

THE PRESENT CONDITION OF CANADIAN CONCHOLOGY.

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I am afraid that the title of my paper will hardly be justified by the paper itself, for to write fully and accurately on the present state of Conchological science in our Dominion would require a greater knowledge of the subject than I can lay claim to, and would involve a much more exhaustive research into the writings of others than it has been possible for me to make ; and, moreover, the time which I understand is allotted for this paper, viz., 15 minutes, is hardly sufficient for a very elaborate treatment of any subject.

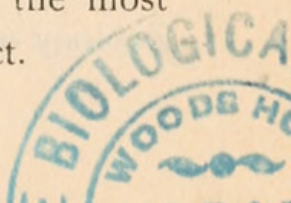
What I shall attempt this evening, therefore, will simply be to give you, as shortly as possible, a summary of what has been published up to the present time with reference to Canadian shells, and then to point out, as best I can, what still remains to be done, and the particular way in which we, as a society of Field-Naturalists, and as individual students, may help to advance this important and interesting science.

As the Dominion of Canada extends from ocean to ocean, there are at least two distinct *marine* Faunas to be studied. There are also the very numerous *land* and *freshwater* mollusca, some confined to our eastern provinces, some to the western, while others range through the length and breadth of our territories.

No naturalist, except our fellow member the accomplished Zoologist to the Geological Survey of Canada, (Mr. Whiteaves), seems to have given special study to the subject of Canadian mollusca as a whole, and so for convenience sake I will in this paper divide my remarks into 3 parts, and will take

- (1.) The marine mollusca of the Atlantic Coasts.
- (2.) Those of the Pacific Coast.
- (3.) The land and freshwater shells of the Dominion.

Of necessity I must omit all reference to that very important part of conchology which treats of our fossil shells, and, in order to keep my paper within proper limits as to length, I will reserve bibliographical details for an appendix, in which I will try to enumerate all the most important papers that have appeared bearing upon our subject.



1. *Marine Mollusca of the Eastern and Northern Coasts of Canada.*

Many excellent treatises on the Zoology of the Bay of Fundy have been written, some by United States, and some by Canadian Naturalists. The boundary line between Canada and the Northern United States is, however, in no sense a zoological one, and consequently we shall find that the publications of the United States naturalists dealing with New England mollusca are of great service in the study of the fauna of New Brunswick and Nova Scotia.

First among such publications must be mentioned Stimpson's *Marine Invertebrata of the grand Manan* ² (1854). In this classic work 117 species of mollusca are enumerated, all of which may be expected to be found (and the majority have already been found) in New Brunswick waters.

Next comes Gould's "*Invertebrata of Massachusetts.*" In the original edition (1841), no references are made, I think, to Canadian localities, though many of our shells are noted and described, but in the second edition, (1870), edited and much enlarged by Dr. W. G. Binney, such references are frequent and the work is one that is almost indispensable to Canadian conchologists.

Prof. Verrill has written many papers of much importance to us,—
'On the invertebrata of Vinyard Sound,' ¹² 'On Dredging Expeditions on the Coast of New England,' ¹³ 'On recent additions to the Marine Invertebrata of the North-Eastern Coast of America,' ¹⁴ (several papers), 'On the Cephalopods of the North-Eastern Coast of America,' ¹⁸ and so forth.

All these papers contain notices of Canadian localities, and most interesting notes on the habits and the nomenclature of our shells.

The above mentioned authors, though incidentally dealing with our mollusca, wrote with special reference to the United States Coasts, but the writer next referred to views the subject from a purely Canadian standpoint.

Mr. W. F. Ganong has several valuable papers in the *Bulletins of the Natural History Society of New Brunswick*. One paper, 'On the Zoology of the Invertebrate animals of Passamaquoddy Bay,' ²¹ was

published in the Bulletin (No. IV,) for 1884. A second, 'On Marine Invertebrata of L'Etang Harbour,' ²² in Bulletin V in the next year.

A third, and much more important paper ²³ appeared in the Bulletin (No. VI), for 1886. This last contains the complete list of the Marine Mollusca of New Brunswick, (the Northern waters, Northumberland Straits and Bay Chaleur, are considered as well as Bay of Fundy), so far as it could be compiled at that date from the works of previous writers and from the author's own observations. The introduction contains much useful information and a full bibliography of the subject up to 1887.

Nearly 200 species are noticed in this paper, and additions to the list are made in Mr. Ganong's "Zoological Notes," ²⁵ published in the same series of Bulletins in 1890. Other papers by Ganong ²⁴ and Winkley ²⁶ are also published in these useful Bulletins and should be consulted.

For information regarding the Mollusca of the Gulf of St. Lawrence we must refer to the work of Mr. Whiteaves. His papers, of which four ⁹⁻¹¹ on this branch of the subject are noted below, contain accounts of his own deep-sea dredgings, and though published more than 20 years ago are still most valuable, containing almost all we know of the shells of these waters. There are, however, other papers by Bell,³ Dawson ⁵ and Packard,⁷ that may be consulted with advantage.

I may also refer here to an interesting little note in the Report of the Geological Survey for 1878-9, on marine shells collected in the Hudson's Bay by Dr. Bell ¹⁰ who, I believe, collected additional marine specimens when with the Hudson's Bay Expedition in 1884, but no record of these has yet been published so far as I know.

Altogether from 200 to 250 species* are noted, in the works I have referred to, as inhabiting the waters of our Atlantic coasts. No complete list of these has, however, been attempted, and for my own part I have to confess that my knowledge of eastern Canadian conchology is very imperfect. I have never enjoyed an opportunity of studying the eastern shells at home and am not well acquainted with the literature.

*NOTE—Exactly 240 names are contained in a manuscript list that I lately prepared for my own information.

It is very probable, therefore, that I have omitted some references of importance. It is probable too that some of you may be able to supply the omissions, in which case I shall be very grateful.

II. *Marine Mollusca of the Pacific Coast of Canada.*

Passing now to the consideration of our western Marine shells I feel that I am on more familiar ground, for in the course of a residence of nearly 10 years in British Columbia I have been able to pay considerable attention to the study of the objects themselves and to the published observations of others.

As a starting point a student will naturally take the well known work of Dr. Carpenter, "The Mollusks of Western North America."²⁷

This work is invaluable and is so thorough that though it was published 30 years ago, and though many naturalists have collected on the coast since Carpenter's day, only 81 marine species have been added to the list he gives of the B. C. mollusca.

Mr. Whiteaves has done much to extend our knowledge of western shells by the publication of four valuable papers. Three contain reports on collections made by Mr. James Richardson²⁹ and Dr. Geo. M. Dawson,³⁰⁻³¹ for the Geological Survey, at Victoria, Queen Charlotte Islands, and in various localities to the north and west of Vancouver Island.

These papers are still procurable and should be in the hands of every Canadian conchologist. The collections referred to are all on view in the museum of the Survey at Ottawa.

Last year Dr. C. F. Newcombe, of Victoria, compiled a very useful list of B. C. marine shells,³⁴ containing references to all Carpenter's and Whiteaves' localities and adding many others from his own very extensive observations. Dr. Newcombe also gives in the same paper a list of more than 100 works referring in some way to our western shells.

Still more recently there is a paper written by myself³⁶ and presented to the Royal Society of Canada, in May, 1894, and now being printed, in which is summarized all that I could write on the mollusca of western Canada. In this, the latest, I believe, contribution to western Canadian conchology, 284 marine species are enumerated. Thirty-two of these species appear also on eastern list.

III. *Land and Freshwater Shells of Canada.*

So much has been written on the land and freshwater shells of Canada that it will be impossible for me to mention here all of the many useful papers that have appeared.

In the eastern provinces the writing of D'Urban,^{47, 48, & 56} Bell,⁴⁹ Whiteaves,^{51, etc.}, Provancher,⁷³ Hanham,⁷⁹ and others have almost exhausted the subject.

Of the rich fauna of the Ottawa district we have accounts from the pens of Heron⁶⁰ and Latchford,^{61, etc.}, the last named I hope still hard at work.

Passing westward we find that Manitoba has been explored conchologically by Bell⁵⁷, Dawson⁵⁹ and Christy⁷¹.

The mollusca of Alberta have been studied by myself in collections most kindly made for me by Mr. A. O. Wheeler and Mr. T. E. Bean, and which will be reported on in an early number of the OTTAWA NATURALIST. Forty-four species are now known to me from that province.

There is a short paper on shells from the Rocky Mountains in the *Nautilus* for December 1893.⁸⁰

Finally for information as to the land and freshwater shells of our most western province (B.C.) I must refer you to my own paper on the land shells in the OTTAWA NATURALIST⁶³ (December, 1889), to a revised list of the same in the *Nautilus* December, 1891,⁷⁶ and to a list of freshwater species which is contained in my paper above referred to on the marine shells of B.C.

A preliminary check list of the land and freshwater shells of the whole Dominion, containing 244 names, was published in the OTTAWA NATURALIST for June 1892.⁶⁶

This list may be brought fairly well up to date by omitting (as erroneous records or as synonyms) *Sph. patella*, *Sph. lenticulum*, *Pisid. occidentale* and 3 unnamed *Pisidia*, *Anod. angulata* and *ovata*, *Pomatiopsis lustrica*, *Limnæa emarginata*, *Physa triticea*, *Planorbis macrostomus* and *Billingsii*, and *Somatogyrus isogonus*, and by adding the following: *Sph. fabale* Prime and *Raymondi* J. G. Cooper, *Pis. aequilaterale* Prime, *Unio parvus* Barnes, *Novi-eboraci* Lea and *circulus* Lea, *Bythinella*

tenuipes Couper, *Somatogyrus subglobosus* Say, *Pleurocera pallidum* Lea, *Goniobasis translucens* Anthony and *Haldemani* Tryon, *Limnæa reflexa* Say, *Nuttalliana* Lea, *pallida* C. B. Adams, *galbana* Say and *bulimoides* Lea., *Physa vinosa* Gould, *Bulimus hordaceus* Lea, *Planorbis ammon* Gould and *dilatatus* Gould, *Ancylus fuscus* C. B. Adams, *Selenites Voyana*, Newcombe, *Limax flavus* Linn, *Arion fuscus* Müller, *Mesodon exoletus* Binney, *Triodopsis fallax* Say, *Pupa Blandi* and *Succinea Grosvenori* Lea. When these alterations have been made, our amended list will contain 258 names.

As will be seen from this very superficial review, the *literature* of Canadian Conchology is already quite voluminous. A student, however, needs something more than literature. To a beginner no aid is so acceptable as that offered by a well arranged museum.

I think we have a right to expect that in this respect our own national museum should supply all we can require. In this expectation, however, we shall be disappointed. The eastern marine shells are represented in the museum at Ottawa by a very incomplete series. The western collection, though very much better, is almost useless to the student who attempts to study it by himself, as in nearly all cases the names of the specimens are on the bottoms of the boxes containing them and consequently concealed from view. I am speaking of course of the collection as I saw it last, 16 months ago.

It must be pointed out that this defective labelling need not be a hindrance to any one really anxious to study the collection, as Mr. Whiteaves is always ready (at least this has been my experience) to open the cases for a bona fide student, and at the same time to give him the benefit of his own vast fund of information.

As to the land and freshwater shells in the Ottawa Museum there are very few indeed on exhibition. Though the officers of the Geological Survey have travelled through the length and breadth of the Dominion and collected extensively in many localities, the specimens they have brought together are still for the most part unreported on, or at any rate the records are unpublished, and the specimens themselves are stored away in private cabinets and rooms.

I am perfectly aware that there is no space in the present museum



for the proper display of all the collections and I am therefore not reflecting on those who are in charge, but I may be permitted to express a hope that the day is not far distant when in a new museum building there will be provided adequate space for the proper exhibition of all our national collections.

The museums of McGill College and of the Natural History Society of Montreal I am sorry to say I have never seen, but they contain, I know, some valuable collections and together they must possess, I should think, the most complete series of Canadian shells in Canada.

Smaller collections are contained in the museums of the New Brunswick Natural History Society (at St. John) and the Provincial Government of B.C. at Victoria, the former collection being principally of eastern and the latter of western marine shells.

Of private collections of shells there are only very few. I am not acquainted with any conchologist possessing a collection of Canadian Atlantic shells in any sense complete. Of Pacific shells I know only of the collections of Dr. Newcombe and myself, both nearly perfect as to native species. Of land and freshwater shells of Canada it is probable that the collections of Messrs Latchford, Hanham, and myself (all members of the O.N.F.C.) are the most complete, and I am sure that I am right in saying that these collections will all of them be freely placed at the service of students wishing to make use of them.

Now though much has been done towards ascertaining the species of mollusca occurring within our limits, and towards working out their distribution within our territory, and studying their habits and life histories, there is still much to be done before our knowledge of the Conchology of Canada can be considered at all satisfactory. The labourers in the field have been so few that there thousands of square miles of land and hundreds of miles of sea coast still wholly unexplored.

The deep seas of both the Atlantic and Pacific Coasts have as yet hardly been touched. The Nudibranchs of both the eastern and western seas have been almost wholly neglected. The land and freshwater shells of large tracts of our western and northern provinces are quite unknown. Even in those provinces that have been most thoroughly worked, *i.e.* Ontario and Quebec there are, I am confident, many dis-

coveries to be made, and of course in the less known districts in the northern and western portions of the Dominion there must be numbers of species which will one day be brought to light by the industrious naturalist. Moreover there are the life histories of the great majority of our species still to be worked out.

In many genera, too, the limits of variation of the various species have yet to be defined. I do not suppose that any two conchologists would be agreed as to the number of species, of such genera, for instance as *Limnæa* or *Planorbis* or *Sphærium* or *Pupa* or *Succinea* or *Bela* or *Macoma*, which should be entered upon our lists; and the same state of things obtains of course in many other genera.

Our first desideratum is I think a *larger number of observers*. The area to be examined is so extensive that, until in Canada we can count at least ten times as many conchologists as there are at present, we cannot hope to have the field properly covered.

Secondly, with a view to encourage or stimulate a rising generation of students, I think we ought to try and secure a more *complete National collection* of mollusca and their shells.

If proper space could be given at Ottawa to such a collection I am sure that it would be considered a pleasure and a privilege by Canadians to be allowed to make the collection as perfect as might be.

And thirdly, I think we need a *geographical catalogue* of the mollusca of Canada showing the distribution of the species as at present known. This might be on the same plan as Prof. Macoun's well known Catalogue of Plants, and I am sure that it would prove a very great help to collectors and students. Such a catalogue could, I should fancy, be prepared quite easily at the present time by the officers of the Geological and Natural History Survey from the data already in their possession.

And now in concluding this very hasty and imperfect survey of the subject, I will ask the members of the club to do what they can towards supplying the desiderata I have indicated.

Try to send a few more students into the field. Try to impress upon the officers of our National Museum the need of as complete a representation of the *recent*, as there is already of our *fossil*, conchological fauna, and if you agree with me that the time has come when our

shells should be catalogued as our beasts and birds and plants have already been, then try to persuade the Naturalists in charge of our public collections to undertake the work which I feel they will most readily do, if they think that such a course will help forward the study of Canadian conchology.

APPENDIX.

A list of some of the most important papers relating to Canadian Conchology :

A. Papers referring more especially to eastern marine shells.

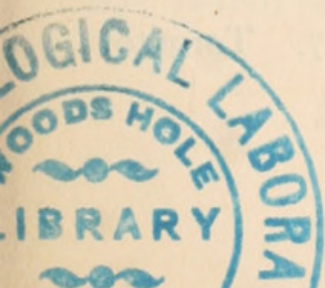
1. Stimpson, Wm.—Revision of the Synonymy of the Testaceous Mollusks of New England. Boston, 1851.
2. Stimpson, Wm.—Synopsis of the Marine Invertebrata of Grand Manan or the region about the mouth of the Bay of Fundy, New Brunswick.
Smithsonian Contributions, Vol. vi., 1854.
3. Bell, Robert—On the Natural History of the Gulf of St. Lawrence, and the distribution of the Mollusca in Eastern Canada.
Canadian Naturalist, Vol. iv., p. 197. June, 1859.
4. Gould, A. A.—Report on the Invertebrata of Massachusetts, comprising the Mollusca, Annelida and Radiata, &c. Cambridge, 1841.
Second edition revised and enlarged by W. G. Binney. Boston, 1870.
5. Dawson, J. W.—Marine Invertebrates collected in Gaspé Bay, lat. $48^{\circ}, 45' \text{ W}$.
Canadian Naturalist, Vol. iii., No. 5, p. 329, October, 1858.
6. Carpenter, P. P.—Note on Mollusks and Radiates from Labrador.
Canadian Naturalist, Vol. iv., No. 2. April, 1859.
7. Packard, A. S.—On the Marine Invertebrata of Southern Labrador.
Canadian Naturalist, Vol. viii., No. 6. p. 401. December, 1863.

8. Stimpson, Wm.—Review of the Northern Buccineas, and remarks on some other Northern Marine Mollusks.
Canadian Naturalist, Vol. ii, new series. October, 1865.
9. Whiteaves, J. F.—On the Marine Mollusca of Eastern Canada.
Canadian Naturalist, Vol. iv., new series, p. 48-57. March, 1869.
- 9a. Whiteaves, J. F.—Lower Canadian Marine Mollusca.
Canadian Naturalist, Vol. v., new series. July, 1870.
10. Whiteaves, J. F.—Report on Deep-Sea Dredging operations in the Gulf of St. Lawrence. (And two subsequent reports.)
 Report to Minister of Marine and Fisheries. Ottawa, 1874. [Pamphlet.]
11. Whiteaves, J. F.—On recent Deep-Sea Dredging operations in the Gulf of St. Lawrence.
American Journal of Science, 3rd series, Vol. vii., p. 210 &c. March, 1874.
 Reprinted in *Canadian Naturalist*, new series, Vol. vii., p. 336. November, 1894.
12. Verrill, A. E.—Report upon the Invertebrate Animals of Vinyard Sound and the adjacent waters, &c.
 In the Report of the U. S. Fish. Commission for 1871-2. Washington, 1873.
13. Verrill, A. E.—Results of recent Dredging Expeditions on the Coast of New England.
American Journal of Science, 3rd series, Vol. v. January, 1873.
14. Verrill, A. E.—Notice of Recent Additions to the Marine Fauna of the Eastern Coast of North America.
American Journal of Science, 3rd series, Vol. xvii. April, 1879.
15. Verrill, A. E.—Notice of Recent Additions to the Marine Invertebrata of the North-eastern Coast of America.
 Proc. U. S. Nat. Museum, Vol. iii., p. 356. 1880.

- 16.—Verrill, A. E.—Notice of Recent Additions to the Marine Invertebrata of the North-Eastern Coast of America.
Proc. N. S. Nat Museum, Vol. v., p. 315. 1882.
17. Verrill, A. E.—Catalogue of the Marine Mollusca added to the Fauna of the New England Region during the past ten years.
Trans. Conn. Acad., Vol. v., p. 447. April-July, 1882.
18. Verrill, A. E.—The Cephalopods of the North eastern Coast of America.
Trans. Conn. Acad., Vol. v., June, 1880 and August, 1881.
19. Bell, Robert.—Report on Hudson's Bay, &c., &c.
Appendix, "List of the Land, Freshwater and Marine Mollusca collected."
Report of Prog. Geo. Surv. Canada, 1879-80.
Montreal. 1881.
20. Bain, F.—The shells of Prince Edward Island.
Canadian Science Monthly, March, 1885.
21. Ganong, W. F.—On the Zoology of the invertebrate animals of Passamaquoddy Bay.
Bulletin of Nat. Hist. Soc. of New Brunswick, No. 5, pp. 87-97, 1885.
22. Ganong, W. F.—Notes on the Marine Invertebrates of L'Etang Harbour and the neighbouring waters.
Bull. N. H. Soc. N.B., No. 5, pp. 34-36, 1885.
23. Ganong, W. F.—On the Marine Mollusca of New Brunswick with a list of species.
Bull. N. H. Soc, N.B., No. 6, pp. 17-61, 1887.
24. Ganong, W. F.—The economic Mollusca of Acadia.
Bull. N. H. Soc. N.B., No. 8, pp. 3-116, October, 1889
25. Ganong, W. F.—Zoological Notes.
Bull. N. H. Soc. N.B., No. 9, pp. 46-49, 1890.

26. Winkley, W. H.—Mollusca of the Oyster Beds of New Brunswick.
Bull. N. H. Soc. N.B., No. 7, pp. 69-71, 1888.
B. Papers referring to western marine shells.
 27. Carpenter, P. P.—The Mollusks of Western North America.
Smithsonian Miscellaneous Collections 252.
Washington, December, 1872.
 28. Lord, J. K.—The Naturalist in Vancouver's Island and British Columbia.
In 2 Vols. London 1866.
 29. Whiteaves, J. F.—On some Marine Invertebrata from the west coast of North America.
Canadian Naturalist, N.S., Vol. viii, December, 1878,
 30. Whiteaves, J. F.—On some Marine Invertebrata from the Queen Charlotte Islands.
Report, Pro. Geo. Surv. Canada, 1878-79. Montreal, 1880.
 31. Whiteaves, J. F.—Some Marine Invertebrata collected by Dr. G. M. Dawson on the coast of British Columbia.
Trans. Roy. Soc. Canada Vol. iv., sec. 4. 1886.
 32. Whiteaves, J. F.—Notes on some Marine Invertebrata from the coast of British Columbia.
OTTAWA NATURALIST, Vol. vii, pp. 133-137. December, 1893.
 33. Newcombe, C. F.—Preliminary Check list ; Marine shells of British Columbia.
Victoria 1893 (pamphlet.)
 34. Newcombe, C. F.—Report on the Marine shells of British Columbia.
Bull. N. H. Soc. of Brit. Columbia, 1893, p. 31.
 35. Taylor, G. W.—Notes of a collecting trip to Departure Bay, Vancouver Island.
Nautilus Vol. vii., p. 100. January 1894.
- C. Papers relating to the land and freshwater shells of Canada.

37. Sheppard, Mrs.—On the Recent shells which characterize Quebec and its environs.
Trans. Lit. and Hist. Soc. Quebec Vol. iv, p. 188.
1829.
38. Gould, A. A.—Catalogue of shells with descriptions of new species in Agassiz "Lake Superior."
Boston 1850.
39. Binney, W. G.—Catalogue of land and freshwater univalve Mollusks collected in British America by Messrs Rose, Kennicott, and Drexler.
Proc. Acad. Nat. Sci. Phila., 1861, p. 330.
40. Chapman, Ed. J.—Some notes on the drift deposits of western Canada and on the ancient extension of the Lake area of that region.
Canadian Journal, 1861.
41. Chapman, Ed. J.—Additional note on the occurrence of freshwater shells in the upper drift deposits of western Canada.
Canadian Journal, 1861.
42. Dawson, J. W.—On the newer Pliocene and Post Pliocene Deposits, of the vicinity of Montreal, with notices of Fossils recently discovered in them.
Canadian Naturalist, Vol. ii., No. 6. December 1857.
43. Billings, E.—Notes on the Natural History of the Mountain of Montreal.
Canadian Naturalist, Vol. ii., No. 2, p. 92. May 1857.
44. Anonymous.—Descriptions of some of the Freshwater Gasteropoda inhabiting the Lakes and Rivers of Canada.
Canadian Naturalist, Vol. ii., p. 185. July 1857.
45. Dawson, J. W.—Additional Notes on the Post Pliocene Deposits of the St. Lawrence Valley.
Canadian Naturalist, Vol. iv., No. 1 February 1859.



- 46.—Bell, Robert.—Notes on the Natural History of the Gulf of St. Lawrence and the distribution of the Mollusca of Eastern Canada.

Canadian Naturalist, Vol. iv., p. 197. 1859.

47. D'Urban, W. S. M.—Observations on the Natural History of the Valley of the River Rouge and surrounding Townships in the Counties of Argenteuil and Ottawa.

Canadian Naturalist, Vol. iv. 1859.

48. D'Urban, W.S.M.—Addenda to Natural History of the Valley of the River Rouge.

Canadian Naturalist, Vol. vi. 1861.

49. Bell, Robert.—On the occurrence of Freshwater Shells in some of our Post Tertiary deposits.

Canadian Naturalist, Vol., vi. 1861.

50. Bell, Robert.—List with notes of recent Land and Freshwater shells collected around Lakes Superior and Huron in 1859-60.

Canadian Naturalist, Vol. vi. 1861.

51. Whiteaves, J. F.—On the Land and Freshwater Mollusca of Lower Canada with thoughts on the general geographical distribution of animals and plants in Canada.

Canadian Naturalist, Vol. vi. 1861.

52. Whiteaves, J. F.—On the Land and Freshwater Mollusca of Lower Canada.

Canadian Naturalist, Vol. viii. February and April, 1863.

53. Whiteaves, J. F.—Lower Canadian Land and Freshwater Mollusca.

Canadian Naturalist, new series, Vol. v. July, 1870.

54. Bell, Robert.—On the Fauna of portions of the Lower St. Lawrence, the Saguenay, Lake St. John, etc.

Rept. Prog. Geo. Surv. Canada, 1857. Toronto, 1858.

55. Bell, Robert.—Catalogue of Animals and Plants collected by Mr. R. Bell on the South East side of the St. Lawrence, from Quebec and Gaspé.
Rept. Prog. Geo. Surv. Canada. 1858. Montreal, 1859.
56. D'Urban, W. S. M.—Catalogue of animals collected by Mr. D'Urban in the Counties of Argenteuil and Ottawa.
Rept. Prog. Geo. Surv. Canada, 1858. Montreal, 1859.
57. Bell, Robert.—List of Freshwater Mollusca from Manitoba and the Valley of the Nelson River.
Rept. Prog. Geo. Surv. Canada, 1878-79. Montreal, 1880.
58. Bell, Robert.—See No. 19.
59. Dawson, Geo. M.—Report on the Geology and Resources of the region in vicinity of the Forty-ninth Parallel, *app. E*. Land and Freshwater Mollusca, collected during the summers of 1873-74 in the vicinity of the 49th par. Lake of the Woods to the Rocky Mountains. Montreal, 1885.
60. Heron, G. C.—On the Land and Freshwater Shells of the Ottawa.
Trans. Ottawa F. N. Club, Vol. i., pt. 1, pp. 36-40. 1880.
61. Latchford, F. R.—Notes on the Ottawa Unionidæ.
Trans. Ottawa F. N. Club, Vol. i., pt. 4, pp. 48-57. 1892.
62. Latchford, F. R.—Observations on the Terrestrial Mollusca of Ottawa and vicinity.
Trans. Ottawa F. N. Club, Vol. ii., p. 211-231. 1885.
63. Taylor, Geo. W.—The Land Shells of Vancouver Island.
OTTAWA NATURALIST, Vol. iii., p. 84-94. December, 1889.

64. Taylor and Latchford.—List of the Land and Freshwater Mollusca of Ottawa as recorded in the Transactions of the Ottawa Field-Naturalists' Club up to April 1, 1890.

OTTAWA NATURALIST, Vol. iv., p. 54-58. June, 1890.

65. Latchford, F. R.—Conchological Notes.

OTTAWA NATURALIST, Vol. vi., p. 118-119. November, 1892.

66. Taylor, G. W.—Preliminary Check List of the Land and Freshwater Mollusca of Canada.

OTTAWA NATURALIST, Vol. vi., p. 33-37. June, 1892.

67. Taylor, Geo. W.—Conchological Notes (Pupa Holzingeri).

OTTAWA NATURALIST, Vol. vii., p. 51. June, 1893.

68. Latchford, F. R.—Conchological Notes (*H. rufescens*, &c.)

OTTAWA NATURALIST, Vol. vii., p. 132. November, 1893.

69. Taylor, G. W.—A Planorbis new to the Ottawa List.

OTTAWA NATURALIST, Vol. viii., p. 161. January, 1894.

NOTE.—Nine reports of the Conchological Section of the Ottawa Field-Naturalists' Club have been published in the Transactions, Vol. i., p. 57 and 74; Vol. ii., p. 130, 263 and 350, and in the OTTAWA NATURALIST, Vol. i., p. 107; Vol. iii., p. 65; Vol. iv., p. 51 and Vol. viii., p. 97.

70. Latchford, F. R.—Shells of Anticosti.

American Naturalist, Vol. xviii., p. 1051-2. October, 1884.

71. Christy, R. M.—Notes on the Land and Freshwater Mollusca of Manitoba.

Journal of Conchology, Vol. iv., p. 339-349. July, 1885.

72. Taylor, John W.—Description of a New Species of Planorbis from Manitoba.

Journal of Conchology, Vol. iv., p. 351. July, 1885.

73. Provancher, L'Abbe L.—Les Mollusques de la Province de Quebec.
Quebec, 1891.
74. Cockerell, T. D. A.—New Western Slugs.
Nautilus, Vol. iii., pp. 111-113, February, 1890.
75. Cockerell, T. D. A.—The Slugs of British Columbia.
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NOTE :—Dr. W. H. Dall's very useful pamphlet, "Instructions for collecting Mollusks and other useful hints for the Conchologist" was published in 1892 as part G of Bulletin No. 39 of the U.S. National Museum. It should be in the hands of every one taking up the study of shells, and it contains in addition to full instructions for the collection and preservation of specimens, figures of the necessary apparatus and a list of the most useful text books &c.



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