

ECOLOGICAL DATA -- 1. LATCHFORD'S NOTES ON *ELLIPTIO COMPLANATUS* (DILLWYN).

The following information was published by F. R. Latchford (1882, Trans. Ottawa Field-Nat. Club, I, No. 3: 49) nearly 80 years ago. It is reproduced here with annotations in order to make it more accessible to malacologists. Its value lies in the acute observation displayed, the time at which it was recorded, and the fact that the localities mentioned are in the northern part of the range of the species. The geology of the area is well known (see Wilson, 1946, Geol. Survey of Canada, Mem. 241, especially maps 413A and 414A). The writer revisited some of the localities mentioned 25 or 30 years ago and can vouch for the accuracy of Latchford's data. The annotations (indicated by capital letters in parentheses) will help the reader find the various localities mentioned and supply additional pertinent information. Latchford's notes are reproduced in the following excerpt from the paper mentioned above.

"*UNIO COMPLANATUS* Sol. Rideau R. (A) everywhere, Ottawa R. above the Chaudière Falls (B). In company with the typical form, I found near Skead's Mills (C), in 1880, a specimen of a small variety. Although presenting every appearance of maturity, it is only an inch in height by two and a half in length. For its size it is very thick and regularly inflated. I am informed that a similar variety occurs in some streams in Western New York. A form almost as small is found in the cold and limpid waters of Meech's Lake (D). But it is a thin and not a thick shell; not inflated but depressed. Its colour is a very light brown. About half a mile from Meech's Lake, on the creek through which it finds an outlet, are a few shallow ponds, with a bottom of coarse sand and gravel washed down from the surrounding hills. In the warmer water of these ponds, where food also must be more abundant, *U. complanatus* is three times as large as in the neighbouring lake. It differs moreover in being proportionately less depressed, and more equally rounded at both extremities. Its colour is a rich dark brown with a silken lustre, and, not unfrequently, a tinge of bright orange along the umbonal slope.

"Near Kettle Island (E) there occurs a form of much interest on account of its curious angular inflation. How extraordinary this is for a species whose most constant characteristic is its flatness, may be inferred from the fact that a representative specimen whose height is 1.6 in. measures 1.5 in. in diameter. The inflation is greatest near the dorsal margin behind the hinge-ligament, where a section of the shell would be an almost perfectly equilateral triangle with the base and the angles at the base slightly rounded. A specimen found by Mr. Poirier is 3 in. high 4.9 long, and weighs only 3 oz. (F).

"At the same locality is found a still more remarkable variety and one of no little beauty. In some respects it resembles *U. Raleighensis* Lea from North Carolina and in others *U. tortuosus* Sowby from Maryland. It is like the former in shape and in the numerous prominent rays which diversify its surface; and like the latter in the strange peculiarity that its valves meet at the ventral margin not in a straight but in a sinuous line. A correspondent writes that under Dr. Lea's treatment it would be entitled to rank as a species. Whether a variety of *U. complanatus* or a distinct species, it is a most unique and interesting shell."

(A) Rideau River: a north-flowing tributary of the Ottawa, part of which was incorporated into the Rideau Canal in the 1830s. The canal joined the Ottawa with the east end of Lake Ontario at Kingston, Ontario. For an account of the Rideau Canal, see Robert Legget's "Rideau Waterway" (1956, U. of Toronto Press, xiv + 249 pp., illus., incl. maps).

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(B) Chaudière Falls, within the city of Ottawa, are a major barrier to migration of Mollusca. Naiades may have reached that part of the Ottawa River above the Falls as parasites on fish able to scale the Falls or, during late Pleistocene time, when the Ottawa served as an outlet for the upper Great Lakes. The problem is an interesting one that will bear further investigation.

(C) Skead's Mills was on the Ontario shore of the Ottawa River just above the Chaudière Falls. The mills have long since been razed.

(D) Meach Lake is the presently accepted spelling. The writer studied its molluscan fauna (1935, Can. Jour. Res., 13 (D): 45-59). The lake lies some 20 miles north of Ottawa. It is one of several in a chain drained by a tributary of the Gatineau River, itself a tributary of the Ottawa.

(E) Kettle Island is in the Ottawa River just east of the outlet of the Gatineau River. It is surrounded by shallow sandy areas abundantly populated by Naiades in Latchford's day but later (1935 to 1945, perhaps earlier) polluted by mill waste which destroyed the Naiades. The Naiades, including *Elliptio complanatus*, were still abundant farther downstream when I collected there some 15 or 20 years ago.

(F) There may be some connection between the disparity in size of the shells of Meach Lake and Kettle Island and the geology of the two areas. The basin of the Meach Lake drainage consists of Precambrian igneous-metamorphic rocks poor in calcium carbonate, partly covered by glacial drift, whereas the Ottawa River flows over both Precambrian rocks of the same nature and Ordovician limestones. For example, the lip of the Chaudière Falls is made up of Ordovician limestones as are the rocky headlands on the south shore of the Ottawa River above Kettle Island (see maps 413A and 414A, in Wilson, 1946, cited above). Caution must nevertheless be exercised in reaching such conclusions because the Kettle Island locality was especially favored in another respect: it was just far enough below the sewage outlet on the Ottawa side of the river to provide abundant microscopic food, yet not near enough to it to cause heavy pollution beyond the tolerance of the Naiades.

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ECOLOGICAL DATA -- 2. LATCHFORD'S NOTES ON ELLIPTIO  
DILATATUS (RAFINESQUE) 1820

Latchford's observations on this species date from 1882 (Trans. Ottawa Field-Nat. Club, I. No. 3: 50) and follow those on *E. complanatus* noted in ECOLOGICAL DATA -- 1 (STERKIANA 4: 22). Annotations are indicated in the same way in this note. Latchford wrote as follows on *E. dilatatus*.

"UNIO GIBBOSUS Barnes; appears to be rare, having occurred to me only in the Ottawa near Gilmour's Mills (A) and at Templeton (B) always in deep water .... It bears a slight resemblance to some forms of *U. complanatus*; but may always be distinguished by its heavier shell, the deeper purple of its nacre, and especially by the great thickness of the lamellar tooth in the right valve." (C)

(A) Gilmour's Mills, another of the many early lumber mills on the Ottawa River near Ottawa that has long since disappeared.

(B) Templeton Station and East Templeton (the latter is probably meant by Latchford here) are on the Quebec (north) side of the Ottawa River, north of Upper Duck Island (SEE GSC Map 413 A, in Wilson, 1946, Geol. Survey of Canada, Mem. 241) east of the city of Ottawa as shown on the geologic map. The city now extends much farther to the east.

(C) The species was still to be found in the Ottawa River at Duck Island in the nineteen thirties but has not, to my knowledge, been recorded for its tributaries, large or small. Suitable sites exist for *E. dilatatus* above the Chaudière Falls in the Ottawa River but neither Latchford nor any other collector, to my knowledge, has ever found it above the falls.

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