

Sportsman in Anticosti," London, 1885, printed by Morris & Company, but without an author's name. Mr. Lewis states that the pamphlet contains a "List of the Principal Wild Fowl that Breed on Anticosti," and quotes instances that show the list to be unreliable, if not wholly imaginary.

I have in my library another pamphlet of the same origin as the first, entitled "Brief Notes on the Island of Anticosti, in the Gulf of St. Lawrence, Dominion of Canada," 1886, printed by Geo. Smythe & Company (London). This little pamphlet of eight pages is really a guide to an Anticosti exhibit at the Colonial and Indian Exhibition held in London in 1886, and contains a brief catalogue of the exhibits, and, though anonymous like the first, it states in a footnote "The Birds and Animals modelled, and the Exhibit designed and arranged by Rowland Ward, D.L.S., 166 Piccadilly, W." As I remember the exhibit of which the second pamphlet is the catalogue it consisted of a collection of grains, models of vegetables, samples of woods, a few stuffed animals, and a heterogeneous collection of

birds that in all probability had been secured in London for the purpose of the exhibit, which was a private venture, and not part of the official Canadian exhibit.

While these pamphlets are no doubt quotable in bibliography they are not based on authentic material, and should not be used when writing of the fauna of Anticosti.—J. H. FLEMING.

A Round Table Conference of Federal and Provincial game officials was held at Ottawa on December 6th, 7th, and 8th, 1922, under the auspices of the Canadian National Parks. It is the first convention of its kind ever held in Canada.

The proceedings of the Conference were marked by a splendid willingness to co-operate, and all the resolutions adopted were adopted unanimously. These resolutions, many of which deal with important matters relating to wild life conservation, are too voluminous for publication in *The Canadian Field-Naturalist*, but copies of them may be obtained upon application from the Commissioner of Canadian National Parks, Ottawa.

### BOOK REVIEW

BIRDS AND MAMMALS OF THE STIKINE RIVER REGION OF NORTHERN BRITISH COLUMBIA AND SOUTHEASTERN ALASKA. By H. S. Swarth. *Univ. of California Publications in Zoology*, Vol. 24, No. 2, pp. 125-314, Plates 8 (colored), 34 figures in text. Issued June 17, 1922.

This is another valuable contribution to northern Pacific coast zoology made possible through the interest and practical support of Miss Annie M. Alexander, who has sponsored so many expeditions to this coastal region. It is fully up to the standard of previous work produced under the same auspices.

It is based upon the results of an expedition conducted by H. S. Swarth, working principally on birds, and Joseph Dixon, specializing on mammals, photography, and the nesting activities of birds. The party arrived at Telegraph Creek, British Columbia, at the head of navigation on the Stikine River, May 23, the general neighborhood of which was worked until June 26. The year does not appear anywhere in the text but is given as 1919 in the captions of the accompanying maps and photographs. Various camps were made down stream until they arrived at Sergeif Island Alaska, at the mouth of the river, August 17, remaining until September 7. The material collected, upon which the present report is based, consists of 534 mammals, 638 birds and 24 sets of

eggs. Some amphibians were collected but are not reported on here.

Pp. 126-157 are occupied by chapters on Introduction, Itinerary and Description of Localities, Topography of the Region and its Bearing upon Animal Life, and The Zonal and Faunal Position of the Stikine Valley. These subjects are all developed in a clear and logical manner, presenting much detail of conditions and some important and far reaching generalizations that contain valuable food for thought.

An annotated list of mammals includes notes on 34 species and subspecies, from p. 158 to p. 198. Notable features here are the graphic diagrams showing individual variation within the subspecies of white-footed mice encountered and their relation to local distribution and allied forms. Incidentally it is interesting to note the caution and hesitation with which the author attempts to identify his Grizzly Bears in harmony with the difficult Merriam revision. It argues ill for the results when those less qualified make the same attempt in the future.

The bird list contains annotations on 127 species and subspecies, from p. 194 to p. 308. The volume closes with six pages of literature cited, which seems to be a complete ornithological and mammalogical bibliography of the region treated.

The country discussed consists of two well defined climates and ecological associations. The coastal slope, characterized by heavy rain fall,



comparatively warm and uniform climate, and dense conifer growth, is separated by the Coast Range of mountains from an interior inclining towards the arid, with great seasonal range of temperature, considerable bare mountain side, and a preponderance of deciduous growth. Each of these two areas has its own faunal peculiarities and to discover what happens where the Stikine River breaks through the separating barrier and offers opportunity for the two associations to meet was one of the principal objects of the expedition.

Mr. Swarth regards the coastal strip below Alpine altitude as Hudsonian Life Zone with a strong infusion of Canadian. Too little work has been done in the interior in these latitudes to settle its zonal details but, contrary to previous opinion, he is inclined to regard most of northern British Columbia as in the Canadian rather than in the Hudsonian Zone. He noted a continual increase in elevation up the mountain sides in the life associations as he followed them inland. Important conclusions regarding the relationship between the interior and coast faunas are expressed as follows:

"... not only are comparable ecologic niches on either side of the mountains usually filled by different species rather than subspecies, but that frequently the species are not specially closely related. ... there is hardly an instance where we were able to trace intergradation along the connecting valley of the Stikine. ... it was evident that certain subspecies, at this particular point, met as distinct species."

In view of the fact that we usually regard non-intergradation as the criterion of full specific standing the last sentence may appear paradoxical but it may be strictly in accord with good zoological concept. Along an extended line of progressive variation we may arrive at extremes so inherently distinct that when they happen to meet through the vagaries of geographical distribution they may react towards each other as full species though along the chain of connection each link is but subspecifically related to its neighbors. As long as the connections persist unbroken the whole series must be regarded as a specific unit even though the meeting extremes fail to intergrade. Whenever in the vicissitudes of nature any part of the connecting sequence is permanently broken two species must be recognized instead of one.

This distinctness between the coastal and interior forms and the fact that the Stikine River passage is not a general highway of intercommunication for birds (though slightly more so for mammals) suggests entirely different primitive geo-

graphic origins for the faunas on opposite sides of the mountains. Mr. Swarth postulates that both came from the south, the interior forms following up the inter-mountain valleys. Strangely enough he does not seem to consider the possibility of arrivals from the east. All across the mid-continental area, running north of the prairies through the woodlands, we have a north-western extension of pure eastern forms or forms closely related to them. They are constantly reduced in numbers westward but are recognizable well into the interior of Alaska. Nearly on a line with this Stikine River country the valley of the Peace River breaks through the great barrier of the Rocky Mountains, which form the main separation between our eastern and western faunas, and offers passage-way through for many eastern species into the Cassiar region of British Columbia. That some of these eastern races reach the base of the Coast Range is indicated by the following forms listed by Mr. Swarth at Telegraph Creek—Eastern Mourning Dove, Yellow-bellied Sapsucker, Boreal Flicker, Rusty Blackbird, Eastern Chipping Sparrow, Eastern Purple Finch, Eastern Yellow Warbler and Eastern Robin. That most of these birds are rare or of non-occurrence even in migration in southern British Columbia is evidence of an eastern, rather than a southern origin for much of the life of the Cassiar District.

Among some of the questions raised and discussed by Mr. Swarth in his annotated list of birds is that of discontinuous distribution—isolated colonies of forms seemingly identical with those from which they are separated not only by geography but also by intervening distributions of other subspecies. Thus he finds birds on Sergeif Island that he refers to the Eastern Savannah Sparrow, *Passerculus sandwichensis savanna*, whilst the bird of Telegraph Creek is recognized as the western *P. s. alaudinus*. The Eastern Savannah Sparrow is not generally recognized in Canada west of Ontario. That it should jump clear over intermediate territory and intervening races to the mouth of the Stikine River is startling, yet, given that Mr. Swarth's reading of the characters of the specimens in question is correct, strict adherence to Dr. Dwight's dictum, quoted elsewhere in the work, that "we must name a bird by the plumage it is wearing, not by the one that it ought to be wearing because it has been captured within the bounds assigned to another geographical race" leads to just this conclusion. The case is not unique; there are others like it, and there may possibly be more than we are aware. Mr. Swarth says, "I am willing to admit geographical distribution as one of the characters of a form, but to mak



distribution the SOLE character is farther than I care to go. So, on the ground of external resemblance, the Savannah Sparrow of the coast of Southeastern Alaska is here recorded as *P. s. savanna*, but with no belief that it is genetically the same as the eastern subspecies bearing that name. The case is closely paralleled by the Red Crossbills (*Loxia curvirostra sitkensis* and *minor*). The point to be considered is, if such forms are genetically distinct and we know them to be so, are we justified in falsely naming them what we know they are not? Is the name applied to a collection of superficial characters or has it a genetic association? It is a knotty point to consider.

It is interesting to note that of the two Goshawks collected, an adult is referred to the eastern race, *A. s. atricapillus*, whilst a juvenile is declared to be the western *A. s. striatulus*. This is the rule with the Goshawks of northern British Columbia. Most adults from there are indistinguishable from eastern birds, whilst numerous juveniles are closely comparable to the heavily colored specimens designated by the describer amongst the types of *striatulus*. Peculiar dark adults, absolutely unlike anything ever taken in the east do occur occasionally in British Columbia and adjoining territory, but whether or not they are the mature of the dark juveniles has not yet been determined. Much more information is desired concerning this species.

The Yellow-bellied Sapsucker, *Sphyrapicus varius varius*, was breeding near Telegraph Creek. Two specimens were taken, one typical *varius*, the other "has more the appearance of a hybrid between two species (*varius* and *ruber*) than an intergrade between two such forms, regarded as subspecies." Typical *ruber*, the Red-breasted Sapsucker, which Mr. Swarth regards on other grounds as *conspecific* with *varius* was found a few miles below the above locality without intergrading with it. He did not recognize *nuchalis*, the Red-naped Sapsucker, in the locality at all.

The Flickers were Yellow-shafted and showed no indication of the influence of the Red-shafted, though the region closely approaches its range and promiscuous hybridization between the two species extends over very wide sections of country elsewhere.

Under Cassiar Junco Mr. Swarth uses the name *connectens* Coues, not for Shufeldt's Junco, as does the A.O.U. Check-List, but with a different identification of the specimen to which the describer first attached the name. He characterizes the male of this subspecies, as he understands it, as closely similar to eastern *hyemalis*, the female differing from the male *shufeldti* in "having

usually less brown on the back and less pink on the sides." Here is a postulated case where identification cannot be made without having both members of a pair as individually each sex would be referred to different subspecies. The fact of their mating together would seem the only racial criterion.

The Rusty Song Sparrow appears to be one of the few species that seem to have extended their range up from the coast along the river valley.

Considerable space is given to the description of the nesting of the Bohemian Waxwing, which was discovered near Telegraph Creek. Photographs of nest are given, as well as the colored frontispiece by Major Allan Brooks of the young birds just from the nest. The interesting feature of these birds is the presence of fully developed wax tips on the secondaries and the depth of the yellow color on tertials and remiges. There is a map showing the previously discovered nestings of the species but the compiler seems to have missed the records for the eastern foot-hills of the Rocky Mountains near Didsbury and Red Deer, Alberta. These seem perfectly good. The variation in the number of sealing-wax tips in relation to sex is discussed, with the apparent conclusion that it has no such relation. Mr. Swarth thinks the separation of the American and European birds under the name of *pallidiceps* as proposed by Reichenow is valid.

As inferred before, the Yellow Warbler from the interior is referred to eastern *æstiva* rather than to *rubiginosa*, as would be expected.

As for the Alaska Myrtle Warbler, *D. c. hooveri*, Mr. Swarth recognizes a slight difference in size of the specimens ascribed to that race but detects none of the colour differences attributed to it.

All in all, this report is much what a faunal list should be. Though the author sometimes splits into finer units than all of us would agree to name, he does not do so dogmatically, but gives his evidence in a fair and convincing manner. Moreover, he puts his fine divisions to their legitimate use—he splits for a purpose. The essence of scientific research lies in the correlation and explanation of facts rather than in the gathering of those facts themselves. In systematic zoology we have many looking for microscopic facts but too few that seek to interpret or to apply them. Another feature of this and other lists by the same author is that determinations are original identifications and are not based upon preconception or quoted from authority. In fact they present original, not hearsay, evidence and as such can be made the basis of distributional investigations. From the reviewer's standpoint,



it is only under such circumstances that the subspecies should ever be used in a faunal list.—P. A. T.

AN OUTLINE OF THE PHYSIOGRAPHIC HISTORY OF NORTHEASTERN ONTARIO. By W. H. Collins. *The Journal of Geology*, vol. XXX, No. 3, April-May, 1922, pp. 199-210.

Under the above title a very substantial contribution to the physical geography of Canada has been made by Dr. W. H. Collins, Director of the Canadian Geological Survey. The clear and informing mental picture of the series of geographical changes responsible for the physical geography of northeastern Ontario, which it furnishes, makes one wish to see much of it incorporated in the school geographies used in Ontario.

Happily the type of school geography on which the writer's youthful imagination was fed is being supplanted by better ones and it is to be hoped that this supplanting process will continue. The type of geographer who used to write for the public school geographies of the "industrious coral insect" building atoll island harbours for the convenience of the storm-harassed mariner is becoming extinct. Surely the geographer who does not go back of the autobomile age can not long survive in ecologic association with the geographer equipped with geological training. The geography of any region may be regarded as a snapshot of the stage of development or equilibrium which the geologic and biologic agencies operating in it have reached at a particular interval of recent time. In order to understand it in any adequate way the historical or geologic line of approach taken in the paper under consideration is indispensable.

Dr. Collins recognizes six stages in the physiographic history of this region. Cross sections of this and other contrasted regions permit graphic comparison of the structural and physiographic features of the region discussed with other parts of North America.

Teachers of geography in Ontario will find this a particularly helpful paper.—E.M.K.

ORDOVICIAN FOSSILS OF NORTHERN CHINA:—PALAEOZOIC CORALS OF CHINA, Pt. 1, TETRASEPTATA. By Amadeus W. Grabau, S.D. (Palæontologist to the Survey and Professor of Palæontology in the National University, Pekin). *Geological Survey of China, Series B, vols. 1 and 2, Fascicle 1*; pp. 127, pls. 1-9, pp. 69, pl. 1.

The rather recently organized Geological Survey of China has announced titles and authors of a series of monographs on the Palæontology of China. These are to be published as fascicles in

four series dealing respectively with the fossil plants, the fossil invertebrates, the fossil vertebrates and ancient man in China.

The first two papers issued bear the titles above. Those who have been accustomed to think of China as a backward nation may feel inclined to revise this opinion after examining this admirable programme and the two examples now before the writer of the way in which it is being executed. In typographical features they are distinctly ahead of most of the palæontological work which has been published in Canada and the United States in recent years.

The "Ordovician Fossils from Northern China" includes a brief introductory summary of the Ordovician stratigraphy of Northern China in which the Upper and Lower Ordovician faunas are listed separately. The systematic portion of the paper includes many new species. The section on the cephalopods includes an elaborate discussion of the phylogenetic significance of the siphuncle of the *Holochocanites* and the description of a new family. This portion of the paper contains a discussion of the subject of lime deposition by molluscs which will be of interest to many who are not directly concerned with cephalopod phylogeny and morphology.

The excellent drawings which illustrate this paper are the work of a Chinese artist, Mr. K. C. Lin.

The ordinal name *Tetrseptata*, under which Professor Grabau places the corals, which form the subject of the second paper, is the equivalent of Heckel's *Tetracorallia* and of Milne-Edwards' *Zoantharia rugosa*. An excellent summary of the morphological characters and development of the *Tetrseptata* precedes the systematic section which includes description of families, genera and species. Four new genera and seven new species of corals are described and illustrated. These and the included families represented in this work make it an important paper to all palæontologists who are concerned with the corals. The corals described range in horizon from Silurian to Permian.—E.M.K.

OLD AND NEW STANDARDS OF PLEISTOCENE DIVISION IN RELATION TO THE PREHISTORY OF MAN IN EUROPE. By Henry F. Osborn and Chester A. Reeds. *Bulletin of the Geological Society of America*, vol. 33, pp. 411-490, July 3, 1922.—The borderland where Archæology and Palæontology meet has been cultivated in Europe by scientists of very diverse kinds of training and widely differing viewpoints. An extensive literature in various languages records the work of the archæologists, geologists and palæontologists who





Taverner, P. A. 1923. "Birds and Mammals of the Stikine River Region of Northern British Columbia and Southeastern Alaska, by H. S. Swarth [Review]." *The Canadian field-naturalist* 37(2), 32–35.

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