, Me., on February 7, was extremely fat. This owl had only a small quantity of mouse hair in its stomach.

Mr. Frederick A. Shaw of Portland, Me., under date of Feb-

bruary 26, 1902, informs me that about fifty specimens were taken in the immediate vicinity of the city, and that they were first observed about December 10, 1901.

Mr. Everett E. Johnston of Lewiston, Me., reports, under date of March 3, 1902, that a few Snowy Owls were shot in his locality in January and February, one of which was feeding on the carcass of a dead horse at the time it was killed.

Mr. F. W. Stanley, keeper of the Duck Island Light Station, McKinley, Me., reports four specimens seen on the island about January 1, 1902.

MASSACHUSETTS.

Mr. M. Abbott Frazar of Boston, Mass., in writing under date of February 19, 1902, advises me that the flight of Snowy Owls was very much later than in former years, and that while he had not kept any records this season, the proportion of birds was not as great as in the recorded migrations of 1876 and 1892.

Mr. Owen Durfee of Fall River, Mass., writes under date of February 18, 1902, that the Snowy Owls were not nearly as abundant as in the winter of 1890-91; the capture of about a dozen birds, at various localities on the Rhode Island coast, had come to his notice, and that he had records of three which were taken on the south shore of Martha's Vineyard. Contrary to the observations of Maine ornithologists, Mr. Durfee states that this season all records have been made on the coast, while in 1890 they worked up the Seaconnet River and tributaries of Mount Hope Bay to a much larger extent. One large, heavily barred specimen, shot at Little Compton, R. I., on February 14, was reported by the local taxidermist to be very fat and the stomach full of rats.

Mr. John E. Thayer, of Lancaster, Mass., in writing me under date of February 17, 1902, says: "I have not heard of any unusual migration of the Snowy Owl in Worcester County. I think in Maine there has been a great many this season, and I am receiving frequent letters offering live specimens, especially from Wells Beach, Me. They were reported to have been caught in traps."

RHODE ISLAND.

Mr. Harry A. Cash, of Providence, R. I., writes me under date of February 20, 1902, that of the eighteen specimens sent to him for mounting, the first was received on January 7, 1902, and the last on February 10, 1902. Eleven were males and seven were females. These specimens were all taken on the Rhode Island coast, with the exception of two, these being collected at Mystic, Conn., and Nantucket. The stomachs of eleven were empty, the balance bearing evidence of dark flesh, probably of ducks and rats; in one stomach was an entire rat, two-thirds grown. One female was shot on January 21, 1902, at Pawtucket, R. I., from a duck shooter's stand, while pursuing a flock of ducks, and was killed over the decoys.

Mr. Simon Dodge, keeper Southeast Light Station, Block Island, R. I., writes under date of March 4, 1902, that he had seen three specimens of the Snowy Owl, which had been killed on the island between January 25 and February 15.

CONNECTICUT.

Mr. James H. Hill, New London, Ct., writes the following most interesting letter, under date of March 18, 1902: "Munnatawket or Fisher's Island, Suffolk Co., New York, lying at the east end of Long Island Sound, near the Connecticut shore, has had during the past months of December, January and February, one of the most noteworthy flights of Snowy Owls, no less than eighteen of these arctic visitors having been seen and fifteen captured, three alive and unhurt. Two of these lend an added interest to the Bronx Park collection of Raptores, the third cut with his sharp bill the 'gordian knot' and the twine that held him captive, and regained his liberty. The writer has been secretary of the Fisher's Island Sportsman's Club for over fifteen years, and during that period a few have been seen and captured, but never before have they been so numerous and in such fine plumage. The island seems to be particularly attractive to these snowy visitors, due no doubt to the fact that the Fisher's Island preserves are well stocked with game — pheasants, quail, English and Belgian hares, the hares,

especially the Belgians, being very numerous and easily captured; and the owls seem to take very kindly to this bill of fare, as a full grown *Nyctea*, when hungry, makes short work of the best portion of his hareship. In fact, so surfeited do the owls get at times, that I have three records of their having been run down and captured alive. Other Raptores have suffered a similar fate, notably a fine Bald Eagle and a Golden Eagle, both captured on the island. The owls seldom annoy the feathered game."

Mr. John N. Clark of Saybrook, Conn., writes me under date of March 2, 1902, that there had evidently been a large flight of Snowy Owls again in New England. He states that two were brought to him one day, and a third specimen was shot the same day, all within a distance of ten miles on the Sound shore.

NEW JERSEY.

Mr. Turner Green, taxidermist, Jersey City, N. J., under date of April 3, 1902, informs me that a Snowy Owl was shot at Caven Point, N. Y., on January 1, 1902, after a severe storm. The stomach contained a short-tailed mouse. He also states that another specimen was seen about the same date at Bayonne, N. J. Careful enquiry among various sportsmen did not bring out any further records.

NEW YORK.

Miss M. R. Audubon of Salem, N. Y., in writing under date of March 3, 1902, states that a Mr. Roberson had seen a number of Snowy Owls across the mountains which divide Salem from Camden Valley and Dorset. One individual was feeding on some rodent, probably a muskrat, as one had been torn from one of his nearby traps.

Mr. Thos. W. Fraine, taxidermist, Rochester, N. Y., in writing under date of March 24, 1902, states that while during the flight of Snowy Owls which invaded the country in 1876, he received over forty specimens, during the past winter only two had been brought to him. The specimens which he examined in 1876, and which were captured along the shore of Lake Ontario, had been feeding largely on fish.

Mr. Elon Howard Eaton, Canandaigua, N. Y., writing under date of March 6, 1902, states that there has been no unusual flight of Snowy Owls in his locality. He states that the collectors and taxidermists report that they have received several, although not as many as in average years. One collector reported four, taken on the shore of Lake Ontario, and states that they were all collected about the 18th of November, the first heavy snow storm of the season coming at that time.

Mr. Wm. S. Johnson, Booneville, N. Y., writing under date of March 19, 1902, informs me as follows: "Snowy Owls appeared in this locality the latter part of December, the last one being seen the last week in February. During this time about twenty, to my knowledge, were observed; fifteen of this number were shot, ten of which were mounted by our local taxidermist. Of these ten only three were females. The stomach contents of five of them were sent to the U. S. Dept. of Agriculture, and were found to contain the remains of the common meadow mouse (*Microtus pennsylvanicus*), one stomach containing the remains of six."

Mr. Thomas Rowland, taxidermist, New York City, under date of March 5, advises me that he had eight Snowy Owls sent to him, which were killed on Long Island, the first specimen being received January 10, 1902. He also states that he received several more of these owls from Canada.

PROVINCE OF QUEBEC.

Sir James M. Le Moine of Quebec, writes me under date of February 19, 1902, that one specimen of the Snowy Owl was observed on his grounds, 'Spencer Grange,' which was very unusual, and that he had received a reliable account of six, which were seen and some of them captured at Compton, P. Q., about fifteen miles north of the Vermont border.

Mr. C. E. Dionne of Quebec, in writing under date of February 27, 1902, informs me that he has seen eleven Snowy Owls this winter, which were shot at or in the neighborhood of the city of Quebec. Out of four which he prepared, the stomachs of three were empty; the fourth contained a red-backed mouse and

a white-footed mouse. He reports that an owl of this species which he examined about eight years ago, shot on the St. Lawrence River, below Quebec, contained a specimen of the Black Guillemot entire, with the exception of the wings and one foot.

Mr. Napoleon A. Comeau, Godbout, P. Q., writes the following most interesting letter under date of March 11, 1902: "Migrations of the Snowy Owl occur almost every year along the north shore of the St. Lawrence River. As the birds alight on floating ice as well as on land, many of them find their way across the St. Lawrence and from there to Maine, or follow the river up, and some are killed near Quebec, and even in the city, according to reports in the local papers. An abundant food supply seems to be the cause. They generally follow in the track of migration of other birds on which they prey. These are Willow Ptarmigan, the Lesser Auk, and the Murre (*Uria lomvia*). The big migration of 1876, which you noticed, followed a very large migration of Ptarmigans. During the present winter they have followed on an immense migration of the Lesser Auk and Murre. Some three hundred or so Snowy Owls have been shot and trapped by residents in this immediate vicinity in a section of about nine miles. I have examined the stomachs of over a hundred and have found invariably the remains of the two species above mentioned. The owls in some cases were nothing but a lump of fat. The migration began here on November 25, 1901, when the first was seen, and has continued at intervals to this date. The last birds are seen generally about the beginning of May, when they disappear entirely. This bird flies and preys by day as well as by night, but the greatest flights are by night. They follow the coast line, as a rule. In January of this year I saw over a hundred birds in one evening from seven o'clock to 10.30 P. M. They are rather shy birds and difficult to shoot, owing to their keen sight and habit of selecting some high point to alight upon, such as a large piece of ice or a rock. They seldom alight on green trees, but select dead stumps. Trappers take advantage of this habit and place steel-traps on stumps or other prominent places to which the owls fall an easy prey. They are considered a good article of food in this region, and the feathers also yield a profit. The Murre, not being a shy bird, is easily

captured by the owls; they are generally caught when sitting on pieces of ice or along the rocks, as is their habit. The flight of the Snowy Owl, like that of all the members of this family, is perfectly noiseless, and its color helps it to approach its prey unawares."

ONTARIO.

Dr. C. K. Clarke of Kingston, Ont., writes me under date of February 18: "The migration of Snowy Owls has extended, as far as I can learn, all over Ontario. In Kingston, sixteen have been killed, to my knowledge."

Dr. G. C. Tremains Ward of Napanee, Ont., twenty-six miles west of Kingston, writes me under date of February 18, 1902, that Snowy Owls this year are probably as abundant as in any previous year, though he had only observed three himself. He referred to one specimen which seemed to be 'located,' as he had seen it several times, and always in the same clump of cedars.

The Rev. J. C. Young of Sharbot Lake, Ont., situated some sixty miles north of Lake Ontario, in writing under date of February 26, 1902, states that there has been quite a migration of Snowy Owls throughout eastern Ontario. Four specimens had been taken in his immediate vicinity during January and February, and a large number had been seen and shot in the County of Renfrew, about fifty miles further north. He further states that this species is usually quite rare in his locality, some years none being seen, but that this season the migration was the largest known in that section.

Mr. George R. White of Ottawa, Ont., writes under date of March 4, 1902: "During the months of January and February of this year there has been a large number of Snowy Owls brought into this city, both alive and dead. I observed five alive in one window. Our local taxidermist has had over eighty specimens sent in to be mounted, and he refused to purchase a number that were offered to him."

Mr. James H. Fleming of Toronto, Ont., sends the following interesting information, under date of March 3, 1902: "The flight of Snowy Owls seems to have been first noticed in southern

Ontario about the 20th of December, 1901. Nearly all my correspondents give the 25th as the date when their abundance was first noticeable. From then on to about the 15th of January, 1902, the owls were spread over the southwestern portion of the Province in sufficient numbers to attract attention. In Toronto the number killed was not less than sixty, and about the same number were accounted for by my correspondents elsewhere. The number killed in Ontario must have greatly exceeded this estimate. All the birds taken during the early part of the flight that I examined were males, and it was not until well on in January that females were at all abundant. The east shore of Lake Huron, from Bruce Peninsula to Sarnia, at the mouth of the St. Clair River, was visited by Snowy Owls in considerable numbers, and they spread through the counties of Middlesex, Oxford and Wellington; the Georgian Bay seems to have been visited only by stragglers. None were reported from Owen Sound. All the country surrounding Lake Simcoe was visited by these owls in more than usual numbers. The birds do not seem to have occurred in the districts of Muskoka and Parry Sound, except casually. I have only one record. They appear to have avoided the wooded country, preferring the older settled country along the Great Lakes. I have no information about the north shore of Lake Erie, and very little from east of Toronto, but a line drawn through Ontario from Orillia to Toronto, almost due south, would mark the eastern limit of their abundance during the flight, which may have extended along the north shore of Lake Ontario to Kingston, but my information is not sufficient to be certain. I did not pay particular attention to the food question. The birds were all in good condition, and outside of Toronto a good many were either shot or trapped while feeding on dead horses or cattle. About Toronto wounded ducks were probably picked up, the Toronto Marsh abounds in field mice, and much fish offal and carrion would be available. Part of the flight has remained in Ontario for the rest of the winter, but the main body passed further to the south or southeast."

Mr. William Holliday of Guelph, Ont., forty-eight miles west of Toronto, writes me under date of March 7, 1902:

"Judging from the number of Snowy Owls I have mounted

this winter, there must have been a very large migration through this section. I have received eighteen specimens between December 19, 1901, and March 7, 1902. One of the number was sent from Winnipeg, December 27, 1901, the sender reporting them abundant in Manitoba. I have been engaged in taxidermy here for ten years, and during that time have not received a single specimen before. Four fifths of the number were females. The stomachs of those which I examined contained the remains of mice and red squirrels."

Mr. Robert Elliott of Bryanston, Ont., under date of March 4, 1902, writes me that the first Snowy Owl appeared about January 22, 1902, the weather being clear and cold at the time. The specimen remained on a grass farm until February 15, frequently perching on the barn for an hour at a time. A few other specimens were seen in January and February. Mr. Elliott also states that a Mr. Owens, taxidermist, living near Mooresville, Middlesex County, received and mounted twenty-two specimens during the winter, and commented on the fact that thirteen years ago he prepared exactly the same number, not having handled a single specimen in the interim. Mr. Elliott says that he is not aware that any of the stomachs were examined for food, but that the first specimen he saw spent three weeks near the carcass of a dead horse in the woods. He also states that the past winter has been remarkable for the number and variety of birds observed.

Mr. William E. Saunders of London, Ont., writes me under date of February 22, 1902, that there has been an extraordinary number of Snowy Owls in western Ontario this season, but their distribution seems to be quite local. At London none were seen. At Rondeau, where there is an extensive marsh on the lake shore, southwest of London, several have been taken, and they are not uncommon there every winter. At Watford, forty miles west of London, three were taken, while twenty miles north, in Biddulph township, a taxidermist was said, on good authority, to have received twenty specimens.

MICHIGAN.

Mr. W. H. Kress of Elk Rapids, Michigan, writes under date of April 11, 1902, that he had received and mounted during the

winter, twenty-eight specimens of the Snowy Owl, and enclosed a most artistic picture of fourteen of these striking birds. He states that they first appeared late in November, 1901, and that they had almost completely destroyed the quail and partridges in that section; the quail having been quite abundant before the inroad of the owls. One specimen, seen flying close to the ground, suddenly stooped and captured a rabbit. Mr. Kress informs me that at least fifty specimens were killed in the vicinity of Elk Rapids.

GENERAL NOTES.

The American and European Herring Gulls.—In 1862, the late Dr. Coues separated the American Herring Gull as specifically distinct from the European Herring Gull, under the name *Larus smithsonianus*, on the basis of slight differences in general size, and in the size and form of the bill, but mainly on the small amount of white at the tips of the primaries. Later an attempt was made to show that these alleged differences were due to age (*cf.* Allen, Bull. Mus. Comp. Zoöl., II, pp. 194–196, April, 1871). As, however, Herring Gulls unquestionably referable to the Old World form have proved to be of more or less frequent occurrence in this country, together with many intermediates, both forms of the Herring Gull have been given a place in the A. O. U. Check-List, standing, respectively, as *Larus argentatus* and *Larus argentatus smithsonianus*. I have, however, never been convinced that my exposition of the case in 1871 was not thoroughly sound.

Although *Larus smithsonianus*, either as a species or subspecies, appears to have never received any recognition abroad, it was not again challenged by American writers till 1898 and later, when Mr. O. W. Knight, after examination of a great number of adult American Herring Gulls shot at Portland, Maine, emphatically claimed the “non-existence of the so-called subspecies *L. a. smithsonianus*” (*cf.* Auk, XVII, Jan. 1900, pp. 63, 64). A year later Dr. Dwight, on wholly different material, reached practically the same conclusion in his paper on ‘The Sequence of Moults and Plumages of the Laridæ’ (Auk, XVIII, Jan. 1901, pp. 49–62). In referring to the white areas at the tip of the first primary in the American Herring Gull, and to the wide range of variation in these markings, which vary from two small distinct white areas to a single large apical white spot, he asks “Is the European bird always marked by one white area?” Owing to the absence of large series of European specimens in

American museums, the question was not easy to answer. Hence, when an opportunity presented itself, in July, 1901, to examine the series of these birds in the British Museum, through the courtesy of the officers of that grand institution, I eagerly availed myself of it. The result of my examination of this material may be briefly summarized as follows: 40 adult birds were examined; 9 out of 15 specimens killed in the British Islands were of the *smithsonianus* type, and 6 of the *argentatus* type; of 16 specimens from various localities in North America, 4 were of the typical *argentatus* type and 12 of the *smithsonianus* type. Thus much more than half of the specimens killed in the British Islands were like the so-called *smithsonianus* type, and one fourth of the American specimens were of the so-called *argentatus* type. Most of the British examples, it should be added, were birds of apparently the second or third year, and the same is true of the American examples examined.

From the foregoing it is evident that there can be but one conclusion in respect to the Herring Gulls of the two sides of the Atlantic; namely, that the extent and form of the white apical spots on the first primary vary with the age of the bird, being small and separated in birds that have just acquired adult plumage, and increase in size with age till, in a small percentage, consisting of probably very old birds, the two white spots at the tip of the first primary become merged into one, forming a single greatly lengthened white area; that this is true of both European and American birds; and that the alleged characters of *Larus smithsonianus* are invalid, the supposed differences in the form and size of the bill being also variations due to age. — J. A. ALLEN, *Am. Mus. Nat. Hist., New York City*.

Leach's Petrel at Westford, Mass. — Mr. E. Abbot informs me that a specimen of *Oceanodroma leucorhoa* was shot on Forge Pond, September 25, 1902, and that the bird is now in the Westford Public Library. — REGINALD HEBER HOWE, JR., *Longwood, Mass.*

European Widgeon in Michigan. — On March 27, 1902, Mr. William B. Boulton, of New York, was on one of the Bay points at Munroe Marsh, Michigan (on Lake Erie) with a friend, when a flock of five Widgeon came towards the decoys, but soaring well outside. Only one bird was hit and came down with a broken wing. The hunter went out in his boat and shot it, and not until the bird was in hand was there any suspicion that it was a splendid male specimen of *Anas penelope*.

Another male, in almost as good plumage, was taken in April, 1900, and a third in April, 1892. All were preserved. We have no records of females, nevertheless I believe we occasionally take them and their identity is not suspected, as there is not so wide a difference between the plumage of the females of the two species as there is between the males. — HAROLD HERRICK, *New York City*.

The Yellow-crowned Night Heron at Portland, Me.—I have in my collection a handsome adult female specimen of the Yellow-crowned Night Heron (*Nycticorax violaceus*) which was shot on April 13, 1901, in Back Cove, Portland, Me. The captor was a boy. He took the bird to Mr. John A. Lord, the taxidermist, by whom it was mounted. I saw it immediately after it was preserved and also examined its body. Besides this evidence that it was taken here, I have the assurance of Mr. Lord, which alone would be sufficient. I believe the Yellow-crowned Night Heron has never before been recorded from this part of New England.—HENRY H. BROCK, *Portland, Me.*

A Third Maine Specimen of the Little Blue Heron.—Early in April of the current year, I received from Mr. Herbert A. Arey of Vinal Haven, Me., a specimen of *Ardea cærulea*, to be mounted for Mr. Arey. His letter, dated April 2, 1902, states: "The bird was shot yesterday at the east end of Carver's Pond, Vinalhaven." It was a male, a fine specimen in the light phase, and was in good bodily condition; it would probably have bred had it not strayed from its kind and home.

The two other Maine records are: A bird in light phase, Scarborough, September, 1881 (Brown, Bull. Nutt. Orn. Club, VII, p. 123). A female, Popham Beach, May 19, 1901 (Spinney in Swain's editorial, Journ. Maine Orn. Soc., III, p. 30).—ARTHUR H. NORTON, *Westbrook, Me.*

The King Rail again near Portland, Me.—I have already (Auk, Vol. XIII, p. 79) noted the capture of a specimen of the King Rail (*Rallus elegans*) at the Dyke Marsh, near Portland, Maine. I have since obtained another specimen taken at the same place by Mr. John Whitney. It was brought to me in the flesh and was dissected and mounted by myself. It proved a male in good condition. The date of its capture was December 17, 1899.

The King Rail is thus shown to have occurred three times¹ in the vicinity of Portland.—HENRY H. BROCK, *Portland, Me.*

The King Rail in Winter near Washington, D. C.—On January 19, 1901, I observed in the Washington Center Market a Red-breasted or King Rail (*Rallus elegans*) which had been received that day from the shore of the Potomac River near Alexandria, Va. I can find no published winter record for this species in this vicinity, although it is a regular but uncommon spring and early fall migrant, and may be expected in exceptionally mild winters like the present. The local gunners and game dealers call the bird 'King Oortolan' and 'King Rail.'—HUGH M. SMITH, *Washington, D. C.*

The Red Phalarope in North Carolina.—Mr. Arthur T. Wayne's note in 'The Auk' for July, 1901, XVIII, p. 271, on the Red Phalarope

¹ See Brown, Bull. Nutt. Orn. Club, Vol. VII, p. 60.

(*Crymophilus fulvicaeus*) in South Carolina, makes me think that the occurrence of a flock of at least thirty of these birds on the southern North Carolina coast may be worth recording. On April 2 or 3, 1896, within a day or two of our finding at Morehead City, N. C., the Glaucous Gull which Dr. Coues recorded in 'The Osprey', we were shown by the light-keeper of the Cape Lookout Light, about a dozen dead Red Phalaropes which had been killed by striking the light-glass. The keeper, who seemed trustworthy, told us that as many as twenty more exactly like these had been killed two or three nights before, and most of them had been picked up and destroyed. The ten or more which we found, lying in the grass at the foot of the tower, were badly decomposed, and we managed to preserve only two shabby specimens. All that we saw were in transition plumage; mainly gray and white, but some heavily mottled with red below and with brown on the back. The three we examined were females.

On March 17, 1898, my father and I, with Mr. L. A. Fuertes, saw from a steamer enormous flocks of Phalaropes, apparently Red, about fifty miles off the coast of northern South Carolina.—GERALD H. THAYER, *Monadnock, N. H.*

The Name of the Zenaida Dove.—In 1801, John Latham described a pigeon from New Holland which he called 'Southern Pigeon' (Gen. Syn. Bds., Suppl., II, 1801, p. 270), giving it the same year, in another publication, the name *Columba meridionalis* (Ind. Orn., Suppl., 1801, p. lx), and stating that he saw a specimen of this at Mr. Swainson's. *Columba meridionalis* has until recently been considered as unidentifiable. In 1898, however, Messrs. Forbes and Robinson (Bull. Liverpool Mus., I, 1898, p. 36), claimed to identify it with the well known Zenaida Dove (*Columba zenaida* Bonap.), on the basis of "three aviary specimens, which have been identified by Latham as his *Southern Pigeon* (Gen. Hist. viii, p. 28). One of these is the type of his 'female or young,' *Southern Pigeon, var. a*, and is labelled by Lord Derby '*Columba meridionalis, se ipso judice*'; the second is marked, 'Dr. L. considers this an old male.' These prove to be *Zenaida zenaida*, Bp. The third specimen is inscribed, 'Considered by Dr. L. as a young male.' We have identified this as *Zenaida auriculata* Des Murs.'

On turning to Latham's 'General History of Birds,' Vol. VIII, 1823, p. 29, we find that, in an addition to his original description of the Southern Pigeon, he mentions the three birds (one "in the collection of Lord Stanley") referred to by Forbes and Robinson, and which are doubtless correctly identified by these gentlemen, but they are entirely different and additional material to that on which *Columba meridionalis* was originally based. But this supplemental matter, added twenty-two years after the publication of the original description of *Columba meridionalis*, does not establish any of the three specimens mentioned by Forbes and Robinson as the type of the original *Columba meridionalis*, said to have come from



FIG. 1. NEST AND EGGS OF RED-SHOULDERED HAWK.
See page 287.

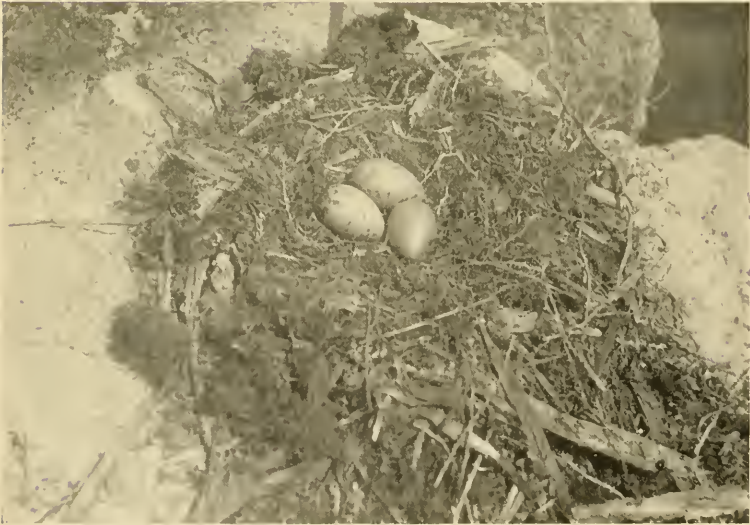


FIG. 2. NEST AND EGGS OF RING-BILLED GULL.
See page 279.

New Holland, and the description of which shows that it could not have been *Zenaida zenaida*.

In other words, Latham's later reference to additional material has no bearing upon the type of his original *Columba meridionalis*, which is evidently not the Zenaida Dove, and therefore the name *meridionalis* cannot legitimately supplant Bonaparte's *zenaida*.—J. A. ALLEN, *Am. Mus. Nat. Hist., New York City*.

The Bald Eagle in Ohio County, West Virginia.—It is with much pleasure that I send you the first authentic record of the taking of a specimen of the Bald Eagle (*Haliaeetus leucocephalus*), in Ohio County, West Virginia. The bird was an immature female, in the second year's plumage, which is known as the 'Gray Eagle' stage. It was killed December 27, 1901, on the farm of Mr. Ridgeley Jacob, near Clinton, W. Va., the manner of its capture being unique. Two young sons of Mr. J. S. Duvall, who lives upon the above mentioned farm, were playing in a stream, when one of the youngsters ascending the bank spied the great bird just beyond the crest of the knoll. The child—who was only about ten years of age—instead of running away, boldly picked up a stone and threw it with such telling force and accuracy that he broke the bird's wing. Immediately the raptor faced about and ran at the boy, who fled at its approach, while his brother—two years his junior—succeeded in hitting the pursuing bird in the back of the head and fracturing its skull with another stone. The older boy stopped, upon seeing the eagle staggering about, and ran back, pounced upon the feathered enemy and held it until life became extinct. The bird weighed nine and a quarter pounds, its length was thirty-nine inches, extent seven feet eight and a half inches. The skin is now in my possession.—ROBERT BAIRD McLAIN, *Wheeling, W. Va.*

Nest and Eggs of the Red-shouldered Hawk.—The nest shown in the photograph (Pl. IX, fig. 1) was in a beech tree about fifty feet from the ground. When about to climb the tree I thought of taking my kodak with me, expecting the bird might come into the tree while I was at the nest, as they sometimes do, and that I could perhaps get a picture of her. When I reached the nest I found that a limb large enough to hold me ran out from the body of the tree so that I could get about eight feet from the nest, which would, I thought, be far enough to get a picture. I made three exposures, all with the shutter set at $\frac{1}{100}$ second, two of which produced very good negatives, the one from which the picture I am sending was printed being perhaps a little the better. The nest was about two feet across and the eggs were slightly incubated, as I discovered when blowing them. The set of five eggs is the largest set of eggs of the Red-shouldered Hawk I have ever found in this locality. The picture was taken with a "No. 3 Pocket Kodak de Luxe," which is a very convenient instrument for this kind of work.—GEO. L. FORDYCE, *Youngstown, Ohio*.

The Pileated Woodpecker (*Ceophloeus pileatus*) in Minnesota. — The accompanying photographs (Plate X) were taken in deep woods along the Le Sueur River about four miles southeast of Mankato, Minnesota, in the early spring of 1897, and show clearly the work of the Pileated Woodpecker or 'Logcock.' This woodpecker is now seldom seen in the southern part of the State and is little known to most people.

Both stumps were dead maples. That shown in Fig. 1 was broken off about six feet from the ground and at the fracture was fourteen inches in diameter. Three openings were originally made in the stump by the birds but these do not show in the photograph, since the camera did not directly face them. When examined, a groove had been dug away along the exterior so that the two upper openings converged into one; but there was still a narrow constriction which indicated that they had, most likely, once been separated. The upper portion of this hole was 10 inches long by 6 inches wide and the lower was 15 inches long by $4\frac{1}{2}$ wide. Below these was another hole 6 inches long by 3 wide. The two lower holes did not expand after entering but the upper, where the stump had broken before the photograph was taken, extended slightly upward and a much greater distance downward, the latter extension being enlarged to make room for the nest. At the base of the stump were many chips some of which were half an inch in diameter and 3 inches long. The wood had decayed some but it was still too firm to be broken easily with the hand or by an ordinary blow, which showed that the bird must have exerted great force in order to remove the chips. The broken end of the piece of the stump that had fallen faced the camera directly and the large, nearly central excavation is plainly visible.

Fig. 2 shows another maple stub which stood within a few feet of the one just described. The top had long since fallen off and what remained was 18 feet high and a foot in diameter. There were three holes near the top, in fact the uppermost one ran entirely to the top and was $3\frac{1}{2}$ feet long by 4 inches wide. Just below this was a second which was a foot long and 5 inches wide. A third just below the second was $1\frac{1}{2}$ feet long and 4 inches wide. At the base this stump had been pecked all around so that it was almost ready to fall. The holes at the top of the stump were evidently made for nesting purposes but the work at the base was probably done in search of grubs or insects which were lodged in the decaying wood.

A few specimens of this retiring bird are still seen in the region of Mankato but the rapid disappearance of the forests marks its speedy withdrawal. In the early spring of 1900 a specimen was brought to my laboratory from a region six miles south of Mankato, and at about the same time in 1901 a specimen was taken twelve miles south of Mankato. One or two other specimens were reported from the same region at the time the latter specimen was taken.

While on a three months' collecting trip in northern Minnesota in the region of Lake Vermillion last summer about eight of these birds were



FIG. 1



FIG. 2

WORK OF THE PILEATED WOODPECKER.

either seen or heard. This region is densely wooded and uninhabited except by an occasional lumber camp. So far as noticed the birds were always in pairs.—ULYSSES O. COX, *Mankato, Minn.*

The Song of the Alder Flycatcher.—I have studied the notes of the Alder Flycatcher for two years, very closely, in Maine where it nested near the house, and I heard its song and various other utterances nearly all day. The ordinary song, as I know it, consists of two notes much like the Chebec's. It is in the hoarse tone of the Phœbe, and is jerked out with a backward jerk of the head, after the manner of the Least Flycatcher, and to my ear, it sounds like *red-dy*, sometimes — but not by any means generally. He gives in addition to this, another two-note utterance, much lower, and of a clear musical quality, very different from the hoarse common song, without tossing the head, or jerking.

Besides these he has several other utterances, a loud clear *queoe*, several times repeated, as if to command attention, and a low plaintive *qu?—qu-cù*. In addition to these he gives many different notes in an undertone, which can neither be described nor imitated by the human voice. In fact, the bird is extremely versatile. My studies have always been made where I could *see* as well as hear the bird, so that there is no possibility of mistake. I have never been able to make Dr. Dwight's, Mrs. Wright's or Mr. Chapman's characterization of the song fit my bird, but I learned long ago that no two persons hear a bird note alike, or, rather, that no two birds have exactly the same utterances.—OLIVE THORN MILLER, *Brooklyn, N. Y.*

The Occurrence of the Prairie Horned Lark at Southern Pines, N. C.—The past winter at Southern Pines, N. C., was called one of unusual severity. After passing through weeks of weather hardly to be equalled in the north by stormy March or April, it was hardly a surprise to awake one morning in February and find the sand covered with nearly a foot of snow. The snow melted rather slowly and as I picked my way along the street on Feb. 19 I was surprised to hear the familiar call of the Horned Lark. I followed the flock, which consisted of eight birds, for some time, satisfying myself as to their identity, though the call was sufficient. The next day they were about the streets, which were bare only in places, the snow mixed with sand by the passing teams melting faster than where undisturbed. They were less shy the second day and I got quite near to them. They were very dull colored and probably more or less stained with the soot which is everywhere about in that country. Their small size and dull colors leave little doubt they were the common form (*Otocoris alpestris praticola*). They were not seen after the 20th. I judge records of the Horned Lark this far south are not frequent.—C. H. MORRELL, *Pittsfield, Me.*

The Boat-tailed Grackle as a Stow-away.—On the afternoon of June 7, 1898, the ocean steamship 'Tallahassee' left her dock in Savannah,

Ga., en route for New York. The hour of leaving was somewhat later than the scheduled time, and darkness had settled down before Tybee Island had been passed, and when the waning moon had risen the craft was well out on the open sea. The following morning daylight found her out of sight of land, enjoying, as from the beginning, a calm voyage, which condition continued until her destination was reached. It was then discovered that a female Boat-tailed Grackle (*Quiscalus major*) was on board, where in all probability it had come during the period of darkness on the Savannah River.

The next day, June 9, it was still on board, and it was then evident that it was an unwilling passenger. From the first it had been rather wild, and remained in the rigging at the mast heads. It was observed to make several flights out from the ship, rising higher in the air, and circling quite around, always returning to its elevated perch. As hunger pressed it, it became less timid and came down on the cabin roof in search of food. When darkness came the bird was still on board. The last day of the voyage, June 10, the sun was well up when I went on deck, and the Jersey Heights were astern. My first thought was for our avian fellow-passenger, but a careful search showed that it was gone, probably having left with great gladness at the first positive view of land. This instance seems of more than a passing interest, showing an actual case of straggling by the agency of a ship.—ARTHUR H. NORTON, *Westbrook, Me.*

The Grasshopper Sparrow in Maine, and Other Notes.—When returning from a short trip with Mr. J. M. Swain, on June 8, 1901, we heard a thin sparrow-like song which we could not identify. The bird was in a large field not far from my home, and as the singer proved shy, I got my gun and soon secured it. It proved to be a Grasshopper Sparrow (*Coturniculus savannarum passerinus*), the first to be taken in the State since Boardman's original specimen, captured many years ago.

A Red-tailed Hawk (*Buteo borealis*) was seen May 1, 1901. Though not uncommon in other localities it is rare here.

A Scarlet Tanager (*Piranga erythromelas*) was seen here May 22, 1900. It is the only one seen in many years.

The Meadowlark comes regularly, though in small numbers. The present year, 1902, they have sung constantly in the field back of my home.—C. H. MORRELL, *Pittsfield, Me.*

Another Scarlet Tanager for Colorado.—On May 17, 1902, a male Scarlet Tanager (*Piranga erythromelas*) was shot at Palmer Lake, El Paso Co., Colorado, by Wm. C. Ferril, Curator of the Colorado State Historical and Natural History Society. The specimen was mounted by the writer, in the routine work of the museum, and is now in the collection at the State Capital, Denver, Colo.

This, I believe, is the fourth capture of the species within Colorado, and the fact seems worthy of record.—HORACE G. SMITH, *Asst. Curator, State Hist. and Nat. Hist. Soc., Denver, Colo.*

Piranga rubra — Another Long Island, N. Y., Record.— It will be of interest in connection with the record of this species made by Dr. Braislin (*antea*, p. 147), to note another.

My correspondent, Mr. Selah B. Strong of Setauket, L. I., wrote to me April 11, 1901, as follows: "This morning I saw a, to me, new bird. It was about three quarters the size of a robin. Head, and nearly his entire body, between cardinal and scarlet with a shade of grayish brown on wings." I at once sent Mr. Strong a specimen of the Summer Tanager for comparison and he wrote that there was no doubt of the identity of the bird.

On April 22 Mr. Strong wrote as follows: "The Tanager is becoming very tame and I see him constantly; during yesterday's storm he was swinging on the vines on the front of the house, and when I went out of the door he flew from under the steps; again he was on the ground in front of my study window and did not mind our watching him. At present he is flitting among the trees in the orchard."

A subsequent letter from Mr. Strong stated that although the bird remained over ten days on his premises it finally disappeared.— WILLIAM DUTCHER, *New York City*.

Blue-winged Warbler (*Helminthophila pinus*) near Boston, Mass.— In the afternoon of May 29, at Waverley, Mass., I was walking in a meadow through which a brook flowed. The banks of the brook were thickly grown with trees and shrubs. From the border of this growth came the two-note song of this warbler, and it was repeated continuously during the hour or more I spent in the vicinity. I first saw the bird working his way through a tall bush, and while I watched him his preference seemed to be for the smaller trees and border shrubs. He was not shy, so I had excellent opportunity, sometimes from within three or four feet, to observe all his distinctive markings. I think there were two birds there, but I am positive of only one, an adult male.— GUY EMERSON, *Brookline, Mass.*

Capture of Kirtland's Warbler at Ann Arbor, Michigan.— I have the pleasure of recording the capture of a fine female Kirtland's Warbler (*Dendroica kirtlandi*) taken by myself on the morning of the 14th of May of this year, almost within the city limits of Ann Arbor. I had the pleasure of watching the motions of this rare bird, as it was low down on the branches of an elm at the side of the road. This bird was very slow, yet graceful in its movements, as it searched the buds and leaves for its food. I went so close to it that I could see the markings plainly and knew it was a Kirtland's, for it is almost exactly the counterpart of the one we have here in the Museum. While I observed it I did not hear a note and its slow, deliberate movements reminded me of *Dendroica palmarum*. I should have watched it longer only it was likely to be frightened away by passers-by, so I shot it and have it now finely mounted.— NORMAN A. WOOD, *Ann Arbor, Mich.*

The Louisiana Water-Thrush (*Seiurus motacilla*) near Boston.—On the morning of April 13, 1902, I found a Louisiana Water-Thrush feeding about the edge of a pool of water near my house in Wellesley, Mass. He remained there for at least ten days, being last seen on the 22d. At first he sang with great constancy, though hardly with full voice, but after a few days he fell silent, as if (so I thought) he had discovered that he was out of his latitude, and was becoming discouraged. As I determined his identity with the aid of nothing but a field-glass I am pleased to be permitted to add, by way of confirmation, that he was seen on three occasions by Mr. C. J. Maynard. To the best of my knowledge the species has never before been recorded from eastern Massachusetts.—BRADFORD TORREY, *Wellesley Hills, Mass.*

Seiurus motacilla in Eastern Massachusetts.—On May 21, 1902, Messrs. Francis G. and Maurice C. Blake of Brookline observed a single bird on the north bank of the Charles River, above Waltham. The bird was watched from within a few feet and there is no doubt of its correct identification.—REGINALD HEBER HOWE, JR., *Longwood, Brookline, Mass.*

The Carolina Wren in Eastern Massachusetts.—On May 4, 1902, I found a Great Carolina Wren (*Thryothorus ludovicianus*) in an orchard in Belmont, Mass. The bird was singing freely. The people in the house near by said that they had heard him about the place for three or four days. Since May 4 I have neither seen nor heard the bird. According to Messrs. Howe and Allen, 'Birds of Massachusetts,' p. 92, this is the seventh record of this bird for the State, and the only record for the spring.—RALPH HOFFMANN, *Belmont, Mass.*

A Mockingbird near Boston.—I observed a Mockingbird (*Mimus polyglottos*) at Roslindale, a suburb of Boston, March 23 of this year. I had learned of the bird's presence through Mrs. S. Stevens of Roslindale, who saw him first Feb. 27 and afterward several times during March. She last observed the bird March 27. When I saw him he was in full song and mocked with varying degrees of accuracy, the songs of the Bluebird, Robin, White-eyed Vireo and Bobolink, the long call of the Downy Woodpecker, and the *wick-up* call or song of the Flicker. I detected no hint of any domestic sound in his mimicking, and this, together with the fact that his tail-feathers were in perfect condition, suggest that he was a wild bird and not an escaped captive. This Mockingbird was very likely the same as the one observed on several different dates and in localities at some little distance from this by Dr. A. L. Reagh.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

The Catbird again in Rhode Island in Winter.—Noticing the recording of *Galeoscoptes carolinensis* in Massachusetts and New Hampshire in winter (Auk, XIX, April, 1902, p. 208), it may be of interest to report that I

have seen an individual of this bird in Pawtucket, R. I., several times during the past winter. The first date was Dec. 28, 1901; the second, Jan. 16, 1902; and the subsequent dates were Feb. 3 and 12, and March 4, 1902. There is no doubt it was the same bird each time, as each observation was made in the same locality,—a swampy sheltered stretch along an old canal. The last time I recorded this bird he appeared to be having trouble with a flock of Jays.—C. C. PURDUM, M. D., *Pawtucket, R. I.*

Note on Birds from the South Pacific.—Mr. Joseph R. Slevin, cadet on the S. S. Ventura, has kindly presented to the California Academy of Sciences the birds that came aboard during the last voyage, namely: one male *Oceanodroma leucorhoa*, January 27, 1902, Lat. $3^{\circ} 30'$ S., Long. $167^{\circ} 10'$ W.; three female *Sterna fuliginosa*, one male *Puffinus chlororhynchus*, one male *Puffinus nativitatis*, January 28, 1902, Lat. $9^{\circ} 21'$ S., Long. 169° W. All these birds struck the ship in the night when it was raining, probably lured to it by the lights. The *Oceanodroma leucorhoa* does not differ from specimens from California, Oregon, and the Grand Banks. This species perhaps affords another instance of interhemisphere migration.—LEVERETT M. LOOMIS, *California Academy of Sciences, San Francisco, Calif.*

Unusual Winter Records.—Owing to the unusually mild weather and frequent thaws of the past winter, a great many birds have wintered here (Cambridge, Mass.) which usually pass farther south. I have observed the following:—

American Robin. Large flocks, seen about Arlington Heights until February 1, after which date only a few were seen until the spring migration. Their chief food was the berries of the buckthorn.

Hermit Thrush. One seen on the 14 and 16 of December in the Harvard Botanical Gardens in this city.

Long-billed Marsh Wren. One seen in the Fresh Pond marshes until February 12.

Swamp Sparrow. Several seen in the Fresh Pond marshes throughout the winter.

White-throated Sparrow. One seen December 7 and 8; and one singing on March 28, near Belmont. They probably wintered.

Savanna Sparrow. One seen at Ipswich on March 31. As Mr. R. H. Howe, Jr., shot one at the same place on January 18, this probably had wintered there.

Meadowlark. Several seen in Fresh Pond marshes until December 17.

Red-winged Blackbird. Several seen throughout the winter in the Fresh Pond marshes.

Cowbird. Two seen in the Fresh Pond marshes on December 26.

American Woodcock. One seen on December 1 and 8 on the edge of a pool near Arlington Heights.

Towhee. On March 22, my friend, Mr. John De Q. Briggs, saw two Towhees at Plymouth, Mass. As they do not usually arrive in Massachusetts before the 20th of April, it is probable that they had wintered in that region. — ARTHUR C. COMEY, *Cambridge, Mass.*

Colorado Bird Notes.—I desire to record a Western Blue Grosbeak (*Guiraca caerulea eurhyncha*) taken near Altona, Boulder Co., Colo., August 16, 1901. The farthest north this bird had previously been observed in Colorado was at Morrison.

I wish also to record the observation of an Indigo Bunting (*Cyanospiza cyanea*) near Clear Creek, Denver, Colo., May 7, 1901. This is the fourth record for Colorado.

May 19, 1900, I found twelve Forster's Terns (*Sterna forsteri*) breeding at Barr, Colo. Mr. Ridgway states (Bull. Essex Institute, V. Nov. 1873, 174) that a few were found breeding in the State. I have found no records of their breeding here since that time.

Also at Barr, on June 20, 1900, I found a set of Canvasback's (*Aythya vallisneria*) eggs, and on July 4 I found another set, which was apparently laid by the same bird. I was informed upon good authority that there were two other pairs breeding in the vicinity. As far as I can determine this is the first record of the Canvasback's breeding in Colorado.—A. H. FELGER, *Denver, Colo.*

Some Southern New Hampshire and Western Massachusetts Notes. — The young bird student who has developed comparatively good observing powers, but has as yet no reputation, is unfortunate if he is made sole witness to interesting bird happenings which cannot be authenticated. I cannot hope that the following will all be accepted as records; for, by singularly bad luck, the bird was not secured in any one of the more interesting cases; and I can only wish they had fallen to the lot of some trusted man.

NEW HAMPSHIRE.

On July 28, 1900, I saw on the shore of a small lake (Nubanusit Lake) in Hillsboro County, southwestern New Hampshire, just over the line from Cheshire County, a Lincoln's Sparrow (*Melospiza lincolni*), whose actions seem to prove it a breeding bird.

Nubanusit Lake, partly in Cheshire and partly in Hillsboro County, is a deepish sheet of clear water, of irregular form, being nearly three miles long and varying in width from less than a tenth of a mile to about a mile and a quarter. It lies at a height above the sea of 1368 feet, while some of the spruce-clad hills by which it is surrounded reach a height of nearly 2300 feet.

The lake shore, which is now almost entirely wild, is here and there swampy and bush-grown, but mainly covered by a dense forest of fair-

sized second-growth spruce trees; while in a few places these have lately been cut, leaving brush-heaped and bramble-covered clearings, with small clumps of spruce saplings; and these tracts are the breeding ground of many Song and White-throated Sparrows. The general aspect of the place is so northern, and its summer avifauna includes so many more or less strictly Canadian species, such as Swainson's Thrushes, Olive-sided Flycatchers, Winter Wrens, Loons, Brown Creepers, Myrtle and Magnolia Warblers, etc., that one is tempted to the hope of finding some still more northern birds breeding there.

As I was walking along the shore of this lake, at one of the cleared and scrubby points, without a gun, on the afternoon of July 28, 1900, a small sparrow, holding something in its bill, hopped onto a bush-top about four yards ahead of me, and fluttered from twig to twig, chirping anxiously. At first glance I saw that it looked wrong for a Song Sparrow, and at the second, as the bird flew to a still nearer bush, that it was an unmistakable, clearly marked Lincoln's. Flying back and forth from one bit of scrub to another, with all the actions of a bird disturbed over an intruder's near approach to its nest, it stayed in plain sight before me, at a distance varying from three to six yards, for fully two minutes, during which time I had, short of actually holding it in my hands, the fullest possible opportunity of studying its form and markings, in many aspects. When it finally dropped to the ground among the lower bushes and disappeared, I had time to make only a short search for a possible nest, and was forced to come away without even finding the bird again. Since then my father and I have searched carefully the shore of the lake; once later in the summer of 1900, and twice in the summer of 1901; but we have seen no further signs of *Melospiza lincolni*. It is a species I know comparatively well, both in the hand and at large, having grown very familiar with it during the spring migration of 1900, and there is, for me, no possible doubt that the Nubanusit Lake bird was an actual Lincoln's Sparrow.

In a wood of tall mixed timber, at Chesham, N. H., six miles north of Mt. Monadnock, on May 18, 1899, my father watched for several minutes at close range a female Black-backed Three-toed Woodpecker (*Picoides arcticus*). The bird was feeding on a stump fifteen feet above his head, and he had an excellent chance to examine it. Considering the lateness of the season, this is a very southern record.

On August 19, 1901, I saw at Dublin, N. H. (1500 feet above sea-level), at the northern base of Mt. Monadnock, a Louisiana Water-Thrush (*Seiurus motacilla*). Early that morning, as I was lying just awake in my open tent among birch and poplar saplings, listening to the chipping of many early migratory warblers, I heard near by an unusually loud and ringing Water-Thrush call. The northern Water-Thrush (*S. noveboracensis*) is a common migrant here, and even breeds regularly in one locality, and, though I was surprised by the loudness of the chip, I had no thought of seeing anything but one of these birds. Sitting up in bed, I began 'squeaking' with my lips, and almost instantly the Water-Thrush

flew to a birch-branch within ten feet of the front of my tent, and stayed there in full view for fifteen or twenty seconds, while my astonished eyes took in its gleamingly white superciliary stripe, widely immaculate throat and belly, buffy sides, and dark crown clearly defined against a lighter back. I could scarcely have had a more complete and convincing view of a bright-plumaged southern Water-Thrush, inasmuch as its large bill was the only distinctive point of which I did not manage to record a clear image. I hurriedly got up and went to the house for a gun, and was delighted to still hear the bird's ringing chip when I came out armed. But though I heard it several times thereafter and twice saw it at a distance, it proved extremely shy or restless and soon escaped me completely. No doubt this is too important a record to be accepted on such insufficient evidence, and I must stand alone in my absolute conviction that *Sciurus motacilla* has wandered to New Hampshire.

The Philadelphia Vireo (*Vireo philadelphicus*), which is known as an extremely rare visitant to Massachusetts, and has never been recorded from the northwestern part of that State, seems to be a regular and not very uncommon migrant in the vicinity of Mt. Monadnock, in the southwestern corner of New Hampshire. We have shot one in late May, 1897, near Fitzwilliam, within a mile or two of the Massachusetts line, on the south side of the mountain; one in late September, 1899, at Dublin, on the north; and a third at the same place and season in 1900. Besides these three, which are all preserved in our collection, we have seen and positively identified several others in the fall migration at Dublin. All these we have seen were in the company of flocks of migrating warblers, in scrubby second-growth along road-sides.

MASSACHUSETTS.

Since the finding of three nests of the small Shrike (be it *migrans*, *excubitorides*, or *ludovicianus*), by Mr. S. G. Tenney in Williamstown several years ago, there does not seem to be any record of the bird's occurrence in Berkshire County. It is therefore worth recording that on August 18, 1900, I saw a brightly-plumaged small shrike on one of the high pasture hills between Lanesboro and Berkshire village. The bird flew from a low bush near me to the top of an elm tree, where I watched it for several minutes. This is the only one I have seen in the region, though I have found in the thorn-bushes of those hills several old nests which seemed to be shrike nests.

On August 15, 1900, a very large young Goshawk (*Accipiter utricapillus*), in brilliantly mottled plumage, flew close past me on the heavy-forest-bordered road low down on the eastern side of Hoosac Mountain, just within the boundaries of Berkshire County. This is perhaps the first summer record for the county. On August 21 of the same year, I saw two Duck Hawks (*Falco peregrinus anatum*) circling about over the Cheshire reservoir, in the town of Lanesboro.

The White-winged Crossbill (*Loxia leucoptera*) does not seem to have been recorded from any part of Massachusetts in summer. In the wonderful spring of 1900, when, amid an unusually copious migration of birds from the south, the Lesser Red-poll Linnets lingered about the lower Hudson River till the last days of April, and White-winged Crossbills at least till May 29, and almost certainly later, the stay of the latter birds in Berkshire, Mass., lapped over into June. On the 3d and 4th of that month I saw a flock of five or six in the town of Lanesboro, and there is little doubt that they might have been found still later on Mt. Greylock; especially as they seem to be rarely wholly absent at any season from the spruce woods of Mt. Monadnock, only 56 miles to the east-northeast. — GERALD H. THAYER, *Monadnock, N. H.*

Notes on the Spring Migration of Birds in the Northern Adirondacks, New York.—During the latter half of the second semester, from April until June, it is customary for the students of the Junior and Senior classes of the Cornell College of Forestry to spend their time in practical work in the demonstration forest at Axton, in the northern Adirondacks. It was while doing work as a student under the above conditions that I found time to make a hasty survey of the bird population of the region, and to prepare a check-list covering the period from April 16 to June 12, 1901.

Arriving as we did while snow still covered the ground, we found on hand few birds except the native winter residents, and hence were able to watch and note accurately the date at which the migrating birds reached this northern forest. Our work, too, was of a nature which took us daily into the woods and fields, and covered a wide range of territory, hence new arrivals were promptly seen and recorded.

To the best of my knowledge no list has been published giving dates at which birds in their northern migration arrive in this part of the Adirondack region, so I have ventured to append the result of my observations, claiming for the same no special merit or absolute degree of accuracy. The errors, however, lie rather in sins of omission than commission, as no birds are mentioned in the list which were not seen and identified with certainty. On the other hand, it is certain that several species visited the region which were not recorded, owing to the fact that they refused to pose before the opera glass long enough to have their identity established. Surrounding the Forester's camp at Axton is a clearing of several hundred acres, thus combining in close relation the conditions of open fields and dense forests, and in consequence broadening the field for bird study.

The following is a condensed copy of the check-list, showing first, under date of April 16, the birds seen on the day of our arrival:

April 16. Also occurring during the whole season.

Red-winged Blackbird. Common.

Rusty Grackle. Numerous flocks.

Ruffed Grouse. Tolerably common.
 Song Sparrow. Common.
 Robin. Tolerably common.
 Downy Woodpecker. Not plentiful.
 Junco. Tolerably common.
 Crow. Tolerably common.
 Chickadee. Tolerably common.

April 16 to 20.

Cliff Swallow. Several flocks.
 Tree Sparrow. Nesting in small numbers.
 Fox Sparrow. Not common.

April 20 to 25.

Pileated Woodpecker. Rare.
 White-throated Sparrow. Common.
 Hairy Woodpecker. Not common.
 Red-shouldered Hawk. With young.
 Chipping Sparrow. Common in small flocks.
 Bluebird. Not plentiful.
 Blue Jay. Not common.
 Wilson Thrush. Tolerably common.

April 25 to 30.

Flicker. Tolerably common.
 Goldfinch. Tolerably common in flocks.
 Winter Wren. Tolerably common.
 White-eyed Vireo. Not common.
 Horned Lark. A few transient visitors.
 Phæbe (Pewee). Tolerably common.
 Vesper Sparrow. Not common.
 Spotted Sandpiper. Not common.
 Warbling Vireo. Not common.
 Tree Swallow. Tolerably common in flocks.
 Barn Swallow. Tolerably common.

April 30 to May 5.

Golden-crowned Kinglet. Not common.
 Yellow-rumped Warbler. Tolerably common.
 Ringed-billed Gull. Nesting in small numbers.
 Kingfisher. Not common.
 Yellow-bellied Sapsucker. Not common.
 Red-breasted Nuthatch. Not common.
 Fish Hawk. One pair nesting.

Purple Finch. Not common.
Loon. Rare.
Black Mallard. Not common.

May 5 to 10.

White-crowned Sparrow. Tolerably common.
Wood Thrush. Tolerably common.
Least Flycatcher. Not common.

May 10 to 15.

Black-throated Blue Warbler. Not common.
Bobolink. Small flock.

May 15 to 20.

Kingbird. Tolerably common.
American Redstart. Not common.
Yellow-throated Vireo. Not common.
Chestnut-sided Warbler. Tolerably common.
Black-and-White Warbler. Not common.

May 20 to 25.

Ruby-throated Hummingbird. Not common.
Rose-breasted Grosbeak. Rare.
Indigo Bunting. Not common.
Baltimore Oriole. Not common.
Catbird. Tolerably common.

May 25 to 30.

Nighthawk. Not common.
Blue Heron. Not common.
Canada Jay. Tolerably common.
Scarlet Tanager. Not common.
Whip-poor-will. Heard occasionally.
Black-poll Warbler. Not common.

May 30 to June 5.

Red-poll Warbler. Not common.
Chimney Swift. Not common.

Very little time was spent in hunting nests, hence information as to the nesting time is rather meagre. One good find, however, of this nature was the discovery of two Ring-billed Gull's nests on small rocks which projected above the water of a near-by pond. From six to twelve gulls

could be seen at almost any time in the vicinity of this pond, but the two flat nests of sticks and grass, one with two eggs and the other with three, were the only evidences of breeding which could be found, the whole colony of birds seeming to confine their attentions to these two nests. Frequently when disturbed four or five of the birds would settle around one nest, and then take flight, one by one, leaving one bird in final possession. The eggs were laid on May 7, and when last examined, four weeks later, had not yet hatched. The accompanying photograph (Pl. IX, fig. 2, facing p. 287) shows the nature of the nest and the marking of the eggs. In the top of a dead pine and within rifle shot of the gull's nesting site was found the nest of the only pair of Ospreys seen in the region.

Many notes were kept concerning the doings and habits of the various birds, but they do not differ materially from records kept elsewhere and hence need not be mentioned. One unusual occurrence, however, was the evening drumming of a Ruffed Grouse during a period of some three weeks in May. Beginning each evening about nine o'clock, this energetic bird, at regular intervals, would sound the rolling, drum-like beat so characteristic of the species, often continuing its subdued love tattoo until late into the night.—E. A. STERLING, *Brooklyn, Pa.*

Some Notes from Western Texas.—An unexpected delay in the publication of the results of our work in Texas under the auspices of the Biological Survey has suggested the desirability of making known through the medium of 'The Auk' some of our more interesting discoveries in the western part of the State. With but few exceptions the species mentioned below are unrecorded from Texas.

Columba fasciata.—Common in the Chisos, Davis, and Guadalupe Mountains.

Syrnium occidentale.—Found by Mr. Vernon Bailey and Mr. L. A. Fuertes in the Guadalupe Mountains.

Antrostomus macromystax.—Common in the Chisos Mountains, and noted also in the Guadalupe Range.

Aëronautes melanoleucus.—Of regular occurrence in the Chisos, Davis, and Guadalupe Mountains.

Cœligena clemenciæ.—Common in the higher parts of the Chisos Mountains.

Calothorax lucifer.—Taken in the Chisos Mountains.

Myiarchus nuttingi.—Found in the hills south of Alpine.

Empidonax difficilis.—Occurs in the Chisos and Guadalupe Mountains.

Cyanocitta stelleri diademata.—Of tolerably common occurrence in the Davis and Guadalupe Mountains.

Aphelocoma sieberii couchi.—Abundant in the Chisos Mountains, but not observed elsewhere.

Cyanocephalus cyanocephalus.—Mr. Bailey reported it tolerably common in the Guadalupe Mountains.

Loxia curvirostra stricklandi.—A small flock was found by Mr. Bailey in the Chisos Mountains.

Piranga hepatica.—Tolerably common in the Chisos, Davis, and Guadalupe Mountains.

Piranga rubra cooperi.—Common in suitable localities in extreme southwestern Texas.

Vireo solitarius plumbeus.—Tolerably common in the mountains west of the Pecos River.

Dendroica graciae.—Mr. Bailey secured one specimen in the Guadalupe Mountains.

Wilsonia pusilla pileolata.—A tolerably common transient in western Texas.

Sitta pygmaea.—Common in the Guadalupe Mountains.

Parus inornatus griseus.—Fairly common in the Guadalupe Mountains.

Parus gambeli.—Common in the higher portions of the Davis and Guadalupe Mountains.

Psaltriparus plumbeus.—Abundant in the high mountains of southwestern Texas.

Psaltriparus melanotis lloydi.—Abundant in the Chisos and Davis Mountains, and also in the Ord Mountains south of Alpine.

Polioptila caerulea obscura.—Common in suitable localities west of the Pecos River.—HARRY C. OBERHOLSER, *Washington, D. C.*

RECENT LITERATURE.

Campbell's Nests and Eggs of Australian Birds.¹—Mr. Campbell is to be congratulated by all his brother ornithologists on the satisfactory completion of a great undertaking. The 'Nests and Eggs of Australian Birds' forms a work of over 1100 rather closely printed pages, and treats of 765 species and subspecies. The eggs of many of the species are illustrated in the 27 colored plates, and the nests and eggs and breeding sites of many more in the large number of very effective half-tone illustrations, published as full-page plates. There is also a portrait of the

¹Nests and Eggs | of | Australian Birds | including the | geographical distribution of the species | and | popular observations thereon | By | Archibald James Campbell | Melbourne | With Map, 28 Coloured Plates and 131 Photographic Illustrations | — | Part I [and II] | — | Printed for the author | by | Pawson & Brailsford, Sheffield | 1900. | (All rights reserved)—Roy. 8vo, Part I, pp. i-lx + 1-524; Part II, pp. 524-1102, frontispiece (pt. I), portrait of John Gould; frontispiece (pt. II), portrait of the author, map, 26 colored plates, and 131 half-tone illustrations.

author, and of the late John Gould, to the memory of whom and of his assistant John Gilbert the work is appropriately dedicated. The introduction contains an interesting account of the progress of Australian ornithology, beginning with biographical sketches of Gould and Gilbert, especially in relation to their Australian work, and including briefer notices of other pioneer workers in the same field.

The main text consists of, first, references to where the species is figured, its place of treatment in the British Museum 'Catalogue of Birds,' and to previous descriptions of its eggs. Then follows a brief statement of its geographical distribution, and a formal description of the nest and eggs, and finally, under 'Observations,' an account of its habits and distribution.

The avifauna of Australia presents an unusual number of birds of remarkable interest in respect to their domestic life and breeding habits, all of which are treated with the detail their peculiar interest warrants. The playgrounds of the several species of Bower Bird, and the wonderful nesting habits of the mound-building Megapodes are affectively illustrated by full-page half-tone plates, while the accompanying text is extended to meet the requirements of a detailed account of these remarkable "ornithological curiosities."

A few of the nests and eggs of Australian birds still remain undiscovered, but the proportion of the unknown is not large. Mr. Campbell's grand work well covers the field, and is a credit alike to his industry, intelligence, and zeal. While the greater part of the half-tone illustrations are from photographs taken by the author, many are credited to Mr. D. Le Souëf and a considerable number of others to Mr. S. W. Jackson. The colored plates of eggs are from drawings by Mr. C. C. Brittlebank, and represent the eggs of about 200 species which lay colored eggs, no white eggs being figured. — J. A. A.

Woodcock's Birds of Oregon.¹ — Mr. Woodcock's List numbers about 325 species, this number including a few introduced species. It has evidently been compiled with care, and forms a valuable record of the birds of the State. The author's own observations relate chiefly to the vicinity of Corvallis, and if his list had been confined to this locality we are not sure it would not have been quite as valuable, as it would certainly have been a more convenient and definite contribution to faunal literature. In compiling a list to include all the birds of the State—the need for which was doubtless felt to be urgent—the author has availed himself of

¹ An Annotated List of the Birds of Oregon. Compiled from data furnished by ornithologists throughout the State, together with extracts from Belding's "Land Birds of the Pacific District," and Bendire's "Life Histories of North American Birds." By A. R. Woodcock. Bull. No. 68. Oregon Agricultural Experiment Station, Corvallis, Oregon, Jan., 1902. Svo, pp. 118.

not only the published records of Bendire, Belding, Anthony, Mearns, Merrill and others, but of the unpublished observations of a number of observers residing in different parts of the State, but mainly, naturally, west of the Cascades. These records are wisely given on the authority of the observer who made them, for while in most cases doubtless thoroughly trustworthy, the particular subspecies to which, in some instances, they purport to relate seems open to question, as in the case of some of the finches and sparrows. The arrangement and nomenclature of the A. O. U. Check-List have been adopted, but in respect to recent changes in the latter the later 'Supplements,' appear to have been overlooked. The List was prepared as a thesis for the degree of M. S. in the Oregon Agricultural College. It forms an excellent basis for further detailed work, and will doubtless prove not only a great convenience but a stimulus to future workers. — J. A. A.

Proceedings of the Delaware Valley Ornithological Club.¹—The fifth annual report of the proceedings of the Delaware Valley Ornithological Club appears under the title 'Cassinia: An Annual devoted to the Ornithology of Pennsylvania and New Jersey,' and forms a well printed brochure of 60 pages and two plates. The frontispiece is a full-length portrait of John Cassin, and the first article is, very appropriately, a biographical sketch of this eminent Philadelphia ornithologist, by Mr. Witmer Stone. His brilliant career as an ornithologist is traced briefly and sympathetically by one upon whom, at least officially, the Cassinian mantle has fallen.

Mr. Francis R. Cope, Jr., gives an annotated list of the summer birds of parts of Clinton and Potter Counties, Pennsylvania, numbering 76 species, observed June 21–28, 1900. Several pages of introductory remarks relate to the changes in the fauna and flora of the Pennsylvania mountains through the removal of the original forest. "Wherever, indeed," says the author, "the original forest is disappearing under axe and fire, especially in those sections where the hemlock and other coniferous trees are being cut away, there just as surely we may look for the disappearance of most of our boreal birds and plants." Again, "where those forests still exist in large tracts, as, for example, they did a few years ago on North Mountain, there we find a very strong, if not a predominating, tinge of the Canadian fauna. On the other hand, where they have been entirely destroyed or broken up into isolated patches, those birds which may be regarded as typical of the Alleghanian fauna are in the majority."

Mr. William L. Baily describes his successful attempt to photograph a Nighthawk's nest and young, and an accompanying plate gives views of

¹ Cassinia, A Bird Annual: Proceedings of the Delaware Valley Ornithological Club, No. V, 1901. Svo, pp. 60, pl. 2. April, 1902.

the eggs and young *in situ*, as well as a larger view of the young birds. Other papers are: 'A Walk to the Paoli Pine Barrens,' by William J. Serrill; 'The Yellow-winged Sparrow in Pennsylvania,' by Samuel Wright; 'Trespassing of the Rose-breasted Grosbeak in the Carolinian Fauna,' by William B. Evans; 'Nesting of the Mockingbird in Eastern Pennsylvania,' by W. E. Roberts and W. E. Hannum; 'A Spring Migration Record for 1893-1900,' by Frank L. Burns.—a tabular record of observations made at Berwyn, Chester Co., Pa.; 'The Spring Migration for 1901,' as observed by different members of the Club at five localities; an abstract of the proceedings of the Club for 1901, containing many interesting records. 'Bird Club Notes,' a list of the officers and members, and an index complete this interesting record of the year's work of the Club. The Club membership consists of 14 active members, 1 Honorary member, 53 Associate members, and 31 Corresponding members. In this connection attention may be called to an interesting historical sketch of the Delaware Valley Ornithological Club, by Mr. Samuel N. Rhoads, one of its founders, published in the April, 1902, number of 'Bird-Lore,' with a photograph of the Club in session.—J. A. A.

Lucas on a New Fossil Flightless Auk.¹—On the basis of a nearly complete humerus found in excavating a street tunnel at Los Angeles, California, Mr. Lucas has founded the new genus and species *Mancalla californiensis*, an extinct species of auk which he believes to have been flightless. He says: "The bird to which this humerus belonged was more highly specialized, more completely adapted for subaquatic flight, than the Great Auk, although the wings were not so extremely modified as those of the penguins The occurrence of a flightless auk at so low a geological horizon as the Miocene is of great interest, as indicating a much earlier origin for the family."—J. A. A.

Perkins and Howe's Preliminary List of the Birds of Vermont.²—The authors state that one of the main objects in publishing the present list is "that fuller information as to our resident and migratory birds may be gained"; and that they regard it "as in no sense final, but only provisional." Acknowledgments are made of indebtedness to previous publications on the birds of the State, and for much hitherto unpublished information generously contributed by correspondents. The number of

¹A Flightless Auk, *Mancalla californiensis*, from the Miocene of California. By Frederick A. Lucas. Proc. U. S. Nat. Mus., Vol. XXIV, 1901, pp. 133, 134.

²A Preliminary List of the Birds Found in Vermont. By George H. Perkins, Ph. D., Professor of Natural History, University of Vermont, assisted by Clifton D. Howe, M. S. Assistant in Biology, University of Vermont. Twenty-first Ann. Rep. Vermont State Board of Agriculture for 1901 (1902), pp. 85-118. Also separate, pp. 1-34, Dec. 1901.

species recorded is 261, of which 19 are classed as permanent residents, 130 as migrants, 107 as summer residents, and 14 as winter residents. Although "the nomenclature used by the American Ornithologists' Union has been followed," it has not been brought up to date, "the names given being those found in Ridgway [*sic*] and other accessible manuals," better to adapt the list "for popular use," as "the list is not issued for the professional ornithologist."

The list is briefly annotated, but is evidently not based on thorough acquaintance with the ornithology of the State, and thus unfortunately contains some errors, both of omission and commission.

These need not be here dwelt upon, since Mr. Reginald Heber Howe, Jr., has pointed them out in a recent extended review of the list.¹ Mr. Howe states that he had had in view for some time the publication of a list of the birds of Vermont, and that he had "collected and compiled all the available data," which he now presents in the form of a review of Professor Perkins's 'Preliminary List.' Each species is taken "for convenience sake," in the order of the original list, and corrections of misstatements as to seasons or manner of occurrence are corrected, species improperly included are eliminated, and omitted species are added. According to this author's 'recapitulation' (p. 22), the total number of species entitled to recognition as Vermont birds is 255, as against "266" (261+3 informally mentioned = 264) in the Perkins list, 27 species and 3 subspecies having been "expunged," and 14 species and 2 subspecies added. Of the additions, however, four-fifths are water birds, for the most part of casual or accidental occurrence, and several of the "expunged" species have quite as good a right to a place in the list as some of those Mr. Howe adds. In other cases Professor Perkins admitted species on the authority (which he states) of other observers, which authority, justly or unjustly (doubtless the latter, in some cases) Mr. Howe rejects as insufficient. In short, Professor Perkins's list is not such a bad list, as lists go when not prepared by an expert; it contains loose statements as to the manner of occurrence of quite a number of species, includes a few on insufficient data, and omits a few others, usually of rare or accidental occurrence, recorded in such a way as readily to be overlooked by the ordinary compiler. On the other hand Mr. Howe's review, while correcting many of the defects of the Perkins list, is hypercritical in spirit, and not altogether consistent in treatment of practically similar cases. Take the Canvasback Duck, Barrow's Goldeneye, the Least Bittern, Dowitcher, etc., included as positively known to occur by Perkins but thrown out by Howe because no Vermont specimen can be cited, and the Marbled Godwit, etc., included on the basis of its

¹A Review of Prof. George H. Perkins' "A Preliminary List of the Bird found in Vermont." By Reginald Heber Howe, Junior. Contributions to North American Ornithology, Vol. II, pp. 5-22. Jan. 30, 1902.

mention in Williams's 1794 List, which in other cases is rejected by Mr. Howe as incompetent authority.

Another feature hardly fair to Mr. Perkins is the rejection in Mr. Howe's 'Review' of ten species which, without direct comparison of the two lists, the reader would suppose were to be found in the Perkins list, but which are not, and are introduced by Howe for comment because accredited to Vermont, as he believes, on insufficient evidence.

Mr. Howe's 'Review' is, however, an important contribution to a more correct knowledge of Vermont birds, and together the two papers form a substantial basis for further work. — J. A. A.

Packard's 'Lamarck, His Life and Work.'¹ — Although Lamarck cannot be ranked as an ornithologist, his views on evolution, and the life of the man cannot fail to be of interest to every biologist. In this volume Dr. Packard has very charmingly brought together the little that is known of his personal history and heroic struggle with many adverse circumstances, and a translation of the more important of his writings relating to evolution. That he paved the way for the doctrine so ably established by Darwin half a century later has become duly recognized. Yet the views of these two great investigators were in reality quite different, Lamarck's being the broader, and in some respects the more fundamental. In a word, Lamarck was an evolutionist in a broad sense, Darwin a natural selectionist. Lamarck was a believer in the transmutation of species through the direct influence of environment, the use and disuse of parts, effort, habit; the 'survival of the fittest' principle, or 'natural selection' was the important contribution of Darwin. While Darwin has his multitude of followers, so has Lamarck. Neolamarckism is only Lamarckism shorn of certain crudities naturally involved in the first conception of a great theory when biology was in its infancy. — J. A. A.

'Upland Game Birds.'² — This is the second volume, in point of issue, of the 'American Sportsman's Library' series, to be completed in ten volumes, under the editorial supervision of Mr. Caspar Whitney, the

¹ Lamarck | the Founder of Evolution | His Life and Work | with translations of his | writings on Organic Evolution | By | Alpheus S. Packard, M. D., LL. D. | Professor of Zoology and Geology in Brown University; author of "Guide to the | Study of Insects," "Text-book of Entomology," etc., etc. | . . . | Longmans, Green, and Co. | 91 and 93 Fifth Avenue, New York | London and Bombay | 1901. — 8vo, pp. xiv+451, with illustrations.

² Upland Game Birds | By | Edwyn Sandys | and T. S. Van Dyke | Illustrated by L. A. Fuertes, A. B. Frost | J. O. Nugent, and C. L. Bull | [Vignette] New York | The Macmillan Company | London: Macmillan & Co., Ltd. | 1902 | All rights reserved. American Sportsman's Library Series. 8vo, pp. ix+429, 9 half-tone plates. Price \$2.00.

editor of the Magazine 'Outing.' The first of the series is entitled 'The Deer Family,' and is written largely by Theodore Roosevelt, with articles by T. S. Van Dyke, D. G. Elliot, Andrew J. Stone and others, with maps by C. Hart Merriam, and illustrations by Carl Rungus. The first volume is excellent — it could hardly be otherwise under such authorship — and the second is quite up to the standard of the first.

'Upland Game Birds' cannot fail to interest alike the sportsman, the ornithologist, and the general reader. Mr. Edwyn Sandys, who is the author of about seven eighths of the volume, is a keen field observer and a pleasing writer, whose experience covers the whole field of his subject, including the natural history as well as the sportsman's side, with both of which he is in fullest sympathy. In addition to the rasorial birds, which naturally constitute the bulk of the upland game birds, the work includes the Cranes, the Mourning Dove, the Woodcock, Bartram's or 'Upland' Plover, and the Golden Plover. Mr. T. S. Van Dyke writes of the 'Quail and Grouse of the Pacific Coast' (pp. 377-417), while all of the others (pp. 1-374) are treated by Mr. Sandys. Of the eight full-page plates, illustrating as many species of game birds, five are by Mr. Fuertes, two by Mr. Nugent and one by Mr. Bull. — J. A. A.

Richmond's List of Generic Terms proposed for Birds during 1890-1900.¹—This valuable aid to workers in systematic ornithology comprises not only the generic and subgeneric terms proposed since the publication of Waterhouse's well-known 'Index Generum Avium,' some 475 in number, but also includes about 200 overlooked or omitted by Waterhouse, the total number of names here listed being 675. The list is constructed on an exceedingly useful plan, the family to which each genus belongs being indicated, and fossil genera being distinguished from the living; the type species of each is indicated, and the reason stated for the proposal of names given to replace earlier ones; and, finally, the derivation of the name. At the end is a classified list of the names, arranged alphabetically under families. The work is thus most admirably planned, and has evidently been executed with great care. Its usefulness cannot easily be overestimated.

A glance over the list suffices to make evident several interesting facts, namely: (1) that of the 475 generic and subgeneric terms published during the eleven years, 1890-1900, about one fourth relate to extinct forms; (2) that about one fifth, or nearly 100, have been given "on grounds of purism," or for other needless reasons; (3) that, despite recent noteworthy activity in this line, only about one tenth of the names given have been

¹ List of Generic Terms propose for Birds during the years 1890 to 1900, inclusive, to which are added names omitted by Waterhouse in his "Index Generum Avium." By Charles W. Richmond, Assistant Curator, Division of Birds. Proc. U. S. Nat. Mus., Vol. XXIV, No. 1267, pp. 663-729. May, 1902.

required for the purpose of replacing preoccupied names; and (4) that one half of the new names have been bestowed in christening groups believed by the authors of the names to be new. It may be added that the names needlessly, or knowingly, given to replace others, generally on avowed grounds of purism, are chargeable mainly to two authors, too well known for their efforts to 'purify' zoölogical nomenclature to require mention in the present connection, and not to any general proneness on the part of ornithological systematists in general to this sort of purification.—J. A. A.

Oberholser's Review of the Horned Larks.¹—The Horned Larks are known as an exceptionally plastic group, of wide distribution, ranging from the arctic regions well into the tropics, in both the Old World and the New, and hence subject to great diversity of environment. Such conditions are eminently favorable for differentiation and the segregation of local races. Of the 36 forms recognized by Mr. Oberholser, all but six are ranked as subspecies. Of *Otocoris alpestris* alone 23 forms are recognized, one of which occupies northern Europe and northern Asia, the rest being American, of which one is found in Colombia, several others in Mexico, and no less than 18 in North America, north of Mexico. The Old World forms include, besides *O. alpestris flava*, 5 other species and 8 additional subspecies, known as yet from scanty material, in comparison with the American forms. Of the 36 forms recognized by Mr. Oberholser, 8 are here described as new.

The trenchantly defined forms are few; in the other cases, both in the Old World and America, Mr. Oberholser finds that the forms insensibly grade into other forms, often into several other forms, "so that with all the connecting links represented it frequently becomes a matter of considerable difficulty satisfactorily to segregate the forms represented by such series." He also finds that "the reduplication of forms in far separated localities seems to be carried to the extreme" in the present group, which reduplication he attributes, in part, to the interbreeding of several closely allied forms where their ranges come together.

While Mr. Oberholser's material for his present 'Review' does not greatly exceed in amount that at the disposal of Dr. Dwight in his revision of the American forms of *Otocoris* in 1890, it is largely different, containing a much greater proportion of breeding birds, and much material from regions scantily or not at all represented in the material studied by Dr. Dwight, who had very little from points south of the United States. While Dr. Dwight recognized only 11 forms from North America, north of Mexico, Mr. Oberholser finds it expedient to recognize

¹ A Review of the Larks of the Genus *Otocoris*, By Harry C. Oberholser, Assistant Ornithologist, Department of Agriculture. Proc. U. S. Nat. Mus., Vol. XXIV, No. 1271, pp. 801-884, with maps and plates. June, 1902.

18, of which 5 are described as new and three others previously described are reinstated. *O. a. arenicola* Henshaw is treated as a synonym of *O. a. leucolæma* Coues, the habitat and characters of which were misinterpreted by Mr. Henshaw, whose ruling in the case has heretofore been followed. The subspecies *praticola*, *giraudi*, *merrilli*, *strigata*, *rubea*, *adusta*, and *pallida* stand practically as heretofore. True *alpestris* is restricted (in the breeding season) to northeastern North America, from Newfoundland northward, the Old World form of this group standing as *fulva* (Gmelin). *O. a. leucolæma* of Henshaw and Dwight (not of Coues) is separated into an Alaskan form *arctica* (subsp. nov.) and *hoyti* Bishop, the latter occupying the Mackenzie Valley region. *O. a. euthymia* (subsp. nov.) fills in the small gap between the breeding ranges of *praticola*, *hoyti* and *leucolæma* (Saskatchewan and Assiniboia south to northern North Dakota). *O. a. insularis* of Townsend and *occidentalis* of McCall are rehabilitated, and the new forms *actia*, *ammophila* and *leucansiptila* occupy, respectively, small areas of the coast region of southern California and northern Lower California, the Mohave Desert and Owens Valley, and the region about Yuma, Arizona.

The paper is illustrated by six photographic illustrations showing different types of environment, and by four maps showing (1) the range of the genus, (2) the breeding areas of the American forms, and (3 and 4) the breeding areas of the Old World forms. These areas are necessarily in part hypothetical, especially for the Old World forms, and the number and relations of the forms can hardly be said to be as yet reduced to a certainty. Mr. Oberholser's review, however, is an important contribution to a most difficult subject, and will doubtless stand as the 'last word' for some time to come, although, in the nature of the case, his results must be held as more or less tentative. The identification of our Horned Larks is of course rendered more difficult through the increased number of forms, and only an *Otocoris* expert can hope to identify isolated specimens, especially when we find that three forms — *alpestris*, *hoyti* and *praticola* — are recorded from Long Island, New York, and that one of them, *praticola*, is liable to turn up as far west as central Arizona. — J. A. A.

Ogilvie-Grant on Recently Described American Gallinæ.— In an article in the April number of 'The Ibis' Mr. Ogilvie-Grant gives his opinion,¹ *ex cathedra*, concerning certain North American rasorial birds recently described by some of his American confrères. Whatever may be the case as regards available material from Mexico — we leave this phase of the subject to those most interested — when the comparative resources of the British Museum collection are in question, we feel sure

¹ Remarks on the Species of American Gallinæ recently described, and Notes on their Nomenclature. By W. R. Ogilvie-Grant. *Ibis*, April, 1902, pp. 233–245.

that we on this side of the water are not 'out in the cold' when it comes to the consideration of the North American Tetraonidæ. Mr. Grant gives a list of such of the "new species and subspecies of American Game-birds," described since 1893, as he does not approve, "with remarks on and identifications of those which are not considered valid by the writer, and with his reasons for proposing to suppress them."

The first on the list is *Lagopus leucurus altipetens* Osgood, of which he says: "I have compared three *adult males in autumn plumage* from Colorado (one being from Blaine's Peak, the typical locality of *L. l. altipetens*) with two males and a female in autumn plumage from the Cascade Mountains, and find them absolutely identical." This disposes, from Mr. Grant's point of view, of the whole case of *L. l. altipetens*, he apparently being quite unaware that his comparison of specimens from Colorado and the Cascade Mountains has no bearing on the case. The status of the Alaska form, which is the question at issue, is not touched. A comparison of a large series in the American Museum from the Kenai Peninsula with other comparable material from Colorado shows a very striking difference between the two forms, both in size and coloration, a difference that probably Mr. Grant could not fail to recognize if he had the same material. In all probability the birds from the Cascade Mountains and Colorado are not different, and so far as we know no difference between them has been claimed. We doubt, also, whether birds from latitude 54° in the Rocky Mountains, the type region of *L. leucurus* Swainson, would prove separable from the Colorado bird, judging from winter specimens from Alberta. In other words, Mr. Osgood should probably have named the Alaska form instead of that from Colorado. So much then for Mr. Grant's first case on his list.

The second case is that of *Canachites canadensis* and its subspecies, none of which, of course, Mr. Grant admits. The A. O. U. Committee has recently gone over the subject with care, with abundant material, and found no difficulty in recognizing three forms (see this number of 'The Auk,' pp. 317, 318), in spite of "all the alleged differences in plumage being fully accounted for by season or age, and being in no way dependent on locality," as shown by Mr. Grant's material. As the amount of material examined in this case is large, and the same conclusions have been reached by several independent investigators outside of the A. O. U. Committee, we must account for this discrepancy of opinion between Mr. Grant and his American confrères on the basis of a radical difference in the point of view from which the subject is approached by the parties in controversy. In fact, we could expect from Mr. Grant no other conclusion, when we recall his position in relation to the *Bonasa umbellus* group (Cat. Bds. Brit. Mus., XXII, p. 87).

His third, and the last case we have space in this connection to notice, is the 'Turkey question,' where Mr. Grant differs from American ornithologists both as regards points of nomenclature and the admission of both species and subspecies. While he admits two species and two sub-

species (Cat. Bds. Br. Mus., XXII, pp. 387-390), or four forms in all, the same number as is recognized in the A. O. U. Check-List, which has four subspecies, he claims that Mr. Nelson in his description of his *Meleagris gallopavo merriami*, "avoided" comparing it with *M. g. intermedia*, "with which," says Mr. Grant, "his birds are obviously synonymous." We can assure Mr. Grant that, however that may have been, the two forms have since been carefully compared by others, with the result that, from the American point of view, they are considered separable (see *postea*, p. 318).

It would obviously be a waste of time to discuss the question of names, as between *gallopavo* and *mexicana*, but we may add that we fail to find "*Meleagris silvestris* Vieillot" at the place cited, namely, "Nouv. Dict. d'Hist. Nat. IX, p. 447 (1817)," nor elsewhere in Vieillot's writings, although we do find at just that point *Meleagris fera*, as well as in the Gal. Ois. II, 1825, p. 10, pl. 201. But we do find "?*Meleagris sylvestris*, Vieill.; *Pr. Bonap. Am. Orn.* pl. 9" in G. R. Gray's 'List of the Specimens of Birds in the Collection of the British Museum, Part V, Gallinæ,' 1867, p. 42. Turning to Bonaparte's 'American Ornithology,' Vol. I, 1825, we find "*Meleagris Gallopavo*" on plate 9, and "*Meleagris sylvestris*, Vieill. *Nouv. Dict. d'Hist. Nat.* IX, p. 447," in his extensive list of citations on p. 79, which appears to be the origin of this reference as given later in Jardine's edition of Wilson's Ornithology and elsewhere. But we do not find the spelling *silvestris* as given by Mr. Grant. As both Cones and Elliot (*cf.* Auk, XIV, p. 231, and Grant, Ibis, April, 1902, p. 237) were misled by Mr. Grant's erroneous citation of Vieillot, perhaps after referring as follows to Mr. Elliot's statement regarding the Vieillot reference: "This inaccurate statement needs no further comment," he will kindly tell these unenlightened American ornithologists just where to find "*Meleagris silvestris* Vieill.," and thus confer a favor.—J. A. A.

Clark's 'Birds of Lakeside and Prairie.'¹ — "The lakesides and prairies of the Middle West are rich in bird life. The opera glass is a much more satisfactory field companion than the shot gun." These extracts from the author's preface indicate at once the scope and spirit of this recent contribution to popular ornithology. The book consists of fourteen short chapters, parts of which have previously appeared in print, the titles of which suggest their character, as: 'Birds of a Smoky City'; 'The Songsters of the Skokie [Swamp]'; 'In Southern Hoosier Hills'; 'In Winter Fields'; 'On the Trail of Pokagon,' etc. The author shows himself to be familiar with his subject, writes pleasantly, and has thus been able to give to the public another very readable book about birds. The colored illustrations are from the well-known magazine 'Birds,' or 'Birds

¹ Birds of Lakeside | and Prairie | By | Edward B. Clark | With Sixteen Illustrations in color | A. W. Mumford, Publisher | Chicago and New York. Sm. 4to, pp. 150.

and Nature' (it has had several titles), and are very effective and for the most part quite satisfactory as a means of identifying the species figured. The faulty taxidermy of some of the specimens chosen for illustration rather mars their appearance for those who know how a bird really looks in nature. The work, however, is worthy of a cordial welcome and should aid substantially in popularizing bird study. — J. A. A.

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ERRATUM.—The cut illustrating Mr. Felger's paper in the April number (*antea*, p. 193) was unfortunately inserted upside down, the holes for binding shown in the cut, seeming to indicate that edge as the left hand edge of the sheet. The author (who did not see the proof), however, informs us the cut should be inverted, bringing the open spaces at the op.—EDD.

ELEVENTH SUPPLEMENT TO THE AMERICAN
ORNITHOLOGISTS' UNION CHECK-LIST OF
NORTH AMERICAN BIRDS.¹

THE Committee met in Washington, April 17 to 23. All the members were present and took part in the work, four of them continuously, and three of them during the greater part of the session. Its work was greatly facilitated by previous reference of a large part of the questions to subcommittees, which submitted reports for the information and consideration of the committee on the special questions assigned them for investigation.

As at previous meetings of the Committee, it was found necessary to defer many cases owing to lack of material for their satisfactory investigation. All questions affecting the status of genera, subgenera and higher groups were again deferred. As heretofore, discrepancies in nomenclature arising from taking the 12th instead of the 10th edition of Linnæus's 'Systema Naturæ', and cases already settled by the Committee and raised merely as the expression of an author's opinion or preference, without the presentation of new evidence adverse to the Committee's ruling, were regarded as not requiring reinvestigation.

Several cases of generic names, where the substitution of one name for another depends on whether a name is tenable when merely an orthographical variant of another, were deferred for special consideration at the next meeting of the Committee, to be held in Washington next November.

Committee { C. HART MERRIAM, *Chairman*.
J. A. ALLEN.
WILLIAM BREWSTER.
JONATHAN DWIGHT, JR.
CHARLES W. RICHMOND.
ROBERT RIDGWAY.
WITMER STONE.

¹ Three 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.

I. ADDITIONS TO THE CHECK-LIST AND ACCEPTED
CHANGES IN NOMENCLATURE.

- 3a. **Fratercula arctica glacialis** (TEMM.). This becomes
Fratercula arctica naumanni NORTON.

Fratercula arctica naumanni NORTON, Proc. Portland Soc.
Nat. Hist. II, May, 1901, 144.

Fratercula glacialis (TEMM. Man. d'Orn, II, 1820, 933) was
originally given exclusively to the American bird recog-
nized in the Check-List as *Fratercula arctica*, and not to
the bird which has been commonly known under that
name, which latter has been properly renamed (*cf.* NOR-
TON, *l. c.*) *F. arctica naumanni*.

- 51a. **Larus argentatus smithsonianus** (COUES). This is to
be eliminated from the Check-List as not satisfactorily dis-
tinguishable from *Larus argentatus*. *Cf.* KNIGHT, Auk, XVII,
Jan. 1900, 63; DWIGHT, *ibid.* XVIII, Jan. 1901, 58-61;
ALLEN, *ibid.* XIX, July, 1902, 283.

92. **Puffinus auduboni** FINSCH. An earlier name (*cf.* RILEY,
Auk, XIX, April, 1902, 195) renders necessary the following
change

92. **Puffinus lherminieri** LESSON.

Puffinus lherminieri LESSON, Rev. Zool. April, 1839, 102.

- 133a. **Anas obscura rubripes** BREWST.

Red-legged Black Duck.

Anas obscura rubripes BREWST. Auk, XIX, April, 1902, 184.

[B 577, *part*, C 489, *part*, R 602, *part*, C 708, *part*.]

GEOG. DIST.—Atlantic Coast, during migration, from New-
foundland to Virginia, and west to Arkansas; breeding range
not definitely known, but includes northern Labrador and Hudson
Bay region.

211.1. **Rallus scottii** (SENNETT). This is reduced to a subspecies and will stand as

211*b*. **Rallus crepitans scottii** (SENNETT).

Rallus longirostris scottii SENNETT, Auk, V, July, 1888, 305.

Rallus crepitans scottii A. O. U. COMM.

210.1. **Rallus crepitans waynei** BREWSTER. The number should be corrected to read 211*c*.

GENUS **COLINUS** LESSON (Check-List, 2d ed., p. 106). The authority for the genus should stand (*cf.* RICHMOND, Auk, XIX, Jan. 1902, 79) as follows:

GENUS **COLINUS** GOLDFUSS.

Colinus GOLDFUSS, Handb. der Zool. II, 1820, 220. Type,

"*Perdix mexicanus*, Caille de la Louisiana, Pl. Enl. 149"

= *Tetrao virginianus* LINN.

298. **Canachites canadensis** (LINN.) (Check-List, 2d ed. 111; Ninth Suppl., Auk, XVI, 1899, 107; Tenth Suppl. Auk, XVIII, 1901, 298.).

Since the publication of the second edition of the Check-List No. 298 has been separated into several subspecies, and the group will now stand as 298, 298*b*, and 298*c*; 298*a* being a synonym of 298, as now restricted, is eliminated.

298. **Canachites canadensis** (LINN.).

Hudsonian Spruce Grouse.

Tetrao canadensis LINN. S. N. ed. 10, I, 1758, 159.

Canachites canadensis GRANT, Cat. Bds. Br. Mus. XXII, 1893, 69.

GEOG. DIST.—Labrador, Hudson Bay region, and westward to eastern Alaska.

298a. **Canachites canadensis labradorius** BANGS. Check-List, Tenth Suppl. (Auk, XVIII, 1901, 298). This is cancelled, being a synonym of No. 298, the type locality of which is Hudson Bay, in the same faunal zone as that of *labradorius*. (Cf. NORTON, Proc. Portland Soc. Nat. Hist. II, 1901, 151, 152).

298b. **Canachites canadensis osgoodi** BISHOP. This stands without change, to which is added:

298c. **Canachites canadensis canace** (LINN.).

Canadian Spruce Grouse.

Tetrao canace LINN. S. N. ed. 12, I, 1766, 275.

Canachites canadensis canace NORTON, Proc. Portland Soc. Nat. Hist. II, Art. viii, May, 1901, 151.

[B 460, part, C 380, part, R 472, part, C 555, part.]

GEOG. DIST.—Northern Minnesota, northern New York, northern New England, New Brunswick, and the Canadian zone of southern and eastern Canada.

310. **Melagris gallopavo** LINN. This is eliminated and is replaced by

310. **Meleagris gallopavo merriami** NELSON.

Merriam's Turkey.

Meleagris gallopavo merriami NELSON, Auk, XVII, April, 1900, 120.

GEOG. DIST.—Mountains of Arizona, western New Mexico, and probably southwestern Colorado, south to the Mexican border.

320b. **Columbigallina passerina bermudiana** (BANGS & BRADLEE).

Bermuda Ground Dove.

Columbigallina bermudiana BANGS & BRADLEE, Auk, XVIII, July, 1901, 250.

Columbigallina passerina bermudiana A. O. U. COMM.

[B—, C—, R—, C—.]

GEOG. DIST.—Bermuda Islands.

349. **Aquila chrysaetos** (LINN.). The authority for this combination (*cf.* RICHMOND, Auk, XIX, Jan. 1902, 79) is

Aquila chrysaetos SPRÜNGLI, in Andrea's Briefe aus der Schweiz, 1776, 196.

[370a.] **Scotiaptex cinerea lapponica** (THUNB.). The authority and reference for the first description should be

Strix lapponica THUNBERG, K. Vet. Akad. nya Handl. XIX, 1798, 184. (*Cf.* RICHMOND, Auk, XIX, Jan. 1902, 79.)

372a. **Nyctala acadica scotæa** OSGOOD.

Northwest Saw-whet Owl.

Nyctala acadica scotæa OSGOOD, N. Am. Fauna, No. 21, 1901, 43.

[B 56, 57, *part*, C 328, *part*, R 401, *part*, C 483, *part*.]

GEOG. DIST.—Puget Sound region, north to Queen Charlotte Islands, British Columbia.

393f. **Dryobates villosus picoideus** (OSGOOD).

Queen Charlotte Woodpecker.

Dryobates picoideus OSGOOD, N. Am. Fauna, No. 21, 1901, 44.

Dryobates villosus picoideus A. O. U. COMM.

[B—, C—, R—, C—.]

GEOG. DIST.—Queen Charlotte Islands, British Columbia.

403a. **Sphyrapicus ruber notkensis** (SUCKOW).

Northern Red-breasted Sapsucker.

Picus ruber notkensis SUCKOW, Anfangsgr. Naturg. Thiere, II, i, 1800, 535.

Sphyrapicus ruber notkensis RICHMOND, Proc. Biol. Soc. Wash.
XV, 89, April 25, 1902.

[B 87, *part*, C 303, *part*, R 269, C, *part*, C 448, *part*.]

GEOG. DIST.—Western British Columbia, south to the coast region of Washington and Oregon.

439. **Amizilis cerviniventris** (GOULD), Tenth Supplement, Auk, XVIII, 301. This should be corrected (*cf.* Auk, XVIII, p. 436) to stand as follows:

439. **Amizilis cerviniventris chalconota** (OBERH.).

Amazilia cerviniventris chalconota OBERHOLSER, Auk, XV,
Jan. 1898, 32.

Amizilis cerviniventris chalconota OBERHOLSER, Proc. Acad.
Nat. Sci. Phila. 1899, 207.

GENUS **MILVULUS** SWAINS. (Check-List, 2d. ed., p. 179)
This must give place to *Muscivora* of earlier date (*cf.* OBERHOLSER, Auk, XVIII, April, 1901, 193), which will stand as

GENUS **MUSCIVORA** LACÉPÈDE.

Muscivora LACÉPÈDE, Disc. du Cours d'Hist. Nat. 1799, 5.
Type, *Muscicapa forficata* GMELIN.

[442.] **Muscivora tyrannus** (LINN.).

Muscicapa tyrannus LINN. S. N. ed. 12, I, 1766, 325.

Muscivora tyrannus OBERHOLSER, Auk, XVIII, 1901, 194.

443. **Muscivora forficata** (GMEL.).

Muscicapa forficata GMELIN, S. N. I. ii, 1788, 931.

Muscivora forficata OBERHOLSER, Auk, XVIII, 1901, 194.

[450]. **Myiozetetes texensis** (GIRAUD). This becomes
Myiozetetes similis superciliosus (BONAP.).

Tyrannus superciliosus BONAP. P. Z. S. 1837, 118.

Myiozetetes similis superciliosus NELSON, Auk, April, 1900, 124.

478d. **Cyanocitta stelleri carlottæ** OSGOOD.

Queen Charlotte Jay.

Cyanocitta stelleri carlottæ OSGOOD, N. Am. Fauna, No. 21,
1901, 46.

[B —, C —, R —, C —.]

GEOG. DIST.—Queen Charlotte Islands, British Columbia.

480.1. **Aphelocoma cyanotis** RIDGW.

Blue-eared Jay.

Aphelocoma cyanotis RIDGW. Man. N. Am. Bds. 1887, 357.

GEOG. DIST.—Mexican tablelands from the City of Mexico north through the States of Mexico, Hidalgo, San Luis Potosi, Coahuila, and Durango; casually to Sutton County, Texas.

The Rio Grande form is

480.2. **Aphelocoma texana** RIDGW.

Texan Jay.

Aphelocoma texana RIDGW. Auk, XIX, Jan. 1902, 70.

GEOG. DIST.—Southwestern Texas, from Concho and Kerr Counties west to the Davis Mountains.

498d. **Agelaius phœniceus fortis** RIDGW.

Thick-billed Redwing.

Agelaius phœniceus fortis RIDGW. Proc. Wash. Acad. Sci.
III, April, 1901, 153.

[B 401, part, C 212, part, R 261, part, C 316, part.]

GEOG. DIST.—Central North America, breeding northward; in migrations from Manitoba south to Illinois, Indian Territory, and western Texas, westward to and including the Rocky Mountains, and south to Arizona and Chihuahua.

498e. **Agelaius phœniceus neutralis** RIDGW.

San Diego Redwing.

Agelaius phoeniceus neutralis RIDGW. Proc. Wash. Acad. Sci. III, April, 1901, 153.

[B 401, *part*, C 212, *part*, R 261, *part*, C 316, *part*.]

GEOG. DIST.—Great Basin district of United States, southward to southern California and northern Lower California.

498*f*. **Agelaius phoeniceus caurinus** RIDGW.

Northwestern Redwing.

Agelaius phoeniceus caurinus RIDGW. Proc. Wash. Acad. Sci. III, April, 1901, 153.

[B 401, *part*, C 212, *part*, R 261, *part*, C 316, *part*.]

GEOG. DIST.—Northwest coast, in Washington and British Columbia; northern California in winter.

505. **Icterus cucullatus** SWAINS. This becomes

Icterus cucullatus sennetti RIDGW.

Sennett's Oriole.

Icterus cucullatus sennetti RIDGW. Proc. Wash. Acad. Sci. III, April, 1901, 152.

GEOG. DIST.—Lower Rio Grande Valley.

512. **Quiscalus macrourus** SWAINS. This proves to intergrade with *Q. major* (*cf.* RIDGWAY, Proc. Wash. Acad. Sci., III, 1901, 152) and should stand as

513*a*. **Quiscalus major macrourus** (SWAINS.).

Quiscalus macrourus SWAINS. Anim. in Menag. 1838, 299.

Scaphidurus major macrourus RIDGWAY, Proc. Wash. Acad. Sci. III, 1901, 152.

Quiscalus major macrourus A. O. U. COMM.

515. **Pinicola enucleator canadensis** (CAB.). This becomes

Pinicola enucleator leucura (MÜLLER).

Loxia leucura MÜLLER, Volls. Natursyst. Suppl.- und Register-Band, 1776, 150.

Pinicola enucleator leucura RICHMOND, Auk, XIX, Jan. 1902, 85.

The name *leucura* has many years priority over *canadensis* (cf. RICHMOND, *l. c.*).

544.1. **Ammodramus sanctorum** COUES. This becomes

544c. **Ammodramus rostratus sanctorum** (RIDGW.).

Passerculus sanctorum Ridgw. Proc. U. S. Nat. Mus. V, 1883, 538, 539, in text.

Passerculus rostratus sanctorum RIDGW. Bds. N. and Mid. Am. I, 1901, 200.

Ammodramus rostratus sanctorum A. O. U. COMM.

546a. **Ammodramus savannarum perpallidus** (COUES).

This becomes

Ammodramus savannarum bimaculatus (SWAINS.).

Ammodramus bimaculatus SWAINS. Philos. Mag. n. ser. I, 1827, 435.

Coturniculus savannarum bimaculatus RIDGW. Bds. N. and Mid. Am. I, 1901, 209.

Ammodramus savannarum bimaculatus A. O. U. COMM.

It is evident that *Ammodramus bimaculatus* is referable to this form; it has many years' priority over *perpallidus*.

565. **Spizella atrigularis**. The name *atrigularis* should be changed to **atrogularis**, to conform to the original spelling. (Cf. RIDGWAY, Bds. N. and Mid. Am. I, 1901, 322.)

567a. **Junco hyemalis oregonus**. The name *oregonus* should be changed to **oreganus**, to conform to the original spelling. (Cf. RIDGWAY, Bds. N. and Mid. Am. I, 1901, 283.)

576. **Peucea arizonæ** RIDGW., and 577. **Peucea mexicana** (LAWR.) prove to be inseparable from *Peucea botterii*

(SCLATER), which must take their place in the Check-List.
(Cf. RIDGWAY, Birds N. and Mid. Am. I, 1901, pp. 257-259.)

576. **Peucea botterii** (SCLATER).

Botteri's Sparrow.

Zonotrichia botterii SCLATER, P. Z. S. 1857, 214.

Peucea botterii SCLATER, Cat. Am. Bds. 1861, 116.

[B—, C 170a, R 227, C 253.]

GEOG. DIST.—Mexican plateau, north to the Rio Grande Valley and Southern Arizona.

588e. **Pipilo maculatus magnirostris** BREWSTER.

Large-billed Towhee.

Pipilo maculatus magnirostris BREWSTER, Auk, VIII, April, 1891, 146 (separates issued Feb. 17, 1891).

[B—, C—, R—, C—.]

GEOG. DIST.—Mountain districts of southern Lower California.

GENUS **EUETHEIA** REICHENBACH (Check-List 2d ed., p. 253) becomes

GENUS **TIARIS** SWAINSON.

Tiaris SWAINSON, Philos. Mag. n. ser. I, June, 1827, 438.

Type, *Tiaris pusillus* SWAINS. Cf. RICHMOND, Auk, XIX, Jan. 1902, 87. Nos. [603] and [603.1] will stand as

[603.] **Tiaris bicolor** (LINN.).

Fringilla bicolor LINN. S. N. ed. 12, I, 1766, 324.

Tiaris bicolor RICHMOND, Auk, XIX, Jan. 1902, 87.

[603.1.] **Tiaris canorus** (GMEL.).

Loxia canora GMELIN, S. N. I, ii, 1788, 858.

Tiaris canora RICHMOND, Auk, XIX, Jan. 1902, 87.

612.2. **Petrochelidon melanogastra** (SWAINS.).

Mexican Cliff Swallow.

Hirundo melanogaster SWAINS. Philos. Mag. n. ser. I,
May, 1827, 366.

P[etrochelidon] melanogastra CABANIS, Mus. Hein. I, 1850, 47.
[B —, C —, R —, C —.]

GEOG. DIST.— Mexico, south to Guatemala, north into Arizona,
along the San Bernardino and Santa Cruz Rivers. (Cf. MEARNS,
Proc. Biol. Soc. Wash. XIV, 178, Sept. 25, 1901.)

615. **Tachycineta thalassina** (SWAINS.). This becomes

Tachycineta thalassina lepida (MEARNS).

Northern Violet-green Swallow.

Tachycineta lepida MEARNS, Proc. Biol. Soc. Wash. XV,
March 5, 1902, 31.

Tachycineta thalassina lepida A. O. U. COMM.

[B 228, C 113, R 156, C 161.]

GEOG. DIST.— Western United States, from the eastern base
of the Rocky Mountains to the Pacific, north to the Yukon Val-
ley, south in winter to Costa Rica.

GENUS **CLIVICOLA** FORSTER (Check-List, 2d ed., 259; Ninth
Suppl., Auk, XVI, Jan. 1899, 131). This becomes

GENUS **RIPARIA** FORSTER.

Riparia FORSTER, Syn. Cat. Brit. Bds. 1817, 17. Type,
Riparia europæa FORSTER = *Hirundo riparia* LINN.

Riparia has actual priority, as well as page precedence, over
Clivicola. Forster's work was issued in two parts; *Riparia* was
published in the first part (p. 17), and *Clivicola* in a separately
issued second part (p. 55), so that *Riparia* has clearly priority
over *Clivicola*. Hence No. 616 of the Check-List will stand as

616. **Riparia riparia** (LINN.).

Hirundo riparia LINN. S. N. ed. 10, I, 1758, 192.

Riparia riparia SHARPE & WYATT, Monogr. Hirundinidæ,
1894, xlv.

631b. **Vireo noveboracensis bermudianus** (BANGS &
BRADLEE).

Bermuda Vireo.

Vireo bermudianus BANGS & BRADLEE, Auk, XVIII, July,
1901, 252.

Vireo noveboracensis bermudianus A. O. U. COMM.

[B —, C —, R —, C —.]

GEOG. DIST.—Bermuda Islands. (Under No. 631, omit "Resi-
dent in Bermuda.")

631c. **Vireo noveboracensis micrus** NELSON.

Small White-eyed Vireo.

Vireo noveboracensis micrus NELSON, Auk, XVI, Jan. 1899,
30.

[B —, C —, R —, C —.]

GEOG. DIST.—Northeastern Mexico, northward to Rio Grande
Valley, Texas. (Cf. MEARN'S, Auk, XIX, Jan. 1902, 87.)

633a. **Vireo bellii pusillus** (COUES). This becomes a full
species (cf. GRINNELL, Condor, III, 1901, 187) and will
stand as

633.1. **Vireo pusillus** COUES.

681d. **Geothlypis trichas brachidactyla** (SWAINS.).

Northern Yellow-throat.

Trichas brachidactylus SWAINSON, Anim. in Menag. Jan. 1838,
295.

Geothlypis trichas brachidactyla W. PALMER, Auk, XVII, July,
1900, 221.

[B 170, part, C 97, part, R 122, part, C 141, part.]

GEOG. DIST. — Northern Pennsylvania, New York and New England, eastward and northward to Newfoundland and Hudson Bay; south in migration to Cuba and Costa Rica.

703a. **Mimus polyglottos leucopterus** (VIGORS).

Western Mockingbird.

Orpheus leucopterus VIGORS, Zool. Voy. Blossom, 1839, 18.

Mimus polyglottos leucopterus MEARN'S, Auk, XIX, Jan. 1902, 70.

[B 253, part, C 8, part, R 11, part, C 15 part.]

GEOG. DIST. — Southwestern United States, from Texas to the Pacific, southward into Mexico and Lower California.

GENUS **HARPORHYNCHUS** CABANIS (Check-List, 2d ed., p. 292) becomes

GENUS **TOXOSTOMA** WAGLER.

Toxostoma WAGLER, Isis, May, 1831, 528. Type, *Toxostoma vetula* WAGLER = *Orpheus curvirostris* SWAINS. (Cf. RICHMOND, Auk, XIX, Jan. 1902, p. 89.)

Toxostoma will also replace *Methriopterus* REICH. as a subgenus; *Harporhynchus* is still tenable in a subgeneric sense as now used in the Check-List.

Nos. 705 to 712 will stand as follows:

705. **Toxostoma rufum** (LINN.).

Turdus rufus LINN. S. N. ed. 10, I, 1758, 169.

Toxostoma rufum CAB. Arch f. Naturg. 1847, i, 207.

706. **Toxostoma longirostre sennetti** (RIDGW.).

Harporhynchus longirostris sennetti RIDGW. Proc. U. S. Nat. Mus. X, Aug. 6, 1888, 506.

Toxostoma longirostris sennetti RICHMOND, Auk, XIX, Jan. 1902, 89.

707. **Toxostoma curvirostre** (SWAINS.).
Orpheus curvirostris SWAINS. Philos. Mag. n. ser. I, 1827,
 369.
Toxostoma curvirostris BONAP. Consp. Av. I, 1850, 277.
- 707a. **Toxostoma curvirostre palmeri** (COUES.).
Harporhynchus curvirostris var. *palmeri* COUES, Key N. Am.
 Bds. 1872, 351.
Toxostoma curvirostris palmeri RICHMOND, Auk, XIX, Jan.
 1902, 89.
708. **Toxostoma bendirei** (COUES).
Harporhynchus bendirei COUES, Am. Nat. VI, 1873, 330.
Toxostoma bendirei RICHMOND, Auk, XIX, Jan. 1902, 89.
709. **Toxostoma cinereum** (XANTUS).
Harporhynchus cinereus XANTUS, Proc. Acad. Nat. Sci. Phila.
 1859, 298.
Toxostoma cinerea RICHMOND, Auk, XIX, Jan. 1902, 89.
- 709a. **Toxostoma cinereum mearnsi** (ANTHONY).
Harporhynchus cinereus mearnsi ANTHONY, Auk, XII, Jan.
 1895, 53.
Toxostoma cinerea mearnsi RICHMOND, Auk, XIX, Jan. 1902,
 89.
710. **Toxostoma redivivum** (GAMBEL).
Harpes rediviva GAMBEL, Proc. Acad. Nat. Sci. Phila. 1845,
 264.
Toxostoma rediviva GAMBEL, Journ. Acad. Nat. Sci. 2d ser.
 1847, 42.
711. **Toxostoma lecontei** LAWR.
Toxostoma lecontei LAWR. Ann. Lyc. N. Y. V, 1852, 121.

712. **Toxostoma crissalis** HENRY.

Toxostoma crissalis HENRY, Proc. Acad. Nat. Sci. Phila.
1858, 117.

GENUS **ANORTHURA** RENNIE (Ninth Suppl., Auk, XVI,
1899, 125). *Anorthura* is a strict equivalent of *Troglodytes*.
Hence *Anorthura* of the Check-List becomes

GENUS **OLBIORCHILUS** OBERHOLSER.

Olbiorchilus OBERHOLSER, Auk, XIX, April, 1902, 177.
Type, *Motacilla troglodytes* LINN.

Anorthura RENNIE is a pure synonym of *Troglodytes* CUVIER,
for which it was proposed as a substitute. Cf. HOWE, Auk, XIX,
Jan. 1902, 90; OBERHOLSER, *ibid.* Apr. 1902, 175. Hence Nos.
722, 722a, 722b, 723, and 723.1 will stand as follows:

722. **Olbiorchilus hiemalis** (VIEILL.).

Troglodytes hiemalis VIEILL. Nouv. Dict. d'Hist. Nat. XXXIV,
1819, 514.

Olbiorchilus hiemalis OBERH. Auk, XIX, April, 1902, 178.

722a. **Olbiorchilus hiemalis pacificus** (BAIRD).

Troglodytes hyemalis var. *pacificus* BAIRD, Rev. Am. Bds. I,
Sept. 1864, 145.

Olbiorchilus hiemalis pacificus OBERH. Auk, XIX, April, 1902,
179.

722b. **Olbiorchilus hiemalis helleri** (OSGOOD).

Anorthura hiemalis helleri OSGOOD, Auk, XVIII, April,
1901, 181.

Olbiorchilus hiemalis helleri OBERH. Auk, XIX, April, 1902,
179.

723. **Olbiorchilus alascensis** (BAIRD).

Troglodytes alascensis BAIRD, Trans. Chicago Ac. Sci. I. 1869,
315, pl. xxx, fig. 3.

Olbiorchilus alascensis OBERH. Auk, XIX, April, 1902, 178.

723.1 **Olbiorchilus meligerus** (OBERH.).

Anorthura meligera OBERH. Auk, XVII, Jan. 1900, 25.

Olbiorchilus meligerus OBERH. Auk, XIX, April, 1902, 178.

759. **Hylocichla aonalaschkæ** (GMEL.) This becomes**Hylocichla guttata** (PALLAS).**Alaska Hermit Thrush.**

Muscicapa guttata PALLAS, Zoog. Rosso-Asiat. I, 1831 (1826),
465. Type locality, Kadiak Island.

Hylocichla guttata BREWSTER, Bds. Cape Region, L. Calif. (in
press).

GEOG. DIST. — Northwest coast region, from Alaska to southern
British Columbia, and southward in winter.

Turdus aonalaschke GMELIN (S. N. I, ii, 1788, 808) is based
on a young bird, and is unidentifiable. *Muscicapa guttata*
is readily determinable, and has a definite type locality.
Nos. 759a, 759b, and 759c, will stand as follows:

759a. **Hylocichla guttata auduboni** (BAIRD).**Audubon's Hermit Thrush.**

Turdus auduboni BAIRD, Rev. Am. B. June, 1864, 16.

Turdus guttatus β *auduboni* RIDGWAY, Orn. 40th Parallel,
1877, 394.

Hylocichla guttata auduboni BREWSTER, Bds. Cape Region, L.
Calif. (in press).

759b. **Hylocichla guttata pallasii** (CAB.).**Hermit Thrush.**

Turdus pallasii CABANIS, Arch. f. Naturg. 1847, i, 205.

Hylocichla guttata pallasii FAXON & ALLEN, Bds. Berkshire Co., Mass. 1900, 9 (in Coll. Berkshire Hist. and Sci. Soc. III, No. 2, 113, Feb. 1900).

To the above is now added:

759c. **Hylocichla guttata nana** (AUD.).

Dwarf Hermit Thrush.

Turdus nanus AUDUBON, Orn. Biog. V, 1839, 201.

Hylocichla guttata nana BREWSTER, Bds. Cape Region, L. Calif. (in press).

[B 150, *part*, C 4b, *part*, R 5, *part*, C 8, *part*.]

GEOG. DIST.—Pacific coast region, from Washington southward, breeding south to Sierra Nevada region, east in migrations to Nevada and Arizona and south to Lower California and western Mexico.

GENUS **HESPEROCICHLA** BAIRD (Check-List, 2d ed., p. 320). A prior name is found in *Ixoreus* BONAP.

GENUS **IXOREUS** BONAPARTE.

Ixoreus BONAPARTE, Compt. Rendus, XXXVIII, 3, note, Jan. 1854. Type, *Turdus nævius* GMELIN.

763. **Hesperocichla nævia** (GMEL.) becomes

Ixoreus nævius (GMEL.).

Varied Thrush.

Turdus nævius GMEL. S. N. I, ii, 1788, 817.

Ixoreus nævius RICHMOND, Proc. Biol. Soc. Wash. XV, 85, April 25, 1902.

763a. **Ixoreus nævius meruloides** (SWAINS.).

Northern Varied Thrush.

Orpheus meruloides SWAINSON, Faun. Bor.-Amer. II, 1831, 187.

Hesperocichla nævia meruloides GRINNELL, Auk, XVIII, April, 1901, 142.

Ixoreus nævius meruloides RICHMOND, Proc. Biol. Soc. Wash. XV, 85, April 25, 1902.

[B 156, part, C 2, part, R 9, part, C 5, part.]

GEOG. DIST.—Interior of northern Alaska and eastward, wintering in southern California.

II. PROPOSED CHANGES IN NOMENCLATURE NOT ADOPTED.

Aythya vs. *Nyroca* (Cf. HOWE & ALLEN, Bds. Mass. 1901, 53).

Aythya has been rejected as being a *nomen nudum* (cf. SALVADORI, Cat. Bds. Brit. Mus. XXVII, 1895, 334), but since the species now commonly referred to it were originally placed under it by its author, it cannot be properly construed in that sense. As both *Aythya* and *Nyroca* were published in the same year, with no evidence as to which has priority, there seems to be no good reason for change in respect to the use of *Aythya* in the Check-List.

211. **Rallus crepitans** vs. *Rallus longirostris crepitans* (cf. Tenth Suppl., Auk, XVIII, 1901, 315).

There appears to be no good reason for the adoption of *longirostris* in the place of *crepitans* in this and the following case.

211a. **Rallus crepitans saturatus** vs. *Rallus longirostris saturatus* (cf. Tenth Suppl., Auk, XVIII, 1901, 315).

232. **Macrorhamphus scolopaceus** vs. *M. griseus scolopaceus* (cf. Tenth Suppl., Auk, XVIII, 1901, 316).

Intergradation between the two forms has not been satisfactorily shown.

287. **Hæmatopus bachmani** vs. *H. niger* (PALLAS).

If Pallas's Zoogr. Rosso-Asiat. be taken at 1826, as has uniformly been the case in the Check-List, there is no reason for the proposed change.

317. **Zenaida zenaida** vs. *Zenaida meridionalis* (cf. FORBES & ROBINSON, Bull. Liverpool Mus. I, 1899, 36).

It is evident that the birds identified by Forbes and Robinson as *Zenaida meridionalis*, cannot be the types of Latham's *Columba meridionalis*. (Cf. ALLEN, Auk, XIX, July, 1902, 286.)

320. **Columbigallina passerina terrestris** vs. *C. p. purpurea* (cf. W. PALMER, Osprey, V, 1901, 148).

The reasons for the proposed change are not considered to be well founded.

341. **Buteo albicaudatus sennetti** vs. *B. albicaudatus* (cf. GODMAN, Biol. Cent.-Am. Aves, III, 1900, 58).

There is nothing to show that the Committee was in error in accepting *sennetti* as a subspecies of *albicaudatus*.

358. **Falco richardsoni** vs. *F. columbarius richardsoni* (cf. BISHOP, N. Am. Fauna, No. 19, Oct. 1900, 75).

The status of the form is admittedly in doubt, but on the basis of present evidence no change is deemed advisable.

403. **Sphyrapicus ruber** vs. *S. varius ruber* (Cf. GRINNELL, Condor, III, Jan. 1901, 12).

Intergradation not satisfactorily proved.

Sphyrapicus ruber flaviventris (cf. OSGOOD, N. Am. Fauna, No. 21, 1901, 45).

Picus flaviventris VIEILL. proves to be a synonym of *Picus ruber notkensis* SUCKOW. (Cf. *antea*, p. 319, under *Sphyrapicus ruber notkensis*.)

Sphyrapicus varius daggetti GRINNELL, Condor, III, Jan. 1901, 12.

Suckow, in 1800, gave a new name (*notkensis*) to the northern form, which restricts the name *ruber* to the southern form named *S. v. daggetti* by Mr. Grinnell.

417a. **Antrostomus vociferus macromystax** vs. *A. macromystax* (cf. RILEY, Osprey, V, 1901, 101).

No change considered necessary until further evidence of the distinctness of the two forms becomes available.

460. **Contopus pertinax pallidiventris** vs. *Horizopus musicus* (cf. SHARPE, Hand-List, III, 1901, 141).

Tyrannula musica Swains. (in place of *pertinax*) is not considered as satisfactorily identifiable.

466. **Empidonax traillii** vs. *E. pusillus* (cf. SHARPE, Hand-List, III, 1901, 138).

469. **Empidonax wrightii** vs. *E. obscurus* (cf. SHARPE, l. c.).

As there is no new evidence presented, the Committee sees no reason for reversing its previous carefully considered ruling on these two cases.

523. **Leucosticte griseonucha** vs. *L. tephrocotis griseonucha* (cf. GRINNELL, Condor, III, 1901, 20; RIDGWAY, Bds. N. and Mid. Am. I. 1901, 72).

Evidence of intergradation does not appear to be sufficiently strong to warrant the Committee in reversing, at present, its decision in relation to the status of these forms.

Peucaea vs. *Aimophila* (cf. RIDGWAY, Bds. N. and Mid. Am. I. 1901, 230.).

Although there is admittedly no distinct line of demarkation between the two groups, as they are commonly recognized, there

seems to be no reason for disturbing the present nomenclature of the Check-List by introducing the proposed change.

549.1. **Ammodramus nelsoni** vs. *A. caudacutus nelsoni*, and

549.1a. **Ammodramus nelsoni subvirgatus** vs. *A. caudacutus subvirgatus* (cf. RIDGWAY, Bds. N. and Middle Am. I, 1901, 221 and 223).

The evidence is insufficient to warrant a change from the Committee's previous ruling (cf. Ninth Suppl., Auk, XVI, 1899, 117, 118).

583a. **Melospiza lincolni striata** vs. *Melospiza lincolni* (cf. RIDGWAY, Bds. N. and Mid. Am. I, 1901, 376).

There is fairly good ground for the recognition of *striata* as a subspecies.

600a. **Cyanospiza versicolor pulchra** vs. *C. versicolor* (cf. RIDGWAY, Bds. N. and Mid. Am. I, 1901, 205).

As *C. v. pulchra* is a fairly stable form in Lower California, there seems to be no reason why the occurrence of intergrades in western Mexico should invalidate it as a reasonably good subspecies of *versicolor*. (Cf. BREWSTER, Bds. Cape Region, L. Calif., in press).

617. **Stelgidopteryx serripennis** vs. *S. ruficollis serripennis* (cf. BANGS, Proc. N. Engl. Zool. Club, II, 1901, 60).

The proposed change not considered expedient.

612. **Petrochelidon lunifrons** vs. *P. pyrrhonota* (cf. SHARPE & WYATT, Mon. Hirun. II, 523).

There is no new evidence to show that the change is necessary.

Seiurus vs. *Henicocichla* (cf. DUBOIS, Syst. Av. 1901, 436).

Dubois emends *Seiurus* to *Siurus* and then rejects it as too near *Sciurus*!

- 681b. **Geothlypis trichas ignota** vs. *Geothlypis trichas roscoe* (cf. Tenth Suppl., Auk, XVIII, 1901, 318).

The reasons advanced in support of the proposed change are not satisfactory.

Troglodytes vs. *Hylemathrous* (cf. HOWE & ALLEN, Bds. Mass. 1901, 92; HOWE, Auk, XIX, 89).

Hylemathrous is a pure synonym of *Thryothorus*, and has no bearing on *Troglodytes*. (Cf. OBERHOLSER, Auk, XIX, 1902, 175.)

Anorthura vs. *Troglodytes* (cf. HOWE, Auk, XIX, 1902, 90).

Anorthura was proposed as a substitute for *Troglodytes* and is hence a synonym of it. See *antea*, p. 329, where *Anorthura* is replaced by *Olbiorchilus*.

756. **Hylocichla fuscescens** vs. *Turdus minor* DUBOIS, Syn. Av. 1901, 402.

Turdus minor GMEL. is not regarded as satisfactorily identifiable.

III. SPECIES AND SUBSPECIES NOT ACCEPTED.

Tyrannus tyrannus vexator BANGS (cf. MEARN'S, Auk, Jan. 1902, 72).

A reëxamination of the case confirmed the Committee in its former ruling (cf. Ninth Supplement, Auk, XVI, July, 1899, 131), that the ascribed characters were too slight for recognition in nomenclature.

Passerculus sandwichensis labradorius HOWE, Contr. N. Am. Orn. I, Oct. 14, 1901, 1.

Considered to be inseparable from *Ammodramus sandwichensis savanna*.

Ammodramus sandwichensis xanthophrys GRINNELL, Condor, III, 1901, 21.

Not distinguishable from *A. sandwichensis alaudinus*.

Ammodramus caudacutus diversus BISHOP, Auk, XVIII, July, 1901, 269.

Found to be similar to examples from the coast of New Jersey and Long Island, and hence not separable from *A. caudacutus*.

Cardinalis bermudianus BANGS & BRADLEE, Auk, XVIII, July, 1901, 256 (June 30, 1901).

Cardinalis cardinalis somersi VERRILL, Am. Journ. Sci. (4) XII, July, 1901, 65 (June 30, 1901).

The characters assigned to the Bermuda bird are considered as too slight and inconstant to require recognition in nomenclature.

Zamelodia melanocephala capitalis (BAIRD). Cf. MCGREGOR, Condor, III, 1901, 41.

This is an earlier name for *Z. melanocephala microrhyncha* Grinnell, previously rejected by the Committee as not entitled to recognition (cf. Tenth Supplement, Auk, XVIII, July, 1901, 313).

Vireo pusillus albatrus GRINNELL, Condor, III, 1901, 187.

Not satisfactorily distinguishable from *V. pusillus*. (Cf. BREWSTER, Bds. Cape Region L. Calif., in press.)

Galeoscoptes bermudianus BANGS & BRADLEE, Auk, XVIII, July, 1901, 253.

Not distinguishable from *G. carolinensis*.

Hylocichla aonalaschkæ verecunda OSGOOD, Auk, XVIII, April, 1901, 183.

Rejected as being the same as *Turdus nanus* AUD., which, as *Hylocichla guttata nana*, is adopted (*antea*, p. 331) as the name of the Dwarf Hermit Thrush. (Cf. BREWSTER, Bds. Cape Region L. Calif., in press.)

- Sialia sialis bermudensis* VERRILL, Am. Journ. Sci. (4) XII, July, 1901, 65.

Differences too slight and inconstant for recognition.

IV. DEFERRED FOR FURTHER INVESTIGATION.

- Cyclorrhynchus** vs. *Phaleris* (cf. Tenth Suppl., Auk, XVIII, 1901, 314).

52. **Larus vegæ** vs. *L. argentatus* (cf. KOBBE, Auk, XIX, 1902, 19-24).

- 68a. **Fulmarus glacialis minor** vs. *F. glacialis*.

94. **Puffinus fuliginosus** vs. *P. griseus*.

120. **Phalacrocorax dilophus** vs. *P. auritus*.

121. **Phalacrocorax mexicanus** vs. *P. vigua mexicanus*.

- 123a, 123b. **Phalacrocorax pelagicus robustus et resplendens** vs. *P. pelagicus*.

124. **Phalacrocorax urile** vs. *P. bicristatus*.

127. **Pelecanus californicus** vs. *P. fuscus* [= *occidentalis*] *californicus*.

Olor vs. *Cygnus*.

The preceding seven cases, left over last year (cf. Tenth Suppl., Auk, XVIII, 1901, 314, 315), still remain unsettled.

193. **Ardea wardi** vs. *A. herodias wardi* (cf. Tenth Suppl., Auk, XVIII, 1901, 315).

- Rallus levipes* BANGS, Bull. N. Engl. Zool. Club, I, 1899, 45.

Referred to Mr. Brewster as a subcommittee.

216.1. **Porzana coturniculus** (*cf.* Tenth Suppl., Auk, XVIII, 1901, 316). Referred to Mr. Brewster as a subcommittee.

[230.1.] **Gallinago major** vs. *G. media* (*cf.* Tenth Suppl., Auk., XVIII, 315).

277a. **Ægialitis meloda circumcincta** vs. *Æ. meloda* (*cf.* Tenth Suppl., Auk, XVIII, 1901, 316). Referred to Dr. Dwight as a subcommittee.

Butco borealis umbrinus BANGS, Proc. N. Engl. Zool. Club, II, 1901, 67.

Strigidæ vs. *Aluconidæ*, and **Strix** vs. *Aluco* (*cf.* Tenth Suppl., Auk, XVIII, 1901, 316).

377. **Surnia ulula** vs. *S. ulula doliata* (*cf.* Tenth Suppl., Auk, XVIII, 1901, 316).

Nyctala vs. *Cryptoglaux* (*cf.* RICHMOND, Auk, XVIII, 1901, 193).

Picoides arcticus tenuirostris BANGS, Auk, XVII, 1900, 131. Still deferred, owing to lack of material.

Antrostomus vs. *Caprimulgus* (*cf.* Tenth Suppl., Auk, XVIII, 1901, 317).

Contopus vs. *Horizopus* (*cf.* Tenth Suppl., Auk, XVIII, 1901, 317).

Contopus richardsoni saturatus BISHOP, Auk, XVII, 1900, 116. Again deferred on account of lack of material.

Coccothraustes vs. *Hesperiphona* (*cf.* RIDGWAY, Bds. N. and Mid. Am. I, 1901, 57).

Ammodramus vs. *Passerculus* (*cf.* RIDGWAY, *l. c.* 187).

Ammodramus vs. *Centronyx* (*cf.* RIDGWAY, *l. c.* 202).

Ammodramus vs. *Coturniculus* (cf. RIDGWAY, *l. c.* 205).

501a. **Sturnella magna hoopesi** vs. *S. magna mexicana*.

501b. **Sturnella magna neglecta** vs. *Sturnella neglecta*.

Sturnella magna argutula BANGS.

The *Sturnella* cases (cf. Tenth Suppl., Auk, XVIII, 1901, 317) were again deferred on account of lack of time and material for their proper investigation.

Loxia curvirostra bendirei (cf. MERRIAM, N. Am. Fauna, No. 16, 1899, 123; RIDGWAY, Bds. N. and Mid. Am. I, 1901, 50).

567b. **Junco hyemalis connectens** vs. *J. oreganus shufeldti* (cf. RIDGWAY, Bds. N. and Mid. Am. I, 1901, 285).

567c. **Junco hyemalis thurberi** vs. *Junco oreganus thurberi* (cf. RIDGWAY, *l. c.* 287).

567d. **Junco hyemalis pinosus** vs. *Junco oreganus pinosus* (cf. RIDGWAY, *l. c.* 288).

568.1. **Junco annectens** (Eighth Suppl., Auk, XIV, 1897, 129); eliminated as a hybrid between *J. caniceps* and *J. mearnsi* (cf. RIDGWAY, *l. c.* 276).

570a. **Junco phæonotus dorsalis** vs. *J. dorsalis* (cf. RIDGWAY, *l. c.* 397).

574a. **Amphispiza belli nevadensis** vs. *A. nevadensis* (cf. Tenth Suppl., Auk, XVIII, 1901, 318).

Melospiza melodia vs. *M. cinerea*, involving the names of all the members of the group (cf. RIDGWAY, Bds. N. and Mid. Am. I, 1901, 349-378), the question of the status of the forms treated by Mr. Ridgway as subspecies of *M. cinerea*, and of several forms deferred last year (cf. Tenth Suppl., Auk, XVIII, 1901, 318).

These questions were all referred to a subcommittee, consisting of Messrs. Brewster, Stone, and Dwight, to report upon at the next meeting of the Committee.

Passerella (*cf.* Tenth Suppl., Auk, XVIII, 1901, 318).

The consideration of the subspecies of the *Passerella iliaca* group was referred to a subcommittee consisting of Messrs. Brewster, Dwight, and Stone.

Pipilo fuscus carolæ, and three other forms of the *P. fuscus* group, as recognized in the Check-List, whose status or relationships have been recently questioned.

Referred to Messrs. Brewster, Dwight and Stone as a subcommittee for consideration.

602. **Sporophila morelleti sharpei** vs. *S. morelleti* (*cf.* RIDGWAY, Bds. N. and Mid. Am. I, 1901, 575).

SUBFAMILY **Ptiliogonatinæ** vs. Family *Ptiliogonatide* (*cf.* RIDGWAY, Bds. N. and Mid. Am. I, 1901, 21).

Lanius ludovicianus migrans W. PALMER (*cf.* Tenth Suppl., Auk, XVIII, 318).

Referred to Dr. Merriam as a subcommittee.

SUBFAMILY **Miminæ** vs. Family *Mimide* (*cf.* RIDGWAY, Bds. N. and Mid. Am. I, 1901, 23).

Geothlypis trichas sinuosa GRINNELL, Condor, III, 1901, 65.

Geothlypis trichas scirpicola GRINNELL, Condor, III, 1901, 65.

Salpinctes obsoletus pulverius GRINNELL, Auk, XV, 1898, 238.

Again deferred, owing to lack of material.

SUBFAMILY **Sittinæ** vs. Family *Sittide* (*cf.* RIDGWAY, Bds. N. and Mid. Am. I, 1901, 22).

740a. **Parus hudsonicus stoneyi** vs. *Parus h. evura* (*cf.* Tenth Suppl., Auk, XVIII, 1901, 319).

Again deferred.

742a. **Chamæa fasciata henshawi** vs. *C. fasciata*, and

Chamæa fasciata intermedia (cf. Tenth Suppl., Auk, XVIII, 1901, 319).

The *Chamæa* cases were referred to Dr. Merriam as a sub-committee.

Hylocichla aonalaschkæ slevini GRINNELL, Auk, XVIII, 1901, 258.

All the cases involving the question of generic or subgeneric rank, scheduled in the Tenth Supplement (Auk, XVIII, 1901, pp. 319, 320); also the several new questions of like character, and of the family and subfamily rank of certain groups (as listed above), were necessarily deferred.

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THE BIRDS OF THE ISLAND OF CARRIACOU.

BY JOHN GRANT WELLS.

Part II. Land Birds.

(*Concluded from p. 247.*)

47. *Columba corensis Gmel.* RAMIER.—This beautiful pigeon is our finest game bird, and is much sought after by sportsmen. They are numerous, and breed in numbers on the small islets; a few nest at Chapeau Carré and that vicinity. They are capable of being tamed if taken from the nest when fledged and fed by the hand until they are able to pick up food for themselves, when they can be kept like ordinary pigeons. A remarkable feature is that in the wild state the Ramier is exclusively a frugivorous bird, but the tame ones, raised on Indian corn, will not take fruit, though freshly picked and given to them. In Grenada the Ramier is principally confined to the 'high woods,' but in Carriacou they are found all over the island, from the grape trees on the beach to High North. Several spots are favorite resorts of these birds where good shooting can be obtained, notably Dumfries Gully, Belair Ridge, and Quarry Road. I have shot many on an 'acoumar' tree in Belair village surrounded by dwelling houses, and at Hermitage they can be shot from the door step as they fly to and fro, at certain seasons, to their feeding grounds. The nest is generally placed on the outspreading branches of the seaside grape tree or on a mangrove tree. It is composed of a few dry sticks, hollowed in the middle by the weight of the bird; the eggs are two, pure white, and of the size of those of the domestic pigeon.

48. *Zenaida martinicana Bonap.* *Zenaida castanea* (Wagl.). TOURTERELLE; SEASIDE DOVE; WILD PIGEON.—This dove is quite numerous

all round the island though it is seldom seen on the highest hills; it is a ground pigeon, feeding on 'pigeon peas' and fallen berries and seeds, though it may also be found eating the gomier and acoumar fruit. They are excellent for the table, and consequently large numbers are shot; the peasants catch scores in traps and snares and they are taken to Grenada for sale. They nest on the cliffs near the sea and also on the small islands; the nest is only a few dry sticks, generally placed in a sea-side grape tree. I have found some of their eggs laid in a tuft of grass on the ground. The eggs are white, and two in number.

49. *Zenaida rubripes* *Lavr.* TRINIDAD GROUND DOVE; MOUNTAIN DOVE.—This beautiful little dove occurs in numbers. Unlike the other members of the dove family, it is found in flocks of 6 to 15. It feeds on the seeds of grasses and shrubs, and when flushed from its feeding grounds generally flies a short distance and alights in a tree. I have counted as many as thirty-three perched together on an accacia tree. Harvey Vale and Beausejour pastures are favorite resorts of these birds. They are very swift on the wing, and it needs a quick eye to shoot many of them, and owing to their close plumage they 'carry away' a deal of shot. I have known one of these birds to drop nearly half a mile off after being hit. The eggs are two, pure white; the nest is placed in the accacia bushes and on the islets.

50. *Columbigallina passerina* (*Linn.*). GROUND DOVE; 'ORTOLAN.'—This pretty little dove is very abundant all over the island, the pastures and seed bearing grasses and shrubs being conducive to its welfare. They are fond of newly cleared land, and may be found in pairs on the roads, especially after they have been repaired.

The nest is a rude structure of dried stalks and grass, generally found in a short stump or low shrub, in which are laid two pure white eggs, measuring .85 × .60.

51. *Falco columbarius* *Linn.* PIGEON HAWK.—This is a migrant, and arrives about the same time as the different species of Scolopacidæ, on which they prey.

52. *Pandion haliaëtus carolinensis* (*Gmel.*). OSPREY; FISH HAWK.—A migrant which visits the island regularly every year; it is generally seen in August and remains until February and March. It frequents the bays around the coast; seldom more than one is seen at a time.

53. *Coccyzus americanus* (*Linn.*). AMERICAN CUCKOO.—This bird is new to our avifauna; I never saw it or heard of its being seen until the year 1896, when I saw a pair in Grand Anse pasture, the male of which I shot. Since then I have seen them every year, about October and November; it is a migrant.

54. *Coccyzus minor* (*Gmel.*). CUCKOO MANIOC; RAIN-BIRD.—A lazy and foolish looking bird, it creeps along the branches of a tree, and will take a short flight if alarmed. It feeds on crickets and other insects. Its note is a harsh grating sound which the peasants say is its "calling for rain." The nest is difficult to find, being usually placed in a tree covered with liannes. The eggs are pale green.

55. *Crotophaga ani* *Linn.* CORBEAU; TICK BIRD.—Not numerous in Carriacou; small flocks may be met with in the pastures where cattle are feeding, and they are often seen in the grass by the roadside hunting for crickets, their keel-shaped bill being admirably adapted to separating the blades of grass and starting the crickets which are then pounced upon.

The nesting habits of this bird are peculiar. I have not been able to determine how many eggs are laid by each bird, as they use one large nest in common. A flat nest is first built and about 6 or 7 eggs laid in it; then these are covered over and more eggs laid, and so on until four or five layers of nests have been constructed one over the other. I have seen four of these birds sitting on the nest together. When the top layer of eggs is hatched, and the young fledged, it is scraped off and incubation goes on with each succeeding layer, until all the eggs are hatched. The eggs are of a light green when newly laid, but they soon become coated with a chalky substance, which gets stained and scratched, giving them a dirty appearance. They measure 1.28×1.04 .

56. *Ceryle alcyon* (*Linn.*). BELTED KINGFISHER.—This interesting migrant visits the island about August, and may be found in pairs frequenting the manchineel trees along the shore. They generally perch on a twig overhanging the sea, from which they plunge and take their finny prey. When flying from one tree to another, or when alarmed, they utter a prolonged *churr*.

57. *Eulampis holosericeus* (*Linn.*). GREEN HUMMINGBIRD.—Not numerous; generally seen in pairs. Its nest, usually 'saddled' on a large tree limb, is a beautiful and compact structure. The two eggs are pure white.

58. *Bellona cristata* (*Linn.*). CRESTED HUMMINGBIRD; COLIBRI.—This diminutive bird is one of the most pugnacious known here; it will attack any bird that approaches its nest. I have seen it drive off a hawk by perching on its head and pecking at its eyes. They have many battles with each other, especially when several of them congregate over a tree covered with blossoms. At such times their motions are so quick that the eye can hardly follow them, but the whirring of the wings and clashing of the beaks tell the fury of the combat. The nest is usually built on the drooping branches of the tamarind tree, or on roots under the banks of the road. In the Parish Church in Hillsborough a pair of these birds have built their nest on the rope suspending a chandelier and reared their young for several years. I have also seen a nest built on a long nail in the wall of a house in Hillsborough. The nests are beautiful little structures, sometimes constructed of fine mosses, but those built of cotton wool and covered outside with spiders' web and fine bark are exquisite. They lay two diminutive white eggs.

59. *Milvulus tyrannus* (*Linn.*). SCISSORTAIL; FORK-TAIL FLY-CATCHER.—This is a migrant, arriving in August in considerable numbers. It frequents the pastures near the seashore, and preys upon the

winged insects which swarm about the rain-pools and swamps. It inflicts punishment on the sandpipers and other small birds, attacking them with its strong bill and opening and shutting its tail feathers like a pair of shears. Like most of the family of Flycatchers, this bird has on its head a crest of bright crimson and yellow feathers which is concealed except when excited or in chase of its prey.

60. *Tyrannus rostratus* (Scl.). PIPPIREE. — This bold and dashing bird may often be seen perched at the top of some dry tree on the lookout for flying ants and other insects on which it feeds. It darts out on its prey in the air, turning and twisting about with ease, and the snapping of its strong bill can be heard as it closes over the capture. It also frequents the ponds and pools, where, skimming along the surface, it captures dragon-flies, etc. They show great courage in defending their nests and will peck at the eyes and hands of anyone climbing the tree on which the nest is situated; dogs passing near the tree are vigorously attacked, and pigs seem to be most obnoxious to them. In the early morning its shrill note is heard, *pip-pi-ree*, repeated often in quick succession.

It nests generally in the white cedar trees and also on the hog plum; the nest is loosely formed of dry tendrils and midribs of leaves; there is no soft lining for the eggs, though the shallow cup in the centre is usually of finer material. The eggs are three, reddish buff handsomely marked with spots and blotches of red-brown and dark gray; they measure $1.15 \times .75$.

61. *Myiarchus oberi* Lawr. PIPPIREE-GROS-TETE. — This bird is not abundant. It has a foolish appearance, and will remain perched on a twig for several minutes muttering its call note *pleet, pleet*. It nests in holes in trees, the nest being usually composed of horse hair, bits of rag, rotten wood, etc. The eggs are three and sometimes four in number, of a light buff color thickly scribbled over and blotched with brownish purple; they measure $.96 \times .70$.

62. *Elainea martinica* (Linn.). TOP-KNOT PIPPIREE. — This is an active and lively little bird; its note may be heard from five o'clock in the morning and seems to say *Ladies-Ladies-Ladies-your-lazy*. It is quick in its movements when darting after insects on the wing or flitting from branch to branch.

It builds a beautiful little nest, usually in the fork of a branch, and sometimes 'saddled' on a large limb, in shape like a shallow cup about 3 inches in diameter and 1 inch deep. It is composed outwardly of skeleton leaves interwoven with cobwebs and cotton wool; it is lined with fine tendrils and feathers. It lays two eggs, pale buff with a pink tinge and a circle of brown and purple spots round the blunt end; they measure $.80 \times .64$.

63. *Quiscalus luminosus* Lawr. BLACK BIRD; MERLE. — Numerous all over the island, this bird does good service among the sheep and oxen by picking off the ticks that infest them; but they are detested by the peasants for robbing the cornfield. They will dig up the grains of maize

when planted, eat the sprouts as they come up, and also feast upon the young ears, uttering all the while their cry of *green-corn-sweet*. They are gregarious, large numbers being often seen together. A tree with thick foliage is usually chosen for roosting, the mango tree being often selected. Hundreds of them may be seen flying to one of these trees at dusk, and the noise made by them before settling down is nearly deafening.

Everything eatable seems to be food for this bird, and it is certainly an impudent thief. I have seen it watching the vendors of cakes in the market place, and as one of them leaves the tray for a while, down swoops the blackbird and helps himself to a bun or other choice bit. He will hop about the counter of the butcher's stall and snatch up scraps of meat as they fly from the chopper. It eats grain, ground nuts, fruit, and also robs the nests of other birds of the newly hatched young which it devours. When the Indian corn is being planted little urchins are kept in the fields all day knocking two bits of iron together, pelting the blackbirds with stones, and roundly abusing them both in words and song.

In spite of his sins this is a showy bird. It is striking to see the male strutting about with the sun reflected on the beautiful purple-black of its neck and wings, cocking up its boat-shaped tail every now and then. The female is of a sober brown color. They nest in colonies, several nests being placed on the same tree. The nests are usually composed of dry roots and coarse straw well plastered with cow dung. The eggs are three and sometimes four, of a light blue, scribbled and blotched all over with purple and black; they measure $1.02 \times .76$ to $1.00 \times .72$.

64. *Molothrus atronitens*. COWBIRD.—This bird was not observed until June, 1899, when flocks of six to ten were to be seen about Hermitage and Harvey Vale pastures. I believe it to be a migrant, though a few stragglers are seen all the year round.

65. *Tiaris bicolor* (*Lin.*). SEE-SEE ZERBE; BLACK-FACED SEED-EATER.—Abundant all over the island is this sober colored little quit. It feeds on the seeds of grasses. It builds a domed nest when placed in a shrub or in the roots of trees on the roadsides, but when built inside of a house it takes the shape of the angle between two joists. Several of them nest inside the church in Hillsborough; one pair built in a hanging lamp there and reared its young. In the court house a pair of these birds have reared two broods for several seasons in a nest placed in a 'sea fan' which stands on a shelf. The eggs are three in number, dull white, with reddish brown spots, confluent at the blunt end; they measure $.59 \times .48$.

66. *Progne dominicensis* (*Gmel.*). PURPLE SWALLOW.—Flocks of these birds may be seen hovering about over the fields and pastures capturing winged insects, especially after a morning shower. About noon they roost in numbers on some dry tree, or in the upper branches of the silk cotton tree. They nest in holes in the cliffs and in the walls of abandoned sugar works.

67. *Hirundo erythrogaster* (*Bodd.*). RUFIOUS-BELLIED SWALLOW.—

This migrant appears in August when large flocks may be seen near the sea coast, darting about, and occasionally resting on a dry twig. They disappear in November and December.

68. *Vireo calidris* (Linn.). BASTARD GRIEVE.—In the early mornings, notably in the months of April and May, the note of this bird is heard repeated energetically every few seconds, *Sweet, too sweet, not-too-sweet*, as it creeps along the branches of the tamarind trees. It is a shy bird and yet inquisitive, as it will come quietly to the end of a branch to peep at anyone standing under the tree, and on the least motion being made by the person, it makes off quickly. Its food is principally insects, but it also eats a small red berry, the fruit of a wild shrub. It is pretty well distributed all over the island. It builds a pensile nest, usually in the fork of a small twig, and sometimes suspended between two twigs, very compactly formed of dried grasses and fine tendrils intermixed with cotton wool. In shape the nest is like a deep teacup. The three eggs are white, with a few scattered spots of dark brown, and measure .88 × .60.

69. *Cœreba saccharina* (Lawr.). SUCRIER; YELLOW SEE-SEE.—This pretty little bird is numerous in Carriacou, and may be seen wherever there are blossoms, it being fond of the insects found in the petals; it also is partial to the fruit of the prickly pear. It nests both in trees and in houses, the nests built outside are dome-shaped, those inside are generally built to suit a space between two beams or flat on the sill. The church in Hillsborough is a favorite nesting place of this bird. I have seen a pair busily engaged building a nest on a chandelier in the church whilst divine service was being held and over 500 persons were in the building. A pair built a nest and reared their young in a tethering chain hung up for sale in one of the shops in Hillsborough. I might cite many other queer nesting places.

On a window sill in my office, a goblet of water is placed every day to cool; a pair of these birds seem to consider it is put there for their sole use and benefit; they will perch on the rim, take a drink, and then proceed to have a bath, and sprinkle the water about.

The eggs are three in number, of a dull white thickly spotted with brown.

70. *Seiurus nævius* (Bodd.). WATER THRUSH.—On the outskirts of the mangrove swamps this lively little bird may be seen, hopping about and flicking its tail up, uttering at the same time its note *tseep, tseep*. It is a migrant, though I have observed one or two all the year round.

71. *Mimus gilvus* (Veill.). MOCKINGBIRD; PIED CARREAU.—The conditions of this island seem particularly to suit this bird, as it is found in profusion; in fact, it is the commonest bird here. Everywhere its song may be heard, always varying and ever delightful. Its notes may be heard at intervals on moonlight nights, which has gained for it the name of the West Indian Nightingale. It feeds on both fruit and insects, and is very partial to the berry of the black sage. It has been accused of eating the eggs of other birds, but of this I have no personal knowledge. It nests

everywhere, the accacia trees being often selected. The nest is usually a rude platform of dried twigs, with a round depression in the middle lined with fine roots, etc.; in this are laid three eggs, which vary considerably in color and marking; clutches are rarely found to be alike. The general color is pale green, spotted and blotched with brown; they measure $1.06 \times .74$.

72. *Merula gymnothralma* (Caban.). YELLOW-EYED GRIEVE; THRUSH.—Not numerous; frequents the mango and other thick-leaved trees. Its notes, heard in the mornings, are very musical and varied; one note in particular is a liquid metallic tinkle. The nest is usually composed of dry roots and mud with no soft lining; the eggs are three in number, pale green thickly spotted with brown, and measure $1.06 \times .80$.

73. *Margarops albiventris* (Lawr.). SPOTTED THRUSH.—This bird was not seen here until after the terrible hurricane which devastated the neighboring Island of St. Vincent on 11 September, 1898, when numbers of them arrived, and it may now be considered as resident.

A NEW LONG-BILLED MARSH WREN FROM EAST-ERN NORTH AMERICA.

BY OUTRAM BANGS.

AT PRESENT there are confused under the name *Cistothorus palustris* (Wilson) two quite distinct birds; one, true *C. palustris*, breeding in the salt and brackish marshes of the Atlantic coast from Connecticut southward; the other inhabiting the inland fresh-water marshes and extending north to Massachusetts, Ontario and southern Manitoba. The former, a small bird, has the chin, throat and belly pure white and the breast is usually white also, though sometimes faintly clouded with pale brownish, with the rump, upper tail-coverts and scapulars dusky brown. The latter is a decidedly larger form, in which the chin, throat and belly are buffy or brownish white, the breast much more distinctly clouded with brownish and the rump, upper tail-coverts and scapulars reddish brown.

My attention was first called to the differences between these two Marsh Wrens by a series of winter specimens sent me by Mr. Arthur T. Wayne of Mount Pleasant, S. C. Familiar with the

fresh-water bird from my earliest collecting days, I at once recognized a stranger in the little white-bellied, dark-backed form that winters in the coastal marshes of South Carolina. Since then, with the help of Mr. Wm. Brewster's large series and what other specimens could be borrowed, I have worked out the distribution of the two, and find the little white-bellied form to be peculiar to the salt marshes of the coast and the larger brownish-bellied bird to be restricted, in the breeding season, to the fresh-water marshes of the Atlantic watershed.

Certhia palustris Wilson was unequivocally based on the small white-bellied form, and the larger bird of the fresh marshes is the one in need of a name.

As with all Long-billed Marsh Wrens, there is some individual variation in color in both the eastern races; thus occasionally a bird taken in the breeding season in the salt marshes of Connecticut, or southward, will not be so white below as usual, or another will have the lower back rather redder than it ought; now and then, also, a bird from the fresh-water marshes of Massachusetts or elsewhere will slightly approach in color to true *C. palustris*; but size is an infallible test, and these slightly off color examples will always be found to agree in this respect with the more typical specimens of their own race. Were it not for this individual variation in color, rare as it is, I should unhesitatingly pronounce the two birds here treated distinct species, so sharply are their habits defined, and so great is the difference in size between them.

From either of the western races, *Cistothorus palustris paludicola* Baird or *C. palustris plesius* Oberholser, the eastern forms can be told by many slight, though pretty constant characters as pointed out by Mr. Oberholser.¹

South of the range of true *C. palustris* and living under much the same conditions, the salt marsh of the coast, a very different bird — *C. griseus* Brewster — occurs. I can find no sign of intergradation between these two and most emphatically regard the latter as a distinct species. This bird breeds and is resident from the coast of South Carolina to Matanzas Inlet, Florida. At

¹ Auk, Vol. XIV, April, 1897, pp. 186-196. 'Critical Remarks on *Cistothorus palustris* (Wils.) and its Western Allies.' By Harry C. Oberholser.

St. Marys, Ga., I became very familiar with it. In early April the males were in full song and nest building had just begun, the great salt marsh teemed with them and their cheerful little songs could be heard everywhere. One peculiarity of *C. griseus* is that it sings low down in the grass wholly out of sight, whereas *C. palustris* usually sings from a high stalk in plain view above the marsh. At Mount Pleasant, S. C., *C. griseus* is the breeding form — much rarer now than formerly owing to severe storms of a few winters ago — and true *C. palustris* winters there in numbers, but in spring retires northward to breed. Mr. Wayne occasionally gets also in winter an individual or two of the new form here described, which is very easily told at this time of year from either of the others.

The two forms of Long-billed Marsh Wrens, hitherto confused under the name *Cistothorus palustris*, can, I think, be recognized by the following brief diagnoses. Care must always be taken, however, in identifying specimens, that one has properly sexed specimens, as females are much smaller than males, and wrongly sexed skins (unfortunately too frequent even when made by good collectors) are confusing. In autumnal plumage the color differences between the two races are exaggerated and thus winter and autumn specimens are easiest to tell apart. In worn mid-summer plumage the difference in the color of the back is not so noticeable, but even then the much whiter underparts of true *C. palustris* is a strong color character. The difference in size is always constant, true *C. palustris* being a much smaller bird in every way — wing, tail, tarsus and bill — than its neighbor of the fresh-water marshes.

Cistothorus (*Telmatodytes*) *palustris palustris* (*Wils.*).

Type locality: Tidal marshes of the Pennsylvania rivers.¹

Distribution: Salt and brackish marshes of Atlantic coast from Con-

¹ Wilson did not give a definite type locality for his *Certhia palustris*, saying, "It arrives in Pennsylvania about the middle of May, or as soon as the reeds and a species of nymphæa, usually called splatter-docks, which grow in great luxuriance along the tide water of our rivers are sufficiently high to shelter it."

necticut southward to Maryland and Virginia; in winter to coast of South Carolina.

Characters: Size small: in ♂, wing 47 to 48 mm.; tail, 40.5 to 41.5; tarsus, 17.5 to 18; exposed culmen, 14 to 15; in ♀, wing, 43.5 to 46; tail, 35.6 to 38; tarsus, 17 to 17.5; exposed culmen, 13.5 to 14; bill slender in proportion. Pale areas of under parts — chin, throat and middle of belly — pure white, the breast usually white also, but sometimes faintly clouded with Isabella color; rump, upper tail-coverts and scapulars dusky brown — Prout's brown to mummy brown.

Cistothorus (Telmatodytes) palustris dissaëptus,
subsp. nov.

Type, from Wayland, Mass., No. 9796 coll. of E. A. and O. Bangs, adult ♂ taken May 31, 1879 by E. A. and O. Bangs.

Distribution: In the breeding season fresh-water marshes of eastern United States and parts of Canada, certainly from the Middle States north to Massachusetts, Ontario and southern Manitoba. Winters from Massachusetts southward, perhaps to eastern Mexico.

Characters: Size large: in ♂, wing 50.5 to 52; tail, 40 to 42; tarsus, 19.5 to 20.5; exposed culmen, 15 to 15.5; in ♀ wing, 48 to 49; tail, 40 to 40.5; tarsus, 18 to 19.5; exposed culmen, 14 to 15; bill stout in proportion. Pale areas of under parts — chin, throat and middle of belly — buffy white to pale wood brown, the breast usually much clouded with wood brown; rump, upper tail-coverts and scapulars reddish brown — russet to burnt amber.

According to my views of the relationships of the Long-billed Marsh Wrens, the various forms of the subgenus *Telmatodytes* should be arranged as follows.

Cistothorus palustris palustris (Wils.). Salt marshes of Atlantic coast from Connecticut to Virginia, in winter to South Carolina.

Cistothorus palustris dissaëptus Bangs. Fresh-water marshes of eastern United States and parts of Canada, breeding from Middle States to Massachusetts, Ontario and southern Manitoba, wintering from Massachusetts southward, probably to eastern Mexico.

Cistothorus palustris paludicola Baird. Pacific coast region of United States and southern British Columbia. Probably nearly non-migratory.

Cistothorus palustris plesius Oberholser. Western United States and interior British Columbia from the Sierra Nevada and Cascade Mts. to the Rocky Mts., south to southern Mexico. Probably only migratory at

northern parts of its range. Probably also breeds in southern Mexico, as I have an adult ♀ taken at Jalapa April 15, 1897, by Mr. C. B. Isham.¹

Cistothorus marianæ Scott. Salt marshes of western Florida, non-migratory.

Cistothorus griseus Brewster. Salt marshes of Atlantic coast, from South Carolina to Matanzas Inlet, Fla., non-migratory.

SICKLE-BILLED CURLEW.

BY C. W. WICKERSHAM.

THE NAME Curlew, or Curlieu, is applied to this genus as an imitation of its long, short-ending call note and originates with the French, whence the second name mentioned above. Species of Curlew are met with all over the known world, but none, except, perhaps, the Australian Curlew, can vie with our Sickle-bill either in size, shyness or cunning.

The Sickle-billed Curlew (*Numenius longirostris*) is found in almost every part of North America but it is only in the west and extreme south that it is met with in considerable numbers; the southwest in winter and the northwest in summer. On our Atlantic seaboard it is famous for its littoral habits, nesting in the Carolinas, Georgia and Florida, on the beaches and keys, spending his days probing the sand, wet from the retreating tide, for his food and generally supplementing the proof furnished by his long curved bill that he belongs, body and soul, to the shore birds.

But in the interior he leads quite a different life; for here we

¹The occurrence of this species at Jalapa is recorded by Mr. F. M. Chapman (Bull. Amer. Mus. Nat. Hist., X, 1898, p. 23) as follows: "On the outskirts of Jalapa there is a small marsh grown with high grasses and reeds, in which there were about a dozen individuals of this bird, which has apparently not before been recorded from Mexico. The three specimens secured are evidently to be referred to the interior form of Long-billed Marsh Wren recently distinguished by Mr. H. C. Oberholser under the above name [*Cistothorus palustris flesius*]. They were females, and on dissection the ovaries showed no signs of enlargement."

find him living on open prairie land, often far from water, nesting on the uplands, stalking along over the dry prairie, sometimes bobbing up and down like a sandpiper, at others sinking his long bill, with its tender ends into the ground, first on this side and then on the other, as he draws worm after worm out of its home to sustain life in his graceful body. As evening falls he becomes restless, his hunting comes to an end, his bobbing becomes more jerky and more and more repeated, until with a loud whistle he jumps forward, his long wings fly out and up and with the first unsteadiness over he joins the bunch in a long line and betakes his way with the others towards some distant marsh or pond. On, on they go; the leader whistles, the others answer, suddenly they all drop, sweep forward and up a little and then, with wings almost meeting above them and legs held daintily down to break the shock, they all alight. For five minutes there is no movement, no sound; there are no birds to be seen where, a moment before, the graceful creatures had alighted; suddenly there is a little flutter of wings and before you know it numerous forms have run forward and bent over the water to noisily quench their thirst. For another five minutes there is as great a confusion and clamor as formerly there was order and quiet; wings are fluttering, hoarse, short cries are arising, feet are pattering up and down, the water is heavily rippling from the motion of many bills and, in a word, all is chaos. One by one the drinkers cease, calmness is gradually restored, and, after pluming themselves, the birds draw one leg up under them, tuck their head under one wing, neatly fold the other, and sweet slumber reigns.

In the interior they begin to go north in May or the latter part of April and household cares take up the month of June from Arizona and Kansas north to Manitoba. July is spent in raising the chicks and by the middle or latter part of August, all is ready for the flight south to Texas, Mexico, Florida and the West Indies. Then it is that we see them in great flocks of hundreds, bobbing up and down all over the prairie, more nervous than ever; and then it is that they are least wary at times and at other times so very wary that it is impossible to approach them. They are so nervous and upset that they do not seem to know their own mind and it is at that season of the year that their antics become almost

as ridiculous as they are just before the breeding season. The day comes when you stroll out to take notes on the birds that you have seen by the hundreds the day before only to find that they have disappeared; not a bird answers your call, no hoarse screaming betokens your approach; they have gone, gone far away in long V-like squadrons and, unless you follow them to their winter home in the south land, you will not see their familiar forms for many months.

After reaching its winter home, the Curlew undergoes little change of habits except in his relation to other birds. For a few days the big bunches stay together and then they begin to separate into small bunches of from two to twenty birds. It is rarely that a single one is seen entirely by himself but two or three feeding together and then, perhaps a mile off, two or three more and in this way scattered all over the pastures and prairies is the way we find them in Texas. They are rarely found in the brush or even in ponds or swales surrounded by the brush, but far out on the open prairie or in little mud flats on the larger swales we rarely miss them. Here they feed all day looking for almost any form of insectivorous or crustacean life. Crawfish, small crabs, snails, periwinkles, toads, worms, larvæ, grasshoppers, crickets, beetles, caterpillars when found on the ground, spiders, flies, butterflies and berries, especially dewberries, all play minor or major parts in their diet. The worms, larvæ, etc., are pulled out of the ground by the long bill, the end of which may act as a finger having separate muscles to control it, and often it is sunk into the ground as far as it will go to reach some unwilling victim. The crustaceans are taken on the beach, or, discovered beneath the surface by the probing bill, are pulled out and eaten. The berries are neatly picked off the bushes, while butterflies and other insects are taken on the wing. At night the birds collect and make for the nearest large body of water where they spend the hours of darkness; but the return is made before light except on dark cloudy mornings when they have to wait for dawn to show them the way. On the wing they are easily distinguished by their snipe-like flight, their long, curved bill and their peculiar motion of beating wings which is so impossible to describe to those who have not seen it.

Wherever the Curlew goes, its long, curious bill makes it so

conspicuous that it is hunted much, but the embryo hunters have found, much to their chagrin, that it is next door to impossible to stalk the wary bird. Despite this, the Curlew decoys readily and is often 'whistled down' by an imitation of his call. Wound one and his yelping will attract every other Sickle-bill within hearing distance, and they will circle and return time and again until the last one is killed.

The nest is a mere depression in the ground, sometimes with a small lining of dead grass, in which are placed three or four ashy clay-colored eggs, covered with a few brown or chocolate spots and blotches. In the Northwest the nest may often be found under or at the foot of a sage bush but more often it is right out on the open prairie where both birds, male and female, help in the task of incubation and upbringing.

BIRDS OF PORTO RICO.

BY B. S. BOWDISH.

WHEN, in 1898, I began to study the birds of Porto Rico, I was somewhat surprised to find how meagre was the literature on the subject. Later, as my work slowly progressed, I felt a growing desire to add at least a little to the general fund of knowledge respecting Porto Rican ornithology, and to this end I have decided to submit the following notes, based on my own observations, extending from February 22, 1899, to February 16, 1900, and from May 5, 1900, to October 24, 1901. During most of this time—from February 22, 1899, to July 1, 1901—I was in the army and my opportunities for ornithological work were limited by military duties. Later, while I was collecting specimens for the National Museum, my opportunities for observation were somewhat better, but even during this period of my stay in Porto Rico, observation was necessarily somewhat of a secondary matter.

Therefore it will be understood why the breeding habits of the birds, that most interesting and instructive feature of a bird's life, are here so scantily treated.

In this connection I take pleasure in acknowledging my indebtedness to Dr. Charles W. Richmond, of the U. S. National Museum, for furnishing me with a 'hypothetical list' of the birds likely to occur in Porto Rico, which was of much assistance to me in my field work, and also for his kindness in revising the manuscript of this list. I am also indebted to Mr. Frank M. Chapman, whose kind assistance in identifying some of the doubtful specimens in my collection has greatly aided me in the preparation of this paper.

In order to make the present paper a complete list of all the birds known to occur in Porto Rico I add at the end a supplemental list of species thus far recorded from the island that were not observed by me. This list is based mainly on Dr. Richmond's above-mentioned 'hypothetical list.'

· 1. *Podilymbus podiceps*. **PIED-BILLED GREBE.**—I purchased a female from a native at Aguadilla, June 3, 1900. It is slightly smaller than northern birds. The ovaries were somewhat developed. Stomach contained the remains of three crawfish and a small quantity of mammal hair; apparently the bird had fed on a drowned and partially decomposed rat. Perhaps not uncommon in suitable localities.

· 2. *Larus atricilla*. **LAUGHING GULL.**—Abundant around the coasts and on the outlying islands. At San Juan the natives often had them alive, with a wing clipped, and sold them for food. A friend purchased and gave me a female which I kept alive from April 28 to May 3, 1900, when I was obliged to dispose of it. It was not very wild, although objecting to being handled, and ate and drank freely. I fed it both raw and cooked beef. When I visited Decicheo Island on June 24, 1900, and again July 6 to 10, 1901, I found about eight or ten pairs, but got no data as to their breeding. At the time of the latter trip I noticed a pair feeding on the floating body of a Booby, I had skinned and thrown into the water.

· 3. *Sterna antillarum*. **LEAST TERN.**—Noted one pair near Cabo Rono lighthouse, Aug. 22, 1901.

· 4. *Sterna fuliginosa*. **SOOTY TERN.**—Common at Mona Island on the occasion of my visit there, Aug. 5 to 21, 1901. An immature female which flew against the light during a cloudy night, Aug. 13, was injured and captured. At times large numbers of birds are said to fly against the light.

· 5. *Sterna anæthetus*. **BRIDLED TERN.**—Common on the islands of Mona and Decicheo, where they breed in large numbers; also frequently seen on the coast of the main island. On June 24, 1900, they were appar-

ently just beginning to breed, and the three single eggs found were nearly fresh. In each case they were laid in more concealed spots than those selected by the Noddy,—in one case under a rock on the beach, in another in a pocket in the face of a cliff near the top, and the third was in a hollow under a rock about fifteen feet above the beach. The birds were much shyer than the Noddy, leaving the nest with a dash before the intruder approached near enough to locate it. Another egg collected on July 6, 1901, and advanced in incubation, was laid on the bare earth, in a hollow behind a rock on a shelf in the face of a cliff ten feet above the beach. In no case was there the slightest nesting material. These breeding notes were made at Decicheo.

6. *Anous stolidus*. NODDY.—Not uncommon along the coasts of the main island, and by far the most abundant species on Mona and Decicheo. At the latter island, on June 24, 1900, a few had well grown young, and most of the eggs were advanced in incubation. These were laid almost invariably on the bare surface of the rock shelves in the face of the cliff, varying from eight to forty feet above the beach, and in only one or two cases was there a slight ring of bits of sticks and stones about them. They apparently do not lay more than one egg, and the various cliffs are occupied by one, two, three, or a larger number of birds, according to the accommodations; but the sitting birds were never found within reach of each other, which is probably due to their slightly quarrelsome disposition, all reports to the contrary notwithstanding. July 9, 1901, I placed a young one which had fallen from the nest on a rock near another. The parent of the latter attempted to drive the intruder away, when the intruding bird's parent took part in the disturbance, and thereafter there was a continuous dispute. At this date the Noddies had nearly all of them young of varying sizes. I found one egg nearly hatching and another almost fresh. In the stomach of one bird examined I found an entire flying-fish about four inches long and remains of others. Other stomachs contained fish remains. The method of feeding the young is by leisurely disgorging swallowed and half digested food well into the throat of the young. The common note resembles the clamor of young crows, and is often heard, more or less, throughout the night. Of a number of photographs taken I was able to save but one, of a young bird standing in the shadow of the rock and exhibiting in some degree an example of protective coloration.

7. *Phæthon*, sp. ?—I saw, but failed to secure, Tropic Birds at Decicheo and Mona Islands, but on one occasion, at Mona, a bird passed closely enough for me to distinctly see the yellow bill. Have also seen Tropic Birds at San Juan harbor.

8. *Sula sula*. BOOBY.—Abundant at Mona and Decicheo Islands, and often seen on the coasts of the main island. Probably breeds early as most of the young are on the wing by late June. I suspected the occurrence of other species of the genus at Decicheo, but failed to substantiate this suspicion. On July 9, 1900, at Aguadilla, I made the following note :

"They fly just over the waves, usually with steady beat of wing, but occasionally sailing for a distance with wing-tips curving down. At times they enter the water at a very slight angle while thus sailing. Again they rise some ten feet and descend perpendicularly, like an arrow, into the water. They dive readily and leave the water with the utmost ease, seeming to start as from a solid perch the instant they appear on the surface."

9. *Pelecanus occidentalis*. BROWN PELICAN.—Common everywhere about the coast of the main island, and on Vieques Island. Saw none, however, on Mona or Decicheo, nor did I locate any breeding place.

10. *Fregata aquila*. MAN-O'-WAR BIRD.—Common about the coast of the main island and on the islands of Vieques, Mona, and Decicheo, breeding on the two latter. On June 24, 1900, at Decicheo, a young male, nearly full grown but in immature plumage and unable to fly, was taken. My notes say: "Not well feathered; tail square, fork not developed; head and much of the plumage white; bill and feet bright blue."

11. *Phœnicopterus ruber*. AMERICAN FLAMINGO.—This bird is said to occur at times in the lagoons about Cabo Rojo.

12. *Ardea herodias*. GREAT BLUE HERON.—Common in suitable localities.

13. *Herodias egretta*. AMERICAN EGRET.—Common in suitable localities.

14. *Florida cærulea*. LITTLE BLUE HERON.—Common in suitable localities and particularly in the mangrove swamps about San Juan Bay where they doubtless breed.

15. *Butorides virescens*. GREEN HERON.—Common everywhere about the small streams, and quite fearless, allowing close approach. Several stomachs examined contained, respectively, remains of lizards and crabs, and one whole fish about six inches long; a kind of water beetle about three quarters of an inch long, many entire; crawfish and grasshoppers; eleven crawfish; small live worms.

16. *Nyctanassa violacea*. YELLOW-CROWNED NIGHT HERON.—Common in the localities visited. I even found it common on Mona, which seemed rather remarkable, as it is a dry, hot rock, with no sign of lagoon or swamp. Stomachs examined contained: fiddler crabs; two fresh water eels about six inches long, and two crawfish; also a number of live worms which may have been taken in with other food.

17. *Rallus longirostris caribæus*. CARIBBEAN CLAPPER RAIL.—Shot a male in a mangrove swamp near San Juan Bay, July 21, 1899. Stomach contained a few remains of fiddler crabs.

18. *Gallinula galeata*. FLORIDA GALLINULE.—Bought a female, with slightly developed ovaries, from a lad at Aguadilla, June 10, 1900. Stomach contained remains of small aquatic life. At Mayaguez, on June 12, 1901, a boy had two adults alive with the wings clipped.

19. *Tringa maculata*. PECTORAL SANDPIPER.—Sept. 26, 1900, during a 'wave' of Sandpipers, I took at a mud-flat in a cocoa grove, a female of this species, and I shot a male at the same place on Oct. 2. The stomachs in each case contained fiddler crabs.

- 20. *Tringa fuscicollis*. WHITE-RUMPED SANDPIPER.—This bird is not included in Dr. Richmond's list and was probably not recorded at the time of my going to Porto Rico. I shot a female at the above mentioned mud-flat, Oct. 2, 1900. Stomach contained fine grit, and well digested aquatic life.
- 21. *Tringa minutilla*. LEAST SANDPIPER.—On Sept. 23, 1900, at the mud-flat above referred to, I shot a male. At the same place, Sept. 4, 1901, I shot ten in a few minutes and could have shot many more. Their stomach contents was small snails and bits of grit. Dr. Richmond did not include the bird in his list and I am not sure that it has been previously recorded. I found the bird common also at Mona Island, where I shot a female Aug. 11, 1901.
- 22. *Totanus flavipes*. YELLOW-LEGS.—Shot a female at the above mentioned mud-flat, Oct. 7. Stomach contained a few grains of sand.
- 23. *Helodromas solitarius*. SOLITARY SANDPIPER.—Often seen in fall and winter. Shot a male Oct. 7, 1900, another on Oct. 18, a third Dec. 9, and a fourth on Sept. 5, 1901. Three stomachs were empty, the fourth contained a little fine aquatic life.
- 24. *Actitis macularia*. SPOTTED SANDPIPER.—Common through autumn and winter. Began to arrive by the middle of September, and was seen as late as April.
- 25. *Ægialitis vocifera*. KILLDEER.—Fairly common throughout the winter, at times feeding on the U. S. Infantry drill grounds. In 1899, at San Juan, I noted them as late as March 26. The following autumn I heard them first on Oct. 18. In 1900, I heard them on April 7. In the autumn I heard the first at Aguadilla, Oct. 7. In 1901 I recorded them on Feb. 28, at Aguadilla. I was away from Porto Rico during part of March and April, or I might have gotten a later date. In the autumn my date for their arrival at Mayaguez was Sept. 4.
- 26. *Ægialitis wilsonia rufinucha*.—Shot a male from a small flock of sandpipers on the beach at Vieques, Nov. 5, 1899. Stomach empty.
- 27. *Hæmatopus palliatus*. AMERICAN OYSTER-CATCHER.—A few noted at Decicheo.
- 28. *Colinus virginianus cubanensis?* CUBAN BOB-WHITE.—Introduced. Very rare. I saw one on a hill near Mayaguez, but it vanished before I could change the shell in my gun, and in the dense under-brush I was unable to again find it.
- 29. *Numida meleagris*. GUINEA FOWL.—Common in certain localities.
- 30. *Columba caribæa*. CARIBBEAN PIGEON.—According to Dr. Richmond: "Gosse says, 'in large flocks.' No other or later record."
- 31. *Columba squamosa*. SCALED PIGEON.—Common where not too much hunted. On Mona they were abundant, though not as much so as the next.
- 32. *Columba leucocephala*. WHITE-CROWNED PIGEON.—Sometimes seen about Mayaguez. Very abundant on Mona Island. One shot near Aguadilla Island. Probably common in all suitable localities.

- 33. *Zenaidura macroura*. MOURNING DOVE.—Common everywhere.
- 34. *Zenaida zenaida*. ZENAIDA DOVE.—Found abundantly on Mona Island, and probably common in other suitable localities. One shot near Aguadilla.
- 35. *Columbigallina passerina*. GROUND DOVE.—Common everywhere. The nests are built well above the ground, probably to avoid the depredations of the mongoose, and for a bird of this family are usually quite substantial. Nesting dates are: Near San Juan, July 19, 1899; eggs two, fresh; nest twelve inches above ground in a dead bush in bush-grown pasture. Measurements of nest: diameter 3.63×2.13 inches; depth $1.25 \times .50$. Aguadilla, June 9, 1900; eggs two, incubation advanced; nest eight feet from the ground, on a horizontal branch of a mango tree, in an open field. Measurements: diameter 4.75×2.13 ; depth $1.63 \times .63$. June 9, 1900, ten feet from ground. Incubation advanced. June 24, on top of stump among sprouts, nine feet from ground, and close to a house. Eggs fresh. July 12, two fresh eggs, eight feet from ground. July 22, two eggs, incubation advanced; twelve feet from ground, on extreme tip of a mango limb, near a house. July 27, two fresh eggs, twelve inches from ground in tiny thorn bush, in a cultivated field. Mona Island, Aug. 11, 1901, two eggs, about one half incubated. Nest three feet from ground in a bush near a path; also a single fresh egg on bare rock in path.
- 36. *Geotrygon chrysia*. QUAIL DOVE.—I only saw this species on Mona Island but it is doubtless found on the main island.
- 37. *Geotrygon montana*. RUDDY QUAIL-DOVE.—Noted at Vieques (where I shot a male Dec. 30, 1899), at Aguadilla, and very common on Mona Island.
- 38. *Buteo borealis*. RED-TAILED HAWK.—Nowhere rare, apparently quite abundant in the vicinity of Las Marias. I secured only two specimens, a male, Vieques, Jan. 26, 1900, the stomach containing the bones and hair of a rat, and a female at Mayaguez, July 31, 1901, the stomach containing the fur of a rat. This specimen was sent to the National Museum. Comparison of a series with specimens from the United States, may develop the fact that the birds from Porto Rico are entitled to subspecific recognition.
- Near Cataño, March 27, 1899, I found a nest ready for occupation. It did not differ from nests of this species in the States, and was built in a large tree about 50 feet from the ground, on a wooded hillside.
- 39. *Falco dominicensis*. CUBAN SPARROW HAWK.—Common in all localities visited. Feeds chiefly on small lizards, grasshoppers and large insects.
- 40. *Pandion haliaetus carolinensis*. AMERICAN OSPREY.—Not abundant. I noted a pair at Vieques and secured the male, Dec. 31, 1899. Stomach empty. At Mona Island I saw the foot of one which had been shot there.
- 41. *Asio portoricensis*. PORTO RICAN OWL.—I saw a bird of this species in the marsh grass at San Juan Bay, Feb. 12, 1900. This was the only specimen noted.

42. *Gymnasio nudipes*. NAKED-FOOTED OWL.—Occurs abundantly about the coffee plantations near Mayaguez. The bird is said to bite the coffee berries as they are ripening (the natives declare the birds eat them, though I have never found traces of them in the stomachs examined), and at this time the bird's notes are likened by the natives to a song of *coffee, coffee, coffee*. It is said that considerable damage is done in this way.

At Mayaguez, May 16, 1901, I bought two young ones, about half-grown, from a native lad and caged them in quite roomy quarters, making photographs of them the next day. On the 21st I added an adult female and a young one not over a third the size of the others. At this time I was feeding them raw beef, serving each in turn, a piece being held out to them on the end of a wire. They ate very readily, the adult being the most conservative. My notes from this time run: May 22. Found adult had a broken leg and made an attempt at splintering it. When the older ones are hungry they swallow the meat as soon as it is handed out to them, but when not very hungry, they are inclined to seize it in one claw and attempt to tear it with their beaks. They are very bright. The little one ate a piece of meat this morning, but as yet I have not seen the adult eat anything. May 25. Owls still remain bright. Find they do not eat well during the day, so I place the meat in the cage at night only. I feed the youngest, who takes meat readily off the end of a wire but not from my fingers. He braces up and back as he sees the meat approaching, as though frightened; then, shutting his eyes, he seizes it in a desperate fashion. While I am about the cage he keeps up a sort of a low twittering, similar to the vesper peeping of young chickens when brooded by the hen; he also snaps his beak, and bites when handled. I have heard the others make no other sound than snapping the beak. Took some cockroaches to the owls this evening. Since the last two were put in the cage I have not seen the first two come down from the higher perches, but this evening all four were on the floor where they had been feeding on beef, and were bright and fierce. May 27. Bought two more young owls, a little smaller than the first pair. May 28. To-day I heard from the old one and from one of the young ones a slight cry like that of the low guttural growl of a cat. May 29. To-day while working near the cage I heard a sort of squeaking cry from one of the owls. This evening when I went to feed them, I found one of the last pair dead. The stomach, though empty, had evidently not long been so, and though the condition of the bird was poor, it was perhaps no more so than normally. June 1. The remaining five owls seem to be doing well, and the youngest grows remarkably fast. June 4. This P. M. I found my adult owl dead. The leg had pretty well healed, but the bone would hardly have knit properly. Stomach contained almost perfectly digested meat, and grit from the floor of the cage. The remaining four appear bright. Am teaching the youngest to feed himself. He was on the perch for the first time to-night. June 6. Took three more photo-

graphs of the youngest owl. He has developed wonderfully since last photographed. He drooped his wings and bristled like the others. June 12. Another of the owls died to-day. They do not seem to do well on the meat of birds, and this is all I have had for them lately. June 13. Gave my owls a feed of disabled cockroaches, which they seemed to relish very much. Though they are active in daylight, when subjected to lantern-light at night, they seem blinded and stupid. June 21. Found one of my young owls dead this evening.

The remaining owl died while I was at Mona, in August. The one dying on June 21, had lived from May 16 until that time in confinement; the last one lived from May 27 until the middle of August. They occupied a roomy cage on the roof, and had I been able to provide them with a more insectivorous diet, I presume they would have lived longer. In the case of the youngest, it was my purpose to photograph him each week until full grown, but the loss of a box of negatives in the mail, and the premature demise of my subject frustrated my plan.

I vainly tried to get information as to the nesting of these owls from the natives, and they assured me that seeing an owl, or as they called it a 'mookera,' in the day time was an impossibility, yet I did repeatedly, see them roosting in some sheltered spot, both in the coffee bushes and in the trees above them. A female sitting in a tree over a grosbeak that I shot, did not move until I saw and shot it; at this shot the male flew to a near-by tree, where I also secured him. Their stomachs contained the remains of beetles, many quite small, and a few cockroaches. This was June 27, 1901. From the results of my study of them, I should be very strongly inclined to think the coffee eating stories altogether unfounded, and without doubt based on circumstantial evidence, as is so often the case with the evil reports of birds. They doubtless eat harmful coleoptera, and as they seem to have no taste for bird-flesh, I should say that they are a very desirable species and deserve protection.

43. *Amazona vittata*. PARROT.—Still fairly common in the wilder mountain regions, but I was not fortunate enough to secure any.

44. *Crotophaga ani*. ANI.—Exceedingly abundant everywhere. I searched vainly for a nest till finally, at Aguadilla, a boy brought five eggs to sell me that I was at once sure belonged to this species. I secured them and a promise of more. On August 13 he brought me twenty more, all taken from one nest. I immediately persuaded him to take me to the nest, and found it to be in a small tree about eight feet from the ground, in a jungle of bushes and trees, just at the foot of one of the small bush-grown conical hills that, near Aguadilla, rise from the level, cleared pasture lands. The birds were still about the nest and noisy, and there was no further doubt as to the identity of the eggs.

The nest, built of fine twigs and dead leaves, was large, bulky, and originally deeply cupped. Probably four or five females contributed to this set, that being the usual custom. When a layer of four or five eggs is laid a layer of dead leaves is deposited over them and a second layer of

eggs laid, and by the time the set is completed the nest is pretty well filled. The measurements of the nest were: depth 6.00×1.50 ; diameter, 9.00×4.50 inches. Of the eggs, incubation had begun in eight. The other twelve were fresh. They are cuckoo's egg blue, streaked longitudinally with a limy white deposit which washing does not remove. They average 1.55×1.08 inches, and five individuals selected at random measure: 1.50×1.00 ; 1.57×1.10 ; 1.59×1.10 ; 1.53×1.09 ; 1.56×1.10 . A pair of birds that I shot from a flock feeding in a pasture had their stomachs distended with grasshoppers, probably fifty or more in each.

Of other stomachs examined the largest proportion of the contents was insects, a small percentage being seeds. These strange birds, with their quaint cry, are called 'black witch' by the English speaking people of the West Indies, and 'hudia' in Spanish.

45. *Saurothera vieillotii*. VIEILLOT'S GROUND CUCKOO.—Not rare, but not nearly as common as is *S. merlini* in Cuba, and much more retiring. Its notes are cuckoo-like but deeper and more guttural than those of our birds. Though the birds are called 'lizard cuckoo,' I found a lizard in but one of the stomachs examined, insect food, largely coleoptera, prevailing. Of their breeding I unfortunately learned nothing.

46. *Coccyzus minor dominicensis*. MANGROVE CUCKOO.—This bird, like the last, is apparently not abundant in Porto Rico, though I found them fairly so at Mona Island. The notes are much like those of the Yellow-billed Cuckoo. A female shot near Mayaguez, Sept., 1901, would have laid the first egg the next day. This is the meagre information of their breeding which I gathered. Lizards as well as insects enter into their diet. The stomach of the specimen taken contained two lizards, a snail, and a katydid.

47. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—I shot several near Aguadilla, and secured one on Mona Island. They do not appear to be abundant.

48. *Todus hypochondriacus*. Very plentiful about Aguadilla and Mayaguez, especially the latter. They were not abundant in the vicinity of San Juan, and I did not find them on the smaller islands. Structurally its closest affinity is with the Kingfisher.

This bird belongs to a genus comprising six species, all occurring in the Greater Antilles. They are quite fearless of man, and often approach within two or three feet of the observer, apparently moved by curiosity. The condition of birds examined on Feb. 3 indicated the approach of the breeding season, and others examined on May 30 that the breeding season was well along.

I was unable to find a nest but a lad who claimed to have found them said they laid in burrows dug in a bank of earth, and that the eggs were white. One of the notes of this species is curiously like the low *quack* of a duck, but loud for the size of the bird. It also at times emits a sound like a whirl of springs, usually when taking a short flight. In mentioning this characteristic of the Cuban bird, *T. multicolor*, Mr. Chapman says he

is inclined to attribute the sound to the attenuate outer primary, stating that the sound is not mentioned in descriptions of the Jamaican bird, *T. viridis*, and that he finds the outer primary shorter and not so attenuate, curved and stiffened as in the Cuban species.¹ I have not had the opportunity of examining the Jamaican birds, but comparison of the few specimens of *T. hypochondriacus* with *T. multicolor* in my collection shows the outer primary of the former to be decidedly shorter and less attenuate than that of the latter. These birds sit on a twig watching for their prey often with the beak pointed almost straight up, and darting suddenly from this perch they sometimes take an insect on the wing, though more often hover in front of a leaf or flower for that purpose, somewhat after the manner of a hummingbird, but for a shorter period and with less rapid wing-beats. Its food is entirely minute insects. I kept a wounded bird in a cage for two days, during which time he ate voraciously of finely chopped hard-boiled egg, and drank freely from the water dish. He did not seem to be at all put out by my presence, and ate and drank while I was putting food in the cage.

✓ 49. *Ceryle alcyon*. BELTED KINGFISHER.—Though less abundant than in Cuba, this bird is common throughout the winter. I noted it at Aguadilla, Oct. 7, 1900, but have no record for their northward departure. The food while here seems to be largely crawfish.

• 50. *Melanerpes portoricensis*. PORTO RICO WOODPECKER.—Abundant wherever there is enough timber to attract it. I found it on Vieques but not on Mona Island, nor on Decicheo. In general habits, notes, etc., it strongly reminds one of *M. erythrocephalus*, and is equally noisy and vociferous. It is a fruit-eater, even more so than its cousin, and the larger proportion of its food is of a vegetable nature. I have never seen it take food on the wing as does our Red-head. Near San Juan, on July 2, 1899, I made the following note:

"*Melanerpes portoricensis* has many harsh notes somewhat similar to notes of the Flicker, and like that bird it is quite garrulous." April 8, 1900, near Cataño, I shot a female from a pair on a dead snag, and afterwards discovered a freshly excavated cavity close to where they had been sitting. Examination proved it to be not yet completed. It was in every respect like a nesting cavity of the Red-head, and was about twelve feet from the ground. Examination of the bird showed she would not have laid for at least a week. Another pair taken near the same locality April 22, were evidently nearly ready for nesting.

• 51. *Antrostomus carolinensis*. CHUCK-WILLS-WIDOW.—I found this bird only on the island of Vieques, where in a certain creek bottom I shot two and noted a number more, Dec. 15 and 28, 1899. I secured females in both cases, the stomachs of which were well filled with insects.

¹'Notes on Birds and Mammals Observed near Trinidad, Cuba, with remarks on the Origin of West Indian Bird-life.' By F. M. Chapman. Bull. Amer. Mus. Nat. Hist., Vol. V, pp. 279-330.

52. *Cypseloides niger*. BLACK SWIFT.—Noted a few but failed to secure any.

53. *Lampornis virginalis*.—Common at all points which I visited. At Aguadilla, July 21, 1900, I found a nest, to which I was attracted by the angry demonstrations of the female bird. I first noticed her chase a *Myiarchus antillarum* out of the tree. It was a large tree standing in a corn field, but I failed to locate the nest by watching the bird. She several times took a flight of about ten rods, returning immediately, but would not go to the nest. It was finally found by close search. It was on the end of a limb about ten feet from the ground, and contained two young about half grown. It was well sheltered by large leaves growing above, was cottony in appearance and not particularly handsome, resembling some of the poorer nests of *Trochilus colubris*. March 1, 1901, I made the following note: "Heard a *Lampornis virginalis* sing a 'song,' a sort of prolonged trill or twitter. It also utters sharp chips. When hovering in front of a flower the motion of the wings seems sometimes quite slow, almost within the power of vision, and it sometimes alights on a twig to feed from a flower." Their habits are in general much the same as those of other hummingbirds.

54. *Sporadinus maugæi*. Fairly common though not abundant about Mayaguez and Las Marias. Not seen near San Juan nor on Vieques Island.

(*To be concluded.*)

THE RELATION OF THE FOOD TO THE SIZE AND
SHAPE OF THE BILL IN THE GALAPAGOS
GENUS *GEOSPIZA*.

BY ROBERT E. SNODGRASS.

THE Fringillid genus *Geospiza*¹ of the Galapagos Archipelago contains about thirty-four species and varieties. Four subgenera may be distinguished on a color basis, but the specific and varietal character are almost entirely in the shape and size of the bill. The bill being the feeding organ, it is most natural to look first for the cause of its variation in a variation of the character of the food.

Geospiza heliobates feeds entirely on insects. But it inhabits exclusively the 'mangrove swamps' where there is nothing but insect food available. The other species are all seed-eaters, although they occasionally pick up a few ants and other small insects. The seeds that they eat are mostly small and they are usually swallowed whole, being found in this condition in the crop. Large seeds when eaten are broken into pieces by the beak before being swallowed, generally only fragments of such are to be found in the stomach. The birds feed a great deal upon the ground, picking up seeds that have fallen from the bushes, and at the same time taking in with the food a considerable amount of gravel.

With a view of determining whether there is any corresponding variation between the bills and the food, Mr. Edmund Heller and the writer, during 1898 and 1899, preserved the stomachs of two hundred and nine specimens of *Geospiza*. These represent *G. pachyrhyncha*, *G. strenua*, *G. conirostris*, *G. fortis fortis*, *G. fortis platyrhyncha*, *G. fuliginosa*, *G. scandens*, *G. scandens fatigata*, *G.*

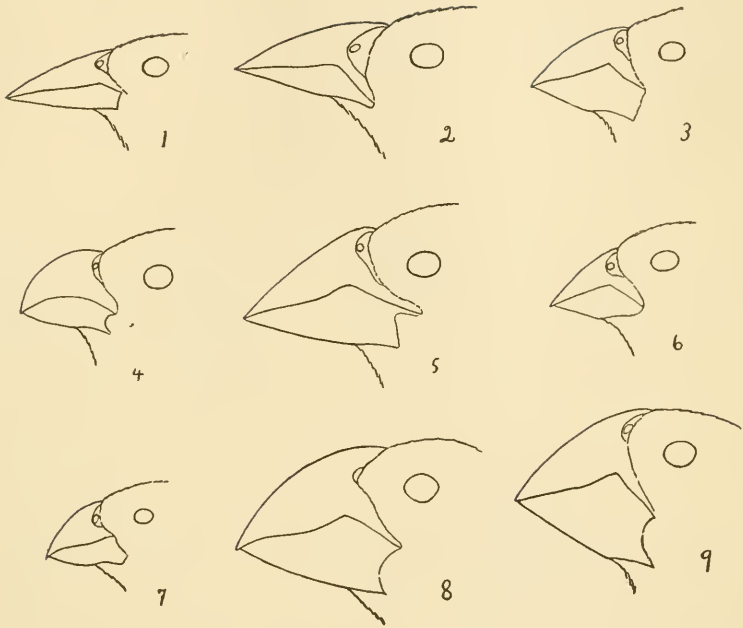
¹The name *Geospiza* is here used in the same sense as used by Rothschild and Hartert (Novit. Zool., VI, 1899), *i. e.*, to include all of the related Galapagos genera of other authors, such as *Platyspiza*, *Camarhynchus*, *Geospiza* and *Cactornis*. Such a group is certainly a natural one; and in it lines of division are difficult to draw. Ridgway recognizes three genera: *Platyspiza*, *Camarhynchus* and *Geospiza*. The names of species are according to the synonymy in a paper yet to be published by Mr. Edmund Heller and the writer.

scandens rothschildi, *G. affinis*, *G. crassirostris*, *G. prothemelas*, *G. heliobates*. The specimens were collected from the islands of Albemarle, Narborough, James, Seymour, Duncan, Charles, Hood, Barrington, Tower and Bindloe. The dates run from December till June, inclusive.

Comparison has been made of the food of individuals of the same species at different places, and of the food of different species at the same and at different places. The results are somewhat conflicting. In any case one would require a great amount of evidence to come to any definite conclusions. Then, too, there is always a doubt created by the fact that the specimens were not taken on the different islands during the same months, and by the fact that the seasons vary considerably at different localities. What might appear to be evidence of a difference in food habit between a species on one island and a different one on another island, might be nothing more than a seasonal change of diet due to different plants being in seed at the two times. However, a few conclusions may be positively deduced, the results being sufficient to warrant the discussion.

The detailed records of the two hundred and nine stomachs are omitted. The data obtained are given in the following table, and the seeds are illustrated on Plates XII and XIII. The seeds have not been identified, but the names are not necessary. They are drawn to show their relative sizes, and are referred to in the succeeding discussion by their numbers on the plates. Figures 1 to 44, inclusive, except figure 42, are magnified $6\frac{2}{3}$ times. The others are magnified only half as much. The stomachs of Mockingbirds (*Nesomimus*) from eight islands have been examined in the same way. The records of these are given at the end of the table, and the seeds are figured on the plates along with the *Geospiza* seeds. The stomachs of all contained a total of sixty kinds of seeds. Seeds Nos. 59 and 60 are not figured.

Following is the table (pp. 369-374) containing the records of the examination. It of course does not show the relative numbers of each seed present.



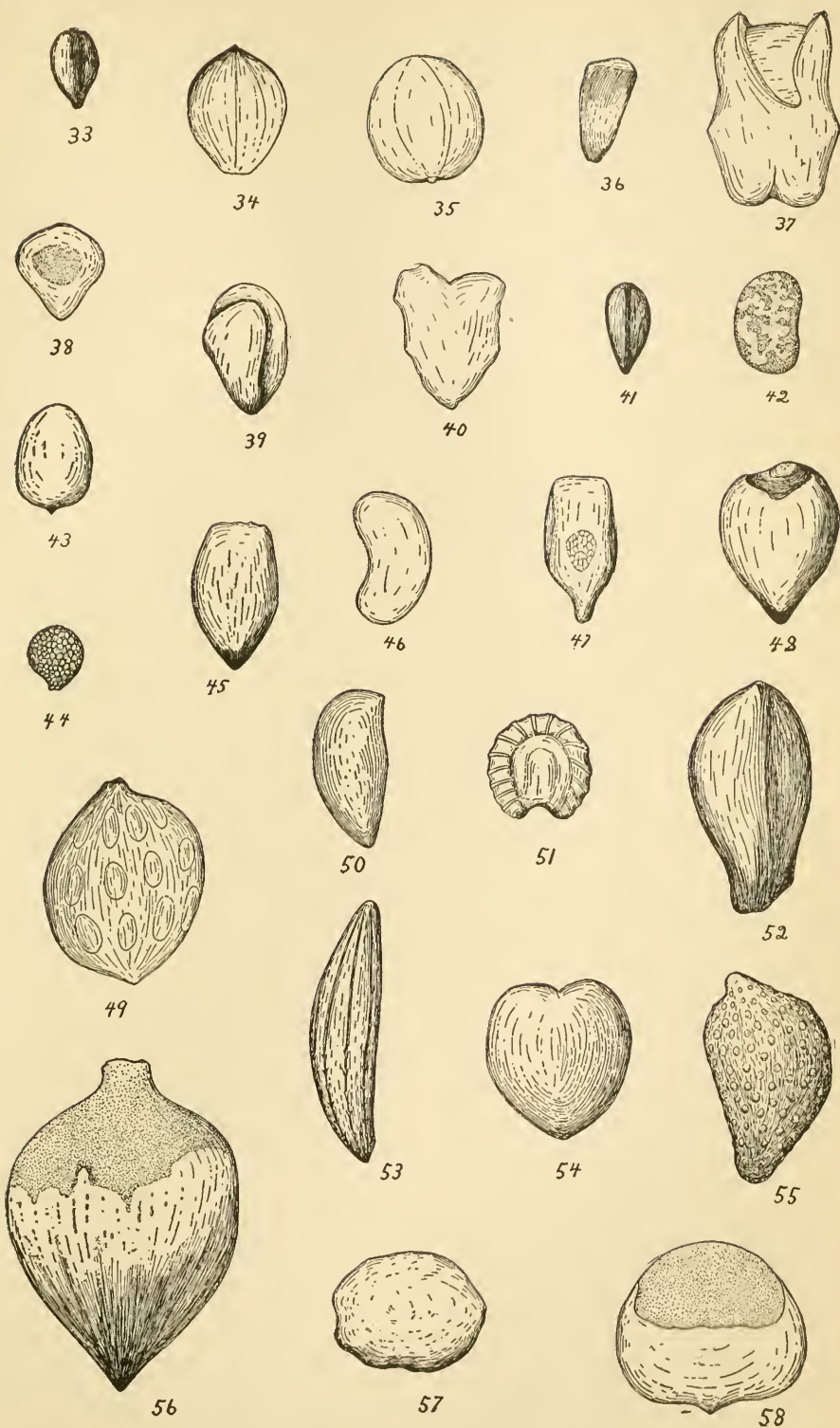
BILLS OF GEOSPIZA.

Natural Size.

- Fig. 1. *Geospiza scandens scandens*, James Island, from Ridgway.
- Fig. 2. *G. scandens rothschildi*, Bindloe Island.
- Fig. 3. *G. fortis fortis*, Albemarle Island, from Ridgway.
- Fig. 4. *G. crassirostris*, from Ridgway after Gould.
- Fig. 5. *G. conirostris conirostris*, Hood Island, from Ridgway.
- Fig. 6. *G. fuliginosa parvula*, Tagus Cove, Albemarle Island.
- Fig. 7. *G. prothemelas prothemelas*, Albemarle Island.
- Fig. 8. *G. streuua*, Albemarle Island, from Rothschild.
- Fig. 9. *G. pachyrhyncha*, Tower Island, from Ridgway.



FOOD SEEDS OF GALAPAGOS BIRDS.



FOOD SEEDS OF GALAPAGOS BIRDS.

From the facts given in the table the following propositions may be pretty well established.

I. *The food of GEOSPIZA as a whole differs from that of NESOMIMUS.*

This is evident from the fact that of the twenty-one seeds found in the *Nesomimus* stomachs, only eight were found in *Geospiza* stomachs. Of these seed No. 8, which was the predominant seed in the food of *Geospiza fuliginosa parvula* at Tagus Cove, Albemarle, was found in two specimens of *Nesomimus* from Bindloe Island. Seed No. 18, which occurred in eight *Nesomimus* stomachs, was present in only three *Geospiza* stomachs. The other seeds common to the diets of the two genera were of rare occurrence in each.

Nesomimus eats a great many more insects than does *Geospiza*, being insectivorous and granivorous in about equal proportions. Numerous pieces of large insects were found in nearly all of the *Nesomimus* stomachs, including grasshoppers, flies, beetles, caterpillars, and also spiders and centipedes. The seed part of the diet differs from the food of *Geospiza* in consisting of larger seeds, of seeds that the much smaller-mouthed *Geospizæ* could not handle.

II. *The same species at different localities may feed on different seeds.*

The truth of this statement is best shown by a study of the food of *Geospiza fuliginosa parvula* (Pl. XI, Fig. 6) the most widely spread and most abundant form of *Geospiza* on the archipelago. In the stomachs of nineteen specimens of this variety from Tagus Cove, Albemarle Island, collected in January, there was found a total of only eleven species of seeds. Of these, seed No. 1 had been eaten by two birds, No. 2 by one bird, No. 4 by two birds, No. 6 by two birds, No. 8 by nine birds, No. 15 by one bird, No. 22 by five birds, No. 24 by three birds, No. 41 by two birds, No. 58 by one bird, and No. 59 by one bird. This shows that the birds here feed on seed No. 8 more than any other, and that seed No. 22 was second in numbers. Moreover, these two seeds were present in much greater numbers than the others in each stomach in which they occurred.

From Elizabeth Bay, Albemarle, there are only two specimens

and each of these had only seed No. 4 in its stomach. The specimens were collected in February.

Seventeen specimens were examined from Iguana Cove at the southern end of Albemarle, separated from Tagus Cove by a distance of about fifty miles. Here seed No. 1 was eaten by one bird, No. 2 by one bird, No. 4 by one bird, No. 15 by thirteen birds, No. 44 by three birds, and No. 55 by one bird. Thus, the only seed fed on at all constantly by the Iguana Cove birds is seed No. 15 — a seed found in only one stomach at Tagus Cove. The Iguana Cove specimens were collected in December.

Since we do not know what species of plants the different seeds belong to, we cannot say whether the differences in the food of the birds at Tagus Cove and Iguana Cove is due to a difference in the floras of the two localities, to a difference in the time of ripening of the seeds, or to a difference in the preferences of the birds with regard to the seeds at the two places. Since, however, seed No. 15 was found in abundance in the stomachs of birds taken on James, Seymour, Duncan and Barrington Islands in April and May, it would appear that the seeds should be ripe at Tagus Cove in January if they are ripe at Iguana Cove in December. That the plant occurs at Tagus Cove is shown by the fact that the seeds were found here in one stomach. The entire diet of the Tagus Cove birds consisted of seeds Nos. 1, 2, 4, 6, 8, 15, 22, 24, 41, 58 and 59; that of the Iguana Cove birds of seeds Nos. 1, 2, 4, 15, 44 and 55. Of the thirteen kinds of seeds only four are common to both sets. Hence, there is most evidently a difference in the food of the individuals at the two places, at approximately the same time of the year. It is, perhaps, most probable that this difference is due to the same seeds not being available in the same relative numbers at the two places.

Of five specimens from Narborough Island, taken in December, three had in their stomachs only seed No. 8, the other two contained only seed No. 22. These thus fed on the principal part of the diet of the Tagus Cove birds.

On James, Seymour, Duncan and Barrington Islands *Geospiza fuliginosa parvula* feeds almost exclusively on seeds Nos. 14 and 15. Specimens of one or both of these seeds were found in the stomachs of all the thirty-six birds examined, except in one from

James and one from Barrington. Next to these, seeds Nos. 10 and 57 were most abundant, each being represented in ten stomachs. These four seeds were also by far the most abundant wherever they were found. The rest of the diet consisted of seed No. 2, found in two Seymour birds and in one Duncan bird; No. 11, found in one Seymour bird; No. 17, found in one Seymour bird; No. 18, found in one James bird; No. 20 found in one Duncan bird; and Nos. 41 and 59, found in one James bird. These specimens were all collected in April and May.

The facts just detailed certainly show that the individuals of *Geospiza fuliginosa parvula* living on Narborough and at Tagus Cove, Albemarle, during December and January, have a different diet from those individuals living at Iguana Cove, Albemarle, in December, and on James, Seymour, Duncan and Barrington in April and May. The proof, from these facts, of proposition I, however, is somewhat invalidated by the consideration that seeds Nos. 14 and 15 may ripen at Tagus Cove and on Narborough later than January. But seeds Nos. 8 and 22 were not found in any stomachs except in those of birds taken at Tagus Cove. We can see, at least, that the diet of the birds depends on the local prevalence of certain seeds; and that, where the floras differ, the food of a species may differ.

III. *Different species at the same locality may feed on the same kinds of seeds.*

This proposition is much easier to prove than the last. Compare, for example, the food of *Geospiza fuliginosa parvula* (Pl. XI, Fig. 6) and of *G. scandens fatigata* on Seymour and Barrington Islands. As has already been shown, the food of the former species consists almost wholly of seeds Nos. 10, 14, 15 and 57, Nos. 14 and 15 being in the majority. An examination of the table will show that the food of *G. scandens fatigata* on the two islands is practically identical with that of *G. fuliginosa parvula*, consisting mainly of seeds Nos. 14 and 15, with Nos. 10 and 57 second in numbers.

The case of these two species, then, proves that species differing much in the size and shape of the bill (Pl. XI, Figs. 1 and 6) may have absolutely the same food habits. We have not, however, the material at hand to justify the statement of this as a

general truth. We cannot show how far it actually holds true of other species on the archipelago. The similarity in the food of these two common forms on Seymour and Barrington Islands is so striking, however, that one is almost forced to the conclusion that all the species of *Geospiza* eat simply whatever seeds are accessible to them.

IV. *Different species at different localities may feed on the same kinds of seeds.*

The truth of this proposition may be seen by a comparison of the food of *Geospiza conirostris conirostris* (Pl. XI, Fig. 5) on Hood, *G. scandens fatigata* on Seymour and Barrington, and *G. fuliginosa parvula* at Iguana Cove, Albemarle, and on Seymour and Barrington. The largest part of the food of *G. conirostris conirostris* in May consisted of seeds Nos. 14 and 15. Next in numbers were seeds Nos. 10 and 17. All but two of thirteen birds had eaten No. 14, and all but one No. 15, while Nos. 10 and 17 were each represented in six stomachs. Seed No. 5 was found in one bird, No. 23 in one bird, No. 26 in five birds, No. 28 in three birds, No. 29 in one bird, and No. 57 in one bird.

Hence, the food of *G. conirostris* on Hood Island is in the main the same as that of *G. fuliginosa parvula* at Iguana cove, Albemarle, and on Seymour and Barrington Islands, and is also the same as that of *G. scandens fatigata* on Seymour and Barrington. There are thus three species of *Geospiza* with very different bills (Pl. XI, figs. 1, 5 and 6), living at three localities, whose food is almost identical at approximately the same time of the year.

V. *Different species at the same or at different localities may feed on different seeds.*

If the size and shape of the bill is dependent on the character of the food, this proposition should be a general truth. However, the material under consideration affords only a few instances of it.

Geospiza pachyrhyncha (Pl. XI, Fig. 9) is peculiar to Tower Island. The stomachs of seven specimens taken in June contained only seed No. 57. We have no data to show what the food of other species on Tower consists of. Vegetation is extremely scant on the island, and all the birds may be forced to eat the same seed.

A specimen of *Geospiza strenua* (Pl. XI, Fig. 8) taken in January on Narborough had only seed No. 22 in its stomach. Five speci-

mens taken in April on James island had fed as follows ; in one stomach were seeds Nos. 11, 26 and 28 ; in two others seeds Nos. 18 and 26 ; in another seeds Nos. 57 and 59 ; in the fifth seeds Nos. 14, 15, 18 and 59. Of two taken in June on Bindloe one had in its stomach only seed No. 46, the other only seed No. 44. These very scant data would seem to indicate that *Geospiza strenua* uses but little selection in the choice of its food. Altogether it has been found to eat seeds Nos. 11, 14, 15, 18, 22, 26, 28, 44, 46, 57 and 59. The James specimens alone had eaten seeds Nos. 11, 14, 15, 18, 26, 28, 57 and 59. This list is somewhat different from the diet of six specimens of *G. scandens fatigata* taken at the same time on James. The stomachs of these birds gave the following: seed No. 2 in one bird, No. 14 in two birds, No. 15 in three birds, No. 18 in one bird, No. 21 in one bird, No. 26 in one bird, No. 41 in four birds, No. 59 in one bird. The species of seeds forming the list in the two cases are almost the same, the main difference is in the proportions of the seeds present. It is a question whether the evidence in this case should not be given to proposition III. It, however, shows the weakness of the proof on which proposition V could be stated as a general fact.

A good example of the proposition under consideration may be derived from a comparison of the food of *Geospiza fortis* (Pl. XI, Fig. 3) at Tagus Cove, Albemarle, with that of *G. fuliginosa parvula* at the same locality. As has already been shown, the food of nineteen Tagus Cove specimens of the latter species was as follows: seed No. 1 had been eaten by two birds, seed No. 2 by one bird, seed No. 4 by two birds, seed No. 6 by two birds, seed No. 8 by nine birds, seed No. 15 by one bird, seed No. 22 by five birds, seed No. 24 by three birds, seed No. 41 by two birds, seed No. 48 by one bird. The table shows the following composition of the food of thirteen Tagus Cove specimens of *Geospiza fortis* taken also during January. Seed No. 2 had been eaten by one bird, seed No. 3 by four birds, seed No. 4 by one bird, seed No. 8 by one bird, seed No. 9 by one bird, seed No. 22 by five birds, seed No. 28 by two birds, seed No. 33 by one bird, seed No. 35 by three birds. The only important difference in these two cases is the predominance of seed No. 8 in the food of *G. fuliginosa* and its scarcity in that of *G. fortis*. These two species have somewhat

similarly shaped bills (Plate XI, Figs. 6 and 3), but that of *G. fortis* is the heavier.

Two specimens of *G. fortis platyrhyncha* from Iguana Cove, Albemarle, taken in December, had eaten only seeds Nos. 38, 40 and 48, seeds not found in the stomachs of any of the Tagus Cove, *G. fortis*, nor in any of the Iguana Cove specimens of *G. fuliginosa*.

Four specimens of the *Geospiza fortis* on James Island, which does not differ from the *G. fortis* of Tagus Cove, had eaten as follows, in April. Seed No. 15 occurred in two stomachs, seed No. 21 in two, seed No. 41 in two, seed No. 57 in one, and seed No. 59 in one. It will be observed that there is no seed common to the three sets, *i. e.*, in the food of the James Island, Iguana Cove, and Tagus Cove specimens of *Geospiza fortis*. The case of the James Island and Tagus Cove specimens belongs to proposition II; the *G. fortis platyrhyncha* differing from *G. fortis fortis* at two other localities belongs to proposition V. It is important to note that the food of all the individuals at any locality does not differ as a whole from that of the others, more than may the food of two individuals at the same locality.

Perhaps the best case under proposition V can be made out from a study of the food of *Geospiza crassirostris* (Pl. XI, Fig. 4) and of *G. fuliginosa parvula* at Iguana Cove, Albemarle. The food of five specimens of the former species, taken the last of December, consisted entirely of seeds Nos. 39 and 40, the former found in only one stomach, the latter in all. As has before been shown, *G. fuliginosa parvula* at Iguana Cove feeds almost entirely on seed No. 15, seeds Nos. 39 and 40 not being found in any of the stomachs.

VI. *Birds with small bills eat only small seeds; birds with large bills eat both small and large seeds.*

Geospiza fuliginosa (Pl. XI, Fig. 6) eats fern seeds larger than Nos. 14 and 15. The only larger one found in their stomachs is No. 57, but this is a thin, flat seed, and is nearly always broken into small pieces before being swallowed. In the stomachs of *G. strenua*, one of the large-billed species (Pl. XI, Fig. 8), there occurred, besides numerous small seeds, such larger ones as Nos. 18, 26, 28, 45 and 58. In the stomachs of *G. conirostris* (Pl. XI, Fig. 5) most of these same larger seeds were found and also No.

29. *G. fortis* (Pl. XI, Fig. 3) eats such moderately large seeds as Nos. 35, 40, and 48 together with larger ones such as Nos. 28 and 57. An examination of the table will show, however, that the larger-billed species by no means confine themselves to large seeds. It appears most probable that they eat the larger seeds simply because their large bills makes it possible for them to eat a greater variety of seeds. There is no evidence that they show a special preference for large seeds.

The foregoing six propositions are about the only conclusions that we can deduce from a study of the material in hand. It is evident that if these propositions were stated severally as general facts they would be mutually conflicting. Each is true only in some cases.

If it be assumed that the various sizes and shapes of bills amongst the *Geospiza* have been developed as adaptations to differences in food habit, then it must be shown that the different species of the genus feed on different species of seeds. This cannot be done. We can prove definitely that some species with very different bills feed on exactly the same kinds of seeds. On the other hand some of the evidence seems to indicate that some of the species and subspecies do have different food habits. We cannot say, however, that these differences of diet are not forced upon different species as a result of their living in different localities. Especially is this probable since, in some cases, we find that individuals of the same species living at different localities feed on different seeds. This is due evidently to flora differences between the two regions.

The evidence, then, seems to be in favor of the general conclusion that *there is no correlation between the food and the size and shape of the bill*. If this is true, then we must look elsewhere for an explanation of the variation of the *Geospiza* bill.

A DESCRIPTION OF THE ADULT BLACK MERLIN
(*FALCO COLUMBARIUS SUCKLEYI*).

BY FANNIE HARDY ECKSTORM.

ALTHOUGH the young of the Black Merlin was described by Mr. Robert Ridgway twenty-nine years ago and adult specimens have been in collections for upwards of twenty years, by some inadvertency no description of the adult seems ever to have appeared in print. The specimen in my father's collection was declared by no less an authority than Major Charles E. Bendire, who gives at length the story of its capture in his 'Life Histories of North American Birds' (Vol. I, p. 201), to be the finest specimen he ever saw, and because he indicated its fitness to stand as the type of the male in perfect breeding plumage, I have undertaken to supply the deficiency in description.

In his book Major Bendire characterizes the bird as "a very handsome adult specimen," and in a letter written shortly after its capture he again mentions it. As contributing to the history of the specimen but quite as much because it gives to those who did not know him personally some notion of Major Bendire's generosity and his extreme disinclination to leave any room for thanks, no matter what trouble he was at, the whole letter may be quoted.

"Fort Klamath, Oregon, May 13, 1883.

"MY DEAR MR. HARDY:—

Your box of birds left Linkville, Oregon, on the 10th inst. Linkville is the nearest express office from here. I think the charges on it will be between 7 and 8 dollars, something over 50 cts. per pound. Have just received your letter of the 30th ult. It is still wintry here, it has been snowing more or less all day. Robins and Melospizas are just commencing to lay, and other birds will follow I hope in a few days. I shall give up making skins now for awhile. I shot a beautiful ♂ adult *Esalon columbarius suckleyi* a couple of days ago which I consider one of the best finds I have made here. Much to my surprise I find the California Jay here. I would not have believed it but I shot one of the birds and have it now. Hope to hear that the skins arrived in good order.

Very truly,

CHS. E. BENDIRE."

Not a word here to indicate that this Linkville was sixty miles away, and that he had ridden there in disagreeable weather over roads sure to have been bad to make certain that his gift was safely started, nor that the box contained the bulk of his acquisitions in six months, nor that he contemplated adding this Merlin, the rarest of his recent captures, to a gift already so bountiful as almost to dismay the recipient, who was merely a friend-by-letter. But that was like the Captain.

Falco columbarius suckleyi (Ridgw.), ♂ adult, (collection of Manly Hardy, Brewer, Maine, taken by Capt. Chas. E. Bendire, U. S. A., May 9, 1883, "thirty miles south of Fort Klamath, Oregon, en route to Linkville, in pine timber").

Entire upper parts black, with the gloss of high plumage but without particular iridescence, shaded as follows: head and neck dull black, bend of wing and lesser coverts metallic black, remiges warm brownish black, rectrices dead black, tertials, lower scapulars, middle and greater coverts, rump and upper tail-coverts a clear steel-blue black, bluest on tail-coverts, most ashy on tertials, forming a continuous but restricted mantle, every feather of which shows a heavy black shaft; crown (in high lights only) with a tinge of ashy sufficient to demark a definite crown patch, in other lights nearly concolor with the neck and upper back but showing on every feather a central black stripe which minute examination shows to persist even on the neck where the black is intense enough to all but efface it. A nuchal collar, interrupted and indistinct, formed by buffy-white spots at the bases of the neck feathers, visible where the feathers do not perfectly overlap. Primaries and secondaries narrowly outlined on tips and back edges by a line of buffy brown, the outer webs immaculate, the inner webs showing, though slightly, the sparse light bars of the under side. Tail with a mere trace of white terminal line and four narrow, obsolescent bluish ash bands, the outermost (lying 2.20 in. from tip) so interrupted as to be incomplete on every pair of rectrices, and restricted on the four outer pairs to a V-shaped mark at the centre of the vane; the next band, the last visible below the coverts, whiter, wider and more continuous. Forehead narrowly whitish; a narrow but distinct white superciliary line; sides of head and neck and the throat well down to the point of the breast, white, every feather streaked with black of varying amount and intensity, the black predominating on the lores and maxillary spaces, where it forms a rather indefinite maxillary stripe, and the white being in excess on the throat where it is pure in color and narrowly but decidedly striped, every feather of the middle of the throat showing a black shaft-line and a tiny fan-shaped spot at the tip, and those along the edges of the area being uniformly and rather heavily striped. Breast with the white ground turning to buff and the black, by a change

of the color pattern of the feathers, suddenly predominating, giving the effect of a brownish black body with buff markings, thickest down the axis, each feather of the middle of the breast being black with a buff edge laterally while those toward the sides have the buff restricted to a patch each side of the shaft toward the base. Where the feathers are longest other series of spots appear, sometimes confluent, so that the flank feathers are conspicuously barred twice or thrice with brownish black. The crissum and shorter tail-coverts repeat the pattern of the throat but on a ground of deep buff and with longer, heavier streaks; the ochraceous tibiae are similarly but more broadly and heavily marked; the longest under tail-coverts show a handsome pattern of hastate black spots on a pale buff ground, the spot being but the irregular terminal of several heavy bars. From below the tail shows the terminal band more clearly and the lowest of the whitish bands, the only one visible below the coverts, is whiter and more regular than on the upper surface. The wings (too tightly closed in this specimen to admit of minute examination) are notably dark beneath, though browner than on the upper surface, show some white upon the under coverts and have five to seven obsolescent whitish bars (rather than spots) on the inner webs of the primaries near the basal half.

Legs yellow; bill horn-blue. Wing, 7.70; tail, 5.30; tarsus, 1.30; bill, .62; depth of bill, .40.

I have not on hand the material to warrant any dogmatic conclusions, but comparing this specimen with a limited number of both *F. columbarius* and *F. richardsoni* one is struck by its evident kinship to the former. Indeed, a large female in high autumnal plumage, taken on the Cranberry Islands, off Mount Desert, Maine, is strikingly like this Black Merlin, being very nearly as dark on the back and two thirds as black below; were it a blue-black instead of a sepia-black it might very well pass for the mate to this male. Between this and *richardsoni*, however, there is an evident gulf, hardly more noticeable in color than in form. *Richardsoni* in all the plumages that I have seen shows a distinct mottled nuchal band, while the nuchal stripe of *columbarius* is much more hidden, a variation of the bases rather than of the extremities of the feathers. In *columbarius* also the maxillary stripe is stronger and more definite and the black line down the centre of the feathers (in *richardsoni* never more than a mere shaft-line) is consistently heavier. *Columbarius* likewise in the younger plumages is more nearly immaculate above and in all shows no spots on the outer webs of the primaries and fewer and

narrower tail-bars. *Richardsoni* in all plumages has wings that are heavily spotted when closed and a tail that is clearly striped with six or seven definite white stripes. *Columbarius*, in the specimens at hand, shows no spots on the outside of the wing when closed and but four to five narrow tail-bars, the terminal black bar (next the white tip) being of extra width. In *suckleyi* these characters are emphasized to a degree, the bird being practically uni-colored above. I speak of these points chiefly to remark the fact that the Black Merlin is, in the adult plumage an intensification of the darker phases of the Pigeon Hawk, but also to call attention to a specimen which Capt. Bendire took at Fort Walla Walla, Wash., and which Mr. Wm. Brewster commented upon in the Nuttall Ornithological Bulletin for Oct., 1882, p. 230. This specimen which presented "a puzzling combination of characters," showed "almost orange chestnut on the breast and tibiae" and on the back "a nearly pure plumbeous" while "the outer web of all the primaries, excepting the first two, [were] conspicuously marked with rounded spots of pale ochraceous." At this time, Mr. Brewster says, "the adult of *suckleyi* is unknown, but we should expect to find it like the young, with sparse, inconspicuous spotting on the lining of the wings." Even at so late a date as this it may not be untimely to note that Mr. Brewster was entirely correct in his surmise about the adult Black Merlin, and to suggest that the specimen in question seems to combine the characters of the adults of both *suckleyi* and *richardsoni* and may perhaps, if not already accounted for, be explained as one of those not unknown hybrids that give so much difficulty in classifying hawks.

THE NOMENCLATURE AND VALIDITY OF CERTAIN
NORTH AMERICAN GALLINÆ.

BY E. W. NELSON.

Plates XIV and XV.

IN 'THE IBIS' for April, 1902 (pp. 233-245), Mr. Ogilvie Grant has a paper entitled 'Remarks on the Species of American Gallinæ recently described and Notes on their Nomenclature.' In this the author gives characteristic expression to a sweeping condemnation of the recent work done in this group by American ornithologists. Among thirty species and subspecies described or revised under old names by American workers since the publication of Mr. Grant's Volume XXII of the 'Catalogue of Birds in the British Museum' in 1893 he considers only four worthy of recognition.

After reading the paper in 'The Ibis' one is prompted to ask if Volume XXII was intended by its author to fix the limit of knowledge in that direction. This is not the first instance, however, in which our critic has differed radically from the views of American ornithologists as shown by his disposal of the commonly recognized subspecies of the Ruffed Grouse, in the cited Vol. XXII.

The tone of absolute finality with which he treats the subject in his recent paper would lead the uninitiated to believe that there could be no appeal from his decisions. In reality, however, in a number of instances they contain such a mixture of misstatement and misrepresentation that they would be unworthy of notice except that they might be accepted at face value by those unfamiliar with the facts. In his recent paper he gives an interesting revelation of the point of view and the methods by which he reaches some of his extraordinary conclusions. No weight is given to the intimate knowledge of the topography and geographic distribution in their territory possessed, usually as the result of years of study and field work, by American ornithologists. On the contrary Mr. Grant appears to approach the subject quite unhampered by any embarrassing knowledge of American geography and to be quite unaware that distribution and varying physical conditions have any real bearing on American ornithology.

This is shown by the confidence with which he makes a comparison of two specimens of the same subspecies from different parts of its range and thereby disproves the existence of another subspecies in quite a distinct and distant faunal area. To render still simpler the process of rejecting species described by American ornithologists our critic does not hesitate to doubt or even deny the existence of characters and specimens not seen by himself.

In 'The Auk' for July, 1902 (pp. 309-311) Dr. J. A. Allen pertinently comments on some of Mr. Grant's remarks concerning various species found north of the Mexican boundary. The following notes are mainly limited to a reply to the strictures on the species described by myself from Mexico. In order to give a clear idea of the basis for my work on the Mexican Gallinæ, so summarily disposed of by Mr. Grant, a few details are necessary.

For about twelve years I have been engaged in a biological survey of Mexico, during which time I have traversed in detail all but an insignificant part of the country. Throughout this period specimens of birds have been collected with the special object of illustrating geographic distribution and variation. Our collection contains about 400 specimens of Mexican Gallinæ, representing all but two or three of the known species, and usually including specimens taken at (or near) the type locality. In studying this material, together with that in the U. S. National Museum, whenever I have found series of specimens from separate districts showing easily recognized differences, and these characters are backed by my personal knowledge that the localities in question are in different faunal areas, my inference has been that the characters thus separating the birds were of specific or subspecific value, as the case might be. During the progress of my work I have constantly consulted Mr. Robert Ridgway who coincides in all of my conclusions regarding the Mexican Gallinæ. Our specimens in this group have also been examined by various other ornithologists who take the same view in the matter. Mr. Grant's condemnation of my work therefore falls with equal force upon the judgment of a number of the best American ornithologists.

Fortunately some of the species treated by my critic have characters sufficiently marked for photographic reproduction, as shown on the accompanying plates.

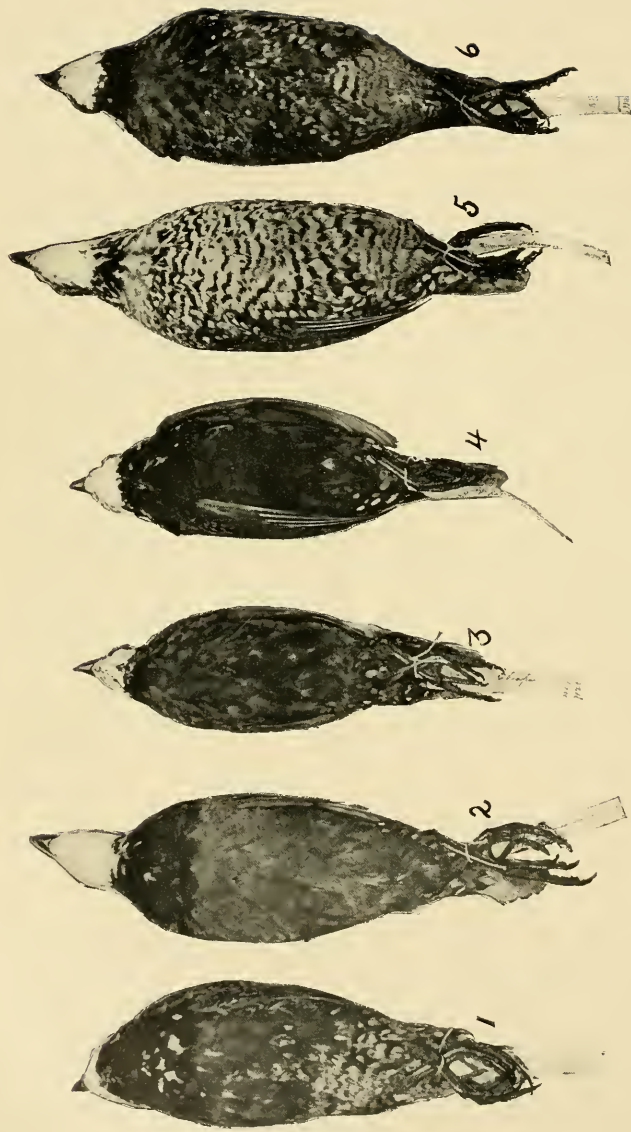
Meleagris gallopavo Linn. In reply to my surmise that this name should be referred to the birds which the Spaniards introduced into continental Europe (and which were taken thence to England) probably from the mountains of Vera Cruz, Mr. Grant "cannot see any possible ground for such a supposition," and says "the fact remains that the 'Turkey Cock' figured by Albin in 1740, on which the Linnæan name was founded, can only have been of West or North Mexican origin." To give thus positively the exact origin of the bird from which Albin's crude, diagrammatic figure of a domestic turkey is taken is pure assumption — for Albin says not a word on the subject.

Meleagris gallopavo merriami Nelson. Mr. Grant states that by contrasting my specimens of this bird with examples of *M. gallopavo* and *M. americana* and avoiding a comparison with *M. g. intermedia* (with which he says it is "obviously synonymous") I would have it considered very distinct. As a matter of fact I did compare the series of *merriami* with a series of *intermedia* before describing the former, but in the preliminary description only published the results of the comparisons with the two forms with which there was or might have been a possible contiguity of range. *M. g. merriami* and *M. g. intermedia* occupy very distinct faunal areas separated by a broad belt of desert country unsuited to any form of *Meleagris*.

The Committee on Nomenclature of the American Ornithologists' Union has recently compared *M. g. merriami* with its relatives — including *M. g. intermedia* — and found it to be distinct, while Mr. Grant does not claim ever to have seen a specimen of this form.

Dendrortyx oaxacæ, *D. macrourus griseipectus*, *D. macrourus striatus* and *D. macrourus dilutus*. Our collection contains twelve specimens of these birds instead of four. Furthermore my familiarity with the region in which the various forms of this bird occur enables me to affirm positively that the differences upon which these birds were described have a definite geographic significance.

Callipepla gambeli fulvipectus. This form is rejected because Mr. Grant has examined a specimen of a female bird from Hermosillo, Sonora, and finds it the same as *C. gambeli*!

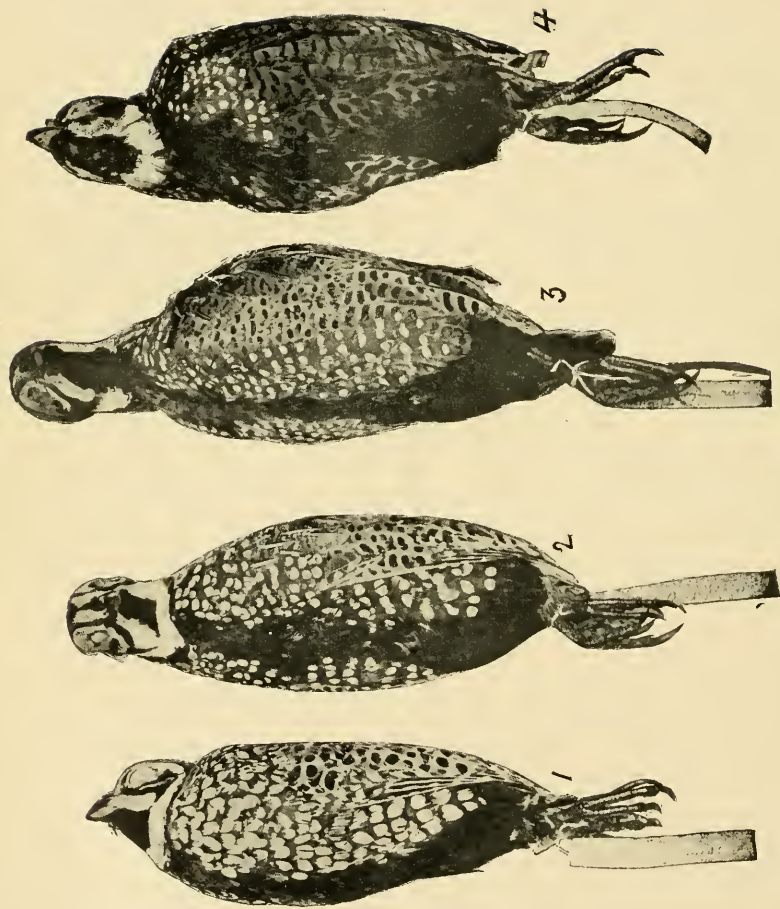


SPECIES AND SUBSPECIES OF COLINUS.

1. *C. pectoralis*.
2. *C. graysoni nigripictus*.
3. *C. minor*.
4. *C. godmani*.
5. *C. virginianus texanus*.
6. *C. virginianus maculatus*.

DESCRIPTION OF PLATE XIV.

- ✓ Fig. 1. *Colinus pectoralis* (Gould). ♂ from Carrizal, Vera Cruz. Neck and breast with a broad black collar underlaid with much more or less concealed white; rest of underparts to crissum plain *dark rufous*; crissum irregularly marked with black, white and rufous (in some specimens nearly plain rufous).
- ✓ Fig. 2. *Colinus graysoni nigripectus* Nelson. ♂ from Atlixco, Puebla. Decidedly *larger* than *C. pectoralis*; pectoral black collar rather narrower with less concealed white; rest of underparts plain *light rufous* except for a few black and white marks on under tail-coverts.
- ✓ Fig. 3. *Colinus minor* Nelson. ♂ from Palenque, Chiapas. Decidedly *smaller* than *C. pectoralis* (even smaller than *C. godmani*). Narrow, poorly defined black collar below white throat patch; rest of underparts plain dark rufous clouded with black on borders of feathers, with a few white marks on under tail-coverts.
- Fig. 4. *Colinus godmani* Nelson. ♂ from Jaltipan, Vera Cruz. Somewhat larger than *C. minor*; differs mainly from latter in much darker colors, especially below; underparts from throat patch to crissum bright black with some shading of rufous; the black predominating in this bird as the rufous does in *C. minor*.
- Fig. 5. *Colinus virginianus texanus* (Lawr.). ♂ from Matamoros, Tamaulipas. White throat patch bordered by a poorly marked, narrow black collar followed by a narrow *pale reddish* pectoral band; most of breast and rest of underparts strongly barred with black and white.
- ✓ Fig. 6. *Colinus virginianus maculatus* Nelson. ♂ from Atla Mira, Tamaulipas. Size about as in *C. v. texanus*; differs from latter mainly in broader more strongly marked black collar and in having breast and rest of underparts to crissum *dark rufous* spotted and mottled more or less sparingly and posteriorly with black and white.



SPECIES AND SUBSPECIES OF CYRTONVX.

- 1. *C. montezumæ mearnsi*
- 2. *C. montezumæ*
- 3. *C. merriami*
- 4. *C. sallie*

DESCRIPTION OF PLATE XV.

- Fig. 1. *Cyrtonyx montezumæ mearnsi* Nelson. ♂ from Chisos Mts., Texas. Differs strikingly from *C. montezumæ* (fig. 2) in paler gray ground color and much larger and more crowded white spots on sides of breast and flanks; dark spots on wings larger.
- Fig. 2. *Cyrtonyx montezumæ* (Vigors). ♂ from Irolo, Hidalgo. Sides of breast and flanks dark slate gray with medium sized white spots; wings marked with medium sized, rounded dark spots.
- Fig. 3. *Cyrtonyx merriami* Nelson. ♂ from east slope of Mt. Orizaba, Vera Cruz. Differs strikingly from *C. montezumæ* and *C. sallæi* in the uninterrupted extension of black throat patch down fore neck, leaving a white patch on each side of neck in place of usual white collar; black cheek patch larger and extends down and joins black throat area thus isolating malar white stripe from white area on side of neck; distribution of color on sides of breast and flanks similar to same in *C. montezumæ* but ground color paler gray and white spots smaller; dark marks on distal half of wings larger and obovate or flattened oval.
- Fig. 4. *Cyrtonyx sallæi* Verr. ♂ from Ozolotepec, Oaxaca. White collar on fore neck complete and united with white malar stripe; distribution of color on sides of breast similar to same in *C. merriami* and *C. montezumæ*; sides of body back of breast darker slaty than in *merriami* with the small white spots of latter replaced with larger, more oblong spots of chestnut; wings much darker than in *merriami* and with narrow black bars in place of rounded spots.

This locality is well within the range of true *C. gambeli*. He has therefore compared typical birds of the same subspecies and concluded that he is "unable to see any reason whatever for separating these birds [*C. g. fulvipectus*] from typical *L. gambeli*." Just what bearing this comparison has on the validity of a subspecies living at a distance in another faunal area is not plain.

Lophortyx bensoni (Ridgw.) (= *Callipepla douglasi bensoni*). Mr. Grant states that he "can find no published description of this species," but on page 404 in volume XXII of the 'Catalogue of Birds in the British Museum' (on the title page of which his name appears as author), under the synonymy of *Lophortyx douglasi*, he will find cited "*Callipepla elegans bensoni* Ridgw. P. U. S. Nat. Mus. X, p. 148 (1887) [Campos, Sonora]." In the place thus referred to he will find an extended description of this well marked geographic race. It is also described in Mr. Ridgway's 'Manual of North American Birds' (1st ed. p. 585; 2d ed. p. 589).

Colinus virginianus maculatus. "We have a series of birds from the area indicated and Mr. Godman and I are both satisfied that Mr. Nelson's name is a mere synonym of the subspecies *C. texanus*." This decision can only be understood by the supposition that it is another instance of the comparison of birds that have nothing to do with the case. The Biological Survey collection contains over forty specimens of this subspecies which have been compared with about as many of *C. texanus*. The accompanying photograph of typical specimens of *C. v. texanus* and *C. v. maculatus* render further comment unnecessary.

Colinus graysoni nigripectus and ***Colinus minor***.¹ Mr.

¹ Since writing the notes on these birds I have received additional information which appears to affirm conclusively my position. In order to test the correctness of my determination of the small and rather dark birds living along the humid basal slope of the Cordillera in Vera Cruz as *Colinus pectoralis* (Gould) I recently sent two specimens taken at Jico and Carrizal, near Jalapa, in that State to the British Museum for comparison. These specimens I have considered as typical *C. pectoralis*, and a similar specimen from Carrizal is shown over that name in the accompanying plate. With the two specimens of *C. pectoralis* I sent a typical specimen of *C. graysoni nigripectus* from Atlixco, Puebla. Through the kindness of Mr. Oldfield Thomas and Dr. R.

Grant states that "In my opinion there can be no doubt that both these names of Mr. Nelson's are synonyms of *C. pectoralis*." Fortunately our collection contains specimens of true *C. pectoralis* which inhabits the upper tropical east slope of the Cordillera of Vera Cruz. *C. minor* is a still smaller bird than *C. pectoralis* and lives in the hot lowlands of Chiapas far from the home of the latter. *C. g. nigripectus* lives on the plains of the southern end of the Mexican tableland in southern Puebla and is decidedly larger and paler than *C. pectoralis* and much larger than *C. minor*. The females also show well marked differences. The relative size, and color pattern of the underparts of typical specimens of *C. pectoralis*, *C. minor* and *C. graysoni nigripectus* are shown in the accompanying photograph. The differences shown by these three birds are confined to definitely segregated areas which differ from one another in climatic and other physical characters and have a real geographic significance despite the dictum of Mr. Grant. A specimen of *C. godmani* is photographed with *C. minor* to show the close relationship between them.

Cyrtonyx montezumæ mearnsi. Although Mr. Grant states that neither he nor Mr. Godman have been able to see the slightest grounds for separating this subspecies, yet a series of specimens of typical *C. montezumæ* from the southern end of the Mexican tableland and of *C. m. mearnsi* from the southwestern United States may be distinguished across a room by the large and crowded appearance of the white spots on the under parts of *C. m. mearnsi*. As a matter of course the two forms intergrade but I have never seen a specimen showing the characters of *C. mearnsi* from anywhere about the southern half of the Mexican tableland. The accompanying photograph of typical examples of *C. montezumæ* and *C. mearnsi* show the most striking differences between the two.

Bowdler Sharpe of the British Museum one of Gould's two types of *C. pectoralis* was borrowed from the Liverpool Museum for comparison. During Dr. Sharpe's temporary absence Mr. Thomas writes me that "Your 155523 from Atlixco is decidedly larger and has a larger bill than any of the others [*i. e.*, the type and two specimens from Jico and Carrizal], and those from Jico and Carrizal more closely match the type, indeed its wing is a shade less than theirs."

Cyrtonyx merriami. The characters of this species are so well marked that in conjunction with my critic's comments, it serves to illustrate strikingly the true value of Mr. Grant's criticism and conclusions. He says that "By almost invariably contrasting his supposed new birds with the species to which they are least nearly allied, 'old friends' are made to appear in the guise of very distinct species. We cannot imagine that so excellent a field-naturalist as Mr. Nelson does this wilfully, and must therefore infer that such errors are due to insufficient knowledge of the subject and want of material. By referring to the various 'keys to the species' in the 'Catalogue of Birds,' XXII, Mr. Nelson would have escaped such absurdities as redescribing *Cyrtonyx sallæi* under the name of *C. merriami* and comparing it with *C. montezumæ*!!" "There can be no doubt that *C. merriami* is a synonym of the beautiful species described in 1859 as *C. sallæi*." The foregoing authoritative disposal of *C. merriami* made me almost fear that Mr. Grant held the power to make the 'tiger change its spots.' On examination of the type of *C. merriami* however I find that the color characters between it, *C. montezumæ* and *C. sallæi*, are such that a photograph brings out some of the most salient differences. After examining the accompanying photographs of these birds I think that any competent ornithologist will admit that I was justified in the "absurdity" of describing *C. merriami* as distinct and in comparing it with its nearest relative *C. montezumæ*, even after consulting the "keys to the species" in the 'Catalogue of Birds, XXII.'

Dactylortyx. While admitting that my revision of this genus was done on scanty material I see no reason for considering myself in error in describing *D. chiapensis* and *D. devius*. That Mr. Ogilvie Grant cannot find any differences in a series of 23 specimens in the British Museum, in the light of his recent utterances, is not at all surprising and really would not appear to have any bearing on the facts in the case.

A HYBRID BETWEEN THE CLIFF AND TREE SWALLOWS.

BY FRANK M. CHAPMAN.

THE American Museum of Natural History has recently acquired from the collector what seems to be a hybrid between *Petrochelidon lunifrons* and *Tachycineta bicolor*. The specimen (No. 78,119 Springfield, Mass., Aug. 20, 1902, Leon C. Holcomb) is apparently a bird of the year and, in addition to presenting evidences of hybridism, exhibits also albinistic characters, though it is possible the latter may be a result of hybridity. Generally speaking this specimen resembles *bicolor* below and *lunifrons* above, the rusty and buff markings of the last named species, however, being, in this supposed hybrid, white. A more definite understanding of this interesting bird's color and markings may be gathered from the appended comparative tables :

FORM.

T. bicolor. ♂ im. *Hybrid.* ♂ im. *P. lunifrons.* ♂ im.

Bill.

Medium; width at nostril 4.5 mm. Nostril elliptical; a well-developed operculum.	Medium; width at nostril 4.5 mm. Nostril circular; a well-developed operculum.	Rather heavy and broad; width at nostril 6.3 mm. Nostril circular; no operculum.
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Wing.

Long, 118 mm.	Short, 103 mm.	Medium, 105 mm.
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Tail.

Medium, 50 mm.; fork, 9 mm. deep.	Short, 40 mm.; fork, 4 mm. deep.	Medium, 45 mm.; fork, 2 mm. deep.
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Feet.

Slender, tarsus 11 mm.; middle-toe, 11 mm.; nail, 4 mm.	Medium, tarsus, 11 mm.; middle-toe, 11 mm.; nail, 3 mm.	Rather stout, tarsus, 11 mm.; middle-toe, 11 mm.; nail, 5 mm.
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COLOR.

T. bicolor. ♂ im. *Hybrid.* ♂ im. *P. lunifrons.* ♂ im.

Under parts.

White, sides of breast dusky sometimes forming a faint breast band.	White, a well-defined dusky breast band; left side of throat and abdomen washed with yellow.	Throat dusky black more or less mixed with cinnamon and, usually, whitish; breast and sides dusky washed with rufous.
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Under wing-coverts.

Dusky, bend of wing whitish.	White, bend of wing partly yellow.	Dusky washed with rufous or cinnamon.
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Under tail-coverts.

White.	White.	Mixed dusky and rufous or cinnamon.
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Upper parts.

Uniform dusky slate or grayish brown.	Forehead white, a faint yellowish tinge; pileum sooty black with slight steel-blue reflections; a well marked nuchal collar white faintly tinged with dusky and yellow; back like pileum the feathers basally white; rump white, slightly tinged with yellow anteriorly.	Forehead cinnamon, usually mixed with dusky and sometimes white; pileum dusky black with slight steel-blue reflections; nuchal collar grayish brown, back somewhat paler than pileum, tipped with buffy, rump ochraceous buff.
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Upper tail-coverts.

Dusky slate or grayish brown.	White tipped with fuscous.	Grayish brown, edged with buffy.
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Tail.

Dusky slate or grayish brown.	Fuscous, inner web of outer feather white, except at end; outer web of three outer feathers edged with whitish.	Grayish brown faintly iridescent, with indications of a white terminal mark on the inner web of the outer feather.
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Wings.

Dusky slate or grayish brown, inner tertials lightly edged with white.	Fuscous, tertials faintly edged with whitish.	Grayish brown faintly iridescent, the coverts slightly, tertials more widely, margined with buffy or ochraceous.
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It is of course well known that in the Tree Swallow both birds of the year and adults moult before leaving us for the South while the Cliff Swallow migrates before moulting. It is consequently of interest to observe that in this hybrid moult has begun normally with the innermost primaries.

This fact is also of importance in determining the bird's age and, in connection with the unworn condition of the wing-feathers, it leaves no doubt that the specimen is in post-natal plumage.

The radical differences in the character of the nests of the supposed parents of this bird lead one to speculate on the type of nest-structure in which it was reared, but, unfortunately, our curiosity in this direction cannot be gratified.

GENERAL NOTES.

✓ **The Arctic Tern in Hawaii.**—When shooting in the low, brackish-water marshes at Kahuku, on the island of Oahu, on April 30, 1902, Manuel Silva, a Portuguese boy of my acquaintance, shot a fine male specimen of *Sterna paradisæa* in full spring plumage. I secured the bird for the Bishop Museum. It had the bill and feet rich carmine when freshly killed and from it I took the following measurements: Length, 15.25; wing, 11.50; culmen, 1.20; tarsus, .47; middle toe and claw, .91; tail, 7.25.

The boy said that it was the only one of the kind that he saw, and it being a stranger to him he spent much time in pursuit of it and was fortunate enough to secure it by a chance shot. The bird was in good flesh and exhibited no signs of having experienced any very severe hardship in reaching this Territory.

This is the second specimen of this species which has been reported from the Hawaiian Islands, one having been taken eleven years before by Mr. R. T. Guarde at Hilo on Hawaii, as reported by Mr. Henshaw in 'The

Auk' for April, 1902. Both birds were evidently on their spring north-erly migration and were lost at sea and wandered here by accident. — WM. ALANSON BRYAN, *Bishop Museum, Honolulu, H. I.*

The Occurrence of Boobies in Numbers on the East Coast of Florida, during a Storm.—Two white Boobies (*Sula cyanops* and *S. piscator*) are given in the A. O. U. Check-List as occasional visitants to the Florida coast, but as actual records are meagre it is, perhaps, worth while to publish an account of a day, during a terrific storm, when I saw a species of small white booby in company with the Common Booby (*Sula sula*) fishing in large numbers off the beach of the East Peninsula. Unfortunately I was not able to secure a specimen or positively identify the species, though I feel sure it was *S. piscator* (or possibly *S. coryi* Maynard, if that bird is really distinct).

On February 12, 1895, occurred the second terrible 'freeze' of that memorable winter. At the time I was at Oak Lodge, on the East Peninsula of the Indian River, opposite Micco. For several days thereafter the weather continued to be very cold and unsettled, with high winds that drove the water out of the Indian River to such an extent that it was impossible to cross it in a boat, and culminated on Feb. 16, in a northeasterly gale accompanied by rain, of a violence seldom attained on the east coast of Florida in winter. About 10 o'clock of that morning (Feb. 16, 1895) Mrs. Latham came into the workshop where I was skinning my morning's catch, thankful to be indoors again out of the storm, and told me she had just been at the beach and had seen a great many birds there, among them what she thought were Gannets, fishing in the breakers. I instantly took my gun and started along the trail through the palmetto hummock, fighting my way foot by foot against the fury of the wind and rain. On arriving at the beach I was greeted by the wildest scene imaginable; huge breakers were rolling in over the shallow water and falling on the beach with tremendous noise; the rain, driven by the gale, came in sheets, but in spite of it the cutting white sand was blown with such force against my face and hands, that I had repeatedly to turn my back to the storm.

Vast numbers of Herring Gulls, Royal Terns and Bonaparte's Gulls sat huddled together in bunches on the upper beach, not daring to trust themselves to the elements. These great gatherings of gulls were very tame and allowed me to walk up close to them, and when they did take wing skimmed only a short distance along the crest of the beach and lit again, huddled together as before.

High up overhead an occasional Frigate Bird swept by on motionless wings, cutting directly into the teeth of the gale, or driving before it with apparent indifference. The stolid Pelicans, unmoved by the storm, proceeded as usual up and down the line of breakers, in little companies, with the same measured flight as in the finest weather, rising and falling as the huge breakers rolled under them.

But to me most interesting of all was a sight I had never before witnessed on the beach, although I had visited it every day;—as far as the eye could reach, up and down the line of surf, were great numbers of boobies flying back and forth and every now and then collecting over some school of small fish and diving from a height like a party of boys following each other off a spring-board. There were hundreds, perhaps thousands, of them. There were probably but two species, though of three styles of coloration. A comparatively small number were adults of the Common Booby (*Sula sula*), easily identified by their brown backs and heads and white bellies; next in numbers were young birds in wholly grayish brown plumage, but outnumbering both these together was a small white species with conspicuous blackish flight feathers. All these were of about one size.

For two hours I lay flat on the beach hoping to get a shot, but though the boobies came often to within a hundred yards of me and sometimes gathered together and fished in front of where I lay, none came quite close enough to shoot, keeping just outside the breakers. At the end of this time they began gradually, in small parties, to fly out to sea, till all had gone. From the way these birds behaved I do not think they were driven in by stress of weather, because all the time they were off the beach they were very busy fishing, and when they had done they gradually left again flying out to sea though the storm had not abated. It is my opinion, rather, that the boobies know by experience that during such a storm there is good fishing on the east Florida beach and come there to enjoy it.

While such records as this, where the species are not positively identified by the taking of specimens, are unsatisfactory in the extreme, yet this one, perhaps, is worth publishing as showing that the smaller boobies do sometimes visit the coast of east Florida in large numbers. Moreover, I am sure the white bird was *Sula piscator*; had it been *S. cyanops* I could not have failed to notice the larger size compared with the Common Booby, as I often saw them directly side by side.—OUTRAM BANGS, *Boston, Mass.*

Ardea cærulea again seen in Ohio.—On July 2, 1902, a beautiful specimen of this species was again seen along the canal (Portsmouth-Lake Erie Canal) near Waverly; it was so unsuspecting, that it allowed buggies to pass within a distance of twenty feet and a mistake in identification was excluded. As I had to move north a few days later, I could not observe the species any length of time. The early date this year seems to strengthen the opinion expressed last year, that this bird may breed in southern Ohio.—W. F. HENNINGER, *Waverly, Ohio.*

The Yellow-crowned Night Heron (*Nycticorax violaceus*) in Nova Scotia.—It may be of interest to report that on Tuesday, April 1, 1902, while walking through the Quincy Market in Boston, I found in the

stall of F. H. Hosmer & Co. a female Yellow-crowned Night Heron, in full nuptial plumage, and in a remarkably fresh state of preservation, which had been received on the previous Saturday in a shipment of birds from Yarmouth, N. S.

On looking the matter up, I found that it had been shipped by Mr. Howard Smith of Hawks Point, Cape Sable Island, and had been killed somewhere in that vicinity by Mr. R. C. Maxwell of Lower Clark's Harbor, Shelburne County, Cape Sable Island. I had a letter from Mr. Maxwell in which he told me of his killing the bird, and another from Mr. Smith, in which he writes, among other things, under date of April 21, as follows:—

"Since receiving your letter, I have learned through a friend of mine, Mr. I. K. Doane, lighthouse keeper at this place, that two other specimens of this bird have been captured this spring in our neighboring county, viz. Yarmouth, and are now mounted and on exhibition in the store of Benjamin Doane, taxidermist, Yarmouth, N. S."

It seems from this interesting information that at least three birds of this species had wandered this far north during the spring migration.—
FRED. H. KENNARD, *Boston, Mass.*

The Authority for the Name *Geotrygon chrysia*.—In the Eighth Supplement to the Check-List, Auk, Jan., 1897, p. 126, the authority for the name *Geotrygon chrysia* is credited to Bonaparte, *Consp. Av.* II, 1854, 72, where it only occurs in the synonymy of *Geotrygon martinica*. Bonaparte, *Comptes Rendus*, XL, 1855, 100, says that he has in his esteemed correspondence "the name *Geotrygon chrysia*, a species still more brilliant and coming from the same countries as *montana*." This he considers to be the same as *Geotrygon martinica* and says that M. Castelnaud, following the records of the Museum, finds it reported from Florida. It seems to me that this description is not sufficient to fix the name, and that the proper authority for *Geotrygon chrysia* should be Salvadori, *Cat. Bds. Brit. Mus.*, XXI, 1893, 571.—J. H. RILEY, *Washington, D. C.*

The Black Vulture (*Catharista urubu*) in Virginia.—The A. O. U. Check-List gives the regular range of the Black Vulture (*Catharista atrata*) as reaching its most northern point in North Carolina. I have now to record that this vulture occurs regularly in Nansemond County, Virginia, where it is a not uncommon summer resident. Here it is known as the 'South Carolina Buzzard,' and it is usual to find it in company with Turkey Vultures (*Cathartes aura*), from which its smaller size and its quicker, more broken flight distinguish it at a glance. On the edge of the Dismal Swamp, along Cohoon Creek, near Suffolk, Nansemond Co., Virginia, May 19, 1902, it was noted as quite abundant, seven individuals being seen upon one occasion. The regular range of this species is thus extended northward to Nansemond County in Virginia, probably including

the contiguous counties of Norfolk and Princess Anne, and thus extending to the northern limit of the Austroriparian subprovince.—JOHN W. DANIEL, JR., *Washington, D. C.*

The Proper Name for the Western Sparrow Hawk.—Since Dr. E. A. Mearns, U. S. A., published his review of the American Sparrow Hawks in 'The Auk' for July, 1892, pp. 263-265, the Sparrow Hawk of the western United States, and the west coast of Mexico to Mazatlan, has been commonly known to ornithologists as *Falco sparverius deserticolus* Mearns. Our work in Mexico has shown that this bird ranges along the entire Pacific coast of Mexico as well as over most of the remainder of that country. The Western Sparrow Hawk appears to be the only form found along the west coast of Mexico (exclusive of Lower California) north of the Isthmus of Tehuantepec.

Dr. Chas. W. Richmond, Assistant Curator of Birds, U. S. National Museum, recently handed me volume XX of the Lévêque edition of Buffon's works with the remark that it contained descriptions of some Mexican birds by Lesson. In looking through these I found under the heading of *Tinnunculus phalæna* Lesson, a careful description of male sparrow hawks from San Blas [Tepic] and Acapulco [Guerrero], Mexico. These places are within the ordinary range of the Western Sparrow Hawk, to which Lesson's description unquestionably refers. This being the case, the name *Falco sparverius deserticolus* Mearns becomes a synonym of *Falco sparverius phalæna* (Lesson) in Buffon, Œuvres, Vol. XX, Lévêque ed. 1847 (suppl.), pp. 178-179.—E. W. NELSON, *Biological Survey, Washington, D. C.*

The Barn Owl on Long Island.—From Doctor Braislín's 'Notes concerning certain Birds of Long Island,' published in the July number of 'The Auk', I am led to infer that there has heretofore been some doubt about the presence of the Barn Owl on our island. It may be of interest to Doctor Braislín to know that a pair of these owls formerly inhabited the steeple of the Congregational Church on the corner of Lincoln Street and Browne Avenue, Flushing. For many years I knew of their presence there, but did not divulge the secret for fear that they might be driven away by the church people. No doubt they would still be there had not the church been overhauled and new glass put into the steeple sash where the birds were wont to enter. The owls shared the steeple with a colony of pigeons and brought muskrats and other small mammals to their young, although there were fat young squabs within reach.

Mr. Langdon Gibson, brother of Chas. Dana Gibson the artist, was also aware of the presence of the Barn Owls in the Congregational spire. Gibson was then a lad and he climbed up to the nest securing *two young owls*, if I remember aright; at any rate, he brought me one which I kept for some time and from it I made a number of drawings and still have

them in my portfolio. Of all the creatures I have ever sketched there are none so absurdly comical in looks and action as young Barn Owls, and I can well understand the cause of the popular name of 'Monkey-faced Owl' applied to these white-faced, beady-eyed young imps.—DAN. BEARD, *Flushing, N. Y.*

√ Nesting of the Hawaiian Owl (*Asio accipitrinus sandvicensis*) on Oahu, H. I.—Although the Pueo, which was worshiped and feared as a god by the ancient Hawaiians, has long been known to be a resident of the principal islands of the Hawaiian group—so long indeed that the hardship and isolation which it has suffered has reduced it quite perceptibly in size—I here append the first information on its nidification which has been recorded from this Territory.

On November 20, 1901, Dr. Geo. H. Huddy brought to me at the Bishop Museum a very young owl which he informed me was one of four he had secured from the nest, which was not far distant from his country home in Kalihi Valley on the Island of Oahu. The bird was alive, though in a dying condition, when it was presented to the museum, and little time was lost in securing a photograph of his owl-ship before he succumbed to the inevitable, for it seemed out of condition from the first and was with much difficulty induced to take food. The specimen (Museum No. 10213) was in the first downy plumage, the wing quills not having burst the capsules. The eyes were a very light straw-yellow; the bill and claws dark horn color.

The following day the Doctor and his servant (who had accidentally discovered the nest three or four days previous to our visit) conducted me to the spot where the young birds were secured. It was located in a rough grass and fern-grown path running along the steep mountain side, half way up from the valley below, and approximately 800 feet above the sea. No attempt at concealing the nest had been made—in fact, little had been attempted in the line of nest making; it was simply a very shallow platform, composed of the surrounding grasses, placed in a slight depression and befouled with the regurgitated masses of hair and bones of small rodents. The nest and such of the accessories as were available were carefully removed and will form a part of a group in the museum, for which object my friend generously added two more of the three birds which he was keeping as pets, reserving only the largest, strongest bird for himself, which he has had no trouble in bringing to its full growth on a diet of beef, with a rat or mouse added from time to time by way of variety.

The popular notion among the natives seems to be that this owl nests in holes or caves in the cliffs, a belief which the foregoing does not bear out. The situation chosen by the parent birds in this instance was an adaptation of the local conditions to the habits and requirements of the American Short-eared Owl, which is the undoubted progenitor of the Hawaiian subspecies.—WM. ALANSON BRYAN, *Bishop Museum, Honolulu, H. I.*

Further Notes on the Snowy Owl in Ontario.— Since my letter of March 3, 1902, was published by Mr. Ruthven Deane, in his paper on the Snowy Owl, in the July 'Auk,' further information has made it evident that the migration in Ontario was a much more extensive one than I had at first imagined. During March the females disappeared and were replaced in April by the returning flight of light colored birds (males, as far as I was able to examine). A few remained about Toronto Marsh all through May, and a small light colored male was taken on June 7. It was in excellent condition and showed no trace of being a wounded bird.

Estimate of the number killed.— It soon became apparent that this migration was no ordinary flight as regards numbers, and as answers to my enquiries came in I saw that some other means of counting heads was necessary. I then had recourse to the number of artificial owl eyes used in Ontario during the migration. I was greatly helped by two facts; first, the almost total absence of Horned Owls from Ontario, or at least the territory affected by the migration, and was thus able to eliminate the possibility of many of the eyes being used for Horned Owls; secondly, nine-tenths of the eyes used by taxidermists, amateur or professional, in Ontario are bought from three firms in Toronto. In one case I went over all the orders and checked off the owl eyes; in another I got a careful estimate, and in the third I estimated the number from information as to the extra eyes imported to meet the demand. I found that not less than five hundred pairs of large owl eyes were sold in Ontario during this migration; and I believe the figure to be a low one, for not only were the regular sizes exhausted, but any yellow eye that could be made to do duty was used. From what I heard and saw I believe that less than half of the owls killed were mounted; and in going over the matter with Dr. Wm. Brodie I found that he too had concluded that one thousand was within the mark, though on different grounds.— J. H. FLEMING, *Toronto, Ontario.*

An Addition to the Avifauna of Virginia.— In a collection of birds made during May, 1902, by the writer, in the Lake Drummond region of the Dismal Swamp, there is a specimen of Hairy Woodpecker which proves to be typical of the southern subspecies, *Dryobates villosus auduboni* (Swains.). Mr. William Palmer very kindly compared the specimen (♂ ad., taken May 22, 1902, Washington ditch, $\frac{1}{2}$ mile northwest of Lake Drummond, Dismal Swamp, Nansemond County, Virginia; field number 32, coll. of J. W. D. Jr., Washington, D. C.) with material in the National Museum, and pronounces it referable to the southern race. Hitherto this form has not been taken further north than North Carolina.— JOHN W. DANIEL, JR., *Washington, D. C.*

A new Foster-parent of the Cowbird.— On April 28, 1902, I found in an old log cabin a nest of Bewick's Wren, containing five fresh eggs of the owner and one fresh egg of the Cowbird. This species I do not find mentioned in any book, not even the late Maj. Chas. E. Bendire's monu-

mental work, as a foster-parent of the Cowbird. The nest in question was found in the southern part of Ross Co., Ohio, was photographed and the entire set collected.—W. F. HENNINGER, *Waverly, Ohio*.

The White-throated Warbler at Ann Arbor, Michigan.—I took a specimen of the rare White-throated or Brewster's Warbler (*Helminthophila leucobronchialis*) near Ann Arbor, Mich., May 18, 1902. It is an adult male, rather larger than either *H. pinus* or *H. chrysoptera*, and much different from either in coloration. We have no other record for this county, and only two for *H. pinus*, but *H. chrysoptera* nests here quite commonly.—NORMAN A. WOOD, *Ann Arbor, Mich.*

The Coloration and Relationships of Brewster's Warbler.—Brewster's Warbler (*Helminthophila leucobronchialis*) is invariably described as having a white breast more or less strongly washed with yellow; this tinge being reduced to the minimum, but still always present, in so-called typical examples.

I hope to prove that in pure plumage this bird has the under parts *absolutely* white, and that the slightest trace of yellow in the breast-feathers brands a specimen as intermediate between *leucobronchialis* and *pinus*. It is well known that these extremes are connected by a perfect chain of intermediates, and that the frequency of occurrence of these intermediates is, if we count them all as *leucobronchialis*, in inverse ratio to the purity of their coloring. (A fact, by the way, which points strongly to the belief that *leucobronchialis* is a mere variation of *pinus*.)

Whitish-breasted and more or less golden-winged examples of *pinus* are, comparatively speaking, not rare, but the *leucobronchialis* end of the gradation is meagerly represented by specimens—so meagerly, in fact, that ornithologists have apparently failed to get a clear idea of what it really is. Now since this gradation is from a bright-yellow-breasted, green-backed, *toward a pure-white-breasted, gray-backed bird*, the assumption that it certainly stops *just* short of attainment of the latter extreme would be absurd, even if there were no specimens to contradict it. There is, however, at least one such specimen. A Brewster's Warbler which I shot at Beltsville, Maryland, in May several years ago, and which is now in the Smithsonian collection, has all the white of the under surface exactly as pure and ashy, and the gray of the back as clear and as sharply defined against the yellow crown, as the best examples of *H. chrysoptera*. Of course a discrimination between pure white and very slightly tinged white can only be made by experts, and it was as experts that my father and I, both of us artists, examined this specimen with a view to testing this very point. When the bird was fresh, there was no slightest trace of yellow in its breast, on or below the surface of the feathers; but this purity of coloring has been marred by a most unfortunate accident. The breast was torn in skinning, and grease has exuded on to the feathers,

making a patch of buff-colored stain that would be mistaken for the prescribed yellow wash by any but a very close observer. This, however, might perhaps be removed with turpentine.

When it has been proved that Brewster's Warbler does, as was to be expected, achieve a perfectly pure coloration, it is obvious that the description of true Brewster's Warbler should be taken from a bird thus purely colored. For, granted that it is sometimes entirely white-breasted, it would be exactly as rational to take as a type a strongly yellow-tinged specimen, or one from any point in the gradation toward *pinus*, as one with a faint, concealed yellow wash.

The extreme form is of course the best representative of this obscure race; and the form best representing the race is, except in the narrow technical significance of the word, most *typical*.

There is another point which does not seem to have received due consideration in discussion about Brewster's Warbler. It is the fact that, though the bird is most generally believed to be a hybrid between *pinus* and *chrysoptera*, and the gradation between the former and pure *leucobronchialis* is cited as corroborative of this theory, there are absolutely no intergrades between pure *leucobronchialis* and *chrysoptera*. Until such specimens are found, the evidence in favor of this view is at best extremely incomplete. On the other hand, there are several points that tell against it, and one of the most important of these is the existence of Lawrence's Warbler. This bird is very evidently a hybrid between the two common species already mentioned, and is itself extremely rare, as such a hybrid would naturally be.

Typical specimens are nearer in general aspect to *pinus* than to *chrysoptera*, though they have the black head-markings of the latter; and the remarkable parti-colored bird shown at a recent meeting of the A. O. U. is intermediate between *lawrencei* and *chrysoptera*; while none of these shows any affinity with any plumage of *leucobronchialis*, which has always a light throat and a *narrow* black eye-line.

It seems scarcely possible that two species of Warbler should produce together two perfectly distinct types of hybrid. If it depended on which species furnished the male parent, one type of offspring could only be much commoner than the other if one combination of parents were much commoner or more prolific, which in this case seems very unlikely.

All this leads one to believe that Brewster's Warbler is either a distinct species whose normal habitat has yet to be discovered, but whose hybrids with the Blue-winged Yellow have frequently been found, or that it is an independent color-phase of the latter species.

This last explanation seems to me by far the most plausible of all.—
GERALD H. THAYER, *Monadnock, N. H.*

Rare Birds for Eastern Long Island, New York.—Two Summer Tanagers (*Piranga erythromelas*) were seen, and one taken on the 9th of April, 1902. The specimen taken was somewhat emaciated, but the

plumage was in fine condition. The early date seems to carry out the theory of Dr. Braislin, "that these birds were driven off shore far to the south by storms."

On my return from a fishing trip on July 28, the first day this summer, by the way, that I had failed to carry my gun, I saw a Lark Sparrow (*Chondestes grammacus*) in the road searching for grain among the horse droppings. The bird seemed to be very reluctant about leaving this spot, and I came near knocking it over with my fishing rod. The broadly white-tipped tail feathers were very conspicuous as the bird flitted about within about twenty feet of me.—W. W. WORTHINGTON, *Shelter Island Heights, N. Y.*

Notes and Additions to 'Birds of Parry Sound and Muskoka.'—Through the kindness of Professor John Macoun of the Geological Survey, Ottawa, I have been allowed to make use of the notes made by his assistant, Mr. William Spreadborough, during the summer of 1900, in the Algonquin National Park, Ontario. Mr. Spreadborough was at Cache Lake, on the Canada Atlantic R. R., forty-seven miles east of Scotia Junction, from May 25 to June 17, and in various other parts of the Park till August 31. The altitude of Cache Lake is said to be 1837 feet, very much higher than any point in Parry Sound or Muskoka, and the highest point of the watershed. Eighty-nine species were recorded, two of which are not included in my list, namely:—

Totanus flavipes. YELLOW-LEGS.—One observed August 31.

Melospiza lincolni. LINCOLN'S SPARROW.—One shot at Cache Lake July 11.

The following are of interest.

Merganser cucullatus. An old one and four young seen July 6.

Fulica americana. A pair breeding on the Madawaska River.

Melospiza georgiana. Abundant in the marsh below Cache Lake.

Seiurus noveboracensis. Common everywhere in flooded woods at the margins of the lakes.

I have also the following additional species to record.

Chen caerulescens. BLUE GOOSE.—One taken at Gravenhurst, Muskoka, about 1886, now in the possession of Mr. Wm. Johns, Gravenhurst.

Oidemia deglandi. WHITE-WINGED SCOTER.—Mr. Wm. Spreadborough reports having seen two on Lake Muskoka, in September, 1899.

Ardea egretta. AMERICAN EGRET.—Ernest Seton has recorded one taken at Lake Nipissing in 1883 (*Auk*, II, p. 336).

Porzana carolina. SORA.—Mr. Spreadborough reports Soras as being far more common than the Virginia Rail near Bracebridge, Muskoka. A Sora was picked up alive at Emsdale in October, 1901, and sent to me.

Petrochelidon lunifrons. CLIFF SWALLOW.—Mr. Spreadborough reports this swallow as breeding in the township of Draper, Muskoka.

Ammodramus henslowii. HENSLOW'S SPARROW.—I was surprised to find this sparrow on Lake Joseph and apparently breeding. I first

noticed it on July 14, 1902, in a hay field about a mile from Port Sandfield, and for some days had every opportunity of watching the males as they sat on the fence and uttered their rather wheezy note. Two or more pairs were in the one field, and I could find none in any of the few likely places elsewhere.—J. H. FLEMING, *Toronto, Ontario*.

Notes on the Summer Birds of Berkshire County, Massachusetts.—I spent the week of June 17–22, 1902, in Williamstown and vicinity with Mr. Louis Agassiz Shaw, making some observations perhaps of value to those interested in the Berkshire County avifauna. My notes are supplemented by the notes of Messrs. Francis G. and Maurice C. Blake who were residents of Williamstown during the years 1900 and 1901.

The weather while we were there was cool and rainy days alternated with cloudless ones.

Bartramia longicauda. Five pairs or so were found evidently breeding on Northwest Hill, and two pairs on the Vermont (Pownal) line. Four specimens were taken (three males and one female), all adults, but with the sexual organs little enlarged. They were in the upland meadows in fairly tall grass (eight inches), and when flushed lit on barns, fences or trees. On the 21st, a rainy day, they were heard not only to utter their common call note, but a prolonged wind-like whistle—sounding like an eolian harp—which can best be represented thus: *phue-phue-phue-phue phue phue, phue-phue-phue*, uttered as they sailed like hawks above the meadows, or while perching. The Messrs. Blake tell me they saw four on June 19, 1900, and two June 15, 1901, near Stone Hill. In the first instance they were heard 'singing.' Although breeding in the Western States in May and early June, I believe they do not begin to nest in Massachusetts until after the middle of June.

Colaptes auratus luteus. Noticeably uncommon; only nine birds were observed during our stay.

Otocorys alpestris praticola. Several pairs were found breeding on Northwest Hill (1000 ft.). They were seen feeding in the roads, on the ploughed lands, and in the long grass meadows. One was heard singing from the ridge-pole of a barn. The song consists of a few notes, followed by a rising, rolling trill, ending with a few single notes. It is unpretentious, but sweet.

Cyanocitta cristata. Also noticeably uncommon. The only birds heard were on Greylock and in the Hopper, three individuals altogether.

Ammodramus henslowii. Common about Williamstown, in wet meadows grown up with the steeple-bush (*Spiraea tomentosa*). In Norwood, Massachusetts, a meadow they inhabit is grown with sedges (*Scirpus atrocinctus*, *Carex monile*, *bullata*, *flava*, *scoparia*), red-top (*Agrostis alba vulgaris*, fowl-meadow grass (*Poa serotina*), and rush *Juncus effusus*—species kindly identified by Mr. Walter Deane); and Mr. G. M. Allen tells me the white hellebore (*Veratrum viride*) was the principal growth in a meadow where he once found them in New

Hampshire. We found several pairs on the east slope of Stone Hill, and quite a colony on the western slope of Northwest Hill on both the Massachusetts and Vermont (Pownal) side of the State line.

Ammodramus savannarum passerinus. One pair found on the east slope of Northwest Hill in Williamstown.

Vireo flavifrons. This species and *V. gilvus* were heard in the village of Williamstown, and the former also at South Williamstown.

Dendroica æstiva. A single bird was heard singing on Mt. Greylock at 2500 feet elevation.

Cistothorus palustris. A pair were found inhabiting a small flag-grown meadow brook in Hoosac Swamp in Williamstown (600 ft.). Pontoosuc Lake is the only other locality in the county from which they have been recorded.

Hyalocichla aliciaë bicknelli. One heard calling on the summit of Mt. Greylock on the 18th.

Hyalocichla guttata pallasii. One heard singing on the Greylock range.

Hyalocichla mustelina. One pair found about the meadow in the Hoosac Swamp in Williamstown among some alders, and others were heard singing on the side of Mt. Greylock at 2800 feet elevation.

Sialia sialis. Exceedingly abundant in the low country.—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

RECENT LITERATURE.

Grinnell's 'Check-List of California Birds.'¹—Mr. Grinnell's 'Check-List of California Birds' has evidently been prepared with care and gives a large amount of information in a condensed form about the manner of occurrence of California birds within the State of California. The list numbers 491 species and subspecies, with an additional 'Hypothetical List' of 33 species "ascribed to California, but concerning which there is doubt either as to the evidence of their occurrence or as to their validity as species." Doubtless many of these will be later added to the fauna of the State through positive records of occurrence. An 'accidental,' "to be worthy of a place on the State List," according to the author's excel-

¹ Check-List of California Birds. By Joseph Grinnell. Pacific Coast Avifauna, No. 3. Cooper Ornithological Club of California. Large 8vo, pp. 92, 2 col. maps.

lent standard, "must have been as a rule secured and preserved so that it can be re-identified whenever desirable." A glance through the Check-List shows that the list of duly authenticated accidentals is already quite large, not less than 25 species resting on a single record, and about as many more on only two or three records. It would have added greatly to the usefulness of this list if, in such exceptional cases, a reference to the place of record had been added.

While, "for the sake of convenience," the sequence of the A. O. U. Check-List has been followed, "the nomenclature has in several cases been remodeled to the best of the author's own knowledge." Thus, quite contrary to present tendencies, it is held by Mr. Grinnell "that actual geographical continuity in range accompanying corresponding intergradation is the criterion for the application of trinomials," etc. As this is the chief basis of his reformations in nomenclature, they appear to rest on the author's opinions and preferences rather more than upon his "own knowledge." There are thus, with perhaps two or three exceptions, no Old World birds which have subspecific representatives in North America. Also, quite a number of forms, as among the water birds, are given full specific rank in cases where the doubt, in the minds of many ornithologists of much longer experience, is whether the forms in question are entitled to any recognition in nomenclature. In other cases, where Mr. Grinnell's material and experience can hardly have supplied exceptional equipment for decisions, forms rejected by the A. O. U. Committee — which, while not infallible, contains some fairly good ornithologists — and sometimes by their proposers, are given recognition in the California Check-List. In some other cases, as some of the local forms of the State, Mr. Grinnell has doubtless abundant resources and ample experience, and his opinion is in such instances entitled to the highest respect.

The List consists (1) of the scientific and popular name of each form; (2) a list of the technical names by which the bird has been mentioned in the literature of California ornithology; and (3) its "status," or a statement of its "range, comparative abundance and season of occurrence," usually condensed into a sentence of one to three lines. "The range is usually expressed by Zones and Faunal Areas which are outlined in the accompanying maps." These maps are two in number, the first indicating by colored areas the 'Life Zones of California,' or the 'Isothermic Areas'; the second in a similar manner shows the 'Faunal Areas of California,' or the 'Isohomic Areas,' ten in number. "The areas differently colored on the maps have been outlined as accurately as the information at hand permitted; still the boundary lines must be considered provisional until the state is carefully surveyed zoögeographically." The maps are certainly a great convenience and help one to understand at a glance the complicated nature of climatic conditions in California. Respecting the names of his faunal areas (map 2) the author says, "Nomenclatural uniformity cannot be here attempted." These 'faunal areas' are in reality arbitrarily climatic rather than faunal, being based, as the subtitle of the

map indicates, on degree of humidity rather than on true faunal conditions — humidity and temperature combined. They thus do not correspond to areas commonly designated as 'faunal,' based on the peculiar association of species as determined primarily by temperature and secondarily, in most cases, by humidity. California offers an almost unique field for this sort of research, and it is gratifying to see that the subject is receiving so much attention.

A very full and satisfactory index, including all the names mentioned in the 'synonymy,' completes this very important and exceedingly useful contribution to California ornithology.—J. A. A.

Berlepsch and Hartert on the Birds of the Orinoco Region.¹—This excellent memoir is based on collections made by Mr. and Mrs. George K. Cherrie in 1897, 1898 and 1899, on the Orinoco River, with much additional material collected by Mr. Samuel M. Klages, partly on the Caura River, and by Mr. E. André on the Nicare, a tributary of the Caura. The number of specimens thus available for study is not stated, but must be several thousand. The number of species and subspecies represented is 468, of which 8 species and 44 subspecies are described as new, as well as one genus. Localities and dates of collection are given, with notes on the color of bill, feet, iris, and 'soft parts,' as furnished by the collectors. There is also, *passim*, important comment on nomenclatural questions, the relationship of forms, etc. The memoir closes with some 'General Conclusions' (signed E. H.) on the faunal relations of the different parts of the region under treatment. Owing to the many difficulties presented, none of the collectors was able to reach "the unexplored tableland and mountain ranges forming the watershed between the basins of the Amazon and Orinoco Rivers, marked as the 'Sierra Parima' on the maps," which region hence still offers a tempting field for ornithological exploration.

In this connection the authors have done good service in attempting to fix type regions for the species described by previous authors from unknown, erroneous, or vaguely given localities. They have "in every case quoted the original description, which is the basis of our knowledge of each particular form," to which their citations are mainly limited, instead of including well known works, such as the British Museum 'Catalogue of Birds,' "where everybody knows that the bird is described or mentioned." "Where no locality is stated in the first description, or where the given locality is vague or erroneous, *we have added or substituted a sufficiently exact 'habitat'* as a starting-point. These additions and substitutes are not arbitrarily chosen, but always those that are the actual or the most likely ones whence the types have come, as apparent from the

¹ On the Birds of the Orinoco Region. By Count Hans von Berlepsch and Ernest Hartert. *Novitates Zoologicae*, Vol. IX, 1902, pp. 1-134, pl. xii.

history of collections, from the travels of collectors, and the distribution of the various forms. Our substituted localities are therefore not only of value for the present work — inasmuch as they indicate that particular form with which we have compared, or tried to compare, the specimens before us, when deciding about their subspecific relations — *but we expect them to be accepted as the starting-point for future work* also." The acceptance, so emphatically insisted upon, must of course depend upon the merits of their ruling in each particular case; but, in most cases at least, their decisions appear to have been made with care and will doubtless meet with approval. As they truly say, if in separating an early composite species into its proper elements, errors sometimes made in taking a wrong form for the 'typical' one would be avoided if proper consideration were given to the subject of the original 'habitat.' They add: "If no such one is given, the first author who 'splits' the form up has the right to accept one; and this right we may logically claim in cases where we have not named a new form." This principle is so obviously sound, and is so widely followed, at least in America, that we are only surprised that it should be thought necessary to state the matter with so much insistence.

We quote further with pleasure the closing paragraph of Mr. Hartert's 'Concluding Remarks': "In nomenclatorial questions and orthography of names we have adhered strictly to priority, and although our ideas are not quite the same in every detail, we were able to agree in almost every case. This clearly shows that those who pretend that no finality can be reached in nomenclature¹ are quite in error. It is always the ignorance or disregard of the first publication, and the emendation of the spelling, that causes trouble, not the unsophisticated reference to and use of the earliest name as it was and is." This is assurance that the tendency is strong in favor of the strict enforcement of the law of priority and the non-emendation of names, so strenuously advocated for many years by the A. O. U. We are therefore not a little surprised to note on p. 129, apropos of *Purra* vs. *Jacana*, that these authors "refuse Brisson's names of genera, which are no genera in the Linnæan sense." Brisson's names were especially accepted by the original B. A. Code (1842), they antedating the XIIth edition of Linnæus, which this Code made the starting-point of the binomial system of nomenclature, and are now in current use by the greater part of both mammalogists and ornithologists. It is therefore to be hoped that for the sake of uniformity and harmony these authors will, on further consideration, waive their preferences in favor of accepting Brissonian genera. The objection that they are "no genera," in the modern sense, will apply quite as well to the currently accepted 'genera' of many other authors. — J. A. A.

¹"Some reviewers of modern zoölogical literature are especially fond of this vague statement."

Dubois's 'Synopsis Avium.'—Since our previous notice of this work Parts V–X have appeared, completing the first volume.¹ In the introduction the author states the purpose of the work to be to provide a simple manual which shall indicate for each species and subspecies the principal synonymy and the principal authors to be consulted. To have gone beyond this would have exceeded the end in view. He has, however, deemed it essential to add the habitat, and has given references in footnotes under the families to monographic works, when such exist, and to the British Museum 'Catalogue of Birds,' where good descriptions may be found.

He says he was unable to force himself to adopt any of the recent systems of classification, and has therefore followed, with slight modifications, that proposed by himself in 1891, in which the class Aves is divided into the two subclasses Gymnopaedes and Ptilopaedes, proposed by Sundevall. The system of Huxley is criticised as widely separating closely allied groups, and as bringing other groups into close juxtaposition which in reality have little in common. He agrees with Bonaparte, Milne-Edwards, and others in placing the Parrots at the head of the class, he considering them the most perfect of all birds in their organization. He says that from the intellectual point of view their superiority is incontestable: they have all the qualities and all the faults of the monkeys.

He recognizes subspecies, for which he employs a separate numeration from that of the species. The present volume includes his orders Psittaci, Scansores, Anisodactylæ, Macrochires, and Passeres, in the sequence named, of which he recognizes 53 families, 1357 genera, 9417 species, and 2477 additional subspecies. Of the "11898" species and subspecies included in his first volume, 4135 are represented in the Royal Museum of Natural History at Bruxelles. He says that he believes that a number of the recently described species and subspecies will be suppressed when they become better known, but he gives them place in order to attract the attention of ornithologists to these doubtful novelties.

As said in previous notices (*Auk*, XVII, p. 81, and XVIII, p. 121), the work will be a very useful one, and we trust will be successfully carried to completion. The twelve colored plates illustrate twenty-four previously unfigured or poorly figured species.—J. A. A.

¹ Synopsis Avium | — | Nouveau | Manuel d'Ornithologie | Par | Alphonse Dubois | Docteur en sciences naturelles, | Conservateur au Musée Royal d'Histoire naturelle de Belgique, | Chevalier de l' Order de Léopold, | Membre du Comité international et permanent d'Ornithologie, | de la Commission permanente d'étude des collections du Musée de l' État Independant du Congo- | Membre honoraire, correspondant ou effectif de plusieurs Sociétés savantes. | — | Première Partie | (1899-1902) | — | Bruxelles | H. Lamertin, éditeur | 20, Rue du Marché-au-bois | — | 1902.—Roy. 8vo, pp. i-xvi + 1-729, pll. col. i-xii.

'Two Vanishing Game Birds.'—Under this title¹ Dr. A. K. Fisher has made a strong plea for the protection of the Woodcock and the Wood Duck, at the same time pointing out the causes of their "impending extinction," and suggesting means for their preservation. "These game birds," he says, "differ materially in habits as well as in other particulars, but the conditions affecting their increase are very similar. As winter approaches they leave their summer homes, where they have been scattered over broad areas and gradually work southward until finally they become more or less concentrated in their respective haunts in the Southern States. Within the confines of this winter home, where no protection is afforded them, they are slaughtered in large numbers; and as the Southern States place little restriction on their export, they are shipped North in quantities limited mainly by the demands of the market or the endurance of the gunners. Not only are the birds subjected to this exterminating treatment throughout the winter, but when the season of migration comes and they return to their summer homes they fare little better; for a majority of the States in which they are found permit them to be shot while nesting or at the time when the young are unable to properly care for themselves. In view of these facts it is not surprising that the Woodcock, with its limited distribution and moderate fecundity, is very rapidly passing away, and that the Wood Duck has disappeared or become rare in many places where it was once common."

The distribution, habits, and natural enemies of these species and the part man plays in their destruction are considered, and 'preventive measures' are suggested for checking their decrease. In the case of the Woodcock, steps should be taken "to abolish all spring and summer shooting," and their protection in the Southern States in winter by the enactment and enforcement of proper laws for their protection, including a short open season, restriction of the size of the bag, and the prohibition of shipment for sale. If in addition there could be "a universal close season covering two or three years, the restoration of this noble bird would be assured."

The decline of the Wood Duck is considered in much the same manner, and similar measures are urged for its rehabilitation.

The paper is illustrated with drawings of each species by Mr. L. A. Fuertes, by a map showing the distribution of the Woodcock, and by a diagram showing the open and close seasons for each bird in the States and Territories, and the Canadian Provinces the species respectively inhabit. From these diagrams it appears that the Woodcock has no protection at any season in Delaware, Illinois, Kansas and Nebraska, nor in any of the Southern States except South Carolina, and Alabama, where

¹ Two Vanishing Game Birds: the Woodcock and the Wood Duck. By A. K. Fisher, Ornithologist, Biological Survey. Yearbook of Department of Agriculture for 1901, pp. 447-458, pll. lxiii, lxiv. Also separate.

the bird is protected from April or May till October. For the Wood Duck there is a close season of greater or less length in Canada, in all of the Northern States except Kansas, in all of the Pacific States, but in only five of the thirteen Southern States. In a number of the Northern States and in several of the Provinces of Canada, the Wood Duck is protected from spring shooting. "If spring shooting," says Dr. Fisher, "be abolished the Wood Duck will gradually return to its old haunts and by degrees reestablish itself—to the joy and satisfaction of all lovers of nature."—J. A. A.

Job's 'Among the Water-Fowl.'—The title¹ of this interesting work very fully indicates its general character, that of a 'popular narrative' from personal study of the birds in their haunts, with photographs of the birds and their nests from nature, obtained often at the expense of considerable hardship and risk. The matter is arranged under five subheadings, as follows: 'Part I. The Submerged Tenth: Grebes and Loons.' 'Part II. Modern Cliff-Dwellers: Gannets, Guillemots, Auks, Puffins, Kittiwakes, etc.' 'Part III. Ocean Wanderers: Shearwaters, Jaegers or Skuas, Petrels, Phalaropes.' 'Part IV. The White-winged Fleet: Gulls and Terns.' 'Part V. Wild Fowl of Wild Fowl: Ducks and Geese.'

As is well known to a wide circle of ornithologists, Mr. Job is indefatigable in his pursuit of the wild fowl, and patient almost beyond measure in his work with the camera under varied and trying conditions, and his liberal mead of success, both as an observer and in bird photography has been well earned. His field of work includes the lakes and marshes of North Dakota, the islands of the St. Lawrence, and the off-shore waters of the Atlantic coast, from Massachusetts to Nova Scotia, besides the ordinary fields and inland waters of the northeastern States and southeastern Canada. He here lays before the reader in the form of a simple narrative the results of his years of exploration and experience with the varied tribe of wild water fowl, from Grebes to Ducks, Geese and Phalaropes. Aside from its interest to the bird-lover, his 'Among the Water-Fowl' is an important contribution to the life-histories of many species none too well-known, and the most difficult to investigate, owing to the inaccessibility of their haunts, and the special preparation and long journeys necessary to reach them and successfully cultivate their acquaintance.

¹Among the Water-Fowl: Observations, Adventure, Photography. A popular Narrative Account of the Water-Fowl as found in the Northern and Middle States and Lower Canada, east of the Rocky Mountains. By Herbert K. Job. Profusely illustrated by photographs from Nature, mostly by the Author. New York: Doubleday, Page & Co. 1902. Square 8vo, pp. xxi + 224, with numerous half-tone cuts and plates. Price, \$1.35 net.

The half-tone pictures, nearly one hundred in number, add immensely to a clear conception of the breeding haunts and habits of a large number of species the ordinary observer can hardly hope to be able to study in life.—J. A. A.

Witherby on the Migration of Birds.¹—Mr. Witherby sets forth at some length, in a popular way, many well-known facts about bird migration. "None of the many theories" professing to answer the questions of what causes migration, what first led birds to migrate, and how they find their way, are, to him, in any way satisfactory; "the more," he says, "we study the matter, and the more we learn, the more difficult does it become to adopt any of the theories, fascinating and plausible though many of them are." But he believes that the collecting and sifting of information, now going on, "will lead us almost imperceptibly towards the discovery of this mystery of mysteries"! When discovered, what an aching void there will be for those who love mysteries!—J. A. A.

Shufeldt on the Osteology of the Psittaci.²—The views of several leading authorities on the classification of the Psittaci are quoted at some length (pp. 399-405), and then follows an account of the osteological characters of the Carolina Paroquet, this part of the paper being a revision, with some additions, of his paper on the same subject published in 1886, to which is added (pp. 419, 420) 'Observations upon the Osteology of the Owl Parrot (*Stringops habroptilus*). The nine figures forming the four half-tone plates represent the skeleton of *Stringops* and the skulls of *Conurus carolinensis*, *Ara militaris*, and *Cacatua galerita*, and the trunk skeletons and some other bones of *Conurus* and *Cacatua*, the sternum and shoulder girdle of *Calyptorhynchus*, and the humeri of *Cacatua*.—J. A. A.

Strong on the Metallic Colors of the Feathers of the Neck of the Domestic Pigeon.³—The so-called metallic colors and iridescent effects of feathers have been generally explained as diffraction phenomena. Dr. Strong states that the hypothesis based on the supposed presence of striae and ridges is "inapplicable to this case when one finds that the feather may be rotated through a whole circle with essentially the same color effects for given angles even from individual barbules. Furthermore, a careful microscopic study of the barbule surface shows that irregularities

¹The Migration of Birds. By H. F. Witherby, F. Z. S., Member of the British Ornithologists' Union. Separate, pp. 16, reprinted from 'Chambers Journal.'

²Osteology of the Psittaci. By R. W. Shufeldt. Annals Carnegie Museum, Vol. I, 1902, pp. 399-421, pll. xxi-xxiv.

³The Metallic Colors of Feathers from the Neck of the Domestic Pigeon. By R. M. Strong. Biolog. Bull., Vol. III, 1892, pp. 85-87.

such as striæ, ridges, pits, knob-like elevations, etc., are not frequent enough when sufficiently small to produce grating effects, and in fact are not normal occurrences."

The colors of the feathers, he says, when observed without a microscope, are evidently mixed colors. "The greenish effects are produced when light strikes the broad surfaces of the barbules and is reflected with a small angle of reflection. The reds appear only when light falls with a large angle of incidence on the pigment granules of a margin or elevated portion of a barbule. We seem to have a clear case of Newton's rings where each pigment granule comes in contact with the outer transparent layer."

This preliminary statement will be followed by a more detailed account, illustrated with figures.—J. A. A.

Mearns on Three New Birds from the Southern United States.¹—These are a new Grasshopper Sparrow (*Coturniculus savannarum floridanus*) from southern Florida, where it is the resident form; the Florida Purple Martin (*Progne purpurea floridana*), and a new Nuthatch (*Sitta carolinensis nelsoni*) from the southern Rocky Mountains.—J. A. A.

Oberholser on New South American Birds.²—Mr. Oberholser has described in the present paper one new genus and 13 new species and subspecies of South American birds, mainly from specimens in the U. S. National Museum, but in part based on material from the American Museum of Natural History. Mr. Oberholser also expresses his views of the proper arrangement of the *Thryophilus leucotis* group, of which he recognizes ten species and subspecies.—J. A. A.

Oberholser on Birds from Paraguay.³—The collection of birds here reported upon "consists of 78 specimens, representing 65 species and subspecies, several of which," says the author, "appear to be unrecorded from Paraguay." Among these were seven species and subspecies which Mr. Oberholser, in the paper noticed above, introduced to science as new, and here redescribes in greater detail. Mr. Oberholser also discusses at length the nomenclature and relationships of quite a number of the species here under notice.—J. A. A.

¹ Descriptions of Three New Birds from the Southern United States. By Edgar A. Mearns, Major and Surgeon, U. S. Army. Proc. U. S. Nat. Mus., Vol. XXIV, No. 1274, pp. 915-926.

² Some New South American Birds. By Harry C. Oberholser. Proc. U. S. Nat. Mus., Vol. XXV, No. 1276, pp. 59-68.

³ List of Birds collected by William Foster in Paraguay. By Harry C. Oberholser. Proc. U. S. Nat. Mus., Vol. XXV, No. 1281, pp. 127-147, 1902.

Chapman on Birds from Alaska.¹—The 68 species here listed were obtained on the Kenai Peninsula, Alaska, from June 21 to August 15, and on Popof Island, one of the Shumagin group, October 19–26 and November 10 to December 5, 1901, by the Andrew J. Stone Expedition of 1901, collecting in the interest of the American Museum of Natural History. The list is annotated by Mr. Chapman, and includes field notes by the collector, Mr. J. D. Figgins. The White-tailed Ptarmigan of the Kenai Peninsula is separated as a new subspecies, under the name *Lagopus leucurus peninsularis*. The Kenai form of the Steller's Jay is distinguished as new under the name *Cyanocitta stelleri borealis*. Incidentally the Hudsonian Chickadees are reviewed at some length, with the result that four forms are recognized, as follows: (1) *Parus hudsonicus*, (2) *P. h. littoralis*, (3) *P. h. stoucyi* and (4) *P. h. columbianus*. The Kenai specimens are referred to *P. h. columbianus*; *littoralis* was described many years since by the late Dr. Bryant from Nova Scotia specimens.—J. A. A.

Shelley's 'Birds of Africa.' Vol. III.—We take great pleasure in chronicling the appearance of Volume III of Captain Shelley's great work on the 'Birds of Africa',² the plan and scope of which has already been placed before the readers of 'The Auk.'³ The present volume treats of 158 species, and includes the Motacillidæ, the Alaudidæ, and the Fringillidæ. The 14 colored plates illustrate 28 species. All the praise bestowed upon Volume II is equally merited by Volume III. As the first two volumes include only 354 species, or about one eighth of the total number given in the 'List' as published in Volume I, the serious magnitude of this great undertaking is evident.—J. A. A.

Bertoni's 'Aves Nuevas del Paraguay.'⁴—This is the unassuming title

¹ List of Birds collected in Alaska by the Andrew J. Stone Expedition of 1901, by Frank M. Chapman. Bull. Am. Mus. Nat. Hist., Vol. XVI, pp. 231–247, Aug. 18, 1902.

² The | Birds of Africa, | comprising all the Species which occur | in the | Ethiopian Region. | By | G. E. Shelley, F. Z. S., F. R. G. S., etc. | (late Grenadier Guards), | Author of "A Handbook to the Birds of Egypt," | "A Monograph of the Sun-Birds," etc. | — | Vol. III. | — | London: | Published for the Author by | R. H. Porter, 7, Princes Street, Cavendish Square, W. | 1902. —4to, pp. x + 276, col. pl. xv–xviii.

³ Auk, Vol. XVIII, 1901, pp. 122, 123.

⁴ Aves Nuevas del Paraguay | Continuación á Azara | por | A. de Winkelried Bertoni | (Extracto de la Historia Natural de las Aves | del Paraguay) | — | Descripción de las especies nuevas descubiertas por el autor | y contribuciones al estudio de la | avifauna Paraguaya | — | Materiales recojidos desde 1890 hasta fines de 1900. | — | Asunción | Talleres Nacionales de H. Kraus | Enero de 1901. | 8vo. pp. 1–216.

of a paper, apparently reprinted from the 'Anales Científicos Paraguayos,' which contains more than 30 new generic names, one new "family," and 104 new species and subspecies. This remarkable paper, although published at the beginning of 1901, does not yet appear to have been noticed in the ornithological journals, for which reason a brief account of it is here given. The supposed new birds were collected by the author, mainly in the region of the 'Alto Paraná,' between the years 1890 and 1900, part of which time was spent in their determination at the Museo de la Plata.

While the author refers to collections made in Paraguay in recent years (Rohde, 1885; Borelli, 1893), and to the determination of Azara's species by Berlepsch, it is nevertheless evident that his knowledge of the present status of the ornithology of that country is very slight indeed.

The present paper consists mainly of descriptions of supposed new genera and species, in continuation of Azara's work, to which is added a catalogue of the birds of Paraguay (513 species). The descriptions are very full, and a study of them will doubtless enable ornithologists to decide just where Señor Bertoni's names belong. For the present a mere list of these names must suffice. This is as follows:

<i>Prionochilus</i> ("Mergidæ"),	<i>Calliphlox microptera</i> ,
<i>P. brasiliensis</i> ,	<i>Rhamphomicron Melchalianur</i> ,
<i>Ardea parauensis</i> ,	<i>Lampornis Musarum</i> ,
<i>Penelope purpurescens</i> ,	<i>Aëronis</i> ("Cypselidæ"),
<i>P. p. major</i> ,	<i>A. niveifrons</i> ,
<i>P. olivacea</i> ,	<i>Xiphocolaptes parauensis</i> ,
<i>Zenaidu virgata</i> ,	<i>Dendrocolaptes tarefero</i> ,
<i>Chamæpelia miantoptera</i> ,	<i>Campylorhamphus</i> ("Dendrocolap- tidæ"),
<i>C. plumbea</i> ,	<i>D. longirostris</i> ,
<i>Pteroglossus attalorhynchus</i> ,	<i>Acanthurus</i> ("Dendrocolaptidæ"),
<i>Trogon splendidus</i> ,	<i>A. microrhynchus</i> ,
<i>Megacephalus</i> ("Trogonidæ"),	<i>Picolaptes Kocniswaldianus</i> ,
<i>M. bitorquatus</i> ,	<i>Hydrolegus</i> ("Dendrocolaptidæ"),
<i>Microtrogon</i> ("Trogonidæ"),	<i>H. Silvestrianus</i> ,
<i>M. fulvescens</i> ,	<i>Xenops argobronchus</i> ,
<i>M. galbuloides</i> ,	<i>Synallaxis furvicaudatus</i> ,
<i>Geophilus</i> ("Cuculidæ"),	<i>S. cururuvi</i> ,
<i>G. jasijatere</i> ,	<i>Barnesia</i> (Subgenus of <i>Synallaxis</i> ; type, <i>S. cururuvi</i>),
<i>Brachyrhamphus</i> ("Corvidæ"),	<i>Phacellodomus Bergiannus</i> ,
<i>B. elegans</i> ,	<i>Geocæcia</i> ("Dendrocolaptidæ"),
<i>Campophilus rufifrons</i> ,	<i>G. orryctera</i> ,
<i>Dendrobates guttatus</i> ,	<i>Agelæus ruficollis</i> ,
<i>Ara chloroptera major</i> ,	<i>Ostinops Cherrieanus</i> ,
<i>Phaethornis paraguayensis</i> ,	<i>Coccothraustes Ambrosettianus</i> ,
<i>Cephaloëpis apirati</i> ,	<i>Spermophila aurantirostris</i> ,
<i>Trochilus chlorobronchus</i> ,	
<i>Chlorostilbon cyanothorax</i> ,	

Pyrorhamphus ("Fringillidæ"),
P. Berlepschianus,
Bergia ("Fringillidæ"),
B. Solanorum,
Diplochilus ("Tanagridæ"),
D. xanthochlorus,
Calliste septemcolora,
Euphonia aurantiicollis,
E. cyanoblephora,
E. Berlepschiana,
E. Egusquiza,
Chelidoramphidæ, ("fam. nova")
Chelidorhamphus [Procnias !],
C. orhycterus,
Pipra Morenoana,
Psaliurus ("Laniadæ"),
P. Accvalianus,
Hadrostromus Borellianus,
Tityra tephronota,
Climacocercus ("Cotingidæ"),
C. cyanocephalus,
Berlepschia ("Tyrannidæ"),
B. chrysoblephara,
Ceraphanes ("Tyrannidæ"),
C. anomalus,
Copurus subniger,
Myiarchus Stauffacherianus,
Elainea Archavaletæ,
E. Holmbergiana,
Phylloæcia ("Tyrannidæ"),
Phylloæcia chloroleuca,
Hapalocercus albifrons,
H. plumbeipes,
Hemitricus Salvadorianus,
H. Barberena,
Serphophaga cinnamocephala,
Hyocestrites ("Tyrannidæ"),
H. ambulator,
Myiophthorus ("Tyrannidæ"),
M. Morenoanus,
Euscarthmus minutus,
Renggerornis ("Tyrannidæ"),
R. leucophthalmus,
Phyllopneuste flavifrons ("Vireoni-
 dæ"),

Thamnophilus leuconotus,
T. Lahilleanus,
T. flavescens,
Silvestrius (subgenus of *Tham-
 nophilus*; type, *T. flavescens*),
T. Rodriguezianus,
Dendroæcia ("Thamnophilidæ"),
D. erythroptera,
Formicivora rubricollis,
F. Archavaletæ,
Stipituropsis (type, *F. Archava-
 letæ*),
Phyllobates ("Thamnophilidæ"),
P. erythronotus,
Polioptila melanocephala,
Certhiola palmarum,
Turdus tephromelas,
T. metallophonus,
Chamaeza tshororo ("Chamæzi-
 dæ"),
Chamæbates ("Chamæzidæ"),
C. rufiventris,
Spizaetus apirati,
Micraëtus ("Accipitridæ"),
M. Holmbergianus,
Potamolegus ("Accipitridæ"),
P. supercilialis,
P. s. magniplumis,
P. s. fuscicollis,
Rupornis nigra,
Accipiter virgatus,
Thrasyaaccipiter ("Accipitridæ"),
T. seminocturnis,
Gampsonyx rufivorus,
Elanus amauroleucus,
Hypotriorchis melanogyne,
Rostrhamus tenuirostris,
Nyctale Bergiana,
N. fasciata,
Syrnium Koenigswaldianum,
S. Borellianum,
Strix Holmbergiana,
Glaucidium ferox rufus.— C. W. R.

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CORRESPONDENCE.

The Extra-illustrated Edition of 'Baird, Brewer and Ridgway.'

EDITORS OF 'THE AUK':

Dear Sirs:—The Academy of Natural Sciences of Philadelphia recently became the possessor of a copy of Baird, Brewer, and Ridgway's 'A History of North American Birds. Land Birds,' which differed from the one already in its library by having in addition to the sixty-four plates of bird-heads, thirty-six plates, each containing a full-length figure.

These extra plates are colored and were lithographed by Robert Ridgway, one of the joint authors, and represent the following species¹: *Turdus mustelinus*, *Turdus migratorius*, *Galeoscoptes carolinensis*, *Sialia sialis*, *Thryothorus ludovicianus miamensis*, *Helminthophaga leucobrouchialis*, *Dendroica aestiva*, *Dendroica caerulea*, *Dendroica blackburniæ*, *Dendroica virens*, *Helminthophaga lawrencii*, *Pyrrhuloxia rubra*, *Carpodacus rhodocolpus*, *Chrysomitris tristis*, *Leucosticte atrata*, *Ammodromus nigrescens*, *Zonotrichia albicollis*, *Junco hyemalis*, *Melospiza melodia*, *Euspiza americana*, *Hedymeles ludovicianus*, *Cyanospiza cyanea*, *Cardinalis virginianus*, *Dolichonyx oryzivorus*, *Icterus baltimore*, *Cyanura cristata*, *Antrostomus vociferus*, *Trochilus colubris*, *Sphyrapicus thyroideus*, *Melanerpes erythrocephalus*, *Conurus carolinensis*, *Scops asio floridanus*, *Glauclidium ferrugineum*, *Speotyto floridanus*, *Falco richardsoni*, *Scardafella inca*.

While the existence of an edition of this work with these plates may be known to many ornithologists, yet there is no printed record of such, as far as the present writer is aware. No mention of these plates is made in Coues's 'Bibliography,' nor in the several reviews of the 'Land Birds' to which I have had access. Dr. C. W. Richmond informs me that Mr. Ridgway has never seen a copy of the work with these plates although he has some loose plates in his possession.

This work was published by Little, Brown, and Company, and from their catalogue there seems to have been two editions—one with 64 plain plates, the other with 64 colored plates, "and 36 additional plates of full-length figures beautifully colored by hand." There is still another colored edition without the 36 additional plates. It is quite likely that the original issue consisted of two editions, colored and plain, without extra plates, the latter edition appearing some time later.

WILLIAM J. FOX.

The Academy of Natural Science of Philadelphia.

In Re *Meleagris sylvestris* Vieillot.

EDITORS OF 'THE AUK':

Dear Sirs:—My attention has been called to a rather ill-natured attack on Mr. Ogilvie-Grant, by Mr. J. A. Allen, which appears in your Journal for July, 1902, p. 311. Will you allow me to inform the "unenlightened American ornithologists" that Mr. Grant's citation of *Meleagris sylvestris*, Vieill. is perfectly correct as Nouv. Dict. d'Hist. Nat. IX, p. 447 (1817). That it is spelled with an *i* instead of a *y* does not appear to me to be of the slightest consequence. The reason that Mr. Allen and his friends cannot find *silvestris*, but do find *fera*, is due, I suspect, to the fact that they are not using the original edition of the IX Vol. (1817) of the Nouv. Dict. (ed. 2), but the Vol. IX which contains the reprinted leaf pp. 447,

¹The names are as they occur on the plates and are in sequence, as the plates are not numbered.

448, which is signed "IX *." and which duplicated lines which appeared on the previous page.

I am, Sirs, yours truly

C. DAVIES SHERBORN,

"*Index Animalium.*"

Sept. 6, '02.

[It gives me pleasure to offer my best thanks to Mr. Sherborn for the information he has given the "unenlightened American Ornithologists" respecting the reprinted leaf comprising pp. 447, 448 of Vol. IX, *Nouv. Dict. d'Hist. Nat.*, nouvelle édition, 1817, signed "IX *." As Mr. Sherborn suspects, this is the edition of this volume, and the only one, I have consulted in this connection, and it is also the one used by Mr. Elliot. Apologies are therefore due, and are here cheerfully rendered, to Mr. Grant in respect to the citation in question.

It remains to note that if the name *fera* replaces the name *sylvestris* in the reprinted leaf, *Meleagris sylvestris* of course antedates *Meleagris fera*, so that the Wild Turkey of the Eastern United States will have to stand, from the American point of view, as *Meleagris gallopavo sylvestris* (Vieill.).—J. A. ALLEN].

Unsatisfactory Records.

EDITORS OF 'THE AUK':—

Dear Sirs:—It is with reluctance that we offer any criticism of labor which results in so much pleasure and profit as the editing of 'The Auk.' For some time, however, it has seemed to us that a stricter censorship of items for the 'General Notes' would result in a much more satisfactory standard in that department. Many interesting birds have lately been recorded, as seen, not shot, by observers whose capacity for accurate observation is absolutely unknown to ornithologists in general. Some of these records seem to bear on their face evidence of error. There appeared, for instance, in 'The Auk' for July, 1902, p. 297, a list of arrivals in the Northern Adirondacks. The author lists the White-eyed Vireo, and records its arrival from April 25 to April 30. There is no mention of the Solitary Vireo in the list. This seems enough to arouse suspicion. When one notes further that the date of the arrival of the Wilson's Thrush is given as from April 20 to April 25, nine days earlier than the date given in Chapman's 'Handbook' for Sing-Sing, N. Y., and that the Hermit Thrush does not appear in the list, it seems surprising that the list should have been printed without the least editorial comment.

We would respectfully suggest that no record of a bird merely observed, where there is any chance for error, be accepted, unless the observer be well known to the editor, or to some ornithologist of standing and judgment, who will vouch to the editor for the accuracy of the observer.

Yours respectfully,

WILLIAM BREWSTER.

RALPH HOFFMANN.

Cambridge, Mass.

NOTES AND NEWS.

DR. JAMES G. COOPER, a Corresponding Member of the American Ornithologists' Union, died at Haywards, Alameda County, California, July, 19, 1902, at the age of 72 years. He was born in New York City, June 19, 1830, and was the oldest of six children. His grandfather, James Cooper, an English merchant, settled in New York soon after the close of the Revolution, where he died in 1801, after having accumulated a comfortable fortune. His father, William Cooper, was born in 1798; he early decided to devote himself to the study of natural history, and at the age of nineteen became one of the founders of the Lyceum of Natural History of New York, now the New York Academy of Sciences; in 1821 he sailed for Europe, to continue his studies in zoölogy, where he attended the lectures of Cuvier in Paris, and was elected the first American member of the London Zoölogical Society. He was later secretary of the New York Lyceum, and was prominently identified with the notable group of naturalists who soon made the Lyceum prominent among the scientific institutions of America. He was the friend of Audubon and Nuttall, and a correspondent and co-worker of Lucian Bonaparte, editing the last two volumes of his 'American Ornithology.' Bonaparte, in appreciation of his friendship and assistance, named for him the hawk now known as *Accipiter cooperi*, described from specimens taken by Cooper in Hudson County, N. Y. He also collected the type and only known specimen of the sandpiper, *Tringa cooperi*, named in his honor by Baird.

Thus James G. Cooper, the subject of the present sketch, was reared and educated under surroundings especially favorable for the development of his inherited scientific tendencies. In 1851 he was graduated from the New York College of Physicians and Surgeons, and spent the following two years in the city hospitals. In 1853 he was appointed surgeon to the northern division of the Pacific Railroad Survey, under the direction of Brevet Captain George B. McClelland, at the instigation of Professor Baird. After serving in the field as surgeon and naturalist for about one year, he returned to Washington to prepare his report. He was soon forced, however, by poor health to seek the more favorable climate of the Pacific coast, where he devoted three years to making collections, most of the time at his own expense, during which period he not only continued his work in the Northwest, but collected also in southern California, and made a trip of three months southward as far as Panama. In 1857 he was appointed surgeon to the expedition under Lieut. Mullan to survey a Wagon Road from Fort Kearney to the Pacific, but the expedition was abandoned when it had reached the Rocky Mountains in Montana, and Dr. Cooper then went on a collecting trip to the Mojave Desert. In 1860 he was again a contract surgeon, and was detailed to accompany troops across the continent from New York to Fort Columbus, Department of Oregon. During the following three years he was engaged in collecting

and in field exploration in southern California, including both the coast and the interior as far east as Fort Mojave. In 1864 he was commissioned Assistant Surgeon in the Second Cavalry, California Volunteers. On being mustered out, at the close of the Civil War, he served as naturalist to the Geological Survey of California. In January, 1866, he was married to Miss Rosa M. Wells of California, and soon settled down to the practice of his profession, which, in 1871, he was obliged to abandon in consequence of failing health. In 1875 he moved to Haywards, California, where he subsequently resided.

Dr. Cooper was throughout his life greatly handicapped by poor health, and for a considerable period was dependent upon his medical practice for support; yet his scientific activity extended over a long period, and embraced a wide field, although his chief work was in ornithology and conchology. His best known ornithological publications are his 'Report on the Birds collected on the Route near the 47th and 49th Parallels' (jointly with Dr. Suckley, in *Pacific R. R. Rep. of Expl. and Surv.*, Vol. XII, part ii, pp. 140-291, 1859), and his 'Ornithology of California' (Land Birds, royal 8vo, 1870, edited by Baird). In 1869 he published a paper of much interest entitled 'The Fauna of California and its Geographical Distribution' (*Proc. Calif. Acad. Sci.*, Vol. IV, pp. 61-81), and in the same year a series of papers on 'The Fauna of Montana Territory,' (*Amer. Naturalist*, Vols. II and III). His contributions to the literature of conchology are far more numerous than his papers relating to other subjects.

In his field work Dr. Cooper was an 'all-around' naturalist, collecting not only birds, mammals, insects, and shells, but extensively in botany, so that many departments of natural history are indebted to his intelligent labors. As already intimated, his field work and his writings relate almost exclusively to the natural history of the Pacific coast region of the United States; and in recognition of his ornithological services the ornithologists of California have very appropriately named their organization 'The Cooper Ornithological Club,' and have published as the first article of the Club's 'Bulletin' (Vol. I, 1899, pp. 1-5) a portrait of Dr. Cooper and an extended sketch of his life, written by Mr. W. O. Emerson, to which we are mainly indebted for the biographical facts above given.¹

ALONZO M. COLLETT, an Associate Member of the American Ornithologists' Union, died at his home in Denver, Colorado, August 22, 1902, from typhoid fever, at the age of 33 years. He was born in Indiana, and

¹ Since the above was sent to the printer we have received the September-October number of 'The Condor,' in which Mr. Emerson adds an 'In Memoriam' to his previous biography of Dr. Cooper, and Mr. Joseph Grinnell adds a list of his ornithological writings, which number 26 titles.

when a youth of seventeen moved with his parents to Kansas, and entered the Kansas Normal School at Emporia, from which he was graduated in 1890, and where he remained for two years as an instructor. He then became a laboratory assistant in the department of botany at Harvard University, where he remained for two years, and then took the position of teacher of natural sciences at East Denver High School, Colorado. "The subjects which he taught here were zoölogy, physiology, botany and physical geography, besides a small but enthusiastic volunteer class in biology. Aside from his uniform success as a teacher, Prof. Collett had a way of endearing himself to his students by his ready sympathy in everything which interested them." He achieved considerable success as a collector and taxidermist, but appears to have published very little relating to ornithology.

CLARENCE H. MORRELL, an Associate Member of the American Ornithologists' Union since 1895, died at his home in Pittsfield, Maine, July 15, 1902, after a lingering illness of nearly two years duration. He was born at Pittsfield, Me., February 23, 1872, and at an early age showed a preference for nature study. While botany and other branches of natural history claimed much of his attention, he had a deeper interest in the birds. While in the Maine Central Institute as a student, he assisted in teaching the classes in nature study, and was recognized as an authority on birds. Later he devoted all of his spare time to natural history pursuits, and wrote extensively on such subjects for the local newspapers and for many of the bird magazines. He became an active member of the Maine Ornithological Society soon after its organization, and was chosen editor of its 'Journal,' but lack of time compelled him to resign the editorship on the completion of the first volume. He continued his interest in the 'Journal' and in the work of the Society, being one of the faithful few through whose efforts the activity of the society was maintained.

In his field work he was careful and conscientious, and anxious that all his records should be beyond question. His series of Maine Warblers 'sets' is among the finest ever gotten together. Although one of the few holding a permit from the Governor of the State to collect birds, nests, and eggs for scientific purposes, he very rarely shot a bird, except with his ever-ready camera. His chief delight was to row his boat up the pond to his favorite haunts and carefully photograph the birds and nests which he found there. The writer was frequently his companion on these trips, and many happy hours have we spent together among the birds. His quiet, gentle disposition, his manliness, and his deep love of the beautiful endeared him to all who knew him; and in his death science loses a sincere worker, and his friends and co-workers a friend whose loss will long be felt. — J. M. SWAIN.

THE PUBLISHERS, Houghton, Mifflin, and Company (Boston and New York), announce for early publication Mrs. Florence Merriam Bailey's

'Handbook of Birds of the Western United States.' "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 has been prepared on similar lines, and will contain "over six hundred illustrations, including thirty full-page plates from drawings by Louis Agassiz Fuertes."

Such a work has long been needed, and its preparation could hardly have fallen into better hands. The price is stated to be \$3.50 net, postage extra.

MR. RALPH G. MILLS, of 356 West Decatur St., Decatur, Illinois, is investigating the parasitic habits of the American Cowbird, and desires information concerning their eggs. In a letter to the Editor of 'The Auk' he states that he desires data respecting "the exact size of the one or more Cowbird's eggs in each nest, the size of each of the eggs of the host, the name of the host, and any additional facts of interest." In publishing the results of his investigations Mr. Mills will give due credit for any assistance rendered him.

THE U. S. Department of Agriculture has just issued, as 'Farmer's Bulletin No. 160,' a digest of the 'Game Laws for 1902. A Summary of the Provisions relating to Seasons, Shipment, Sale and Licenses,' prepared by Dr. T. S. Palmer and H. W. Olds, assistants on the Biological Survey. "The object of this bulletin is to meet a general demand for information on game laws by presenting briefly the most important regulations concerning the shipment and sale, especially those governing interstate commerce in game. . . . It is believed that the matter presented in this report, although greatly condensed, will prove useful not only to sportsmen and wardens but also to dealers, shippers, farmers, and others interested in game." By means of maps and tables the information is presented in an exceedingly convenient form. Map 2 (p. 30) shows that only four States — Kentucky, Mississippi, Montana, and Virginia — permit the exportation of game. Map 3 (p. 40) shows that the southern Provinces of Canada and about three fourths of the States and Territories prohibit the sale of certain kinds of game at all times; some of these permit the sale of certain kinds of game during the open season and for a certain number of days immediately thereafter, as shown in the explanatory table accompanying the plate. All of the Southern Provinces of Canada, and all of the Northern States except Idaho, and Arkansas, Florida and South Carolina of the Southern States, require nonresidents to obtain hunting licenses, the fee for which varies from \$5 to \$50 in the different States and Provinces. Tables show at a glance the close seasons for all kinds of game in the United States and Canada. A gratifying and encouraging feature of this exhibit is the increasing strenuousness of laws for the protection of game, and the wide-spread legislative interest in the subject.

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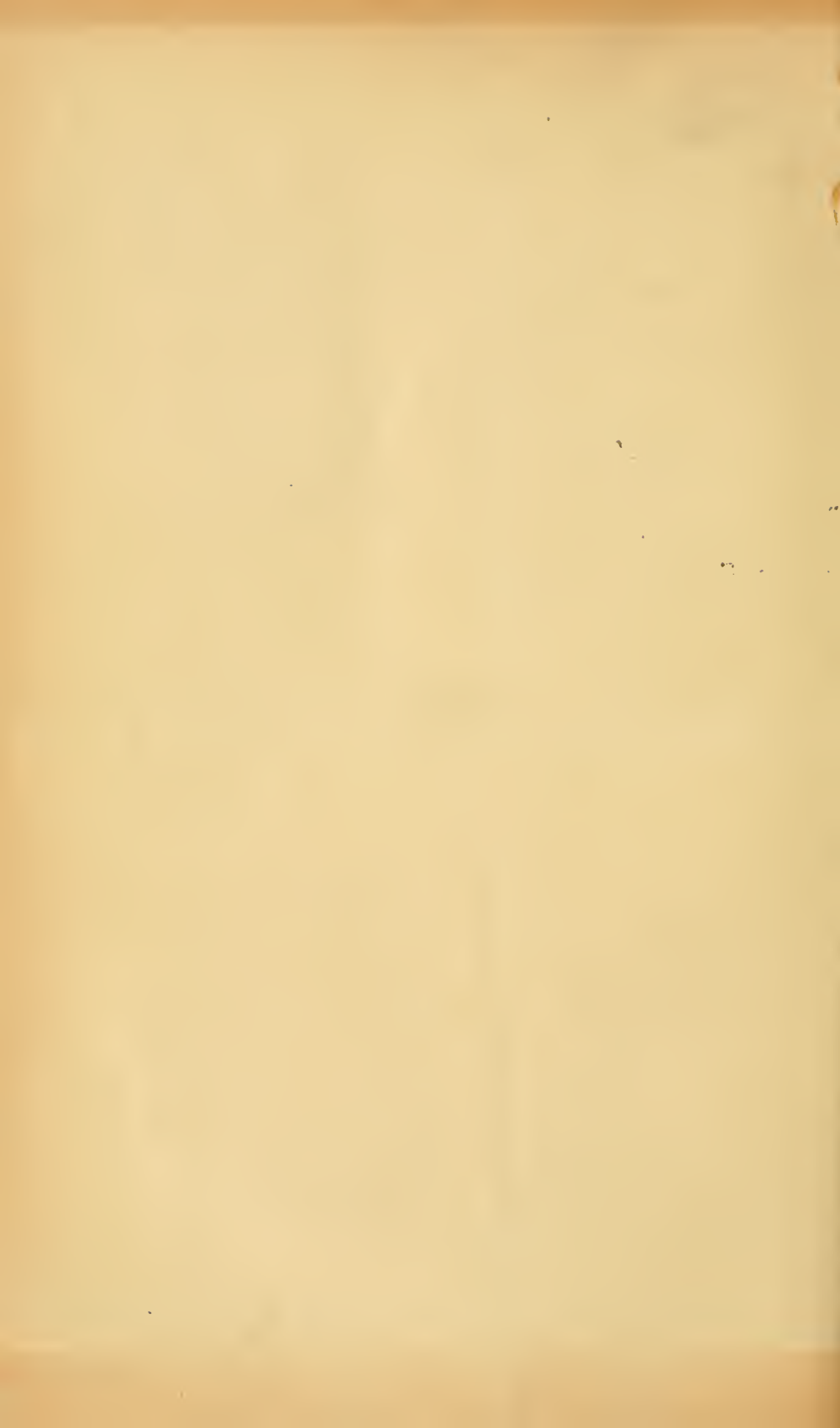
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ERRATA.

- Page 28, line 8, for *gambelli* read *gambeli*.
- Page 88, line 2, for *philadelphia* read *philadelphicus*.
- Page 89, line 18, for *philadelphia* read *philadelphicus*.
- Page 234, line 13, for *Cordeiles* read *Chordeiles*.
- Page 289, lines 10 and 11, for "it sounds like *red-dy*, sometimes — but not by any means generally. He gives," read: "it sounds like *red-dy*. Sometimes, but not by any means, generally, he gives."
- For additional errata see bottom of page 314.



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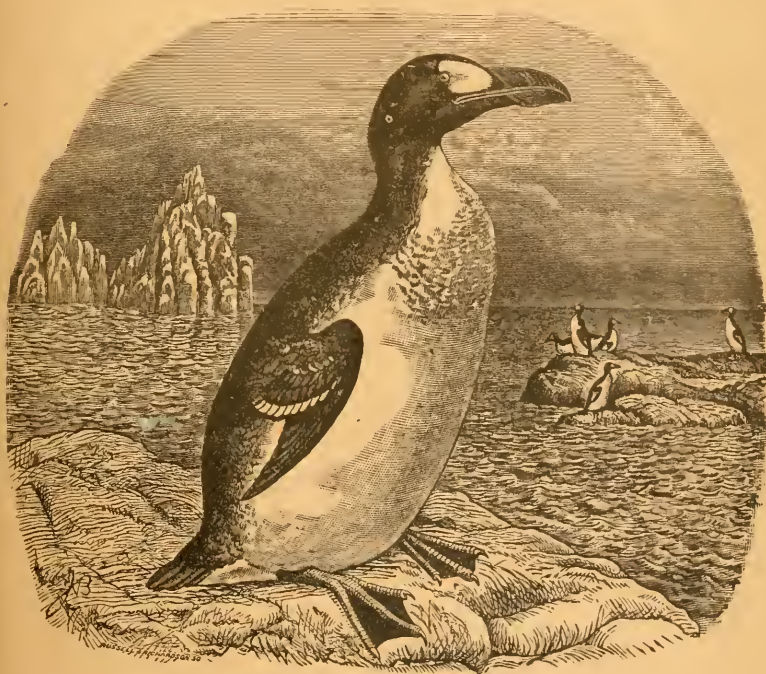
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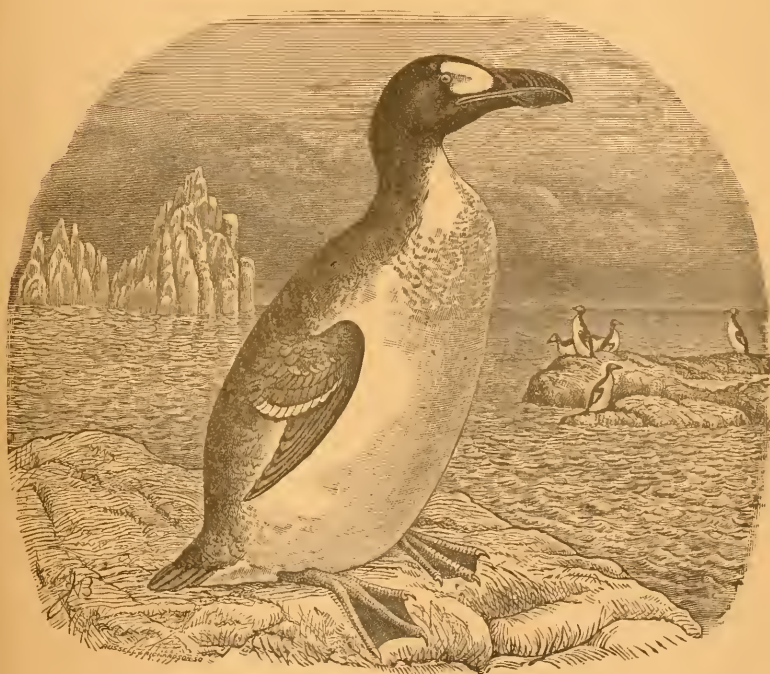
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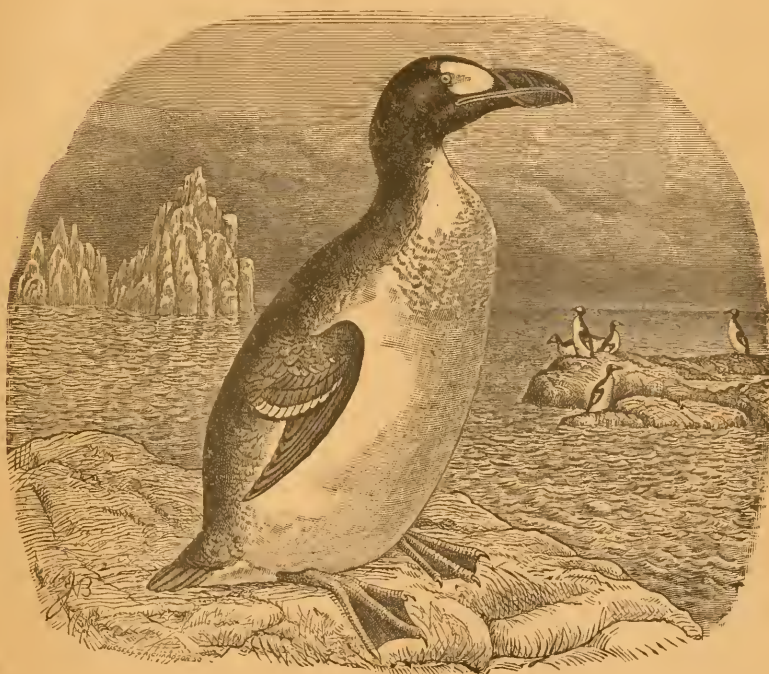
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